

790 – 6000 MHz

Catalogue 2010

Base Station Antennas, Filters, Combiners and Amplifiers for Mobile Communications

PRESENT ALL OVER THE WORLD ...



KATHREIN

Antennen · Electronic

Photo on title page: A global player – KATHREIN-Werke KG

Catalogue Issue 01/2010

All data published in previous catalog issues hereby becomes invalid.

We reserve the right to make alterations in accordance with the requirements of our customers, therefore for binding datas please check valid datasheets!

Please note:

As a result of more stringent legal regulations and judgements regarding product liability, we are obliged to point out certain risks that may arise when products are used under extraordinary operating conditions.

The mechanical design is based on the environmental conditions as stipulated in ETS 300 019-1-4 and thereby respects the static mechanical load imposed on an antenna by wind at maximum velocity.

Extraordinary operating conditions, such as heavy icing or exceptional dynamic stress (e.g. strain caused by oscillating support structures), may result in the breakage of an antenna or even cause it to fall to the ground.

These facts must be considered during the site planning process.

The details given in our data sheets have to be followed carefully when installing the antennas and accessories.

In addition, please use our information brochure about mounting configurations.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.



“Quality leads the way”

As the world's oldest and largest antenna manufacturer, we live up to claim “Quality leads the way” on a daily basis. One of the fundamental principles is to always be on the lookout for the best solution for our customers.

Our quality assurance system and our environmental management system apply to the entire company and are certified by TÜV according to EN ISO 9001 and EN ISO 14001.

Internet: www.kathrein.de

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KATHREIN
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The catalogue is splitted into two parts.

Part 1: Antennas

Part 2: Filters, Combiners and Amplifiers.

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A current list of Kathrein's International Representatives
can be found on our homepage

www.kathrein.de

Please contact for

Sales queries, orders, catalogues or CD-ROM:

Fax: +49 80 31 184-820

E-Mail: central.sales@kathrein.de

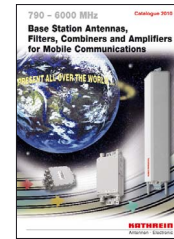
Technical Information:

Fax: +49 80 31 184-973

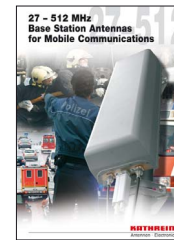
E-Mail: antennas.mobilcom@kathrein.de

List of available Catalogues for Mobile Communication Antennas and Accessories

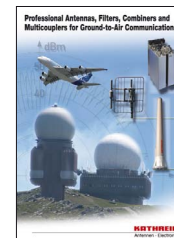
**790 – 6000 MHz Base Station Antennas,
Filters, Combiners and Amplifiers
for Mobile Communications**



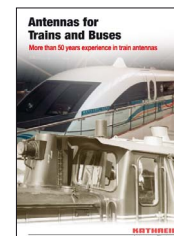
**27 – 512 MHz Base Station Antennas
for Mobile Communications**



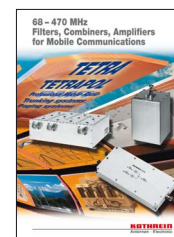
**Professional Antennas, Filters, Combiners and
Multicouplers for Ground-to-Air Communications**



Antennas for Trains and Buses



**68 – 470 MHz Filters, Combiners,
Amplifiers for Mobile Communications**



**The listed catalogues
are also available on CD-ROM**



Part 1:

Antennas for Mobile Communications

806 ... 960 MHz

XPol

XXPol

VPol

1710 ... 2200 MHz

XPol

XXPol 2-Multi-band

VPol

**806 ... 960 MHz
1710 ... 2200 MHz**

XXPol Dual-band

XXXPol Triple-band

2300 ... 3800 MHz

XPol, XXPol, VPol

Omni

VPol

Indoor

VPol

RET

Remote Electrical Tilt-System

Electrical Accessories

**Splitters, Tappers and
Measurement Tools**

Mechanical Accessories

Clamps, Downtilt Kits, ...

Summary of Antenna Types

KATHREIN

Antennen · Electronic

The articles are listed by type number in numerical order. **New or changed product.**

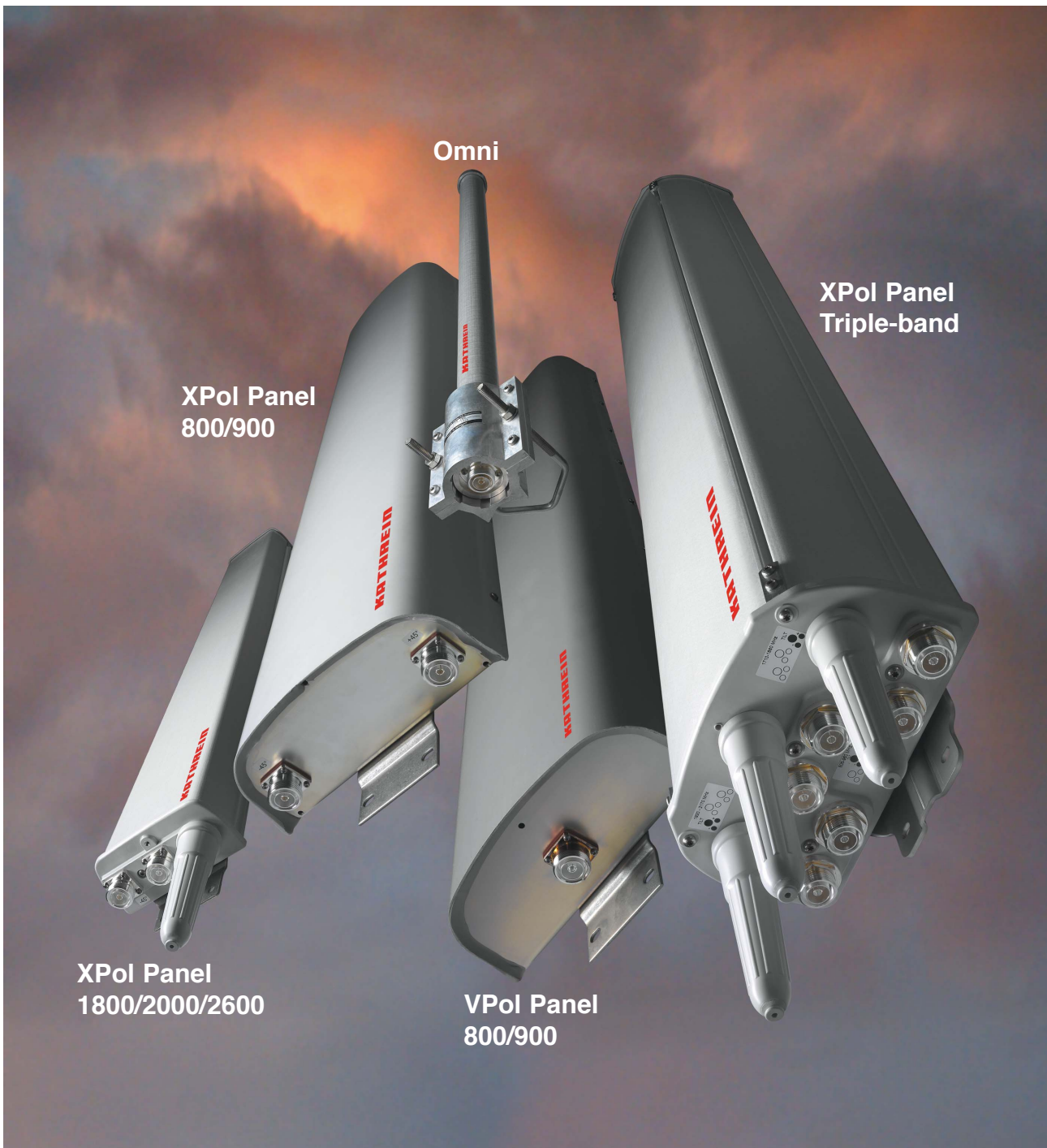
| Type No. | Page | Type No. | Page | Type No. | Page | Type No. | Page |
|----------------|---------|----------------|---------|----------------|------|------------------|------|
| 730 ... | | 735 ... | | 739 ... | | 742 233 | 74 |
| 730 368 | 40 | 735 727 | 38 | 739 489 | 51 | 742 235 | 76 |
| 730 376 | 42 | | | 739 619 | 20 | 742 236 | 74 |
| 730 378 | 44 | 736 ... | | 739 620 | 20 | 742 263 | 190 |
| 730 382 | 45 | 736 347 | 131 | 739 710 | 62 | 742 264 | 89 |
| 730 677 | 40 | 736 349 | 132 | | | 742 265 | 92 |
| 730 691 | 41 | 736 350 | 129 | 741 ... | | 742 266 | 96 |
| | | 736 801 | 169 ... | 741 322 | 91 | 742 270 | 104 |
| 731 ... | | 736 802 | 169 ... | 741 327 | 91 | 742 271 | 107 |
| 731 651 | 189 | 736 803 | 169 ... | 741 336 | 95 | 742 272 | 110 |
| | | 736 804 | 169 ... | 741 573 | 146 | 742 290 | 84 |
| 732 ... | | 736 805 | 169 ... | 741 623 | 49 | 742 351 | 48 |
| 732 317 | 198 | 736 854 | 44 | 741 790 | 136 | 742 352 | 78 |
| 732 318 | 198 | | | 741 984 | 61 | | |
| 732 319 | 198 | 737 ... | | 741 988 | 61 | 800 100.. | |
| 732 321 | 198 | 737 398 | 201 | 741 989 | 62 | 800 10046 | 84 |
| 732 322 | 198 | 737 547 | 42 | 741 990 | 63 | | |
| 732 327 | 198 | 737 971 | 196 | | | 800 101.. | |
| 732 689 | 43 | 737 972 | 195 | 742 ... | | 800 10111 | 134 |
| 732 691 | 41 | 737 973 | 195 | 742 033 | 191 | 800 10121 | 99 |
| | | 737 974 | 195 | 742 034 | 191 | 800 10122 | 100 |
| 733 ... | | 737 975 | 195 | 742 047 | 95 | 800 10123 | 101 |
| 733 677 | 189 ... | 737 976 | 196 | 742 113 | 192 | 800 10137 | 143 |
| 733 678 | 189 ... | 737 977 | 195 | 742 186 | 59 | 800 10141 | 18 |
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| 733 695 | 198 | 738 ... | | 742 210 | 51 | | |
| 733 736 | 189 | 738 187 | 135 | 742 213 | 57 | 800 102.. | |
| | | 738 192 | 130 | 742 215 | 55 | 800 10202 | 21 |
| 734 ... | | 738 440 | 203 | 742 218 | 50 | 800 10203 | 22 |
| 734 360 | 189 | 738 445 | 82 | 742 219 | 50 | 800 10204 | 24 |
| 734 361 | 189 | 738 446 | 82 | 742 222 | 88 | 800 10207 | 21 |
| 734 362 | 189 | 738 449 | 148 | 742 223 | 90 | 800 10208 | 25 |
| 734 363 | 189 | 738 450 | 126 | 742 224 | 94 | 800 10214 | 26 |
| 734 364 | 189 | 738 546 | 189 ... | 742 225 | 98 | 800 10215 | 25 |
| 734 365 | 189 | 738 908 | 200 | 742 226 | 87 | 800 10217 | 29 |

Summary of Antenna Types

The articles are listed by type number in numerical order. **New or changed product.**

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| 800 10218 | 29 | 800 10431 | 149 | 800 10670 | 105 | 860 10090 | 162 |
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| 800 10249 | 145 | 800 10439 | 60 | 800 10672 | 111 | 860 10101 | 169 |
| 800 10251 | 48 | 800 10442 | 137 | 800 10677 | 142 | 860 10102 | 169 |
| 800 10270 | 70 | 800 10454 | 86 | 800 10681 | 116 | 860 10103 | 169 |
| 800 10271 | 71 | 800 10456 | 19 | 800 10682 | 120 | 860 10104 | 169 |
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| 800 10290 | 106 | 800 10471 | 118 | 850 ... | | 860 10113 | 159 |
| 800 10291 | 109 | 800 10485 | 93 | 850 10002 | 189 ... | 860 10118 | 154 |
| 800 10292 | 112 | 800 10486 | 97 | 850 10003 | 189 ... | 860 10131 | 170 |
| 800 10294 | 23 | 800 10492 | 113 | 850 10005 | 204 | 860 10136 | 171 |
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| 800 10302 | 18 | 800 10505 | 58 | 850 10014 | 199 | 860 10141 | 156 |
| 800 10303 | 22 | 800 10510 | 75 | 850 10015 | 199 | | |
| 800 10305 | 24 | 800 10511 | 77 | 850 10016 | 199 | K 61 ... | |
| 800 10306 | 26 | 800 10516 | 32 | 850 10017 | 199 | K 61 14 02 | 38 |
| 800 10307 | 27 | 800 10517 | 33 | | | K 61 14 03 | 38 ... |
| 800 10308 | 28 | 800 10518 | 35 | 860 ... | | K 61 14 04 | 38 ... |
| 800 10309 | 28 | 800 10519 | 67 | 860 10002 | 163 | K 61 14 05 | 38 ... |
| 800 10310 | 30 | 800 10528 | 138 | 860 10006 | 155 | K 61 33 5 | 202 |
| 800 10314 | 65 | 800 10541 | 117 | 860 10007 | 161 | K 61 33 6 | 202 |
| 800 10360 | 69 | 800 10543 | 121 | 860 10017 | 168 | | |
| 800 10368 | 80 | 800 10544 | 122 | 860 10018 | 168 | K 63 ... | |
| 800 10375 | 68 | | | 860 10019 | 168 | K 63 23 60 01 | 173 |
| 800 10378 | 60 | 800 106.. | | 860 10023 | 173 | K 63 23 60 67 | 172 |
| 800 10390 | 124 | 800 10606 | 64 | 860 10025 | 154 | K 63 23 61 07 | 172 |
| | | 800 10614 | 55 | 860 10026 | 155 | K 63 23 61 57 | 172 |
| 800 104.. | | 800 10618 | 65 | 860 10030 | 164 | | |
| 800 10414 | 66 | 800 10621 | 119 | 860 10031 | 165 | K 73 ... | |
| 800 10424 | 52 | 800 10622 | 123 | 860 10046 | 160 | K 73 22 67 | 39 |
| 800 10425 | 53 | 800 10634 | 23 | 860 10068 | 157 | | |
| 800 10426 | 54 | 800 10636 | 59 | 860 10078 | 162 | K 75 ... | |
| 800 10428 | 54 | 800 10647 | 34 | 860 10079 | 162 | K 75 11 61 | 127 |
| 800 10430 | 147 | 800 10658 | 81 | 860 10084 | 162 | K 75 15 64 1 | 128 |

Antenna Designs:
Antenna Families
Harmony of Design and Technology



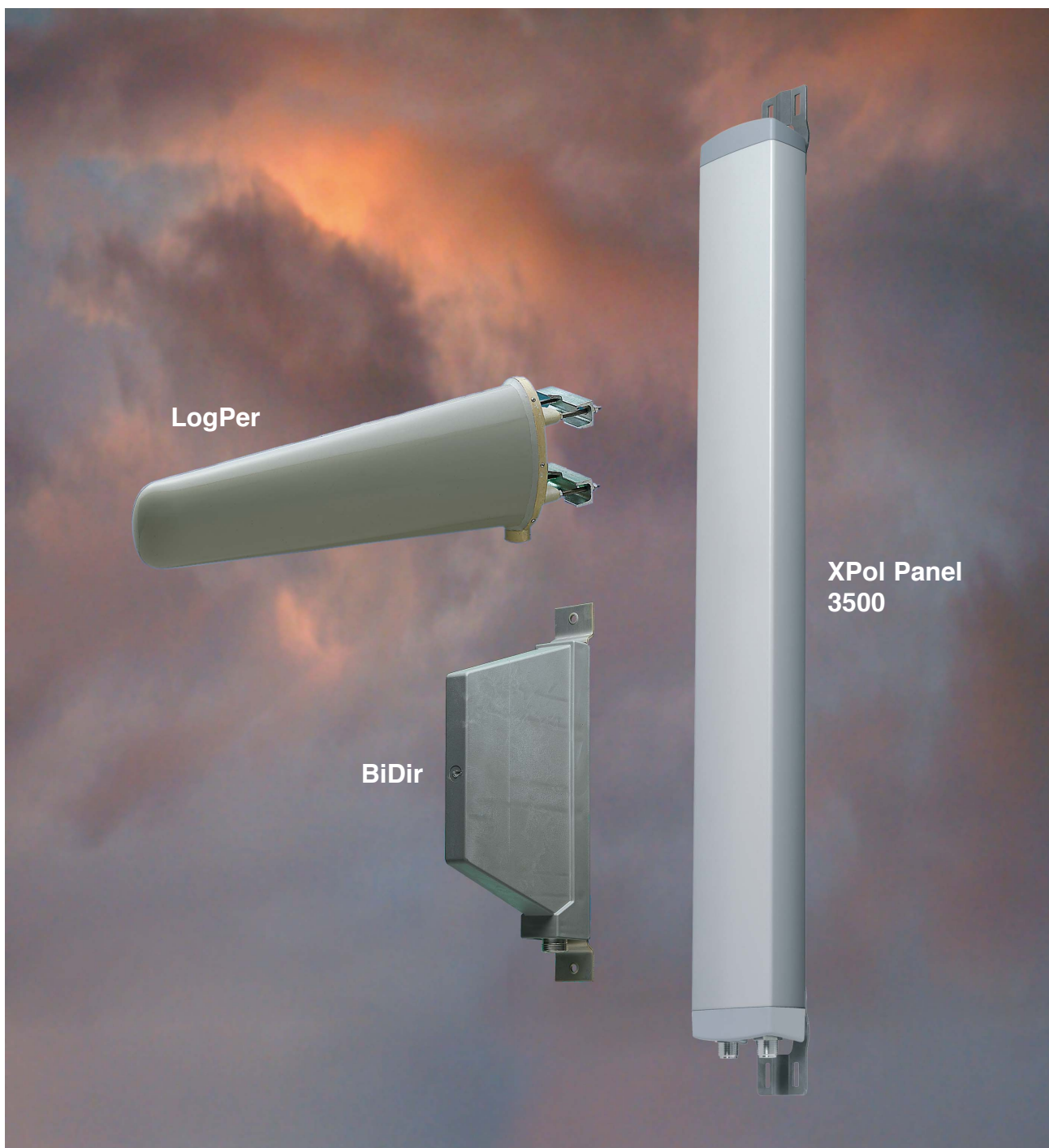
Directional Antenna Designs: Special Directional Antennas For Particular Applications

Antennas for

- tunnel use
- railway use
- micro cells (street use)
- high gain link for repeaters

The distinguishing features of these special versions, e.g. parabolic panels or log. periodic antennas, are:

- very small half-power beam width (high gain)
- high sidelobe suppression
- also Dual-band and Multi-band versions
- bidirectional horizontal pattern.



Antenna Designs: Antenna Families / RET-system Distinguishing features

| | |
|---|--|
| Design | Compact size and elegant design are the distinguishing features of Kathrein's antenna families. |
| Radome | The radomes cover the internal antenna components. The fiberglass material guarantees optimum performance with regards to stability, strength, UV resistance, painting and weather protection. |
| Environmental influences | Kathrein antenna designs are based on fundamental engineering knowledge and also on our decades of practical experience, during which the various constructions and materials used have proved their outstanding reliability. |
| Environmental conditions | Kathrein cellular antennas are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E. The antennas exceed this standard with regards to the following items: – Low temperature: –55 °C – High temperature (dry): +60 °C |
| Impedance | Standard Impedance for all products is 50 Ω unless otherwise stated. |
| Great variety of half-power beam width, gain values, electrical downtilt | According to the antenna type selected, customer can choose from different half-power beam widths. Gain values up to 22.5 dBi and electrical downtilts up to 15° for panel antennas are available. Downtilts are either fixed or adjustable or even controlled by remote electrical tilt system (RET). |
| Low intermodulation products (typically –150 dBc) | After many years of experience in the construction of antennas and after intensive research into the effects of intermodulation, we have been able to optimize the material and technology used for antennas (the given value refers to 3rd order products measured with 2 carriers of 20 W each). |
| Excellent tracking | Tracking states the symmetry between the +45° and –45° polarized horizontal pattern. Bad tracking values lead to interferences in the network and reduced diversity performance. Kathreins special Tracking compensation reduces the average value measured at ±60° to < 2 dB. |
| Superior squint | Squint, also often referred to as “Pattern Symmetry”, gives the symmetry of the pattern over the whole frequency range measured at the 3 dB points. Interferences and nulls in the network may be the result of bad values. In contrast to the vertical squint which is usually good, excellent squint values of the horizontal pattern are hard to reach. Kathreins superior values of ± 5 % of the half-power beam width are in line with the requirements from system suppliers. |
| Multi-band design | Depending on antenna family broad-band, multi-band, dual-band and triple-band versions can be offered. Therefore the variety of antennas used can be kept to a minimum. |
| Excellent grounding | The antennas are DC grounded according EN 50083-1. |
| Multi-functional installation hardware | Depending on the type, the antennas are equipped with up to 3 attachment points. Panels can be wall-mounted without any additional hardware. For mast-mounting, stainless steel brackets and mechanical downtilt kits are available. To assist the installation technicians in aligning the panels, an azimuth adjustment tool can be supplied (see Mechanical Accessories). |
| MTBF Statement | Traditionally passive components like antennas cannot be well calculated due to the lack of a sufficient number of components in the MTBF library. Unfortunately this constraint results in a very inaccurate calculation. Thus such results are technically questionable and unrealistic. In essence, antennas are made out of mechanical parts that do not show any failure rates. Only available failure rates can be calculated into an MTBF value. Consequently such components cannot be listed in any MTBF library. |
| Remote Electrical Tilt System AISG Compliancy | Kathrein hereby states that RET devices, as far as the functionality and features are described within the AISG / 3 GPP standard, are compliant with the standard. |

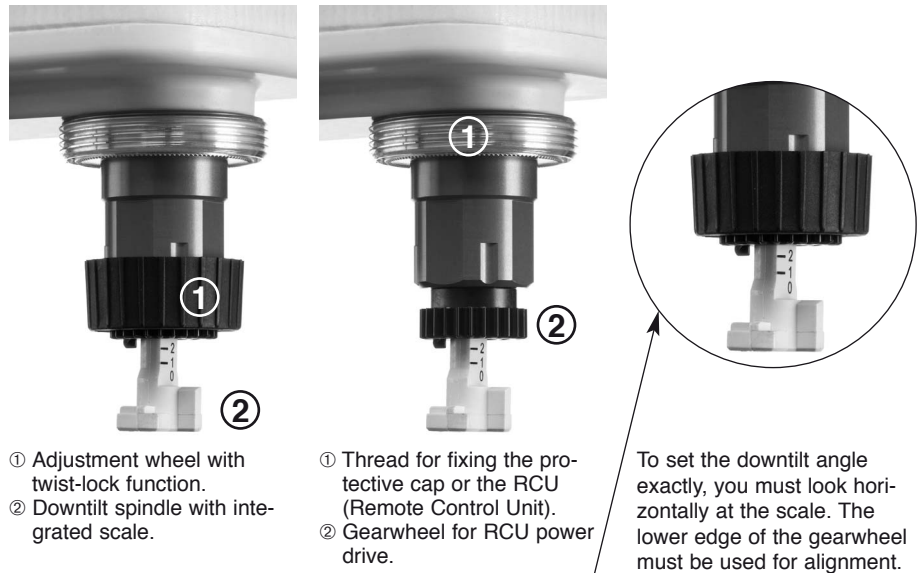
Downtilting of Antennas: Downtilt Possibilities

Mechanical downtilt

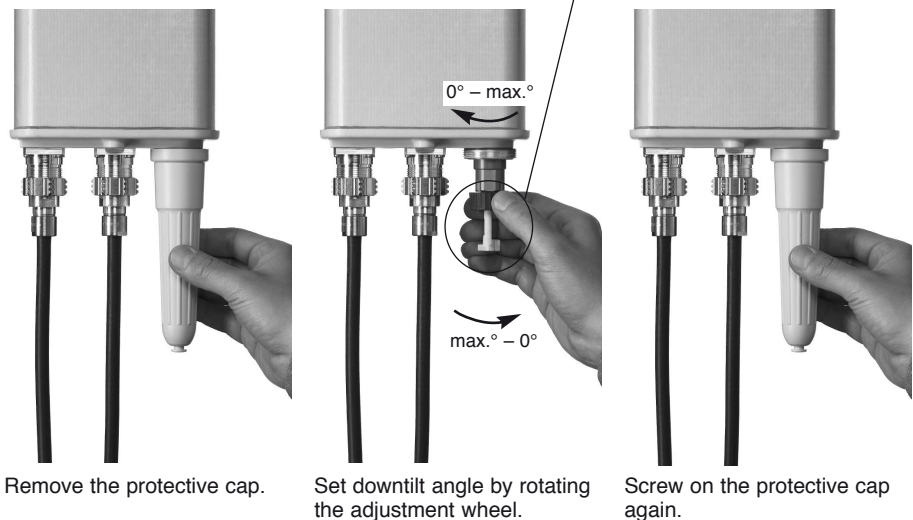
For further technical information please see “Mechanical Accessories”, pages 194 – 198.

Electrical downtilt

Description of the adjustment mechanism (protective cap removed):



Manual adjustment procedure:



Remote Electrical Tilt (RET) For further technical information please see “RET”, pages 152 and 153.

XXPol Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T

Polarization(s):
(X) Dual +45°/–45°
(V) Vertical

Antenna Family

Frequency Range(s)

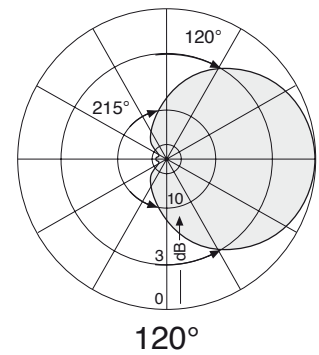
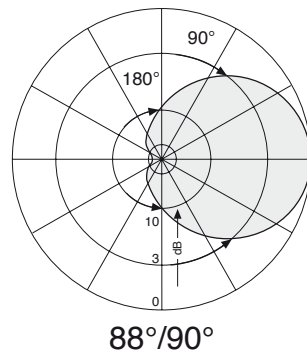
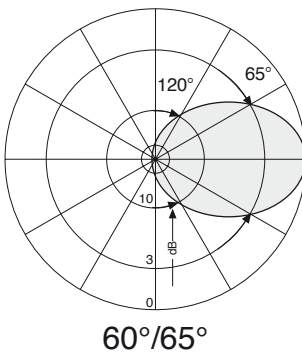
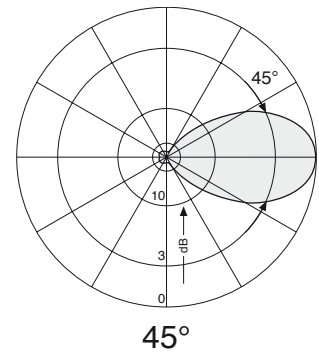
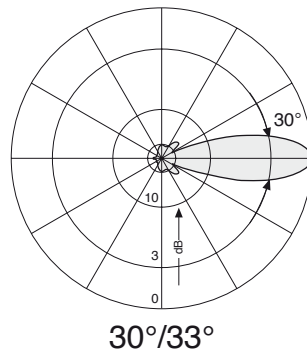
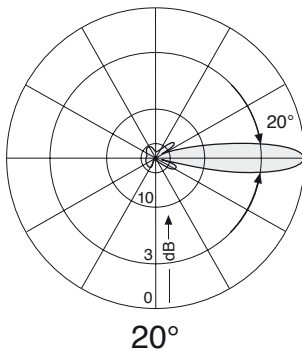
Integrated Combiner

Horizontal
Half-power Beam Width(s)

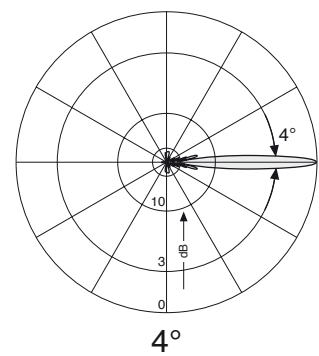
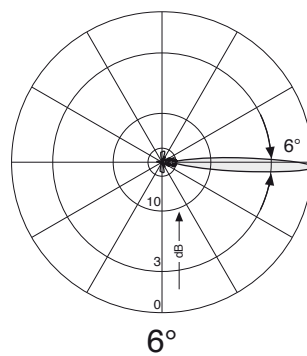
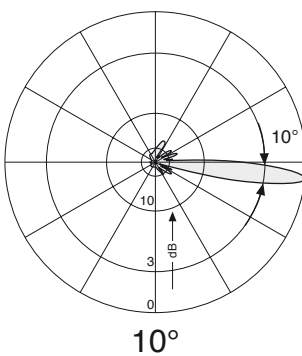
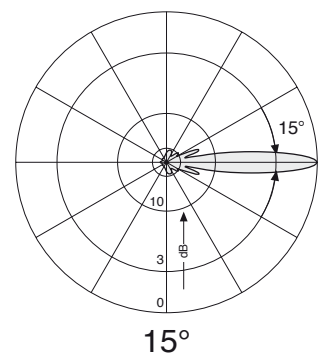
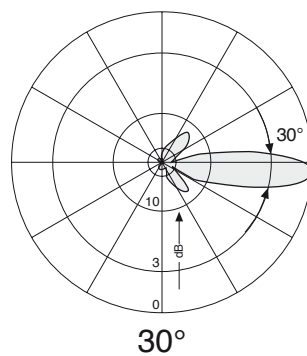
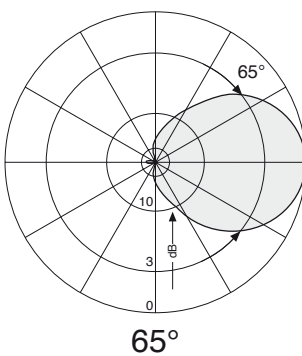
Gain Value(s)

Variable / Fixed Electrical Tilt(s)

Horizontal Patterns:



Vertical Patterns:



Summary – Directional Antennas

Dual Polarization +45°/–45°

800/900

Dual Polarization +45°/–45°

| Type | Type No. | Height [mm] | Connector position | Page |
|------------|-----------------------------|-----------------------|--------------------|------|
| XPol Panel | 806–960 30° 18.5dBi 0°T | 800 10141 1296 | bottom | 18 |
| XPol Panel | 806–960 33° 21dBi 0°T | 800 10302 2254 | rearside | 18 |
| XPol Panel | 806–960 30° 20.5dBi 0°–10°T | 800 10456 2254 | rearside | 19 |
| XPol Panel | 806–960 65° 9dBi 0°T | 739 619 256 | bottom or top | 20 |
| XPol Panel | 806–960 65° 12.5dBi 0°T | 739 620 656 | bottom or top | 20 |
| XPol Panel | 790–960 65° 15.5dBi 0°T | 800 10202 1294 | bottom | 21 |
| XPol Panel | 806–960 65° 15dBi 6°T | 800 10207 1294 | bottom | 21 |
| XPol Panel | 806–960 65° 15dBi 0°–14°T | 800 10303 1294 | bottom | 22 |
| XPol Panel | 790–960 65° 17dBi 0°T | 800 10203 1934 | rearside | 22 |
| XPol Panel | 806–960 65° 17dBi 6°T | 800 10294 1934 | rearside | 23 |
| XPol Panel | 790–960 65° 16.7dBi 0°–10°T | 800 10634 1934 | rearside | 23 |
| XPol Panel | 806–960 65° 18dBi 0°T | 800 10204 2254 | rearside | 24 |
| XPol Panel | 790–960 65° 17.5dBi 0°–8°T | 800 10305 2254 | rearside | 24 |
| XPol Panel | 790–960 65° 18dBi 0°T | 800 10215 2574 | rearside | 25 |
| XPol Panel | 790–960 65° 18dBi 6°T | 800 10208 2574 | rearside | 25 |
| XPol Panel | 790–960 65° 18dBi 9°T | 800 10214 2574 | rearside | 26 |
| XPol Panel | 790–960 65° 17.5dBi 0°–10°T | 800 10306 2574 | bottom | 26 |
| XPol Panel | 790–960 65° 18dBi 0°–10°T | 800 10307 2574 | rearside | 27 |
| XPol Panel | 790–960 85° 13.5dBi 0°–14°T | 800 10308 1294 | bottom | 28 |
| XPol Panel | 790–960 85° 15dBi 0°–10°T | 800 10309 1934 | bottom | 28 |
| XPol Panel | 790–960 85° 17dBi 0°T | 800 10217 2574 | rearside | 29 |
| XPol Panel | 790–960 85° 17dBi 6°T | 800 10218 2574 | rearside | 29 |
| XPol Panel | 790–960 85° 16dBi 0°–10°T | 800 10310 2574 | bottom | 30 |
| XPol Panel | 790–960 85° 16.5dBi 0°–10°T | 800 10300 2574 | rearside | 30 |

New or changed product

Panel Dual Polarization Half-power Beam Width

806–960

X

30° / 33°

KATHREIN
Antennen · Electronic

XPol Panel 806–960 30° 18.5dBi

| Type No. | 800 10141 | |
|--|--|----------------------------------|
| Frequency range | 806–960 | |
| | 806 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 18 dBi | 2 x 18.5 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 31° Vertical: 15° | Horizontal: 29° Vertical: 14° |
| Front-to-back ratio, copolar | > 25 dB | > 29 dB |
| Isolation | > 30 dB | > 30 dB |
| VSWR | < 1.5 | < 1.5 |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | |
| Input | 2 x 7-16 female | |
| Connector position | Bottom | |
| Weight | 22 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 680 / 130 / 970 N | |
| Height/width/depth | 1296 / 560 / 116 mm | |



XPol Panel 806–960 33° 21dBi 0°T

| Type No. | 800 10302 | | |
|--|---|-----------------------------------|-----------------------------------|
| Frequency range | 806–960 | | |
| | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 20.2 dBi | 2 x 20.4 dBi | 2 x 20.8 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 34° Vertical: 8.5° | Horizontal: 33° Vertical: 8.2° | Horizontal: 30° Vertical: 7.5° |
| Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon | > 15 dB > 15 dB | > 15 dB > 15 dB | > 15 dB > 15 dB |
| Front-to-back ratio, copolar | > 24 dB | > 24 dB | > 24 dB |
| Isolation | > 30 dB | > 30 dB | > 30 dB |
| Crosspolar ratio Maindirection 0° | > 25 dB | > 25 dB | > 25 dB |
| VSWR | < 1.5 | < 1.5 | < 1.5 |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside, pointing downwards | | |
| Weight | 30 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 1275 / 260 / 1750 N | | |
| Height/width/depth | 2254 / 527 / 99 mm | | |



Panel
Dual Polarization
Half-power Beam Width

806–960

X

30°

KATHREIN
 Antennen · Electronic

800/900
 XPol

XPol Panel 806–960 30° 20.5dBi 0°–10°T

| Type No. | 800 10456 | | |
|--|---|--|--|
| Frequency range | 806 – 866 MHz | 806–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain at 0° T | 2 x 20.0 dBi | 2 x 20.2 dBi | 2 x 20.5 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 33° | 32° | 30° |
| Front-to-back ratio, copolar | > 28 dB | > 29 dB | > 30 dB |
| Cross polar ratio Maindirection 0° | Typically: 25 dB | Typically: 23 dB | Typically: 20 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.1° | 8.8° | 8.5° |
| Electrical tilt | 0.5°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T > 16 ... 13 ... 13 dB | 0° ... 5° ... 10° T > 18 ... 18 ... 17 dB | 0° ... 5° ... 10° T > 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2x 7-16 female | | |
| Connector position | Rearside, pointing downwards | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 22 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 1800 / 220 / 2000 N | | |
| Height/width/depth | 2254 / 576 / 99 mm | | |



Panel Dual Polarization Half-power Beam Width

806–960

X

65°

KATHREIN
Antennen · Electronic

XPoI Panel 806–960 65° 9dBi

| Type No. | 739 619 | |
|--|---|----------------------------------|
| Frequency range | 806–960 | |
| | 806 – 880 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 8.5 dBi | 2 x 9 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 70° Vertical: 70° | Horizontal: 65° Vertical: 68° |
| Front-to-back ratio, copolar | > 27 dB | > 27 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Isolation | > 30 dB | |
| VSWR | < 1.5 | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 350 W (at 50 °C ambient temperature) | |
| Input | 2 x 7-16 female | |
| Connector position | Bottom or top | |
| Weight | 3 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 40 / 25 / 90 N | |
| Height/width/depth | 256 / 262 / 116 mm | |



XPoI Panel 806–960 65° 12.5dBi

| Type No. | 739 620 | |
|--|---|----------------------------------|
| Frequency range | 806–960 | |
| | 806 – 880 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 12 dBi | 2 x 12.5 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 68° Vertical: 29° | Horizontal: 65° Vertical: 27° |
| Front-to-back ratio, copolar | > 30 dB | |
| Isolation | > 30 dB | |
| VSWR | < 1.5 | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | |
| Input | 2 x 7-16 female | |
| Connector position | Bottom or top | |
| Weight | 6 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 110 / 60 / 240 N | |
| Height/width/depth | 656 / 262 / 116 mm | |



Panel Dual Polarization Half-power Beam Width

790–960

X

65°

KATHREIN
Antennen · Electronic

800/900
XPol

XPol Panel 790–960 65° 15dBi 0°T

| Type No. | 800 10202 | | |
|--|---|--------------------|--------------------|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 14.5 dBi | 2 x 14.7 dBi | 2 x 15 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 68° | 65° |
| Front-to-back ratio (180°±30°) | > 23 dB | > 24 dB | > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | > 20 dB > 11 dB | > 20 dB > 11 dB | > 20 dB > 11 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 14.7° | 14.3° | 13.2° |
| Sidelobe suppression for first sidelobe above horizon | > 14 dB | > 15 dB | > 14 dB |
| Impedance | 50 Ω | | |
| Isolation | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 6.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 220 / 140 / 490 N | | |
| Height/width/depth | 1294 / 259 / 99 mm | | |



XPol Panel 806–960 65° 15dBi 6°T

| Type No. | 800 10207 | | |
|--|---|--|--|
| Frequency range | 806–960 | | |
| | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 14.5 dBi | 2 x 14.7 dBi | 2 x 15 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 66° Vertical: 16° | Horizontal: 65° Vertical: 15.7° | Horizontal: 63° Vertical: 14.6° |
| Electrical tilt | 6°, fixed | 6°, fixed | 6°, fixed |
| Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon | > 13 dB > 13 dB | > 14 dB > 14 dB | > 16 dB > 14 dB |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB |
| Isolation | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: > 20 dB Typically: > 10 dB | Typically: > 20 dB Typically: > 10 dB | Typically: > 20 dB Typically: > 10 dB |
| VSWR | < 1.3 | < 1.3 | < 1.3 |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| weight | 7.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 220 / 140 / 490 N | | |
| Height/width/depth | 1294 / 259 / 99 mm | | |



Panel

Dual Polarization

Half-power Beam Width

790–960

X

65°

KATHREIN

Antennen · Electronic

XPol Panel 806–960 65° 15dBi 0°–14°T

| Type No. | 800 10303 | | |
|---|---|--|--|
| Frequency range | 806 – 866 MHz | 806–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 14.5 ... 14.5 ... 14.2 | 14.7 ... 14.7 ... 14.5 | 15 ... 15.1 ... 14.8 |
| Tilt | 0° ... 7° ... 14° | 0° ... 7° ... 14° | 0° ... 7° ... 14° |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 67° | 65° |
| Front-to-back ratio, copolar | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 16° | 15.5° | 15° |
| Electrical tilt | 0°–14°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above horizon | 0° ... 7° ... 14° T 14 ... 14 ... 13 dB | 0° ... 7° ... 14° T 15 ... 15 ... 14 dB | 0° ... 7° ... 14° T 15 ... 15 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 10 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 220 / 140 / 490 N | | |
| Height/width/depth | 1294 / 259 / 99 mm | | |



XPol Panel 790–960 65° 17dBi 0°T

| Type No. | 800 10203 | | |
|---|---|---------------------------------|---------------|
| Frequency range | 790 – 862 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16.4 dBi | 2 x 16.6 dBi | 2 x 16.9 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | | | |
| Maindirection | > 22 dB | > 22 dB | > 22 dB |
| Sector | > 18 dB | > 18 dB | > 18 dB |
| Sector | > 14 dB | > 14 dB | > 14 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.9° | 9.5° | 8.9° |
| Sidelobe suppression for first sidelobe above horizon | > 13 dB | > 15 dB | > 15 dB |
| VSWR | < 1.5 | < 1.5 | < 1.4 |
| Isolation | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 9.2 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 220 / 750 N | | |
| Height/width/depth | 1934 / 259 / 99 mm | | |



Panel Dual Polarization Half-power Beam Width

790–960

X

65°

KATHREIN
Antennen · Electronic

800/900
XPol

XPol Panel 806–960 65° 17dBi 6°T

| Type No. | 800 10294 | | |
|--|---|----------------------------------|-----------------------------------|
| Frequency range | 806–960 | | |
| | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16.5 dBi | 2 x 16.7 dBi | 2 x 17 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 68° Vertical: 10.2° | Horizontal: 66° Vertical: 10° | Horizontal: 64° Vertical: 9.3° |
| Electrical tilt | 6°, fixed | 6°, fixed | 6°, fixed |
| Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon | > 14 dB > 14 dB | > 15 dB > 14 dB | > 15 dB > 14 dB |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB |
| Isolation | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typ. > 20 dB Typ. > 10 dB | Typ. > 20 dB Typ. > 10 dB | Typ. > 20 dB Typ. > 10 dB |
| Impedance | 50 Ω | 50 Ω | 50 Ω |
| VSWR | < 1.4 | < 1.3 | < 1.3 |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 220 / 750 N | | |
| Height/width/depth | 1934 / 259 / 99 mm | | |



XPol Panel 790–960 65° 16.5dBi 0°–10°T

| Type No. | 800 10634 | | |
|---|---|--|--|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain (dBi) | 16.2 ... 16.4 ... 16.2 | 16.3 ... 16.6 ... 16.3 | 16.6 ... 16.8 ... 16.6 |
| Tilt | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 68° | 65° |
| Front-to-back ratio (180°±30°) | > 24 dB | > 25 dB | > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.9° | 9.8° | 9.5° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam: | 0° ... 5° ... 10° T 18 ... 17 ... 17 dB | 0° ... 5° ... 10° T 18 ... 18 ... 17 dB | 0° ... 5° ... 10° T 18 ... 18 ... 17 dB |
| Isolation, between ports | > 30 dB | | |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 10.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 220 / 750 N | | |
| Height/width/depth | 1934 / 259 / 99 mm | | |



Panel

Dual Polarization

Half-power Beam Width

790–960

X

65°

KATHREIN
Antennen · Electronic

XPol Panel 806–960 65° 18dBi 0°T

| Type No. | 800 10204 | | |
|--|---|--------------------|--------------------|
| Frequency range | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.4 dBi | 2 x 17.6 dBi | 2 x 17.8 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 68° | 66° | 64° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | | | |
| Maindirection 0° | > 18 dB | > 19 dB | > 20 dB |
| Sector ±30° | > 16 dB | > 16 dB | > 17 dB |
| Sector ±60° | > 10 dB | > 10 dB | > 11 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 8.5° | 8.3° | 7.8° |
| Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon | > 15 dB > 15 dB | > 15 dB > 15 dB | > 15 dB > 14 dB |
| VSWR | < 1.5 | < 1.4 | < 1.4 |
| Isolation | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 10.9 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 400 / 260 / 890 N | | |
| Height/width/depth | 2254 / 259 / 99 mm | | |



XPol Panel 790–960 65° 17.5dBi 0°–8°T

| Type No. | 800 10305 | | |
|--|---|---|---|
| Frequency range | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 16.8 ... 17 ... 16.7 | 16.9 ... 17.1 ... 16.9 | 17.2 ... 17.4 ... 17.1 |
| Tilt | 0° ... 4° ... 8° | 0° ... 4° ... 8° | 0° ... 4° ... 8° |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 67° | 65° |
| Front-to-back ratio, copolar | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | | | |
| Maindirection 0° | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector ±60° | Typically: > 10 dB | Typically: > 10 dB | Typically: > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.1° | 8.8° | 8.5° |
| Electrical tilt | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 4° ... 8° T 18 ... 18 ... 18 ... 16 dB | 0° ... 2° ... 4° ... 8° T 18 ... 18 ... 18 ... 16 dB | 0° ... 2° ... 4° ... 8° T 20 ... 18 ... 17 ... 15 dB |
| Impedance | 50 Ω | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside, pointing downwards | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 12,6 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 400 / 260 / 890 N | | |
| Height/width/depth | 2254 / 259 / 99 mm | | |



Panel Dual Polarization Half-power Beam Width

790–960

X

65°

KATHREIN
Antennen · Electronic

800/900
XPol

XPol Panel 790–960 65° 18dBi 0°T

| Type No. | 800 10215 | | |
|---|--|---------------------------------|---------------|
| Frequency range | 790 – 866 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 17.9 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | 0° | > 25 dB | > 25 dB |
| Sector | ±60° | > 12 dB | > 12 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.4° | 7.2° | 6.8° |
| Sidelobe suppression for first sidelobe above main beam | ≥ 14 dB | ≥ 15 dB | ≥ 15 dB |
| Null-fill | Typically: –25 dB | | |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 12 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rear: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

XPol Panel 790–960 65° 18dBi 6°T

| Type No. | 800 10208 | | |
|---|--|---------------------------------|---------------|
| Frequency range | 790 – 866 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 17.9 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | 0° | > 25 dB | > 25 dB |
| Sector | ±60° | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.4° | 7.2° | 6.8° |
| Electrical tilt | 6°, fixed | | |
| Sidelobe suppression for first sidelobe above main beam | ≥ 16 dB | ≥ 17 dB | ≥ 17 dB |
| Null-fill | Typically: –25 dB | | |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 12 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral rear: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

Panel

Dual Polarization

Half-power Beam Width

790–960

X

65°

KATHREIN

Antennen · Electronic

XPol Panel 790–960 65° 18dBi 9°T

| Type No. | 800 10214 | | |
|--|---|---------------------------------|--------------------|
| Frequency range | 790 – 862 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.6 dBi | 2 x 17.8 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 69° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | > 25 dB > 10 dB | > 25 dB > 10 dB | > 25 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.4° | 7.2° | 6.8° |
| Electrical tilt | 9°, fixed | | |
| Sidelobe suppression for first sidelobe above main beam | ≥ 13 dB | ≥ 15 dB | ≥ 16 dB |
| Null-fill | Typically: –25 dB | | |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 12 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rear side: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

XPol Panel 790–960 65° 17.5dBi 0°–10°T

| Type No. | 800 10306 | | |
|--|---|---|---|
| Frequency range | 790 – 862 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 17.0 ... 17.1 ... 17.0 | 17.1 ... 17.2 ... 17.1 | 17.3 ... 17.4 ... 17.3 |
| Tilt | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° |
| Horizontal Pattern: | | | |
| Half-power beam width | 68° | 66° | 65° |
| Front-to-back ratio (180°±30°) | > 24 dB | > 25 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 23 dB Typically: > 10 dB | Typically: 23 dB Typically: > 10 dB | Typically: 25 dB Typically: > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.7° | 7.5° | 7.3° |
| Electrical tilt | 0.5°–9.5°, continuously adjustable | | |
| Sidelobe suppression – for first sidelobe above main beam | 0.5° ... 5° ... 9.5° T ≥ 17 ... 14 ... 14 dB | 0.5° ... 5° ... 9.5° T ≥ 18 ... 15 ... 15 dB | 0.5° ... 5° ... 9.5° T ≥ 20 ... 18 ... 18 dB |
| Null-fill at 0° tilt | Typically: –25 dB | | |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 14 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rear side: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

**Panel
Dual Polarization
Half-power Beam Width**

790–960

X

65°

KATHREIN
Antennen · Electronic

800/900
XPol

XPol Panel 790–960 65° 18dBi 0°–10°T

| Type No. | 800 10307 | | |
|--|--|---|---|
| Frequency range | 790 – 862 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 17.4 ... 17.5 ... 17.4 | 17.5 ... 17.6 ... 17.5 | 17.7 ... 17.9 ... 17.7 |
| Tilt | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° |
| Horizontal Pattern: | | | |
| Half-power beam width | 68° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 24 dB | > 25 dB | > 25 dB |
| Cross polar ratio Sector | 0° Typically: 22 dB ±60° Typically: > 10 dB | Typically: 23 dB Typically: > 10 dB | Typically: 25 dB Typically: > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.7° | 7.5° | 7.3° |
| Electrical tilt | 0.5°–9.5°, continuously adjustable | | |
| Sidelobe suppression – for first sidelobe above main beam | 0.5° ... 5° ... 9.5° T ≥ 18 ... 15 ... 15 dB | 0.5° ... 5° ... 9.5° T ≥ 18 ... 15 ... 15 dB | 0.5° ... 5° ... 9.5° T ≥ 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 13 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |



Panel

Dual Polarization

Half-power Beam Width

790–960

X

85°

KATHREIN

Antennen · Electronic

XPol Panel 790–960 85° 13.5dBi 0°–14°T

| Type No. | 800 10308 | | |
|--|---|--|--|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 13.2 ... 13.3 ... 13.2 dBi | 13.3 ... 13.4 ... 13.3 dBi | 13.4 ... 13.5 ... 13.4 dBi° |
| Tilt | 0° ... 7° ... 14° | 0° ... 7° ... 14° | 0° ... 7° ... 14° |
| Horizontal Pattern: | | | |
| Half-power beam width | 86° | 85° | 83° |
| Front-to-back ratio (180° ±0°) | > 24 dB | > 24 dB | > 26 dB |
| Front-to-back ratio (180° ±30°) | > 20 dB | > 22 dB | > 24 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 16° | 15.5° | 15° |
| Electrical tilt | 0°–14°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 7° ... 14° T ≥ 17 ... 16 ... 15 dB | 0° ... 7° ... 14° T ≥ 17 ... 17 ... 16 dB | 0° ... 7° ... 14° T ≥ 17 ... 16 ... 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 9 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 220 / 140 / 490 N | | |
| Height/width/depth | 1294 / 259 / 99 mm | | |



XPol Panel 790–960 85° 15dBi 0°–10°T

| Type No. | 800 10309 | | |
|--|---|--|--|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain | 14.8 ... 15.0 ... 14.8 dBi | 14.9 ... 15.1 ... 14.9 dBi | 15.0 ... 15.2 ... 15.0 dBi° |
| Tilt | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° |
| Horizontal Pattern: | | | |
| Half-power beam width | 85° | 85° | 83° |
| Front-to-back ratio (180° ±0°) | > 24 dB | > 25 dB | > 26 dB |
| Front-to-back ratio (180° ±30°) | > 21 dB | > 23 dB | > 24 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 10.5° | 10.2° | 10° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T ≥ 18 ... 15 ... 14 dB | 0° ... 5° ... 10° T ≥ 18 ... 17 ... 16 dB | 0° ... 5° ... 10° T ≥ 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 10.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 220 / 750 N | | |
| Height/width/depth | 1934 / 259 / 99 mm | | |



Panel

Dual Polarization

Half-power Beam Width

790–960

X

85°

KATHREIN

Antennen · Electronic

XPol Panel 790–960 85° 17dBi 0°T

| Type No. | 800 10217 | | |
|--|--|---------------------------------|---------------|
| Frequency range | 790 – 862 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 16.2 dBi | 16.5 dBi | 16.8 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 86° | 85° | 83° |
| Front-to-back ratio (180° ±0°) | > 25 dB | > 25 dB | > 25 dB |
| Front-to-back ratio (180° ±30°) | > 23 dB | > 24 dB | > 24 dB |
| Cross polar ratio Sector 0° | > 20 dB | > 20 dB | > 20 dB |
| ±60° | > 15 dB | > 15 dB | > 13 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.5° | 7.3° | 7.0° |
| Sidelobe suppression for first sidelobe above main beam | 16 dB | 17 dB | 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 12 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

XPol Panel 790–960 85° 17dBi 6°T

| Type No. | 800 10218 | | |
|--|--|---------------------------------|------------------|
| Frequency range | 790 – 862 MHz | 790–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 16.3 dBi | 16.5 dBi | 16.9 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 86° | 85° | 83° |
| Front-to-back ratio (180° ±0°) | > 24 dB | > 25 dB | > 27 dB |
| Front-to-back ratio (180° ±30°) | > 22 dB | > 23 dB | > 25 dB |
| Cross polar ratio Sector 0° | Typically: 20 dB | Typically: 20 dB | Typically: 20 dB |
| ±60° | > 14 dB | > 14 dB | > 12 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.6° | 7.3° | 7.0° |
| Electrical tilt | 6°, fixed | | |
| Sidelobe suppression for first sidelobe above main beam | 17 dB | 16 dB | 16 dB |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 12 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

Panel Dual Polarization Half-power Beam Width

790–960

X

85°

KATHREIN

Antennen · Electronic

XPol Panel 790–960 85° 16dBi 0°–10°T

| Type No. | 800 10310 | | |
|--|--|---|---|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 15.8 ... 15.6 ... 15.4 dBi | 16.0 ... 15.9 ... 15.8 dBi | 16.2 ... 16.2 ... 16.2 dBi° |
| Tilt | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° |
| Horizontal Pattern: | | | |
| Half-power beam width | 86° | 85° | 83° |
| Front-to-back ratio (180° ±0°) | > 24 dB | > 24 dB | > 26 dB |
| Front-to-back ratio (180° ±30°) | > 20 dB | > 22 dB | > 24 dB |
| Cross polar ratio Sector | Typically: 20 dB 0° ±60° > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 8.1° | 7.9° | 7.6° |
| Electrical tilt | 0.5°–9.5°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0.5° ... 5° ... 9.5° T ≥ 18 ... 14 ... 14 dB | 0.5° ... 5° ... 9.5° T ≥ 18 ... 17 ... 16 dB | 0.5° ... 5° ... 9.5° T ≥ 17 ... 16 ... 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 14 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

XPol Panel 790–960 85° 16.5dBi 0°–10°T

| Type No. | 800 10300 | | |
|--|--|---|---|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 16.2 ... 16.2 ... 15.8 dBi | 16.3 ... 16.3 ... 16.1 dBi | 16.5 ... 16.6 ... 16.5 dBi° |
| Tilt | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° | 0.5° ... 5° ... 9.5° |
| Horizontal Pattern: | | | |
| Half-power beam width | 85° | 85° | 83° |
| Front-to-back ratio (180° ±0°) | > 24 dB | > 25 dB | > 26 dB |
| Front-to-back ratio (180° ±30°) | > 21 dB | > 23 dB | > 24 dB |
| Cross polar ratio Sector | Typically: 20 dB 0° ±60° > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 8° | 7.8° | 7.6° |
| Electrical tilt | 0.5°–9.5°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0.5° ... 5° ... 9.5° T ≥ 18 ... 15 ... 14 dB | 0.5° ... 5° ... 9.5° T ≥ 18 ... 17 ... 16 dB | 0.5° ... 5° ... 9.5° T ≥ 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Rearside | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 14 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |

Summary – Directional Antennas 2-Broad-band 800/900

Dual Polarization +45°/-45°

| Type | | | | | Type No. | Height [mm] | Connector position | Page |
|-------------|---------|-----|---------|---------|------------------|-------------|--------------------|------|
| XXPol Panel | 824-960 | 60° | 16dBi | 0°-10°T | 800 10516 | 2024 | rearside | 32 |
| | 824-960 | 60° | 16dBi | 0°-10°T | | | | |
| XXPol Panel | 824-960 | 65° | 17dBi | 0°-8°T | 800 10517 | 2631 | rearside | 33 |
| | 824-960 | 65° | 17dBi | 0°-8°T | | | | |
| XXPol Panel | 790-960 | 65° | 17.5dBi | 0°-8°T | 800 10647 | 2254 | rearside | 34 |
| | 790-960 | 65° | 17.5dBi | 0°-8°T | | | | |
| XXPol Panel | 824-960 | 88° | 17dBi | 0°-8°T | 800 10518 | 2631 | rearside | 35 |
| | 824-960 | 88° | 17dBi | 0°-8°T | | | | |

New or changed product

*When deploying
2-Broad-band Antennas,
please also consider using
special Hybrid Combiners
(see page 260)*

2-Multi-band Panel

Dual Polarization

Half-power Beam Width

| |
|---------|
| 824-960 |
|---------|

| |
|---------|
| 824-960 |
|---------|

| |
|---|
| X |
|---|

| |
|---|
| X |
|---|

| |
|-----|
| 60° |
|-----|

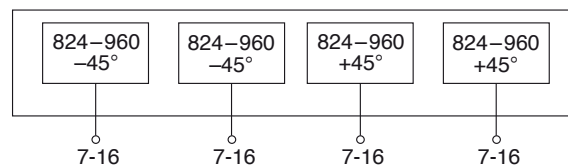
| |
|-----|
| 60° |
|-----|

KATHREIN

Antennen · Electronic

XXPol Panel 824-960/824-960 60°/60° 16/16dBi 0°-10°/0°-10°T

| | | | |
|--|---|--|---------|
| Type No. | 800 10516 | | |
| Frequency range | <table border="1"><tr><td>824-960</td></tr></table> 824 - 894 MHz 880 - 960 MHz | | 824-960 |
| 824-960 | | | |
| Polarization | +45°, -45°; +45°, -45° | +45°, -45°; +45°, -45° | |
| Gain at 0° Tilt | 4 x 15.5 dBi | 4 x 15.7 dBi | |
| Horizontal Pattern: | | | |
| Half-power beam width | 60° | 58° | |
| Front-to-back ratio | > 25 dB | > 25 dB | |
| Cross polar ratio Sector | 0° Typically: 15 dB ±60° > 10 dB | Typically: 16 dB > 10 dB | |
| Vertical Pattern: | | | |
| Half-power beam width | 9.8° | 9.3° | |
| Electrical tilt | 0°-10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 15 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 15 dB | |
| VSWR | < 1.5 | | |
| Isolation, between ports | Typically: > 25 dB | Typically: > 28 dB | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Rearside, pointing downwards | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | |
| Weight | 23 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 900 / 410 / 1050 N | | |
| Height/width/depth | 2024 / 374 / 169 mm | | |



2-Multi-band Panel

Dual Polarization

Half-power Beam Width

| |
|---------|
| 824-960 |
|---------|

| |
|---------|
| 824-960 |
|---------|

| |
|---|
| X |
|---|

| |
|---|
| X |
|---|

| |
|-----|
| 65° |
|-----|

| |
|-----|
| 65° |
|-----|

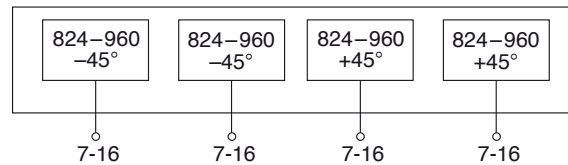
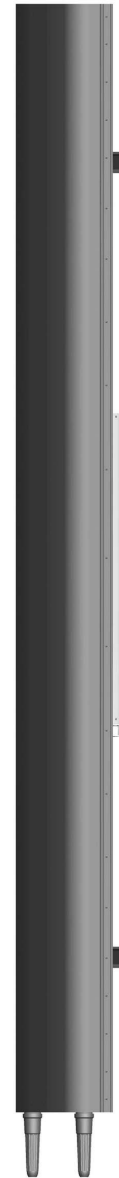
KATHREIN

Antennen · Electronic

800/900
XXPol

XXPol Panel 824-960/824-960 65°/65° 17/17dBi 0°-8°/0°-8°T

| | | |
|--|---|---|
| Type No. | 800 10517 | |
| Frequency range | 824-960 | |
| | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, -45°; +45°, -45° | +45°, -45°; +45°, -45° |
| Gain at 0° Tilt | 4 x 16.5 dBi | 4 x 16.7 dBi |
| Horizontal Pattern: | | |
| Half-power beam width | 66° | 61° |
| Front-to-back ratio | > 25 dB | > 25 dB |
| Cross polar ratio Sector | 0° Typically: 16 dB ±60° > 8 dB | Typically: 17 dB > 10 dB |
| Vertical Pattern: | | |
| Half-power beam width | 7.2° | 6.8° |
| Electrical tilt | 0°-8°, continuously adjustable | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° T ≥ 15 ... 15 ... 15 dB | 0° ... 4° ... 8° T ≥ 15 ... 16 ... 15 dB |
| VSWR | < 1.5 | |
| Isolation, between ports | Typically: > 25 dB | > 28 dB |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | |
| Input | 4 x 7-16 female | |
| Connector position | Rearside, pointing downwards | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | |
| Weight | 28 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 1150 / 500 / 1300 N | |
| Height/width/depth | 2631 / 374 / 169 mm | |



2-Multi-band Panel

Dual Polarization

Half-power Beam Width

790–960

790–960

X

X

65°

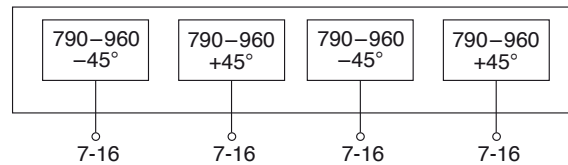
65°

KATHREIN

Antennen · Electronic

XXPol Panel 790–960/790–960 65°/65° 17.5/17.5dBi 0°–8°/0°–8°T

| Type No. | 800 10647 | | |
|---|---|---|---|
| Frequency range | 790–960 | | |
| | 790 – 862 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 16.9 ... 17.1 ... 17.0 | 17.0 ... 17.2 ... 17.1 | 17.3 ... 17.4 ... 17.1 |
| Tilt | 0° ... 4° ... 8° | 0° ... 4° ... 8° | 0° ... 4° ... 8° |
| Horizontal Pattern: | | | |
| Half-power beam width | 66° | 65° | 64° |
| Front-to-back ratio, copolar | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector | Typically: > 10 dB | Typically: > 10 dB | Typically: > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.1° | 9.0° | 8.5° |
| Electrical tilt | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 3° ... 6° ... 8° T 18 ... 18 ... 16 ... 15 dB | 0° ... 3° ... 6° ... 8° T 18 ... 18 ... 16 ... 15 dB | 0° ... 3° ... 6° ... 8° T 18 ... 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Rearside | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | |
| Weight | 24 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 1800 / 220 / 2000 N | | |
| Height/width/depth | 2254 / 576 / 99 mm | | |



2-Multi-band Panel Dual Polarization Half-power Beam Width

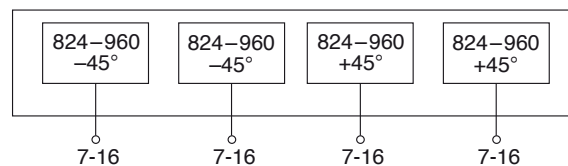
| | |
|---------|---------|
| 824-960 | 824-960 |
| X | X |
| 88° | 88° |

KATHREIN
Antennen · Electronic

800900
XXPol

XXPol Panel 824-960/824-960 88°/88° 17/17dBi 0°-8°/0°-8°T

| | | |
|--|---|---|
| Type No. | 800 10518 | |
| Frequency range | 824-960 824 - 894 MHz 880 - 960 MHz | |
| Polarization | +45°, -45°; +45°, -45° | +45°, -45°; +45°, -45° |
| Gain at 0° Tilt | 4 x 16.5 dBi | 4 x 17 dBi |
| Horizontal Pattern: | | |
| Half-power beam width | 88° | 85° |
| Front-to-back ratio | > 25 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 15 dB > 10 dB | Typically: 15 dB > 10 dB |
| Vertical Pattern: | | |
| Half-power beam width | 7.2° | 6.8° |
| Electrical tilt | 0°-8°, continuously adjustable | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° T ≥ 15 ... 15 ... 15 dB | 0° ... 4° ... 8° T ≥ 16 ... 16 ... 15 dB |
| VSWR | < 1.5 | |
| Isolation, between ports | Typically: > 25 dB | > 28 dB |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | |
| Input | 4 x 7-16 female | |
| Connector position | Rearside, pointing downwards | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | |
| Weight | 28 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 1150 / 500 / 1300 N | |
| Height/width/depth | 2631 / 374 / 169 mm | |



Summary – Directional Antennas Vertical Polarization 800/900

Vertical Polarization – 800/900

| Type | Type No. | Height [mm] | Connector position | Page | | | | |
|-------------|----------------------|--------------|--------------------|------------|------------------|------|---------------|----|
| VPol Panel | 870–960 | 20° | 16.5dBi | 0°T | 735 727 | 492 | bottom | 38 |
| Dual Yagi | 870–960 1710–2170 | C 30° 23° | 16.5dBi 19.5dBi | 0°T 0°T | 800 10658 | 1100 | rearside | 81 |
| VPol LogPer | 790–960 | 51° | 12dBi | 0°T | K 73 22 67 | 300 | bottom | 39 |
| VPol Panel | 860–960 | 65° | 9dBi | 0°T | 730 677 | 264 | bottom or top | 40 |
| VPol Panel | 806–960 | 65° | 15.5dBi | 0°T | 730 368 | 1294 | bottom | 40 |
| VPol Panel | 806–960 | 65° | 15.5dBi | 6°T | 732 691 | 1294 | bottom | 41 |
| VPol Panel | 806–960 | 65° | 17dBi | 0°T | 730 691 | 1934 | rearside | 41 |
| VPol Panel | 870–960 | 65° | 17dBi | 9°T | 737 547 | 1934 | rearside | 42 |
| VPol Panel | 806–960 | 65° | 18.5dBi | 0°T | 730 376 | 2574 | rearside | 42 |
| VPol Panel | 870–960 | 65° | 18.5dBi | 6°T | 732 689 | 2574 | rearside | 43 |
| VPol Panel | 872–960 | 90° | 7.5dBi | 0°T | 736 854 | 262 | bottom or top | 44 |
| VPol Panel | 806–960 | 90° | 17dBi | 0°T | 730 378 | 2574 | rearside | 44 |
| VPol Panel | 870–960 | 120° | 16dBi | 0°T | 730 382 | 2574 | rearside | 45 |

Additional versions on request

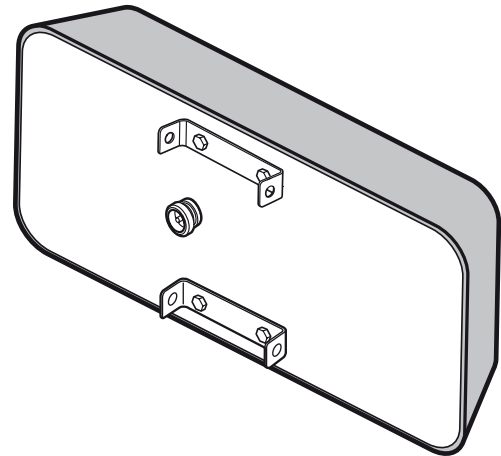
New or changed product

Panel
Vertical Polarization
Half-power Beam Width

| |
|---------|
| 870–960 |
| V |
| 20° |

VPoI Panel 870–960 20° 16.5dBi

| | |
|-----------------------|---|
| Type No. | 735 727 |
| Input | 7-16 female |
| Frequency range | 870 – 960 MHz |
| VSWR | < 1.3 |
| Gain | 16.5 dBi |
| Polarization | Vertical |
| Front-to-back ratio | > 24 dB |
| Half-power Beam Width | H-plane: 20°/ E-plane: 33° |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Weight | 10 kg |
| Wind load | Frontal: 500 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 715 N (at 150 km/h) |
| Height/width/depth | 492 / 992 / 190 mm |



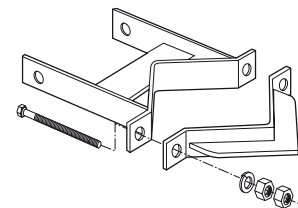
Material: Radiator: Aluminum.
 Reflector screen: Weather-proof aluminum.
 Radome: Fiberglass, colour: White.
 All screws and nuts: Stainless steel.

Ice protection: Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

Grounding: All metal parts of the antenna as well as the inner conductor are DC grounded.

Accessories (order separately)

| Type No. | Description | Remarks |
|------------|-------------|-----------------------------|
| K 61 14 02 | 2 clamps | Mast: 60 – 115 mm diameter |
| K 61 14 03 | 2 clamps | Mast: 115 – 210 mm diameter |
| K 61 14 04 | 2 clamps | Mast: 210 – 380 mm diameter |
| K 61 14 05 | 2 clamps | Mast: 380 – 521 mm diameter |



K 61 14 03

**Logarithmic periodic
Vertical Polarization
Half-power Beam Width**

790–960

V

51°

VPol LogPer 790–960 51° 12dBi

| Type No. | K 73 22 67 |
|-----------------------|---|
| Input | 7-16 female |
| Frequency range | 790 – 960 MHz |
| VSWR | < 1.4 |
| Gain | 12 dBi |
| Polarization | Vertical |
| Side-lobe suppression | > 25 dB |
| Front-to-back ratio | > 30 dB |
| Half-power Beam Width | Horizontal: 51°/ Vertical: 45° |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Weight | 6.3 kg |
| Wind load | Frontal: 20 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 30 N (at 150 km/h) |
| Height/width/depth | 300 / 155 / 785 mm |



800/900
VPol

- Material:** Radiator: Weather-proof aluminum.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: Grey.
All screws and nuts: Stainless steel.
- Mounting:** The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.
- Ice protection:** Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.
- Grounding:** All metal parts of the antenna as well as the inner conductor are DC grounded.

Panel
Vertical Polarization
Half-power Beam Width

806–960

V

65°

KATHREIN
 Antennen · Electronic

VPol Panel 860–960 65° 9dBi

| | |
|-------------------------|--|
| Type No. | 730 677 |
| Frequency range | 860 – 960 MHz |
| Polarization | Vertical |
| Gain | 9 dBi |
| Half-power beam width | H-plane: 65° E-plane: 70° |
| Front-to-back ratio | > 25 dB (890 – 960 MHz) > 20 dB (860 – 890 MHz) |
| VSWR | < 1.3 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 350 W (at 50 °C ambient temperature) |
| Input | N female |
| Connector position | Bottom or top |
| Weight | 1.2 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 40 / 25 / 90 N |
| Height/width/depth | 264 / 258 / 103 mm |



VPol Panel 806–960 65° 15.5dBi

| | | | |
|--------------------------------|--|---------------------------------|---------------|
| Type No. | 730 368 | | |
| Frequency range | 806 – 866 MHz | 806–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | Vertical | | |
| Gain | 15.0 dBi | 15.2 dBi | 15.5 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 68° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 14° | 13.5° | 13° |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 6 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 220 / 140 / 490 N | | |
| Height/width/depth | 1294 / 259 / 99 mm | | |



Panel
Vertical Polarization
Half-power Beam Width

806–960

V

65°

KATHREIN
 Antennen · Electronic

VPol Panel 806–960 65° 15.5dBi 6°T

| | |
|-------------------------|--|
| Type No. | 732 691 |
| Frequency range | 806 – 960 MHz |
| Polarization | Vertical |
| Gain | 15.5 dBi |
| Half-power beam width | H-plane: 65° E-plane: 13° |
| Electrical downtilt | 6°, fixed |
| Front-to-back ratio | > 25 dB |
| VSWR | < 1.3 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 6 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 220 / 140 / 490 N |
| Height/width/depth | 1294 / 258 / 103 mm |



806/960
VPol

VPol Panel 806–960 65° 17dBi

| | | | |
|--------------------------------|--|---------------------------------|---------------|
| Type No. | 730 691 | | |
| Frequency range | 806 – 866 MHz | 806–960 824 – 894 MHz | 880 – 960 MHz |
| Polarization | Vertical | | |
| Gain | 16.4 dBi | 16.7 dBi | 17.0 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 68° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.5° | 9.3° | 8.5° |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 9 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 220 / 750 N | | |
| Height/width/depth | 1934 / 259 / 99 mm | | |



Panel
Vertical Polarization
Half-power Beam Width

806–960

V

65°

KATHREIN
 Antennen · Electronic

VPol Panel 870–960 65° 17dBi 9°T

| | |
|-------------------------|--|
| Type No. | 737 547 |
| Frequency range | 870 – 960 MHz |
| Polarization | Vertical |
| Gain | 17 dBi |
| Half-power beam width | H-plane: 65° E-plane: 8.5° |
| Electrical downtilt | 9°, fixed |
| Front-to-back ratio | > 25 dB |
| VSWR | < 1.3 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Input | 7-16 female |
| Connector position | Rearside |
| Weight | 9 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 220 / 750 N |
| Height/width/depth | 1934 / 258 / 103 mm |



VPol Panel 806–960 65° 18.5dBi

| | | | |
|---|---|---------------|---------------|
| Type No. | 730 376 | | |
| Frequency range | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz |
| Polarization | Vertical | | |
| Gain | 17.9 dBi | 18.1 dBi | 18.5 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 68° | 67° | 65° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.4° | 7.2° | 6.8° |
| Sidelobe suppression for first sidelobe above horizon | > 17 dB | > 17 dB | > 18 dB |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | |
| Input | 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 12 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N | | |
| Height/width/depth | 2574 / 259 / 99 mm | | |



Panel
Vertical Polarization
Half-power Beam Width

870–960

V

65°

KATHREIN
 Antennen · Electronic

VPol Panel 870–960 65° 18.5dBi 6°T

| | |
|-------------------------|---|
| Type No. | 732 689 |
| Frequency range | 870 – 960 MHz |
| Polarization | Vertical |
| Gain | 18.5 dBi |
| Half-power beam width | H-plane: 65° E-plane: 6.5° |
| Electrical downtilt | 6°, fixed |
| Front-to-back ratio | > 25 dB |
| VSWR | < 1.3 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Input | 7-16 female |
| Connector position | Rearside |
| Weight | 12 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N |
| Height/width/depth | 2574 / 258 / 103 mm |



800/900
VPol

Panel
Vertical Polarization
Half-power Beam Width

870–960

V

90°

KATHREIN
 Antennen · Electronic

VPol Panel 872–960 90° 7.5dBi

| Type No. | 736 854 |
|-------------------------|---|
| Frequency range | 872 – 960 MHz |
| Polarization | Vertical |
| Gain | 7.5 dBi |
| Half-power beam width | H-plane: 90° E-plane: 70° |
| Front-to-back ratio | > 20 dB |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -140 dBc (2 x 43 dBm carrier) |
| Max. power | 350 W (at 50 °C ambient temperature) |
| Input | N female |
| Connector position | Bottom or top |
| Weight | 1.5 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 45 / 20 / 60 N |
| Height/width/depth | 262 / 155 / 49 mm |



VPol Panel 806–960 90° 17dBi

| Type No. | 730 378 |
|-------------------------|---|
| Frequency range | 806 – 960 MHz |
| Polarization | Vertical |
| Gain | 17 dBi |
| Half-power beam width | H-plane: 90° E-plane: 6.8° |
| Front-to-back ratio | > 22 dB |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Input | 7-16 female |
| Connector position | Rearside |
| Weight | 10.6 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N |
| Height/width/depth | 2574 / 259 / 99 mm |



Panel
Vertical Polarization
Half-power Beam Width

870–960

V

90°

KATHREIN
 Antennen · Electronic

VPol Panel 870–960 120° 16dBi

| | |
|-------------------------|---|
| Type No. | 730 382 |
| Frequency range | 870 – 960 MHz |
| Polarization | Vertical |
| Gain | 16 dBi |
| Half-power beam width | H-plane: 120° E-plane: 6.5° |
| Front-to-back ratio | > 20 dB |
| VSWR | < 1.3 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |
| Input | 7-16 female |
| Connector position | Rearside |
| Weight | 12 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 1020 N |
| Height/width/depth | 2574 / 258 / 103 mm |



800/900
VPol

Summary – Directional Antennas

Dual Polarization +45°/–45°

1800/1900/2000/2500

Dual Polarization +45°/–45°

| Type | Type No. | Height [mm] | Connector position | Page |
|---|------------------|-------------|--------------------|------|
| XPol Panel 1710–2170 33° 20dBi 0°–12°T | 800 10251 | 1032 | bottom | 48 |
| XPol Panel 1710–2170 33° 21dBi 0°–8°T | 742 351 | 1304 | bottom | 48 |
| XPol Panel 1710–1880 33° 22dBi 2°T | 741 623 | 1942 | bottom | 49 |
| XPol Panel 1710–2170 45° 19.5dBi 0°–8°T | 742 218 | 1306 | bottom | 50 |
| XPol Panel 1710–2180 45° 21.5dBi 0°–6°T | 742 219 | 1946 | bottom | 50 |
| XPol Panel 1710–2170 65° 9dBi 0°T | 742 210 | 155 | bottom or top | 51 |
| XPol Panel 1710–2170 65° 12dBi 2°T | 739 489 | 342 | bottom | 51 |
| XPol Panel 1710–2170 65° 16dBi 0°T | 742 196 | 735 | bottom or top | 52 |
| XPol Panel 1710–2200 65° 15.5dBi 6°T | 800 10424 | 735 | bottom | 52 |
| XPol Panel 1710–2200 65° 15.5dBi 0°–12°T | 800 10247 | 735 | bottom | 53 |
| XPol Panel 1710–2690 65° 15.5dBi 0°–10°T | 800 10681 | 724 | bottom | 116 |
| XPol Panel 1710–2200 65° 18.3dBi 0°T | 800 10425 | 1302 | bottom | 53 |
| XPol Panel 1710–2200 65° 18.3dBi 2°T | 800 10426 | 1302 | bottom | 54 |
| XPol Panel 1710–2200 65° 18dBi 6°T | 800 10428 | 1302 | bottom | 54 |
| XPol Panel 1710–2200 65° 18dBi 0°–10°T | 742 215 | 1314 | bottom | 55 |
| XPol Panel 1710–2200 65° 18dBi 2°–10°T ESLS | 800 10614 | 1314 | bottom | 55 |
| XPol Panel 1710–2200 65° 18dBi 0°–15°T ESLS | 800 10504 | 1374 | bottom | 56 |
| XPol Panel 1710–2690 65° 17.5dBi 2°T | 800 10471 | 1302 | bottom | 118 |
| XPol Panel 1710–2690 65° 18dBi 0°–12°T ESLS | 800 10621 | 1398 | bottom | 119 |
| XPol Panel 1710–2170 65° 19.5dBi 0°–6°T | 742 213 | 1942 | bottom | 57 |
| XPol Panel 1710–2200 65° 19dBi 0°–10°T ESLS | 800 10505 | 1984 | bottom | 58 |
| XPol Panel 1710–2200 62° 19dBi 0°–8°T HE | 800 10636 | 1404 | bottom | 59 |
| XPol Panel 1710–2170 65° 20.5dBi 0°T | 742 186 | 2160 | bottom | 59 |
| XPol Panel 1710–2200 65° 21dBi 0°T HE | 800 10439 | 2172 | bottom or top | 60 |
| XPol Panel 1710–2200 62° 21.2dBi 0°–6°T HE | 800 10378 | 2520 | bottom | 60 |
| XPol Panel 1710–2170 88° 11.5dBi 0°T | 741 984 | 342 | bottom or top | 61 |
| XPol Panel 1710–2170 88° 14dBi 0°–10°T | 741 988 | 662 | bottom | 61 |
| XPol Panel 1710–2200 88° 17dBi 0°–8°T | 741 989 | 1302 | bottom | 62 |
| XPol Panel 1710–1880 90° 17.5dBi 2°T | 739 710 | 1902 | bottom | 62 |
| XPol Panel 1710–2170 88° 18dBi 0°–6°T | 741 990 | 1942 | bottom | 63 |

New or changed product

Abbreviations:

ESLS: Enhanced Side Lobe Suppression (above or below horizon)

HE: High Efficiency (Antennas with high gain compared to length)

Summary – Directional Antennas

Dual Polarization +45°/–45°

1800/1900/2000/2500

Antennas with Dual-Beam

| Type | Type No. | Height [mm] | Connector position | Page |
|--|------------------|-------------|--------------------|------|
| XXPol Panel 1710–2200 45° (–30°) 19.5dBi 0°–10°T | 800 10606 | 1314 | bottom | 64 |
| 1710–2200 45° (+30°) 19.5dBi 0°–10°T | | | | |

Antennas with integrated RET

| | | | | |
|--|-----------|------|--------|----|
| XPol Panel IRT 1710–2200 65° 18dBi 0°–10°T | 800 10314 | 1302 | bottom | 65 |
| XPol Panel IRT 1710–2200 65° 18dBi 0°–10°T | 800 10618 | 1302 | bottom | 65 |
| XPol Panel IRT+ISB 1710–2200 65° 18dBi 0°–10°T | 800 10414 | 1358 | bottom | 66 |
| XPol Panel IRT+ISB IA 12dB 1920–2170 65° 17.5dBi 0°–15°T | 800 10519 | 1336 | bottom | 67 |

Tri-Sector Pipe Antenna

| | | | | |
|--|------------------|------|--------|----|
| XPol Tri-Sector Pipe 1710–2170 65° 15.5dBi 0°–12°T | 800 10375 | 1241 | bottom | 68 |
| XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T | 800 10360 | 1823 | bottom | 69 |
| XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T | 800 10270 | 2296 | bottom | 70 |
| XPol Tri-Sector Pipe 1710–2170 65° 19.5dBi 0°–6°T | 800 10271 | 2460 | bottom | 71 |
| Flexible Sealing Frame | 850 10010 | | | 72 |

New or changed product

Abbreviations:

IRT: Integrated Remote Tilt Unit

ISB: Integrated Smart Bias-T

IA: Integrated Amplifier

1800/1900/2000/2500
XPol

Multi-band Panel Dual Polarization Half-power Beam Width

1710–2170

X

33°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2170 33° 20dBi 0°–12°T

| Type No. | 800 10251 | | |
|---|--|--|--|
| Frequency range | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 19.2 dBi | 2 x 19.5 dBi | 2 x 19.8 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 36° | 35° | 33° |
| Front-to-back ratio, copolar (180° ± 30°) | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio Maindirection 0° Sector ±30° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Sidelobe suppression | > 18 dB | > 17 dB | > 15 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 9.2° | 9° | 8.5° |
| Electrical tilt | 0°–12°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 6° ... 12° T 15 ... 17 ... 17 dB | 0° ... 6° ... 12° T 15 ... 17 ... 17 dB | 0° ... 6° ... 12° T 15 ... 17 ... 17 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 11.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 90 / 460 N | | |
| Height/width/depth | 1032 / 299 / 69 mm | | |



XPol Panel 1710–2170 33° 21dBi 0°–8°T

| Type No. | 742 351 | | |
|---|---|---|---|
| Frequency range | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 20.2 dBi | 2 x 20.5 dBi | 2 x 20.7 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 36° | 35° | 33° |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio Maindirection 0° Sector ±30° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Sidelobe suppression | > 14 dB | > 14 dB | > 14 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.4° | 7.0° | 6.7° |
| Electrical tilt | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° T 18 ... 17 ... 16 dB | 0° ... 4° ... 8° T 18 ... 18 ... 17 dB | 0° ... 4° ... 8° T 18 ... 17 ... 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 13.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 570 / 110 / 570 N | | |
| Height/width/depth | 1304 / 299 / 69 mm | | |



Panel
Dual Polarization
Half-power Beam Width

1710–1880

X

33°

KATHREIN
 Antennen · Electronic

XPol Panel 1710–1880 33° 22dBi 2°T

| | | |
|----------------------------------|--|---|
| Type No. | 741 623 | |
| Frequency range | 1710 – 1880 MHz | |
| Polarization | +45°, -45° | |
| Gain | 2 x 22 dBi | |
| Half-power beam width Copolar | +45° Horizontal: 33° Vertical: 5° | -45° Horizontal: 33° Vertical: 5° |
| Electrical tilt | 2°, fixed | |
| Sidelobe suppression | above horizon for first sidelobe better or equal 14 dB below maximum gain | |
| Front-to-back ratio, copolar | > 30 dB | |
| Isolation | > 30 dB | |
| VSWR | < 1.5 | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 200 W (at 50 °C ambient temperature) | |
| Input | 2 x 7-16 female | |
| Connector position | Bottom | |
| Weight | 11 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 540 / 210 / 770 N | |
| Height/width/depth | 1942 / 262 / 59 mm | |



1800/1900/2000/2500
 XPol

Multi-band Panel Dual Polarization Half-power Beam Width

1710–2180

X

45°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2170 45° 19.5dBi 0°–8°T

| Type No. | 742 218 | | |
|--|---|---|---|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 19 dBi | 2 x 19.5 dBi | 2 x 19.6 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 47° | 45° | 44° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 27 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 27 dB Total power: > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±30° | Typically: 18 dB > 13 dB | Typically: 18 dB > 13 dB | Typically: 18 dB > 13 dB |
| Sidelobe suppression | > 18 dB | > 18 dB | > 18 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.3° | 7° | 6.7° |
| Electrical tilt | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 ... 15 dB | 0° ... 2° ... 5° ... 8° T 18 ... 18 ... 17 ... 17 dB | 0° ... 2° ... 5° ... 8° T 18 ... 18 ... 15 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 10.2 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 250 / 110 / 390 N | | |
| Height/width/depth | 1306 / 199 / 69 mm | | |



XPol Panel 1710–2180 45° 21.5dBi 0°–6°T

| Type No. | 742 219 | | |
|--|---|---|---|
| Frequency range | 1710–2180 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 20.5 ... 20.6 ... 20.3 | 20.9 ... 21.1 ... 20.9 | 21 ... 21.4 ... 21 |
| Tilt | 0° ... 3° ... 6° | 0° ... 3° ... 6° | 0° ... 3° ... 6° |
| Horizontal Pattern: | | | |
| Half-power beam width | 48° | 45° | 44° |
| Front-to-back ratio (180°±30°) | Copolar: > 28 dB Total power: > 25 dB | Copolar: > 27 dB Total power: > 25 dB | Copolar: > 25 dB Total power: > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±30° | Typically: 19 dB > 13 dB | Typically: 18 dB > 13 dB | Typically: 17 dB > 13 dB |
| Sidelobe suppression | > 18 dB | > 18 dB | > 18 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 4.7° | 4.5° | 4.4° |
| Electrical tilt | 0°–6°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 16 ... 16 dB | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 16 dB | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 14 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 390 / 180 / 590 N | | |
| Height/width/depth | 1946 / 199 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2170

X

65°

KATHREIN
Antennen · Electronic

XPoI Panel 1710–2170 65° 9dBi 0°T

| Type No. | 742 210 | | |
|------------------------------|--|------------------|------------------|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 8.5 dBi | 2 x 8.6 dBi | 2 x 8.7 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 70° | 68° | 65° |
| Front-to-back ratio, copolar | > 25 dB | > 30 dB | > 30 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector | 0° ±60° > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 65° | 65° | 63° |
| Electrical tilt | 0°, fixed | 0°, fixed | 0°, fixed |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 150 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom or top | | |
| Weight | 1.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 47 / 12 / 55 N | | |
| Height/width/depth | 155 / 155 / 69 mm | | |



1800/1900/2000/2500
XPoI

XPoI Panel 1710–2170 65° 12dBi 2°T

| Type No. | 739 489 | | |
|------------------------------|---|------------------|------------------|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 11.5 dBi | 2 x 12 dBi | 2 x 12 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 65° | 63° |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 27 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector | 0° ±60° > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 32° | 30° | 28° |
| Electrical tilt | 3°, fixed | 2°, fixed | 0°, fixed |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 150 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 2 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 95 / 24 / 110 N | | |
| Height/width/depth | 342 / 155 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

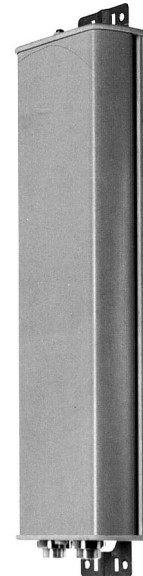
X

65°

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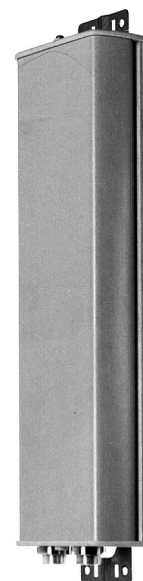
XPol Panel 1710–2170 65° 16dBi 0°T

| Type No. | 742 196 | | |
|---|--|--|--|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 15.3 dBi | 2 x 15.6 dBi | 2 x 15.8 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 66° | 64° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio Maindirection Sector | 0° ±60° Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 12.6° | 11.8° | 11° |
| Sidelobe suppression for first sidelobe above horizon | > 14 dB | > 16 dB | > 14 dB |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom or top | | |
| Weight | 4.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 190 / 55 / 220 N | | |
| Height/width/depth | 735 / 155 / 69 mm | | |



XPol Panel 1710–2200 65° 15.5dBi 6°T

| Type No. | 800 10424 | | |
|---|--|-----------------------------|-----------------------------|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 15.2 dBi | 2 x 15.5 dBi | 2 x 15.7 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 66° | 66° | 64° |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio Sector | 0° ±60° Typically: 19 dB > 10 dB | Typically: 18 dB > 10 dB | Typically: 18 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 13.1° | 12.2° | 11.1° |
| Electrical tilt | 6°, fixed | 6°, fixed | 6°, fixed |
| Sidelobe suppression for first sidelobe above main beam | > 15 dB | > 18 dB | > 18 dB |
| First null-fill below main beam | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| VSWR | < 1.3 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 3.7 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 190 / 55 / 220 N | | |
| Height/width/depth | 735 / 155 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

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XPol Panel 1710–2200 65° 15.5dBi 0°–12°T

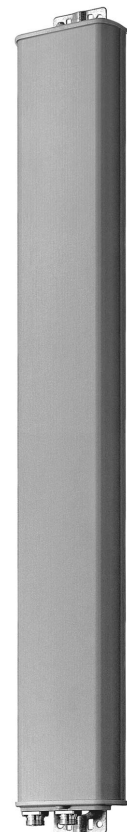
| Type No. | 800 10247 | | |
|---|---|---|---|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain per input | 0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.3 ... 15.1 dBi | 0° ... 4° ... 8° ... 12° T 15.6 ... 15.5 ... 15.4 ... 15 dBi | 0° ... 4° ... 8° ... 12° T 15.8 ... 15.7 ... 15.5 ... 14.9 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 66° | 64° |
| Front-to-back ratio | Copolar: > 27 dB | Copolar: > 27 dB | Copolar: > 27 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 20 dB | Typically: 20 dB | Typically: 20 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 12.9° | 12.3° | 11.5° |
| Electrical tilt | 0°–12°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 12° T > 14 ... 14 ... 14 ... 14 dB | 0° ... 4° ... 8° ... 12° T > 14 ... 14 ... 14 ... 14 dB | 0° ... 4° ... 8° ... 12° T > 14 ... 14 ... 14 ... 14 dB |
| Isolation, between ports | > 30 dB | | |
| VSWR | < 1.4 | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 4.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 200 / 65 / 240 N | | |
| Height/width/depth | 735 / 155 / 69 mm | | |



1800/1900/2000/2500
XPol

XPol Panel 1710–2200 65° 18.3dBi 0°T

| Type No. | 800 10425 | | |
|---|---|------------------|------------------|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.9 dBi | 2 x 18.1 dBi | 2 x 18.3 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 66° | 64° |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 20 dB | Typically: 20 dB | Typically: 20 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 6.6° | 6.2° | 5.8° |
| Electrical tilt | 0°, fixed | 0°, fixed | 0°, fixed |
| Sidelobe suppression for first sidelobe above main beam | > 14 dB | > 15 dB | > 16 dB |
| First null-fill below main beam | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 6.6 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 350 / 100 / 410 N | | |
| Height/width/depth | 1302 / 155 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

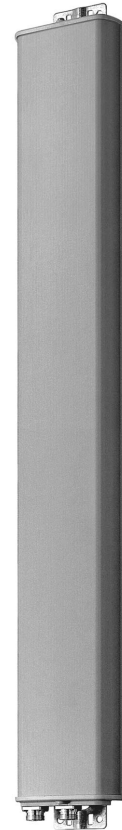
X

65°

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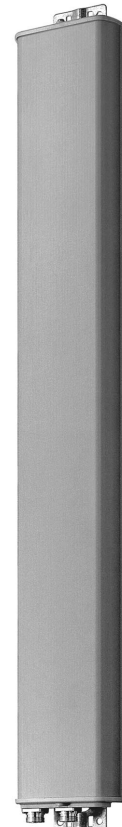
XPol Panel 1710–2200 65° 18.3dBi 2°T

| Type No. | 800 10426 | | |
|--|---|-----------------------------|-----------------------------|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.9 dBi | 2 x 18.1 dBi | 2 x 18.3 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 66° | 65° | 63° |
| Front-to-back ratio, copolar | > 28 dB | > 30 dB | > 33 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 6.6° | 6.2° | 5.8° |
| Electrical tilt | 2°, fixed | 2°, fixed | 2°, fixed |
| Sidelobe suppression for first sidelobe above main beam | > 14 dB | > 15 dB | > 15 dB |
| First null-fill below main beam | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 6.6 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 350 / 100 / 410 N | | |
| Height/width/depth | 1302 / 155 / 69 mm | | |



XPol Panel 1710–2200 65° 18dBi 6°T

| Type No. | 800 10428 | | |
|--|---|-----------------------------|-----------------------------|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 17.9 dBi | 2 x 18.1 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 65° | 63° |
| Front-to-back ratio, copolar | > 27 dB | > 33 dB | > 33 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 6.7° | 6.3° | 5.8° |
| Electrical tilt | 6°, fixed | 6°, fixed | 6°, fixed |
| Sidelobe suppression for first sidelobe above main beam | > 14 dB | > 14 dB | > 15 dB |
| First null-fill below main beam | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| VSWR | < 1.3 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 6.6 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 350 / 100 / 410 N | | |
| Height/width/depth | 1302 / 155 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

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XPol Panel 1710–2200 65° 18dBi 0°–10°T

| Type No. | 742 215 | | |
|--|--|--|--|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 17.9 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 66° | 65° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.1° | 6.8° | 6.4° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB |
| Isolation, between ports | > 30 dB | | |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 6.2 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 350 / 90 / 350 N | | |
| Height/width/depth | 1314 / 155 / 70 mm | | |



1800/1900/2000/2500
XPol

XPol Panel 1710–2200 65° 18dBi 2°–10°T ESLS

| Type No. | 800 10614 | | |
|--|--|------------------|------------------|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain at 0° tilt | 2 x 17.3 dBi | 2 x 17.7 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 66° | 64° | 62° |
| Front-to-back ratio (180° ± 30°) | ≥ 25 dB | ≥ 25 dB | ≥ 25 dB |
| Cross polar ratio Sector 0° ±60° | 25 dB ≥ 10 dB | 25 dB ≥ 10 dB | 25 dB ≥ 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.9° | 7.5° | 7.2° |
| Electrical tilt | 2°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | > 15 dB | > 17 dB | > 18 dB |
| Sidelobe suppression in the sector 40°–180° below horizon for Tx-Frequencies | > 23 dB | > 24 dB | > 25 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 6.9 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 350 / 90 / 350 N | | |
| Height/width/depth | 1314 / 155 / 70 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

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XPol Panel 1710–2200 65° 18dBi 0°–15°T ESLS

| Type No. | 800 10504 | | | |
|--------------------------------------|---|------------------------------|------------------------------|------------------------------|
| Frequency range | 1710–2200 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | 2000 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain at 0° tilt | 2 x 17.5 dBi | 2 x 17.6 dBi | 2 x 17.7 dBi | 2 x 17.8 dBi |
| Horizontal Pattern: | | | | |
| Half-power beam width | 68° | 66° | 64° | 62° |
| Front-to-back ratio (180° ±30°) | ≥ 28 dB | ≥ 28 dB | ≥ 28 dB | ≥ 28 dB |
| Cross polar ratio | 22 dB | 22 dB | 24 dB | 26 dB |
| Sector | 0° | ±60° | ≥ 10 dB | ≥ 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 7.9° | 7.5° | 7.2° | 7.0° |
| Electrical tilt | 0°–15°, continuously adjustable | | | |
| Sidelobe suppression | 0° ... 5° ... 10° ... 15° T | 0° ... 5° ... 10° ... 15° T | 0° ... 5° ... 10° ... 15° T | 0° ... 5° ... 10° ... 15° T |
| – for first sidelobe above main beam | ≥ 17 ... 20 ... 18 ... 17 dB | ≥ 16 ... 20 ... 18 ... 17 dB | ≥ 16 ... 20 ... 18 ... 17 dB | ≥ 15 ... 20 ... 18 ... 15 dB |
| – within 0°–20° sector above horizon | ≥ 16 ... 18 ... 18 ... 16 dB | ≥ 16 ... 18 ... 17 ... 16 dB | ≥ 15 ... 18 ... 17 ... 16 dB | ≥ 15 ... 16 ... 16 ... 15 dB |
| Null-fill at 0° tilt | 21 dB | 20 dB | 19 dB | 18 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 2 x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 1 x, Position bottom, continuously adjustable | | | |
| Weight | 9 kg | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 370 / 110 / 440 N | | | |
| Height/width/depth | 1374 / 155 / 69 mm | | | |



Panel
Dual Polarization
Half-power Beam Width

1710–2200

X

65°

KATHREIN
 Antennen · Electronic

XPol Panel 1710–2200 65° 19.5dBi 0°–6°T

| Type No. | 742 213 | | |
|--|---|---|---|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 19 dBi | 2 x 19.2 dBi | 2 x 19.5 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 65° | 63° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio Maindirection Sector | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| | 0° | | |
| | ±60° | | |
| Vertical Pattern: | | | |
| Half-power beam width | 4.7° | 4.5° | 4.3° |
| Electrical tilt | 0°–6°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 16 ... 15 dB | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 16 dB | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ... 18 dB |
| Isolation, between ports | > 30 dB | | |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 8.7 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 520 / 140 / 520 N | | |
| Height/width/depth | 1954 / 155 / 70 mm | | |



1800/1900/2000/2500
 XPol

Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

KATHREIN

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XPol Panel 1710–2200 65° 19dBi 0°–10°T ESLS

| Type No. | 800 10505 | | | |
|--|--|--|--|--|
| Frequency range | 1710–2200 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | 2000 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average Gain (dBi) | 18.5 ... 18.7 ... 18.5 dB | 18.7 ... 19.0 ... 18.5 dB | 18.7 ... 19.0 ... 18.4 dB | 18.7 ... 18.9 ... 18.3 dB |
| Tilt | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T |
| Horizontal Pattern: | | | | |
| Half-power beam width | 67° | 65° | 64° | 63° |
| Front-to-back ratio (180° ±30°) | ≥ 30 dB | ≥ 30 dB | ≥ 27 dB | ≥ 26 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 25 dB ≥ 11 dB | Typically: 22 dB ≥ 11 dB | Typically: 22 dB ≥ 11 dB | Typically: 22 dB ≥ 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 5.0° | 4.8° | 4.6° | 4.4° |
| Electrical tilt | 0°–10°, continuously adjustable | | | |
| Sidelobe suppression – for first sidelobe above main beam – within 0°–20° sector above horizon | 0° ... 4° ... 8° ... 10° T ≥ 20 ... 20 ... 18 ... 18 dB ≥ 18 ... 18 ... 17 ... 17 dB | 0° ... 4° ... 8° ... 10° T ≥ 20 ... 20 ... 18 ... 18 dB ≥ 17 ... 18 ... 17 ... 15 dB | 0° ... 4° ... 8° ... 10° T ≥ 19 ... 20 ... 18 ... 18 dB ≥ 17 ... 17 ... 17 ... 15 dB | 0° ... 4° ... 8° ... 10° T ≥ 18 ... 20 ... 18 ... 18 dB ≥ 17 ... 17 ... 14 ... 12 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 2x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | | |
| Weight | 11 kg | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 570 / 180 / 660 N | | | |
| Height/width/depth | 1984 / 155 / 69 mm | | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2200 62° 19dBi 0°–8°T

| Type No. | 800 10636 | | |
|---|---|---|---|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 18.3 dBi | 2 x 18.7 dBi | 2 x 19 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 65° | 62° | 59° |
| Front-to-back ratio (180° ± 30°) | > 30 dB | > 30 dB | > 28 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 6.6° | 6.2° | 5.9° |
| Electrical tilt | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° T 18 ... 14 ... 14 dB | 0° ... 4° ... 8° T 18 ... 15 ... 15 dB | 0° ... 4° ... 8° T 18 ... 15 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | Approx. 7 kg | | |
| Wind load (approx.) | Frontal / lateral / rearside: 350 / 140 / 360 N (at 150 km/h) | | |
| Height/width/depth | 1404 / 155 / 70 mm | | |



1800/1900/2000/2500
XPol

XPol Panel 1710–2170 65° 20.5dBi 0°T

| Type No. | 742 186 | | |
|----------------------------------|---|--|--|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 20 dBi | 20.2 dBi | 20.5 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 65° | 61° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 30 dB Total power: > 28 dB | Copolar: > 30 dB Total power: > 28 dB | Copolar: > 30 dB Total power: > 27 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB |
| Sector | > 14 dB | > 14 dB | > 14 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 4° | 3.8° | 3.5° |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 9.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 600 / 180 / 710 N | | |
| Height/width/depth | 2160 / 155 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2200 65° 21dBi 0°T

| Type No. | 800 10439 | | | |
|--------------------------------------|---|-----------------|-----------------|-----------------|
| Frequency range | 1710–2200 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | 2000 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 20.5 dBi | 2 x 20.8 dBi | 2 x 21.1 dBi | 2 x 21.2 dBi |
| Horizontal Pattern: | | | | |
| Half-power beam width | 66° | 63° | 60° | 58° |
| Front-to-back ratio (180°±30°) | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio | 0° | 23 dB | 23 dB | 23 dB |
| Sector | ±60° | > 12 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 4.2° | 4° | 3.7° | 3.5° |
| Electrical tilt | 0°, fixed | | | |
| Sidelobe suppression | > 15 dB | | | |
| – for first sidelobe above main beam | > 15 dB | | | |
| – within 0°–30° sector above horizon | > 15 dB | | | |
| First null-fill below main beam | < 20 dB | | | |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 2 x 7-16 female | | | |
| Connector position | Bottom or top | | | |
| Weight | 11.5 kg | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 230 / 220 / 550 N | | | |
| Height/width/depth | 2172 / 155 / 89 mm | | | |



XPol Panel 1710–2200 62° 21.2dBi 0°–6°T

| Type No. | 800 10378 | | |
|---|---|---|---|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 20.6 dBi | 2 x 21.1 dBi | 2 x 21.2 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 65° | 62° | 60° |
| Front-to-back ratio (180°± 30°) | > 30 dB | > 28 dB | > 28 dB |
| Cross polar ratio | 0° | 23 dB | 23 dB |
| Sector | ±60° | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 3.7° | 3.5° | 3.3° |
| Electrical tilt | 0°–6°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 6° T 18 ... 18 ... 16 dB | 0° ... 4° ... 6° T 18 ... 18 ... 17 dB | 0° ... 4° ... 6° T 18 ... 18 ... 17 dB |
| Null-fill at 0° tilt | 20 dB | 20 dB | 20 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | |
| Weight | 14 kg | | |
| Wind load (approx.) | Frontal / lateral / rearside: 630 / 250 / 650 N (at 150 km/h) | | |
| Height/width/depth | Approx. 2520 / 155 / 89 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2170

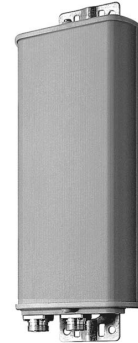
X

88°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2170 88° 11.5dBi

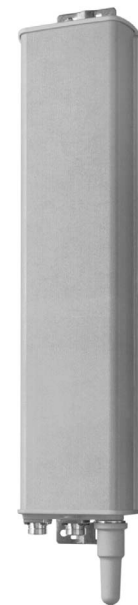
| Type No. | 741 984 | | |
|--|---|--|--|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 11.3 dBi | 2 x 11.5 dBi | 2 x 11.6 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 86° | 87° | 88° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 23 dB Total power: > 23 dB | Copolar: > 23 dB Total power: > 23 dB | Copolar: > 23 dB Total power: > 23 dB |
| Cross polar ratio Maindirection Sector | 0° ±60° Typically: 20 dB > 18 dB | Typically: 25 dB > 18 dB | Typically: 20 dB > 15 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 28° | 26° | 26° |
| Sidelobe suppression vertical sector ±45° | > 20 dB | > 20 dB | > 20 dB |
| VSWR | < 1.4 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 150 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom or top | | |
| Weight | 2 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 95 / 24 / 110 N | | |
| Height/width/depth | 342 / 155 / 69 mm | | |



1800/1900/2000/2500
XPol

XPol Panel 1710–2170 88° 14dBi 0°–10°T

| Type No. | 741 988 | | |
|--|--|--|--|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 13.7 dBi | 2 x 14 dBi | 2 x 14.1 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 88° | 88° | 88° |
| Front-to-back ratio, copolar total power | > 25 dB > 25 dB | > 25 dB > 25 dB | > 25 dB > 25 dB |
| Cross polar ratio Maindirection Sector | 0° ±60° Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 14.7° | 14° | 13° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 4.2 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 180 / 55 / 210 N | | |
| Height/width/depth | 662 / 155 / 69 mm | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

88°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2200 88° 17dBi 0°–8°T

| Type No. | 741 989 | | |
|---|---|---|---|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16.5 dBi | 2 x 16.8 dBi | 2 x 16.7 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 88° | 88° | 88° |
| Front-to-back ratio (180° ± 30°) | Copolar: > 25 dB Total power: > 25 dB | Copolar: > 25 dB Total power: > 25 dB | Copolar: > 24 dB Total power: > 24 dB |
| Cross polar ratio | | | |
| Maindirection | Typically: 20 dB | Typically: 20 dB | Typically: 20 dB |
| Sector | 0° ±60° > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7° | 6.7° | 6.5° |
| Electrical tilt | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 5° ... 8° T 18 ... 18 ... 16 ... 14 dB | 0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 17 dB | 0° ... 2° ... 5° ... 8° T 18 ... 18 ... 18 ... 17 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 7.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 360 / 110 / 420 N | | |
| Height/width/depth | 1302 / 155 / 69 mm | | |



XPol Panel 1710–1880 90° 17.5dBi 2°T

| Type No. | 739 710 |
|---|--|
| Frequency range | 1710 – 1880 MHz |
| Polarization | +45°, –45° |
| Gain | 2 x 17.5 dBi |
| Half-power beam width | Horizontal: 90° |
| Copolar +45°/–45° | Vertical: 5° |
| Electrical tilt | 2°, fixed |
| Sidelobe suppression for first sidelobe above horizon | ≥ 14 dB |
| Front-to-back ratio, copolar | > 25 dB |
| Isolation, between ports | > 30 dB |
| VSWR | < 1.4 |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) |
| Max. power per input | 200 W (at 50 °C ambient temperature) |
| Input | 2 x 7-16 female |
| Connector position | Bottom |
| Weight | 9 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 530 / 150 / 610 N |
| Height/width/depth | 1902 / 155 / 69 mm |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2170

X

88°

KATHREIN
Antennen · Electronic

XPol Panel 1710–2170 88° 18dBi 0°–6°T

| Type No. | 741 990 | | |
|---|---|---|---|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 18 dBi | 2 x 18.2 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 88° | 88° | 88° |
| Front-to-back ratio, copolar total power | > 25 dB > 25 dB | > 25 dB > 25 dB | > 25 dB > 25 dB |
| Cross polar ratio | | | |
| Main direction | Typically: 20 dB | Typically: 20 dB | Typically: 20 dB |
| Sector | ±60° > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 4.9° | 4.7° | 4.5° |
| Electrical tilt | 0°–6°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 4° ... 6° T 17 ... 17 ... 17 ... 17 dB | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ... 18 dB | 0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ... 18 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | | |
| Weight | 10.8 kg | | |
| Wind load | Frontal / lateral / rearside: 550 / 160 / 630 N | | |
| Height/width/depth | 1942 / 155 / 69 mm | | |



1800/1900/2000/2500
XPol

Dual-Beam Panel Dual Polarization Half-power Beam Width

| | |
|-----------|-----------|
| 1710–2200 | 1710–2200 |
| X | X |
| 45° | 45° |

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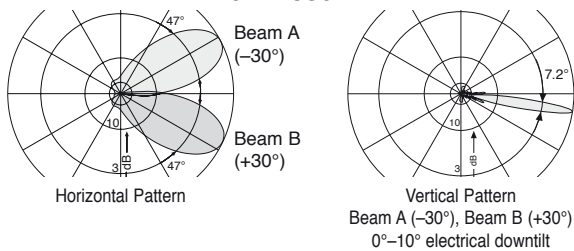
XXPol Panel 1710–2200/1710–2200 45°(–30°)/45°(+30°) 19.5/19.5dBi 0°–10°/0°–10°T

| Type No. | 800 10606 | | |
|---|---|-----------------------------|-----------------------------|
| Frequency range | 1710 – 1880 MHz 1850 – 1990 MHz 1920 – 2200 MHz | | |
| Azimuth direction | Beam A (–30°), Beam B (+30°) | | |
| Polarization | +45°, –45°, +45°, –45° | +45°, –45°, +45°, –45° | +45°, –45°, +45°, –45° |
| Gain | 4 x 19 dBi | 4 x 19.3 dBi | 4 x 19.5 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width (offset beams ±30°) | 47° | 45° | 43° |
| Front-to-back ratio | Copolar: > 30 dB Total power: > 25 dB | | |
| Cross polar ratio | | | |
| Maindirection –30°; +30° Sector –60°; 0°; 0°; +60° | Typically: 18 dB > 13 dB | Typically: 17 dB > 13 dB | Typically: 16 dB > 13 dB |
| Sidelobe suppression for sidelobes beside main beam | > 18 dB | | |
| Vertical Pattern: | | | |
| Half-power beam width | 7.2° | 7.1° | 6.8° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | > 18 dB | | |
| VSWR | < 1.5 | | |
| Isolation, between inputs | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 200 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 18.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 720 / 190 / 830 N | | |
| Height/width/depth | 1314 / 380 / 150 mm | | |

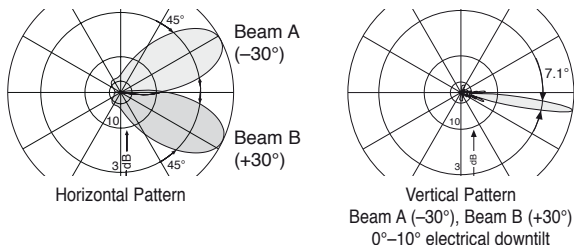


Dual Beam Antenna Patterns:

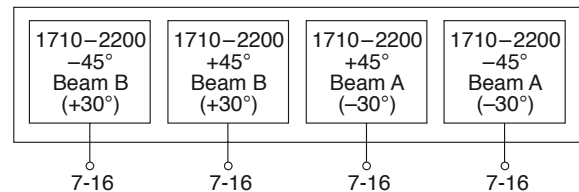
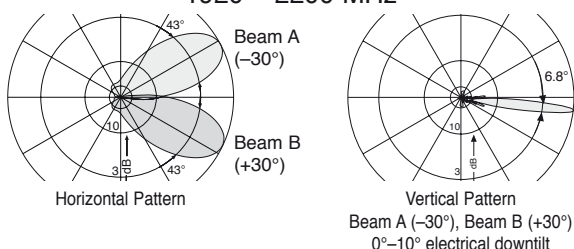
1710 – 1880 MHz



1850 – 1990 MHz



1920 – 2200 MHz



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

KATHREIN
Antennen · Electronic

XPol Panel IRT 1710–2200 65° 18dBi 0°–10°T

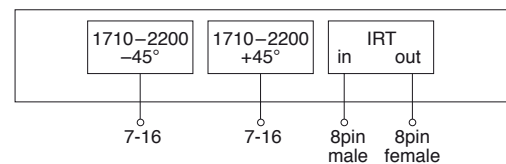


| Type No. | 800 10314 / 800 10618 | | |
|--|--|--|--|
| A) Antenna specifications | | | |
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 17.9 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 66° | 65° |
| Front-to-back ratio | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio | | | |
| Maindirection | 0° | | |
| Sector | ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.1° | 6.8° | 6.6° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 10° T 16 ... 16 ... 16 ... 16 dB | 0° ... 4° ... 8° ... 10° T 17 ... 17 ... 17 ... 17 dB | 0° ... 4° ... 8° ... 10° T 17 ... 17 ... 17 ... 17 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 120 W (at 50 °C ambient temperature) | | |
| Input | 2 x 7-16 female IRT in: 1 x 8pin male IRT out: 1 x 8pin female | | |
| Connector position | Bottom | | |
| Weight | 7.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 350 / 100 / 410 N | | |
| Height/width/depth | 1302 / 155 / 69 mm | | |



1800/1900/2000/2500
XPol

| B) IRT specifications | 800 10314 | 800 10618 |
|--|--|---------------|
| Logical interface ex factory ¹⁾ | AISG 1.1 | 3GPP/AISG 2.0 |
| Protocols | Compliant to AISG 1.1 and 3GPP/AISG 2.0 | |
| Hardware interface ²⁾ | 2 x 8pin connector acc. IEC 60130-9; according to AISG: – IRT in (male): Control / Daisy chain in – IRT out (female): Daisy chain out | |
| Power supply | 10 ... 30 V | |
| Power consumption | < 1 W (stand by) < 8.5 W (motor activated) | |
| Adjustment time (full range) | 40 sec. | |
| Adjustment cycles | > 50,000 | |



¹⁾ The protocol of the logical interface can be switched from AISG 1.1 to 3GPP/AISG 2.0 and vice versa with a vendor specific command. Start-up operation of the 800 10314 is only possible with a primary station supporting AISG 1.1 and start-up operation of the 800 10618 is only possible with a primary station supporting 3GPP/AISG 2.0!

Please note: The used Primary-SW has to be able to handle also integrated remote tilt units, like Kathrein CCU with firmware 1.29 or higher and the Kathrein PCA with SW 2.0 or higher. If the Primary of the system doesn't support the standard of the 'logical interface ex factory', the IRT must be switched to the appropriate standard of the Primary before installation. Please contact Kathrein for further information.

²⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

Multi-band Panel Dual Polarization Half-power Beam Width

1710–2200

X

65°

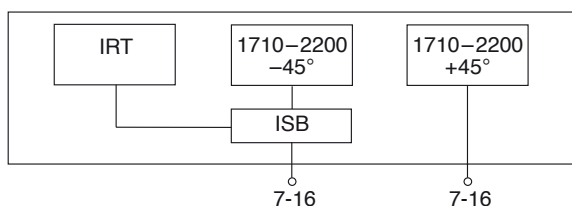
KATHREIN

Antennen · Electronic

XPol Panel IRT+ISB 1710–2200 65° 18dBi 0°–10°T



| | | | |
|--|--|--|--|
| Type No. | 800 10414 | | |
| A) Antenna specifications | | | |
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.7 dBi | 2 x 17.9 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 66° | 65° |
| Front-to-back ratio | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio | | | |
| Maindirection | 0° | | |
| Sector | ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 6.8° | 6.5° | 6.2° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 10° T 17 ... 17 ... 17 ... 17 dB | 0° ... 4° ... 8° ... 10° T 17 ... 17 ... 17 ... 17 dB | 0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB |
| VSWR | < 1.5 | | |
| Isolation, between ports | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 100 W (at 45 °C ambient temperature) | | |
| Input | 2 x 7-16 female | | |
| Connector position | Bottom | | |
| Weight | 8.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 360 / 90 / 360 N | | |
| Height/width/depth | 1358 / 155 / 70 mm | | |



B) IRT + ISB specifications

| | |
|----------------------------------|--|
| Power supply | 10 ... 30 V |
| Power consumption | < 1 W (stand by) < 8 W (motor activated) |
| Hardware interface | IRT supply and control via integrated smart Bias-T: Input: 7-16 female (–45°) |
| Modem carrier frequency | 2.176 MHz |
| Modem data rate | 9.6 kB / 38.4 kB |
| Software interface ¹⁾ | HEX coded commands based on HDLC protocol; according to AISG 2.0 / 3GPP |
| Adjustment time (full range) | < 30 sec. |
| Adjustment cycles | > 50,000 |

¹⁾ Please note: The primary station must be able to support an integrated remote tilt unit with 3GPP / AISG 2.0 protocol, e.g. Kathrein CCU with firmware 2.00 or higher or the Kathrein PCA with software 2.1.0 or higher.

Multi-band Panel Dual Polarization Half-power Beam Width

1920...2170

X

65°

KATHREIN
Antennen · Electronic

XPoI Panel IRT+ISB IA 12dB 1920–1980,2110–2170 65° 17.5dBi 0°–15°T

| | |
|--------------------------------|---|
| Type No. | 800 10519 |
| System Specifications | |
| Frequency range, Rx | 1920 – 1980 MHz |
| Bandwidth, Rx | 60 MHz |
| Frequency range, Tx | 2110 – 2170 MHz |
| Bandwidth, Tx | 60 MHz |
| Impedance | 50 Ω |
| Gain, Rx at 0° tilt | 29.5 ±1.0 dBi (DC ON) 14 dBi (DC OFF) |
| Gain, Tx at 0° tilt | 17.2 dBi |
| VSWR, Rx | < 1.5 (DC ON) < 1.7 (DC OFF) |
| VSWR, Tx | < 1.5 |
| Intermodulation IM7 in Rx band | < -160 dBc (2 x 43 dBm carrier) |
| Max. power per input | 75 W (at 45 °C ambient temperature) |
| Hardware interface | IA / IRT supply and control via integrated smart Bias-T; Input: 7-16 female (-45°) or (+45°) |
| DC supply | 10 – 30 V |
| Power consumption | Inactive motor: < 4 W (LNA active) Aktive motor: < 13 W (LNA active) |
| Modem carrier frequency | 2,176 MHz |
| Modem data rate | 9.6 kB / 38.4 kB |

| | |
|---|---|
| A) Antenna Specifications | |
| Polarization | +45°, -45° |
| Gain at 0° tilt, full band | 17.5 dBi |
| Horizontal Pattern: | |
| Half-power beam width | 65° |
| Front-to-back ratio (180° ±30°) | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio 0° | Typically 20 dB |
| Sector ±60° | Typically 10 dB |
| Vertical Pattern: | |
| Half-power Beam Width | 7.5° |
| Electrical tilt | 0° – 15°, continuously adjustable (via IRT) |
| Sidelobe suppression for first sidelobe above main beam | > 16 dB |
| Null-fill at 0° tilt | 19 dB |
| Isolation between +45°, -45° Polarization | > 30 dB |

| | |
|--|------------------------------|
| B) IA Specifications | |
| Rx Characteristics | |
| Gain -40 ... +60 °C (DC on) | 12.0 ±1.0 dB 12.0 ±0.5 dB |
| Gain ripple | < ±0.3 dB |
| Loss in by-pass mode (DC off) | Typically 3.3 dB |
| Noise figure | Typically 1.4 dB |
| Output 1-dB compression point | > 14 dBm |
| 3 rd order intercept point (OIP3) | > 24 dBm |
| Tx Characteristics | |
| Insertion loss | Typically 0.3 dB |
| Ripple | < ±0.2 dB |
| Alarm management ¹⁾ | According to AISG 2.0 / 3GPP |

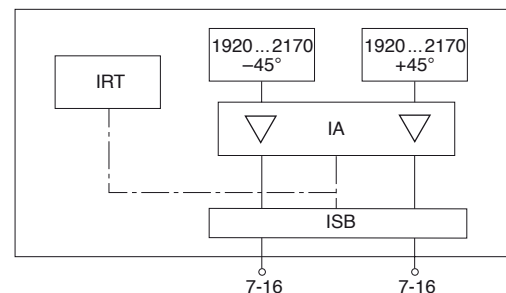
| | |
|----------------------------------|---|
| C) IRT Specifications | |
| Software interface ¹⁾ | HEX coded commands based on HDLC protocol, according to AISG 2.0 / 3GPP |
| Adjustment time (full range) | 40 sec. |
| Adjustment cycles | > 50,000 |

¹⁾ The protocol of the software interface can be switched between AISG 2.0 / 3GPP and AISG 1.1 with a vendor specific command.

The protocol as supplied is AISG 2.0 / 3GPP, if the primary station does not support this protocol, it has to be switched before system start up. Please contact Kathrein for further information.



1800/1900/2000/2500
XPoI



| | |
|-------------------------------------|--|
| D) Mechanical specifications | |
| Input | 2 x 7-16 female (long neck) |
| Connector position | Bottom |
| Weight | 10 kg |
| Wind load (at 150 km/h) | Frontal: 360 N Lateral: 90 N Rearside: 360 N |
| Max. wind velocity | 200 km/h |
| Packing size | 1460 x 172 x 92 mm |
| Height/width/depth | 1336 / 155 / 70 mm |

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

0°

120°

240°

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Antennen · Electronic

1710–2170

1710–2170

1710–2170

X

X

X

65°

65°

65°

0°–12°

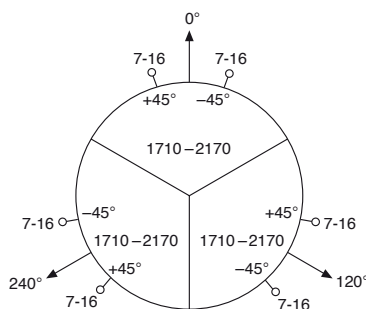
0°–12°

0°–12°

set by hand or by optional RCUs (Remote Control Units)

XPol Tri-Sector Pipe 1710–2170 65° 15.5dBi 0°–12°T

| Type No. | 800 10375 | | | Electrical datas per sector |
|---|---|---|---|-----------------------------|
| Frequency range | 1710–2170 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | |
| Gain per Input (dBi) | 0° ... 4° ... 8° ... 12° T 15.4 ... 15.2 ... 15.0 ... 14.8 | 0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.3 ... 14.9 | 0° ... 4° ... 8° ... 12° T 15.7 ... 15.6 ... 15.4 ... 14.9 | |
| Half-power beam width Copolar +45°/–45° | Horizontal: 67° Vertical: 12.7° | Horizontal: 65° Vertical: 12° | Horizontal: 62° Vertical: 11.2° | |
| Electrical tilt continuously adjustable | 0°–12° | 0°–12° | 0°–12° | |
| Sidelobe suppression for first sidelobe above horizon | 0° ... 4° ... 8° ... 12° T 16 ... 16 ... 15 ... 15 dB | 0° ... 4° ... 8° ... 12° T 18 ... 17 ... 17 ... 16 dB | 0° ... 4° ... 8° ... 12° T 18 ... 18 ... 16 ... 16 dB | |
| Front-to-back ratio | Copolar: > 25 dB | Copolar: > 25 dB | Copolar: > 25 dB | |
| Cross polar ratio Maindirection Sector | 0° ±60° Typically: 20 dB Typically: > 10 dB | Typically: 20 dB Typically: > 10 dB | Typically: 20 dB Typically: > 10 dB | |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | |
| Isolation: Intersystem | > 40 dB | > 40 dB | > 40 dB | |
| Impedance | 50 Ω | 50 Ω | 50 Ω | |
| VSWR | < 1.5 | < 1.5 | < 1.5 | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | | | |



Mechanical specifications

| | |
|----------------------|---|
| Input | 3 x 2 x 7-16 female |
| Connector position | Bottom – inside service area |
| Adjustment mechanism | 3 x 1, Position bottom continuously adjustable inside service area |
| Weight | 32 kg |
| Wind load | 205 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Natural frequency | 45 – 47 Hz |
| Damping ratio | 0.032 |
| Mechanical interface | Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note) |
| Packing size | 1395 x 315 x 330 mm |
| Height / diameter | 1241 / 230 and 280 mm |

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

0°

120°

240°

KATHREIN

Antennen · Electronic

1710–2170

1710–2170

1710–2170

X

X

X

65°

65°

65°

0°–10°

0°–10°

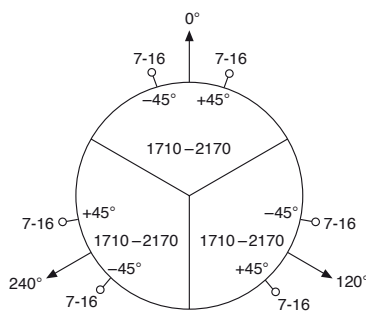
0°–10°

XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T

| Type No. | 800 10360 | | | Electrical datas per sector |
|---|--|--|--|-----------------------------|
| Frequency range | 1710–2170 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | |
| Average gain (dBi) | 17.2 ... 17.5 ... 17.2 | 17.6 ... 17.8 ... 17.6 | 17.8 ... 17.9 ... 17.4 | |
| Tilt | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° | |
| Half-power beam width | Horizontal: 66° | Horizontal: 63° | Horizontal: 60° | |
| Copolar +45°/–45° | Vertical: 7° | Vertical: 6.7° | Vertical: 6.4° | |
| Electrical tilt continuously adjustable | 0°–10° | 0°–10° | 0°–10° | |
| Sidelobe suppression for first sidelobe above horizon | 0° ... 5° ... 10° T 17 ... 15 ... 15 dB | 0° ... 5° ... 10° T 17 ... 17 ... 15 dB | 0° ... 5° ... 10° T 17 ... 17 ... 15 dB | |
| Front-to-back ratio (180° ± 30°) | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | |
| Cross polar ratio | | | | |
| Maindirection | 0° | | | |
| Sector | ±60° | | | |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | |
| Isolation: Intersystem | > 45 dB | > 42 dB | > 42 dB | |
| Impedance | 50 Ω | 50 Ω | 50 Ω | |
| VSWR | < 1.5 | < 1.5 | < 1.5 | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |



1800/1900/2000/2500
XPol



Mechanical specifications

| | |
|----------------------|---|
| Input | 3 x 2 x 7-16 female |
| Connector position | Bottom – inside service area |
| Adjustment mechanism | 3 x 1, Position bottom continuously adjustable inside service area |
| Weight | 56 kg |
| Wind load | 320 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Natural frequency | 19 – 21 Hz |
| Damping ratio | 0.032 |
| Mechanical interface | Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note) |
| Packing size | 2030 x 400 x 400 mm |
| Height / diameter | 1823 / 230 and 280 mm |

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

0°

120°

240°

KATHREIN

Antennen · Electronic

1710–2170

1710–2170

1710–2170

X

X

X

65°

65°

65°

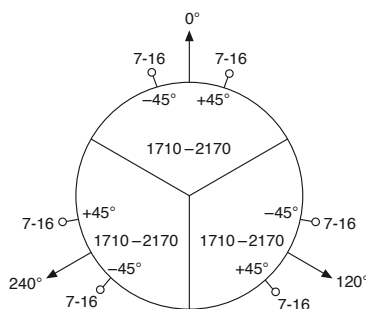
0°–10°

0°–10°

0°–10°

XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T

| Type No. | 800 10270 | | | Electrical datas per sector |
|---|--|--|--|--|
| Frequency range | 1710–2170 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | |
| Average gain (dBi) | 17.2 ... 17.5 ... 17.2 | 17.6 ... 17.8 ... 17.6 | 17.8 ... 17.9 ... 17.4 | |
| Tilt | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° | |
| Half-power beam width | Horizontal: 66° | Horizontal: 63° | Horizontal: 60° | |
| Copolar +45°/–45° | Vertical: 7° | Vertical: 6.7° | Vertical: 6.4° | |
| Electrical tilt continuously adjustable | 0°–10° | 0°–10° | 0°–10° | |
| Sidelobe suppression for first sidelobe above horizon | 0° ... 5° ... 10° T 17 ... 15 ... 15 dB | 0° ... 5° ... 10° T 17 ... 17 ... 15 dB | 0° ... 5° ... 10° T 17 ... 17 ... 15 dB | |
| Front-to-back ratio (180° ± 30°) | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | |
| Cross polar ratio | | | | |
| Maindirection | 0° | | | |
| Sector | ±60° | Typically: 25 dB Typically: > 10 dB | Typically: 20 dB Typically: > 10 dB | Typically: 20 dB Typically: > 10 dB |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | |
| Isolation: Intersystem | > 45 dB | > 42 dB | > 42 dB | |
| Impedance | 50 Ω | 50 Ω | 50 Ω | |
| VSWR | < 1.5 | < 1.5 | < 1.5 | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |



Mechanical specifications

| | |
|----------------------|---|
| Input | 3 x 2 x 7-16 female |
| Connector position | Bottom – inside service area |
| Adjustment mechanism | 3 x 1, Position bottom continuously adjustable inside service area |
| Weight | 70 kg |
| Wind load | 450 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Natural frequency | 17.5 – 19 Hz |
| Damping ratio | 0.032 |
| Mechanical interface | Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note) |
| Packing size | 2500 x 330 x 315 mm |
| Height / diameter | 2296 / 230 and 280 mm |

Tri-Sector Pipe Antenna

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Frequency Range

Antennen · Electronic

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

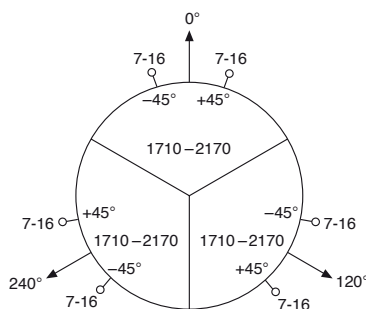
XPol Tri-Sector Pipe 1710-2170 65° 19.5dBi 0°-6°T

| Type No. | 800 10271 | | | Electrical datas per sector |
|---|---|---|---|-----------------------------|
| Frequency range | <input type="text" value="1710-2170"/> | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | |
| Polarization | +45°, -45° | +45°, -45° | +45°, -45° | |
| Average gain (dBi) | 18.7 ... 19.0 ... 18.7 | 18.8 ... 19.2 ... 19.1 | 19.0 ... 19.5 ... 19.3 | |
| Tilt | 0° ... 3° ... 6° | 0° ... 3° ... 6° | 0° ... 3° ... 6° | |
| Half-power beam width | Horizontal: 67° | Horizontal: 66° | Horizontal: 64° | |
| Copolar +45°/-45° | Vertical: 4.7° | Vertical: 4.5° | Vertical: 4.3° | |
| Electrical tilt continuously adjustable | 0°-6° | 0°-6° | 0°-6° | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 3° ... 6° T 18 ... 18 ... 16 dB | 0° ... 3° ... 6° T 18 ... 18 ... 18 dB | 0° ... 3° ... 6° T 18 ... 18 ... 17 dB | |
| Front-to-back ratio (180° ± 30°) | Copolar: > 28 dB Total power: > 28 dB | Copolar: > 26 dB Total power: > 25 dB | Copolar: > 26 dB Total power: > 25 dB | |
| Cross polar ratio | | | | |
| Maindirection | 0° | | | |
| Sector | ±60° | | | |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | |
| Isolation: Intersystem | > 45 dB | > 42 dB | > 42 dB | |
| Impedance | 50 Ω | 50 Ω | 50 Ω | |
| VSWR | < 1.5 | < 1.5 | < 1.5 | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |



compact service area

1800/1900/2000/2500
XPol



| Mechanical specifications | |
|---------------------------|---|
| Input | 3 x 2 x 7-16 female |
| Connector position | Bottom – inside service area |
| Adjustment mechanism | 3 x 1, Position bottom continuously adjustable inside service area |
| Weight | 64 kg |
| Wind load | 445 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Natural frequency | 9.5 – 11 Hz |
| Damping ratio | 0.032 |
| Mechanical interface | Flange connection 12 x 12M at a graduated diameter of 208 mm 0°-360° continuously adjustable (for further details see application note) |
| Packing size | 2605 x 330 x 315 mm |
| Height / diameter | 2460 / 230 and 280 mm |

Accessories delivered with the Tri-Sector-Pipe Antenna:

1. Clamping ring for mounting the antenna on the customer-supplied base
2. Lightning conductor rod
3. Ring bolt as attachment possibility for lifting aid
4. Wrench (SW41 + SW27) for attaching the RCU

Optional Accessories:

The following components may be ordered separately

1. 860 10025 Slimline Remote Control Unit (RCU), see page 169
2. 782 10352 Multipack TMA MPTMA-UMTS-12-AISG-6P with 12 dB (equals 3*DTMA) and RET-Support
3. 782 10353 Multipack TMA MPTMA-UMTS-24-AISG-6P with 24 dB (equals 3*DTMA) and RET-Support
4. 782 10354 Multipack TMA MPTMA-UMTS-12-CW-6P with 12 dB (equals 3*DTMA) without RET-Support
5. 782 10355 Multipack TMA MPTMA-UMTS-24-CW-6P with 24 dB (equals 3*DTMA) without RET-Support
6. 850 10010 Flexible Sealing Frame (Roxtec frame to seal connection between the mast and the antenna, see below)
7. 738 440 Azimuth Adjustment Tool, see page 203
8. 737 306 3-way power splitter for optional omni pattern
9. 850 10111 Inlay mounting plate kit for 3-way splitter and DTMA for omni pattern
10. 782 10xxx Double TMA optional for omni pattern (several types, see page 286)



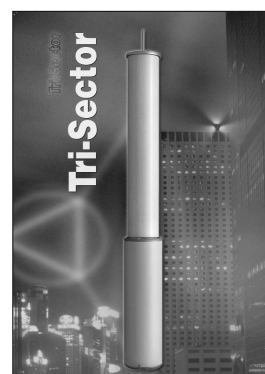
View inside service zone with MPTMA and Slimline RCU

Flexible Sealing Frame

| Type No. | 850 10010 |
|----------------------------|--|
| Outer diameter | 180 mm |
| Cable diameter (6x) | 15 – 42 mm |
| Cable diameter (3x) | 3.5 – 10.5 mm |
| Frame-Material | Stainless steel |
| Sealing-Material | Halogen free cross linkable compound on ethylene-propylene rubber (EPDM) |
| Material of screws | Stainless steel |
| Accessories | Mounting lubricant |
| Required assembly tools | Socket wrench size 6 mm |
| Weight (without packaging) | 1.8 kg |
| Packing size (L x W x H) | approx. 208 x 208 x 68 mm |



For further information please refer to separate application note under:
www.kathrein.de/en/mca/index-customerportal.htm



Summary – Directional Antennas

2-Multi-band

1800/1900/2000/2500

Dual Polarization +45°/–45°

| Type | Type No. | Height [mm] | Connector position | Page |
|--|------------------|-------------|--------------------|------|
| XXPol Panel 1710–2170 65° 15dBi 0°–10°T 1710–2170 65° 15dBi 0°–10°T | 742 233 | 679 | bottom | 74 |
| XXPol Panel 1710–2690 65° 15.5dBi 0°–10°T 1710–2690 65° 15.5dBi 0°–10°T | 800 10682 | 724 | bottom | 120 |
| XXPol Panel 1710–2200 65° 18dBi 0°–10°T 1710–2200 65° 18dBi 0°–10°T | 742 236 | 1319 | bottom | 74 |
| XXPol Panel 1710–2200 65° 18dBi 0°–15°T ESLS 1710–2200 65° 18dBi 0°–15°T | 800 10510 | 1389 | bottom | 75 |
| XXPol Panel 1710–2200 65° 18dBi 0°–15°T 2300–2690 60° 17.5dBi 0°–12°T | 800 10544 | 1389 | bottom | 122 |
| XXPol Panel 1710–2690 65° 18dBi 0°–12°T ESLS 1710–2690 65° 18dBi 0°–12°T | 800 10622 | 1389 | bottom | 123 |
| XXPol Panel 1710–2170 65° 19.5dBi 0°–6°T 1710–2170 65° 19.5dBi 0°–6°T | 742 235 | 1959 | bottom | 76 |
| XXPol Panel 1710–2200 65° 19dBi 0°–10°T ESLS 1710–2200 65° 19dBi 0°–10°T | 800 10511 | 1999 | bottom | 77 |
| XXPol Panel 1710–2180 88° 16.5dBi 0°–10°T 1710–2180 88° 16.5dBi 0°–10°T | 742 352 | 1319 | bottom | 78 |

New or changed product

*When deploying
2-Multi-band Antennas,
please also consider using
special Dual-band Combiners
(see pages 228 and 229)*

Abbreviations:
ESLS: Enhanced Side Lobe Suppression (above or below horizon)

1800/1900/2000/2500
XXPol 2-Multi

2-Multi-band Panel

Dual Polarization

Half-power Beam Width

| |
|-----------|
| 1710–2200 |
|-----------|

| |
|-----------|
| 1710–2200 |
|-----------|

| |
|---|
| X |
|---|

| |
|---|
| X |
|---|

| |
|-----|
| 65° |
|-----|

| |
|-----|
| 65° |
|-----|

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Antennen · Electronic

XXPol Panel 1710–2170/1710–2170 65°/65° 15/15dBi 0°–10°/0°–10°T

| Type No. | 742 233 | | |
|---|---|---|---|
| Frequency range | 1710–2170 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° |
| Gain | 4 x 15 dBi | 4 x 15.2 dBi | 4 x 15.3 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 67° | 65° | 62° |
| Front-to-back ratio | Copolar: > 25 dB Total power: > 25 dB | Copolar: > 25 dB Total power: > 25 dB | Copolar: > 25 dB Total power: > 25 dB |
| Cross polar ratio | | | |
| Main direction | 0° | Typically: 20 dB | Typically: 20 dB |
| Sector | ±60° | Typically: 10 dB | Typically: 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 14° | 13.7° | 13° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 10°T 16 ... 16 ... 15 ... 15 dB | 0° ... 4° ... 8° ... 10°T 16 ... 16 ... 16 ... 16 dB | 0° ... 4° ... 8° ... 10°T 16 ... 16 ... 16 ... 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between inputs | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | |
| Weight | 10.4 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 300 / 60 / 300 N | | |
| Height/width/depth | 679 / 323 / 71 mm | | |



XXPol Panel 1710–2200/1710–2200 65°/65° 18/18dBi 0°–10°/0°–10°T

| Type No. | 742 236 | | |
|---|---|--|--|
| Frequency range | 1710–2200 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz |
| Polarization | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° |
| Gain | 4 x 17.6 dBi | 4 x 17.8 dBi | 4 x 18 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 64° | 64° | 62° |
| Front-to-back ratio | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB | Copolar: > 30 dB Total power: > 25 dB |
| Cross polar ratio | | | |
| Main direction | 0° | Typically: 25 dB | Typically: 25 dB |
| Sector | ±60° | > 10 dB | > 10 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7° | 6.8° | 6.5° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T 20 ... 18 ... 16 dB | 0° ... 5° ... 10° T 20 ... 18 ... 16 dB | 0° ... 5° ... 10° T 16 ... 18 ... 16 dB |
| VSWR | < 1.5 | | |
| Isolation, between inputs | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | |
| Weight | 14.6 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 650 / 100 / 700 N | | |
| Height/width/depth | 1319 / 323 / 71 mm | | |



2-Multi-band Panel

Dual Polarization

Half-power Beam Width

| | |
|-----------|-----------|
| 1710–2200 | 1710–2200 |
|-----------|-----------|

| | |
|---|---|
| X | X |
|---|---|

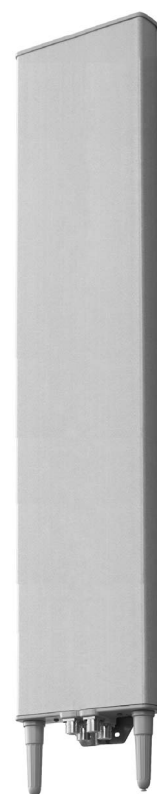
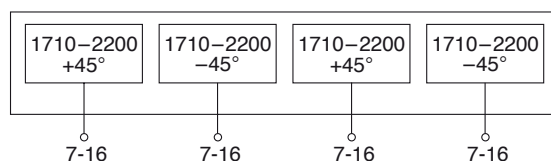
| | |
|-----|-----|
| 65° | 65° |
|-----|-----|

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XXPol Panel 1710–2200/1710–2200 65°/65° 18/18dBi 0°–15°/0°–15°T ESLs

| Type No. | 800 10510 | | | |
|--------------------------------------|---|------------------------------|------------------------------|------------------------------|
| Frequency range | 1710–2200 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | 2000 – 2200 MHz |
| Polarization | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° |
| Gain at 0° tilt | 4 x 17.5 dBi | 4 x 17.6 dBi | 4 x 17.7 dBi | 4 x 17.8 dBi |
| Horizontal Pattern: | | | | |
| Half-power beam width | 65° | 63° | 62° | 62° |
| Front-to-back ratio (180° ±30°) | ≥ 30 dB | ≥ 30 dB | ≥ 30 dB | ≥ 28 dB |
| Cross polar ratio | 0° | 0° | 0° | 0° |
| Sector | ±60° | ±60° | ±60° | ±60° |
| | ≥ 24 dB | ≥ 24 dB | ≥ 24 dB | ≥ 26 dB |
| | ≥ 9 dB | ≥ 9 dB | ≥ 10 dB | ≥ 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 7.9° | 7.5° | 7.2° | 6.9° |
| Electrical tilt | 0°–15°, continuously adjustable | | | |
| Sidelobe suppression | 0° ... 5° ... 10° ... 15° T | 0° ... 5° ... 10° ... 15° T | 0° ... 5° ... 10° ... 15° T | 0° ... 5° ... 10° ... 15° T |
| – for first sidelobe above main beam | ≥ 17 ... 20 ... 18 ... 17 dB | ≥ 16 ... 20 ... 18 ... 18 dB | ≥ 15 ... 19 ... 18 ... 17 dB | ≥ 14 ... 18 ... 18 ... 16 dB |
| – within 0°–20° sector above horizon | ≥ 17 ... 18 ... 18 ... 16 dB | ≥ 16 ... 17 ... 17 ... 16 dB | ≥ 15 ... 17 ... 17 ... 16 dB | ≥ 14 ... 16 ... 16 ... 15 dB |
| Null-fill at 0° tilt | 23 dB | 22 dB | 21 dB | 20 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 4 x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | |
| Weight | 17 kg | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 600 / 120 / 650 N | | | |
| Height/width/depth | 1389 / 323 / 71 mm | | | |



1800/1900/2000/2500
XXPol 2-Multi

2-Multi-band Panel

Dual Polarization

Half-power Beam Width

1710–2170

1710–2170

X

X

65°

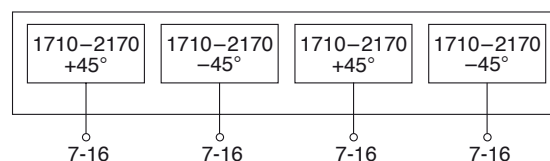
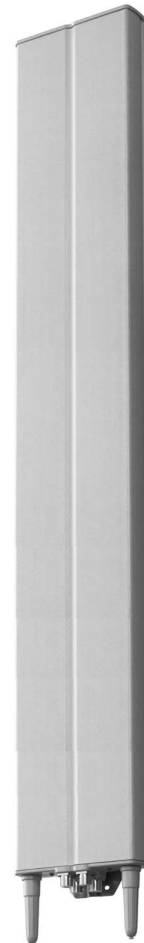
65°

KATHREIN

Antennen · Electronic

XXPol Panel 1710–2170/1710–2170 65°/65° 19.5/19.5dBi 0°–6°/0°–6°T

| | | | |
|--|---|--|--|
| Type No. | 742 235 | | |
| Frequency range | 1710 – 1880 MHz 1850 – 1990 MHz 1920 – 2170 MHz | | |
| Polarization | +45°, –45°; +45°, –45° +45°, –45°; +45°, –45° +45°, –45°; +45°, –45° | | |
| Gain | 4 x 19 dBi 4 x 19.2 dBi 4 x 19.5 dBi | | |
| Horizontal Pattern: | | | |
| Half-power beam width | 65° 64° 63° | | |
| Front-to-back ratio | Copolar: > 30 dB Total power: > 25 dB Copolar: > 30 dB Total power: > 25 dB Copolar: > 30 dB Total power: > 24 dB | | |
| Cross polar ratio | Typically: 25 dB Typically: 25 dB Typically: 25 dB | | |
| Maindirection Sector | 0° ±60° Typically: 25 dB > 10 dB Typically: 25 dB > 10 dB Typically: 25 dB > 10 dB | | |
| Vertical Pattern: | | | |
| Half-power beam width | 4.6° 4.4° 4.2° | | |
| Electrical tilt | 0°–6°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 2° ... 4° ... 6° T 17 ... 17 ... 14 ... 14 dB 0° ... 2° ... 4° ... 6° T 17 ... 17 ... 15 ... 15 dB 0° ... 2° ... 4° ... 6° T 17 ... 17 ... 15 ... 15 dB | | |
| VSWR | < 1.5 | | |
| Isolation, between inputs | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | |
| Weight | 18 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 920 / 190 / 920 N | | |
| Height/width/depth | 1959 / 323 / 71 mm | | |



1800/1900/2000/2500
XXPol 2-Multi

2-Multi-band Panel

Dual Polarization

Half-power Beam Width

1710–2200

1710–2200

X

X

65°

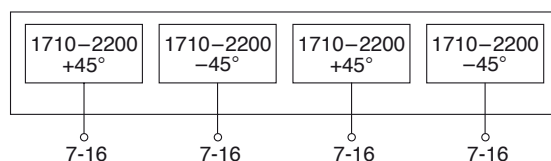
65°

KATHREIN

Antennen · Electronic

XXPol Panel 1710–2200/1710–2200 65°/65° 19/19dBi 0°–10°/0°–10°T ESLS

| Type No. | 800 10511 | | | |
|--------------------------------------|---|------------------------------|------------------------------|------------------------------|
| Frequency range | 1710–2200 | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz | 2000 – 2200 MHz |
| Polarization | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° |
| Gain | 18.5 ... 18.7 ... 18.5 dBi | 18.7 ... 19.0 ... 18.5 dBi | 18.7 ... 19.0 ... 18.4 dBi | 18.7 ... 18.9 ... 18.3 dBi |
| Tilt | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T |
| Horizontal Pattern: | | | | |
| Half-power beam width | 66° | 65° | 65° | 63° |
| Front-to-back ratio (180° ±30°) | ≥ 30 dB | ≥ 30 dB | ≥ 30 dB | ≥ 28 dB |
| Cross polar ratio | Typically: 22 dB | Typically: 22 dB | Typically: 22 dB | Typically: 22 dB |
| Sector | ≥ 10 dB | ≥ 10 dB | ≥ 10 dB | ≥ 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 5.0° | 4.8° | 4.6° | 4.4° |
| Electrical tilt | 0°–10°, continuously adjustable | | | |
| Sidelobe suppression | 0° ... 4° ... 8° ... 10° T | 0° ... 4° ... 8° ... 10° T | 0° ... 4° ... 8° ... 10° T | 0° ... 4° ... 8° ... 10° T |
| – for first sidelobe above main beam | ≥ 20 ... 20 ... 18 ... 18 dB | ≥ 20 ... 20 ... 18 ... 18 dB | ≥ 19 ... 20 ... 18 ... 18 dB | ≥ 18 ... 20 ... 18 ... 18 dB |
| – within 0°–20° sector above horizon | ≥ 18 ... 18 ... 17 ... 17 dB | ≥ 17 ... 18 ... 17 ... 15 dB | ≥ 17 ... 17 ... 17 ... 15 dB | ≥ 17 ... 17 ... 14 ... 12 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 4 x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | |
| Weight | 18 kg | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 920 / 190 / 950 N | | | |
| Height/width/depth | 1999 / 323 / 71 mm | | | |



1800/1900/2000/2500
XXPol 2-Multi

2-Multi-band Panel

Dual Polarization

Half-power Beam Width

1710–2180

1710–2180

X

X

88°

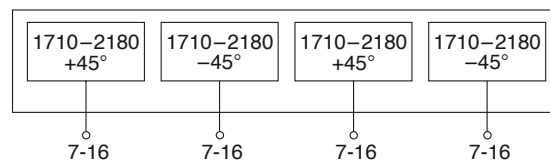
88°

KATHREIN

Antennen · Electronic

XXPol Panel 1710–2180/1710–2180 88°/88° 16.5/16.5dBi 0°–10°/0°–10°T

| Type No. | 742 352 | | |
|--|--|--|--|
| Frequency range | 1710–2180 | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° |
| Gain (average) | 16.1 ... 16.3 ... 16.0 dBi | 16.2 ... 16.4 ... 16.1 dBi | 16.5 ... 16.7 ... 16.2 dBi |
| Tilt | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° |
| Horizontal Pattern: | | | |
| Half-power beam width | 88° | 90° | 88° |
| Front-to-back ratio | Copolar: > 24 dB Total power: > 24 dB | Copolar: > 24 dB Total power: > 24 dB | Copolar: > 24 dB Total power: > 24 dB |
| Cross polar ratio | | | |
| Maindirection | 0° | | |
| Sector | ±60° | Typically: 15 dB > 8 dB | Typically: 15 dB > 7.5 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 7.4° | 7° | 6.5° |
| Electrical tilt | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 8° ... 10° T 18 ... 17 ... 16 ... 15 dB | 0° ... 4° ... 8° ... 10° T 18 ... 17 ... 16 ... 15 dB | 0° ... 4° ... 8° ... 10° T 17 ... 17 ... 16 ... 15 dB |
| VSWR | < 1.5 | | |
| Isolation: Intrasystem | > 30 dB | | |
| Isolation: Intersystem | > 30 dB | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | |
| Connector position | Bottom | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | |
| Weight | 16.5 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 600 / 120 / 600 N | | |
| Height/width/depth | 1319 / 323 / 71 mm | | |



1800/1900/2000/2500
XXPol 2-Multi

Summary – Directional Antennas

Vertical Polarization

1800/1900/2000

VPol

| Type | | | | | | Type No. | Height [mm] | Connector position | Page |
|-------------|------------------------|------------|--------------------|------------|--|------------------|-------------|--------------------|------|
| VPol Panel | 1710–2180 | 12° | 18.5dBi | 0°T | | 800 10368 | 299 | side | 80 |
| Dual Yagi | 870–960 C 1710–2170 | 30° 23° | 16.5dBi 19.5dBi | 0°T 0°T | | 800 10658 | 1100 | rearside | 81 |
| VPol BiDir | 790–960 / 1710–2170 | 65° | 5dBi | 0°T | | 738 445 | 312 | | 82 |
| VPol BiDir | 790–960 / 1710–2170 | 65° | 5dBi | 0°T | | 738 446 | 312 | | 82 |
| VPol LogPer | 806–2170 | 65° | 11dBi | 0°T | | 742 192 | 300 | bottom | 83 |

VVPol

| | | | | | | | | | |
|-------------|----------------------|---|------------|----------------|------------|-----------|-----|---------------|----|
| VVPol Panel | 824–960 1710–2170 | C | 90° 82° | 7dBi 7dBi | 0°T 0°T | 742 290 | 328 | bottom or top | 84 |
| VVPol Panel | 824–960 1710–2170 | C | 90° 82° | 10dBi 11dBi | 0°T 0°T | 800 10046 | 662 | bottom or top | 84 |

C = integrated Combiner

New or changed product

**Multi-band Panel
Vertical Polarization
Half-power Beam Width**

1710–2180

V

12°

KATHREIN
Antennen · Electronic

VPol Panel 1710–2180 12° 18.5dBi 0°T

| Type No. | 800 10368 | | |
|---|--|-------------------------------------|-----------------|
| Frequency range | 1710 – 1880 MHz | 1710–2180 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | Vertical | Vertical | Vertical |
| Gain | 18.1 dBi | 18.4 dBi | 18.7 dBi |
| Horizontal Pattern: | | | |
| Half-power beam width | 13.3° | 12.8° | 12° |
| Front-to-back ratio (180° ± 30°) | > 30 dB | > 30 dB | > 30 dB |
| Sidelobe suppression | > 18 dB | > 18 dB | > 17 dB |
| Vertical Pattern: | | | |
| Half-power beam width | 37° | 36° | 36° |
| Electrical tilt | 0°, fixed | 0°, fixed | 0°, fixed |
| Sidelobe suppression for first sidelobe above main beam | > 18 dB | > 18 dB | > 18 dB |
| VSWR | < 1.5 | | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | |
| Max. power | 300 W (at 50 °C ambient temperature) | | |
| Input | 1 x 7-16 female | | |
| Connector position | Side (see picture) | | |
| Weight | 9 kg | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 400 / 25 / 400 N | | |
| Height/width/depth | 299 / 743 / 69 mm | | |



**Yagi Multi-band Antenna
Dual Polarization
Half-power Beam Width
Integrated Combiner**

| | |
|---------|-----------|
| 870–960 | 1710–2170 |
| +45° | –45° |
| 30° | 23° |
| C | |

KATHREIN
Antennen · Electronic

Dual Yagi 870–960/1710–2170 C 30°/23° 16.5/19dBi

| Type No. | 800 10658 | | |
|---|--|---|------------|
| Frequency range | 870–960 870 – 960 MHz | 1710–2170 1710 – 1880 MHz 1920 – 2170 MHz | |
| VSWR | < 1.5 | < 1.5 | < 1.5 |
| Gain | 16.5 dBi | 18 dBi | 19 dBi |
| Polarization | +45° | –45° | –45° |
| Front-to-back ratio | ≥ 20 dB | ≥ 27 dB | ≥ 27 dB |
| Half-power beam width horizontal vertical | 30° 30° | 26° 27° | 20° 20° |
| Max. power | 100 W (at 50 °C ambient temperature) | | |
| Input | 1 x 7-16 female | | |
| Connector position | Rearside | | |
| Weight | 4.0 kg | | |
| Dimensions | 1100 / Ø 170 mm | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | |

Please note: This antenna is suitable for tunnel applications.



1800/1900/2000
VPoI

Multi-band Bidirectional Antenna

Vertical Polarization

Half-power Beam Width

790–960/1710–2170

V

65°

KATHREIN

Antennen · Electronic

VPol BiDir 790–960/1710–2170 65° 5dBi

| Type No. | 738 445 | 738 446 |
|--------------------|--|--------------|
| Input | 1 x 7-16 female | 1 x N female |
| Frequency range | 790 – 960 MHz, 1710 – 2170 MHz | |
| VSWR | 790 – 806 MHz: < 2.2 806 – 824 MHz: < 1.7 824 – 960 / 1710 – 2170 MHz: < 1.5 | |
| Gain | 790 – 960 MHz: 5 dBi 1710 – 1880 MHz: 5.5 dBi 1880 – 2170 MHz: 6.5 dBi | |
| Impedance | 50 Ω | |
| Polarization | Vertical | |
| Max. power (total) | 200 W (at 50 °C ambient temperature) | |
| Weight | 0.8 kg | |
| Wind load | Frontal: 25 N (at 150 km/h) Lateral: 65 N (at 150 km/h) Rearside: 35 N (at 150 km/h) | |
| Max. wind velocity | 200 km/h | |
| Packing size | 422 x 212 x 95 mm | |
| Height/width/depth | 312 / 55 / 188 mm | |



- Material:** Radiator: Tin-plated copper.
Reflector: Weather-proof aluminum.
Radome: High impact plastic, colour: Grey.
All screws and nuts: Stainless steel.
- Mounting:** Wall mounting: No additional mounting kit needed.
For pipe mast mounting use clamps listed below (order separately).
- Ice protection:** The radiating system is protected by the radome.
Due to its very sturdy construction, the antenna remains operational even under icy conditions.
- Grounding:** All metal parts of the antenna as well as the inner conductor are DC grounded.

Accessories (order separately)

| Type No. | Description | Remarks | Weight approx. | Units per antenna |
|----------|-------------|-----------------------------|----------------|-------------------|
| 734 360 | 2 clamps | Mast: 34 – 60 mm diameter | 60 g | 1 |
| 734 361 | 2 clamps | Mast: 60 – 80 mm diameter | 70 g | 1 |
| 734 362 | 2 clamps | Mast: 80 – 100 mm diameter | 80 g | 1 |
| 734 363 | 2 clamps | Mast: 100 – 120 mm diameter | 90 g | 1 |
| 734 364 | 2 clamps | Mast: 120 – 140 mm diameter | 110 g | 1 |
| 734 365 | 2 clamps | Mast: 45 – 125 mm diameter | 80 g | 1 |

Logarithmic Periodic Vertical Polarization Half-power Beam Width

806–2170

V

65°

KATHREIN
Antennen · Electronic

VPol LogPer 806–2170 65° 11dBi

| Type No. | 742 192 | | |
|---|--------------------------------|---------------------|-----------------|
| Input | 1 x 7-16 female | | |
| Connector position | Bottom | | |
| Frequency range | 806 – 1000 MHz | 1000 – 1700 MHz | 1700 – 2170 MHz |
| VSWR | < 1.5 | < 1.5 | < 1.5 |
| Gain | 11 dBi | 11.3 dBi | 11.5 dBi |
| Polarization | Vertical | Vertical | Vertical |
| Front-to-back ratio | > 25 dB | > 25 dB | > 23 dB |
| Half-power Beam Width | | | |
| horizontal | 65° | 55° | 50° |
| vertical | 55° | 50° | 45° |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc | < -150 dBc | < -150 dBc |
| Max. power | 300 W | 250 W | 200 W |
| | (at 50 °C ambient temperature) | | |
| Weight | 5.7 kg | | |
| Wind load | Frontal: | 20 N (at 150 km/h) | |
| | Lateral: | 260 N (at 150 km/h) | |
| | Rearside: | 30 N (at 150 km/h) | |
| Height/width/depth | 300 / 155 / 785 mm | | |



1800/1900/2000
VPol

- Material:** Radiator: Weather-proof aluminum.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: Grey.
All screws and nuts: Stainless steel.
- Mounting:** The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.
- Ice protection:** Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.
- Grounding:** All metal parts of the antenna as well as the inner conductor are DC grounded.

Dual-band Panel Vertical Polarization Half-power Beam Width

824–960

1710–2170

V

V

90°

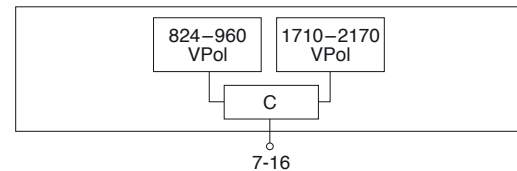
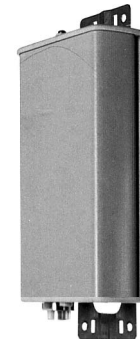
82°

KATHREIN

Antennen · Electronic

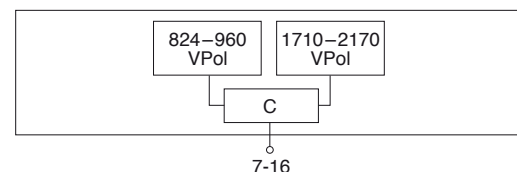
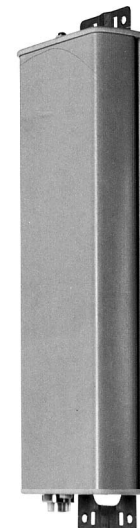
VVPol Panel 824–960/1710–2170 C 90°/82° 7/7dBi

| Type No. | 742 290 | |
|---|--|--|
| Frequency range | 824 – 960 MHz | 1710 – 2170 MHz |
| Polarization | Vertical | Vertical |
| Gain | 7 dBi | 7 dBi |
| Half-power beam width | Horizontal: 90° Vertical: 60° | Horizontal: 82° Vertical: 70° |
| Front-to-back ratio | > 18 dB | > 20 dB |
| VSWR | < 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz) | < 1.7 (1710 – 2170 MHz) < 1.5 (1710 – 1990 MHz) |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc | < -150 dBc |
| Max. power | 100 W (at 50 °C ambient temperature) | |
| Input | 1 x 7-16 female | |
| Connector position | Bottom or top | |
| Weight | 2.8 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 90 / 23 / 100 N | |
| Height/width/depth | 328 / 155 / 69 mm | |



VVPol Panel 824–960/1710–2170 C 90°/82° 10/11dBi

| Type No. | 800 10046 | |
|---|---|----------------------------------|
| Frequency range | 824 – 960 MHz | 1710 – 2170 MHz |
| Polarization | Vertical | Vertical |
| Gain | 10 dBi | 11 dBi |
| Half-power beam width | Horizontal: 90° Vertical: 33° | Horizontal: 82° Vertical: 19° |
| Front-to-back ratio | > 18 dB | > 20 dB |
| VSWR | < 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz) | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc | < -150 dBc |
| Max. power | 100 W (at 50 °C ambient temperature) | |
| Input | 1 x 7-16 female | |
| Connector position | Bottom or top | |
| Weight | 5 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 175 / 47 / 200 N | |
| Height/width/depth | 662 / 155 / 69 mm | |



Summary – Directional Antennas

Dual-band

800/900 – 1800/2000

Dual Polarization +45°/–45°

| Type | Type No. | Height [mm] | Connector position | Page |
|--|------------------|-------------|--------------------|------|
| XXPol Panel 806–960 C 65° 8.5dBi 0°T 1710–2180 60° 9.5dBi 0°T | 800 10454 | 270 | bottom or top | 86 |
| XXPol Panel 806–960 65° 12dBi 0°T 1710–2170 60° 14dBi 0°T | 742 226 | 579 | bottom or top | 87 |
| XXPol Panel 806–960 C 65° 12dBi 0°T 1710–2170 60° 14dBi 0°T | 742 222 | 579 | bottom or top | 88 |
| XXPol Panel 824–960 65° 14dBi 0°–14°T 1710–2180 65° 17dBi 0°–8°T | 742 264 | 1316 | bottom | 89 |
| XXPol Panel 824–960 C 65° 14dBi 0°–14°T 1710–2180 65° 17dBi 0°–8°T | 742 223 | 1316 | bottom | 90 |
| XXPol Panel 870–960 65° 17dBi 0°T 1710–1880 60° 18.5dBi 0°T | 741 327 | 1936 | bottom or top | 91 |
| XXPol Panel 870–960 C 65° 17dBi 0°T 1710–1880 60° 18dBi 0°T | 741 322 | 1936 | bottom or top | 91 |
| XXPol Panel 824–960 65° 16dBi 0°–10°T 1710–2180 65° 18.5dBi 0°–6°T | 742 265 | 1916 | bottom | 92 |
| XXPol Panel 790–960 65° 16.5dBi 2°–14°T 1710–2180 65° 18.5dBi 4°–14°T | 800 10485 | 1998 | bottom | 93 |
| XXPol Panel 824–960 C 65° 16dBi 0°–10°T 1710–2180 65° 18.5dBi 0°–6°T | 742 224 | 1916 | bottom | 94 |
| XXPol Panel 870–960 C 65° 17.5dBi 6°T 1710–1880 60° 17.5dBi 6°T | 741 336 | 2580 | bottom | 95 |
| XXPol Panel 870–960 C 65° 17dBi 2°–8°T 1710–1880 60° 18dBi 2°T | 742 047 | 2580 | bottom | 95 |
| XXPol Panel 790–960 65° 17dBi 0°–7°T 1710–2180 65° 18.5dBi 0°–6°T | 742 266 | 2516 | bottom | 96 |
| XXPol Panel 790–960 65° 17.5dBi 4°–12°T 1710–2180 65° 18.5dBi 4°–14°T | 800 10486 | 2516 | bottom | 97 |
| XXPol Panel 824–960 C 65° 17dBi 0°–7°T 1710–2180 65° 18.5dBi 0°–6°T | 742 225 | 2516 | bottom | 98 |
| XXPol Panel 806–960 88° 13.5dBi 0°–12°T 1710–2180 88° 16.5dBi 0°–10°T | 800 10121 | 1384 | bottom | 99 |
| XXPol Panel 806–960 88° 15.2dBi 0°–10°T 1710–2180 88° 18dBi 0°–6°T | 800 10122 | 1917 | bottom | 100 |
| XXPol Panel 806–960 88° 16.5dBi 0°–7°T 1710–2180 88° 18dBi 0°–6°T | 800 10123 | 2635 | bottom | 101 |

C = integrated Combiner

New or changed product

*When deploying
Dual-band Antennas,
please also consider using
special Dual-band Combiners
(see pages 228 and 229)*

800/900 –
1800/2000
XXPol

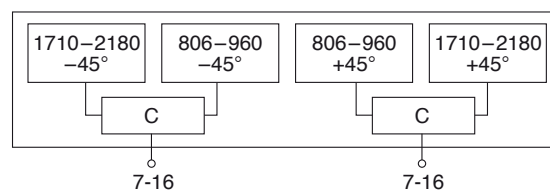
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 806–960 | 1710–2180 |
| X | X |
| 65° | 65° |

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XXPol Panel 806–960/1710–2180 C 65°/65° 8.5/9.5dBi

| Type No. | 800 10454 | | | | | |
|-------------------------------|--|-------------------|-------------------|--------------------------------------|-------------------|-------------------|
| Frequency range | 806–960 | | 1710–2180 | | | |
| | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain | 2 x 8.5 dBi | 2 x 8.5 dBi | 2 x 8.5 dBi | 2 x 9.5 dBi | 2 x 9.5 dBi | 2 x 9.2 dBi |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 67° | 67° | 65° | 60° | 63° | 68° |
| Front-to-back ratio [dB] | Copolar: > 25 | Copolar: > 25 | Copolar: > 25 | Copolar: > 25 | Copolar: > 25 | Copolar: > 25 |
| [dB] | Total power: > 20 | Total power: > 20 | Total power: > 22 | Total power: > 22 | Total power: > 22 | Total power: > 22 |
| Cross polar ratio | Typically: 25 dB | Typically: 25 dB | Typically: 20 dB | Typically: 20 dB | Typically: 19 dB | Typically: 20 dB |
| Maindirection | 0° | 0° | 0° | 0° | 0° | 0° |
| Sector | ±60° | ±60° | ±60° | ±60° | ±60° | ±60° |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 68° | 68° | 69° | 64° | 62° | 60° |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power | 250 W (at 50 °C ambient temperature) | | | 100 W (at 50 °C ambient temperature) | | |
| Max. power per combined input | 350 W (at 50 °C ambient temperature) | | | | | |
| Input | 2 x 7-16 female | | | | | |
| Connector position | Bottom or top | | | | | |
| Weight | 4.3 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 45 / 25 / 95 N | | | | | |
| Height/width/depth | 270 / 262 / 116 mm | | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | | |



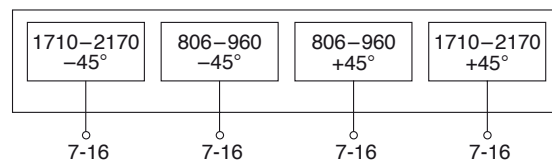
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 806–960 | 1710–2170 |
| X | X |
| 65° | 60° |

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XXPol Panel 806–960/1710–2170 65°/60° 12/14dBi 0°/0°T

| Type No. | 742 226 | | | | | |
|--|--|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|
| Frequency range | 806–960 | | 1710–2170 | | | |
| | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 11.1 dBi | 2 x 11.4 dBi | 2 x 11.8 dBi | 2 x 12.8 dBi | 2 x 13.3 dBi | 2 x 13.6 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 67° Vertical: 34° | Horizontal: 66° Vertical: 33° | Horizontal: 64° Vertical: 30° | Horizontal: 66° Vertical: 20° | Horizontal: 60° Vertical: 18° | Horizontal: 60° Vertical: 17.5° |
| Front-to-back ratio (180° ±30°) | [dB] [dB] | Copolar: > 23 Total power: > 20 | Copolar: > 23 Total power: > 20 | Copolar: > 25 Total power: > 22 | Copolar: > 25 Total power: > 22 | Copolar: > 25 Total power: > 22 |
| Cross polar ratio Maindirection Sector | 0° ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 16 dB > 10 dB | Typically: 18 dB > 10 dB |
| Isolation: Intrasystem | | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Isolation: Intersystem | > 45 dB (806–960 // 1710–2170 MHz) | | | | | |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | | < –150 dBc | | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | | | 200 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female | | | | | |
| Connector position | Bottom or top | | | | | |
| Weight | 7.5 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 100 / 80 / 180 N | | | | | |
| Height/width/depth | 579 / 262 / 139 mm | | | | | |



800/900 –
1800/2000
XXPol

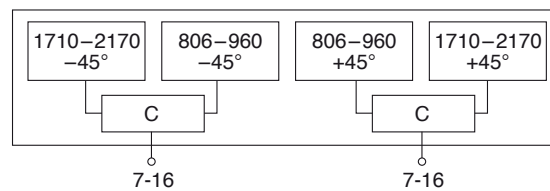
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 806–960 | 1710–2170 |
| X | X |
| 65° | 60° |

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Antennen · Electronic

XXPol Panel 806–960/1710–2170 C 65°/60° 12/14dBi 0°/0°T

| Type No. | 742 222 | | | | | |
|--|--|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|
| Frequency range | 806–960 | | 1710–2170 | | | |
| | 806 – 866 MHz | 824 – 894 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 11.1 dBi | 2 x 11.4 dBi | 2 x 11.8 dBi | 2 x 12.5 dBi | 2 x 13.3 dBi | 2 x 13.6 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 67° Vertical: 34° | Horizontal: 66° Vertical: 33° | Horizontal: 64° Vertical: 30° | Horizontal: 66° Vertical: 20° | Horizontal: 60° Vertical: 18° | Horizontal: 60° Vertical: 17.5° |
| Front-to-back ratio (180° ± 30°) | [dB] [dB] | Copolar: > 23 Total power: > 20 | Copolar: > 23 Total power: > 20 | Copolar: > 25 Total power: > 22 | Copolar: > 25 Total power: > 22 | Copolar: > 25 Total power: > 22 |
| Cross polar ratio Mairdirection Sector | 0° ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 18 dB > 10 dB | Typically: 18 dB > 10 dB |
| Isolation: Intrasystem | | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| VSWR | | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | | < –150 dBc | | | < –150 dBc | |
| Max. power | 250 W (at 50 °C ambient temperature) | | | 200 W (at 50 °C ambient temperature) | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | | |
| Input | 2 x 7-16 female | | | | | |
| Connector position | Bottom or top | | | | | |
| Weight | 7.2 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 100 / 80 / 180 N | | | | | |
| Height/width/depth | 579 / 262 / 139 mm | | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | | |



800/900 – 1800/2000 XXPol

Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 824–960 | 1710–2180 |
| X | X |
| 65° | 65° |

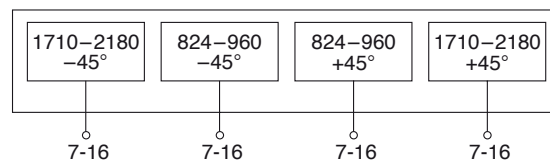
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Antennen · Electronic

XXPol Panel 824–960/1710–2180 65°/65° 14/17dBi 0°–14°/0°–8°T

| Type No. | 742 264 | | | | |
|--|---|--|--|---|---|
| Frequency range | 824–960 824–894 MHz 870–960 MHz | | 1710–2180 1710–1880 MHz 1850–1990 MHz 1920–2180 MHz | | |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 14 dBi | 2 x 14 dBi | 2 x 16.5 dBi | 2 x 16.8 dBi | 2 x 17 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 65° | 65° | 65° | 63° |
| Front-to-back ratio, copolar | > 26 dB | > 26 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 16 dB > 10 dB | Typically: 18 dB > 10 dB | Typically: 20 dB > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 16° | 14.5° | 7.8° | 7.5° | 7.2° |
| Electrical tilt continuously adjustable | 0°–14° | 0°–14° | 0°–8° | 0°–8° | 0°–8° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 7° ... 14° T 14 ... 14 ... 13 dB | 0° ... 7° ... 14° T 14 ... 14 ... 13 dB | 0° ... 4° ... 8° T 14 ... 14 ... 14 dB | 0° ... 4° ... 8° T 16 ... 16 ... 15 dB | 0° ... 4° ... 8° T 15 ... 16 ... 15 dB |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Isolation: Intersystem | Typically: > 50 dB (824–960 // 1710–2180 MHz) | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input Total power | 500 W 1000 W | | 250 W 500 W | | |
| (at 50 °C ambient temperature) | | | | | |
| Input | 4 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | | |
| Weight | 16.5 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 230 / 180 / 430 N | | | | |
| Height/width/depth | 1316 / 262 / 139 mm | | | | |



800/900 –
1800/2000
XXPol



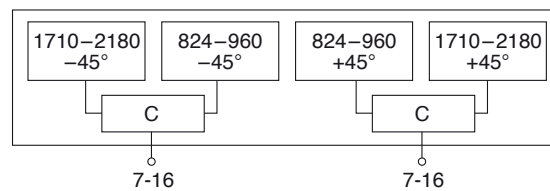
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 824–960 | 1710–2180 |
| X | X |
| 65° | 65° |

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XXPol Panel 824–960/1710–2180 C 65°/65° 14/17dBi 0°–14°/0°–8°T

| Type No. | 742 223 | | | | |
|--|--|--|---|---|---|
| Frequency range | 824–960 | | 1710–2180 | | |
| | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1850–1990 MHz | 1900–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 14 dBi | 2 x 14 dBi | 2 x 16.5 dBi | 2 x 16.8 dBi | 2 x 17 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 65° | 66° | 63° | 62° |
| Front-to-back ratio, copolar | > 26 dB | > 26 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: 20 dB | Typically: 20 dB | Typically: 18 dB | Typically: 19 dB | Typically: 20 dB |
| Main direction | 0° | | | | |
| Sector | ±60° | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 15.5° | 14.3° | 7.8° | 7.7° | 7.4° |
| Electrical tilt | 0°–14°, continuously adjustable | | 0°–8°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 7° ... 14° T 14 ... 13 ... 12 dB | 0° ... 7° ... 14° T 16 ... 14 ... 13 dB | 0° ... 4° ... 8° T 18 ... 18 ... 15 dB | 0° ... 4° ... 8° T 18 ... 18 ... 16 dB | 0° ... 4° ... 8° T 15 ... 17 ... 17 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | |
| Max. power | 250 W | | 200 W | | |
| | (at 50 °C ambient temperature) | | | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | |
| Input | 2 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | | | |
| Weight | 16.5 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 230 / 180 / 430 N | | | | |
| Height/width/depth | 1316 / 262 / 139 mm | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | |



800/900 - 1800/2000 XXPol

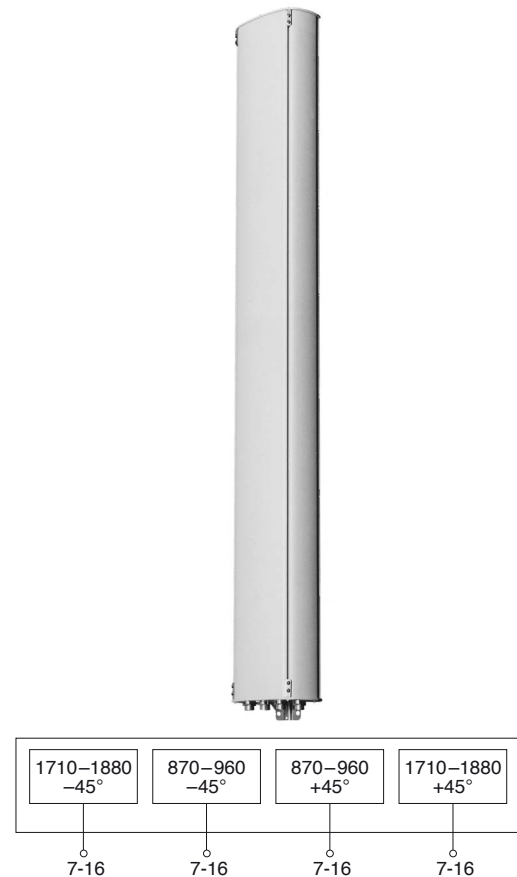
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|----------------|------------------|
| 870–960 | 1710–1880 |
| X | X |
| 65° | 60° |

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XXPol Panel 870–960/1710–1880 65°/60° 17/18.5dBi

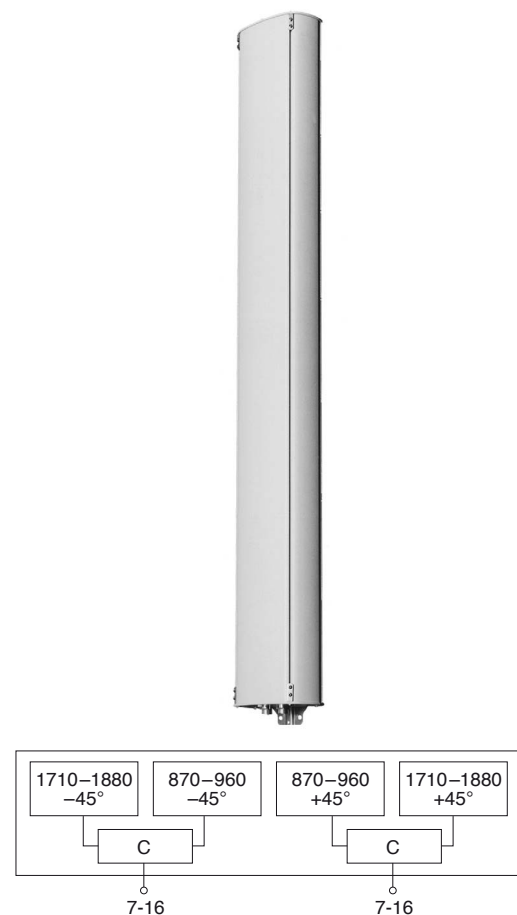
| Type No. | 741 327 | |
|--|--|---|
| Frequency range | 870–960 870 – 960 MHz | 1710–1880 1710 – 1880 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 17 dBi | 2 x 18.5 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 65° Vertical: 9.5° | Horizontal: 60° Vertical: 5.5° |
| Sidelobe suppression for first sidelobe above horizon | > 15 dB | |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB |
| Isolation, between ports | > 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800) | |
| VSWR | < 1.5 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | < –150 dBc |
| Max. power per input | 400 W | 200 W (at 50 °C ambient temperature) |
| Input | 4 x 7-16 female | |
| Connector position | Bottom or top | |
| Weight | 19 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 330 / 200 / 770 N | |
| Height/width/depth | 1936 / 262 / 116 mm | |



800/900 –
1800/2000
XXPol

XXPol Panel 870–960/1710–1880 C 65°/60° 17/18dBi

| Type No. | 741 322 | |
|--|--|---|
| Frequency range | 870–960 870 – 960 MHz | 1710–1880 1710 – 1880 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 17 dBi | 2 x 18 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 65° Vertical: 9.5° | Horizontal: 60° Vertical: 5.5° |
| Sidelobe suppression for first sidelobe above horizon | > 15 dB | > 15 dB |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB |
| Isolation, between ports | > 30 dB | > 30 dB |
| VSWR | < 1.5 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | < –150 dBc |
| Max. power per input | 250 W | 150 W (at 50 °C ambient temperature) |
| Input | 2 x 7-16 female | |
| Connector position | Bottom or top | |
| Weight | 19 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 330 / 200 / 770 N | |
| Height/width/depth | 1936 / 262 / 116 mm | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | |



Dual-band Panel Dual Polarization Half-power Beam Width

824–960

1710–2180

X

X

65°

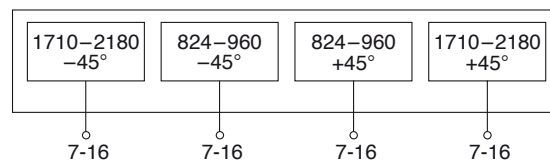
65°

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XXPol Panel 824–960/1710–2180 65°/65° 16/18.5dBi 0°–10°/0°–6°T

| Type No. | 742 265 | | | | |
|--|---|--|--|---|---|
| Frequency range | 824–960 824–894 MHz 880–960 MHz | | 1710–2180 1710–1880 MHz 1850–1990 MHz 1920–2180 MHz | | |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 15.5 dBi | 2 x 16 dBi | 2 x 17.8 dBi | 2 x 18.2 dBi | 2 x 18.3 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 65° | 67° | 65° | 63° |
| Front-to-back ratio (180°±30°) | > 27 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 16 dB > 10 dB | Typically: 18 dB > 10 dB | Typically: 18 dB > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 10.5° | 10° | 5.2° | 5.0° | 4.9° |
| Electrical tilt continuously adjustable | 0.5°–9.5° | 0.5°–9.5° | 0°–6° | 0°–6° | 0°–6° |
| Sidelobe suppression for first sidelobe above main beam | 0.5°... 5°... 9.5°T 15 ... 15 ... 15 dB | 0.5°... 5°... 9.5°T 15 ... 17 ... 19 dB | 0° ... 3° ... 6° T 14 ... 15 ... 15 dB | 0° ... 3° ... 6° T 18 ... 17 ... 17 dB | 0° ... 3° ... 6° T 17 ... 17 ... 16 dB |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Isolation: Intersystem | Typically: > 50 dB (824–960 // 1710–2180 MHz) | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input Total power | 500 W 1000 W (at 50 °C ambient temperature) | | 250 W 500 W | | |
| Input | 4 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | | |
| Weight | 22 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 280 / 640 N | | | | |
| Height/width/depth | 1916 / 262 / 139 mm | | | | |



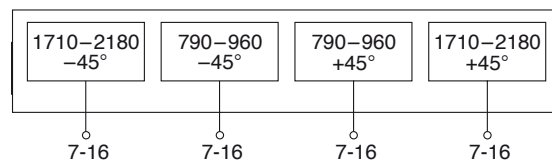
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|-----------|-------------|
| 790 – 960 | 1710 – 2180 |
| X | X |
| 65° | 65° |

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XXPol Panel 790–960/1710–2180 65°/65° 16.5/18.5dBi 2°–14°/4°–14°T

| Type No. | 800 10485 | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|
| Frequency range | 790 – 862 MHz | | 824 – 896 MHz | | 880 – 960 MHz | | 1710 – 1880 MHz | | 1850 – 1990 MHz | | 1920 – 2180 MHz | |
| Polarization | +45°, –45° | | +45°, –45° | | +45°, –45° | | +45°, –45° | | +45°, –45° | | +45°, –45° | |
| Average gain (dBi) | 16.2 ... 16 ... 15.7 | | 16.3 ... 16.1 ... 15.8 | | 16.4 ... 16.2 ... 15.8 | | 18 ... 18.2 ... 17.7 | | 18.4 ... 18.5 ... 17.8 | | 18.7 ... 18.6 ... 18 | |
| Tilt | 2° ... 8° ... 14° | | 2° ... 8° ... 14° | | 2° ... 8° ... 14° | | 4° ... 9° ... 14° | | 4° ... 9° ... 14° | | 4° ... 9° ... 14° | |
| Horizontal Pattern: | | | | | | | | | | | | |
| Half-power beam width | 68° | | 67° | | 65° | | 66° | | 64° | | 60° | |
| Front-to-back ratio (180°±30°) | > 25 dB | | > 25 dB | | > 25 dB | | > 25 dB | | > 25 dB | | > 25 dB | |
| Cross polar ratio | Typically: 25 dB | | Typically: 25 dB | | Typically: 25 dB | | Typically: 20 dB | | Typically: 20 dB | | Typically: 21 dB | |
| Maindirection | 0° | | 0° | | 0° | | 0° | | 0° | | 0° | |
| Sector | ±60° | | ±60° | | ±60° | | ±60° | | ±60° | | ±60° | |
| Vertical Pattern: | | | | | | | | | | | | |
| Half-power beam width | 10° | | 9.7° | | 9.3° | | 5° | | 4.7° | | 4.5° | |
| Electrical tilt | 2°–14°, continuously adjustable | | | | | | 4°–14°, continuously adjustable | | | | | |
| Sidelobe suppression for first sidelobe above main beam | 2° ... 8° ... 14° T 17 ... 17 ... 15 dB | | 2° ... 8° ... 14° T 17 ... 17 ... 16 dB | | 2° ... 8° ... 14° T 17 ... 17 ... 16 dB | | 4° ... 9° ... 14° T 20 ... 18 ... 15 dB | | 4° ... 9° ... 14° T 19 ... 18 ... 15 dB | | 4° ... 9° ... 14° T 18 ... 17 ... 15 dB | |
| VSWR | < 1.5 | | | | | | | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | | | | | | | |
| Isolation: Intersystem | > 35 dB (790–960 // 1710–2180 MHz) | | | | | | | | | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | | | | | | | | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | | | | | 250 W (at 50 °C ambient temperature) | | | | | |
| Total power | 800 W (at 50 °C ambient temperature) | | | | | | 500 W (at 50 °C ambient temperature) | | | | | |
| Input | 4 x 7-16 female (long neck) | | | | | | | | | | | |
| Connector position | Bottom | | | | | | | | | | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | | | | | | | | | | |
| Weight | 24 kg | | | | | | | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 750 / 380 / 900 N | | | | | | | | | | | |
| Height/width/depth | 2038 / 262 / 139 mm | | | | | | | | | | | |



800/900 - 1800/2000 XXPol

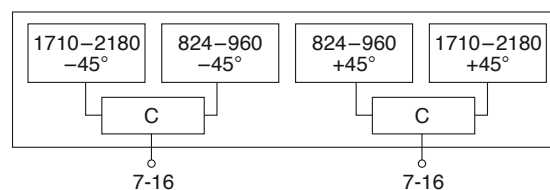
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 824–960 | 1710–2180 |
| X | X |
| 65° | 65° |

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XXPol Panel 824–960/1710–2180 C 65°/65° 16/18.5dBi 0°–10°/0°–6°T

| Type No. | 742 224 | | | | |
|---|--|--|---|---|---|
| Frequency range | 824–960 | | 1710–2180 | | |
| | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1850–1990 MHz | 1900–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 15.5 dBi | 2 x 16 dBi | 2 x 17.8 dBi | 2 x 18.2 dBi | 2 x 18.3 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 65° | 67° | 65° | 63° |
| Front-to-back ratio, copolar | > 27 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection 0° | 20 dB | 20 dB | 17 dB | 18 dB | 19 dB |
| Sector ±60° | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 10.7° | 10.2° | 5.0° | 4.7° | 4.5° |
| Electrical tilt | 0.5°–9.5°, continuously adjustable | | 0°–6°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T 15 ... 15 ... 17 dB | 0° ... 5° ... 10° T 16 ... 17 ... 18 dB | 0° ... 3° ... 6° T 19 ... 17 ... 13 dB | 0° ... 3° ... 6° T 19 ... 18 ... 14 dB | 0° ... 3° ... 6° T 19 ... 18 ... 15 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | |
| Max. power | 250 W | | 200 W | | |
| | (at 50 °C ambient temperature) | | | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | |
| Input | 2 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | | | |
| Weight | 23 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 340 / 280 / 640 N | | | | |
| Height/width/depth | 1916 / 262 / 139 mm | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | |



800/900 – 1800/2000 XXPol

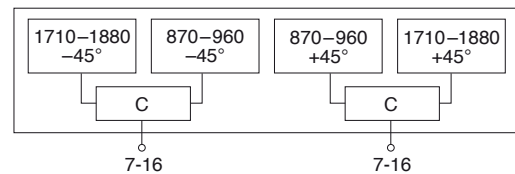
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 870–960 | 1710–1880 |
| X | X |
| 65° | 60° |

KATHREIN
Antennen · Electronic

XXPol Panel 870–960/1710–1880 C 65°/60° 17.5/17.5dBi 6°T

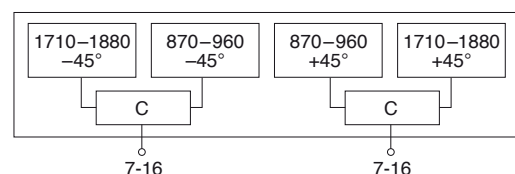
| Type No. | 741 336 | |
|---|--|---|
| Frequency range | 870–960 870 – 960 MHz | 1710–1880 1710 – 1880 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 17.5 dBi | 2 x 17.5 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 65° Vertical: 7° | Horizontal: 60° Vertical: 6.5° |
| Electrical tilt | 6°, fixed | 6°, fixed |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB |
| Isolation, between ports | > 30 dB | > 30 dB |
| VSWR | < 1.5 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | < –150 dBc |
| Max. power per input | 250 W | 150 W (at 50 °C ambient temperature) |
| Input | 2 x 7-16 female | |
| Connector position | Bottom | |
| Weight | 25 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 470 / 280 / 1040 N | |
| Height/width/depth | 2580 / 262 / 116 mm | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | |



800/900 –
1800/2000
XXPol

XXPol Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T

| Type No. | 742 047 | |
|--|--|---|
| Frequency range | 870–960 870 – 960 MHz | 1710–1880 1710 – 1880 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain | 2 x 17 dBi (–0.5 dB) | 2 x 18 dBi (–0.5 dB) |
| Half-power beam width Copolar +45°/–45° | Horizontal: 65° Vertical: 7° | Horizontal: 60° Vertical: 6° |
| Electrical tilt | 2°–8°, adjustable | 2°, fixed |
| Sidelobe suppression for first sidelobe above horizon | 2° ... 4° ... 6° ... 8° T 20 ... 18 ... 17 ... 15 dB | 2° T 17 dB |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB |
| Isolation, between ports | > 30 dB | > 30 dB |
| VSWR | < 1.5 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | < –150 dBc |
| Max. power per input | 250 W | 150 W (at 50 °C ambient temperature) |
| Input | 2 x 7-16 female | |
| Connector position | Bottom | |
| Adjustment mechanism | 1x, Position bottom, continuously adjustable | |
| Weight | 25 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 470 / 280 / 1040 N | |
| Height/width/depth | 2580 / 262 / 116 mm | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | |



Dual-band Panel Dual Polarization Half-power Beam Width

790–960

1710–2180

X

X

65°

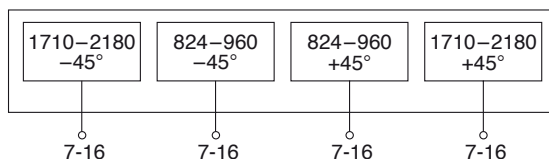
65°

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Antennen · Electronic

XXPol Panel 790–960/1710–2180 65°/65° 17/18.5dBi 0°–7°/0°–6°T

| Type No. | 742 266 | | | | |
|---|--|--|--|--|--|
| Frequency range | 790–960 790–862 MHz 880–960 MHz | | 1710–2180 1710–1880 MHz 1850–1990 MHz 1920–2180 MHz | | |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain (dBi) | 16.6 ... 16.6 ... 16.5 | 17.0 ... 17.1 ... 16.9 | 18.2 ... 18.5 ... 18.3 | 18.5 ... 18.7 ... 18.3 | 18.5 ... 18.7 ... 18.3 |
| Tilt | 0° ... 3° ... 7° | 0° ... 3° ... 7° | 0° ... 3° ... 6° | 0° ... 3° ... 6° | 0° ... 3° ... 6° |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 65° | 65° | 65° | 61° |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection | 0° | 0° | 0° | 0° | 0° |
| Sector | ±60° | ±60° | ±60° | ±60° | ±60° |
| Vertical Pattern: | | | | | |
| Half-power beam width | 7.7° | 7.2° | 5.0° | 4.8° | 4.6° |
| Electrical tilt continuously adjustable | 0°–7° | 0°–7° | 0°–6° | 0°–6° | 0°–6° |
| Sidelobe suppression for first sidelobe above main beam: average: | 0° ... 4° ... 7° T ≥ 15 ... 16 ... 14 dB ≥ 17 ... 17 ... 15 dB | 0° ... 4° ... 7° T ≥ 17 ... 16 ... 15 dB ≥ 18 ... 17 ... 15 dB | 0° ... 3° ... 6° T ≥ 16 ... 15 ... 13 dB ≥ 18 ... 17 ... 15 dB | 0° ... 3° ... 6° T ≥ 17 ... 16 ... 14 dB ≥ 18 ... 18 ... 16 dB | 0° ... 3° ... 6° T ≥ 16 ... 15 ... 15 dB ≥ 18 ... 18 ... 16 dB |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Isolation: Intersystem | > 45 dB, Typ. > 50 dB (790–960 // 1710–2180 MHz) | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 500 W | | 250 W | | |
| Total power | 1000 W | | 500 W | | |
| (at 50 °C ambient temperature) | | | | | |
| Input | 4 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | | |
| Weight | 23 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 1160 / 500 / 1210 N (at 150 km/h) | | | | |
| Height/width/depth | 2533 / 269 / 154 mm | | | | |



800/900 –
1800/2000
XXPol

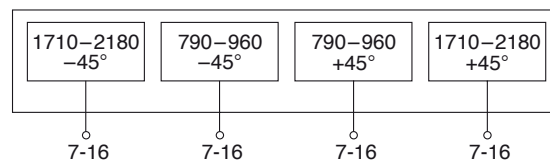
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 790–960 | 1710–2180 |
| X | X |
| 65° | 65° |

KATHREIN
Antennen · Electronic

XXPol Panel 790–960/1710–2180 65°/65° 17.5/18.5dBi 4°–12°/4°–14°T

| Type No. | 800 10486 | | | | | |
|--------------------------------------|--|----------------------|------------------------|--------------------------------------|------------------------|------------------------|
| Frequency range | 790–960 | | 1710–2180 | | | |
| | 790 – 862 MHz | 824 – 896 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 16.8 ... 16.7 ... 16.6 | 17 ... 16.8 ... 16.8 | 17.2 ... 17.0 ... 16.8 | 17.8 ... 18.1 ... 17.5 | 18.3 ... 18.3 ... 17.8 | 18.7 ... 18.7 ... 18.0 |
| Tilt | 4° ... 8° ... 12° | 4° ... 8° ... 12° | 4° ... 8° ... 12° | 4° ... 9° ... 14° | 4° ... 9° ... 14° | 4° ... 9° ... 14° |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 68° | 67° | 66° | 66° | 64° | 61° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection | 0° | 23 dB | 24 dB | 25 dB | 18 dB | 18 dB |
| Sector | ±60° | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 7.5° | 7.4° | 7.2° | 5° | 4.8° | 4.6° |
| Electrical tilt | 4°–12°, continuously adjustable | | | 4°–14°, continuously adjustable | | |
| Sidelobe suppression | 4° ... 8° ... 12° T | 4° ... 8° ... 12° T | 4° ... 8° ... 12° T | 4° ... 9° ... 14° T | 4° ... 9° ... 14° T | 4° ... 9° ... 14° T |
| – for first sidelobe above main beam | 18 ... 17 ... 16 dB | 19 ... 18 ... 18 dB | 19 ... 18 ... 18 dB | 20 ... 18 ... 16 dB | 19 ... 19 ... 16 dB | 18 ... 18 ... 18 dB |
| – within 0°–20° sector above horizon | 15 ... 15 ... 14 dB | 16 ... 15 ... 14 dB | 16 ... 15 ... 14 dB | 17 ... 17 ... 15 dB | 17 ... 17 ... 15 dB | 17 ... 17 ... 15 dB |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 45 dB (790–960 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Total power | 800 W (at 50 °C ambient temperature) | | | 500 W (at 50 °C ambient temperature) | | |
| Input | 4x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | | | | |
| Weight | 28 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 920 / 460 / 1150 N | | | | | |
| Height/width/depth | 2516 / 262 / 139 mm | | | | | |



800/900 -
1800/2000
XXPol

Dual-band Panel Dual Polarization Half-power Beam Width

824–960 1710–2180

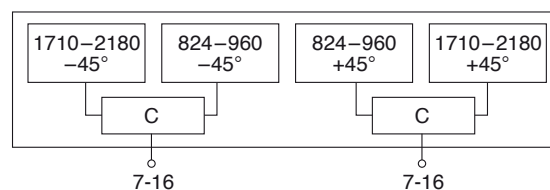
X X

65° 65°

KATHREIN
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XXPol Panel 824–960/1710–2180 C 65°/65° 17/18.5dBi 0°–7°/0°–6°T

| Type No. | 742 225 | | | | |
|--|--|---|---|---|---|
| Frequency range | 824–960 | | 1710–2180 | | |
| | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1850–1990 MHz | 1900–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16.5 dBi | 2 x 16.8 dBi | 2 x 17.8 dBi | 2 x 18.1 dBi | 2 x 18.3 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 66° | 66° | 65° | 61° |
| Front-to-back ratio, copolar | > 28 dB | > 28 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio Maindirection 0° Sector ±60° | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 16 dB > 10 dB | Typically: 18 dB > 10 dB | Typically: 19 dB > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 7.5° | 7.2° | 5.1° | 4.9° | 4.6° |
| Electrical tilt continuously adjust. | 0.5°–7° | | 0°–6° | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 7° T 15 ... 15 ... 15 dB | 0° ... 4° ... 7° T 17 ... 17 ... 16 dB | 0° ... 3° ... 6° T 17 ... 16 ... 14 dB | 0° ... 3° ... 6° T 17 ... 16 ... 15 dB | 0° ... 3° ... 6° T 16 ... 17 ... 15 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | |
| Max. power | 250 W | | 200 W | | |
| | (at 50 °C ambient temperature) | | | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | |
| Input | 2 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | | |
| Weight | 26 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 380 / 860 N | | | | |
| Height/width/depth | 2516 / 262 / 139 mm | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | |



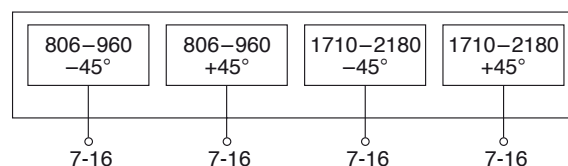
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 806–960 | 1710–2180 |
| X | X |
| 88° | 88° |

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Antennen · Electronic

XXPol Panel 806–960/1710–2180 88°/88° 13.5/16.5dBi 0°–12°/0°–10°T

| Type No. | 800 10121 | | | | | |
|--|---|---|---|---|---|---|
| Frequency range | 806–960 | | 1710–2180 | | | |
| | 806 – 866 MHz | 824 – 896 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 13.4 ... 13.4 ... 13.1 | 13.6 ... 13.6 ... 13.4 | 13.9 ... 13.8 ... 13.5 | 16.4 ... 16.4 ... 16.2 | 16.4 ... 16.5 ... 16 | 16.4 ... 15.9 ... 15.3 |
| Tilt | 0° ... 6° ... 12° | 0° ... 6° ... 12° | 0° ... 6° ... 12° | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 88° | 86° | 88° | 82° | 85° | 90° |
| Front-to-back ratio, copolar | > 23 dB | > 23 dB | > 23 dB | > 23 dB | > 23 dB | > 23 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection | 0° | 0° | 0° | 0° | 0° | 0° |
| Sector | ±60° | ±60° | ±60° | ±60° | ±60° | ±60° |
| | > 10 dB | > 10 dB | > 13 dB | > 10 dB | > 12 dB | > 10 dB |
| | avg. 16 dB | avg. 16 dB | avg. 19 dB | avg. 17 dB | avg. 19 dB | avg. 19 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 15.0° | 14.5° | 13.5° | 7.0° | 6.6° | 6.4° |
| Electrical tilt | 0.5°–12.5°, continuously adjustable | | | 0.5°–10°, continuously adjustable | | |
| Min. sidelobe suppression for first sidelobe above main beam: average: | 0° ... 6° ... 12° T 16 ... 16 ... 16 dB 17 ... 17 ... 19 dB | 0° ... 6° ... 12° T 16 ... 16 ... 16 dB 17 ... 17 ... 19 dB | 0° ... 6° ... 12° T 14 ... 14 ... 13 dB 17 ... 16 ... 16 dB | 0° ... 5° ... 10° T 17 ... 17 ... 16 dB 20 ... 20 ... 18 dB | 0° ... 5° ... 10° T 17 ... 18 ... 16 dB 21 ... 22 ... 17 dB | 0° ... 5° ... 10° T 18 ... 16 ... 16 dB 20 ... 20 ... 16 dB |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 45 dB (806–960 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Total power | 1000 W (at 50 °C ambient temperature) | | | 500 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | | | | |
| Weight | 21 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 420 / 260 / 620 N | | | | | |
| Height/width/depth | 1384 / 262 / 149 mm | | | | | |



800/900 -
1800/2000
XXPol

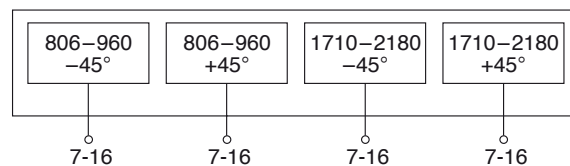
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 806–960 | 1710–2180 |
| X | X |
| 88° | 88° |

KATHREIN
Antennen · Electronic

XXPol Panel 806–960/1710–2180 88°/88° 15.2/18dBi 0°–10°/0°–6°T

| Type No. | 800 10122 | | | | | |
|--|---|------------------------|------------------------|--------------------------------------|------------------------|------------------------|
| Frequency range | 806–960 | | 1710–2180 | | | |
| | 806 – 866 MHz | 824 – 896 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 14.7 ... 14.9 ... 14.7 | 15.0 ... 15.2 ... 15.0 | 15.0 ... 15.2 ... 15.0 | 17.7 ... 17.8 ... 17.7 | 17.7 ... 18.0 ... 17.6 | 17.6 ... 17.8 ... 17.4 |
| Tilt | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 5° ... 10° | 0° ... 3° ... 6° | 0° ... 3° ... 6° | 0° ... 3° ... 6° |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 88° | 86° | 88° | 82° | 85° | 90° |
| Front-to-back ratio, copolar | > 23 dB | > 23 dB | > 23 dB | > 23 dB | > 23 dB | > 23 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection | 0° | 0° | 0° | 0° | 0° | 0° |
| Sector | ±60° | ±60° | ±60° | ±60° | ±60° | ±60° |
| | > 10 dB | > 10 dB | > 13 dB | > 10 dB | > 12 dB | > 10 dB |
| | avg. 16 dB | avg. 16 dB | avg. 19 dB | avg. 17 dB | avg. 19 dB | avg. 19 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 10.5° | 10° | 9° | 5.5° | 5.2° | 5° |
| Electrical tilt | 0°–10°, continuously adjustable | | | 0°–6°, continuously adjustable | | |
| Min. sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T | 0° ... 5° ... 10° T | 0° ... 3° ... 6° T | 0° ... 3° ... 6° T | 0° ... 3° ... 6° T |
| | 16 ... 16 ... 14 dB | 16 ... 16 ... 16 dB | 16 ... 16 ... 14 dB | 18 ... 18 ... 16 dB | 18 ... 18 ... 16 dB | 18 ... 18 ... 16 dB |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 45 dB (806–960 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Total power | 1000 W (at 50 °C ambient temperature) | | | 500 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 2x, Position bottom, continuously adjustable | | | | | |
| Weight | 27 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 580 / 360 / 870 N | | | | | |
| Height/width/depth | 1917 / 262 / 149 mm | | | | | |



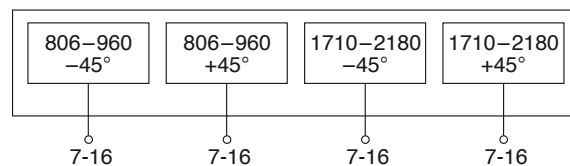
Dual-band Panel Dual Polarization Half-power Beam Width

| | |
|---------|-----------|
| 806–960 | 1710–2180 |
| X | X |
| 88° | 88° |

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XXPol Panel 806–960/1710–2180 88°/88° 16.5/18dBi 0°–7°/0°–6°T

| Type No. | 800 10123 | | | | | |
|--|--|---|---|---|---|---|
| Frequency range | 806–960 | | 1710–2180 | | | |
| | 806 – 866 MHz | 824 – 896 MHz | 880 – 960 MHz | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average gain (dBi) | 16.1 ... 16.2 ... 16.1 | 16.3 ... 16.4 ... 16.3 | 16.5 ... 16.6 ... 16.5 | 17.8 ... 17.7 ... 17.4 | 18.0 ... 17.9 ... 17.4 | 17.9 ... 17.8 ... 17.3 |
| Tilt | 0° ... 4° ... 7° | 0° ... 4° ... 7° | 0° ... 4° ... 7° | 0° ... 3° ... 6° | 0° ... 3° ... 6° | 0° ... 3° ... 6° |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 86° | 86° | 86° | 84° | 85° | 88° |
| Front-to-back ratio, copolar | > 25 dB | > 25 dB | > 25 dB | > 23 dB | > 23 dB | > 23 dB |
| Cross polar ratio | Typically: 18 dB | Typically: 18 dB | Typically: 20 dB | Typically: 16 dB | Typically: 16 dB | Typically: 15 dB |
| Maindirection | 0° | | | | | |
| Sector | ±60° | > 10 dB | > 13 dB | > 10 dB | > 12 dB | > 10 dB |
| | ±60° | avg. 16 dB | avg. 19 dB | avg. 16 dB | avg. 17 dB | avg. 18 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 7.3° | 7.2° | 6.9° | 4.8° | 4.5° | 4.2° |
| Electrical tilt | 0.5°–7°, continuously adjustable | | | 0°–6°, continuously adjustable | | |
| Min. sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 7° T 15 ... 14 ... 14 dB | 0° ... 4° ... 7° T 15 ... 14 ... 14 dB | 0° ... 4° ... 7° T 15 ... 14 ... 15 dB | 0° ... 3° ... 6° T 18 ... 17 ... 16 dB | 0° ... 3° ... 6° T 18 ... 17 ... 17 dB | 0° ... 3° ... 6° T 18 ... 16 ... 17 dB |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 45 dB (806–960 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 500 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Total power | 1000 W (at 50 °C ambient temperature) | | | 500 W (at 50 °C ambient temperature) | | |
| Input | 4 x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | | | | | |
| Weight | 33 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 840 / 510 / 1260 N | | | | | |
| Height/width/depth | 2635 / 262 / 149 mm | | | | | |



800/900 -
1800/2000
XXPol

Summary – Directional Antennas

Triple-band

800/900 – 1800/2000

Dual Polarization +45°/-45°

| Type | Type No. | Height [mm] | Connector position | Page | | | | | |
|--------------|-----------|-------------|--------------------|---------|-----------|-----------|--------|--------|--------|
| XXXPol Panel | 806-960 | 66° | 15dBi | 0°-12°T | 742 270 | 1498 | bottom | 104 | |
| | 1710-1880 | 66° | 16.5dBi | 0°-8°T | | | | | |
| | 1920-2170 | 65° | 17dBi | 0°-8°T | | | | | |
| XXXPol Panel | 790-960 | 66° | 15dBi | 0°-12°T | 800 10670 | 1498 | bottom | 105 | |
| | 1710-1880 | C | 66° | 16.5dBi | | | | | 0°-8°T |
| | 1920-2170 | 65° | 17dBi | 0°-8°T | | | | | |
| XXXPol Panel | 806-960 | 66° | 15dBi | 0°-14°T | 800 10290 | 1540 | bottom | 106 | |
| | 1710-2180 | 66° | 15dBi | 0°-15°T | | | | | |
| | 1710-2180 | 65° | 15dBi | 0°-14°T | | | | | |
| XXXPol Panel | 806-960 | 67° | 16.5dBi | 0°-10°T | 742 271 | 2058 | bottom | 107 | |
| | 1710-1880 | 65° | 17.5dBi | 0°-6°T | | | | | |
| | 1920-2170 | 65° | 18dBi | 0°-6°T | | | | | |
| XXXPol Panel | 806-960 | C | 67° | 16.5dBi | 0°-10°T | 800 10671 | 2058 | bottom | 108 |
| | 1710-1880 | 65° | 17.5dBi | 0°-6°T | | | | | |
| | 1920-2170 | 65° | 18dBi | 0°-6°T | | | | | |
| XXXPol Panel | 806-960 | 65° | 16.5dBi | 2°-14°T | 800 10291 | 2058 | bottom | 109 | |
| | 1710-2180 | 65° | 16.5dBi | 0°-14°T | | | | | |
| | 1710-2180 | 65° | 16.5dBi | 0°-14°T | | | | | |
| XXXPol Panel | 806-960 | 66° | 17.5dBi | 0°-7°T | 742 272 | 2628 | bottom | 110 | |
| | 1710-1880 | 65° | 17.5dBi | 0°-6°T | | | | | |
| | 1920-2170 | 63° | 18dBi | 0°-6°T | | | | | |
| XXXPol Panel | 790-960 | C | 66° | 17.5dBi | 0°-7°T | 800 10672 | 2628 | bottom | 111 |
| | 1710-1880 | 65° | 17.5dBi | 0°-6°T | | | | | |
| | 1920-2170 | 63° | 18dBi | 0°-6°T | | | | | |
| XXXPol Panel | 806-960 | 65° | 17.5dBi | 2°-10°T | 800 10292 | 2694 | bottom | 112 | |
| | 1710-2180 | 65° | 17.5dBi | 0°-10°T | | | | | |
| | 1710-2180 | 65° | 17dBi | 0°-10°T | | | | | |
| XXXPol Panel | 806-960 | 65° | 17.5dBi | 4°-12°T | 800 10492 | 2694 | bottom | 113 | |
| | 1710-2180 | 65° | 17dBi | 0°-14°T | | | | | |
| | 1710-2180 | 65° | 17dBi | 0°-14°T | | | | | |

C = integrated Combiner

New or changed product

When deploying
Triple-band Antennas,
please also consider using
special Triple-band Combiners
(see page 229)

Triple-band Panel

Dual Polarization

Half-power Beam Width

| | | |
|---------|-----------|-----------|
| 806–960 | 1710–1880 | 1920–2170 |
|---------|-----------|-----------|

| | | |
|---|---|---|
| X | X | X |
|---|---|---|

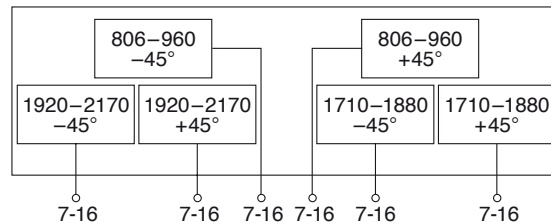
| | | |
|-----|-----|-----|
| 66° | 66° | 65° |
|-----|-----|-----|

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Antennen · Electronic

XXXPol Panel 806–960/1710–1880/1920–2170 66°/66°/65° 15/16.5/17dBi 0°–12°/0°–8°/0°–8°T

| Type No. | 742 270 | | | | |
|---|--|--|--|---|---|
| Frequency range | 806–960 | | | 1710–1880 | 1920–2170 |
| | 806–866 MHz | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1920–2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 14.8 dBi | 2 x 15 dBi | 2 x 15.2 dBi | 2 x 16.5 dBi | 2 x 17.2 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 69° | 67° | 65° | 66° | 65° |
| Front-to-back ratio, copolar | > 27 dB | > 27 dB | > 27 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB | Typically: 16 dB | Typically: 18 dB |
| Main direction | 0° | | | | |
| Sector | ±60° | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 14° | 13.6° | 13° | 6.7° | 6.2° |
| Electrical tilt, contin. adjust. | 0.5°–12° | | | 0.5°–8° | 0°–8° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 6° ... 12° T 17 ... 17 ... 14 dB | 0° ... 6° ... 12° T 17 ... 17 ... 14 dB | 0° ... 6° ... 12° T 18 ... 18 ... 15 dB | 0° ... 4° ... 8° T 18 ... 16 ... 14 dB | 0° ... 4° ... 8° T 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | | | > 30 dB | > 30 dB |
| Isolation: Intersystem | Typically: > 50 dB (806–960 // 1710–1880 MHz) Typically: > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz) | | | | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | | < –150 dBc | < –150 dBc |
| Max. power per input | 250 W | | | 200 W | 200 W |
| | (at 50 °C ambient temperature) | | | | |
| Input | 6 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | |
| Weight | 22 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 690 N | | | | |
| Height/width/depth | 1498 / 262 / 149 mm | | | | |



Triple-band Panel

Dual Polarization

Half-power Beam Width

790–960 1710–1880 1920–2170

X X X

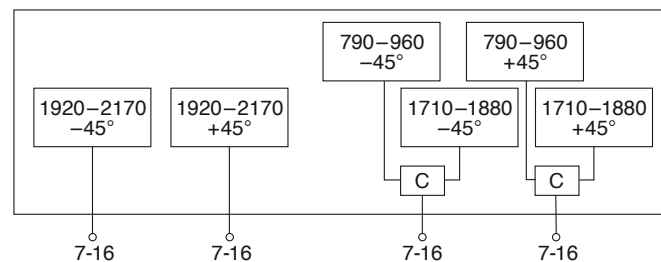
66° 66° 65°

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Antennen · Electronic

XXXPol Panel 790–960/1710–1880/1920–2170 C 66°/66°/65° 15/16.5/17dBi 0°–12°/0°–8°/0°–8°T

| Type No. | 800 10670 | | | | |
|---|---|-------------|--------------|---|---|
| Frequency range | 790–960 | | 1710–1880 | 1920–2170 | |
| | 790–866 MHz | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1920–2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 14.8 dBi | 2 x 15 dBi | 2 x 15.2 dBi | 2 x 16.5 dBi | 2 x 17.2 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 69° | 67° | 65° | 66° | 65° |
| Front-to-back ratio, copolar | > 27 dB | | | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: 25 dB | | | Typically: 16 dB | Typically: 18 dB |
| Main direction | 0° | | | 0° | 0° |
| Sector | ±60° | | | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 14° | 13.6° | 13° | 6.7° | 6.2° |
| Electrical tilt, contin. adjust. | 0.5°–12° | | | 0.5°–8° | 0°–8° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 6° ... 12° T 17 ... 17 ... 14 dB | | | 0° ... 4° ... 8° T 18 ... 16 ... 14 dB | 0° ... 4° ... 8° T 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Isolation: Intersystem | Typically: > 50 dB (790–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz) | | | | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | | | < –150 dBc |
| Max. power per input | 250 W | | 200 W | 200 W | |
| | (at 50 °C ambient temperature) | | | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | |
| Input | 4 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | |
| Weight | 21.5 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 460 / 300 / 680 N | | | | |
| Height/width/depth | 1498 / 262 / 149 mm | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | |



800/900 -
1800/2000
XXXPol

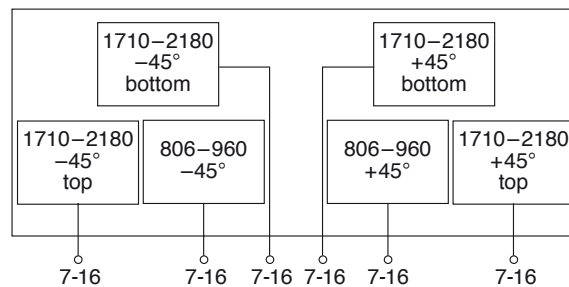
Triple-multiband Panel Dual Polarization Half-power Beam Width

| | | |
|---------|-----------|-----------|
| 806–960 | 1710–2180 | 1710–2180 |
| X | X | X |
| 65° | 65° | 65° |

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Antennen · Electronic

XXXPol Panel 806–960/1710–2180/1710–2180 65°/65°/65° 15/15/15dBi 0°–14°/0°–14°/0°–14°T

| Type No. | 800 10290 | | | | | |
|--|--|--|--|---|--|--|
| Frequency range | 806 – 866 MHz | 806–960 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1710–2180 1850–1990 MHz | 1710–2180 1920–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain: (dBi) | 14.4 ... 14.3 ... 14 | 14.6 ... 14.4 ... 14.2 | 14.9 ... 14.7 ... 14.4 | 14.5 ... 14.5 ... 14.2 | 14.8 ... 14.8 ... 14.5 | 15.1 ... 14.8 ... 14.4 |
| 1710–2180 MHz (Syst. bottom) | | | | 14 ... 14 ... 13.7 | 14.4 ... 14.3 ... 13.9 | 14.9 ... 14.8 ... 14.2 |
| 1710–2180 MHz (Syst. top) | | | | 0° ... 7° ... 14° | 0° ... 7° ... 14° | 0° ... 7° ... 14° |
| Tilt | 0° ... 7° ... 14° | 0° ... 7° ... 14° | 0° ... 7° ... 14° | | | |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 69° | 68° | 67° | 67° | 63° | 60° |
| Front-to-back ratio (180°±30°) | > 25 dB | | | > 25 dB | | |
| Cross polar ratio | Typically: 25 dB | | | Typically: 20 dB | | |
| Maindirection | 0° | | | 0° | | |
| Sector | ±60° | | | > 10 dB | | |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 14.7° | 14.3° | 13.9° | 13.8° | 13.2° | 12.6° |
| Electrical tilt | 0°–14°, continuously adjustable | | | Syst. bottom: 0°–14°, continuously adjustable Syst. top: 0°–14°, continuously adjustable | | |
| Sidelobe suppression – for first sidelobe above main beam | 0° ... 7° ... 14° 18 ... 16 ... 16 dB | 0° ... 7° ... 14° 18 ... 16 ... 16 dB | 0° ... 7° ... 14° 18 ... 17 ... 16 dB | 0° ... 7° ... 14° 18 ... 16 ... 15 dB | 0° ... 7° ... 14° 18 ... 17 ... 17 dB | 0° ... 7° ... 14° 18 ... 16 ... 17 dB |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 35 dB (806–960 // 1710–2180 MHz) > 30 dB (1710–2180 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Input | 6 x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | | |
| Weight | 21 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 480 / 300 / 700 N | | | | | |
| Height/width/depth | 1540 / 262 / 149 mm | | | | | |



Triple-band Panel

Dual Polarization

Half-power Beam Width

| | | |
|---------|-----------|-----------|
| 806–960 | 1710–1880 | 1920–2170 |
|---------|-----------|-----------|

| | | |
|---|---|---|
| X | X | X |
|---|---|---|

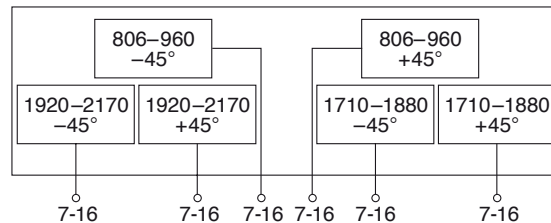
| | | |
|-----|-----|-----|
| 67° | 65° | 65° |
|-----|-----|-----|

KATHREIN

Antennen · Electronic

XXXPol Panel 806–960/1710–1880/1920–2170 67°/65°/65° 16.5/17.5/18dBi 0°–10°/0°–6°/0°–6°T

| Type No. | 742 271 | | | | |
|---|--|--|--|---|---|
| Frequency range | 806–866 MHz | 806–960 824–894 MHz | 880–960 MHz | 1710–1880 1710–1880 MHz | 1920–2170 1920–2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16 dBi | 2 x 16.1 dBi | 2 x 16.3 dB | 2 x 17.5 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 69° | 68° | 67° | 65° | 65° |
| Front-to-back ratio, copolar | > 25 dB | > 25 dB | > 25 dB | > 24 dB | > 25 dB |
| Cross polar ratio | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB | Typically: 18 dB | Typically: 20 dB |
| Main direction | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 9.5° | 9.3° | 9.0° | 4.7° | 4.3° |
| Electrical tilt continuously adjustable | 0°–10° | | | 0°–6° | 0°–6° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T 15 ... 15 ... 13 dB | 0° ... 5° ... 10° T 15 ... 15 ... 13 dB | 0° ... 5° ... 10° T 15 ... 15 ... 13 dB | 0° ... 3° ... 6° T 18 ... 17 ... 16 dB | 0° ... 3° ... 6° T 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Isolation: Intersystem | Typically: > 50 dB (806–960 // 1710–1880 MHz) Typically: > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz) | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | 200 W | 200 W | |
| Input | 6 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment | 3x, Position bottom continuously adjustable | | | | |
| Weight | 28.5 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 640 / 410 / 950 N | | | | |
| Height/width/depth | 2058 / 262 / 149 mm | | | | |



800/900 –
1800/2000
XXXPol

Triple-band Panel

Dual Polarization

Half-power Beam Width

806–960 1710–1880 1920–2170

X X X

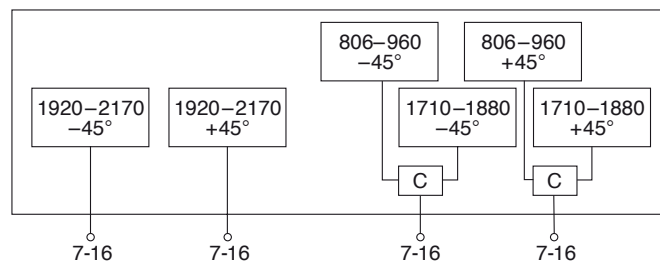
67° 65° 65°

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Antennen · Electronic

XXXPol Panel 806–960/1710–1880/1920–2170 C 67°/65°/65° 16.5/17.5/18dBi 0°–10°/0°–6°/0°–6°T

| Type No. | 800 10671 | | | | |
|---|---|--------------|--------------|---|---|
| Frequency range | 806–960 | | 1710–1880 | 1920–2170 | |
| | 806–866 MHz | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1920–2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16 dBi | 2 x 16.1 dBi | 2 x 16.3 dBi | 2 x 17.5 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 69° | 68° | 67° | 65° | 65° |
| Front-to-back ratio, copolar | > 25 dB | | | > 24 dB | > 25 dB |
| Cross polar ratio | Typically: 25 dB | | | Typically: 18 dB | Typically: 20 dB |
| Main direction | 0° | | | 0° | 0° |
| Sector | ±60° | | | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 9.5° | 9.3° | 9.0° | 4.7° | 4.3° |
| Electrical tilt, contin. adjust. | 0°–10° | | | 0°–6° | 0°–6° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 5° ... 10° T 15 ... 15 ... 13 dB | | | 0° ... 3° ... 6° T 18 ... 17 ... 16 dB | 0° ... 3° ... 6° T 18 ... 16 ... 15 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Isolation: Intersystem | Typically: > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz) | | | | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | | | < –150 dBc |
| Max. power per input | 250 W | | 200 W | 200 W | |
| | (at 50 °C ambient temperature) | | | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | |
| Input | 4 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | |
| Weight | 27.5 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 640 / 410 / 950 N | | | | |
| Height/width/depth | 2058 / 262 / 149 mm | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | |



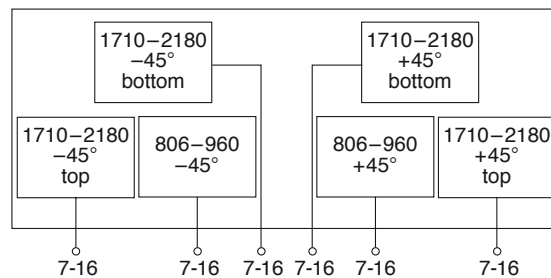
Triple-multiband Panel Dual Polarization Half-power Beam Width

| | | |
|---------|-----------|-----------|
| 806–960 | 1710–2180 | 1710–2180 |
| X | X | X |
| 65° | 65° | 65° |

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Antennen · Electronic

XXXPol Panel 806–960/1710–2180/1710–2180 65°/65°/65° 16.5/16.5/16.5dBi 2°–14°/0°–14°/0°–14°T

| Type No. | 800 10291 | | | | | |
|--------------------------------------|--|-------------------------------|------------------------|--------------------------------------|-----------------------------------|-----------------------------------|
| Frequency range | 806 – 866 MHz | 806–960 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1710–2180 1850–1990 MHz | 1710–2180 1920–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average Gain: (dBi) | 16.2 ... 16 ... 15.7 | 16.3 ... 16.1 ... 15.8 | 16.4 ... 16.2 ... 15.8 | 15.9 ... 15.9 ... 15.5 | 16.2 ... 16.2 ... 15.7 | 16.3 ... 16.3 ... 15.8 |
| 1710–2180 MHz (Syst. bottom) | | | | 15.8 ... 15.8 ... 15.4 | 16.1 ... 16.1 ... 15.4 | 16.3 ... 16.2 ... 15.5 |
| 1710–2180 MHz (Syst. top) | | | | 0° ... 7° ... 14° | 0° ... 7° ... 14° | 0° ... 7° ... 14° |
| Tilt | 2° ... 8° ... 14° | 2° ... 8° ... 14° | 2° ... 8° ... 14° | | | |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 68° | 67° | 65° | 65° | 64° | 60° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection | 25 dB | 25 dB | 25 dB | 18 dB | 19 dB | 20 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 10° | 9.7° | 9.3° | 9.5° | 9° | 8.7° |
| Electrical tilt | 2°–14°, continuously adjustable | | | 0°–14°, continuously adjustable | | |
| Sidelobe suppression | 2° ... 8° ... 14° T | 2° ... 8° ... 14° T | 2° ... 8° ... 14° T | 0° ... 7° ... 14° T | 0° ... 7° ... 14° T | 0° ... 7° ... 14° T |
| – for first sidelobe above main beam | 17 ... 17 ... 15 dB | 17 ... 17 ... 16 dB | 17 ... 17 ... 16 dB | 18 ... 17 ... 17 dB | 18 ... 17 ... 17 dB | 18 ... 17 ... 17 dB |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 35 dB (806–960 // 1710–2180 MHz) > 30 dB (1710–2180 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Input | 6 x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 3x, Position bottom/continuously adjustable | | | | | |
| Weight | 27 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / rateral / rearside: 640 / 410 / 950 N | | | | | |
| Height/width/depth | 2058 / 262 / 149 mm | | | | | |



800/900 –
1800/2000
XXXPol

Triple-band Panel

Dual Polarization

Half-power Beam Width

806–960 1710–1880 1920–2170

KATHREIN

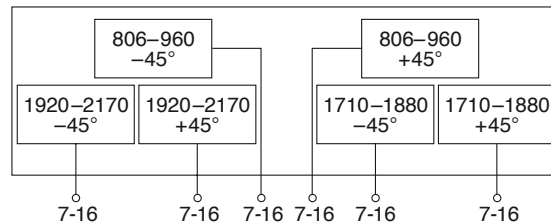
X X X

Antennen · Electronic

66° 65° 63°

XXXPol Panel 806–960/1710–1880/1920–2170 66°/65°/63° 17.5/17.5/18dBi 0°–7°/0°–6°/0°–6°T

| Type No. | 742 272 | | | | |
|---|--|---|---|---|---|
| Frequency range | 806–960 | | 1710–1880 | 1920–2170 | |
| | 806–866 MHz | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1920–2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17 dBi | 2 x 17.2 dBi | 2 x 17.5 dBi | 2 x 17.5 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 69° | 68° | 66° | 65° | 63° |
| Front-to-back ratio, copolar | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: 25 dB | Typically: 25 dB | Typically: 25 dB | Typically: 14 dB | Typically: 17 dB |
| Main direction | 0° | | | | |
| Sector | ±60° | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 7.4° | 7.2° | 6.8° | 4.7° | 4.4° |
| Electrical tilt, contin. adjust. | 0.5°–7° | | | 0°–6° | 0°–6° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 7° T 15 ... 16 ... 16 dB | 0° ... 4° ... 7° T 15 ... 16 ... 16 dB | 0° ... 4° ... 7° T 16 ... 17 ... 16 dB | 0° ... 3° ... 6° T 17 ... 17 ... 16 dB | 0° ... 3° ... 6° T 17 ... 15 ... 14 dB |
| VSWR | < 1.5 | | | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | | | > 30 dB | > 30 dB |
| Isolation: Intersystem | Typically: > 50 dB (806–960 // 1710–1880 MHz) Typically: > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz) | | | | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | | < –150 dBc | < –150 dBc |
| Max. power per input | 250 W | | | 200 W | 200 W |
| | (at 50 °C ambient temperature) | | | | |
| Input | 6 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | |
| Weight | 34 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 860 / 520 / 1270 N | | | | |
| Height/width/depth | 2628 / 262 / 149 mm | | | | |



Triple-band Panel

Dual Polarization

Half-power Beam Width

790–960 1710–1880 1920–2170

X X X

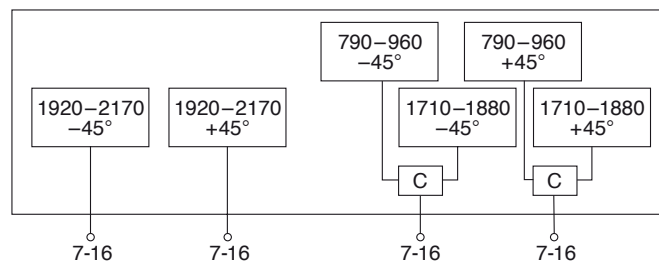
66° 65° 63°

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Antennen · Electronic

XXXPol Panel 790–960/1710–1880/1920–2170 C 66°/65°/63° 17.5/17.5/18dBi 0°–7°/0°–6°/0°–6°T

| Type No. | 800 10672 | | | | |
|---|---|--------------|--------------|---|---|
| Frequency range | 790–960 | | 1710–1880 | 1920–2170 | |
| | 790–866 MHz | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1920–2170 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 17 dBi | 2 x 17.2 dBi | 2 x 17.5 dBi | 2 x 17.5 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 69° | 68° | 66° | 65° | 63° |
| Front-to-back ratio, copolar | > 25 dB | | | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: 25 dB | | | Typically: 14 dB | Typically: 17 dB |
| Main direction | 0° | | | 0° | 0° |
| Sector | ±60° | | | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 7.4° | 7.2° | 6.8° | 4.7° | 4.4° |
| Electrical tilt, contin. adjust. | 0.5°–7° | | | 0°–6° | 0°–6° |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 4° ... 7° T 15 ... 16 ... 16 dB | | | 0° ... 3° ... 6° T 17 ... 17 ... 16 dB | 0° ... 3° ... 6° T 17 ... 15 ... 14 dB |
| VSWR | < 1.5 | | | | |
| Isolation: Intrasystem | > 30 dB | | | | |
| Isolation: Intersystem | Typically: > 50 dB (790–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz) | | | | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | | | < –150 dBc |
| Max. power per input | 250 W | | 200 W | 200 W | |
| | (at 50 °C ambient temperature) | | | | |
| Max. power per combined input | 450 W (at 50 °C ambient temperature) | | | | |
| Input | 4 x 7-16 female (long neck) | | | | |
| Connector position | Bottom | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | |
| Weight | 32 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 850 / 510 / 1270 N | | | | |
| Height/width/depth | 2628 / 262 / 149 mm | | | | |
| Integrated combiner | The insertion loss is included in the given antenna gain values. | | | | |



800/900 -
1800/2000
XXXPol

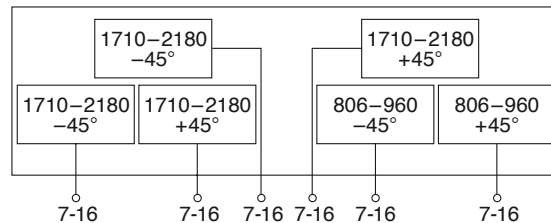
Triple-multiband Panel Dual Polarization Half-power Beam Width

| | | |
|---------|-----------|-----------|
| 806–960 | 1710–2180 | 1710–2180 |
| X | X | X |
| 65° | 65° | 65° |

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XXXPol Panel 806–960/1710–2180/1710–2180 65°/65°/65° 17.5/17.5/17dBi 2°–10°/0°–10°/0°–10°T

| Type No. | 800 10292 | | | | | |
|---|--|--|--|--|--|--|
| Frequency range | 806–960 | | 1710–2180 1710–2180 | | | |
| | 806–866 MHz | 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1850–1990 MHz | 1920–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average Gain: (dBi) | 16.8...17.0...16.8 | 17.0...17.1...17.0 | 17.4...17.4...17.1 | 16.5...16.7...16.5 | 17.0...17.1...16.7 | 17.3...17.4...16.8 |
| 1710–2180 MHz (Syst. bottom) | | | | 16.2...16.3...16.1 | 16.7...16.7...16.4 | 17.0...17.0...16.5 |
| 1710–2180 MHz (Syst. top) | | | | 0°...5°...10° | 0°...5°...10° | 0°...5°...10° |
| Tilt | 2°...6°...10° | 2°...6°...10° | 2°...6°...10° | | | |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 69° | 68° | 66° | 65° | 64° | 60° |
| Front-to-back ratio, copolar | > 30 dB | > 30 dB | > 30 dB | > 26 dB | > 26 dB | > 26 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection 0° | 25 dB | 25 dB | 25 dB | 18 dB | 18 dB | 18 dB |
| Sector ±60° | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| ±60° | avg. 20 dB | avg. 20 dB | avg. 17 dB | avg. 14 dB | avg. 16 dB | avg. 16 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 7.8° | 7.6° | 7.1° | 7.4° | 7.2° | 6.8° |
| Electrical tilt | 2.5°–9.5°, continuously adjustable | | | 0°–10°, continuously adjustable | | |
| Sidelobe suppression for first sidelobe above main beam | 2° ... 6° ... 10° T 17 ... 16 ... 14 dB | 2° ... 6° ... 10° T 17 ... 16 ... 14 dB | 2° ... 6° ... 10° T 17 ... 16 ... 14 dB | 0° ... 5° ... 10° T 16 ... 16 ... 16 dB | 0° ... 5° ... 10° T 16 ... 17 ... 16 dB | 0° ... 5° ... 10° T 16 ... 16 ... 14 dB |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Isolation: Intrasystem | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Isolation: Intersystem | > 36 dB (806–960 // 1710–2180 MHz) > 36 dB (1710–2180 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | | | 200 W (at 50 °C ambient temperature) | | |
| Input | 6 x 7-16 female | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | | |
| Weight | 36 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 870 / 520 / 1320 N | | | | | |
| Height/width/depth | 2694 / 262 / 149 mm | | | | | |



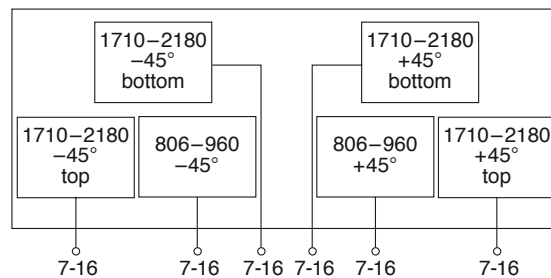
Triple-multiband Panel Dual Polarization Half-power Beam Width

| | | |
|---------|-----------|-----------|
| 806–960 | 1710–2180 | 1710–2180 |
| X | X | X |
| 65° | 65° | 65° |

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XXXPol Panel 806–960/1710–2180/1710–2180 65°/65°/65° 17.5/17/17dBi 4°–12°/0°–14°/0°–14°T

| Type No. | 800 10492 | | | | | |
|--------------------------------------|--|-------------------------------|------------------------|--------------------------------------|-----------------------------------|-----------------------------------|
| Frequency range | 806 – 866 MHz | 806–960 824–894 MHz | 880–960 MHz | 1710–1880 MHz | 1710–2180 1850–1990 MHz | 1710–2180 1920–2180 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Average Gain: (dBi) | 16.8 ... 16.7 ... 16.6 | 17.0 ... 16.9 ... 16.8 | 17.2 ... 17.0 ... 16.8 | 16.1 ... 16.3 ... 16.0 | 16.7 ... 16.8 ... 16.3 | 17.0 ... 17.0 ... 16.6 |
| 1710–2180 MHz (Syst. bottom) | | | | 16.1 ... 16.1 ... 15.8 | 16.7 ... 16.5 ... 16.2 | 17.0 ... 16.9 ... 16.4 |
| 1710–2180 MHz (Syst. top) | | | | 0° ... 7° ... 14° | 0° ... 7° ... 14° | 0° ... 7° ... 14° |
| Tilt | 4° ... 8° ... 12° | 4° ... 8° ... 12° | 4° ... 8° ... 12° | | | |
| Horizontal Pattern: | | | | | | |
| Half-power beam width | 68° | 67° | 66° | 65° | 63° | 60° |
| Front-to-back ratio (180°±30°) | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio | Typically: | Typically: | Typically: | Typically: | Typically: | Typically: |
| Maindirection | 23 dB | 24 dB | 25 dB | 18 dB | 18 dB | 19 dB |
| Sector | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB | > 10 dB |
| Vertical Pattern: | | | | | | |
| Half-power beam width | 7.5° | 7.4° | 7.2° | 7.8° | 7.6° | 7.2° |
| Electrical tilt | 4°–12°, continuously adjustable | | | 0°–14°, continuously adjustable | | |
| Sidelobe suppression | 4° ... 8° ... 12° T | 4° ... 8° ... 12° T | 4° ... 8° ... 12° T | 0° ... 7° ... 14° T | 0° ... 7° ... 14° T | 0° ... 7° ... 14° T |
| – for first sidelobe above main beam | 19 ... 17 ... 16 dB | 19 ... 18 ... 18 dB | 19 ... 18 ... 18 dB | 18 ... 17 ... 15 dB | 18 ... 17 ... 15 dB | 18 ... 17 ... 15 dB |
| – within 0°–20° sector above horizon | 15 ... 15 ... 14 dB | 16 ... 15 ... 14 dB | 16 ... 15 ... 14 dB | 18 ... 17 ... 15 dB | 17 ... 17 ... 15 dB | 15 ... 14 ... 14 dB |
| VSWR | < 1.5 | | | | | |
| Isolation: Intrasystem | > 30 dB | | | | | |
| Isolation: Intersystem | > 36 dB (806–960 // 1710–2180 MHz) > 36 dB (1710–2180 // 1710–2180 MHz) | | | | | |
| Intermodulation IM3 | < –153 dBc (2 x 43 dBm carrier) | | | | | |
| Max. power per input | 400 W (at 50 °C ambient temperature) | | | 250 W (at 50 °C ambient temperature) | | |
| Input | 6 x 7-16 female (long neck) | | | | | |
| Connector position | Bottom | | | | | |
| Adjustment mechanism | 3x, Position bottom continuously adjustable | | | | | |
| Weight | 34 kg | | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 870 / 520 / 1320 N | | | | | |
| Height/width/depth | 2694 / 262 / 149 mm | | | | | |



800/900 –
1800/2000
XXXPol

Summary – Directional Antennas Omnidirectional Antennas 2300 ... 3800

Dual Polarization +45°/–45° – Directional – 2300

| Type | Type No. | Height [mm] | Connector position | Page |
|--|------------------|-------------|--------------------|------|
| XPol Panel 1710–2690 65° 15.5dBi 0°–10°T | 800 10681 | 724 | bottom | 116 |
| XPol Panel 2300–2690 60° 18dBi 0°–12°T | 800 10541 | 1149 | bottom | 117 |
| XPol Panel 1710–2690 65° 17.5dBi 2°T | 800 10471 | 1302 | bottom | 118 |
| XPol Panel 1710–2690 65° 18dBi 0°–12°T ESLS | 800 10621 | 1398 | bottom | 119 |
| XXPol Panel 1710–2690 65° 15.5dBi 0°–10°T | 800 10682 | 724 | bottom | 120 |
| 1710–2690 65° 15.5dBi 0°–10°T | | | | |
| XXPol Panel 2300–2690 60° 18dBi 0°–12°T | 800 10543 | 1220 | bottom | 121 |
| 2300–2690 60° 18dBi 0°–12°T | | | | |
| XXPol Panel 1710–2200 65° 18dBi 0°–15°T | 800 10544 | 1389 | bottom | 122 |
| 2300–2690 60° 18dBi 0°–12°T | | | | |
| XXPol Panel 1710–2690 65° 18dBi 0°–12°T ESLS | 800 10622 | 1389 | bottom | 123 |
| 1710–2690 65° 18dBi 0°–10°T | | | | |

Dual Polarization +45°/–45° – Directional – 3500

| | | | | |
|--------------------------------------|-----------|-----|---------------|-----|
| XPol Panel 3300–3800 65° 17.5dBi 0°T | 800 10390 | 736 | bottom or top | 124 |
|--------------------------------------|-----------|-----|---------------|-----|

Vertical Polarization – Omnidirectional

| | | | | |
|------------------------------------|-----------|------|---------------|-----|
| VPol Omni 1710–2700 360° 2dBi 0°T | 800 10431 | 115 | bottom or top | 149 |
| VPol Omni 2500–2700 360° 11dBi 0°T | 800 10442 | 1132 | bottom | 137 |
| VPol Omni 3400–3600 360° 11dBi 0°T | 800 10528 | 860 | bottom | 138 |

New or changed product

Further types on request.
Please contact:
antennas.mobilcom@kathrein.de

Multi-band Panel Dual Polarization Half-power Beam Width

1710–2690

X

65°

KATHREIN

Antennen · Electronic

XPol Panel 1710–2690 65° 15.5dBi 0°–10°T

| Type No. | 800 10681 | | | |
|--|--|--|--|--|
| Frequency range | 1710–2690 | | | |
| | 1710 – 1990 MHz | 1920 – 2200 MHz | 2200 – 2490 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain at 0° tilt | 2 x 15 dBi | 2 x 15.5 dBi | 2 x 16 dBi | 2 x 16 dBi |
| Horizontal Pattern: | | | | |
| Half-power beam width | 67° | 63° | 60° | 60° |
| Front-to-back ratio (180° ±30°) | > 28 dB | > 28 dB | > 25 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 9 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 14° | 13° | 12° | 11° |
| Electrical tilt | 0°–10°, continuously adjustable | | | |
| Sidelobe suppression – for first sidelobe above main beam | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 2 x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 1 x, Position bottom continuously adjustable | | | |
| Weight | Approx. 7.5 kg | | | |
| Wind load (approx.) | Frontal / lateral / rearside: 200 / 85 / 200 N (at 150 km/h) | | | |
| Height/width/depth | Approx. 724 / 155 / 69 mm | | | |



Multi-band Panel Dual Polarization Half-power Beam Width

2300–2690

X

65°

KATHREIN
Antennen · Electronic

XPol Panel 2300–2690 60° 18dBi 0°–12°T

| Type No. | 800 10541 | |
|--|---|--|
| Frequency range | 2300–2690 | |
| | 2300 – 2500 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain at 0° tilt | 2 x 18 dBi | 2 x 18 dBi |
| Horizontal Pattern: | | |
| Half-power beam width | 61° | 58° |
| Front-to-back ratio (180°±30°) | ≥ 25 dB | ≥ 25 dB |
| Cross polar ratio Sector | Typically: 20 dB ≥ 8 dB | Typically: 20 dB ≥ 8 dB |
| | 0° | ±60° |
| Vertical Pattern: | | |
| Half-power beam width | 6.5° | 6.2° |
| Electrical tilt | 0°–12°, continuously adjustable | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 6° ... 12° T ≥ 15 ... 17 ... 17 dB | 0° ... 6° ... 12° T ≥ 15 ... 17 ... 17 dB |
| VSWR | < 1.5 | |
| Isolation, between inputs | > 30 dB | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | |
| Input | 2 x 7-16 female | |
| Connector position | Bottom | |
| Weight | 6.8 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 330 / 100 / 370 N | |
| Height/width/depth | 1149 / 155 / 69 mm | |



2300 ... 3800
XPol, VPol

Multi-band Panel Dual Polarization Half-power Beam Width

1710–2690

X

65°

KATHREIN

Antennen · Electronic

XPol Panel 1710–2690 65° 17.5dBi 2°T

| Type No. | 800 10471 | | | | |
|--|---|-----------------------------|-----------------------------|-----------------------------|----------------------------|
| Frequency range | [1710–2690] | | | | |
| | 1710 – 1880 MHz | 1850 – 1990 MHz | 1920 – 2200 MHz | 2200 – 2490 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain | 2 x 16.7 dBi | 2 x 17.4 dBi | 2 x 17.8 dBi | 2 x 17.8 dBi | 2 x 17.0 dBi |
| Horizontal Pattern: | | | | | |
| Half-power beam width | 68° | 68° | 66° | 66° | 65° |
| Front-to-back ratio, copolar | > 28 dB | > 30 dB | > 30 dB | > 26 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 20 dB > 8 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 10 dB | Typically: 20 dB > 8 dB |
| Vertical Pattern: | | | | | |
| Half-power beam width | 6.7° | 6.4° | 6.1° | 5.5° | 5.0° |
| Electrical tilt | 2°, fixed | | | | |
| Sidelobe suppression for first sidelobe above main beam | > 14 dB | > 15 dB | > 16 dB | > 16 dB | > 15 dB |
| VSWR | < 1.5 | | | | |
| Isolation, between inputs | > 30 dB | | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | | | | |
| Input | 2 x 7-16 female | | | | |
| Connector position | Bottom | | | | |
| Weight | 6.4 kg | | | | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 130 / 110 / 310 N | | | | |
| Height/width/depth | 1302 / 155 / 69 mm | | | | |



Multi-band Panel Dual Polarization Half-power Beam Width

1710–2690

X

65°

KATHREIN

Antennen · Electronic

XPol Panel 1710–2690 65° 18dBi 0°–12°T ESLS

| Type No. | 800 10621 | | | |
|--|---|---|---|---|
| Frequency range | 1710–2690 | | | |
| | 1710 – 1990 MHz | 1920 – 2200 MHz | 2200 – 2490 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain (dBi) | 17.4 ... 17.4 ... 17.3 | 18.2 ... 18.0 ... 17.9 | 18.2 ... 18.1 ... 17.7 | 18.3 ... 18.0 ... 17.6 |
| Tilt | 0° ... 6° ... 12° | 0° ... 6° ... 12° | 0° ... 6° ... 12° | 0° ... 6° ... 12° |
| Horizontal Pattern: | | | | |
| Half-power beam width | 68° | 64° | 61° | 60° |
| Front-to-back ratio (180° ±30°) | > 25 dB | > 25 dB | > 25 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 7.1° | 6.5° | 5.9° | 5.7° |
| Electrical tilt | 0°–12°, continuously adjustable | | | |
| Sidelobe suppression – for first sidelobe above main beam – within 0°–20° sector above horizon | 0° ... 6° ... 12° T ≥ 18 ... 18 ... 18 dB ≥ 17 ... 17 ... 16 dB | 0° ... 6° ... 12° T ≥ 18 ... 18 ... 18 dB ≥ 17 ... 17 ... 16 dB | 0° ... 6° ... 12° T ≥ 18 ... 17 ... 17 dB ≥ 16 ... 18 ... 17 dB | 0° ... 6° ... 12° T ≥ 18 ... 18 ... 16 dB ≥ 15 ... 15 ... 14 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 2x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 1x, Position bottom continuously adjustable | | | |
| Weight | 8 kg | | | |
| Wind load (approx.) | Frontal / lateral / rearside: 380 / 120 / 420 N (at 150 km/h) | | | |
| Height/width/depth | 1400 / 155 / 69 mm | | | |



2300 ... 3800
XPol, VPol

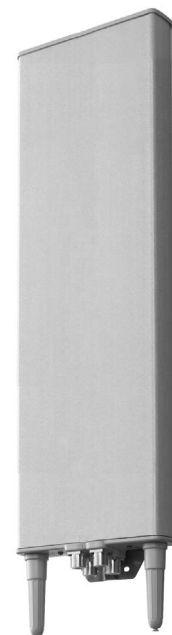
**Multi-band Panel
Dual Polarization
Half-power Beam Width**

| | |
|-----------|-----------|
| 1710–2690 | 1710–2690 |
| X | X |
| 65° | 65° |

KATHREIN
Antennen · Electronic

XXPol Panel 1710–2690/1710–2690 65°/65° 15.5/15.5dBi 0°–10°/0°–10°T

| Type No. | 800 10682 | | | |
|--|--|--|--|--|
| Frequency range | 1710–2690 | | | |
| | 1710 – 1990 MHz | 1920 – 2200 MHz | 2200 – 2490 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain at 0° tilt | 4 x 15 dBi | 4 x 15.5 dBi | 4 x 16 dBi | 4 x 16 dBi |
| Horizontal Pattern: | | | | |
| Half-power beam width | 67° | 63° | 60° | 60° |
| Front-to-back ratio (180° ±30°) | > 28 dB | > 28 dB | > 25 dB | > 25 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 25 dB > 10 dB | Typically: 25 dB > 10 dB | Typically: 25 dB > 9 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 14° | 13° | 12° | 11° |
| Electrical tilt | 0°–10°, continuously adjustable | | | |
| Sidelobe suppression – for first sidelobe above main beam | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB | 0° ... 5° ... 10° T ≥ 14 ... 15 ... 16 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 4 x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 2 x, Position bottom continuously adjustable | | | |
| Weight | Approx. 11 kg | | | |
| Wind load (approx.) | Frontal / lateral / rearside: 320 / 60 / 320 N (at 150 km/h) | | | |
| Height/width/depth | Approx. 724 / 323 / 71 mm | | | |



2-Multi-band Panel

Dual Polarization

Half-power Beam Width

2300–2690

2300–2690

X

X

60°

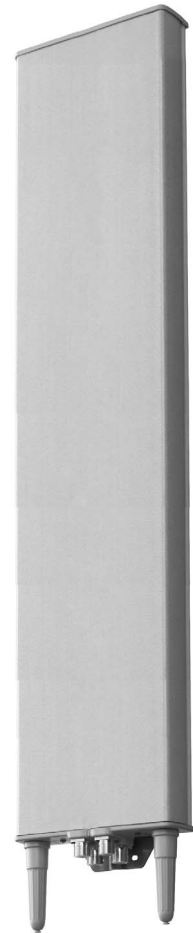
60°

KATHREIN

Antennen · Electronic

XXPol Panel 2300–2690/2300–2690 60°/60° 17.5/17.5dBi 0°–12°/0°–12°T

| Type No. | 800 10543 | |
|---|---|------------------------|
| Frequency range | 2300–2690 | |
| | 2300 – 2500 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45°; +45°, –45° | +45°, –45°; +45°, –45° |
| Gain at 0° tilt | 4 x 17.5 dBi | 4 x 17.5 dBi |
| Horizontal Pattern: | | |
| Half-power beam width | 62° | 60° |
| Front-to-back ratio (180°±30°) | ≥ 25 dB | ≥ 25 dB |
| Cross polar ratio | 0° | 0° |
| Sector | ±60° | ±60° |
| | typ. 20 dB | typ. 20 dB |
| | ≥ 10 dB | ≥ 10 dB |
| Vertical Pattern: | | |
| Half-power beam width | 6.5° | 6.3° |
| Electrical tilt | 0°–12°, continuously adjustable | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 6° ... 12° T | 0° ... 6° ... 12° T |
| | ≥ 15 ... 17 ... 17 dB | ≥ 15 ... 17 ... 15 dB |
| VSWR | < 1.5 | |
| Isolation, between inputs | > 30 dB | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 250 W (at 50 °C ambient temperature) | |
| Input | 4 x 7-16 female | |
| Connector position | Bottom | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | |
| Weight | 15.8 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 620 / 100 / 640 N | |
| Height/width/depth | 1220 / 323 / 71 mm | |



2-Multi-band Panel

Dual Polarization

Half-power Beam Width

| | |
|-----------|-----------|
| 1710–2200 | 2300–2690 |
|-----------|-----------|

| | |
|---|---|
| X | X |
|---|---|

| | |
|-----|-----|
| 65° | 60° |
|-----|-----|

KATHREIN

Antennen · Electronic

XXPol Panel 1710–2200/2300–2690 65°/60° 18/17.5dBi 0°–15°/0°–12°T

| Type No. | 800 10544 | |
|--|---|---|
| Frequency range | 1710 – 2200 MHz | 2300 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° |
| Gain at 0° tilt | 2 x 17.8 dBi | 2 x 17.5 dBi |
| Horizontal Pattern: | | |
| Half-power beam width | 63° | 61° |
| Front-to-back ratio (180°±30°) | ≥ 25 dB | ≥ 25 dB |
| Cross polar ratio Sector | 0° ±60° | > 20 dB Typically: 10 dB |
| Vertical Pattern: | | |
| Half-power beam width | 7° | 6.5° |
| Electrical tilt | 0°–15°, continuously adjustable | 0°–12°, continuously adjustable |
| Sidelobe suppression for first sidelobe above main beam | ≥ 16 dB | ≥ 15 dB |
| VSWR | < 1.5 | < 1.5 |
| Isolation, between inputs | > 30 dB | > 30 dB |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | < –150 dBc (2 x 43 dBm carrier) |
| Max. power per input | 250 W (at 50 °C ambient temperature) | 250 W (at 50 °C ambient temperature) |
| Input | 4 x 7-16 female | |
| Connector position | Bottom | |
| Adjustment mechanism | 2x, Position bottom continuously adjustable | |
| Weight | 17.3 kg | |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 710 / 160 / 730 N | |
| Height/width/depth | 1389 / 323 / 71 mm | |



Multi-band Panel

1710–2690

1710–2690

Dual Polarization

X

X

Half-power Beam Width

65°

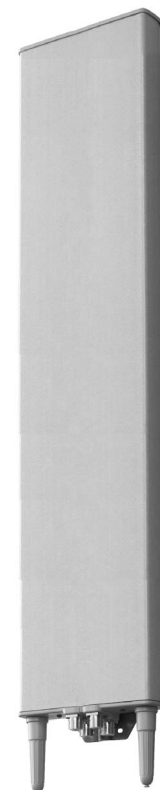
65°

KATHREIN

Antennen · Electronic

XXPol Panel 1710–2690/1710–2690 65°/65° 18/18dBi 0°–12°/0°–12°T ESLs

| Type No. | 800 10622 | | | |
|--|---|--|--|--|
| Frequency range | 1710–2690 | | | |
| | 1710 – 1990 MHz | 1920 – 2200 MHz | 2200 – 2490 MHz | 2490 – 2690 MHz |
| Polarization | +45°, –45° | +45°, –45° | +45°, –45° | +45°, –45° |
| Gain (dBi) | 17.4 ... 17.4 ... 17.3 | 17.8 ... 17.4 ... 17.5 | 18.0 ... 17.9 ... 17.5 | 18.0 ... 17.7 ... 17.3 |
| Tilt | 0° ... 6° ... 12° | 0° ... 6° ... 12° | 0° ... 6° ... 12° | 0° ... 6° ... 12° |
| Horizontal Pattern: | | | | |
| Half-power beam width | 65° | 65° | 61° | 61° |
| Front-to-back ratio (180° ±30°) | > 25 dB, avg. 28 dB | > 26 dB, avg. 28 dB | > 25 dB, avg. 27 dB | > 25 dB, avg. 27 dB |
| Cross polar ratio Sector 0° ±60° | Typically: 30 dB > 10 dB | Typically: 30 dB > 10 dB | Typically: 25 dB > 8 dB | Typically: 25 dB > 10 dB |
| Vertical Pattern: | | | | |
| Half-power beam width | 7.1° | 6.5° | 5.9° | 5.7° |
| Electrical tilt | 0°–12°, continuously adjustable | | | |
| Sidelobe suppression for first sidelobe above main beam | 0° ... 6° ... 12° T ≥ 18 ... 18 ... 18 dB | 0° ... 6° ... 12° T ≥ 18 ... 18 ... 18 dB | 0° ... 6° ... 12° T ≥ 18 ... 17 ... 17 dB | 0° ... 6° ... 12° T ≥ 18 ... 18 ... 17 dB |
| VSWR | < 1.5 | | | |
| Isolation, between ports | > 30 dB | | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | | |
| Max. power per input | 300 W (at 50 °C ambient temperature) | | | |
| Input | 4 x 7-16 female | | | |
| Connector position | Bottom | | | |
| Adjustment mechanism | 2 x, Position bottom continuously adjustable | | | |
| Weight | Approx. 17 kg | | | |
| Wind load (approx.) | Frontal / lateral / rearside: 600 / 120 / 650 N (at 150 km/h) | | | |
| Height/width/depth | Approx. 1398 / 323 / 71 mm | | | |

2300 ... 3800
XPoI, VPoI

Panel
Dual Polarization
Half-power Beam Width

3300–3800

X

65°

KATHREIN
 Antennen · Electronic

XPol Panel 3300–3800 65° 17.5dBi 0°T

| | |
|--|---|
| Type No. | 800 10390 |
| Frequency range | 3300 – 3800 MHz |
| Polarization | +45°, –45° |
| Gain | 2 x 17.5 dBi |
| Half-power beam width Copolar +45°/–45° | Horizontal: 65° Vertical: 7° |
| Electrical tilt | 0°, fixed |
| Front-to-back ratio (180°±30°) | > 30 dB |
| Isolation, between ports | > 25 dB |
| VSWR | < 1.5 |
| Intermodulation IM3 | < –140 dBc (2 x 40 dBm carrier) |
| Max. power per input | 50 W (at 50 °C ambient temperature) |
| Input | 2 x N-connector female |
| Connector position | Bottom or top |
| Weight | 1.7 kg |
| Wind load (at 150 km/h) | Frontal / lateral / rearside: 160 / 50 / 160 N |
| Height/width/depth | 736 / 112 / 50 mm |



Vertical Polarization – 800/900

| Type | Type No. | Connector female | Height [mm] | Remarks | Page | |
|-----------|--------------------------|------------------|-------------|---------|----------------|-----|
| VPol Omni | 870–960 360° 2dBi 0°T | 738 450 | N | 180 | indoor/outdoor | 126 |
| VPol Omni | 806–960 360° 2dBi 0°T | K 75 11 61 | N | 348 | | 127 |
| VPol Omni | 890–960 360° 5dBi 0°T | K 75 15 64 1 | N | 715 | | 128 |
| VPol Omni | 870–960 360° 8dBi 0°T | 736 350 | 7-16 | 1543 | | 129 |
| VPol Omni | 806–894 360° 11dBi 0°T | 738 192 | 7-16 | 3237 | | 130 |
| VPol Omni | 870–960 360° 11dBi 0°T | 736 347 | 7-16 | 3033 | | 131 |
| VPol Omni | 870–960 360° 10.5dBi 5°T | 736 349 | 7-16 | 2954 | | 132 |

Vertical Polarization – Dual-band

| | | | | | | |
|------------|--|-----------|------|------|-----------------|-----|
| VPol Omni | 870–960/1710–1880 360° 2dBi 0°T | 738 449 | N | 216 | indoor/outdoor | 148 |
| VPol Omni | 824–960/1805–2170 360° 2dBi 0°T | 800 10147 | N | 216 | indoor/outdoor | 150 |
| VVPol Omni | 870–960 360° 9dBi 0°T 1920–2170 360° 10dBi 0°T | 800 10274 | 7-16 | 3033 | separate inputs | 133 |
| VVPol Omni | 870–960/1710–1880 360° 2dBi 0°T 1920–2170 360° 2dBi 0°T | 800 10111 | N | 493 | separate inputs | 134 |

Vertical Polarization – 1800

| | | | | | | |
|-----------|--------------------------|---------|------|------|--|-----|
| VPol Omni | 1710–1880 360° 11dBi 0°T | 738 187 | 7-16 | 1568 | | 135 |
|-----------|--------------------------|---------|------|------|--|-----|

Vertical Polarization – 1800/2000/2500/3500

| | | | | | | |
|-----------|---------------------------|-----------|------|------|----------------|-----|
| VPol Omni | 1710–2700 360° 2 dBi 0°T | 800 10431 | N | 115 | indoor/outdoor | 149 |
| VPol Omni | 1920–2170 360° 11 dBi 0°T | 741 790 | 7-16 | 1387 | | 136 |
| VPol Omni | 2500–2700 360° 11dBi 0°T | 800 10442 | 7-16 | 1132 | | 137 |
| VPol Omni | 3400–3600 360° 11dBi 0°T | 800 10528 | 7-16 | 860 | | 138 |

Omnidirectional Antenna Vertical Polarization Indoor and outdoor use

870–960

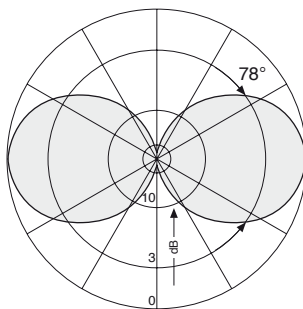
V

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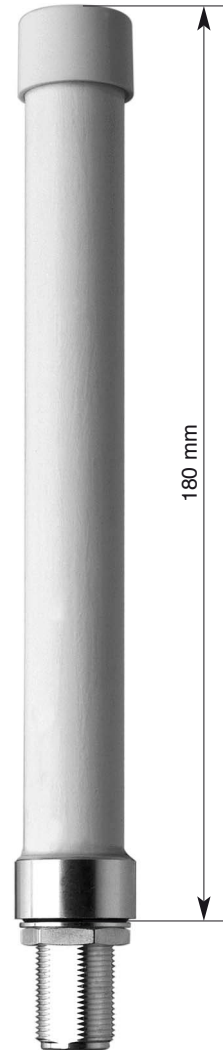
VPol Omni 870–960 360° 2dBi

| Type No. | 738 450 |
|---------------------|--------------------------------------|
| Input | N female |
| Connector position | Bottom or top |
| Frequency range | 870 – 960 MHz |
| VSWR | < 1.5 |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Polarization | Vertical |
| Max. power | 100 W (at 50 °C ambient temperature) |
| Weight | 200 g |
| Radome diameter | 20 mm |
| Height | 180 mm |

- Material:** Radiator: Brass.
Radome: Fiberglass, colour: White.
- Mounting:** One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding:** All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



Omnidirectional Antenna Vertical Polarization

806–960

V

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VPol Omni 806–960 360° 2dBi

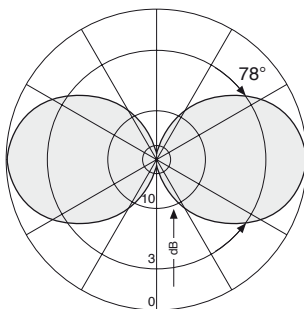
| Type No. | K 75 11 61 |
|---------------------|--------------------------------------|
| Frequency range | 806 – 960 MHz |
| Polarization | Vertical |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 37 dBm carrier) |
| Max. power | 100 W (at 50 °C ambient temperature) |

Mounting: The antenna can be attached in two ways with the supplied mounting kit:

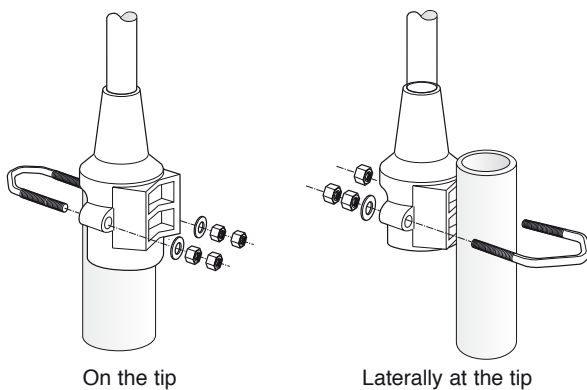
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



| Mechanical specifications | |
|---------------------------|--------------------|
| Input | N female |
| Connector position | Bottom |
| Weight | 0.74 kg |
| Radome diameter | 21 mm |
| Wind load | 17 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 455 x 112x 97 mm |
| Height | 348 mm |

Omnidirectional Antenna Vertical Polarization

890–960

V

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VPol Omni 890–960 360° 5dBi

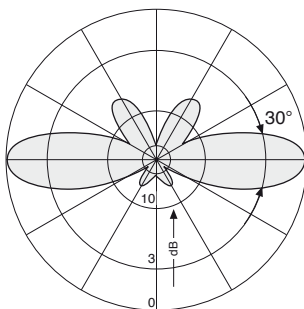
| | |
|---------------------|--------------------------------------|
| Type No. | K 75 15 64 1 |
| Frequency range | 890 – 960 MHz |
| Polarization | Vertical |
| Gain | 5 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 37 dBm carrier) |
| Max. power | 250 W (at 50 °C ambient temperature) |

Mounting: The antenna can be attached in two ways with the supplied mounting kit:

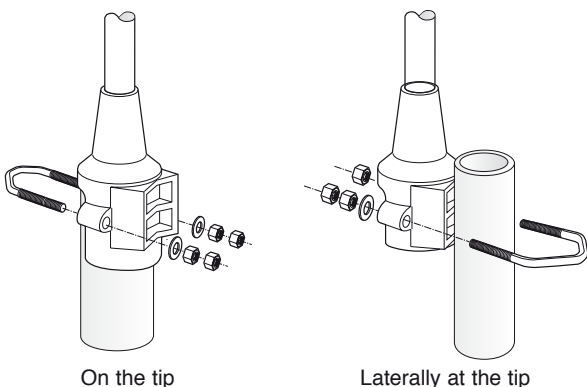
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



On the tip

Laterally at the tip

Mechanical specifications

| | |
|--------------------|--------------------|
| Input | N female |
| Connector position | Bottom |
| Weight | 0.90 kg |
| Radome diameter | 21 mm |
| Wind load | 20 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 825 x 112 x 97 mm |
| Height | 715 mm |

Omnidirectional Antenna Vertical Polarization

870–960

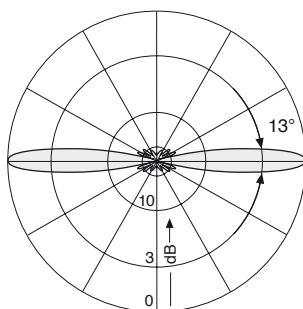
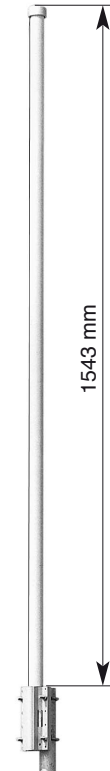
V

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Antennen · Electronic

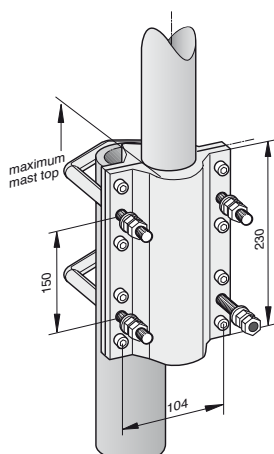
VPol Omni 870–960 360° 8dBi

| | |
|---------------------|--------------------------------------|
| Type No. | 736 350 |
| Frequency range | 870 – 960 MHz |
| Polarization | Vertical |
| Gain | 8 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |

- Mounting:** The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).
- Material:** Radiator: Copper and brass. Radome: Fiberglass, colour: Grey. Base: Weather-proof aluminum. Mounting kit, screws and nuts: Stainless steel.
- Anti-static protection:** All metal parts of the antenna as well as the supplied clamp attachment are grounded. The inner conductor is capacitively coupled.
- Lightning protection:** The antenna is designed to withstand a lightning current of up to 150 KA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 5.5 kg |
| Radome diameter | 51 mm |
| Wind load | 130 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 1846 x 148 x 112 mm |
| Height | 1543 mm |

Omnidirectional Antenna Vertical Polarization

806–894

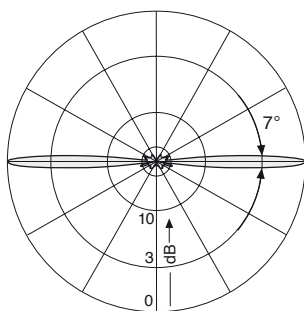
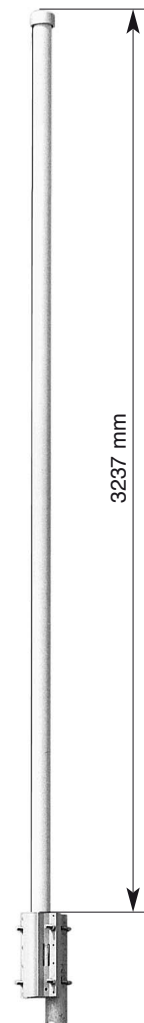
V

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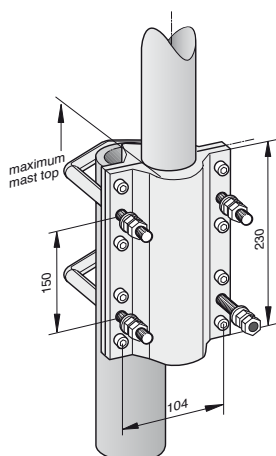
VPol Omni 806–894 360° 11dBi

| | |
|---------------------|--------------------------------------|
| Type No. | 738 192 |
| Frequency range | 806 – 894 MHz |
| Polarization | Vertical |
| Gain | 11 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |

- Mounting:** The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).
- Material:** Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.
- Anti-static protection:** All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.
- Lightning protection:** The antenna is designed to withstand a lightning current of up to 150 kA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 8.5 kg |
| Radome diameter | 51 mm |
| Wind load | 230 N (at 150 km/h) |
| Max. wind velocity | 180 km/h |
| Packing size | 3516 x 148 x 112 mm |
| Height | 3237 mm |

Omnidirectional Antenna Vertical Polarization

870–960

V

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VPol Omni 870–960 360° 11dBi

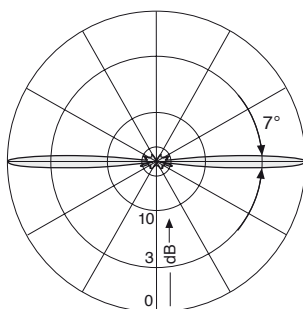
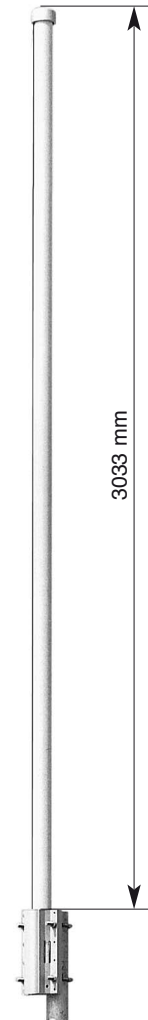
| | |
|---------------------|--------------------------------------|
| Type No. | 736 347 |
| Frequency range | 870 – 960 MHz |
| Polarization | Vertical |
| Gain | 11 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

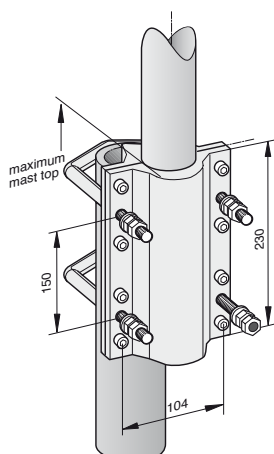
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Anti-static protection: All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.

Lightning protection: The antenna is designed to withstand a lightning current of up to 150 kA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 8 kg |
| Radome diameter | 51 mm |
| Wind load | 210 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 3316 x 148 x 112 mm |
| Height | 3033 mm |

Omnidirectional Antenna Vertical Polarization Fixed Electrical Downtilt

870–960

V

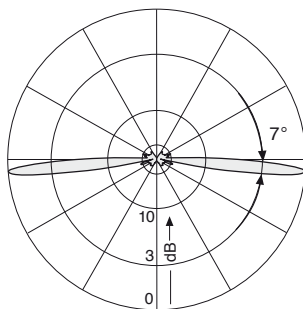
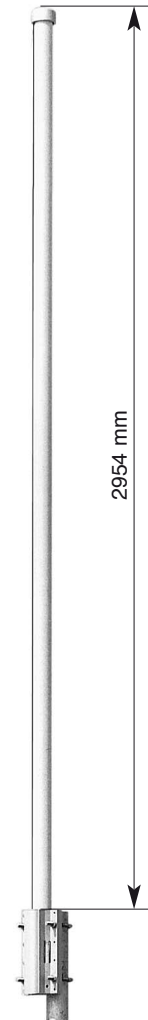
5°

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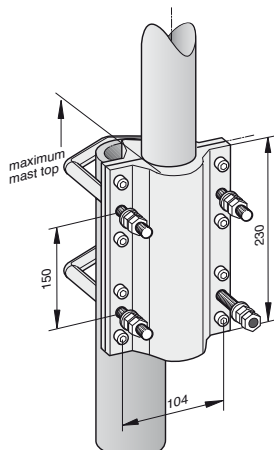
VPol Omni 870–960 360° 10.5dBi 5°T

| | |
|---------------------|--------------------------------------|
| Type No. | 736 349 |
| Frequency range | 870 – 960 MHz |
| Polarization | Vertical |
| Gain | 10.5 dBi |
| Electrical tilt | 5°, fixed |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 500 W (at 50 °C ambient temperature) |

- Mounting:** The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).
- Material:** Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.
- Anti-static protection:** All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.
- Lightning protection:** The antenna is designed to withstand a lightning current of up to 150 kA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern
5° electrical downtilt



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 8 kg |
| Radome diameter | 51 mm |
| Wind load | 210 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 3316 x 148 x 112 mm |
| Height | 2954 mm |

Dual-band Omni Antenna 870–960 1920–2170

Vertical Polarization V V

VVPol Omni 870–960/1920-2170 360°/360° 9/10dBi

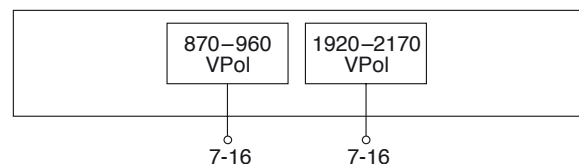
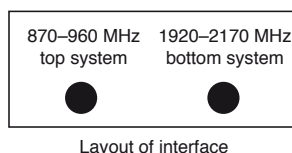
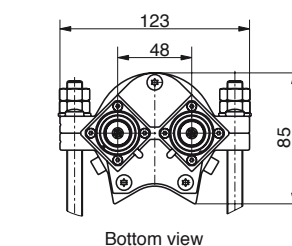
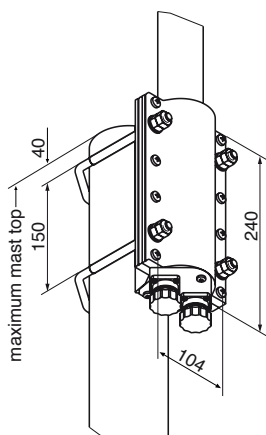
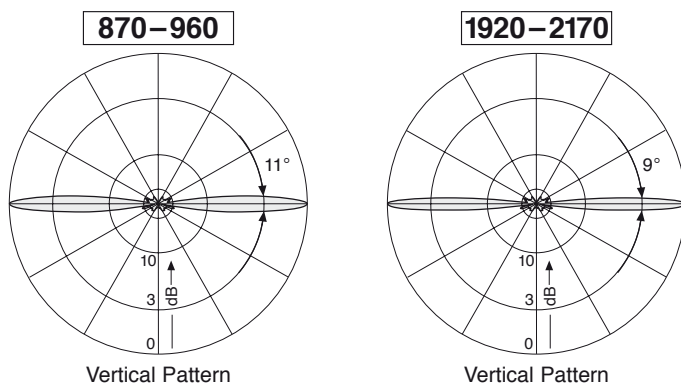
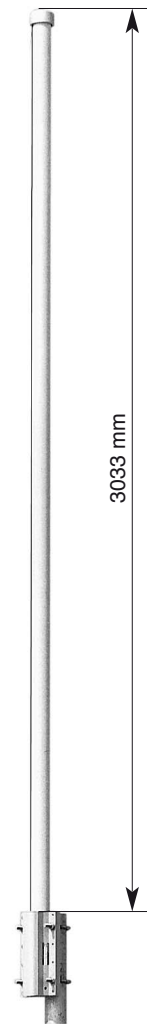
| | | |
|--------------------------|-----------------------------------|---|
| Type No. | 800 10274 | |
| Frequency range | Top system 870 – 960 MHz | Bottom system 1920 – 2170 MHz |
| Polarization | Vertical | Vertical |
| Gain | 9 dBi | 10 dBi |
| Half-power beam width | Horizontal: Omni Vertical: 11° | Horizontal: Omni Vertical: 9° |
| Isolation, between ports | > 30 dB | |
| Impedance | 50 Ω | |
| VSWR | < 1.5 | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | |
| Max. power per input | 150 W | 100 W (at 50 °C ambient temperature) |

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Anti-static protection: All metal parts of the antenna as well as the supplied clamp attachment are grounded. The inner conductors of both systems are coupled capacitively.

Lightning protection: The antenna is designed to withstand a lightning current of up to 150 kA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



| Mechanical specifications | |
|---------------------------|---------------------|
| Input | 2 x 7-16 female |
| Connector position | Bottom |
| Weight | 8 kg |
| Wind load | 210 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 3380 x 148 x 112 mm |
| Height | 3033 mm |
| Radome diameter | 51 mm |

Multi-band Omni Antenna

870–960
1710–1880

1920–2170

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Antennen · Electronic

Vertical Polarization

V

V

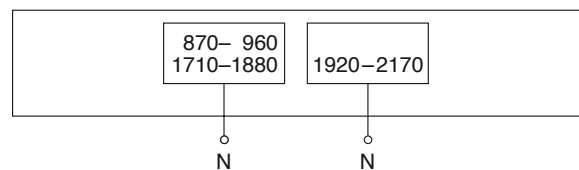
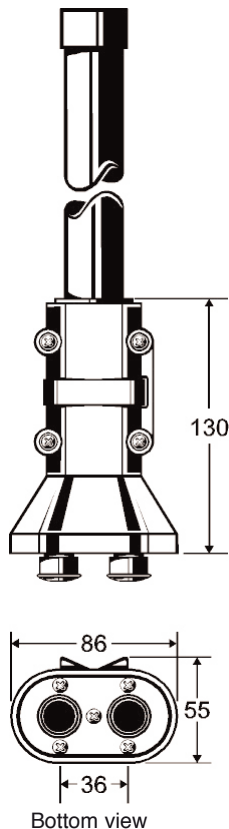
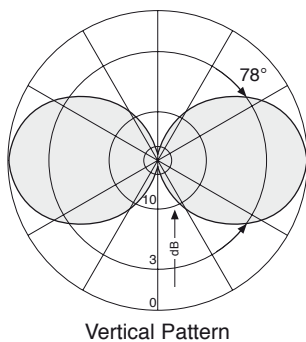
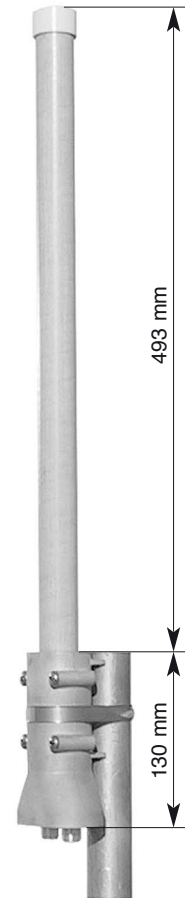
VVPol Omni 870–960/1710–1880/1920-2170 360°/360° 2/2dBi

| Type No. | 800 10111 | |
|---|--|-------------------------------|
| Frequency range | Upper unit 870 – 960 MHz 1710 – 1880 MHz | Lower unit 1920 – 2170 MHz |
| Polarization | Vertical | Vertical |
| Gain | 2 dBi | 2 dBi |
| Isolation, between ports | > 25 dB | > 25 dB |
| Impedance | 50 Ω | 50 Ω |
| VSWR | < 1.7 | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc | |
| Max. power per input | 50 W (at 50 °C ambient temperature) | |

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit and screws: Stainless steel.

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 40 – 70 mm diameter with a mounting clamp supplied with the antenna. The connecting cables (not supplied) run outside the mast.

Excellent grounding: The metal parts of the antenna and the mounting kit (exclusive the inner conductor of the upper unit) are DC grounded.



| Mechanical specifications | |
|---------------------------|--------------------|
| Input | 2 x N female |
| Connector position | Bottom |
| Weight | 0.85 kg |
| Wind load | 30 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 665 x 112 x 97 mm |
| Height | 493 mm |
| Radome diameter | 30 mm |

Omnidirectional Antenna Vertical Polarization

1710–1880

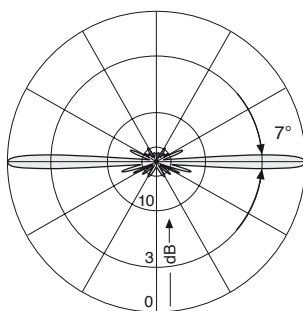
V

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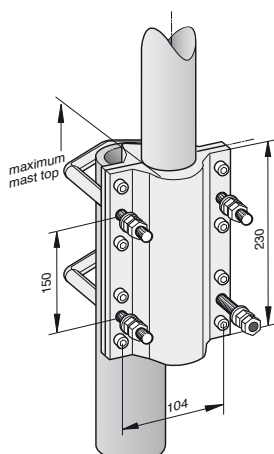
VPol Omni 1710–1880 360° 11dBi

| | |
|---------------------|--------------------------------------|
| Type No. | 738 187 |
| Frequency range | 1710 – 1880 MHz |
| Polarization | Vertical |
| Gain | 11 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.3 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 200 W (at 50 °C ambient temperature) |

- Mounting:** The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).
- Material:** Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.
- Anti-static protection:** All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.
- Lightning protection:** The antenna is designed to withstand a lightning current of up to 150 KA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 5.5 kg |
| Radome diameter | 51 mm |
| Wind load | 130 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 1846 x 148 x 112 mm |
| Height | 1568 mm |

Omni
VPol

Omnidirectional Antenna Vertical Polarization

1920–2170

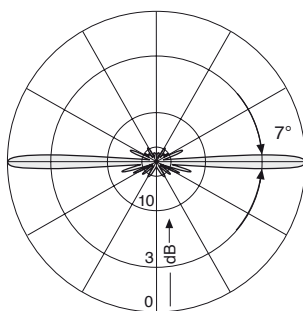
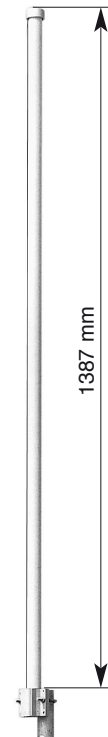
V

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Antennen · Electronic

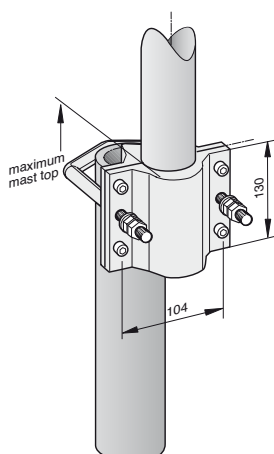
VPol Omni 1920–2170 360° 11dBi

| | |
|---------------------|--------------------------------------|
| Type No. | 741 790 |
| Frequency range | 1920 – 2170 MHz |
| Polarization | Vertical |
| Gain | 11 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 150 W (at 50 °C ambient temperature) |

- Mounting:** The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).
- Material:** Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.
- Anti-static protection:** All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.
- Lightning protection:** The antenna is designed to withstand a lightning current of up to 150 KA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 5 kg |
| Radome diameter | 51 mm |
| Wind load | 120 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 1570 x 148 x 112 mm |
| Height | 1387 mm |

Omnidirectional Antenna Vertical Polarization

2500–2700

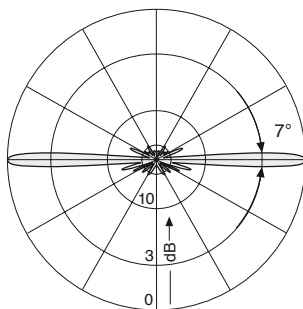
V

KATHREIN
Antennen · Electronic

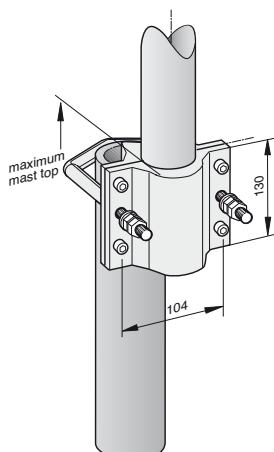
VPol Omni 2500–2700 360° 11dBi 0°T

| | |
|---------------------|--------------------------------------|
| Type No. | 800 10442 |
| Frequency range | 2500 – 2700 MHz |
| Polarization | Vertical |
| Gain | 11 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 200 W (at 50 °C ambient temperature) |

- Mounting:** The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).
- Material:** Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.
- Anti-static protection:** All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.
- Lightning protection:** The antenna is designed to withstand a lightning current of up to 150 KA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



| Mechanical specifications | |
|---------------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 4.5 kg |
| Radome diameter | 51 mm |
| Wind load | 110 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 1232 x 148 x 112 mm |
| Height | 1132 mm |

Omnidirectional Antenna Vertical Polarization

3400–3600

V

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Antennen · Electronic

VPol Omni 3400–3600 360° 11dBi 0°T

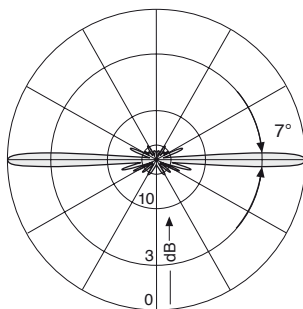
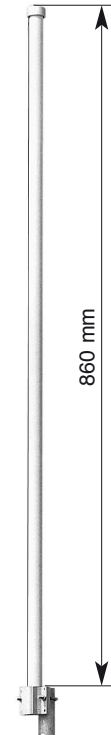
| | |
|---------------------|--------------------------------------|
| Type No. | 800 10528 |
| Frequency range | 3400 – 3600 MHz |
| Polarization | Vertical |
| Gain | 11 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Max. power | 150 W (at 50 °C ambient temperature) |

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

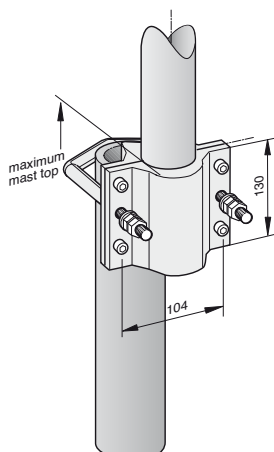
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Anti-static protection: All metal parts of the antenna as well as the supplied clamp attachment are grounded.
The inner conductor is capacitively coupled.

Lightning protection: The antenna is designed to withstand a lightning current of up to 150 KA (impulse: 10/350 μs), according to IEC 62305 parts 1–4 and VDE 0855-300, and thereby fulfils the requirements of lightning protection class II. Grounding cross-section: 22 mm² copper.



Vertical Pattern



| Mechanical specifications | |
|---------------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 4 kg |
| Radome diameter | 51 mm |
| Wind load | 110 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 1043 x 148 x 112 mm |
| Height | 860 mm |

Vertical Polarization

Indoor – Directional

| Type | Type No. | Frequency range | Connector female | Page |
|----------------------|------------------|-------------------|------------------|------|
| VPol BiDir 65° 5dBi | 738 446 | 790–960/1710–2170 | N | 82 |
| VPol Indoor 90° 7dBi | 800 10465 | 790–960/1710–2700 | N | 140 |
| VPol Indoor 90° 7dBi | 800 10433 | 3300–3800 | SMA | 141 |

Indoor – Directional Dual Polarization

| | | | | |
|-------------------------|------------------|-------------------|-------|-----|
| VXPol Indoor 90° C 7dBi | 800 10677 | 790–960/1710–2700 | 2 x N | 142 |
|-------------------------|------------------|-------------------|-------|-----|

Indoor – Multi-band Omnidirectional

| | | | | |
|-----------------------|------------------|-----------------------------|---|-----|
| VPol Indoor 360° 2dBi | 800 10137 | 876–960/1710–2500 | N | 143 |
| VPol Indoor 360° 2dBi | 800 10173 | 876–960/1710–2500 | N | 144 |
| VPol Indoor 360° 2dBi | 800 10249 | 790–960/1425–3800/5150–6000 | N | 145 |
| VPol Indoor 360° 2dBi | 741 573 | 1710–2700 | N | 146 |
| VPol Indoor 360° 2dBi | 800 10430 | 1710–6000 | N | 147 |

Indoor / Outdoor – Single-band

| | | | | |
|-----------------------|---------|---------|---|-----|
| VPol Omni 360° 2dBi | 738 450 | 870–960 | N | 126 |
| VPol Panel 90° 7.5dBi | 736 854 | 872–960 | N | 44 |

Indoor / Outdoor – Dual-band / Multi-band

| | | | | |
|---------------------|-----------|-------------------|---|-----|
| VPol Omni 360° 2dBi | 738 449 | 870–960/1710–1880 | N | 148 |
| VPol Omni 360° 2dBi | 800 10431 | 1710–2700 | N | 149 |
| VPol Omni 360° 2dBi | 800 10147 | 824–960/1805–2170 | N | 150 |

New or changed product

**Indoor Multi-band
Directional Antenna
Vertical Polarization
Half-power Beam Width
Integrated Combiner**

790–960 1710–2700

V V

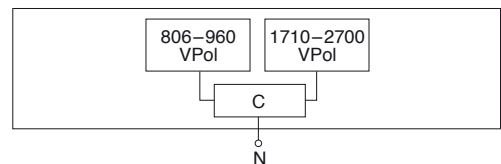
90° 90°

C

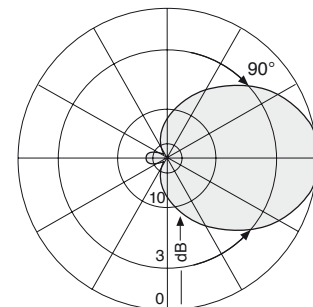
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VVPol Indoor 790–960/1710–2700 C 90° 7dBi

| | |
|-----------------------|--|
| Type No. | 800 10465 |
| Frequency range | 790 – 960 MHz / 1710 – 2700 MHz |
| Polarization | Vertical |
| Gain | Approx. 7 dBi |
| Half-power beam width | Horizontal: Approx. 90° |
| Impedance | 50 Ω |
| VSWR | 790 – 806 MHz: < 2.2 806 – 960 MHz: < 2.0 1710 – 2700 MHz: < 2.0 |
| Max. power | 50 W (at 50 °C ambient temperature) |
| Input | Cable RG 223/CU of 1m length, white, with N female connector |
| Protection class | IP 30 |
| Weight | 500 g |
| Packing size | 363 x 152 x 62 mm |
| Height/width/depth | 231 / 140 / 50 mm |

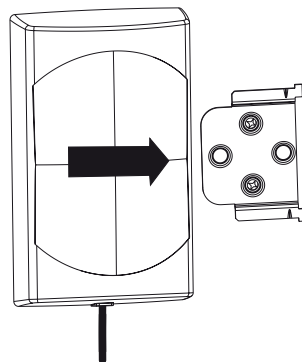
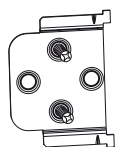


- Material:** Reflector: Aluminum.
Radome: High impact polystyrol, colour: White.
Additional painting is possible.
Mounting plates: Stainless steel.
- Mounting:** Two holes of 6 mm diameter in the mounting plate.
Screws are not supplied.
Avoid to stress the cable.
- Grounding:** All metal parts inclusive the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters (694 – 3800 MHz) and tappers (790 – 2500 MHz).

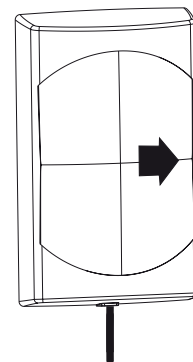


Horizontal Pattern

Mounting:



Align the antenna over the attachment plate.



Pull the antenna to the stop.

Mount the attachment plate to the wall using two screws of 4 mm diameter in the position as indicated.

**Indoor Directional Antenna
Vertical Polarization
Half-power Beam Width**

3300–3800

V

90°

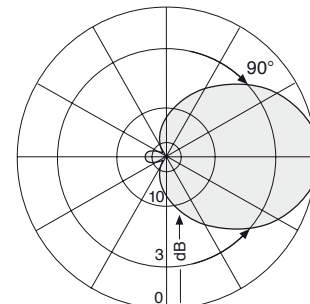
VPol Indoor 3300–3800 90° 7dBi

| | |
|-----------------------|---|
| Type No. | 800 10433 |
| Frequency range | 3300 – 3800 MHz |
| Polarization | Vertical |
| Gain | Approx. 7 dBi |
| Half-power beam width | Horizontal: Approx. 90° |
| Impedance | 50 Ω |
| VSWR | < 2.0 |
| Max. power | 50 W (at 50 °C ambient temperature) |
| Input | Cable of 1 m length with SMA female connector |
| Diameter / depth | 111 x 23 mm |

Material: Radome: High impact polystyrol, colour: White. Additional painting is possible. Mounting plates: Stainless steel.

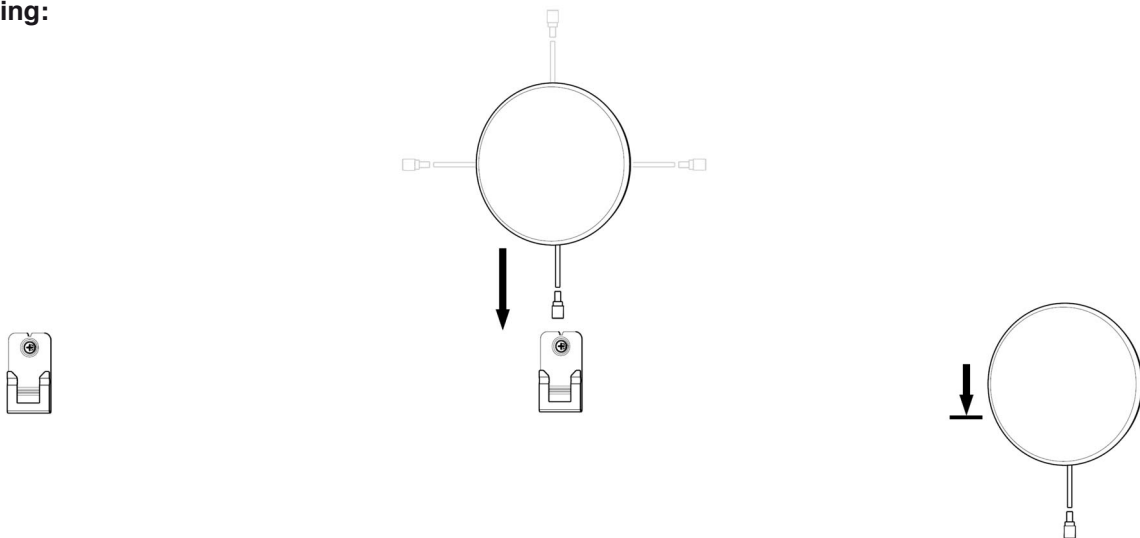
Mounting: One hole of 6 mm diameter in the mounting plate. Screws are not supplied. Avoid stressing the cable.

Cable: Minimum bending radius: Single bending 10 mm, repeated bending 20 mm.



Horizontal Pattern

Mounting:



Attach the mounting plate to the wall using one screw of 6 mm diameter in the position as indicated.

Align the antenna over the mounting plate. Antenna can be mounted in 90 degree steps as indicated.

Pull the antenna to the stop.

Indoor Multi-band Directional Antenna

790–960 1710–2700 1710–2700

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Vertical / Dual Polarization

V

X (−45°)

X (+45°)

Half-power Beam Width

90°

90°

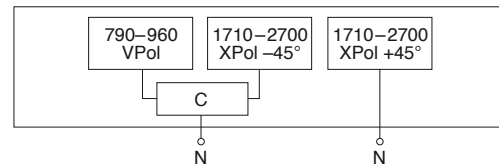
90°

Integrated Combiner

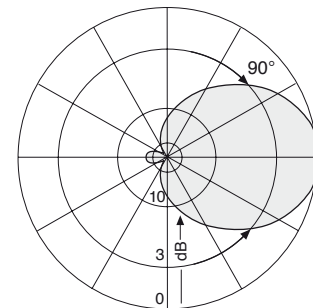
C

VXPol Indoor 790–960/1710–2700 C 90° 7dBi

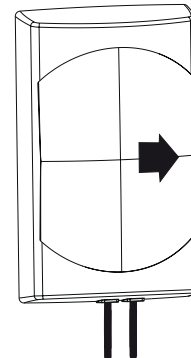
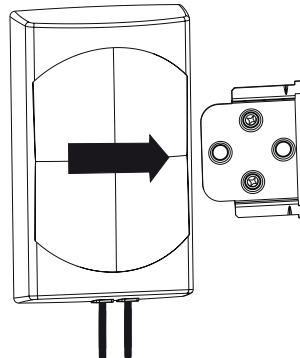
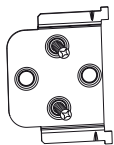
| | | |
|--------------------------|--|-------------------|
| Type No. | 800 10677 | |
| Frequency range | 790 – 960 MHz | 1710 – 2700 MHz |
| Polarization | Vertical | +45°, −45° |
| Gain | Approx. 7 dBi | Approx. 2 x 7 dBi |
| Half-power beam width | Horizontal: Approx. 90° | |
| Impedance | 50 Ω | |
| VSWR | < 2.0 | |
| Isolation, between ports | Approx. > 25 dB | |
| Max. power | 50 W (at 50 °C ambient temperature) | |
| Input | Cable RG 223/CU of 1m length, white, with N female connector | |
| Protection class | IP 30 | |
| Weight | Approx. 600 g | |
| Packing size | 363 x 152 x 62 mm | |
| Height/width/depth | 232 / 140 / 50 mm | |



- Material:** Reflector: Aluminum.
Radome: High impact polystyrol, colour: White.
Additional painting is possible.
Mounting plates: Stainless steel.
- Mounting:** Two holes of 6 mm diameter in the mounting plate.
Screws are not supplied.
Avoid stressing the cable.
No stress on the hexagonal crimp.
Minimum cable bending radius: 30 mm without tensile load.
- Grounding:** All metal parts inclusive the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters and tappers (790 – 2700 MHz).



Mounting:



Mount the attachment plate to the wall using two screws of 4 mm diameter in the position as indicated.

Align the antenna over the attachment plate.

Pull the antenna to the stop.

Indoor Multi-band Omni Antenna Vertical Polarization

876–960 1710–2500

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V

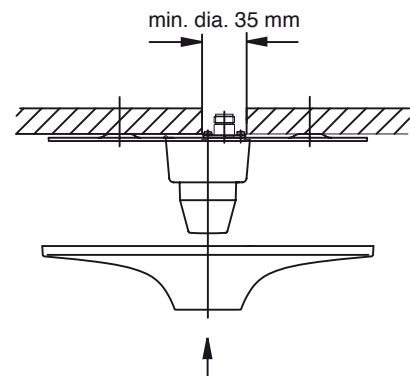
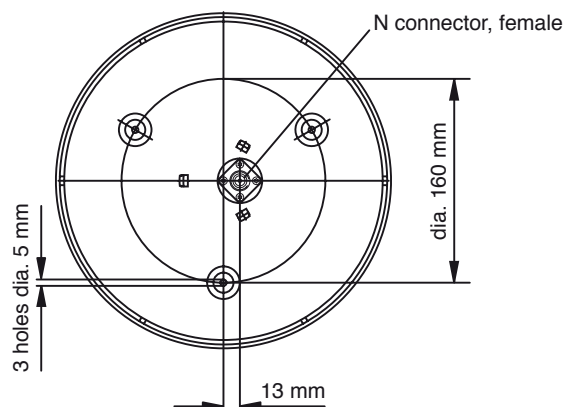
- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

VPol Indoor 876–960/1710–2500 360° 2dBi

| | |
|-----------------------|--|
| Type No. | 800 10137 |
| Frequency range | 876 – 960 MHz 1710 – 2500 MHz |
| VSWR | < 1.9: 876 – 890 MHz < 1.6: 890 – 960 MHz < 1.6: 1710 – 2170 MHz < 2.0: 2170 – 2500 MHz |
| Input | 1 x N female |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| Polarization | Vertical |
| Max. power (per band) | 50 W (at 50 °C ambient temperature) |
| Weight | 300 g |
| Diameter | 210 mm |
| Height | 78 mm (without connector) |



- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Grounding:** All metal parts including the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Multi-band Omni Antenna Vertical Polarization

876–960

1710–2500

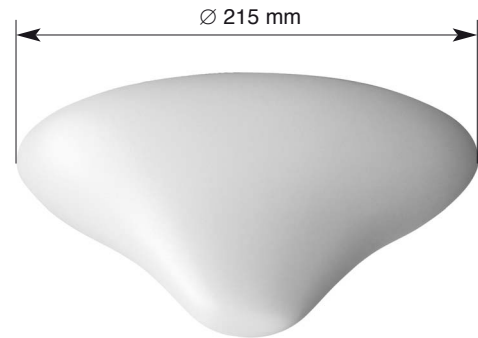
KATHREIN
Antennen · Electronic

V

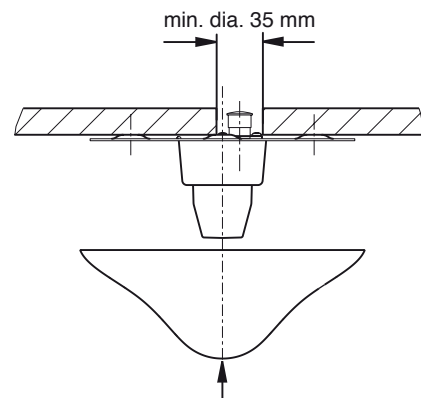
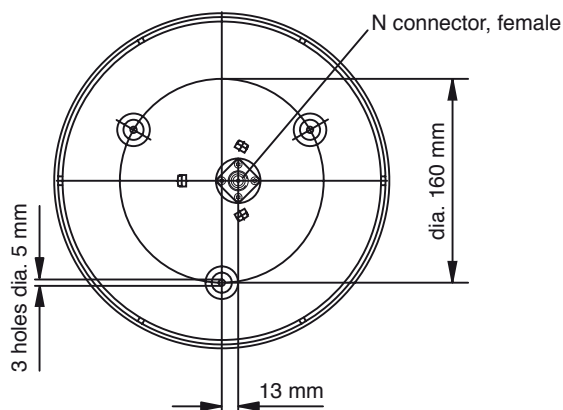
- The antenna needs no additional groundplane.

VPol Indoor 876–960/1710–2500 360° 2dBi

| | |
|-----------------------|--|
| Type No. | 800 10173 |
| Frequency range | 876 – 960 MHz 1710 – 2500 MHz |
| Polarization | Vertical |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| VSWR | 876 – 890 MHz: < 1.8 890 – 960 MHz: < 1.6 1710 – 2170 MHz: < 1.6 2170 – 2500 MHz: < 2.0 |
| Max. power (per band) | 50 W (at 50 °C ambient temperature) |
| Input | 1 x N female |
| Weight | 340 g |
| Diameter | 215 mm |
| Height | 85 mm (without connector) |



- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied.
For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Grounding:** All metal parts including the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Multi-band Omni Antenna Vertical Polarization

790–960

1425–3800

5150–6000

KATHREIN

Antennen · Electronic

V

- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

VPol Indoor 790–960/1425–3800/5150–6000 360° 2dBi

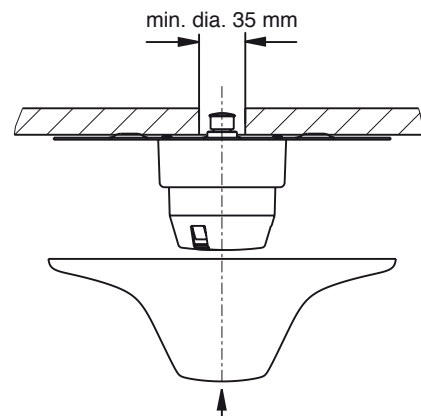
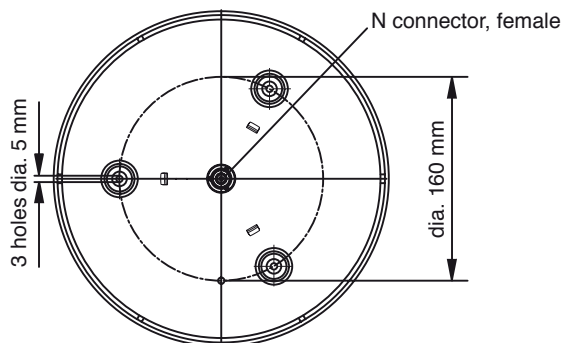
| Type No. | 800 10249 |
|------------------|--|
| Frequency range | 790 – 960 MHz 1425 – 3800 MHz 5150 – 6000 MHz |
| Polarization | Vertical |
| Gain | ≈ 2 dBi |
| Impedance | 50 Ω |
| VSWR | 790 – 806 MHz: < 1.7 806 – 960 MHz: < 1.5 1425 – 1710 MHz: < 2.0 1710 – 2200 MHz: < 1.4 2200 – 3800 MHz: < 1.6 5150 – 6000 MHz: < 2.2 |
| Max. power | 50 W (at 50 °C ambient temperature) |
| Input | 1 x N female |
| Protection class | IP 30 |
| Weight | 466 g |
| Packing size | 277 x 277 x 169 mm |
| Diameter | 258 mm |
| Height | 94 mm (without connector) |



Material: Reflector: Aluminum.
Radome: High impact polystyrol, colour: White.
Additional painting is possible.

Mounting: Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.

Available accessories: Broadband power splitters (694 – 3800 MHz) and tappers (790 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Omnidirectional Antenna Vertical Polarization Multi-band

1710–2700

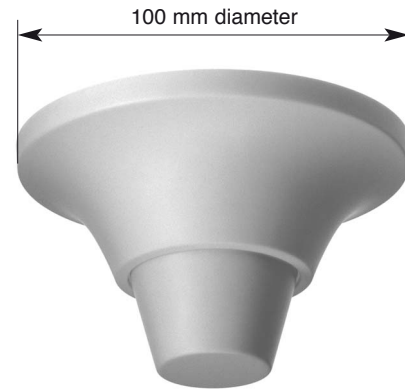
V

KATHREIN
Antennen · Electronic

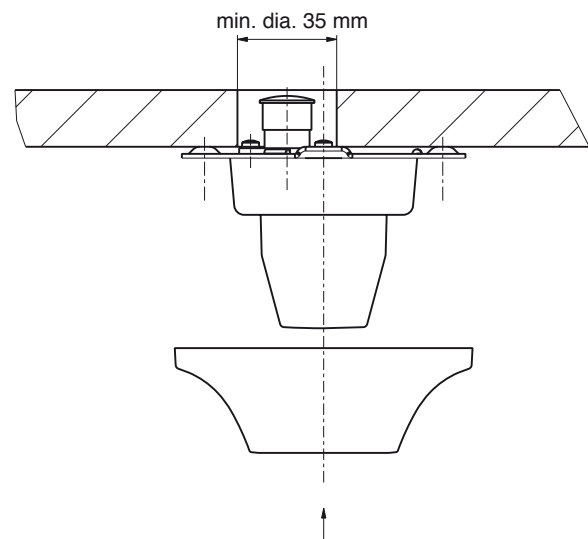
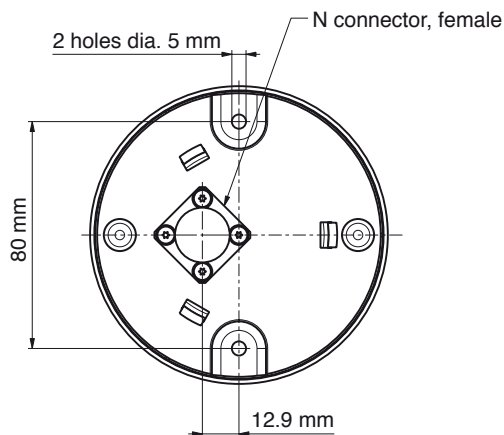
- The antenna can be operated in the total frequency range simultaneously.
- The antenna needs no additional groundplane.

VPol Indoor 1710–2700 360° 2dBi

| | |
|-----------------------|--|
| Type No. | 741 573 |
| Frequency range | 1710 – 2700 MHz |
| VSWR | 1710 – 1880 MHz: < 1.6 1850 – 1990 MHz: < 1.6 1920 – 2170 MHz: < 1.6 2170 – 2500 MHz: < 2.0 2500 – 2700 MHz: < 2.2 |
| Input | 1 x N female |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| Polarization | Vertical |
| Max. power (per band) | 50 W (at 50 °C ambient temperature) |
| Weight | 150 g |
| Diameter | 100 mm |
| Height | 50 mm (without connector) |



- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Holes in the base enable a mounting on the ceiling. Screws are supplied.
For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Grounding:** All metal parts including the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters (694 – 3800 MHz) and tappers (790 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Omnidirectional Antenna Vertical Polarization Multi-band

1710–6000

V

KATHREIN

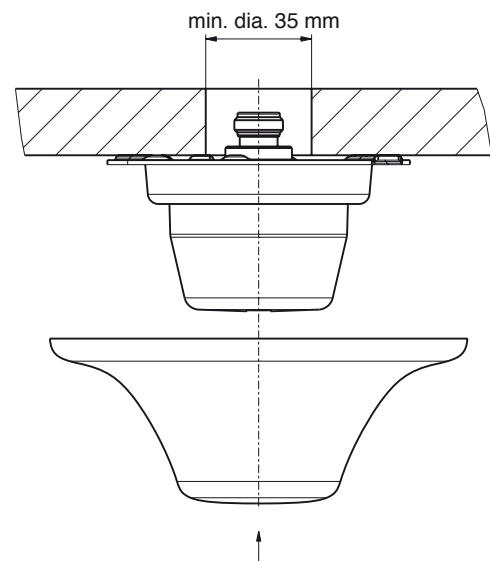
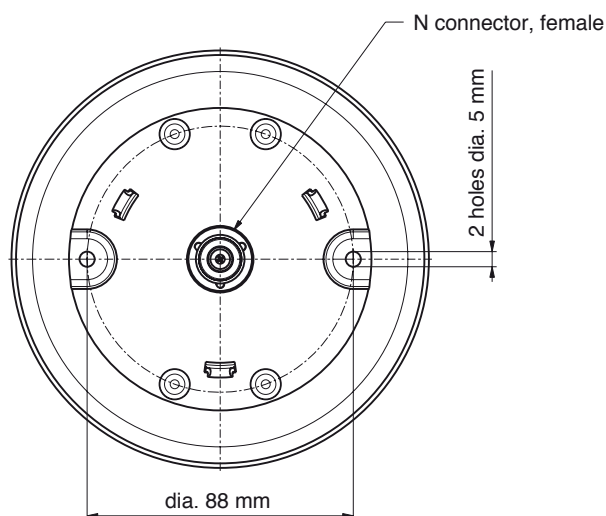
Antennen · Electronic

- The antenna can be operated in all frequency ranges simultaneously.
- The antenna needs no additional groundplane.

VPol Indoor 1710–6000 360° 2dBi

| Type No. | 800 10430 |
|------------------|-------------------------------------|
| Frequency range | 1710 – 6000 MHz |
| Polarization | Vertical |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Max. power | 50 W (at 50 °C ambient temperature) |
| Input | 1 x N female |
| Protection class | IP 30 |
| Weight | 133 g |
| Diameter | 138 mm |
| Height | 56 mm (without connector) |

- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Holes in the base enable a mounting on the ceiling. Screws are supplied.
For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Available accessories:** Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of two supplied screws.

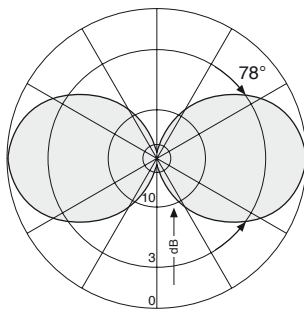
Dual-band Omni Antenna 870–960/1710–1880 Vertical Polarization V Indoor and outdoor use

VPol Omni 870–960/1710–1880 360° 2dBi

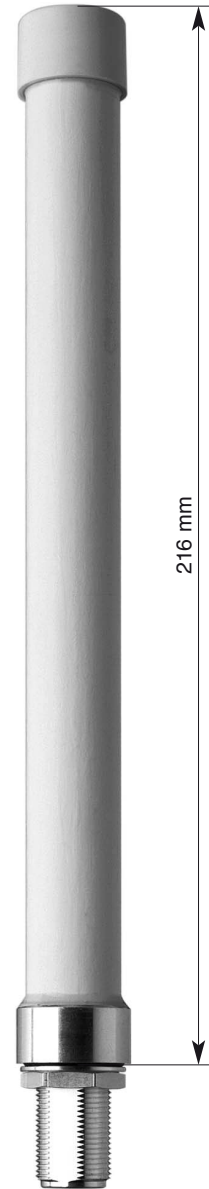
| | |
|---|--|
| Type No. | 738 449 |
| Input | 1 x N female |
| Connector position | Bottom or top |
| Frequency range | 870 – 960 MHz / 1710 – 1880 MHz |
| VSWR | < 1.7 |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc |
| Polarization | Vertical |
| Max. power | 50 W: 870 – 960 MHz 50 W: 1710 – 1880 MHz (at 50 °C ambient temperature) |
| Weight | 250 g |
| Radome diameter | 20 mm |
| Height | 216 mm |

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.



Vertical Pattern



Omnidirectional Antenna Vertical Polarization Indoor and outdoor use

1710–2700

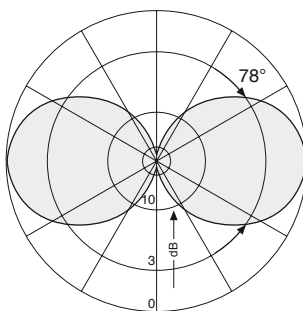
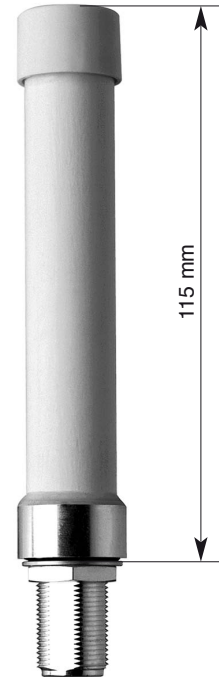
V

KATHREIN
Antennen · Electronic

VPol Omni 1710–2700 360° 2dBi

| | |
|---|-------------------------------------|
| Type No. | 800 10431 |
| Input | N female |
| Connector position | Bottom or top |
| Frequency range | 1710 – 2700 MHz |
| VSWR | < 1.8 |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc |
| Polarization | Vertical |
| Max. power | 50 W (at 50 °C ambient temperature) |
| Weight | 150 g |
| Radome diameter | 20 mm |
| Height | 115 mm |

- Material: Radiator: Brass.
Radome: Fiberglass, colour: White.
- Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding: All metal parts of the antenna and the mounting kit are DC grounded. The inner conductor is not DC grounded.



Vertical Pattern

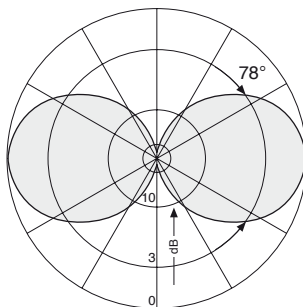
Dual-band Omni Antenna 824–960/1805–2170 Vertical Polarization V Indoor and outdoor use

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Antennen · Electronic

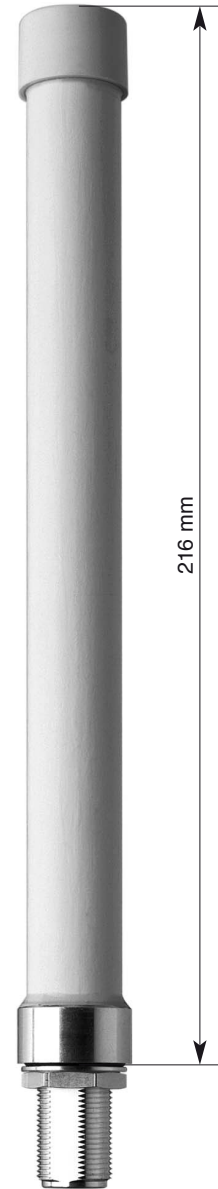
VPol Omni 824–960/1805–2170 360° 2dBi

| | |
|--------------------|--|
| Type No. | 800 10147 |
| Input | 1 x N female |
| Connector position | Bottom or top |
| Frequency range | 824 – 960 MHz / 1805 – 2170 MHz |
| VSWR | < 2.0 |
| Gain | 2 dBi |
| Impedance | 50 Ω |
| Polarization | Vertical |
| Max. power | 50 Watt: 824 – 960 MHz 50 Watt: 1805 – 2170 MHz (at 50 °C ambient temperature) |
| Weight | 250 g |
| Radome diameter | 20 mm |
| Height | 216 mm |

- Material:** Radiator: Brass.
Radome: Fiberglass, colour: White.
- Mounting:** One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding:** All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



| Type | Type No. | Page |
|--|--------------------------------|------|
| Kathrein's Remote Electrical Tilt System | | |
| General information | | 152 |
| Data sheets of RET components | | |
| Slimline Remote Control Unit (RCU) | 860 10025 / 860 10118 | 154 |
| Central Control Unit (CCU) for indoor use | 860 10006 / 860 10026 | 155 |
| Central Control Unit (CCU) for indoor use (cost efficient version) | 860 10140 / 86010141 | 156 |
| Central Control Unit with Layer-one Converter (CCU-LOC) | 860 10068 | 157 |
| Central Control Unit (CCU) for outdoor use | 860 10113 | 159 |
| Portable Control Adapter (PCA) | 860 10046 | 160 |
| Power Supply and Signal Cable | 860 10007, ... | 161 |
| SMB Control Cable | 860 10078 / ..79 / ..84 / ..90 | 162 |
| DC Power and Signal Splitter | 860 10002 | 163 |
| Lightning Protection Device | 860 10030 | 164 |
| Earthing Clamp | 860 10031 | 165 |
| Smart Bias Tee | 782 10253 / ..54 / ..55 / ..56 | 286 |
| | 782 10453 / ..54 / ..55 / ..56 | |
| Bias Tee | 782 10429 | 284 |

New or changed product

The answer to all current and future network demands

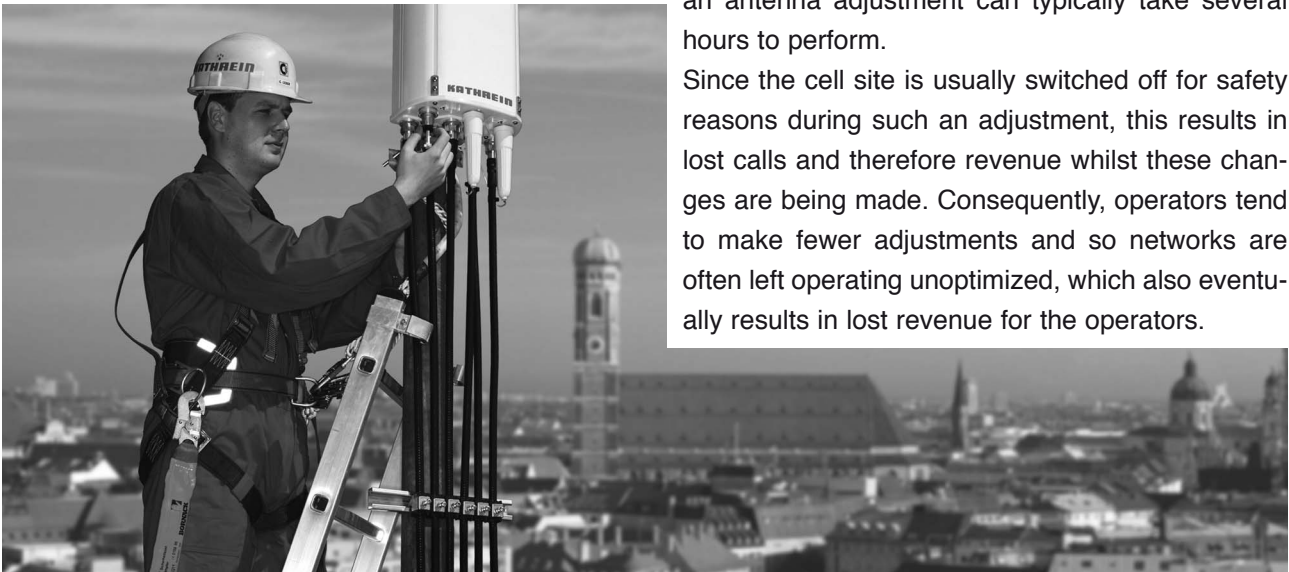
Network planning is becoming ever more complicated, especially with the advent of 3G.

The challenge for wireless network operators is to balance coverage, capacity, call quality and costs in order to gain maximum revenue from their network. Each of the above factors affects the others and so network engineers use many different techniques

for establishing the right balance they are trying to achieve.

One of these methods is adjusting the antenna's downtilt. Here, the engineer must take into consideration certain facts, such as the weather, access to the cell site, availability of specialized installation teams and special equipment etc. Moreover, such an antenna adjustment can typically take several hours to perform.

Since the cell site is usually switched off for safety reasons during such an adjustment, this results in lost calls and therefore revenue whilst these changes are being made. Consequently, operators tend to make fewer adjustments and so networks are often left operating unoptimized, which also eventually results in lost revenue for the operators.



However, with Kathrein's Remote Electrical Tilt unit engineers can make the necessary adjustments without shutting down the whole system!

Further advantages of using Kathrein's Remote Electrical Tilt (RET) system:

- No need for specialized teams trained in altitude work or with special safety skills
- Limited site access and/or time restrictions are not so important
- No special platforms or other means of access to the antenna are required
- Adjustments can be made and the relevant measurements performed speedily
- Network alterations can be carried out irrespective of weather conditions
- No reduction in coverage – cells remain fully operational whilst changes are being made
- Operators estimate that approx. 20% of UMTS equipment can be saved by using such a RET system.

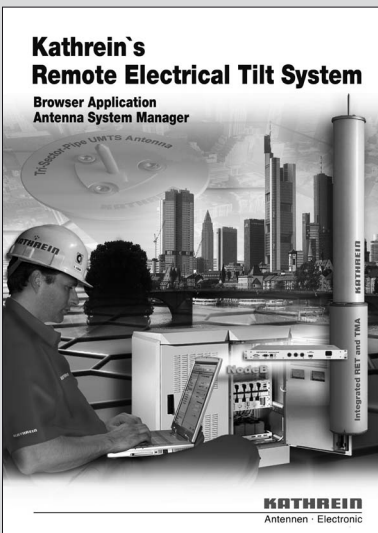


RET components



Kathrein's overall RET system works in accordance with the AISG (Antenna Interface Standards Group) standard and 3 GPP (3rd Generation Partnership Project).

For details of RET system please see Kathrein RET system brochure



Slimline RCU
(Remote Control Unit)



CCU (Central Control Unit)



CCU with LOC
(Central Control Unit with Layer-one Converter)



CCU outdoor
(Central Control Unit, outdoor)



PCA
(Portable Control Adapter)



DC Power and Signal Splitter



Control Cable



SMB Control Cable



Lightning Protection Device



Earthing Clamp



Optional:

Smart Bias Tee



DTMA (Double Tower Mounted Amplifier)



Bias Tee



RET

Remote Control Unit (RCU) for Kathrein base station antennas with adjustable electrical down-tilt and appropriate mechanical interface.

- Compliant to AISG 1.1 and 3GPP/AISG 2.0
- Compact size
- Daisy Chain feasibility
- Suitable for operation under outdoor conditions



| Type No. | 860 10025 | 860 10118 |
|--|--|---------------|
| Protocols | compliant to AISG 1.1 and 3GPP/AISG 2.0 | |
| Logical interface ex factory ¹⁾ | AISG 1.1 | 3GPP/AISG 2.0 |
| Input voltage range | 10 ... 30 V (pin 1, pin 6) | |
| Power consumption | < 1 W (stand by); < 8.5 W (motor activated) | |
| Connectors ²⁾ | 2 x 8 pin connector according to IEC 60130-9; according to AISG Daisy chain in: male; Daisy chain out: female | |
| Hardware interfaces | RS 485A/B (pin 5, pin 3); power supply (pin 1, pin 6); DC return (pin 7); according to AISG | |
| Adjustment time (full range) | 40 sec (typically, depending on antenna type) | |
| Adjustment cycles | > 50,000 | |
| Temperature range | -40 °C ... +60 °C | |
| Protection class | IP 24 | |
| Housing material | Profile: Aluminium coated; cover: Zinc diecast coated; varnished housing (RAL 7035, lightgrey) | |
| Weight | 525 g (1.16 lbs) | |
| Packing size | 245 x 93 x 102 mm, (9.6 x 3.6 x 4 inches) | |
| Dimensions (H x W x D) | 177.5 x 59.5 x 49.5 mm, (7.0 x 2.3 x 1.9 inches) | |



¹⁾ The protocol of the logical interface can be switched from AISG 1.1 to 3GPP/AISG 2.0 and vice versa with a vendor specific command. Start-up operation of the RCU 860 10025 is only possible in a RET system supporting AISG 1.1 and start-up operation of the RCU 860 10118 is only possible in a RET system supporting 3GPP/AISG 2.0!

Please note:

If the Primary of the RET system doesn't support the standard of the 'logical interface ex factory', the RCU must be switched to the appropriate standard of the Primary before installation. Please contact Kathrein for further information.

²⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

- Standards
- EN 60950-1 (Safety)
 - EN 55022 (Emission)
 - EN 55024 (Immunity)
 - ETS 300019-1-4 (Environmental)
 - UL 60950-1; 1st edition

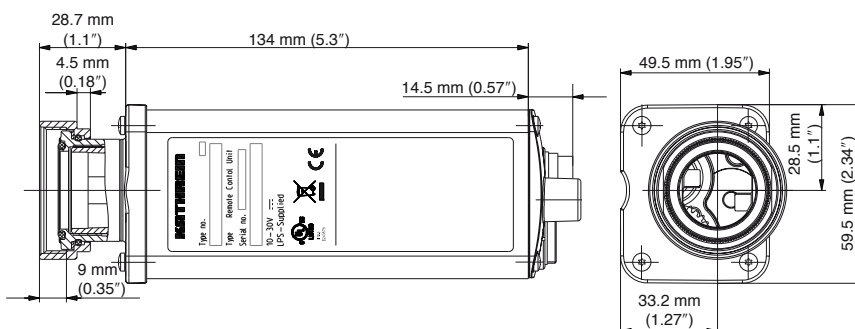
Certification: CE, UL, FCC15.107 class B

Scope of supply: Remote Control Unit
Assembly paste

Daisy chain in (male) Daisy chain out (female)



Bottom view of RCU



Central Control Unit (CCU) For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

For indoor use



Central Control Unit

| Type No. | 860 10006 | 860 10026 |
|-----------------------------------|---|------------------------|
| Connectors ¹⁾ to RCU | 3 x 8 pin connector acc. to IEC 60130-9, female, acc. to AISG | |
| Power supply from BTS | DC: -48 V / max. 1.7 A AC: 100 ... 240 V / 50 ... 60 Hz / max. 1.6 A | DC: -48 V / max. 1.7 A |
| Power supply to RCU | 3 x +29 V DC / max. 1.7 A (in total) 3 x +13 V DC / max. 3.8 A (in total) | |
| Total output power | Max. 50 W | |
| Interface to RCU and TMA | RS 485 / power supply | |
| Protocol to RCU and TMA | HDLC hex-coded command set, acc. to AISG | |
| Interface to BTS | Ethernet (10 Base-T) and RS 232 | |
| Protocols to BTS | TCP/IP, PPP, HTTP/HTML, UDP, DHCP, FTP, SNMP, ICMP/PING | |
| Alarm interface to BTS | 8 x open collector output, user programmable | |
| Max. number of RCU's and/or TMA's | Up to 27 RCU's in daisy chain and up to 6 DTMA's; depending on cable configuration and max. power | |
| Max. length of control cable | 200 m (9 RCU's in daisy chain configuration) | |
| Temperature range | -25 °C ... +55 °C ambient temperature | |
| Packing size | 597 mm x 367 mm x 148 mm | |
| Dimensions (h / w / d) | 19" 1 HU* (43.6 mm / 483 mm / 250 mm) | |

* HU = Height Unit

¹⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand tightened').
The connector should be tightened by hand only.

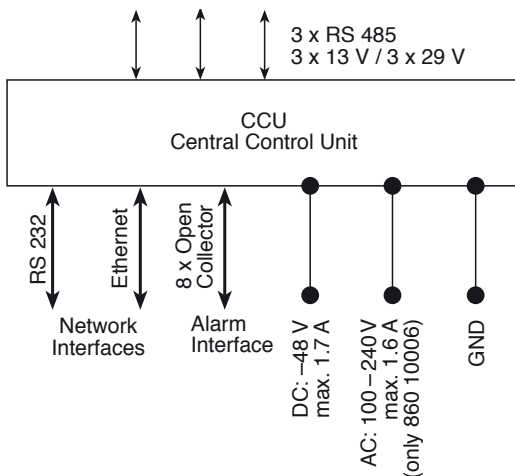
Standards: EN 60950-1
EN 55022
EN 55024
UL 60950-1, 1st edition

Certifications: CE, FCC part 15 class B; UL

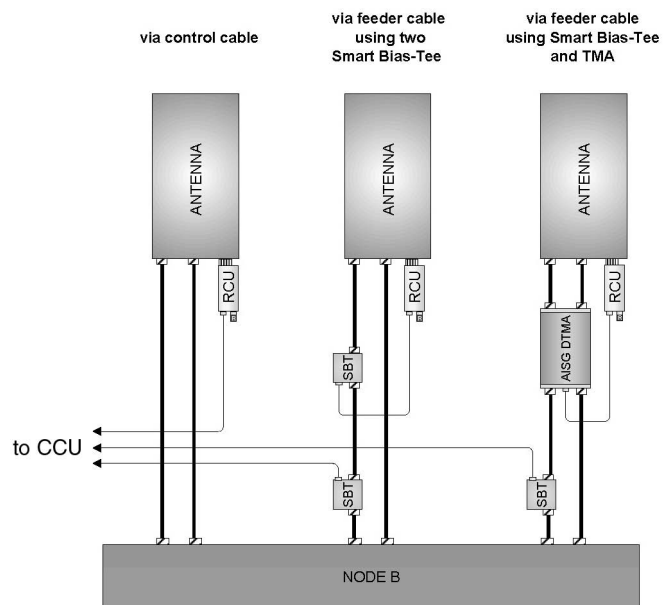
Scope of supply: CCU
RET Manual
DC Cable
AC Power Cords for USA, UK and Germany
Ethernet cable, crossed



CCU Interfaces



Examples of CCU – RCU connections



Central Control Unit (CCU) For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

For indoor use



Central Control Unit

| Type No. | 860 10140 | 860 10141 |
|-----------------------------------|---|------------------------|
| Connector ¹⁾ to RCU | 8 pin connector acc. to IEC 60130-9, female, acc. to AISG | |
| Power supply from BTS | AC: 100 ... 240 V / 50 ... 60 Hz / max. 1.6 A | DC: -48 V / max. 1.7 A |
| Power supply to RCU | +29 V DC / max. 1.7 A | |
| Total output power | Max. 50 W | |
| Interface to RCU and TMA | RS 485 / power supply | |
| Protocol to RCU and TMA | HDLC hex-coded command set, acc. to AISG | |
| Interface to BTS | Ethernet (10 Base-T) and RS 232 | |
| Protocols to BTS | TCP/IP, PPP, HTTP/HTML, UDP, DHCP, FTP, SNMP, ICMP/PING | |
| Alarm interface to BTS | 8 x open collector output, user programmable | |
| Lightning protection | No lightning protection for AISG interface ²⁾ 8/20 μ s, 2.5 KA Ethernet-, DC- and Alarm Interface | |
| Max. number of RCU's and/or TMA's | Up to 27 RCU's in daisy chain and up to 6 DTMA's; depending on cable configuration and max. power | |
| Max. length of control cable | 200 m (9 RCU's in daisy chain configuration) | |
| Temperature range | -25 °C ... +55 °C ambient temperature | |
| Packing size | 597 mm x 367 mm x 148 mm | |
| Dimensions (h / w / d) | 19" 1 HU* (43.6 mm / 483 mm / 250 mm) | |

* HU = Height Unit

¹⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand tightened').
The connector should be tightened by hand only.

²⁾ **Please note:** In order to achieve lightning protection acc. to IEC 61643-1/-3 (10/350 μ s), please install the Kathrein Lightning Protection Device (type no. 860 10030). For additional information about lightning protection of the CCU, we kindly refer to RET Installation Manual.

Standards: EN 60950-1
EN 55022
EN 55024
UL 60950-1, 1st edition

Certifications: CE, FCC part 15 class B; UL

Scope of supply: CCU
RET Manual
DC Cable (only 860 10141)
AC Power Cords for USA,
UK and Germany (only 860 10140)
Ethernet cable, crossed

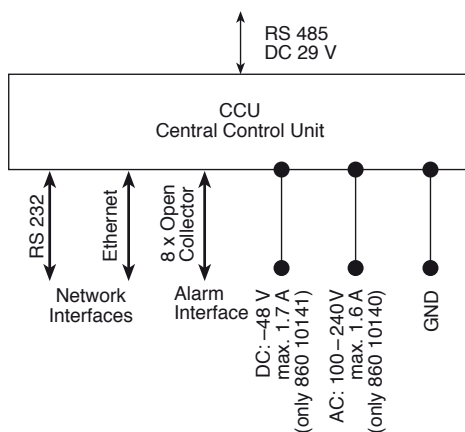


860 10140

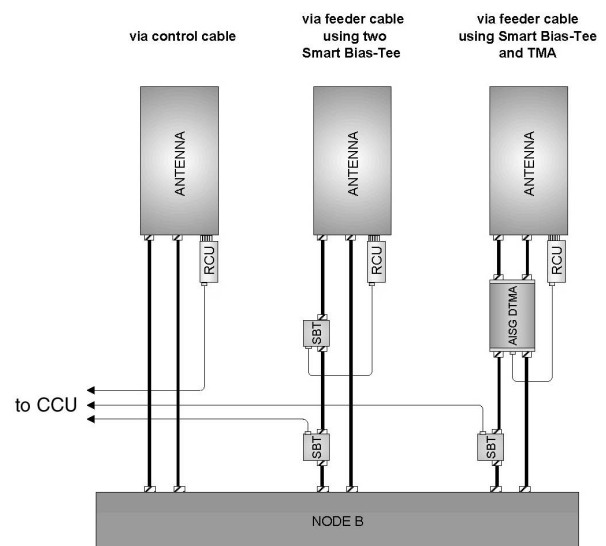


860 10141

CCU Interfaces



Examples of CCU – RCU connections



Central Control Unit with Layer-one Converter For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
Antennen · Electronic

For indoor use

The **Central Control Unit with integrated Layer-one Converter** (CCU-LOC) combines the features of the standard Kathrein CCU (86010026) with the functionality of an additional RF-modem for layer-one conversion according to AISG specification. The CCU provides on its outputs a DC voltage with an OOK-modulated carrier signal at 2.176 MHz for controlling all connected AISG devices via feeder cables. In order to feed-in the output signal (DC voltage / carrier-signal) into the feeder cable, a passive Bias-T with appropriate lightning protection is required (Kathrein 78210429). The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.



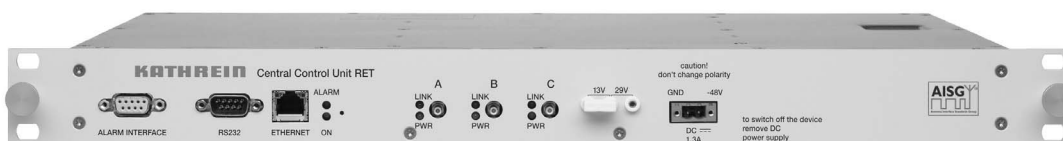
- AISG 1.1 compliant
- 13 VDC or 29 VDC output voltage - switchable with external jumper
- LED signalling for output power and alarming

CCU with Layer-one Converter

| | |
|--------------------------------|---|
| Type No. | 86010068 |
| RET-Interface | 3 x Coaxial Interface 13 VDC or 29 VDC; OOK modulated carrier at 2.176 MHz |
| Connector of RET-Interface | 3 x SMB; female acc. IEC 169-10 |
| Power supply from BTS | DC: -48V / max. 1.7A |
| Power supply to RET | 3 x +13 VDC (3.8 A in total) or 3 x +29 VDC (1.7 A in total) switchable with external jumper Over current protection per SMB output: 1.8 A / 13 VDC 1.0 A / 29 VDC |
| Total output power | max. 50 W (in total) |
| Protocol to RET | HDLC command set, conform to AISG |
| Interface to BTS | PPP; IP; TCP; UDP; ICMP/PING; HTTP/HTML; DHCP; FTP; SNMP |
| Alarm Interface to BTS | 8 x open collector output, user programmable |
| LED signalling | 1 x green POWER ON 1 x red ALARM SMB-connectors: 3 x green POWER ON 3 x red ALARM |
| Max. number of TMA's and RCU's | max. 1 x DTMA and 9 x RCU per output (Kathrein devices) depending on system configuration |
| Temperature range | -25 °C ... +55 °C ambient temperature |
| Weight | 3.7 kg |
| Packing size (h x w x d) | 597 mm x 367 mm x 148 mm |
| Dimensions (h x w x d) | 19" 1 HU* (43.6 mm x 483 mm x 250 mm) |

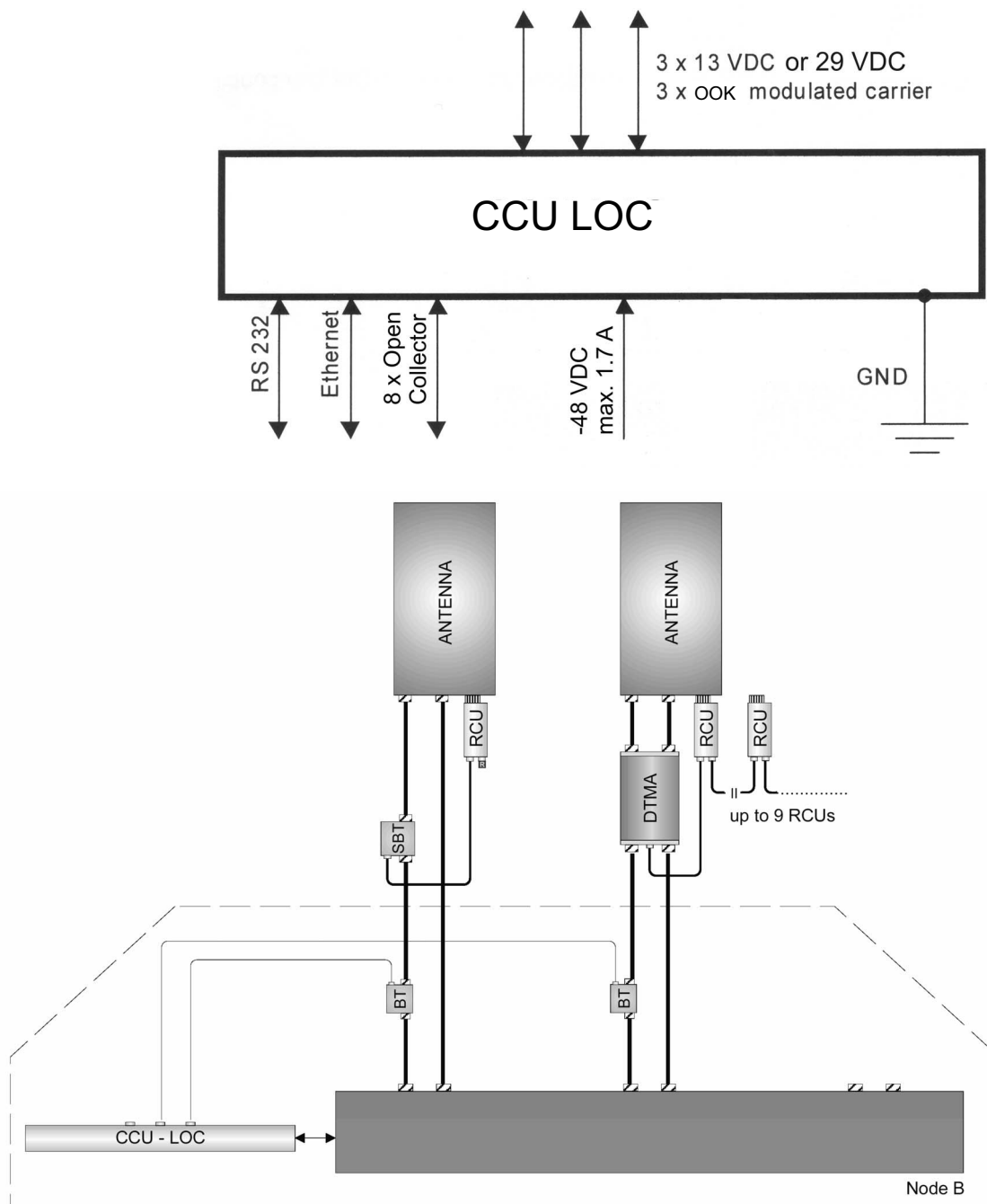
Standards EN 60950-1 (Safety)
EN 55022 (Emmission)
EN 55024 (Immunity)

Certification: CE
Scope of supply: CCU-LOC
Manual
DC-cable



RET

Central Control Unit with Layer-one Converter For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control



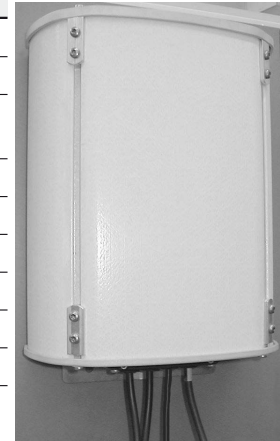
Central Control Unit (CCU) For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

for outdoor use

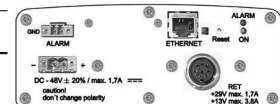


Central Control Unit, outdoor

| Type No. | 860 10113 |
|-----------------------------------|---|
| Connectors to RCU/Splitter | 1 x 8 pin connector according IEC 60130-9, female, conform to AISG |
| Power supply from BTS | DC: -48 V ±20 % / max. 1.7 A |
| Power supply to RCU | +29 V DC / max. 1.7 A +13 V DC / max. 3.8 A |
| Total output power | Max. 50 W |
| Interface to RCU and TMA | RS 485 / power supply, conform to AISG |
| Protocol to RCU and TMA | HDLC hex-coded command set, conform to AISG 1.1 and 3GPP/AISG 2.0 |
| Interface to BTS | RJ 45, 10 Base-T, Ethernet 802.3 |
| Protocols to BTS | TCP/IP, UDP, HTTP/HTML, DHCP, FTP, ICMP/PING, SNMP |
| Alarm Interface | 1 x open collector output |
| Lightning Protection | No Lightning Protection for AISG interface ¹⁾ 8/20 μs, 2.5 kA Ethernet-, DC- and Alarm Interface |
| Max. number of RCU's and/or TMA's | Up to 27 RCU's in daisy chain und up to 6 DTMA's; depending on cable configuration and max. power ²⁾ |
| Max. length of control cable | 200 m (9 RCU's in daisy chain configuration) ²⁾ |
| Material of housing | Covers: Aluminium, varnished (lightgrey) Profile: Glass-fibre reinforced plastic (lightgrey) |
| Temperature range | -40 ... +55 °C ambient temperature |
| Mounting ³⁾ | Wall and mast mounting (with additional clamps) |
| Weight | 4.6 kg |
| Dimensions (h x w x d) | 328 mm x 270 mm x 131 mm |



Cable feedthrough with gasket at the bottom side.



Interfaces at the internal connector panel.

¹⁾ **Please note:** In order to achieve lightning protection acc. to IEC 61643-1-3 (10/350μs), please install the Kathrein Lightning Protection Device (type-no. 860 10030). For additional information about lightning protection of the CCU, we kindly refer to the RET Installation Manual.

²⁾ Please refer to the RET Installation Manual for detailed information.

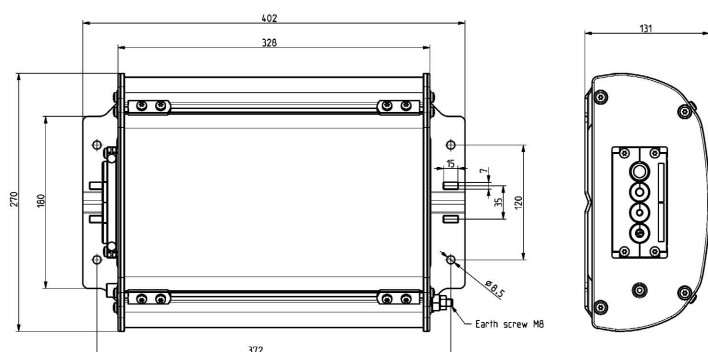
³⁾ **Please note:** The CCU 860 10113 is suitable for operation under outdoor conditions.
Cable feedthrough must point downward!
The cable installation must provide adequate strain relief!
The CCU should not be installed at locations with hazardous risks for the installation team!
Please follow the instructions in the RET Installation Manual.

Standards: EN 60950-1 (Safety)
EN 55022 (Emission)
EN 55024 (Immunity)
ETS 300019-1-4 (Environmental)

Certifications: CE

Scope of supply: Central Control Unit, outdoor
Connectors for Power Supply and Alarm interface

Installation manual
Ethernet cable, crossed



Portable Control Adapter (PCA) For Remote Control Unit (RCU)



Portable Control Adapter

| Type No. | 860 10046 |
|--|--|
| Connector * to RCU/TMA | 1 x 8-pin connector according to IEC 60130-9, female, conforming to AISG RF-connector (SMB male) |
| Input voltage of PCA | 24 V DC |
| Output voltage to RCU's/TMA's | AISG female pin 6 (24 V DC): 24 V DC $\pm 10\%$ AISG female pin 1 (12 V DC): 14 V DC $\pm 7\%$ RF male (at 24 V DC): 24 V DC $\pm 10\%$ *** RF male (at 12 V DC): 14 V DC $\pm 7\%$ *** |
| Output power (power supply to RCU's/TMA's) | AISG female pin 6 (24 V DC) without load on pin 1 (12 V DC) and on RF-plug: ≤ 60 W AISG female Pin 1 (12 V DC) with max. 30 W load on pin 6 (24 V DC) and/or on RF plug: ≤ 30 W |
| Current monitoring measurement level | Per branch (12 V, 24 V, RF): 10 – 2500 mA |
| Over-current protection | Per branch (12 V, 24 V, RF): < 2500 mA |
| Interface to RCU/TMA | RS 485 / power supply / RF connector (SMB male) |
| Protocol to RCU/TMA | HDLC hex-coded command set, conforming to AISG 1.1 and 3GPP / AISG 2.0 |
| Interface to PC | USB 1.1/2.0 |
| Max. number of RCU's/TMA's | 27/3 pcs., depending on system configuration and length of control cable |
| Max. length of control cable | 200 m / 9 RCU's (in daisy chain configuration) 150 m / 6 RCU's (in splitter configuration) |
| Weight | 535 g (incl. external power adapter) |
| Temperature range | 0 ... +55 °C ambient temperature |
| Height x width x depth | 40 mm x 95 mm x 160 mm |
| External power supply ** | Input: 90 – 264 V AC, 47 – 63 Hz 24 V DC / 3.0 A |

* Tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened').

The connector should be tightened by hand only!

** If powered via AISG-interface, no external power supply is required.

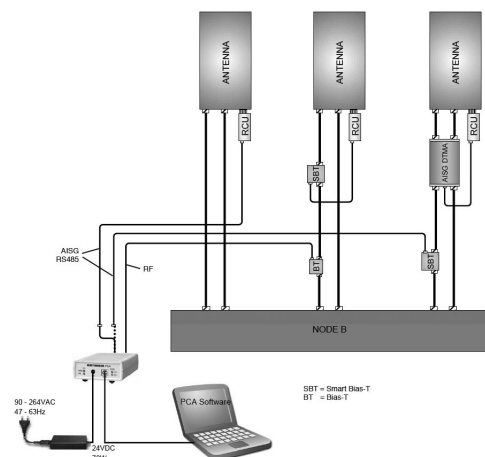
*** Switchable with software

Certificate: CE
FCC part 15 class B
UL (for external power adapter)

Standards: EN 60950-1
EN 55022
EN 55024

System requirements for PCA Software: Windows 2000; Windows XP (32 bit version)

Scope of supply: PCA
External power supply (24 V DC / 70 W)
USB cable
AC power cable
CD-ROM with PCA software, drivers and manual
Installation guide
Transport case



Connecting Cable For Remote Electrical Tilt (RET) System

For indoor and outdoor use



RET Cable for power supply and control

| Type No. | 860 10007 ... |
|---|---|
| Connectors | 2 x 8 pin connector according IEC 60130-9, female/male |
| Tightening torque for fixing the connectors | 0.5 – 1 Nm (The connector should be tightened by hand only) |
| Construction | Screen 1x twisted pair 100 Ω/1 MHz 2x power supply, 1x ground AWM style 20317 I/II A/B + 20549 + 20233 |
| Rated current | 4 A (power supply) (at 50 °C air temperature) |
| Temperature range | –40 °C to +80 °C, (fixed position) |
| Protection class | IP 67 (connected) |
| Cable diameter | 8 mm |
| Flammability | VL 1581 VW-1 CSA FT 1 |
| Colour | Black, similar to RAL 9005 |

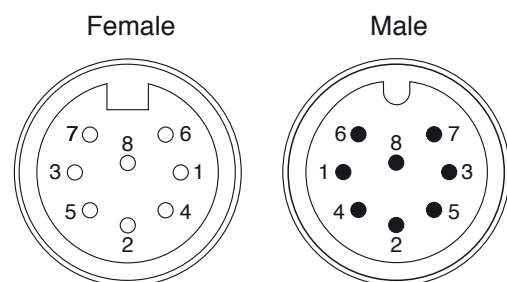
Minimum bending radius: One time 60 mm,
several times 120 mm.

The male and female connectors of all Kathrein RET products are compatible components which are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E.



Control Cable

| Length | Type No. |
|--------|-----------|
| 0.5 m | 860 10054 |
| 1 m | 860 10007 |
| 2 m | 860 10008 |
| 3 m | 860 10029 |
| 5 m | 860 10009 |
| 10 m | 860 10010 |
| 20 m | 860 10032 |
| 25 m | 860 10011 |
| 40 m | 860 10012 |
| 50 m | 860 10033 |
| 60 m | 860 10013 |
| 80 m | 860 10014 |
| 100 m | 860 10015 |



PIN assignment according AISG:

- 1 +13 V DC (+12 V DC nominal)
- 2 not connected
- 3 RS485 B
- 4 not connected
- 5 RS485 A
- 6 +29 V DC (+24 V DC nominal)
- 7 DC Return
- 8 not connected

SMB Control Cable For Remote Electrical Tilt (RET) System

For indoor use

Coax cable (RG58) assembled with SMB connectors. The DC Control Cable is used to connect the CCU with Layer One Converter (type no. 860 10068) to the Bias Tee with SMB interface (type no. 782 10429).

| | |
|-------------------|--|
| Type No. | 860 10078/860 10079/860 10084/860 10090 |
| Connectors | 2 x SMB-Angle Jack; gold plated |
| Cable | RG58C/U |
| Temperature range | -40 °C to +70 °C, (fixed position) |
| Cable diameter | 4.95 mm ±0.1 mm |
| Colour of cable | Black, similar to RAL 9005 |

Minimum bending radius: One time 25 mm
several times 50 mm



860 10079

Control Cable

| Type No. | Description | Length |
|-----------|-------------------|--------|
| 860 10078 | SMB Control Cable | 2 m |
| 860 10084 | SMB Control Cable | 3 m |
| 860 10079 | SMB Control Cable | 5 m |
| 860 10090 | SMB Control Cable | 10 m |

DC-Power and Signal Splitter For Remote Electrical Tilt (RET) Indoor and Outdoor Use



AISG compliant device for splitting of DC-power and control signals from one input to three outputs.

3-way-Splitter for RET

| | |
|------------------------------|---|
| Type No. | 860 10002 |
| Connectors ¹⁾ | 4 x 8 pin connector according IEC 60130-9, 1 x male, 3 x female |
| Rated current (power supply) | 3 A (at 50 °C) |
| Max. voltage | 60 V |
| Protection class | IP 65 |
| Weight | 250 g |
| Packing size | 114 mm x 117 mm x 117 mm |
| Height/width/depth | 91 mm / 103 mm / 72 mm |

¹⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

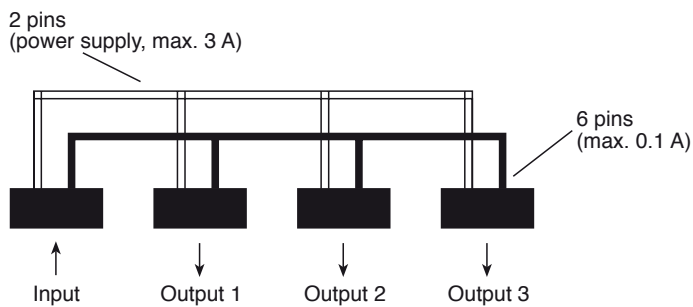


Material: Connector plate: Aluminum.
Cap: Plastic.

Mounting: Mast mounting (50 – 145 mm diameter) by clamp.
Wall mounting by screws (not supplied).

Note: Connectors must be situated at the bottom.
No inverted mounting possible.

Scope of supply: 3-way Splitter
Clamp (Art.-No. 1311847)



Clamp, Art. No. 1311847

Lightning Protection Device (LPD) For Remote Electrical Tilt (RET) Indoor and Outdoor Use



The device is designed for lightning protection of control cables carrying partial lightning currents up to 25 kA (shield) and 2.5 kA (inner conductor), according IEC 61643-1, IEC 61312-3. Each pin is protected individually.

Lightning Protection Device for RET

| | |
|---|--|
| Type No. | 860 10030 |
| Connectors ¹⁾ | 2 x 8 pin connector according IEC 60130-9, input: male, output: female |
| SPD-Type | 8 x bipolar gas tube |
| Max. impuls current | 25 kA (housing, shield) (10/350 μ s) inner conductors: 2.5 kA/pin (10/350 μ s) |
| Max. dynamic overvoltage at spark gap (1 kV/ μ s) | < 700 V |
| Static overvoltage (100 V/s) | < 100 V |
| Grounding | Via mounting plate / clamps at metallic surfaces or via separate cable, min. cross-section 5 mm ² Cu (screw M6) |
| Max. operation current | 4 A at 50 °C |
| Max. operation voltage | 60 V |
| Weight | 250 g |
| Packing size | 114 mm x 117 mm x 117 mm |
| Height/width/depth | 91 mm / 103 mm / 72 mm |

¹⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!



Material: Connector plate: Aluminum.
Cap: Plastic.

Mounting: Mast mounting (50 – 145 mm diameter) by clamp.
Wall mounting by screws (not supplied).

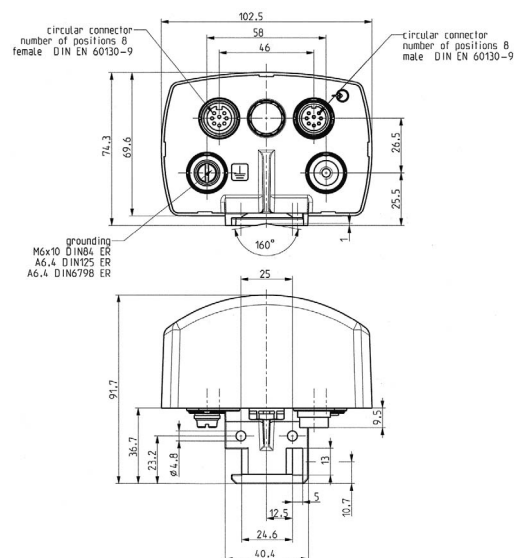
Note: **No decoupling elements are integrated. The coordination with additional LPD's (device input) should be checked according to IEC 61312.**

Grounding of the device via the mounting plate at metallic surfaces or via additional grounding cable (not included in the delivery extend).

Connectors must be situated at the bottom. No inverted mounting possible.

Important: A control cable with a minimum length of 2 meters is required between Lightning Protection Device and Central Control Unit at the BTS to achieve the required decoupling.

Scope of supply: Lightning Protection Device
Clamp (50 ... 145 mm)



Earthing Clamp For Power Supply and Control Cable For Remote Control Unit (RCU)

The clamp is designed for lightning protection of control cables according to EN 50164-1

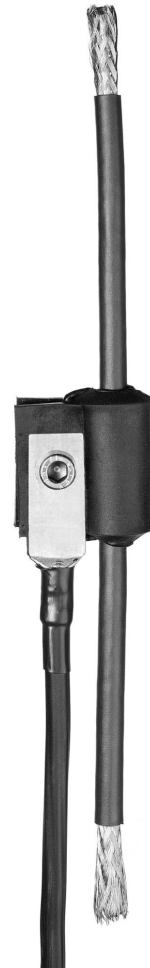
Earthing clamp for RCU power supply and signal cable

| | |
|------------------------|---|
| Type No. | 860 10031 |
| Max. lightning current | 20 kA (pulse 10/350 μ sec) |
| Contact resistance | < 3 m Ω |
| Protection class | IP 68 |
| Grounding | Via stranded grounding wire, 16 mm ² , length 0.5 m, one end terminated with cable eye (10 mm lug) |
| Packing size | Plastic bag: 210 mm x 210 mm |
| Weight | 160 g |

Material:
 Body: Stainless steel with vulcanized Ethylene-Propylene-Caoutchouc
 Screw: Stainless steel
 Skin: Copper alloy
 Grounding wire: Copper

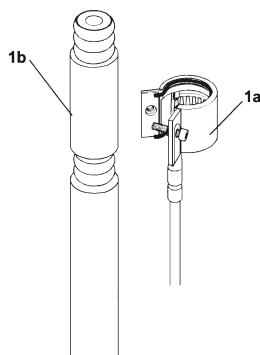
Please note:
 The earthing clamp is suitable only for the Kathrein Power Supply and Signal Cables, Type No. 860 10007 to 860 10015, 860 10029, 860 10032, 860 10033, 860 10054 to 860 10060 or shielded cables with
 – shield diameter 6.1 mm
 – jacket diameter 7.8 mm \pm 0.3 mm

The kit contains:
 1 x Grounding kit body incl. Butyl sealing rope covered with paper
 1 x Screw M6 DIN 912
 1 x Grounding wire



Mounting instructions:

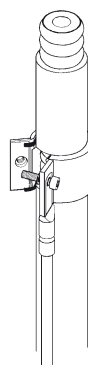
This instruction is written for qualified and experienced personnel. Please read it carefully before starting work. Any liability or responsibility for the result of improper or unsafe installation is disclaimed!



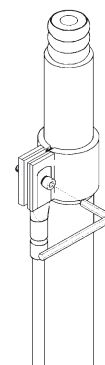
Attention!
 Install grounding kit only where the cable runs straight.

Fig. 1a Preassembled grounding kit.

Fig. 1b Clean the plastic jacket at the desired grounding point and cut out a strip of 15 mm with aid of a suitable stripping tool.



Remove covering paper from Butyl sealing. Wrap the grounding kit body around the cable and align it.



Tighten the screw (> 6 Nm)

Splitters

| Type | Type No. | Frequency range | Remark | Max. power | Connector female | Page |
|-------------------------|------------------|-----------------|----------------|------------|------------------|------|
| 2-way Splitter 800–2500 | 860 10017 | 694 – 2700 MHz | Indoor | 100 W | N | 168 |
| 3-way Splitter 800–2500 | 860 10018 | 694 – 2700 MHz | Indoor | 100 W | N | 168 |
| 4-way Splitter 800–2500 | 860 10019 | 694 – 2700 MHz | Indoor | 100 W | N | 168 |
| 2-way Splitter 800–3800 | 860 10100 | 694 – 3800 MHz | Indoor/Outdoor | 200 W | N | 169 |
| 2-way Splitter 800–3800 | 860 10101 | 694 – 3800 MHz | Indoor/Outdoor | 700 W | 7-16 | 169 |
| 3-way Splitter 800–3800 | 860 10102 | 694 – 3800 MHz | Indoor/Outdoor | 200 W | N | 169 |
| 3-way Splitter 800–3800 | 860 10103 | 694 – 3800 MHz | Indoor/Outdoor | 700 W | 7-16 | 169 |
| 4-way Splitter 800–3800 | 860 10104 | 694 – 3800 MHz | Indoor/Outdoor | 200 W | N | 169 |
| 4-way Splitter 800–3800 | 860 10105 | 694 – 3800 MHz | Indoor/Outdoor | 700 W | 7-16 | 169 |
| 2-way Splitter 380–3800 | 860 10131 | 380 – 3800 MHz | Indoor/Outdoor | 700 W | 7-16 | 170 |

Tappers

| | | | | | | |
|-----------------------------------|------------------|----------------|----------------|-------|------|-----|
| 2-way Tapper 800–2500 7.0/1.0 dB | 860 10136 | 694 – 2700 MHz | Indoor | 100 W | N | 171 |
| 2-way Tapper 800–2500 10.4/0.4 dB | 860 10137 | 694 – 2700 MHz | Indoor | 100 W | N | 171 |
| 2-way Tapper 800–2500 15.1/0.1 dB | 860 10138 | 694 – 2700 MHz | Indoor | 100 W | N | 171 |
| 2-way Tapper 800–2200 7.0/1.0 dB | K 63 23 60 67 | 800 – 2200 MHz | Indoor/Outdoor | 500 W | 7-16 | 172 |
| 2-way Tapper 800–2200 10.4/0.4 dB | K 63 23 61 07 | 800 – 2200 MHz | Indoor/Outdoor | 500 W | 7-16 | 172 |
| 2-way Tapper 800–2200 15.1/0.1 dB | K 63 23 61 57 | 800 – 2200 MHz | Indoor/Outdoor | 500 W | 7-16 | 172 |

Continuously adjustable ratio

| | | | | | | |
|--|---------------|----------------------------------|--------|-------|---|-----|
| 2-way Tapper 824–960/1710–2170 5.0–15.0dB | K 63 23 60 01 | 824 – 960 MHz 1710 – 2170 MHz | Indoor | 100 W | N | 173 |
| 2-way Tapper 870–960/1710–2500 5.0–15.0dB | 860 10023 | 870 – 960 MHz 1710 – 2500 MHz | Indoor | 100 W | N | 173 |

New or changed product

Antenna Measurement Tools (from Schomandl)

| | |
|-------------------------|-----|
| SWR Instrument FAT 2710 | 174 |
| WLAN Power Meter (VSWR) | 175 |

Power Meter

| | |
|------------------------------------|-----|
| WLAN Power Meter (Power) | 175 |
| Broadcast RF Power Monitor | 176 |
| Safe One Resonal RF Safety Monitor | 177 |

For indoor use.

2-way Splitter 694–2700

3-way Splitter 694–2700

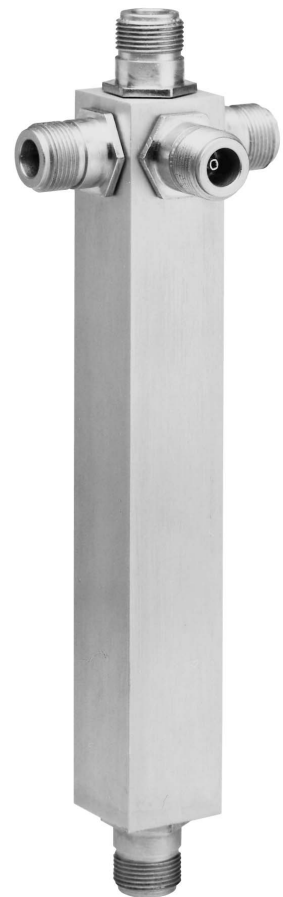
4-way Splitter 694–2700


| Type No. | 860 10017 | 860 10018 | 860 10019 |
|-----------------------------|---|--------------------------|--------------------------|
| Frequency range | 694 – 2700 MHz | | |
| For connecting ... antennas | 2 | 3 | 4 |
| Insertion loss | < 0.05 dB | | |
| Impedance | 50 Ω | | |
| VSWR | 694 – 894 MHz: 790 – 2500 MHz: 2500 – 2700 MHz: | < 1.5 < 1.25 < 2.0 | < 1.5 < 1.25 < 2.0 |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power | 100 W (at 50 °C ambient temperature) | | |
| Connector | N female | | |
| Weight | approx. 0.6 kg | | |
| Profile cross-section | 25 x 25 mm | | |
| Packing size | 242 x 110 x 95 mm | | |
| Max. size | 204 / 63 / 41 mm | | |

Material: Housing: Aluminum.
Inner conductor: Brass.

DC capability: DC transmission between all terminations
(suitable for remote power supply systems).

Environmental conditions: IP 52



Input 
860 10019

For indoor and outdoor use.

2-way Splitter 694–3800

3-way Splitter 694–3800

4-way Splitter 694–3800

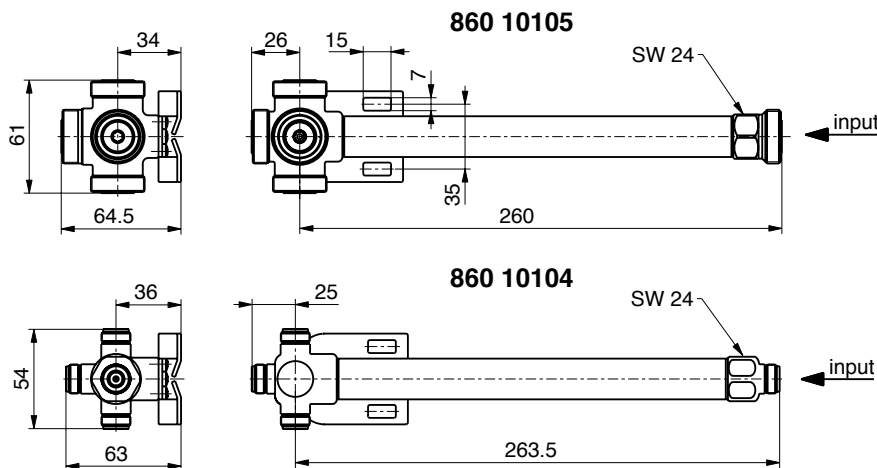
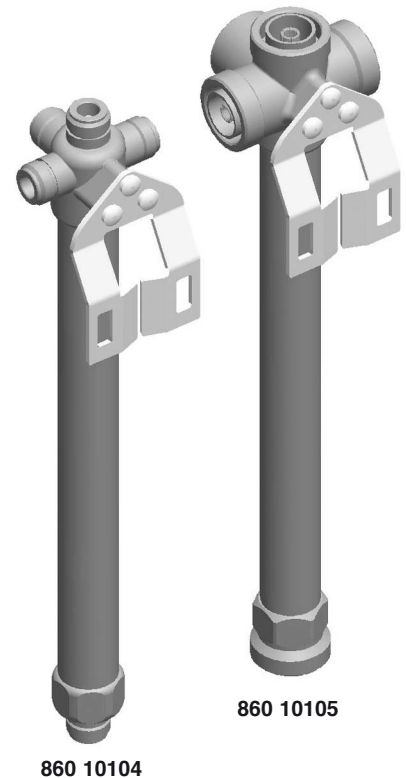
| Type No. | 860 10100 | 860 10101 | 860 10102 | 860 10103 | 860 10104 | 860 10105 |
|--|--|-----------|-----------|-----------|-----------|-----------|
| Connector (female) | N | 7-16 | N | 7-16 | N | 7-16 |
| Max. power (at 50 °C ambient temperature) | 200 W | 700 W | 200 W | 700 W | 200 W | 700 W |
| For connecting ... antennas | 2 | | 3 | | 4 | |
| Frequency range | 694 – 3800 MHz | | | | | |
| VSWR | 694 – 894 MHz: < 1.3 790 – 3800 MHz: < 1.15 | | | | | |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) | | | | | |
| Impedance | 50 Ω | | | | | |
| Insertion loss | < 0.05 dB | | | | | |
| Weight | 750 g | 870 g | 760 g | 900 g | 775 g | 960 g |
| Packing size | 300 x 75 x 75 mm | | | | | |

Material: Brass. Surface treatment: CuSnZn3

Mounting: Bracket for wall mounting included in the scope of supply.
For pipe mast mounting use clamps listed below (order separately).

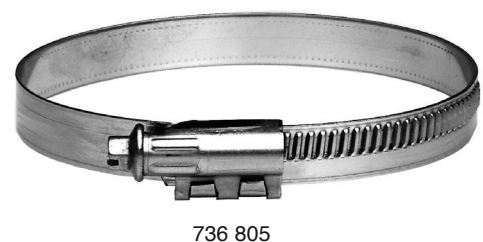
DC capability: DC transmission between all terminations (suitable for remote power supply systems).

Environmental conditions: ETS 300 019-1-4 class 4.1 E
– Low temperature: -55 °C
– High temperature (dry): +60 °C
IP 65



Clamps (order separately)

| Type No. | Description | Remarks |
|----------|-------------|-----------------------------|
| 736 801 | 1 clamp | Mast: 34 – 60 mm diameter |
| 736 802 | 1 clamp | Mast: 60 – 80 mm diameter |
| 736 803 | 1 clamp | Mast: 80 – 100 mm diameter |
| 736 804 | 1 clamp | Mast: 100 – 120 mm diameter |
| 736 805 | 1 clamp | Mast: 120 – 140 mm diameter |

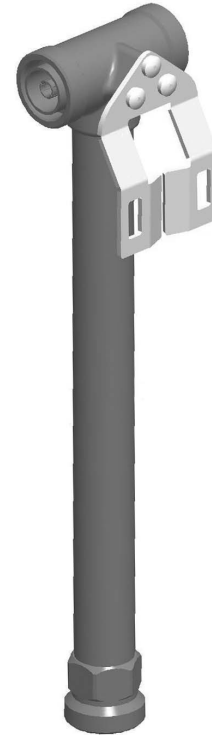


For indoor and outdoor use.

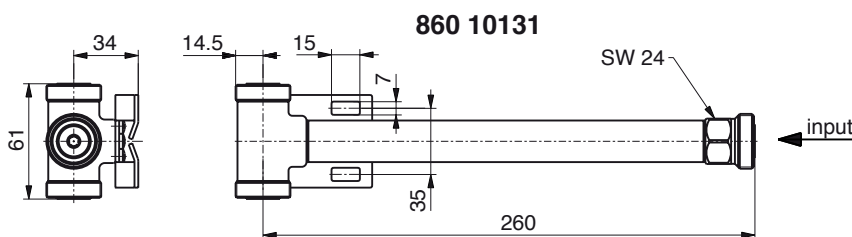
2-way Splitter 380–3800

| | |
|--|---------------------------------|
| Type No. | 860 10131 |
| Connector (female) | 7-16 |
| Max. power (at 50 °C ambient temperature) | 700 W |
| For connecting ... antennas | 2 |
| Frequency range | 380 – 3800 MHz |
| VSWR | < 1.5 |
| Intermodulation IM3 | < -150 dBc (2 x 43 dBm carrier) |
| Impedance | 50 Ω |
| Insertion loss | < 0.05 dB |
| Weight | 870 g |
| Packing size | 300 x 75 x 75 mm |

Material: Brass. Surface treatment: CuSnZn3
 Mounting: Bracket for wall mounting included in the scope of supply.
 For pipe mast mounting use clamps listed below (order separately).
 DC capability: DC transmission between all terminations (suitable for remote power supply systems).
 Environmental conditions: ETS 300 019-1-4 class 4.1 E
 – Low temperature: -55 °C
 – High temperature (dry): +60 °C
 IP 65



860 10131



Clamps (order separately)

| Type No. | Description | Remarks |
|----------|-------------|-----------------------------|
| 736 801 | 1 clamp | Mast: 34 – 60 mm diameter |
| 736 802 | 1 clamp | Mast: 60 – 80 mm diameter |
| 736 803 | 1 clamp | Mast: 80 – 100 mm diameter |
| 736 804 | 1 clamp | Mast: 100 – 120 mm diameter |
| 736 805 | 1 clamp | Mast: 120 – 140 mm diameter |

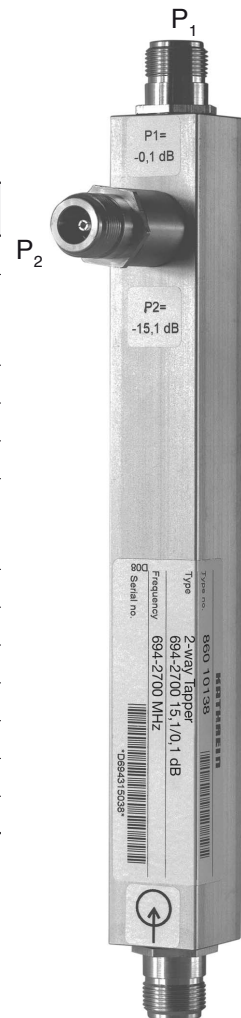


736 805

For indoor use

2-way Tapper 694–2700 7.0 /1.0dB
 2-way Tapper 694–2700 10.4/0.4dB
 2-way Tapper 694–2700 15.1/0.1dB

| Type No. | 860 10136 | 860 10137 | 860 10138 |
|------------------------------------|---|-----------|-----------|
| Frequency range | 694 – 2700 MHz | | |
| Tap Loss Input ↔ P ₁ | – 1.0 dB | – 0.4 dB | – 0.1 dB |
| Input ↔ P ₂ | – 7.0 dB | – 10.4 dB | – 15.1 dB |
| For connecting ... antennas | 2 | | |
| Insertion loss | < 0.05 dB | | |
| Impedance | 50 Ω | | |
| VSWR | 694 – 790 MHz: < 2.0 790 – 2500 MHz: < 1.5 2500 – 2700 MHz: < 2.0 | | |
| Intermodulation IM3 | < –150 dBc (2 x 43 dBm carrier) | | |
| Max. power | 100 W (at 50 °C ambient temperature) | | |
| Connector | N female | | |
| Weight | 500 g | | |
| Profile cross-section | 25 x 25 mm | | |
| Packing size | 267 x 95 x 111 mm | | |
| Max. size | 244 / 64 / 25 mm | | |



Input
 860 10138

Material: Housing: Aluminum.
 Inner conductor: Brass.

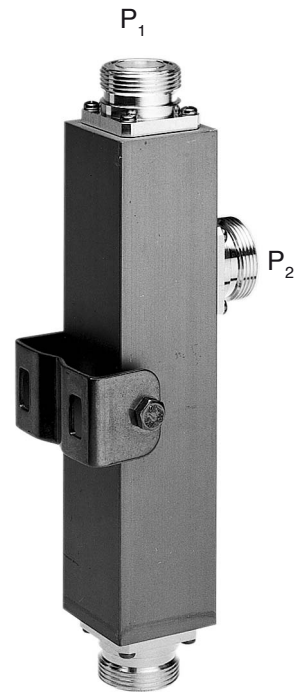
DC capability: DC transmission only between input and port P₁.
 P₂ is coupled capacitively.

Environmental conditions: IP 52

For indoor and outdoor use.

2-way Tapper 800–2200 7.0 /1.0dB
2-way Tapper 800–2200 10.4/0.4dB
2-way Tapper 800–2200 15.1/0.1dB

| Type No. | K 63 23 60 67 | K 63 23 61 07 | K 63 23 61 57 |
|---|--------------------------------------|---------------|---------------|
| Frequency range | 800 – 2200 MHz | | |
| Tap Loss | | | |
| Input ↔ P ₁ | – 1.0 dB | – 0.4 dB | – 0.1 dB |
| Input ↔ P ₂ | – 7.0 dB | – 10.4 dB | – 15.1 dB |
| For connecting ... antennas | 2 | | |
| Insertion loss | < 0.05 dB | | |
| Impedance | 50 Ω | | |
| VSWR | < 1.5 | | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | | |
| Max. power | 500 W (at 50 °C ambient temperature) | | |
| Connector | 7-16 female | | |
| Weight | approx. 1.3 kg | | |
| Packing size | 310 x 93 x 112 mm | | |
| Max. size | 244 / 90 / 55 mm | | |



Input
 K 63 23 60 67

- Material:** Housing: Aluminum.
 Inner conductor: Brass.
- DC capability:** DC transmission only between input and port P₁.
 P₂ is coupled capacitively.
- Mounting:** Bracked for wall mounting included in the scope of supply.
 For pipe mast mounting use clamps listed below (order separately).
- Environmental conditions:** IP 65

Clamps (order separately)

| Type No. | Description | Remarks |
|----------|-------------|-----------------------------|
| 736 801 | 1 clamp | Mast: 34 – 60 mm diameter |
| 736 802 | 1 clamp | Mast: 60 – 80 mm diameter |
| 736 803 | 1 clamp | Mast: 80 – 100 mm diameter |
| 736 804 | 1 clamp | Mast: 100 – 120 mm diameter |
| 736 805 | 1 clamp | Mast: 120 – 140 mm diameter |



736 805

Multi-band 824–960 1710–2500 Low-loss Power Tapper Continuously Adjustable 5.0–15.0 5.0–15.0

For indoor use.

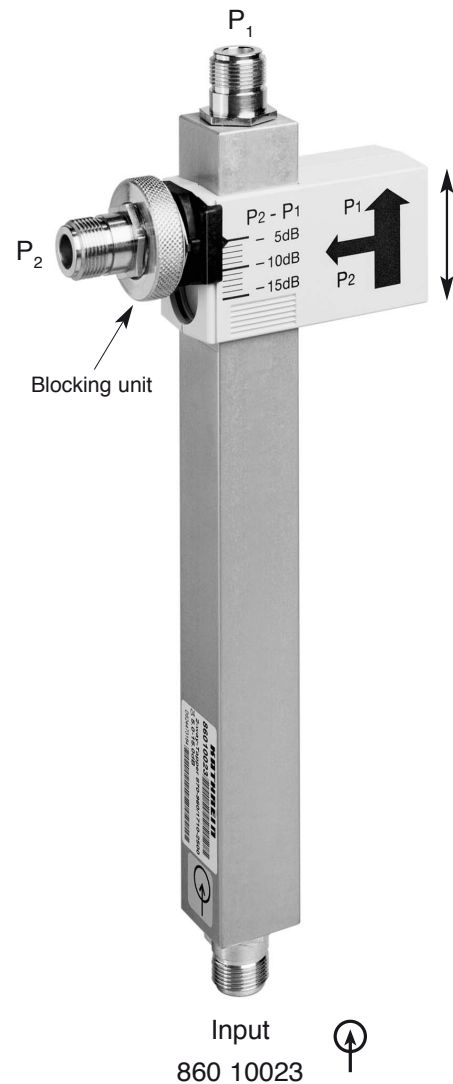
K 63 23 60 01: 2-way Tapper 824–960/1710–2170 5.0–15.0dB
860 10023: 2-way Tapper 870–960/1710–2500 5.0–15.0dB

| Type No. | K 63 23 60 01 | 860 10023 |
|--|--|--------------------------------------|
| Frequency range | 824 – 960 MHz and 1710 – 2170 MHz | 870 – 960 MHz and 1710 – 2500 MHz |
| Power ratio between outputs ($P_2 - P_1$) | –5.0 dB to –15.0 dB continuously adjustable | |
| For connecting ... antennas | 2 | |
| Insertion loss | < 0.1 dB | |
| Impedance | 50 Ω | |
| VSWR | < 1.7 | |
| Intermodulation IM3 (2 x 43 dBm carrier) | < –150 dBc | |
| Max. power | 100 W (at 50 °C ambient temperature) | |
| Connector | N female | |
| Weight | 0.5 kg | |
| Profile cross-section | 25 x 25 mm | |
| Packing size | 249 x 111 x 40 mm | 277 x 111 x 40 mm |
| Max. size | 235 / 100 / 25 mm | 263 / 100 / 25 mm |

Material: Housing: Aluminum.
 Inner conductor: Brass.
 Adjustment mechanism: ASA.

DC capability: DC transmission only between input and port P_1 .
 P_2 is coupled capacitively.

Environmental conditions: IP 52



Splitting table

| P_2 / P_1 [dB] | Splitting ratio P_1 / P_2 | Splitting attenuation | |
|------------------|--------------------------------|-------------------------------|-------------------------------|
| | | $P_{\text{Input}} - P_1$ [dB] | $P_{\text{Input}} - P_2$ [dB] |
| –5 | 3.2 | –1.2 | –6.2 |
| –6 | 4 | –1.0 | –7.0 |
| –7 | 5 | –0.8 | –7.8 |
| –8 | 6.3 | –0.6 | –8.6 |
| –9 | 8 | –0.5 | –9.5 |
| –10 | 10 | –0.4 | –10.4 |
| –11 | 12.6 | –0.3 | –11.3 |
| –12 | 15.8 | –0.3 | –12.3 |
| –13 | 20 | –0.2 | –13.2 |
| –14 | 25.1 | –0.2 | –14.2 |
| –15 | 31.6 | –0.1 | –15.1 |

- LCD Display works in direct sunlight and with backlight in dark areas.
- Built-in synthesized RF sweeping source.
- Measured results can be stored for further analysing and documentation on internal and external storage media
- Time stamp and operator ID is possible
- All in one analysing for antenna tuning and control
- FAT 2710 measures antenna, frequency, SWR and bandwidth by sweeping band of interest
- A cost-effective SWR Analyzer covering all major Cellular and mobile radio communication bands
- FAT 2710 gives you quick and reliable trouble-shooting



Specifications

| | |
|-----------------------------|---|
| Model | FAT 2710 (BN: 86817.001) |
| Application | Measurement of SWR in 50 Ω transmission lines |
| Frequency range | 30->2700 MHz entered as centre and span |
| Center Frequency | 30 to 2700 MHz. |
| Span | 0 to 2670 MHz. |
| Frequency stability | ± 50 ppm |
| Measurement range | 1.0<SWR<9.9, 0<dB<-30dB |
| Impedance | Nom. 50 Ω |
| Generator output | Approx. -4dBm |
| Max. input on test terminal | 100 mW |
| Tolerance on SWR reading | 30-650MHz $\pm 5\%$; 650-1450MHz $\pm 10\%$; and 1450-2700MHz $\pm 15\%$ |
| Operating temperature range | 0° C-> + 50° C |
| Storage temperature range | -30°C -> + 50° C |
| Connectors | "N"-female RF test connector. USB A type for memory key. USB B type for serial PC communication. Mini DIN for RS232 communication up to 38400 Baud |
| Power supply | 4 NiMH type AA rechargeable batteries (Batteries, NiMH rechargeable and 230VAC/7.5VDC charger supplied) |
| Auto Power off NOT OK | For battery economy, FAT 2710 automatically turns off 3 min. after last entry |
| Normal operating use | Fully charged: More than 10 hours. |
| Colour | Silver/blue |
| Width | 82 mm |
| Depth | 31 mm |
| Height | 165 mm |
| Weight | 500 gram (incl. Batteries) |
| EMC | Complies with directive 89/336EEC as amended by 92/31EEC and 93/68/EEC |
| Standards | Emissions: EN 61000-6-4: 2001 Immunity: EN 61000-6-2: 2005 |
| Accessory | Soft carrying bag with RF-adaptor set, car charging cable and two 7/16 connectors |
| Order Number for Accessory: | BN: 86817.101 |

Please contact for technical information and orders:

SCHOMANDL-Vertriebs-GmbH
Bahnhofstraße 108 · D-83224 Grassau/Germany
Telephone: 08641-403-140 · Telefax: 08641-403-264
e-mail: info@schomandl.de · Internet: <http://www.schomandl.de>

Display forward, reflected power and VSWR

2 GHz to 6 GHz

Diagnose 802.11a,b and g WLAN

Accessory:

Soft carrying bag with SMA 50 Ohm load 6 GHz, RPSMA male BN 86817.104 to SMA female Adaptor, SMA male to RPSMA, SMA male to SMA male Adaptor and special 2,4 GHz SMA Antenna



Specifications

| | |
|-------------------------------|--|
| Model No.: | 86817.004 |
| Frequency range: | 2 – 6 GHz |
| Insertion loss: | <0.4dB |
| Absolute accuracy : | ±1dB |
| Power range indicated: | 1µW – 999mW |
| VSWR indicated: | 1.01 – 9.99 : 1 |
| Directivity: | >30dB |
| Peak Detect of: | <1mS pulse |
| Auto Power off | 1 minute |
| Power Supply: | 3Volt (2 X AAA Alkaline) |
| Max power consumption: | 50 mA |
| Operating time (no backlight) | 20 Hours |
| Optional Accessories: | SMA to RPSMA adaptors |
| Belt clip | Option |
| EMI/RFI | EN55022 /B |
| Dimensions: | – Width: 58 mm – Depth: 23 mm – Height: 105 mm |
| Weight incl. Batteries: | approx. 130g |
| Temperature: | – Operating 0 to 40°C – Storage –20 to 80°C |
| Colour: | – Standard White/Grey |

Please contact for technical information and orders:
 SCHOMANDL-Vertriebs-GmbH
 Bahnhofstraße 108 · D-83224 Grassau/Germany
 Telephone: 08641-403-140 · Telefax: 08641-403-264
 e-mail: info@schomandl.de · Internet: http://www.schomandl.de

Broadcast RF Power Monitor Digital RF Power Meter



KATHREIN
Antennen · Electronic

Also available as 19" Rack mount Version:

1U Rack mount Power Monitor

including all options BN 86818.000

additional power, reflected power, VSWR calculation



Accessory:

UHF Probe 1 or 2 required BN 86818.101

VHF Probe 1 or 2 required BN 86818.102

Specifications for Broadcast Power Monitor with external coupler

| | |
|---|---|
| Model No.: | 86818.002 |
| Frequency range: (Coupler dependent) | 50 – 860 MHz |
| Coupling Flatness , from 6dB/octave Probes 3015,3016 | ±0,2dB |
| Absolute accuracy after offset adjustment: | ±0,2dB (±4%) |
| True RMS Power range: | -34 dBm to +10 dBm |
| Peak Power range: | +24 dBm |
| Dynamic range: | > 50 dB |
| Power readout: Auto range 1KW – 999KW | 1024 steps |
| Coupler attenuation VHF @ 100MHz: | 43 dB to 73 dB |
| Coupler attenuation UHF @ 500MHz: | 50 dB to 80 dB |
| VSWR readout: | 1,00:1-9,99:1 |
| Remote Temperature Sensing | 0 – 99°C |
| Remote Voltage Sensing | 0-100VDC |
| Remote Current Sensing | 0-3V DC (1024 bits) |
| Relay Out/Digital Out: | Open Collector 50V/0,5A |
| Controller out for SNMP or dialup | RS232 1200- 9600 Bps |
| Power Supply: – AC power: | 90-264V @ 50-60Hz |
| Max power consumption: – AC | 10V/A |
| EMI/RFI | EN55022 /B |
| Connectors: – RF sensors – Power AC in rear Options: – Analogue/digital – RS232 | DB9 Female IEC DB9 Female DB9 Male |
| Dimensions: – Width: 19" unit – Depth: 1HU | 482.5 mm 180 mm 44 mm |
| Dimensions: – Width: Stand alone unit – Depth: – Height: | 216 mm 180 mm 53 mm |
| Weight: | approx. 1.8 kg |
| Temperature: – Operating -Storage | 5 to 50°C 20 to 80°C |
| Colour: – standard | Silver Anodised |

Please contact for technical information and orders:

SCHOMANDL-Vertriebs-GmbH
Bahnhofstraße 108 · D-83224 Grassau/Germany
Telephone: 08641-403-140 · Telefax: 08641-403-264
e-mail: info@schomandl.de · Internet: <http://www.schomandl.de>

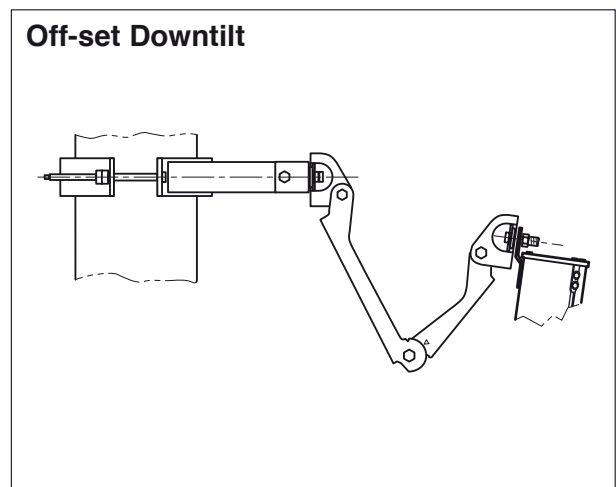
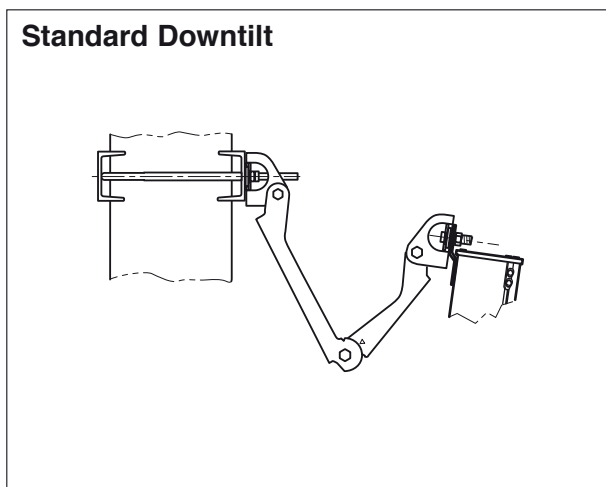
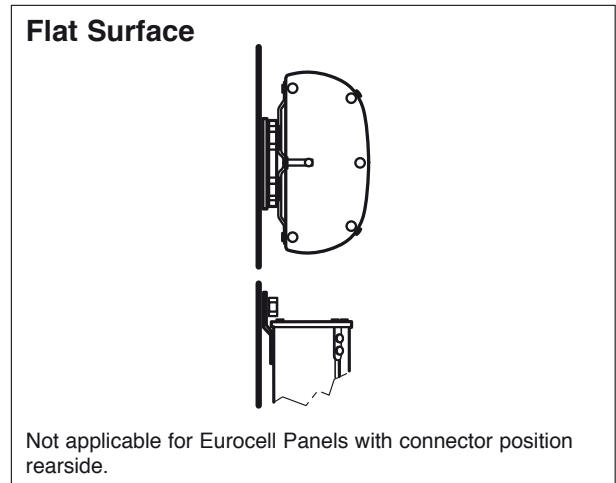
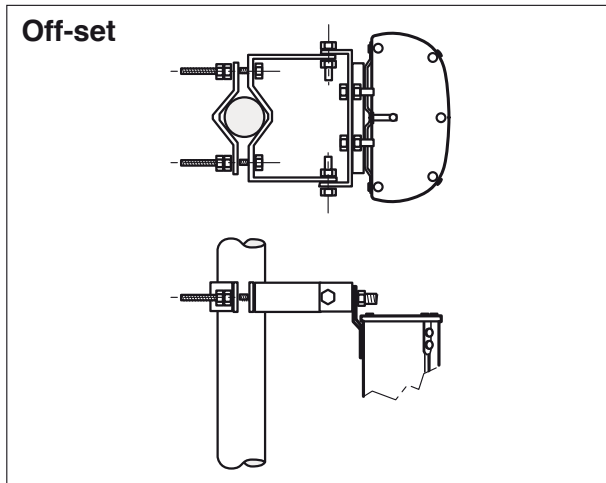
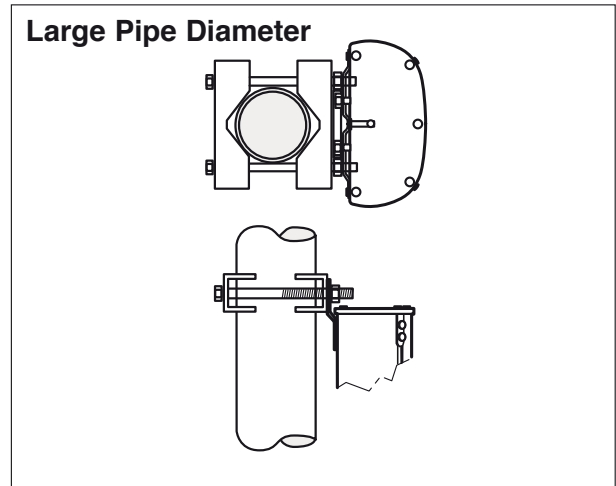
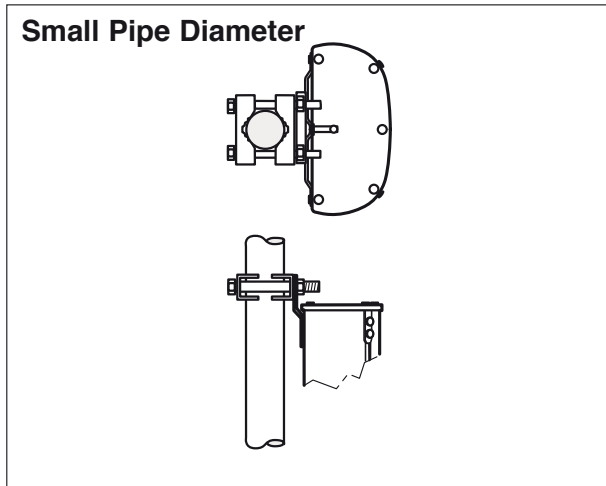
- Monitors RF fields
- Indicates RF pollution
- Alarm and Silent modes
- Broadband coverage
- General Safety According to WHO ICNIRP
- Alarm $2\text{W}/\text{m}^2$ or $10\text{W}/\text{m}^2$



Specifications for Safe One Personal Safety Monitor

| | |
|--|--|
| Model No.: | 86817.003 |
| Frequency range: | 10 – 10000 MHz |
| Frequency response | ICNIRP |
| Absolute accuracy 400–2500MHz: | $\pm 6\text{dB}$ |
| Power range indicated: | 0.1 – 100 W/m^2 |
| Field strength indicated: | 19 – 137 V/m |
| Dynamic range: | $>30\text{dB}$ |
| Audio Alarm | 80dBa |
| LED Alarm always enabled | 15mcd |
| Normal Mode Audio and LED Alarm: (–) | $2\text{W}/\text{m}^2$ – 28 V/m or $10\text{W}/\text{m}^2$ – 137 V/m |
| Timed Mode Silent in: (– –) | 5 minutes |
| Audible Alarm Off Mode: (– – –) | Never |
| Power Supply: | 3Volt (2 X AAA Alkaline) |
| Max power consumption no alarm: | 110 μA |
| Operating time (no Audio Alarm) | +500 Days |
| Belt clip included | |
| EMI/RFI | EN55022 /B |
| Dimensions: | |
| – Width: | 58 mm |
| – Depth: | 23 mm |
| – Height: | 105 mm |
| Weight incl. Batteries: | approx. 88g |
| Temperature: | |
| – Operating | -10 to 40°C |
| – Storage | -20 to 80°C |
| Colour: | |
| – Standard | Black/Grey |

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Panels XPol 800/900

30° Half-power Beam Width

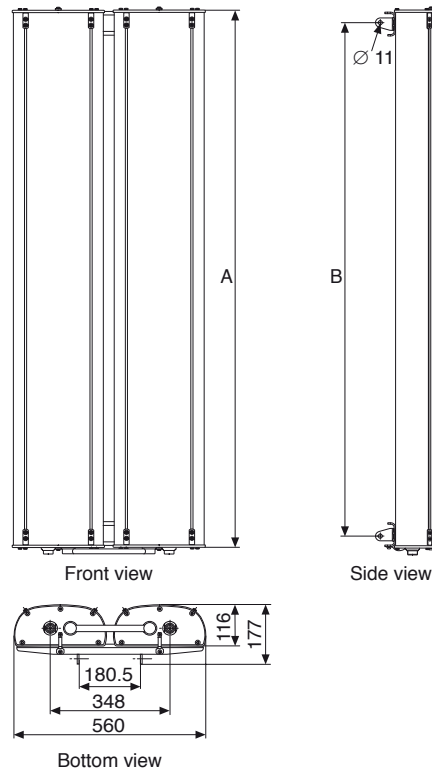
Antenna Dimensions

XPol Panels 800/900 with 30° Half-power Beam Width

width 560 mm

| | |
|---|---------|
| A | 1296 mm |
| B | 1224 mm |

A Corresponds with the antenna height mentioned in the technical data.

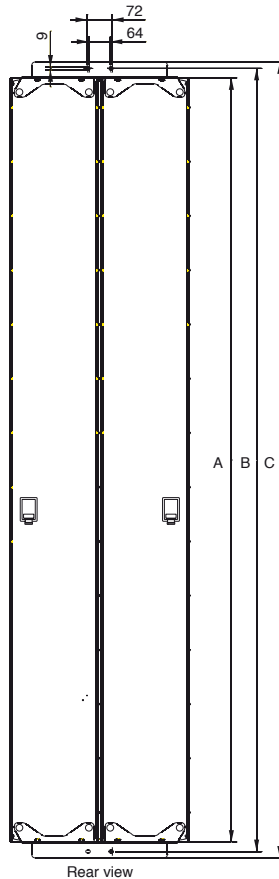
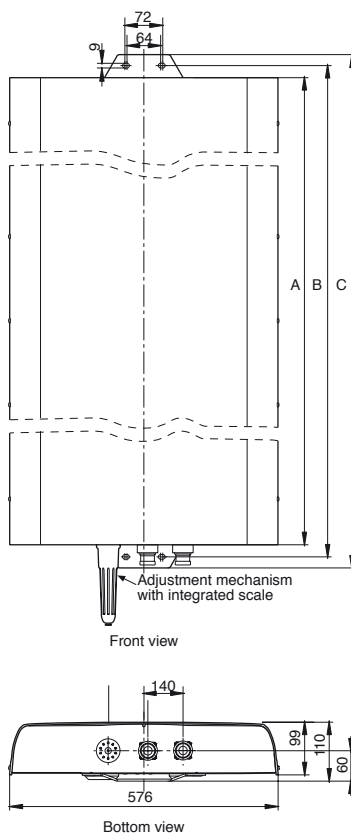


XPol Panels 800/900 with 30° Half-power Beam Width

width 576 mm

| | |
|---|---------|
| A | 2254 mm |
| B | 2284 mm |
| C | 2326 mm |

A Corresponds with the antenna height mentioned in the technical data.

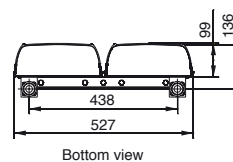


XPol Panels 800/900 with 30° Half-power Beam Width

width 527 mm

| | |
|---|---------|
| A | 2254 mm |
| B | 2313 mm |
| C | 2351 mm |

A Corresponds with the antenna height mentioned in the technical data.



Panels VPol / XPol / XXPol 800/900

60°/65°/88°/90° Half-power Beam Width

Antenna Dimensions

VPol Panel 800/900

width 258 mm

| | | | | | |
|---|--------|---------|---------|---------|---------|
| A | 264 mm | 1294 mm | 1934 mm | 2254 mm | 2574 mm |
| B | — | 1350 mm | 1990 mm | 2310 mm | 2630 mm |
| C | — | 1390 mm | 2030 mm | 2350 mm | 2670 mm |

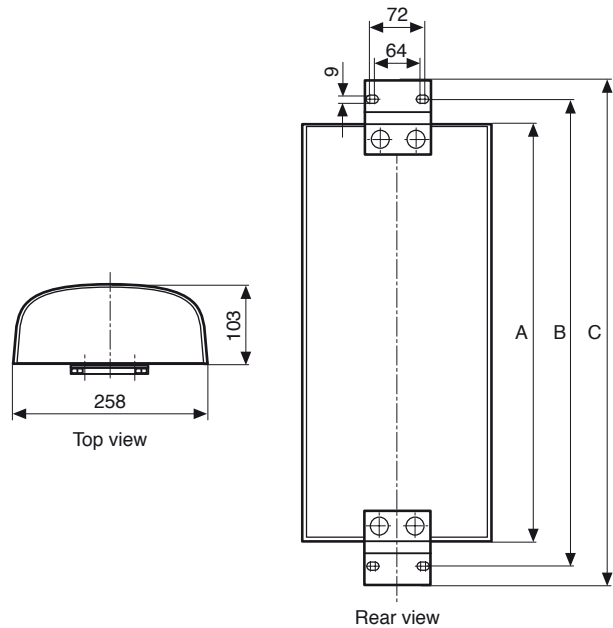
A Corresponds with the antenna height mentioned in the technical data.

XPol Panel 800/900

width 258 mm

| | | | | |
|---|---------|---------|---------|---------|
| A | 1294 mm | 1934 mm | 2254 mm | 2574 mm |
| B | 1340 mm | 1980 mm | 2300 mm | 2604 mm |
| C | 1382 mm | 2022 mm | 2342 mm | 2674 mm |

A Corresponds with the antenna height mentioned in the technical data.

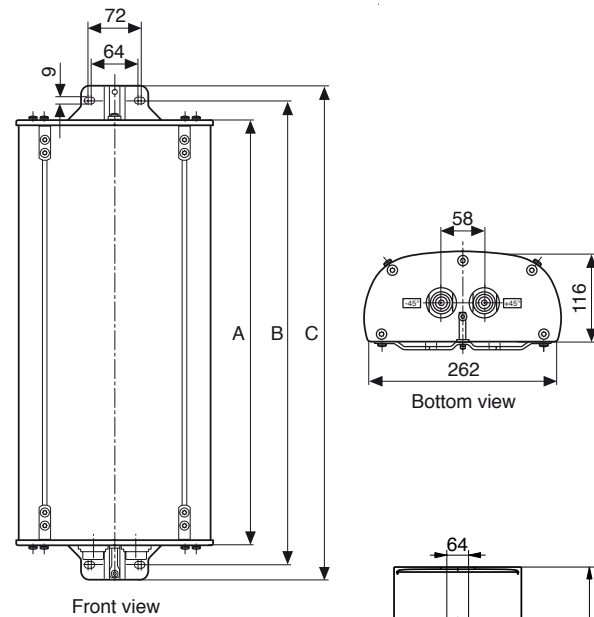


XPol Panel 800/900 XXPol Panel 900/1800 with 65° and 90° Half-power Beam Width

width 262 mm

| | | | | | |
|---|--------|--------|---------|---------|---------|
| A | 256 mm | 656 mm | 1296 mm | 1936 mm | 2580 mm |
| B | 310 mm | 710 mm | 1350 mm | 1990 mm | 2634 mm |
| C | 350 mm | 750 mm | 1390 mm | 2030 mm | 2674 mm |

A Corresponds with the antenna height mentioned in the technical data.

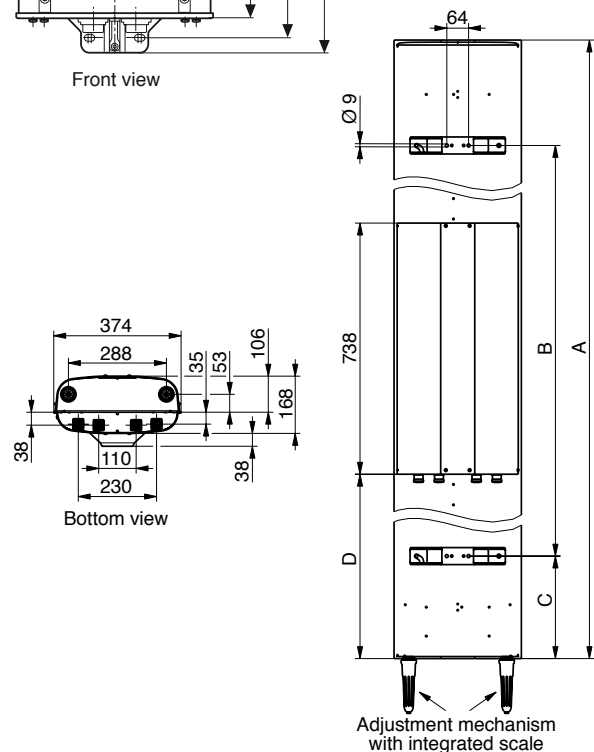


XXPol Panel 800/900 with 60°, 65° and 88° Half-power Beam Width

width 374 mm

| | | |
|---|---------|---------|
| A | 2024 mm | 2631 mm |
| B | 1490 mm | 2020 mm |
| C | 221 mm | 301 mm |
| D | 617 mm | 921 mm |

A Corresponds with the antenna height mentioned in the technical data.

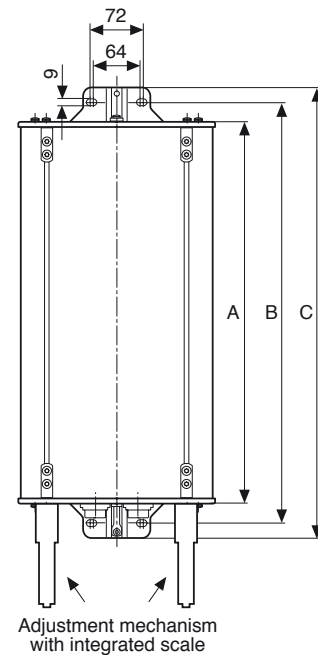
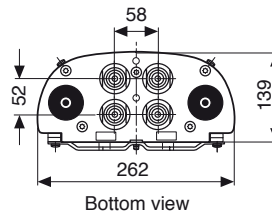


Panels Dual-band / Triple-band Antenna Dimensions

Dual-band XXPoI 800/900 / 1800/2000 with 65° Half-power Beam Width

| | | | | | | |
|---|--------|--------|---------|---------|---------|---------|
| A | 270 mm | 770 mm | 1316 mm | 1916 mm | 2516 mm | 2580 mm |
| B | 322 mm | 824 mm | 1367 mm | 1967 mm | 2567 mm | 2634 mm |
| C | 362 mm | 864 mm | 1407 mm | 2007 mm | 2607 mm | 2674 mm |

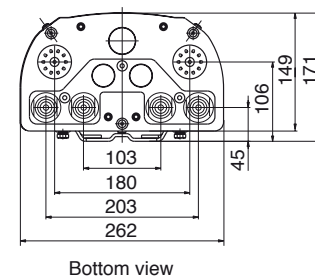
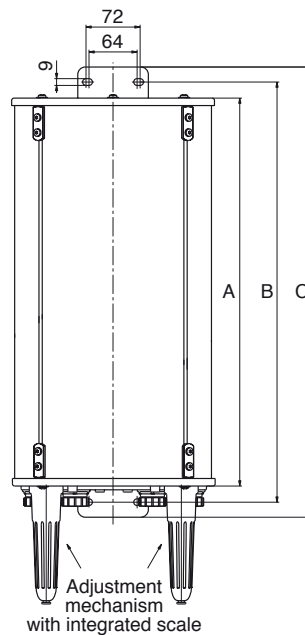
A Corresponds with the antenna height mentioned in the technical data.



Dual-band XXPoI Panel 800/900 / 1800/2000 with 90° Half-power Beam Width

| | | | |
|---|---------|---------|---------|
| A | 1384 mm | 1917 mm | 2635 mm |
| B | 1427 mm | 1960 mm | 2677 mm |
| C | 1467 mm | 2000 mm | 2717 mm |

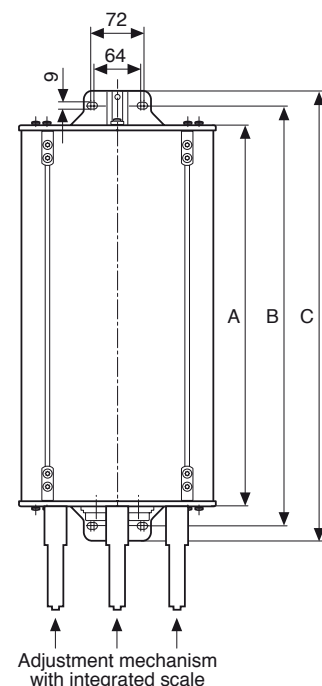
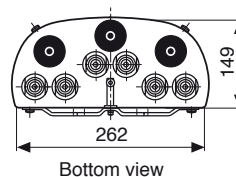
A Corresponds with the antenna height mentioned in the technical data.



Triple-band XXXPoI Panel 800/900 – 1800 – 2000 with 65° Half-power Beam Width

| | | | |
|---|---------|---------|---------|
| A | 1498 mm | 2058 mm | 2628 mm |
| B | 1541 mm | 2101 mm | 2671 mm |
| C | 1581 mm | 2141 mm | 2711 mm |

A Corresponds with the antenna height mentioned in the technical data.



Panels 1800 – 2700 MHz with 33° / 45° / 65° / 88° Half-power Beam Width Antenna Dimensions

Dimensions [mm]

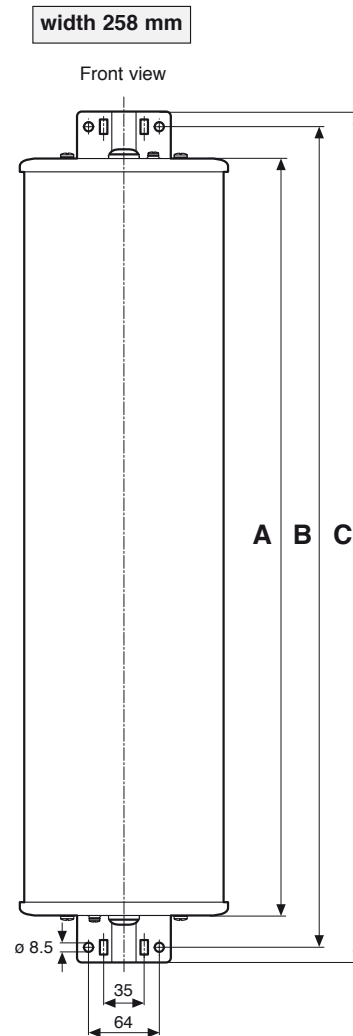
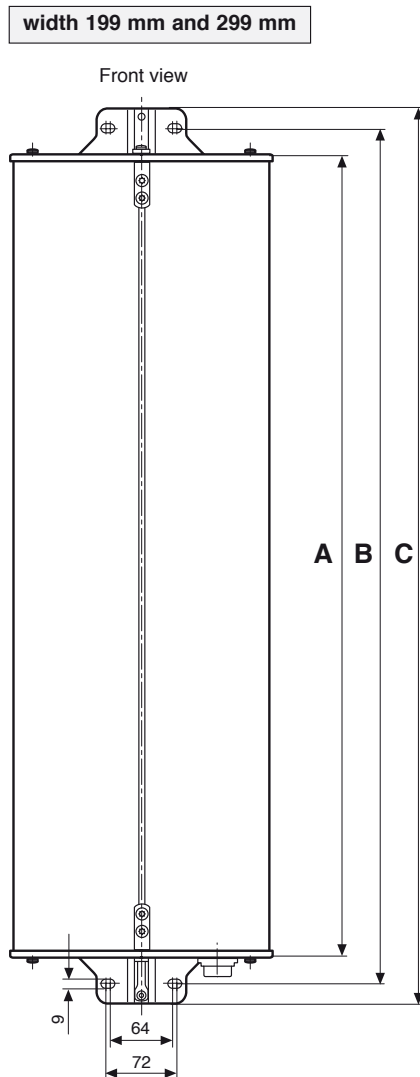
('A' corresponds to the antenna height given on the data sheet)

33° – 45° Half-power Beam Width

| A | B | C |
|------|------|------|
| 982 | 1036 | 1076 |
| 1032 | 1109 | 1149 |
| 1302 | 1356 | 1396 |
| 1304 | 1381 | 1421 |
| 1306 | 1412 | 1442 |
| 1942 | 1996 | 2036 |
| 1946 | 2052 | 2082 |

65° – 88° Half-power Beam Width

| A | B | C |
|------|------|------|
| 155 | 209 | 239 |
| 182 | 236 | 266 |
| 342 | 396 | 426 |
| 502 | 556 | 586 |
| 662 | 716 | 746 |
| 702 | 756 | 786 |
| 735 | 789 | 819 |
| 982 | 1036 | 1066 |
| 1302 | 1356 | 1386 |
| 1319 | 1384 | 1424 |
| 1358 | 1415 | 1445 |
| 1622 | 1676 | 1706 |
| 1942 | 1996 | 2026 |
| 2160 | 2214 | 2244 |
| 2172 | 2246 | 2276 |
| 2582 | 2636 | 2666 |

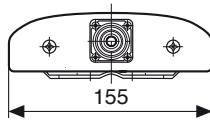


Panels 1800 – 2700 MHz

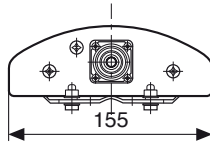
Detailed Connector Position

Antenna Dimensions

Vertical Polarization

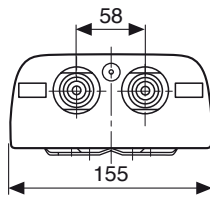


60° – 65° Half-power Beam Width

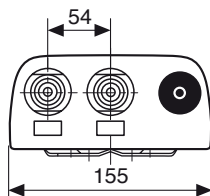


90° Half-power Beam Width

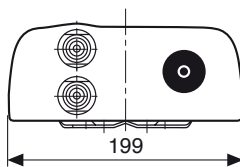
+45°/-45° Polarization



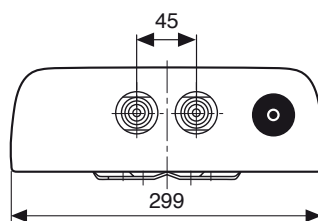
90° Half-power Beam Width



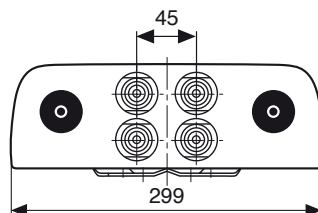
65° and 90° Half-power Beam Width
adjustable electrical downtilt



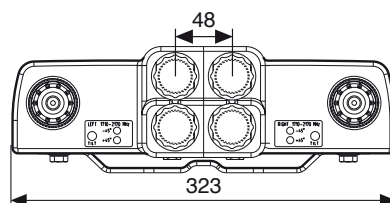
45° Half-power Beam Width
Multi-band
adjustable electrical downtilt



30° Half-power Beam Width
Multi-band
adjustable electrical downtilt



65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt



65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt

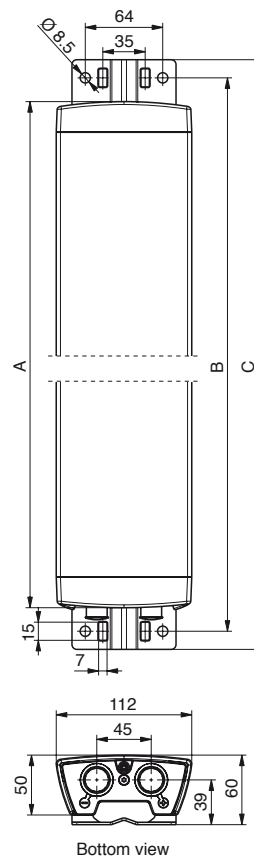
Panels XPol 3300 – 3800 MHz

Antenna Dimensions

XPol 65° 3300 – 3800 MHz

| | |
|---|--------|
| A | 736 mm |
| B | 775 mm |
| C | 805 mm |

A Corresponds with the antenna height mentioned in the technical data.



| Panel width [mm] Additional restriction | mast diameter [mm] | | 576 | 560 | 258 – 374 + 527 weight > 30 kg | 258 – 323 weight > 25 kg | 199 + 258 – 323 weight < 25 kg | 155 length > 1.4 m | 112 + 155 length < 1.4 m | pcs per ordered type * |
|--|--------------------|----------------|-----|-----|-----------------------------------|-----------------------------|-----------------------------------|-----------------------|-----------------------------|---------------------------|
| | Clamp Type No. | | | | | | | | | |
| Clamp Standard | | | | | | | | | | |
| 731 651 | | 28 – 64 | | | | | X | X | (X) | 1 pc |
| 738 546 | | 50 – 115 | X | | X | | X | X | (X) | 1 pc |
| 850 10002 | | 110 – 220 | X | | X | | X | X | (X) | 1 pc |
| 850 10003 | | 210 – 380 | X | | X | | X | X | (X) | 1 pc |
| Clamp Off Set | | | | | | | | | | |
| 733 677 | | 60 – 115 | | X | X | | X | X | (X) | 1 pc |
| 733 678 | | 115 – 210 | | X | X | | X | X | (X) | 1 pc |
| 733 679 | | 210 – 380 | | X | X | | X | X | (X) | 1 pc |
| 733 680 | | 380 – 521 | | X | X | | X | X | (X) | 1 pc |
| Clamp Special | | | | | | | | | | |
| 733 736 | | 50 – 125 | | X | | | | | | 2 pcs |
| K 61 14 03 | | 116 – 210 | | X | | | | | | 2 pcs |
| K 61 14 04 | | 210 – 380 | | X | | | | | | 2 pcs |
| K 61 14 05 | | 380 – 521 | | X | | | | | | 2 pcs |
| Tensionband | | | | | | | | | | |
| 734 360 | | 34 – 60 | | | | | | | X | 2 pcs |
| 734 361 | | 60 – 80 | | | | | | | X | 2 pcs |
| 734 362 | | 80 – 100 | | | | | | | X | 2 pcs |
| 734 363 | | 100 – 120 | | | | | | | X | 2 pcs |
| 734 364 | | 120 – 140 | | | | | | | X | 2 pcs |
| 734 365 | | 45 – 125 | | | | | | | X | 2 pcs |
| 3-Sector Clamp (3x 120°) | | | | | | | | | | |
| 742 263 | | 88.9 | | | | | | | X | 2 pcs |
| 742 033 | | 114.3 | | | | X | | | (X) | 2 pcs |
| 742 034 | | 139.7 | | | | X | | | (X) | 2 pcs |
| 2 Panel side-by-side mounting kit | | | | | | | | | | |
| 742 113 | | smaller panels | | | | | | | X | 2 pcs |
| 850 10006 | | broader panels | | | | X | | | (X) | 2 pcs |
| Azimuth adjustment kits | | | | | | | | | | |
| 850 10014 – 850 10017 | | | X | X | X | X | X | X | X | 2 pcs |

* Amount of needed pcs per antenna type, see page 188

X = allowed (X) = allowed, but not optimized

Mounting Hardware

Amount of needed clamps

VPoI 800/900

Antenna height: 2574 mm

All other Panels

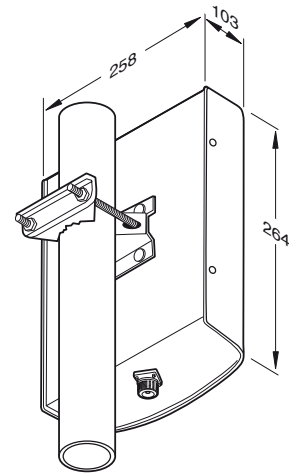
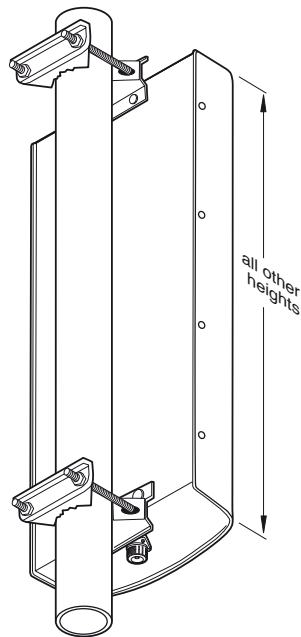
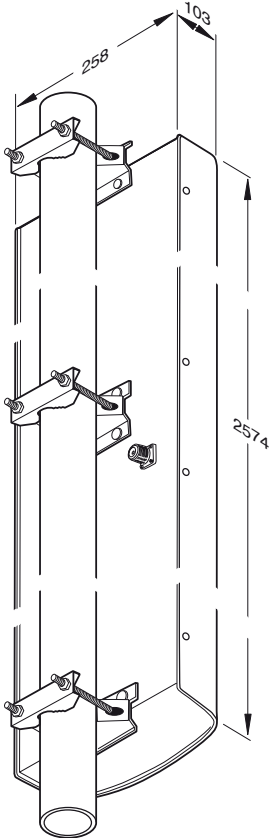
VPoI 800/900

Antenna height: 264 mm

Amount: 3 pcs

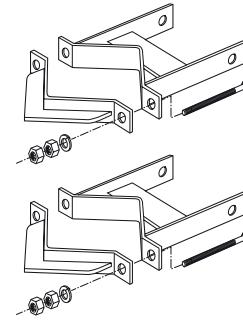
2 pcs

1 pc



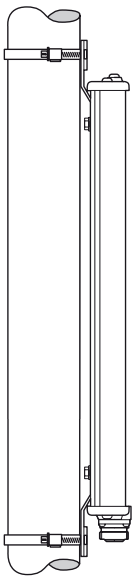
Clamp Types for XPol 800/900 with width 560 mm

| Type No. | Description | Remarks | Weight approx. | pcs per antenna |
|------------|-------------|-----------------------------|----------------|-----------------|
| 733 736 | 2 clamps | Mast: 50 – 125 mm diameter | 5.9 kg | 1 |
| K 61 14 03 | 2 clamps | Mast: 116 – 210 mm diameter | 4.6 kg | 1 |
| K 61 14 04 | 2 clamps | Mast: 210 – 380 mm diameter | 6.5 kg | 1 |
| K 61 14 05 | 2 clamps | Mast: 380 – 521 mm diameter | 9.4 kg | 1 |



Pair of clamps K 61 14 03

Clamp types for Panels with width 112 mm and 155 mm (height < 1.4 m)

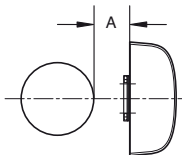
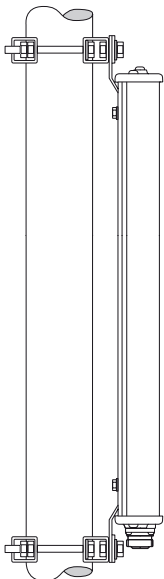


| Type No. | Mast diameter | Antenna height | Weight approx. | pcs per antenna |
|----------|---------------|-----------------|----------------|-----------------|
| 734 360 | 34 – 60 mm | 182 ... 1302 mm | 60 g | 1 |
| 734 361 | 60 – 80 mm | 182 ... 1302 mm | 70 g | 1 |
| 734 362 | 80 – 100 mm | 182 ... 1302 mm | 80 g | 1 |
| 734 363 | 100 – 120 mm | 182 ... 1302 mm | 90 g | 1 |
| 734 364 | 120 – 140 mm | 182 ... 1302 mm | 110 g | 1 |
| 734 365 | 45 – 125 mm | 182 ... 1302 mm | 80 g | 1 |

Type No. 734 362



All other Panels



| Description | Mast diameter | Type No. | Distance A mm | Weight approx. | pcs per antenna |
|-------------|---------------|-----------|---------------|----------------|-----------------|
| Small Pipe | 28 – 64 mm | 731 651 | 22 – 30 | 330 g | see page 188 |
| Large Pipe | 50 – 115 mm | 738 546 | 18 – 26 | 1.0 kg | see page 188 |
| | 110 – 220 mm | 850 10002 | 47 – 56 | 2.7 kg | see page 188 |
| | 210 – 380 mm | 850 10003 | 48 – 69 | 4.8 kg | see page 188 |
| Off-set | 60 – 115 mm | 733 677 | 117 – 124 | 2.0 kg | see page 188 |
| | 115 – 210 mm | 733 678 | 146 – 160 | 2.6 kg | see page 188 |
| | 210 – 380 mm | 733 679 | 148 – 168 | 4.0 kg | see page 188 |
| | 380 – 521 mm | 733 680 | 150 – 175 | 5.3 kg | see page 188 |

| 731 651 | 738 546 | 733 678 |
|---------|---------|---------|
| | | |

3 Sector Panel Arrangement

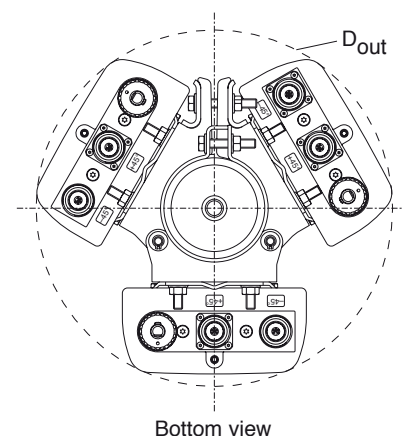
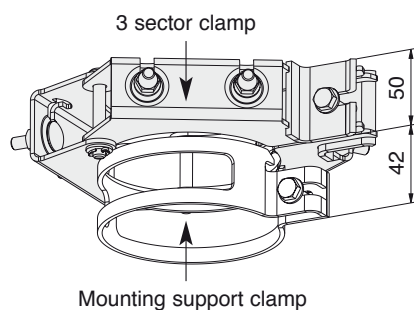
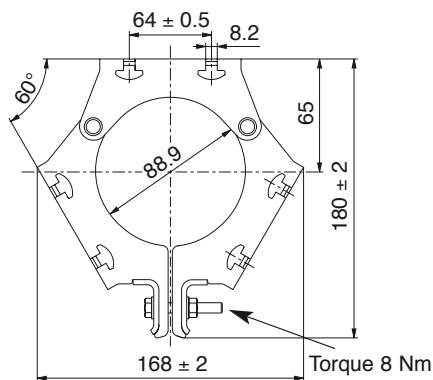
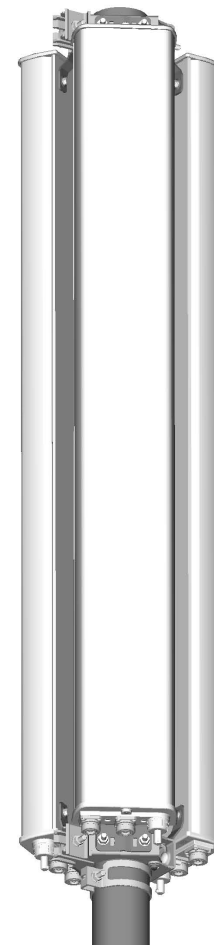
3 Sector Clamp Kit

for Panels width 112 mm and 155 mm

- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all Panels with an antenna housing width of 112 mm and 155 mm

3 Sector Clamp Kit

| | |
|---|---|
| Type No. | 742 263 |
| Angle between antennas | 120° |
| Suitable for mast diameter | 88.9 mm |
| Number of pieces | 2 x 3 sector clamp 2 x mounting support clamp |
| Material | Hot-dip galvanized steel Aluminum Stainless steel |
| Outer diameter (D _{out}) of the 3 F-Panel Arrangement | 315 mm |
| Weight | 3.0 kg 1.4 kg |
| Remark | This clamp kit is not suitable for use with additional mechanical downtilt kits |



Panels VPol / XPol 800/900 XXPoI 800/900 / 1800/2000

3 Sector Panel Arrangement – Mounting Hardware

3 Sector Clamp Kit / Pipe Mast with Flange Base

- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all Panels with an antenna housing width less than 350 mm

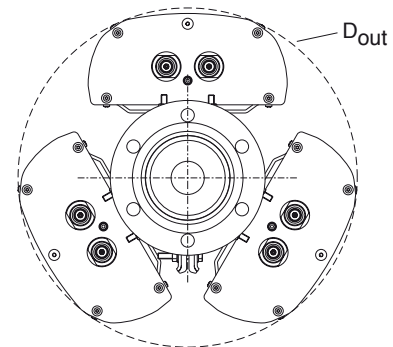
Please note:

If downtilt kits are used the complete weight per sector (antenna and accessories) is limited to 30 kg.

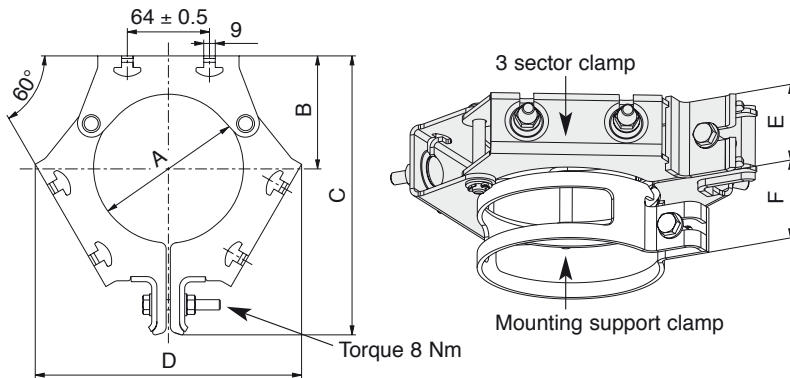
Does not fit for Panels with connector position “Rearside, pointing downwards”.

3 Sector Clamp Kit

| Type No. | 742 033 | 742 034 |
|---|---|--|
| Angle between antennas | 120° | 120° |
| Suitable for mast diameter | 114.3 mm | 139.7 mm |
| Type no. of pipe mast (please order separately) | 742 035 | 742 036 |
| Number of pieces | 2 x 3 sector clamp 2 x mounting support clamp | 2 x 3 sector clamp 2 x mounting support clamp |
| Material | –3 sector clamp –Mounting support clamp –Screws | Hot-dip galvanized steel Aluminum |
| | Stainless steel | Stainless steel |
| Outer diameter (D _{out}) of the | | |
| 3 A-Panel Arrangement | 460 mm | 482 mm |
| 3 Dual-band A-Panel Arr. | 511 mm | 533 mm |
| 3 Triple-band A-Panel Arr. | 532 mm | 555 mm |
| Weight | –Clamp kit –3 sector clamp | 3.0 kg 1.4 kg |
| | | 3.2 kg 1.5 kg |



Bottom view without downtilt kit



| Type No. | A | B | C | D | E | F |
|----------|-------|-----|-----|-----|----|----|
| 742 033 | 114.3 | 88 | 217 | 207 | 49 | 45 |
| 742 034 | 139.7 | 100 | 236 | 228 | 49 | 45 |

all dimensions in mm

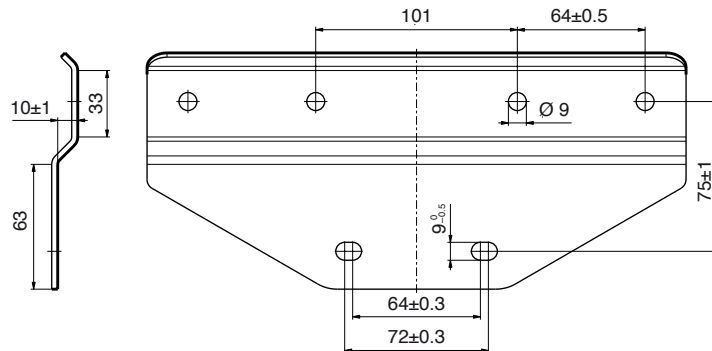
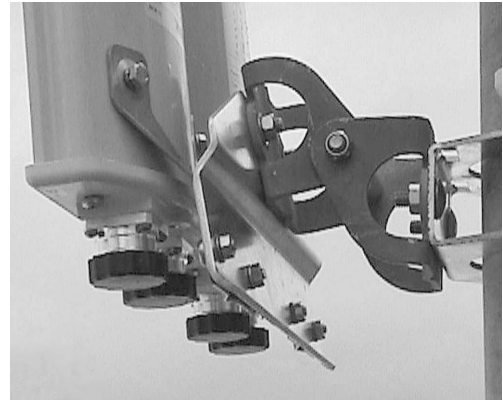
Panel Accessories

2 x Panel Mounting Kit for Panels width 112 mm and 155 mm

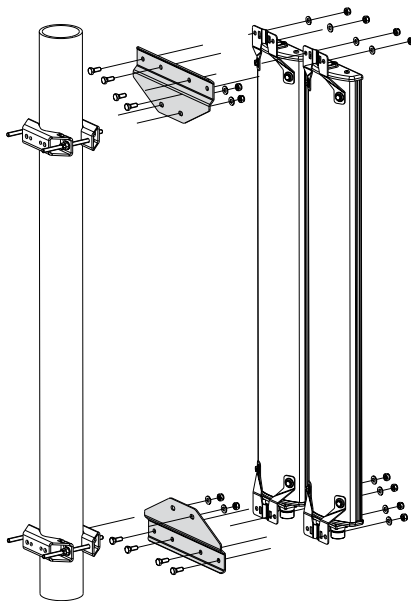
- For arranging two Panels 65°, 90° side by side.
- The mounting kit consists of two mounting plates.

2 x Panel Mounting Kit

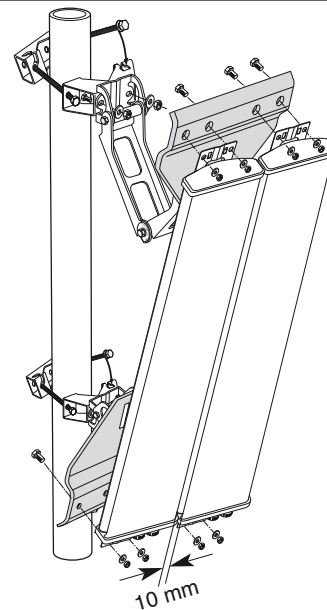
| | |
|--|--------------------------|
| Type No. | 742 113 |
| No of units | 2 |
| Suitable for Panels 65°, 90° with max. height of | 2 m |
| Material | Hot-dip galvanized steel |
| Weight | approx. 1.6 kg |
| Mounting | Screws are supplied |



Configuration without mechanical downtilt



Configuration with mechanical downtilt



Use the 2 x Panel Mounting Kit together with the following mounting accessories

| Type No. | Description | Remarks | Weight approx. | Units per antenna |
|----------|----------------|---|----------------|-------------------|
| 738 546 | 1 clamp | Mast: 50 – 115 mm diameter | 1.0 kg | 2 |
| 733 677 | 1 offset clamp | Mast: 60 – 115 mm diameter | 2.0 kg | 2 |
| 733 678 | 1 offset clamp | Mast: 115 – 210 mm diameter | 2.6 kg | 2 |
| 733 679 | 1 offset clamp | Mast: 210 – 380 mm diameter | 4.0 kg | 2 |
| 733 680 | 1 offset clamp | Mast: 380 – 521 mm diameter | 5.3 kg | 2 |
| 737 978 | 1 downtilt kit | Downtilt angle: depending on antenna height | 2.8 kg | 1 |

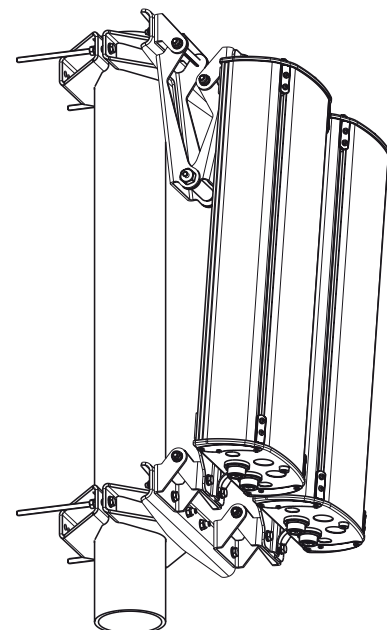
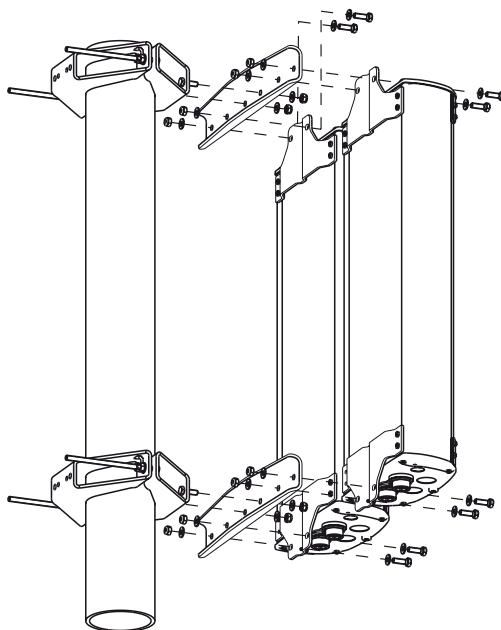
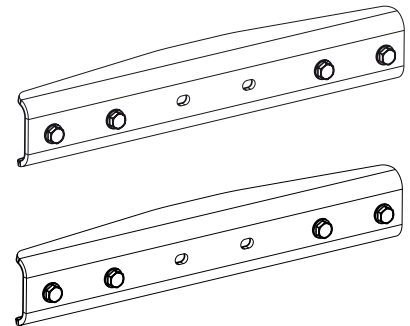
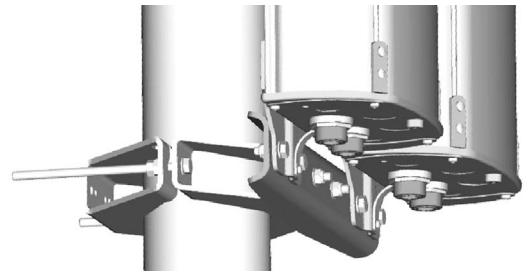
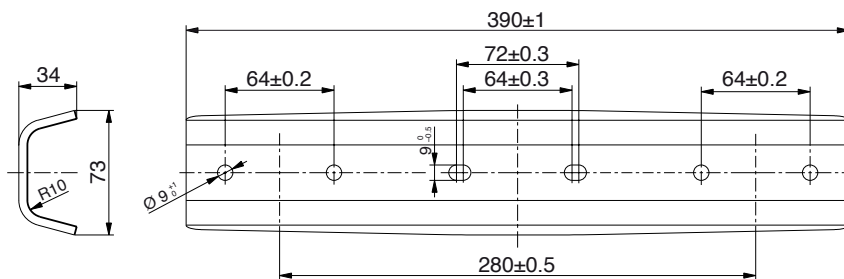
For a three sector panel arrangement, use the mounting kit type no. 742 113 together with the three sector clamp (see page 191). Three sector clamp 742 263 is not allowed.

Panels VPol / XPol 800/900 Panels XXPoI 800/900 / 1800/2000 2 x Panel Mounting Kit

Use this mounting kit only for Panels with a maximum width of 262 mm and less than 25 kg each.

| | |
|---|---|
| Type No. | 850 10006 |
| No. of pieces | 2 x brackets |
| Suitable for Panels 65°, 90° with a max. height | 2.6 m |
| Material: – Clamp – Screws | Hot-dip galvanized steel Stainless steel |
| Weight | Approx. 3.3 kg |
| Mounting | Screws are supplied |

Recommended torque for M8 bolted connections: 12 Nm



Mounting Accessories (order separately)

Clamps (only the listed clamps are allowed!)

| Type No. | Description | Remarks | Weight approx. | Units per antenna |
|-----------|-------------|-----------------------------|----------------|-------------------|
| 850 10002 | 1 clamp | Mast: 110 – 220 mm diameter | 2.7 kg | 2 |
| 850 10003 | 1 clamp | Mast: 210 – 380 mm diameter | 4.8 kg | 2 |

Please choose the fitting downtilt kit that you need, from the antenna datasheet.

Matrix of Downtilt kits Usage with Clamps Possible Combinations

| Downtilt kit Type No. | | 733 695 | 737 971 – 737 978 | 850 10007 weight > 25 kg | 732 317 – 732 327 |
|--|-----------------------|---------|----------------------|-----------------------------|----------------------|
| Clamp Type No. | mast diameter [mm] | | | | |
| Clamp Standard | | | | | |
| 731 651 | 28 – 64 | | X | | |
| 738 546 | 50 – 115 | | X | X | (X) |
| 850 10002 | 110 – 220 | | X | X | (X) |
| 850 10003 | 210 – 380 | | X | X | (X) |
| Clamp Off Set | | | | | |
| 733 677 | 60 – 115 | | X | | (X) |
| 733 678 | 115 – 210 | | X | | (X) |
| 733 679 | 210 – 380 | | X | | (X) |
| 733 680 | 380 – 521 | | X | | (X) |
| Clamp Special | | | | | |
| 733 736 | 50 – 125 | X | | | |
| K 61 14 03 | 116 – 210 | X | | | |
| K 61 14 04 | 210 – 380 | X | | | |
| K 61 14 05 | 380 – 521 | X | | | |
| Tensionband | | | | | |
| 734 360 | 34 – 60 | | | | X |
| 734 361 | 60 – 80 | | | | X |
| 734 362 | 80 – 100 | | | | X |
| 734 363 | 100 – 120 | | | | X |
| 734 364 | 120 – 140 | | | | X |
| 734 365 | 45 – 125 | | | | X |
| 3-Sector Clamp (3x 120°) | | | | | |
| 742 263 | 88.9 | | X | | X |
| 742 033 | 114.3 | | X | X | X |
| 742 034 | 139.7 | | X | X | X |
| 2 Panel side-by-side mounting kit | | | | | |
| 742 113 | smaller panels | | X | | |
| 850 10006 | broader panels | | X | X | |

X = allowed (X) = allowed, but not optimized

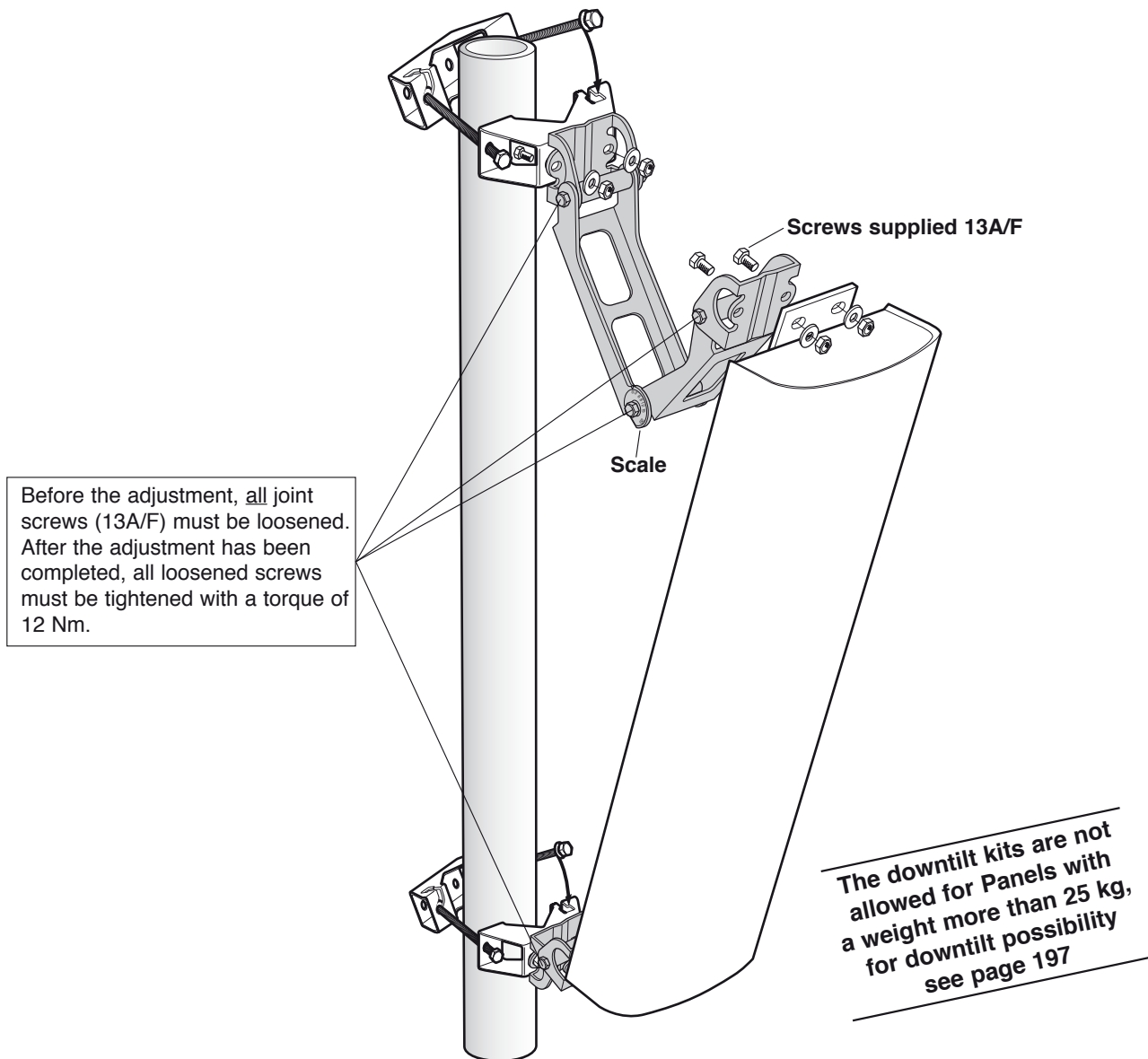
Please check usage per antenna type on the following pages!

Panels VPol / XPol

Standard Downtilt kit

Antenna height: 654 – 735 mm
 974 – 1032 mm
 1294 – 1306 mm
 1622 mm
 1934 – 1946 mm
 2254 / 2256 mm

Use the downtilt kit together with the clamps (see page 194)



For heights not mentioned in this table please use downtilt kit 737 978.

| Downtilt angle | | Downtilt kit with scale | Downtilt kit without scale* | Weight |
|----------------|----------------|-------------------------|-----------------------------|----------------|
| Antenna height | Downtilt angle | Type No. | Type No. | |
| 654 – 656 mm | 0° – 30° | 737 972 | 737 978 | approx. 2.8 kg |
| 974 – 982 mm | 0° – 21° | 737 973 | | |
| 1294 – 1306 mm | 0° – 16° | 737 974 | | |
| 1622 mm | 0° – 12° | – | | |
| 1934 – 1946 mm | 0° – 11° | 737 975 | | |
| 2254 / 2256 mm | 0° – 9° | 737 977 | | |

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

Panels VPol / XPol

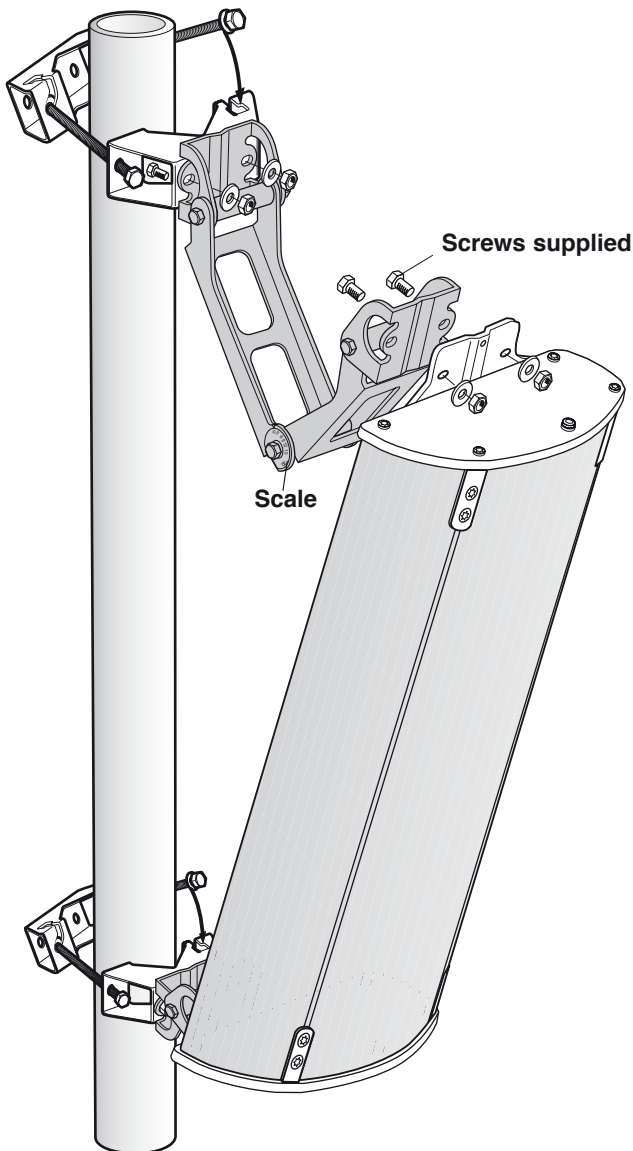
Downtilt kits

for height 2574 – 2582 mm

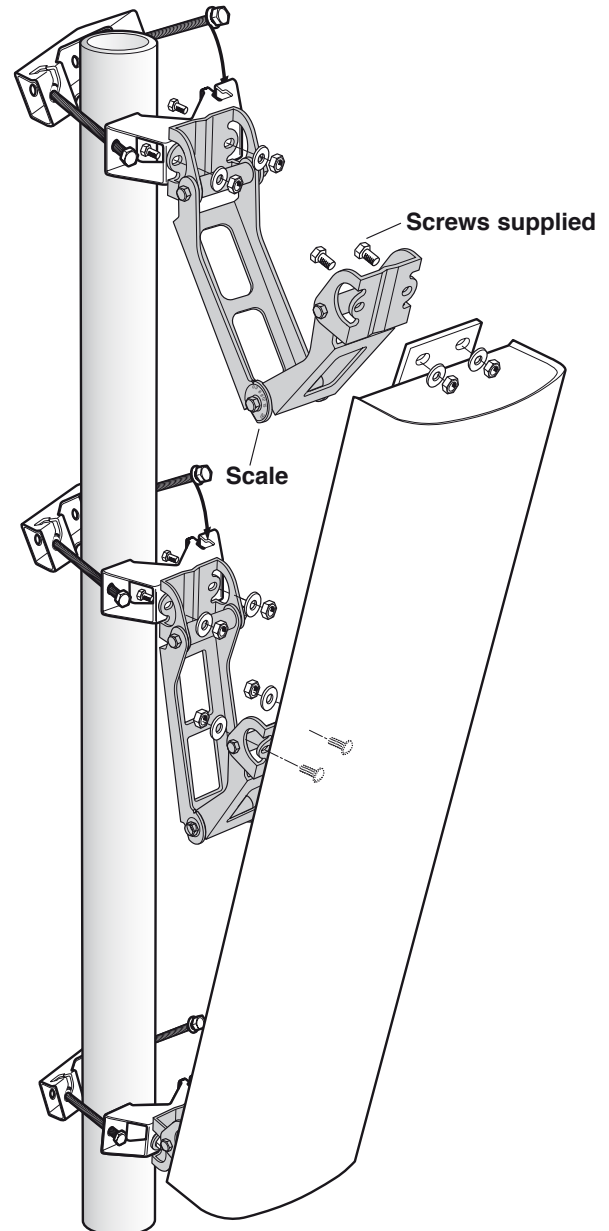
Suitable for:

XPol Panels with an
antenna height of 2574 – 2582 mm

VPol Panels with an
antenna height of 2574 mm



Type No. 737 971
Downtilt angle: 0° – 8°



Type No. 737 976
Downtilt angle: 0° – 8°

The downtilt kits are not
allowed for Panels with
a weight more than 25 kg,
for downtilt possibility
see page 197

**The downtilt kits should only be mounted with clamps
738 546, 850 1002, 850 1003**

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

Panels VPol / XPol

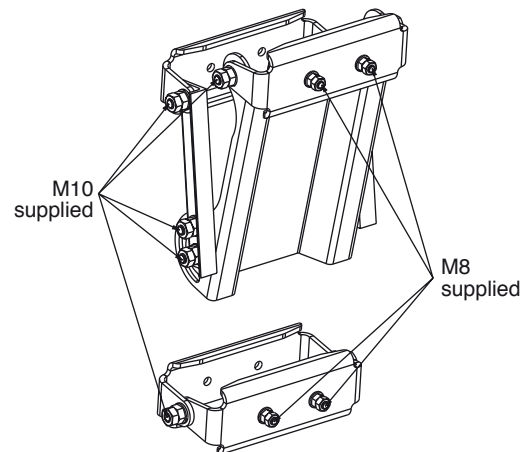
Downtilt Kit

Antenna Weight > 25 kg

Special downtilt kit for Panel antennas with a weight greater than 25 kg.

Downtilt kit

| | |
|------------------------|--|
| Type No. | 850 10007 |
| Preferred range of use | <ul style="list-style-type: none"> - Panel antennas with a weight of ≥ 25 kg - Panel antennas with attached mounting plates - Downtilt kit without scale for universal use |
| Weight | 5.9 kg |
| Material | Hot-dip galvanized steel |
| All screws and nuts | Stainless steel |



Recommended mast clamps:

| Type No. | Description | Mast diameter | Weight approx. | Units per antenna |
|-----------|-------------|---------------|----------------|-------------------|
| 738 546 | 1 clamp | 50 – 115 mm | 1.0 kg | 2 |
| 850 10002 | 1 clamp | 110 – 220 mm | 2.7 kg | 2 |
| 850 10003 | 1 clamp | 210 – 380 mm | 4.8 kg | 2 |

Recommended torque for all bolted connections:

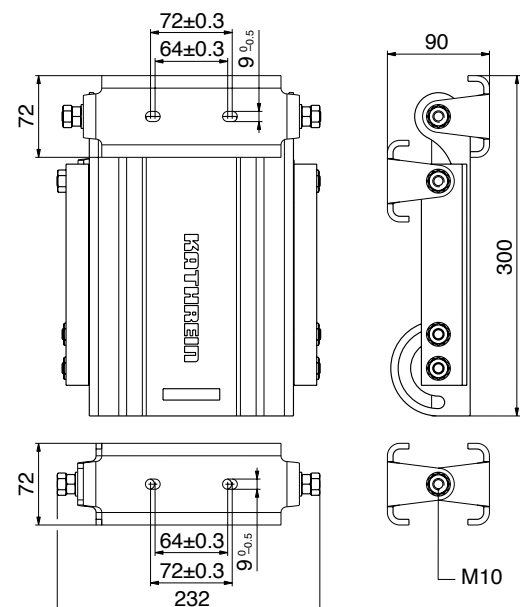
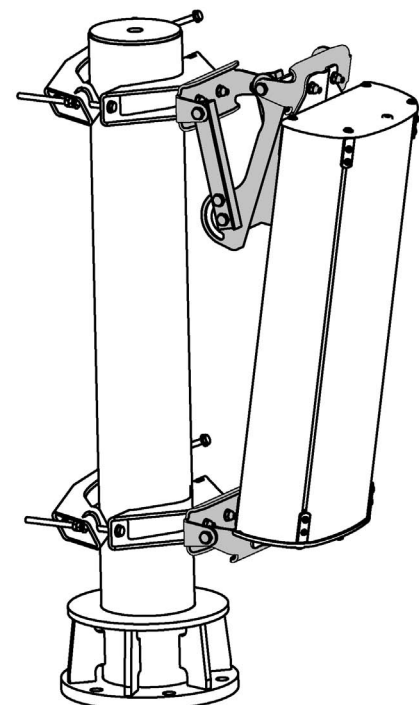
| Screw size | Torque |
|------------|--------|
| M8 | 12 Nm |
| M10 | 26 Nm |

Maximum acceptable load:

| | |
|-------------------|--------------|
| Frontal wind load | < 2500 N |
| Lateral wind load | < 830 N |
| Antenna weight | ≤ 50 kg |

Downtilt angle

| Antenna height | Downtilt angle |
|----------------|----------------|
| 1498 mm | 0° – 15° |
| 2058 mm | 0° – 11° |
| 2516 mm | 0° – 8° |
| 2628 mm | 0° – 8° |



Panels VPol / XPol Mounting Accessories

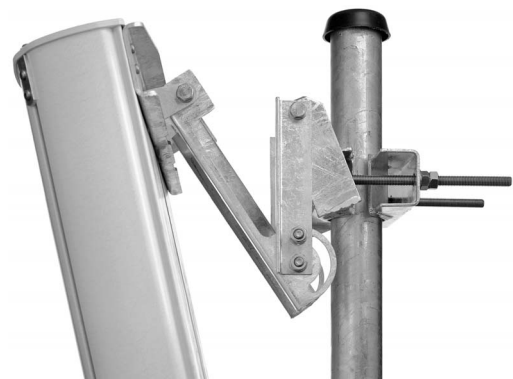
KATHREIN

Antennen · Electronic

Panels width 560 mm or 112 and 155 mm (height < 1.4 m)

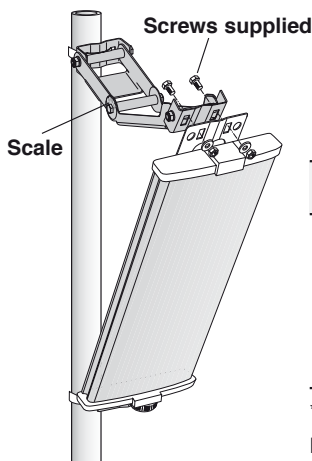
Downtilt kits for XPol 30° width 560 mm

| Antenna height | Downtilt angle | Type No. | Weight |
|----------------|----------------|----------|--------|
| 1296 mm | 0 – 16° | 733 695 | 3.4 kg |



Downtilt kit 733 695

Downtilt Kits with Type No. 732 ... are suitable for Panels width 112 mm and 155 mm height < 1.4 m

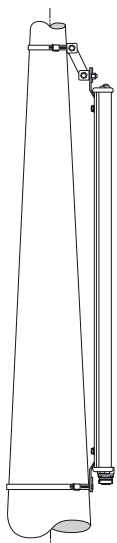


Use the downtilt kit together with the clamps (see page 187).

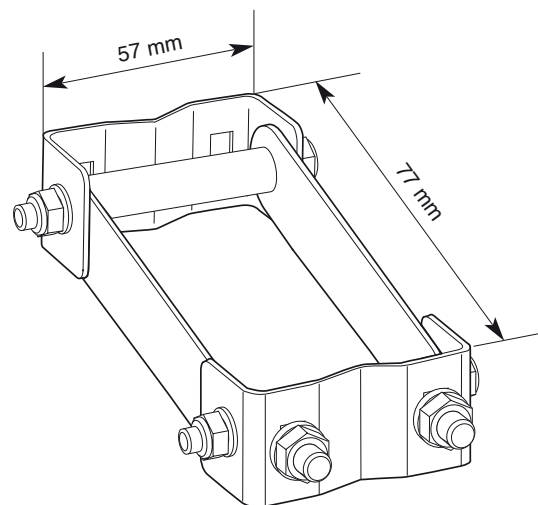
| Antenna height | Downtilt angle | Downtilt kit with scale | Downtilt kit without scale* | Weight |
|----------------|----------------|-------------------------|-----------------------------|----------------|
| | | Type No. | Type No. | |
| 342 mm | 0° – 40° | – | | approx. 1.0 kg |
| 502 mm | 0° – 25° | 732 322 | | |
| 662 mm | 0° – 20° | 732 321 | 732 327 | |
| 982 mm | 0° – 14° | 732 318 | | |
| 1302 mm | 0° – 10° | 732 317 | | |

* Instructions to adjust the required downtilt angle are given in the datasheet or on the reverse side of the antenna.
Mounting a downtilt kit enlarges the spacing between mast and antenna by 42 mm.

Slant Compensation Kit Type No. 732 319 for Panels width 112 mm and 155 mm

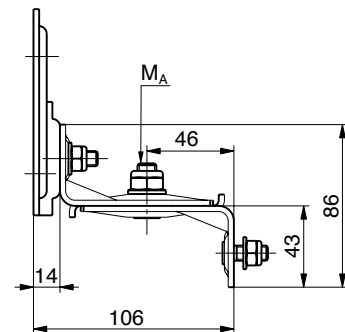
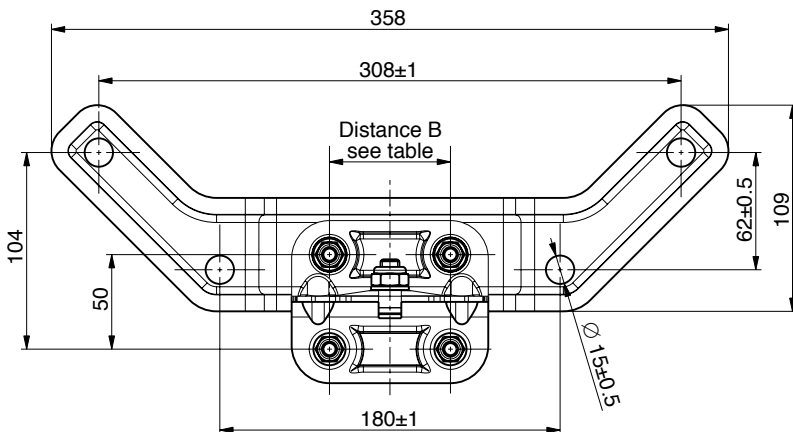
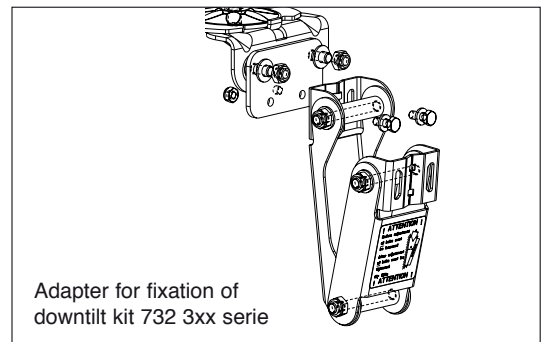
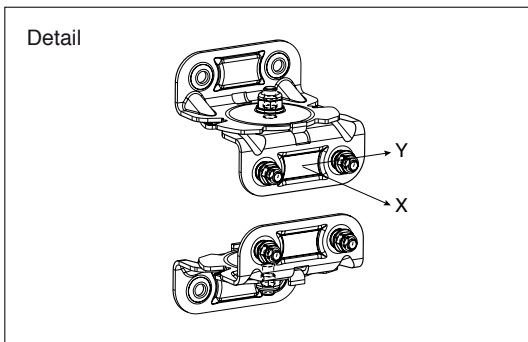
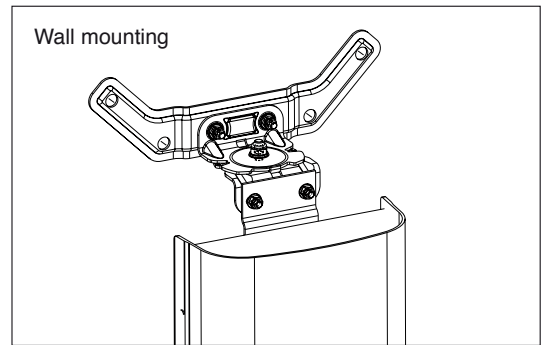
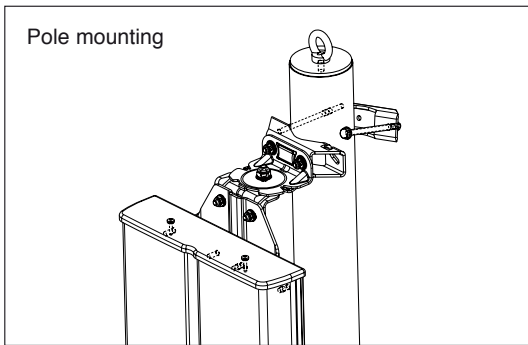


Use the slant compensation kit type no. 732 319 together with the clamps (see page 187).



Weight: approx. 200 g

All Panels Mounting Hardware Azimuth Adjustment Kits



The azimuth adjustment kit for pole mounting can be mounted with all suitable clamps, 3-Sector clamps and 2x Panel mounting kits (with the latter only as an interface between mounting kit and antenna).

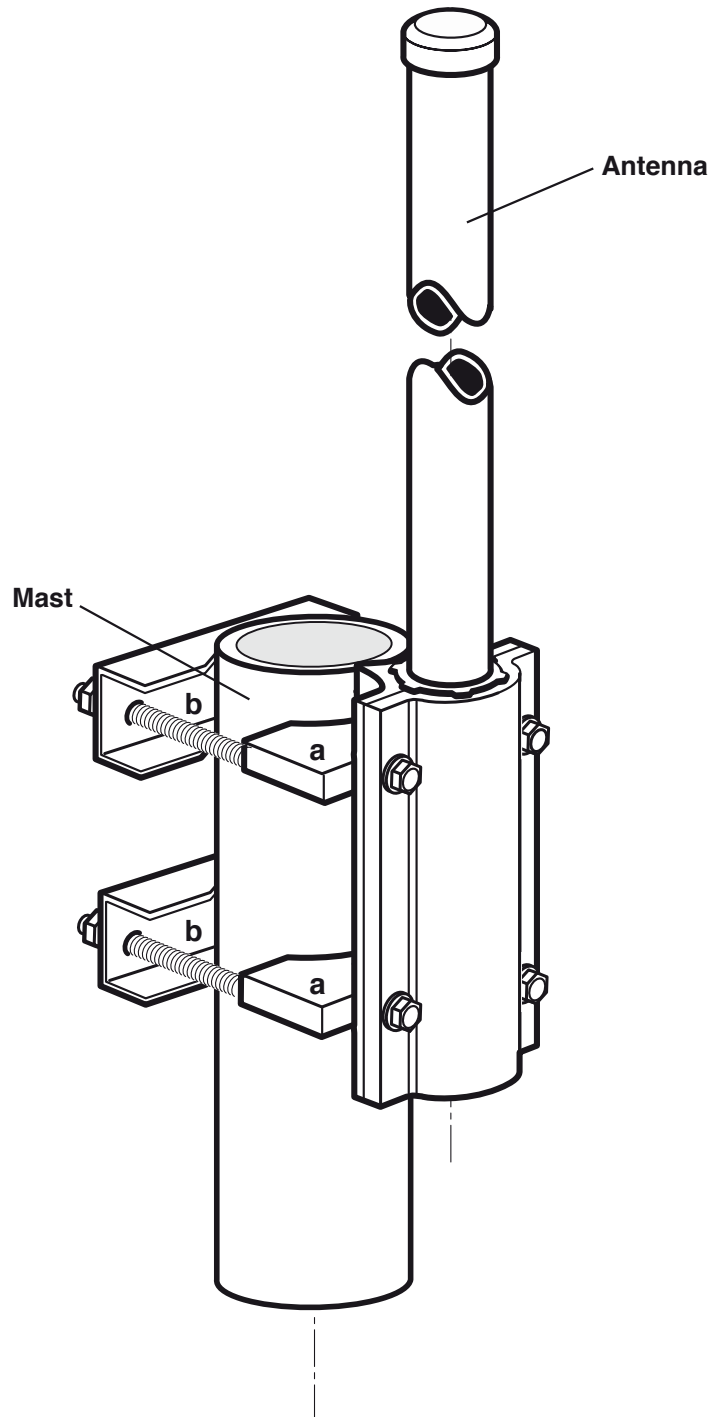
| Type No. | 850 10014 | 850 10015 | 850 10016 | 850 10017 |
|------------------------------------|--|----------------|--|----------------|
| Suitable for | pole mounting | | wall mounting | |
| Number of pieces | 2 brackets | 2 brackets | 2 brackets | 2 brackets |
| Distance between screws [B] | 64 mm | 72 mm | 64 mm | 72 mm |
| Angular range | ± 30° | | ± 30° | |
| Weight / kit | approx. 1260 g | approx. 1260 g | approx. 2500 g | approx. 2500 g |
| Supplied mounting accessories | all screws | | Screws and dowels for wall fastening are not supplied, they must be chosen by installer according to on-site requirements. | |
| | Adapter for downtilt kit 732 3xx serie | | Adapter for downtilt kit 732 3xx serie | |
| Materials | Parts are hot-dip galvanized steel; Captive nuts are stainless steel | | | |
| Max. permissible static load / kit | | | | |
| – X direction | 2150 N | 5100 N | 2150 N | 5100 N |
| – Y direction | 760 N | 1350 N | 760 N | 1350 N |

**Recommended torque: Screws M6: 8 Nm; Screws M8: 20 Nm; MoS₂ greased.
Minimum torque M_A: 30 Nm; MoS₂ greased**

Side-mounting Clamp Omnidirectional Antennas Large Pipe

Type No. 738 908

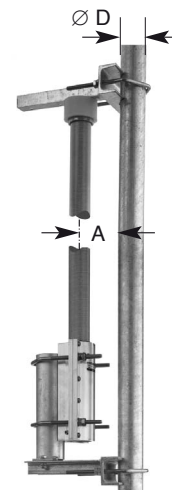
For mast diameters of 94 – 125 mm



Side-mounting Bracket Omnidirectional Antennas

Type No. 737 398

Side-mounting bracket
(for mast diameters of 40 – 105 mm)



| Type No. | 737 398 | | | |
|---------------------------|------------------------------|-----------------|-------------|------------------|
| Bracket | At the top and at the bottom | | | |
| Fits for antenna type no: | 800/900 MHz | 1800 MHz | UMTS | Dual-band |
| | 736 347 | 739 785 | 741 790 | 800 10274 |
| | 736 348 | 738 187 | | |
| | 736 349 | 739 404 | | |
| | 736 350 | 737 190 | | |
| | 736 351 | | | |
| | 738 664 | | | |
| | 738 192 | | | |

Side-mounting is possible for four fixed distances between the tubular mast and the antenna:

| 800/900 MHz (holes 1 and 3) | | | 1800/2000 MHz (hole 2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------------|------------------------------|--------------------------|-------|--|--------|--------|--------|----------------------------------|--|--|---|--------|------------------------------|-------------------|--------|--|--------|--------|--------|----------------------------------|--|--|--|----------------|------------------------------|-----------|-------|--|-------|--------|----------------------------------|
| <p>A = 100 mm = 0.3 λ A = 160 mm = 0.5 λ A = 240 mm = 0.75 λ</p> | | | <p>A = 80 mm = 0.5 λ</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Pipe D</th> <th>Horizontal Radiation Pattern</th> <th>Spacing A / Curve</th> </tr> </thead> <tbody> <tr> <td rowspan="3">40 mm</td> <td rowspan="3"></td> <td>100 mm</td> </tr> <tr> <td>160 mm</td> </tr> <tr> <td>240 mm</td> </tr> <tr> <td colspan="2">direction from mast to antenna →</td> <td></td> </tr> </tbody> </table> | Pipe D | Horizontal Radiation Pattern | Spacing A / Curve | 40 mm | | 100 mm | 160 mm | 240 mm | direction from mast to antenna → | | | <table border="1"> <thead> <tr> <th>Pipe D</th> <th>Horizontal Radiation Pattern</th> <th>Spacing A / Curve</th> </tr> </thead> <tbody> <tr> <td rowspan="3">100 mm</td> <td rowspan="3"></td> <td>100 mm</td> </tr> <tr> <td>160 mm</td> </tr> <tr> <td>240 mm</td> </tr> <tr> <td colspan="2">direction from mast to antenna →</td> <td></td> </tr> </tbody> </table> | Pipe D | Horizontal Radiation Pattern | Spacing A / Curve | 100 mm | | 100 mm | 160 mm | 240 mm | direction from mast to antenna → | | | <table border="1"> <thead> <tr> <th>Pipe D / Curve</th> <th>Horizontal Radiation Pattern</th> <th>Spacing A</th> </tr> </thead> <tbody> <tr> <td>40 mm</td> <td rowspan="3"></td> <td rowspan="3">80 mm</td> </tr> <tr> <td>100 mm</td> </tr> <tr> <td>direction from mast to antenna →</td> </tr> </tbody> </table> | Pipe D / Curve | Horizontal Radiation Pattern | Spacing A | 40 mm | | 80 mm | 100 mm | direction from mast to antenna → |
| Pipe D | Horizontal Radiation Pattern | Spacing A / Curve | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 mm | | 100 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 160 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 240 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| direction from mast to antenna → | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pipe D | Horizontal Radiation Pattern | Spacing A / Curve | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 mm | | 100 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 160 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 240 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| direction from mast to antenna → | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pipe D / Curve | Horizontal Radiation Pattern | Spacing A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 mm | | 80 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| direction from mast to antenna → | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Side-mounting Brackets Omnidirectional Antennas 900

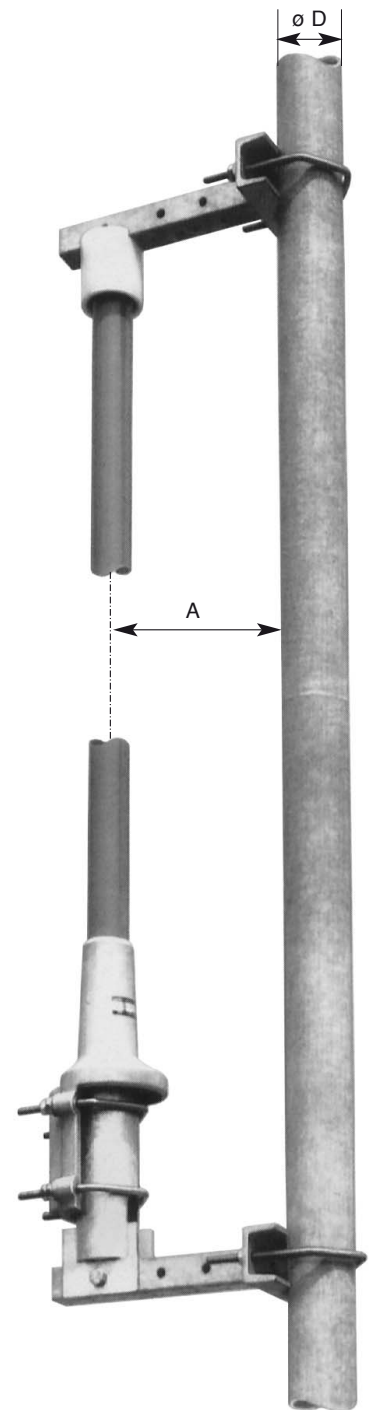
For mast diameters of 40 – 105 mm

| Type No. | K 61 33 5 | K 61 33 6 |
|---------------------------|------------------------------|--------------------------------|
| Bracket | at the bottom only | at both the top and the bottom |
| Fits for antenna type no. | K 75 11 6 .. K 75 15 6 .. | 738 779 741 558 |

Side mounting is possible for three fixed distances between the tubular mast and the antenna:

- 100 mm = 0.3λ
- 160 mm = 0.5λ
- 240 mm = 0.75λ

| Pipe D | Horizontal Radiation Pattern | Spacing A Curve | Additional gain to the nominal value of the antenna gain |
|--------|------------------------------|---------------------|--|
| 40 mm | | 100 mm ————— | 2 dB |
| | | 160 mm - - - - - | 3 dB |
| | | 240 mm - - - - - | 2 dB |
| 100 mm | | 100 mm ————— | 2.5 dB |
| | | 160 mm - - - - - | 3.5 dB |
| | | 240 mm - - - - - | 2.5 dB |



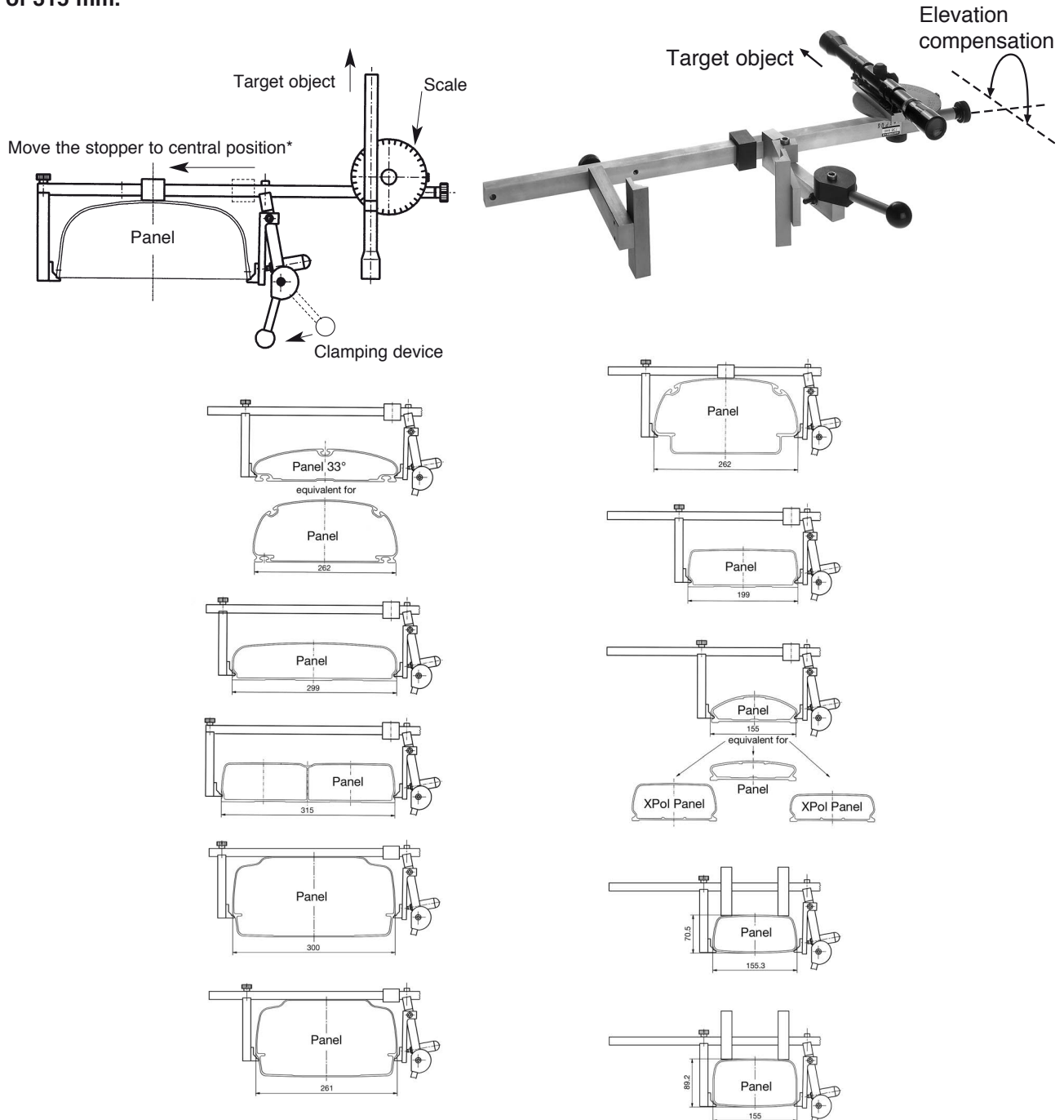
K 61 33 6

All Panels Accessories Azimuth Adjustment Tool

Type No. 738 440

Precise azimuth adjustment for mast mounted antennas can easily be achieved by using the azimuth adjustment tool.

This tool is suitable to all types of Panels and Tri-Sector Pipe Antennas with a maximum width of 315 mm.



Instruction:

- Use a map to work out the angle between the designed antenna azimuth and target (church, building, mountain peak).
- Set this angle on the scale of the adjustment tool.
- Place the adjustment tool onto the antenna and tighten the clamping device.
- Use the telescope to aim at the target object, if necessary, use elevation compensation.
- Then rotate the antenna until the target object appears in the telescope.

* Observe the position of the stopper when fitting the azimuth adjustment tool.

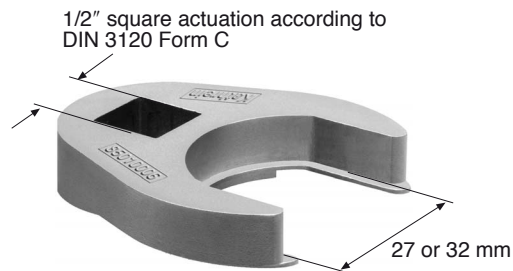
Kathrein Installation Tool for Triple-band Antennas Type No. 850 10005

Please note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the feederline connector interfaces, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

Kathrein installation set: Type No. 850 10005

Set has to be ordered separately!

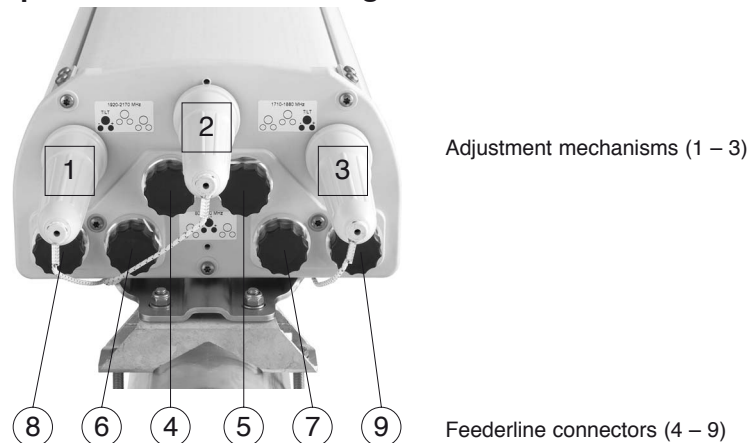
Set consists of two spanners of 27 and 32 mm width.



These tools are suitable for 7-16 connectors with a wrench size of 27 mm or 32 mm.

Tighten nut within a torque range of **25 – 33 Nm** depending on connector manufacturers' specifications.

Description of connector arrangement:



There are six feederline connectors and three adjustment mechanisms located at the bottom of the antenna.

For detailed information about feederline installation for Triple-band Antennas please see Kathrein RET system brochure.

Filters / Duplexers

Multiband Combiners

Dual-Band Combiners
Triple-Band Combiners
Quad-Band Combiners

Same-Band Combiners Hybrid Combiners

Same-Band Combiner
Duplex Hybrid Combiner
Hybrid Combiner 2 : 1
Hybrid Combiner 4 : 4
3-dB Couplers
Hybrid Ring Junctions

System Components

Bias Tees
Measuring Directional Couplers
DC-Stops
Attenuators
50- Ω Loads
Power Distribution Unit

DTMAs

Repeaters

Summary of Filter, Combiner, Amplifier and Repeater Types

The articles are listed by type number in numerical order.

| Type No. | Page | Type No. | Page | Type No. | Page | Type No. | Page |
|-----------|-----------|-----------|-----------|-----------|----------|--------------|----------|
| 782 10153 | 307 | 782 10448 | 309 | 782 10633 | 254, 255 | 790 881 | 274, 275 |
| 782 10154 | 307 | 782 10453 | 286 – 288 | 782 10640 | 256, 257 | 791 145 | 234 |
| 782 10161 | 220 | 782 10454 | 286 – 288 | 782 10641 | 256, 257 | 791 498 | 274, 275 |
| 782 10162 | 220 | 782 10455 | 286 – 288 | 782 10642 | 256, 257 | 791 918 | 294 |
| 782 10164 | 220 | 782 10456 | 286 – 288 | 782 10643 | 256, 257 | 791 919 | 294 |
| 782 10165 | 220 | 782 10457 | 232, 233 | 782 10652 | 312, 313 | 791 920 | 294 |
| 782 10167 | 221 | 782 10458 | 232, 233 | 782 10653 | 312, 313 | 791 921 | 294 |
| 782 10168 | 216, 217 | 782 10460 | 232, 233 | 782 10660 | 242, 243 | 792 542 | 222 |
| 782 10169 | 216, 217 | 782 10469 | 250 | 782 10661 | 242, 243 | 792 544 | 223 |
| 782 10170 | 216, 217 | 782 10474 | 289 | 782 10662 | 242, 243 | 792 699 | 261 |
| 782 10171 | 216, 217 | 782 10500 | 264 | 782 10663 | 242, 243 | 792 702 | 262 |
| 782 10172 | 216, 217 | 782 10502 | 265 | 782 10680 | 244, 245 | 792 972 | 295 |
| 782 10192 | 224 | 782 10504 | 266 | 782 10681 | 244, 245 | 793 004 | 215 |
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| 782 10215 | 218, 219 | 782 10555 | 301 | 782 10711 | 317 | 793 301 | 281 |
| 782 10216 | 218, 219 | 782 10556 | 301 | 782 10717 | 318 | 793 304 | 283 |
| 782 10248 | 240, 241 | 782 10557 | 301 | 782 10731 | 319 | 793 506 | 276 |
| 782 10249 | 240, 241 | 782 10558 | 301 | 782 10736 | 320 | 793 532 | 238, 239 |
| 782 10250 | 240, 241 | 782 10561 | 308 | 782 10751 | 321 | 793 533 | 238, 239 |
| 782 10251 | 240, 241 | 782 10562 | 308 | 782 10800 | 252 | 793 539 | 212 |
| 782 10253 | 286 – 288 | 782 10563 | 308 | 782 10801 | 226 | 793 540 | 213 |
| 782 10254 | 286 – 288 | 782 10564 | 308 | 782 10802 | 214 | 793 554 | 278 |
| 782 10255 | 286 – 288 | 782 10565 | 308 | 782 10805 | 270, 271 | 793 555 | 263 |
| 782 10256 | 286 – 288 | 782 10566 | 308 | 782 10808 | 250 | | |
| 782 10257 | 218, 219 | 782 10567 | 308 | 782 10809 | 251 | K 62 26 11 1 | 290 |
| 782 10264 | 253 | 782 10568 | 308 | 782 10810 | 251 | K 62 26 20 1 | 291 |
| 782 10265 | 218, 219 | 782 10569 | 308 | 782 10811 | 304 | K 62 26 20 7 | 291 |
| 782 10278 | 246, 247 | 782 10570 | 308 | 782 10850 | 282 | K 62 26 21 1 | 291 |
| 782 10279 | 246, 247 | 782 10571 | 308 | 782 10858 | 269 | K 62 26 21 7 | 291 |
| 782 10305 | 246, 247 | 782 10579 | 308 | 782 10860 | 314 | K 62 26 30 1 | 291 |
| 782 10306 | 246, 247 | 782 10601 | 305 | 782 10925 | 272, 273 | K 62 26 30 7 | 291 |
| 782 10312 | 300 | 782 10602 | 306 | 782 10970 | 236, 237 | K 62 26 31 1 | 291 |
| 782 10341 | 235 | 782 10610 | 310 | 782 10971 | 236, 237 | K 62 26 31 7 | 291 |
| 782 10344 | 292, 293 | 782 10612 | 310 | 782 10972 | 236, 237 | K 62 26 40 1 | 290 |
| 782 10390 | 210 | 782 10613 | 311 | 782 10973 | 236, 237 | K 62 26 41 1 | 290 |
| 782 10391 | 210 | 782 10620 | 248, 249 | | | K 62 26 50 1 | 291 |
| 782 10392 | 211 | 782 10621 | 248, 249 | 784 10235 | 294 | K 62 26 50 7 | 291 |
| 782 10403 | 302 | 782 10622 | 248, 249 | 784 10236 | 294 | K 62 26 51 1 | 291 |
| 782 10406 | 303 | 782 10623 | 248, 249 | 784 10237 | 294 | K 62 26 61 1 | 290 |
| 782 10415 | 222 | 782 10624 | 248, 249 | 784 10238 | 294 | K 63 73 62 1 | 274, 275 |
| 782 10418 | 225 | 782 10625 | 248, 249 | 784 10367 | 290 | | |
| 782 10429 | 284 | 782 10630 | 254, 255 | 784 10470 | 290 | | |
| 782 10440 | 299 | 782 10631 | 254, 255 | | | | |
| 782 10442 | 299 | 782 10632 | 254, 255 | 728 954 | 231 | | |

Filters / Duplexers

Filters:

| Description | Type No. | Frequency range ... tunable bandwidth – fixed bandwidth | Max. Input power | Page |
|------------------|------------------|---|------------------|------|
| Band-pass Filter | 782 10390 | 890 – 960 MHz | 400 W | 210 |
| Band-pass Filter | 782 10391 | 890 – 960 MHz | 400 W | 210 |
| Band-pass Filter | 782 10392 | 824 – 880 MHz | 400 W | 211 |
| Low-pass Filter | 793 539 | 876 – 960 MHz | 300 W | 212 |
| Band-pass Filter | 793 540 | 1710 – 1880 MHz | 500 W | 213 |
| Band-pass filter | 782 10802 | 3400 ... 3600 MHz | 50 W | 214 |

Duplexers:

| Description | Type No. | Frequency range | Max. input power | Page |
|-------------|-----------|---|------------------|----------|
| Duplexer | 793 004 | Low band: 876 – 880 MHz High band: 921 – 925 MHz | 250 W | 215 |
| Duplexer | 793 005 | Low band: 876 – 880 MHz High band: 921 – 925 MHz | 250 W | 215 |
| Duplexer | 782 10168 | Low band: 824 – 835 MHz High band: 869 – 880 MHz | 400 W | 216, 217 |
| Duplexer | 782 10169 | Low band: 824 – 835 MHz High band: 869 – 880 MHz | 400 W | 216, 217 |
| Duplexer | 782 10170 | Low band: 824 – 835 MHz High band: 869 – 880 MHz | 400 W | 216, 217 |
| Duplexer | 782 10171 | Low band: 835 – 851 MHz High band: 880 – 896 MHz | 400 W | 216, 217 |
| Duplexer | 782 10172 | Low band: 835 – 851 MHz High band: 880 – 896 MHz | 400 W | 216, 217 |
| Duplexer | 782 10215 | Low band: 824 – 851 MHz High band: 869 – 896 MHz | 400 W | 218, 219 |
| Duplexer | 782 10216 | Low band: 824 – 851 MHz High band: 869 – 896 MHz | 400 W | 218, 219 |
| Duplexer | 782 10257 | Low band: 824 – 846.5 MHz High band: 869 – 891.5 MHz | 400 W | 218, 219 |
| Duplexer | 782 10265 | Low band: 824 – 846.5 MHz High band: 869 – 891.5 MHz | 800 W | 218, 219 |
| Duplexer | 782 10164 | Low band: 890 – 915 MHz High band: 935 – 960 MHz | 500 W | 220 |
| Duplexer | 782 10165 | Low band: 890 – 915 MHz High band: 935 – 960 MHz | 500 W | 220 |
| Duplexer | 782 10161 | Low band: 890 – 915 MHz High band: 935 – 960 MHz | 500 W | 220 |
| Duplexer | 782 10162 | Low band: 890 – 915 MHz High band: 935 – 960 MHz | 500 W | 220 |
| Duplexer | 782 10167 | Low band: 880 – 915 MHz High band: 925 – 960 MHz | 250 W | 221 |
| Duplexer | 792 542 | Low band: 1710 – 1785 MHz High band: 1805 – 1880 MHz | 250 W | 222 |
| Duplexer | 782 10415 | Low band: 1710 – 1785 MHz High band: 1805 – 1880 MHz | 250 W | 222 |
| Duplexer | 792 544 | Low band: 1850 – 1910 MHz High band: 1930 – 1990 MHz | 300 W | 223 |
| Duplexer | 782 10192 | Low band: 1920 – 1980 MHz High band: 2110 – 2170 MHz | 250 W | 224 |
| Duplexer | 782 10193 | Low band: 1920 – 1980 MHz High band: 2110 – 2170 MHz | 250 W | 224 |
| Duplexer | 782 10418 | Low band: 1920 – 1980 MHz High band: 2110 – 2170 MHz | 250 W | 225 |
| Duplexer | 782 10801 | 3400 ... 3600 MHz | 50 W | 226 |

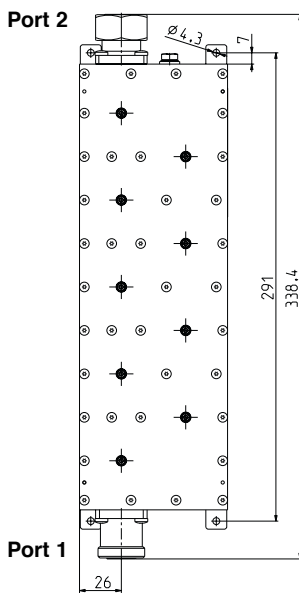
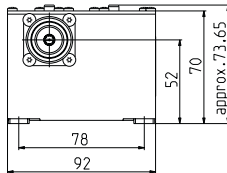
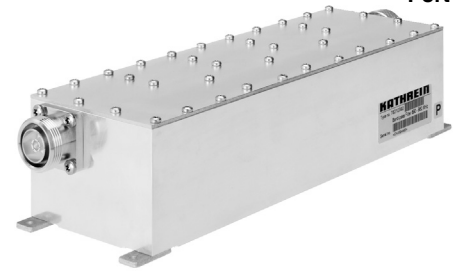
Band-pass Filter

890 – 960 MHz

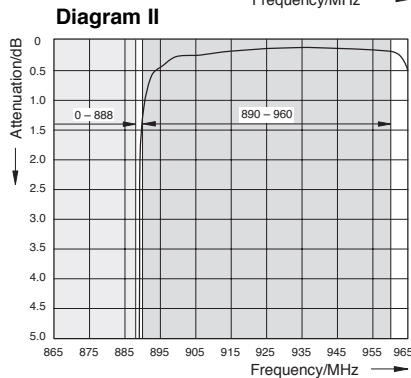
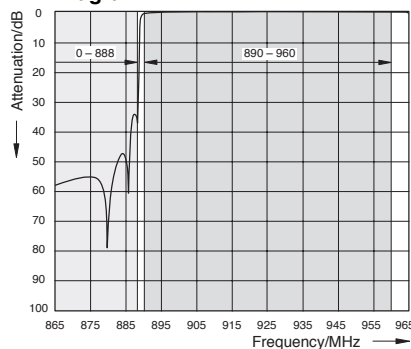
- GSM 900 Tx/Rx preselector filter
- Suppression of interfering Tx signals of an adjacent AMPS or CDMA frequency band
- Suitable for indoor applications
- Built-in DC stop

Port 2

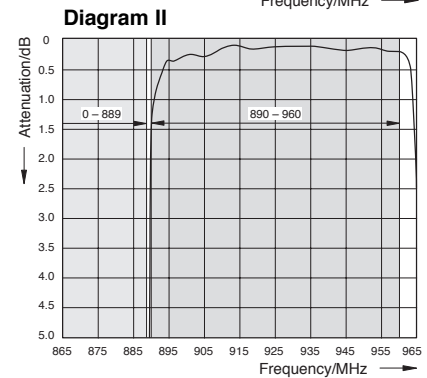
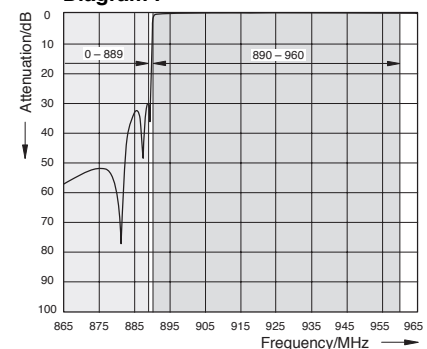
Port 1



782 10390
Typical Attenuation Curves
Diagram I



782 10391
Typical Attenuation Curves
Diagram I



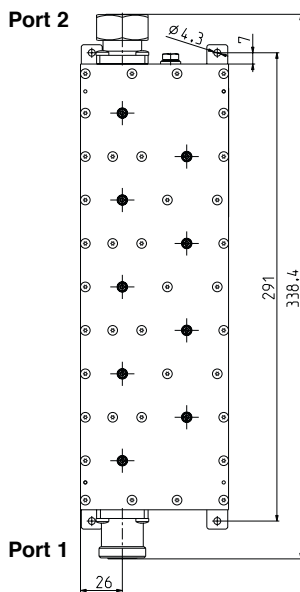
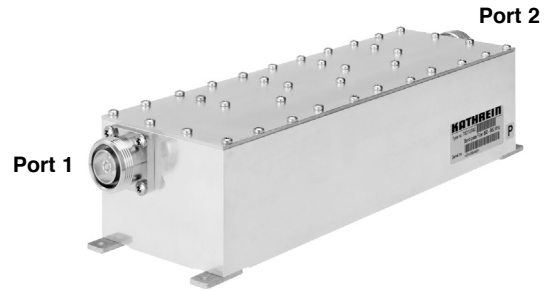
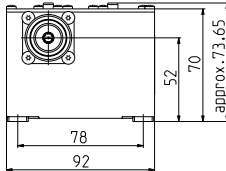
Technical Data

| Type No. | 782 10390 | 782 10391 |
|--------------------------------------|--|--|
| Stop band Frequency spacing | 0 – 888 MHz 2 MHz | 0 – 889 MHz 1 MHz |
| Pass band | 890 – 960 MHz | 890 – 960 MHz |
| Insertion loss | < 1.5 dB (890 – 892 MHz) < 0.8 dB (892 – 893 MHz) < 0.6 dB (893 – 905 MHz) < 0.3 dB (905 – 960 MHz) | < 4.0 dB (890 – 891 MHz) < 2.5 dB (891 – 892 MHz) < 1.0 dB (892 – 893 MHz) < 0.6 dB (893 – 905 MHz) < 0.3 dB (905 – 960 MHz) |
| Stop band attenuation | > 50 dB (0 – 880 MHz) > 40 dB (880 – 885 MHz) > 30 dB (885 – 888 MHz) | > 50 dB (0 – 869 MHz) > 30 dB (869 – 889 MHz) |
| VSWR | < 1.25 (890 – 960 MHz) | < 1.3 (891 – 960 MHz) |
| Impedance | 50 Ω | |
| Input power | < 400 W (935 – 960 MHz) | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -20 ... +55 °C | -5 ... +45 °C |
| Connectors | Port 1: 7-16 female, long neck / Port 2: 7-16 male | |
| Application | Indoor | |
| DC/AISG transparency Port 1 ↔ Port 2 | Stop | |
| Mounting | With 4 screws (max. 4 mm diameter) | |
| Weight | 2 kg | |
| Packing size | 387 x 137 x 130 mm | |
| Dimensions (w x h x d) | 92 x 74 x 338.4 mm (including connectors and mounting feet) | |

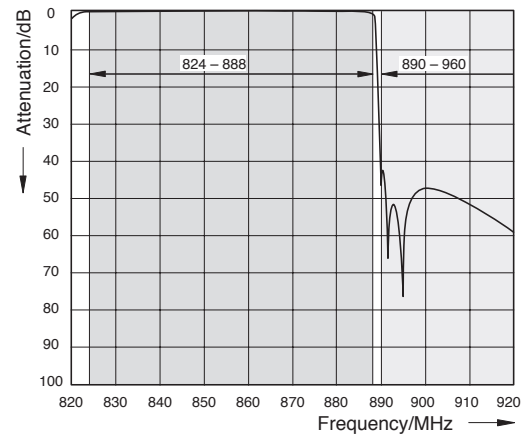
Band-pass Filter

824 – 888 MHz (AMPS/CDMA850)

- AMPS/CDMA850 Tx/Rx filter
- Suppression of spurious emissions at adjacent GSM900 Rx frequencys
- Suitable for indoor applications
- Built-in DC stop



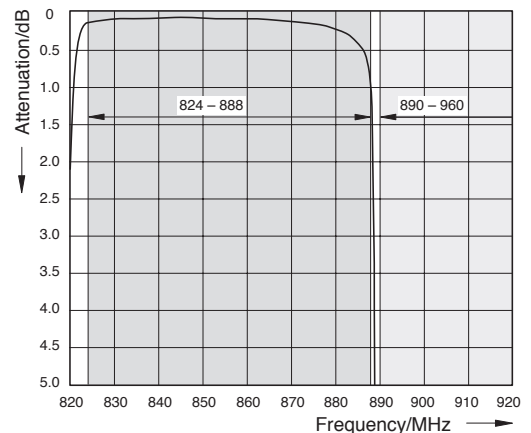
Calculated Attenuation Curves
Diagram I



Technical Data

| Type No. | 782 10392 |
|---|--|
| Pass band | 824 – 888 MHz |
| Insertion loss | < 0.5 dB (824 – 885 MHz) < 0.8 dB (885 – 886 MHz) < 1.5 dB (886 – 888 MHz) |
| Stop band attenuation | > 40 dB (890 – 960 MHz) |
| VSWR | < 1.25 |
| Impedance | 50 Ω |
| Input power | < 400 W (824 – 888 MHz) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors | Port 1: 7-16 female (long neck) / Port 2: 7-16 male |
| Application | Indoor |
| DC/AISG transparency Port 1 ↔ Port 2 | Stop |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 2 kg |
| Packing size | 387 x 137 x 130 mm |
| Dimensions (w x h x d) | 92 x 74 x 338.4 mm (including connectors and mounting feet) |

Diagram II

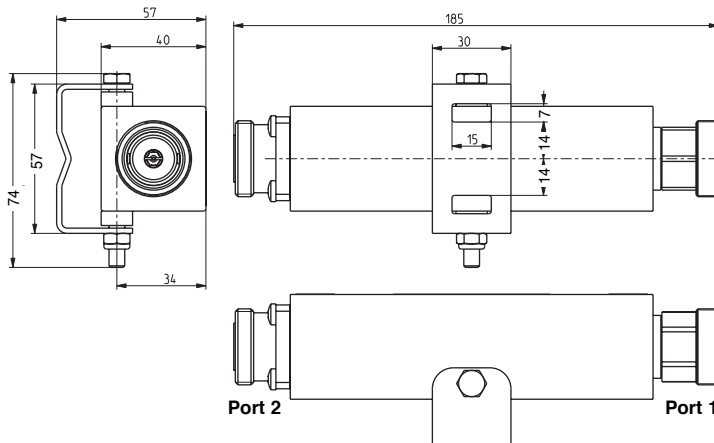


Low-pass Filter

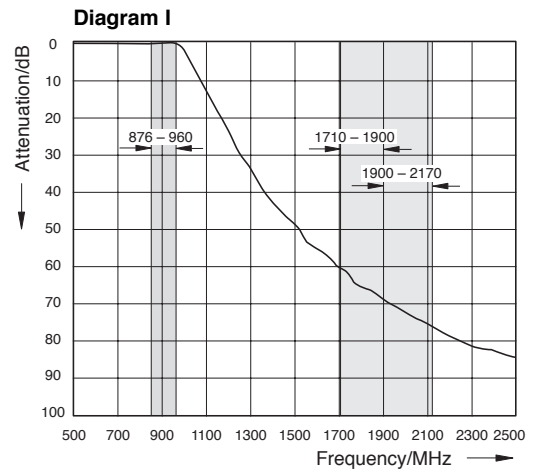
876 – 960 MHz (GSM 900)

The Low-pass Filter is designed for use in GSM 900 systems where GSM 1800 or UMTS systems are co-sited.

- Suppression of GSM 900 spurious emissions
- Improvement of GSM 900 receiving selectivity
- Inline design
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Either port 1 or 2 can be used as the input port
- DC by-pass between ports 1 and 2
- External DC Stop available as an accessory

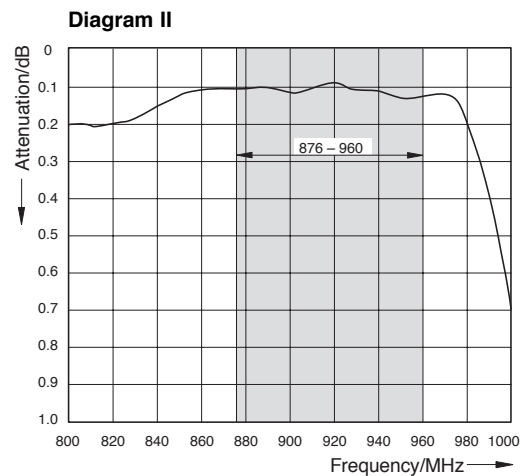


Typical Attenuation Curves



Technical Data

| | |
|---|---|
| Type No. | 793 539 |
| Pass band | 876 – 960 MHz |
| Insertion loss | < 0.15 dB (876 – 960 MHz) |
| Stop band attenuation | > 55 dB (1710 – 1900 MHz) > 62 dB (1900 – 2170 MHz) |
| VSWR | < 1.2 (876 – 960 MHz) |
| Impedance | 50 Ω |
| Input power | < 300 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | Port 1: 7-16 male Port 2: 7-16 female |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency Port 1 ↔ Port 2 | By-pass (max. 2500 mA) |
| Mounting | Wall mounting: With 2 screws (max. 6 mm diameter) Mast mounting: With additional clamp set |
| Weight | 0.75 kg |
| Packing size | 240 x 110 x 100 mm |
| Dimensions (w x h x d) | 184 x 57 x 75 mm (including mounting bracket) |

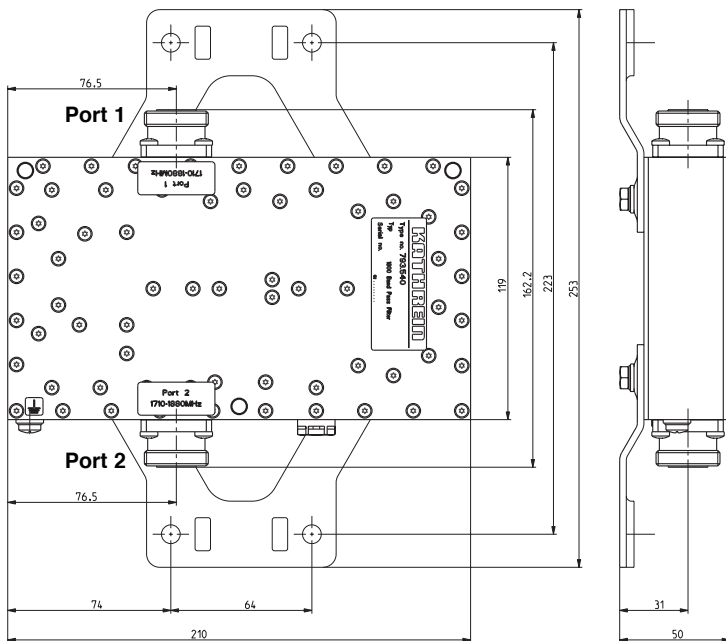
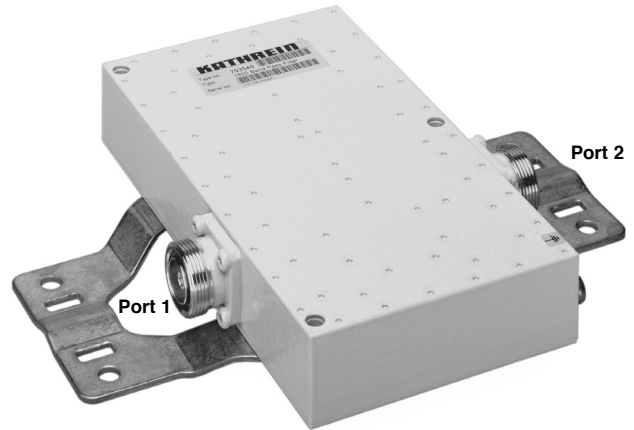


Band-pass Filter

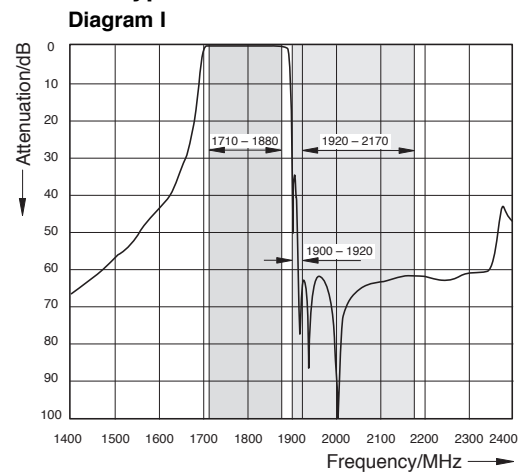
1710 – 1880 MHz (GSM 1800)

The Band-pass Filter is designed for use in GSM 1800 systems where UMTS or GSM 900 systems are co-sited.

- Suppression of GSM 1800 spurious emissions
- Improvement of GSM 1800 receiving selectivity
- Inline design
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Either port 1 or 2 can be used as the input port
- Built-in lightning protection
- DC by-pass between ports 1 and 2
- External DC Stop available as an accessory

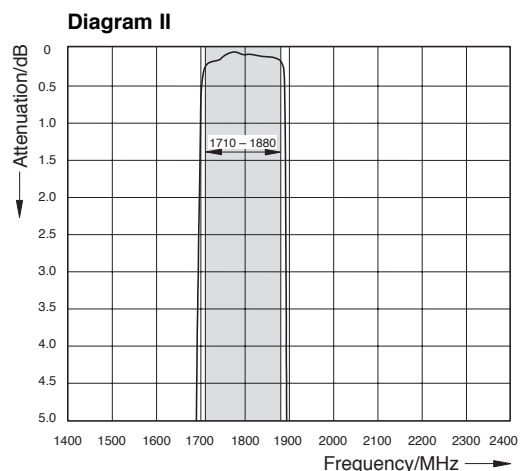


Typical Attenuation Curves



Technical Data

| Type No. | 793 540 |
|---|---|
| Pass band | 1710 – 1880 MHz |
| Insertion loss | < 0.3 dB (1710 – 1880 MHz) |
| Stop band attenuation | > 80 dB (800 – 960 MHz) > 28 dB (1900 – 1920 MHz) > 58 dB (1920 – 2170 MHz) |
| VSWR | < 1.2 (1710 – 1880 MHz) |
| Impedance | 50 Ω |
| Input power | < 500 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency Port 1 ↔ Port 2 | By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 2.2 kg |
| Packing size | 260 x 250 x 110 mm |
| Dimensions (w x h x d) | 210 x 253 x 49 mm (including mounting brackets) |



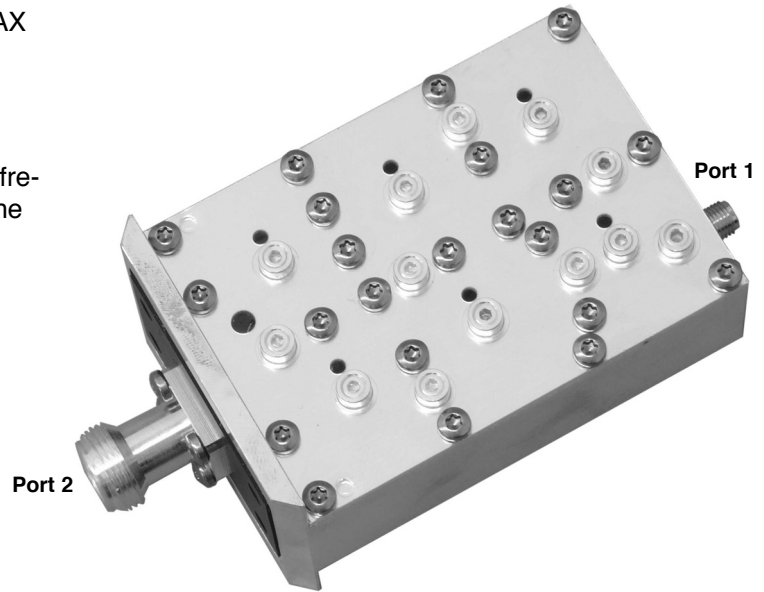
Band-pass Filter

3400 ... 3600 MHz (WiMAX 3.5)

The Band-pass Filter is designed as a WiMAX Tx/Rx preselector filter in order to suppress interfering transmitting signals.

Tuning:

The duplexer is tunable within the specified frequency range. When ordering please note the desired frequencies.



Tuning example:

Calculated Attenuation Curves

Diagram I

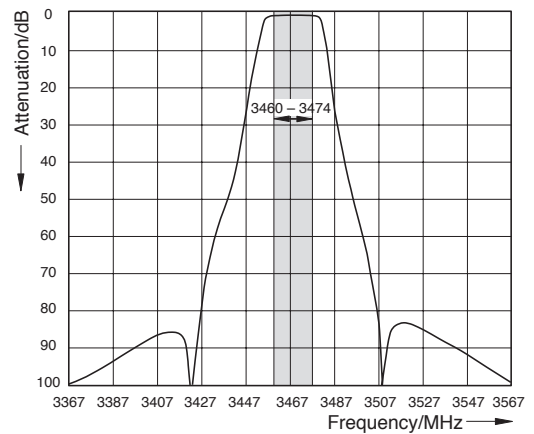
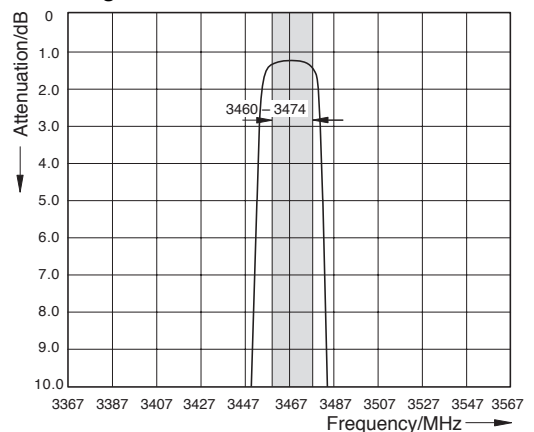


Diagram II



Technical Data

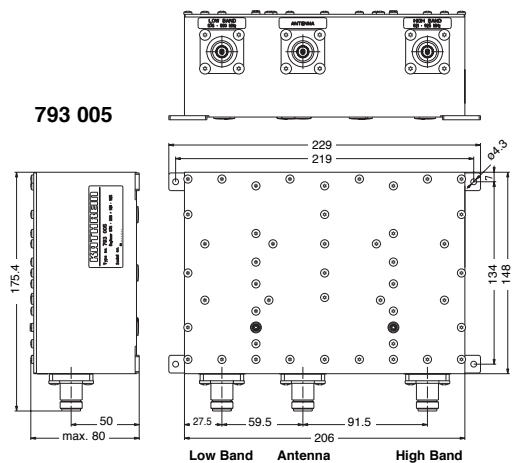
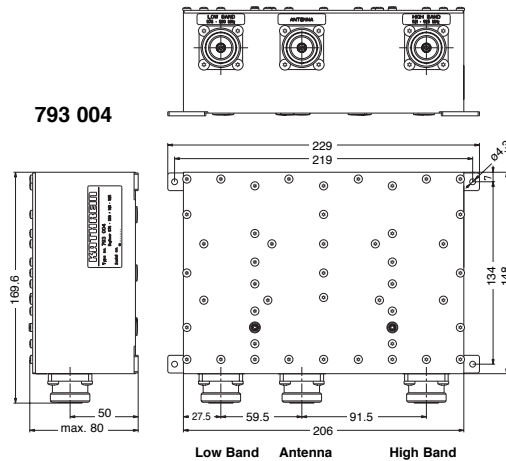
| Type No. | 782 10802 |
|---|--|
| Pass band | 3400 ... 3600 MHz |
| Bandwidth | 14 MHz |
| Insertion loss | < 1.8 dB (1.3 typically) |
| Stop band attenuation at $f_o \pm 43$ MHz | 80 dB |
| VSWR | < 1.2 |
| Impedance | 50 Ω |
| Input power | < 50 W |
| Temperature range | -20 ... +60 °C |
| Connectors Port 1 Port 2 | Tx/Rx input, SMA female Antenna output, N-female |
| Application | Indoor |
| Special features | Built-in DC stop between all ports |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 0.4 kg |
| Packing size | 387 x 137 x 130 mm |
| Dimensions (w x h x d) | 60 x 50 x 120 mm (including connectors and mounting feet) |

Duplexer

876 – 880 / 921 – 925 MHz (GSM-R)

The Duplexer is designed to combine/split GSM-R Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

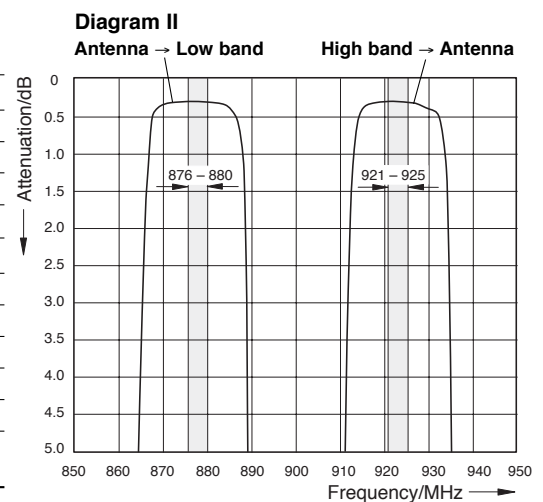
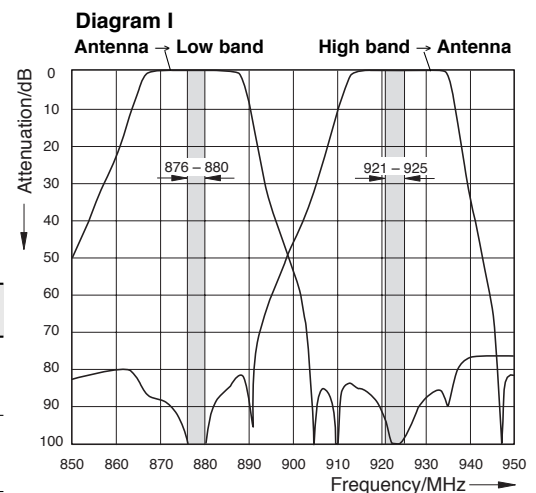
- Suitable for indoor applications
- Built-in DC stop



Technical Data

| Type No. | 793 004 | 793 005 |
|--------------------------|---|----------|
| Pass band | | |
| Low band | 876 – 880 MHz | |
| High band | 921 – 925 MHz | |
| Insertion loss | | |
| Antenna → Low band | < 0.4 dB (876 – 880 MHz) | |
| High band → Antenna | < 0.4 dB (921 – 925 MHz) | |
| Isolation | | |
| Low band ↔ High band | > 85 dB (876 – 880 MHz) > 80 dB (880 – 921 MHz) > 85 dB (921 – 925 MHz) | |
| VSWR | < 1.25 (876 – 880 / 921 – 925 MHz) | |
| Impedance | 50 Ω | |
| Input power | < 250 W (low band or high band) | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -20 ... +55 °C | |
| Connectors | 7-16 female | N female |
| Application | Indoor | |
| Special features | Built-in DC stop between all ports | |
| Mounting | With 4 screws (max. 4 mm diameter) | |
| Weight | 2.6 kg | |
| Packing size | 309 x 162 x 252 mm | |
| Dimensions (w x h x d) | 229 x 80 x 169.6 mm 229 x 80 x 175.4 mm (including connectors and mounting feet) | |

Typical Attenuation Curves



Duplexer

824 – 835 / 869 – 880 MHz (AMPS A-Band)

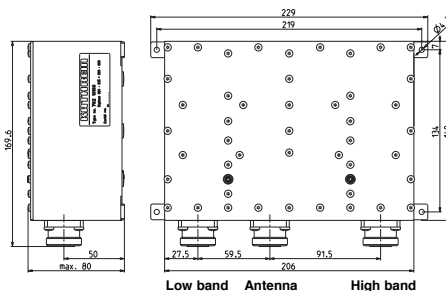
835 – 851 / 880 – 896 MHz (AMPS B-Band)

KATHREIN

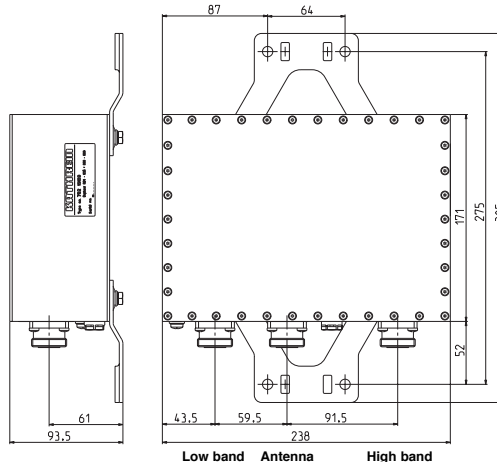
Antennen · Electronic

The Duplexer is designed to combine/split GSM Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

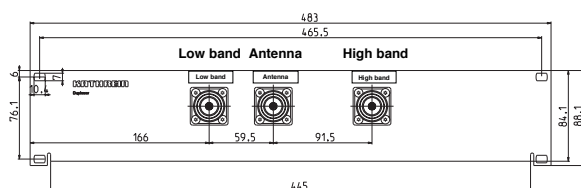
- **78210168:** AMPS A-Band, indoor version
- **78210169:** AMPS A-Band, outdoor version
- **78210170:** AMPS A-Band, indoor version mounted onto a 19" drawer
- **78210171:** AMPS B-Band, indoor version
- **78210172:** AMPS B-Band, outdoor version



782 10168
782 10171
(indoor)



782 10169
782 10172
(outdoor)



782 10170 (19" drawer)

Technical Data

| Type No. | 782 10168 | 782 10169 AMPS A-Band | 782 10170 | 782 10171 | 782 10172 AMPS B-Band |
|--------------------------|---------------------------------------|--|---|--|---|
| Pass band | | 824 – 835 MHz 869 – 880 MHz | | 835 – 851 MHz 880 – 896 MHz | |
| Insertion loss | | < 0.5 dB (824 – 835 MHz) < 0.5 dB (869 – 880 MHz) | | < 0.5 dB (835 – 851 MHz) < 0.5 dB (880 – 896 MHz) | |
| Isolation | | > 85 dB (824 – 835 / 869 – 880 MHz) | | > 85 dB (835 – 851 / 880 – 896 MHz) | |
| VSWR | | < 1.25 (824 – 835 / 869 – 880 MHz) | | < 1.25 (835 – 851 / 880 – 896 MHz) | |
| Impedance | | 50 Ω | | 50 Ω | |
| Input power | | < 400 W (high band; with max. 8 carriers) | | < 400 W (high band; with max. 12 carriers) | |
| Intermodulation products | | < -160 dBc (3 rd order; with 2 x 20 W) | | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -20 ... +55 °C | -40 ... +60 °C | -20 ... +55 °C | -20 ... +55 °C | -40 ... +60 °C |
| Connectors | | 7-16 female | | 7-16 female | |
| Application | Indoor | Outdoor (IP 66) | Indoor, 19" drawer | Indoor | Outdoor (IP 66) |
| Special features | Built-in DC stop between all ports | | | | |
| Mounting | With 4 screws (max. 4 mm diameter) | Wall mounting with 4 screws (max. 8 mm diameter) Mast mounting with additional clamp set | With 4 screws (max. 6 mm diameter) | With 4 screws (max. 4 mm diameter) | Wall mounting with 4 screws (max. 8 mm diameter) Mast mounting with additional clamp set |
| Weight | 2.8 kg | 5.5 kg | 3.7 kg | 2.8 kg | 5.5 kg |
| Packing size | 309 x 162 x 252 mm | 347 x 297 x 174 mm | 612 x 312 x 224 mm | 309 x 162 x 252 mm | 347 x 297 x 174 mm |
| Dimensions (w x h x d) | 229 x 80 x 170 mm | 238 x 305 x 93.5 mm | 19" drawer, 2 height units, plug- in depth 170 mm | 229 x 80 x 170 mm (including connectors and mounting feet) | 238 x 305 x 93.5 mm (including mounting feet) |

Duplexer

824 – 835 / 869 – 880 MHz (AMPS A-Band)

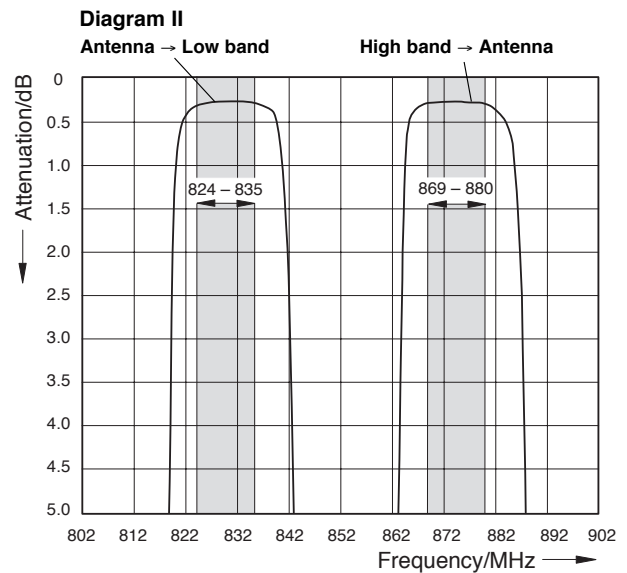
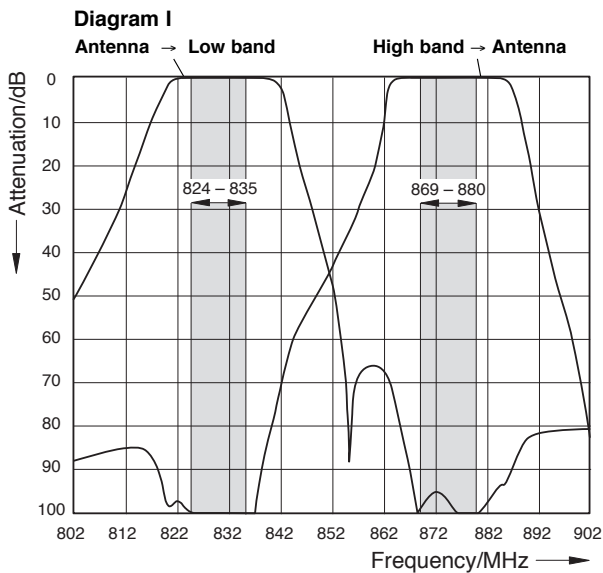
835 – 851 / 880 – 896 MHz (AMPS B-Band)

Accessories (order separately)

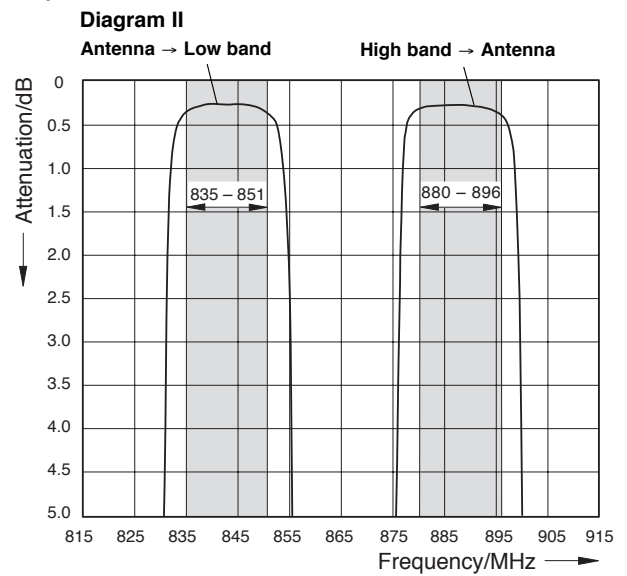
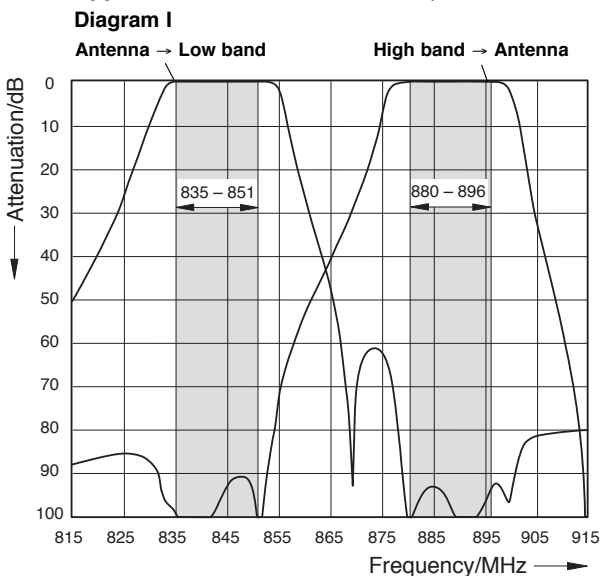
| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



Typical Attenuation Curves (782 10168, 782 10169, 782 10170)



Typical Attenuation Curves (782 10171, 782 10172)



Duplexer

824 – 851 / 869 – 896 MHz (AMPS A/B-Band)

824 – 846.5 / 869 – 891.5 MHz (AMPS A/B-Band)

KATHREIN

Antennen · Electronic

The Duplexer is designed to combine/split AMPS Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

- Suitable for indoor application
- Built-in DC stop

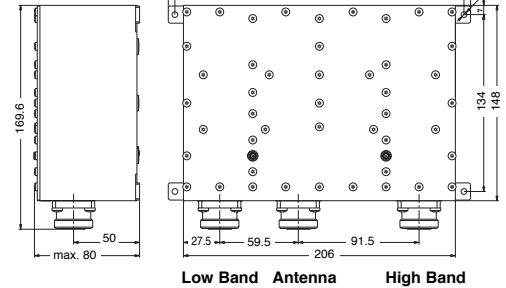


782 10215, 782 10257

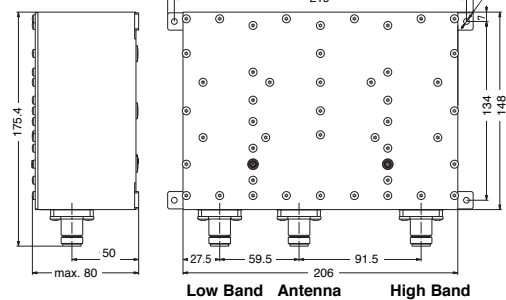


782 10216

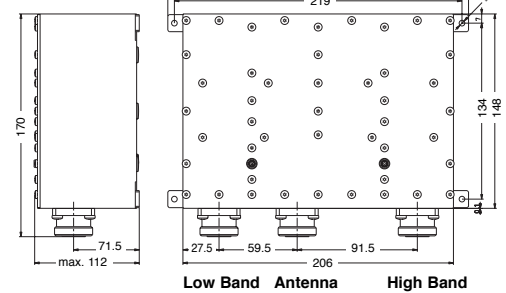
782 10215
782 10257



782 10216



782 10265



Technical Data

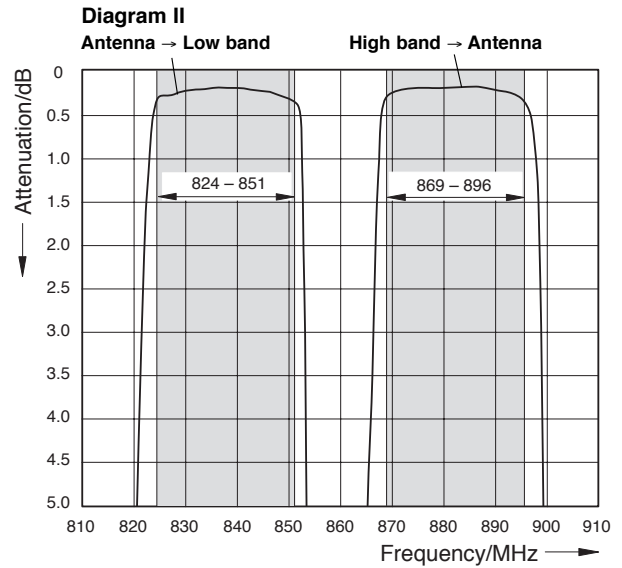
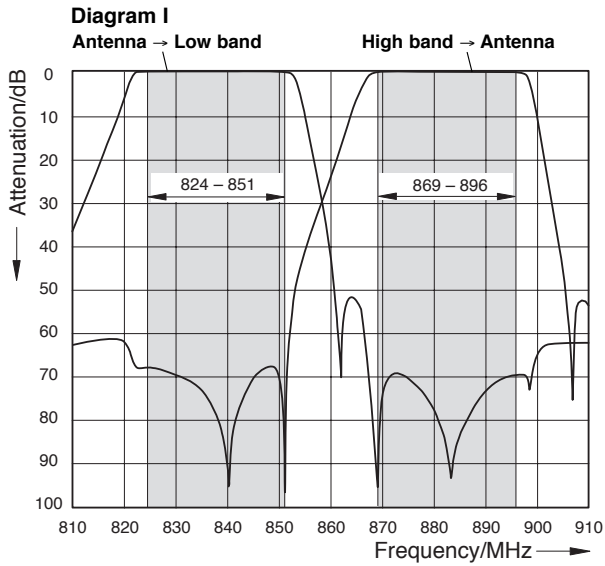
| Type No. | 782 10215 AMPS A/B-Band | 782 10216 AMPS A/B-Band | 782 10257 AMPS A/B-Band (reduced bandwidth) | 782 10265 AMPS A/B-Band (reduced bandwidth) |
|---|---|----------------------------|--|--|
| Pass band Low band High band | 824 – 851 MHz 869 – 896 MHz | | 824 – 846.5 MHz 869 – 891.5 MHz | |
| Insertion loss Antenna → Low band High band → Antenna | < 0.5 dB (824 – 851 MHz) < 0.5 dB (869 – 896 MHz) | | < 0.5 dB (824 – 846.5 MHz) < 0.5 dB (869 – 891.5 MHz) | |
| Isolation Low band ↔ High band | > 65 dB (824 – 851 / 869 – 896 MHz) | | > 70 dB (824 – 846.5 / 869 – 891.5 MHz) | |
| VSWR | < 1.25 (824 – 851 / 869 – 896 MHz) | | < 1.25 (824 – 846.5 / 869 – 891.5 MHz) | |
| Impedance | 50 Ω | | 50 Ω | |
| Input power | < 400 W (high band; with max. 16 carriers) | | < 400 W (high band; with max. 16 carriers) | < 800 W (high band; with max. 32 carriers) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -20 ... +55 °C | | -20 ... +55 °C | |
| Connectors | 7-16 female | N female | 7-16 female | |
| Application | Indoor | | Indoor | |
| Special features | Built-in DC stop between all ports | | Built-in DC stop between all ports | |
| Mounting | With 4 screws (max. 4 mm diameter) | | With 4 screws (max. 4 mm diameter) | |
| Weight | 2.6 kg | | 2.6 kg | Approx. 3 kg |
| Packing size | 309 x 252 x 162 mm | | 309 x 252 x 162 mm | 309 x 252 x 162 mm |
| Dimensions (w x h x d) | 229 x 80 x 170 mm 229 x 80 x 175.4 mm (including connectors and mounting feet) | | 229 x 80 x 170 mm | 229 x 112 x 170 mm (including connectors and mounting feet) |

Duplexer

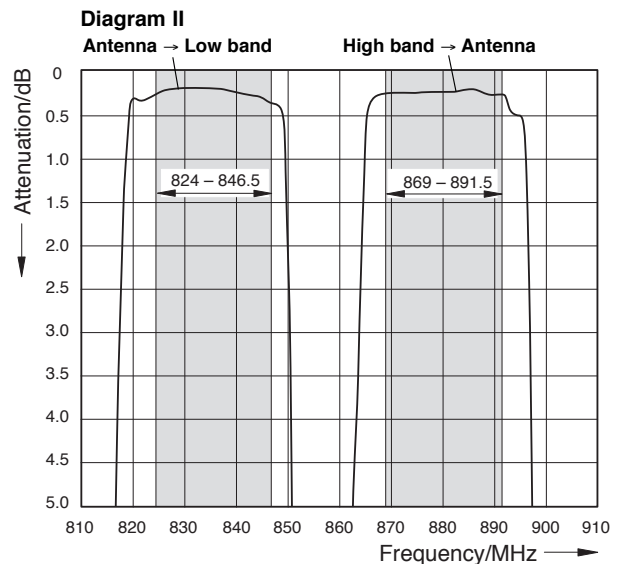
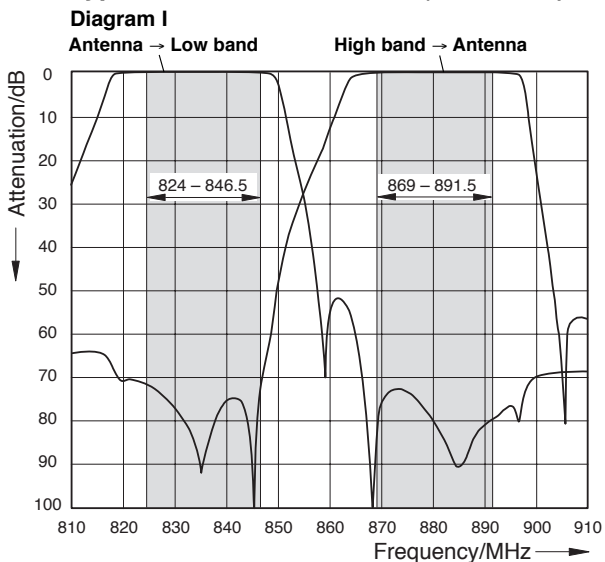
824 – 851 / 869 – 896 MHz (AMPS A/B-Band)

824 – 846.5 / 869 – 891.5 MHz (AMPS A/B-Band)

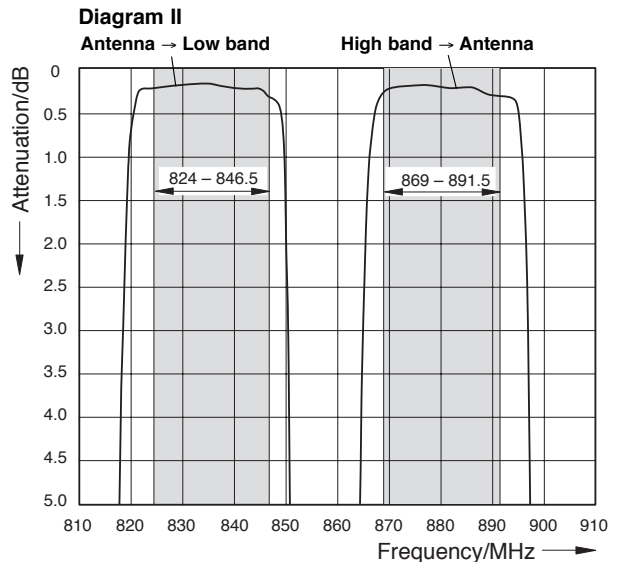
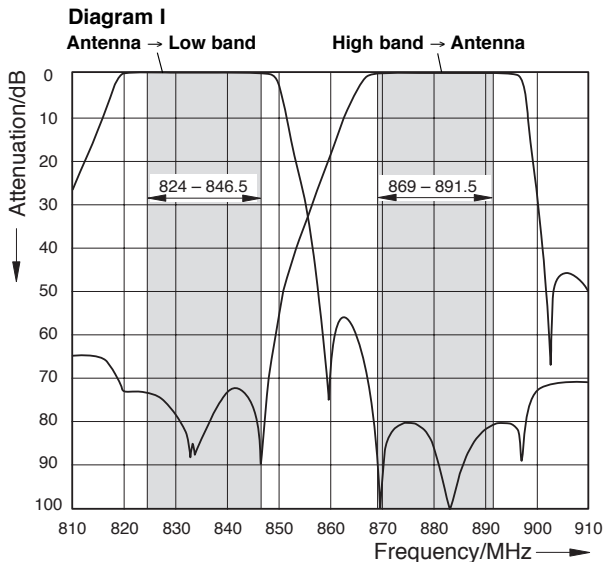
Typical Attenuation Curves (782 10215, 782 10216)



Typical Attenuation Curves (782 10257)



Typical Attenuation Curves (782 10265)



Duplexer

890 – 915 / 935 – 960 MHz (GSM)

KATHREIN
Antennen · Electronic

The Duplexer is designed to combine/split GSM Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

- **782 10164:** Indoor version with 7-16 female connectors
- **782 10165:** Indoor version with 7-16/N female connectors
- **782 10161:** Indoor version with 7-16 female connectors mounted onto a 19" drawer
- **782 10162:** Outdoor version with 7-16 female connectors



782 10164 (indoor)



782 10162 (outdoor)



782 10161 (19" drawer)



782 10165 (indoor)

Typical Attenuation Curves

Diagram I

Antenna → Low band High band → Antenna

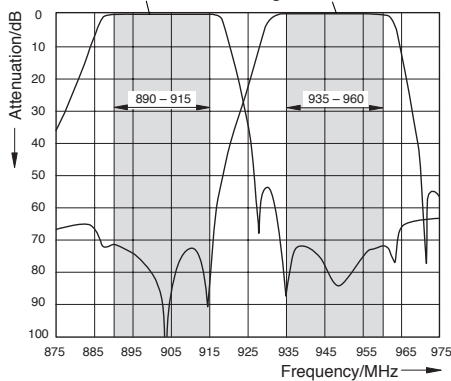
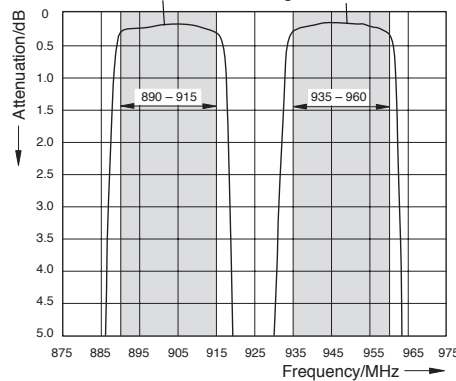


Diagram II

Antenna → Low band High band → Antenna



Technical Data

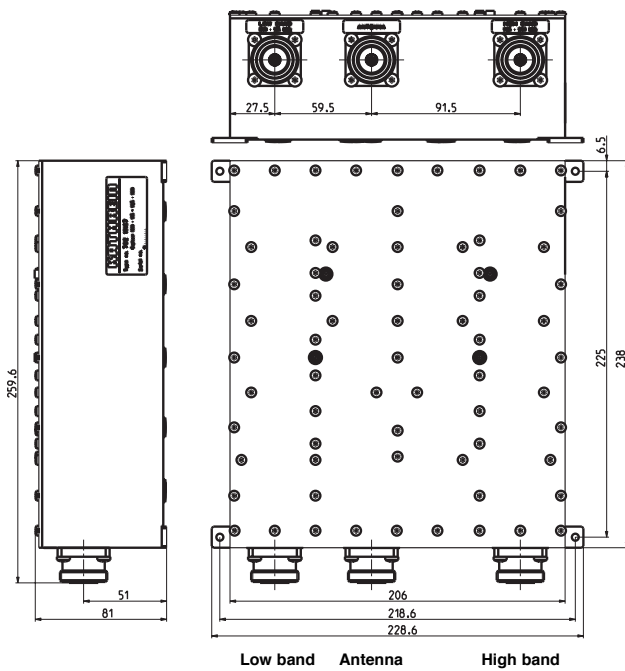
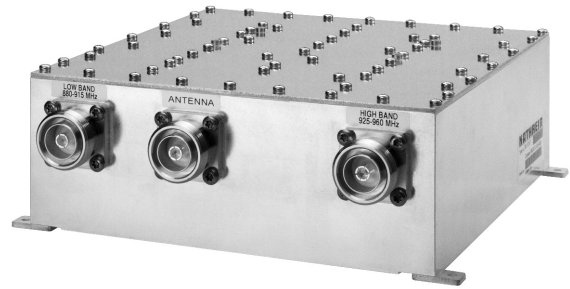
| Type No. | 782 10164 | 782 10165 | 782 10161 | 782 10162 |
|--------------------------|---|---|---|---|
| Pass band | | | | |
| Low band | | 890 – 915 MHz | | |
| High band | | 935 – 960 MHz | | |
| Insertion loss | | | | |
| Antenna → Low band | | < 0.5 dB (890 – 915 MHz) | | |
| High band → Antenna | | < 0.5 dB (935 – 960 MHz) | | |
| Isolation | | | | |
| Low band ↔ High band | | > 70 dB (890 – 915 / 935 – 960 MHz) | | |
| VSWR | | < 1.25 (890 – 915 / 935 – 960 MHz) | | |
| Impedance | | 50 Ω | | |
| Input power | | < 500 W (high band; with max. 16 carriers) | | |
| Intermodulation products | | < -160 dBc (3 rd order; with 2 x 20 W) | | |
| Temperature range | | -20 ... +55 °C | | -40 ... +60 °C |
| Connectors | | | | |
| Low band | 7-16 female | N female | 7-16 female | 7-16 female |
| High band | 7-16 female | 7-16 female | 7-16 female | 7-16 female |
| Antenna | 7-16 female | 7-16 female | 7-16 female | 7-16 female |
| Application | Indoor | Indoor | Indoor, 19" drawer | Outdoor (IP 66) |
| Special features | Built-in DC stop between all ports | | | |
| Mounting | With 4 screws (max. 4 mm diameter) | | With 4 screws (max. 6 mm diameter) | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 2.6 kg | | 3.5 kg | 5.5 kg |
| Packing size | 309 x 162 x 252 mm | | 612 x 312 x 224 mm | 347 x 294 x 174 mm |
| Dimensions (w x h x d) | 228.6 x 80 x 169.6 mm (including connectors and mounting feet) | | 19" drawer, 2 height units, plug-in depth 172 mm | 238 x 93.5 x 305 mm (including connectors and mounting brackets) |

Duplexer

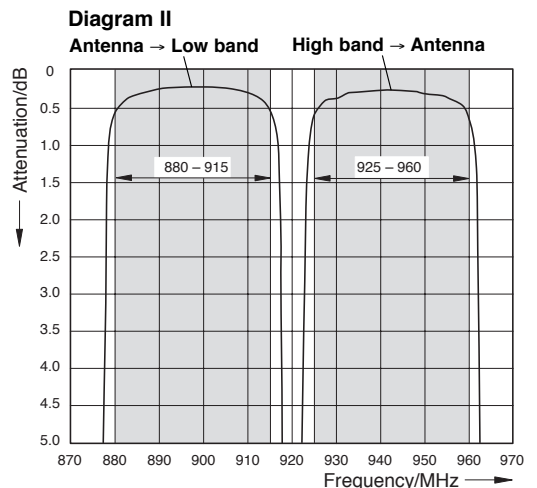
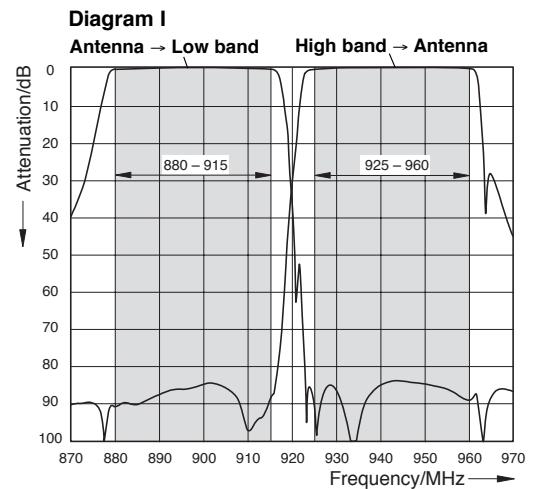
880 – 915 / 925 – 960 MHz (EGSM)

The Duplexer is designed to combine/split EGSM Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

- Suitable for indoor applications
- Built-in DC Stop



Typical Attenuation Curves



Technical Data

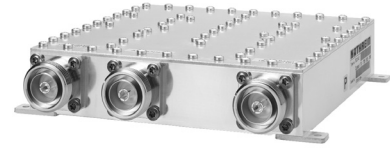
| | |
|---|---|
| Type No. | 782 10167 |
| Pass band Low band High band | 880 – 915 MHz 925 – 960 MHz |
| Insertion loss Antenna → Low band High band → Antenna | < 0.9 dB (880 – 915 MHz) < 0.9 dB (925 – 960 MHz) |
| Isolation Low band ↔ High band | > 75 dB (880 – 915 / 925 – 960 MHz) |
| VSWR | < 1.25 (880 – 915 / 925 – 960 MHz) |
| Impedance | 50 Ω |
| Input power | < 250 W (low band or high band) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| Special features | Built-in DC stop between all ports |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 4.6 kg |
| Packing size | 347 x 297 x 174 mm |
| Dimensions (w x h x d) | 229 x 81 x 260 mm (including connectors and mounting feet) |

Duplexer

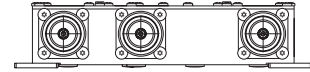
1710 – 1785 / 1805 – 1880 MHz (GSM 1800)

The Duplexer is designed to combine/split GSM 1800 Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

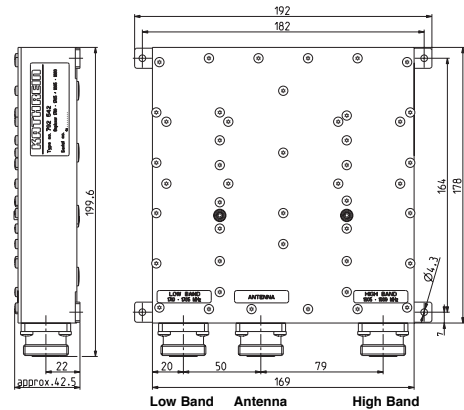
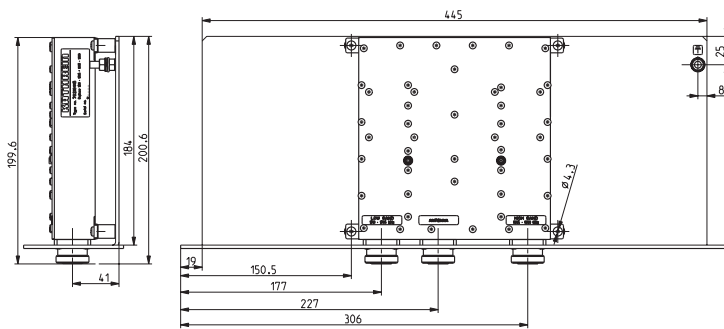
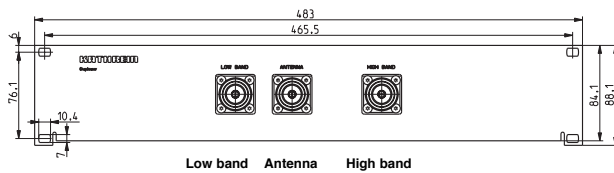
- Suitable for indoor applications
- Built-in DC stop between all ports



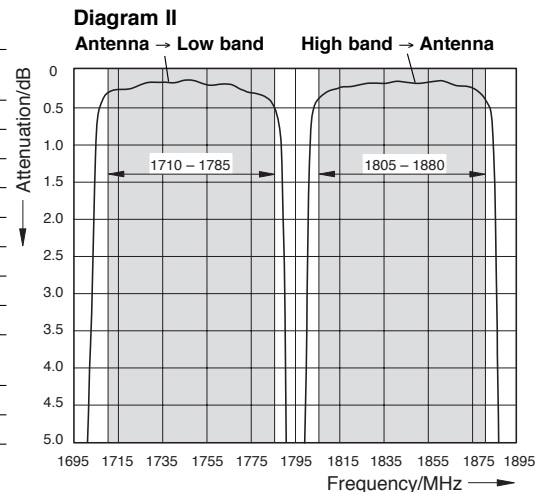
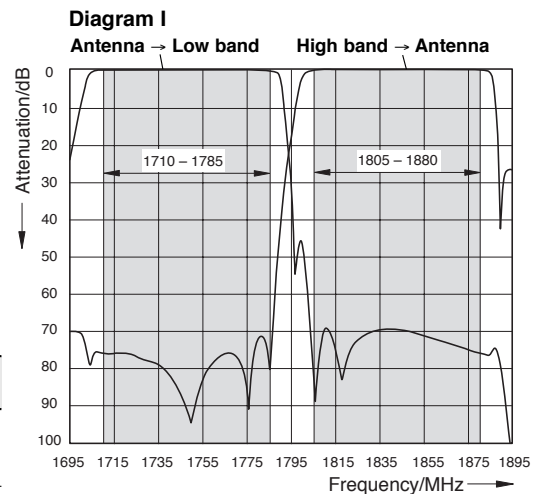
792 542



782 10415



Typical Attenuation Curves



Technical Data

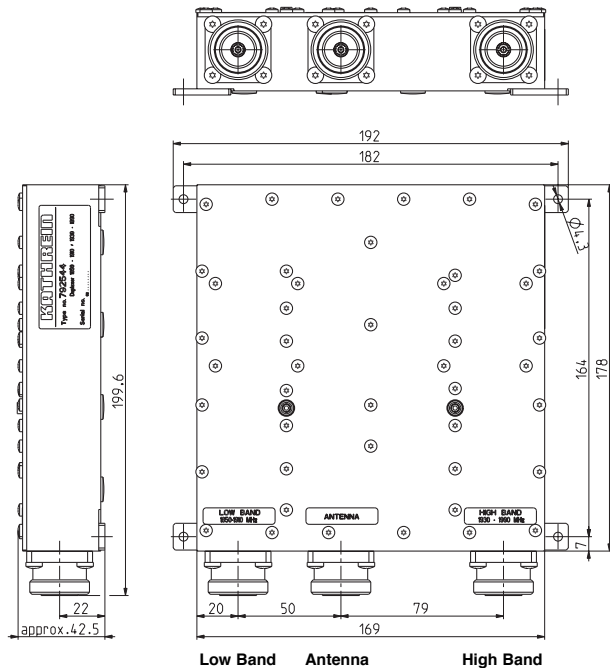
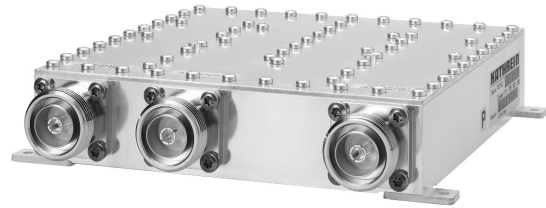
| Type No. | 792 542 | 782 10415 |
|---|--|--|
| Pass band Low band High band | 1710 – 1785 MHz 1805 – 1880 MHz | |
| Insertion loss Antenna → Low band High band → Antenna | < 0.7 dB (1710 – 1785 MHz) < 0.7 dB (1805 – 1880 MHz) | |
| Isolation Low band ↔ High band | > 65 dB (1710 – 1785 / 1805 – 1880 MHz) | |
| VSWR | < 1.25 (1710 – 1785 / 1805 – 1880 MHz) | |
| Impedance | 50 Ω | |
| Input power | < 250 W (low band or high band, with max. 8 carriers) | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -20 ... +55 °C | |
| Connectors | 7-16 female | |
| Application | Indoor | Indoor, 19" drawer |
| DC/AISG transparency | Built-in DC stop between all ports | |
| Mounting | With 4 screws (max. 4 mm diameter) | With 4 screws (max. 6 mm diameter) |
| Weight | 1.6 kg | 2.6 kg |
| Packing size | 282 x 252 x 114 mm | 612 x 312 x 224 mm |
| Dimensions (w x h x d) | 192 x 42.5 x 199.6 mm (including connectors and mounting feet) | 19" drawer, 2 height units plug-in depth 184 mm |

Duplexer

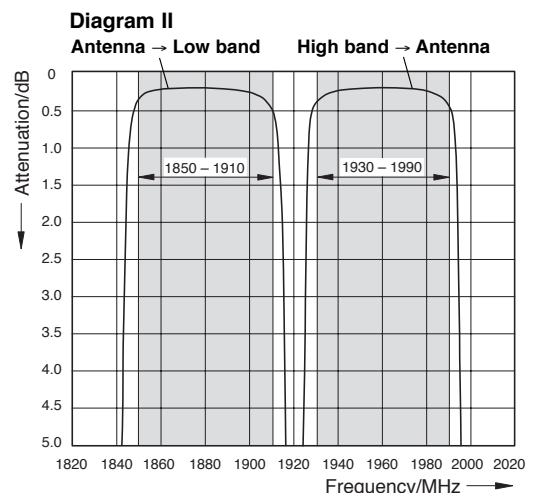
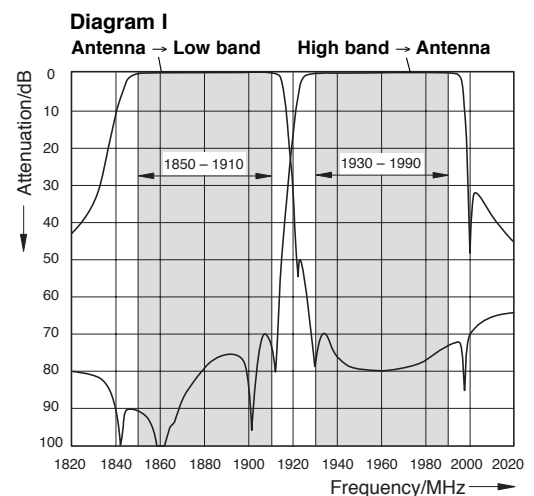
1850 – 1910 / 1930 – 1990 MHz (GSM 1900)

The Duplexer is designed to combine/split GSM 1900 Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

- Suitable for indoor applications
- Built-in DC stop



Typical Attenuation Curves



Technical Data

| | |
|--------------------------|---|
| Type No. | 792 544 |
| Pass band | |
| Low band | 1850 – 1910 MHz |
| High band | 1930 – 1990 MHz |
| Insertion loss | |
| Antenna → Low band | < 0.7 dB (1850 – 1910 MHz) |
| High band → Antenna | < 0.7 dB (1930 – 1990 MHz) |
| Isolation | |
| Low band ↔ High band | > 65 dB (1850 – 1910 / 1930 – 1990 MHz) |
| VSWR | < 1.25 (1850 – 1910 / 1930 – 1990 MHz) |
| Impedance | 50 Ω |
| Input power | < 300 W (low band or high band) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| Special features | Built-in DC stop between all ports |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 1.7 kg |
| Packing size | 282 x 252 x 114 mm |
| Dimensions (w x h x d) | 192 x 42.5 x 199.6 mm (including connectors and mounting feet) |

Duplexer

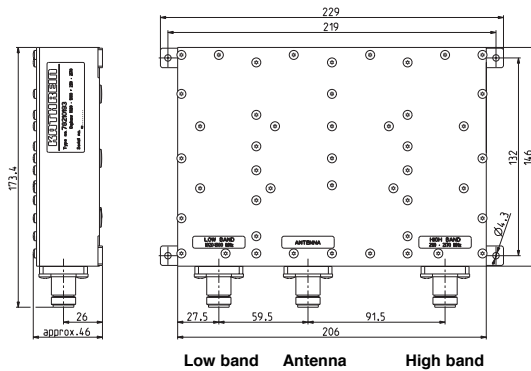
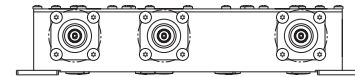
1920 – 1980 / 2110 – 2170 MHz (UMTS)

The Duplexer is designed to combine/split UMTS Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

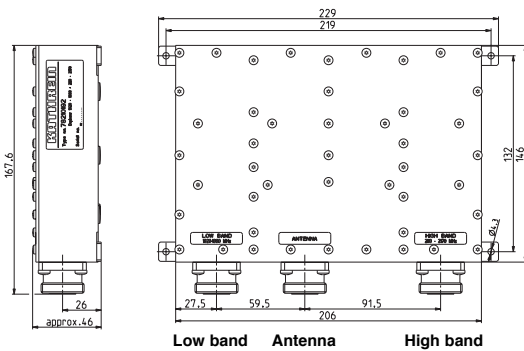
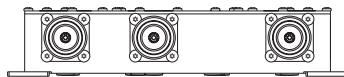
- Suitable for indoor applications
- Built-in DC stop



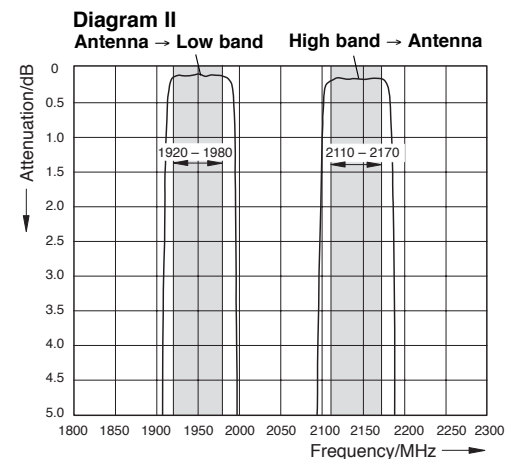
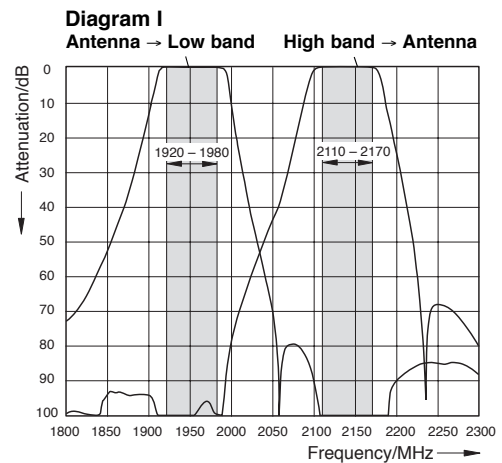
782 10193



782 10192



Typical Attenuation Curves



Technical Data

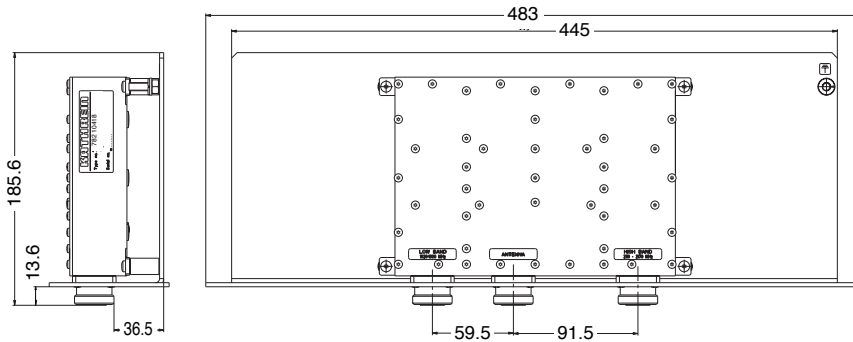
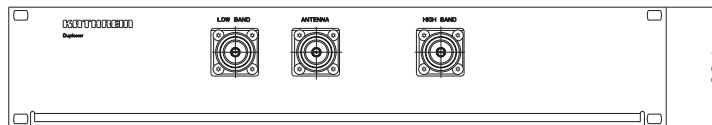
| Type No. | 782 10192 | 782 10193 |
|---|---|-----------|
| Pass band Low band High band | 1920 – 1980 MHz 2110 – 2170 MHz | |
| Insertion loss Antenna → Low band High band → Antenna | < 0.3 dB (1920 – 1980 MHz) < 0.3 dB (2110 – 2170 MHz) | |
| Isolation Low band ↔ High band | > 90 dB (1920 – 1980 / 2110 – 2170 MHz) | |
| VSWR | < 1.25 (1920 – 1980 / 2110 – 2170 MHz) | |
| Impedance | 50 Ω | |
| Input power | < 250 W (low band or high band) | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -20 ... +55 °C | |
| Connectors | 7-16 female | N female |
| Application | Indoor | |
| Special features | Built-in DC stop between all ports | |
| Mounting | With 4 screws (max. 4 mm diameter) | |
| Weight | 1.67 kg | |
| Packing size | 272 x 237 x 119 mm | |
| Dimensions (w x h x d) | 229 x 46 x 167.6 mm 229 x 46 x 173.4 mm (including connectors and mounting feet) | |

Duplexer

1920 – 1980 / 2110 – 2170 MHz (UMTS)

The Duplexer is designed to combine/split UMTS Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

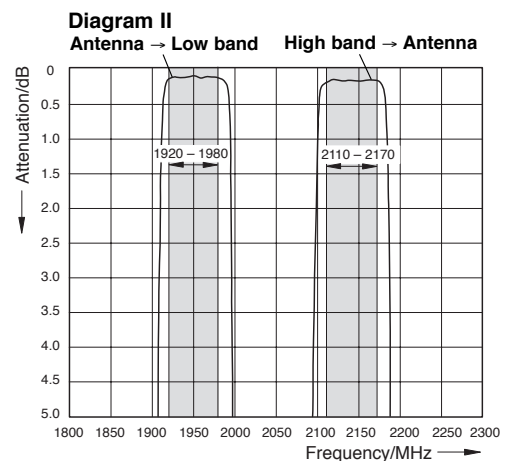
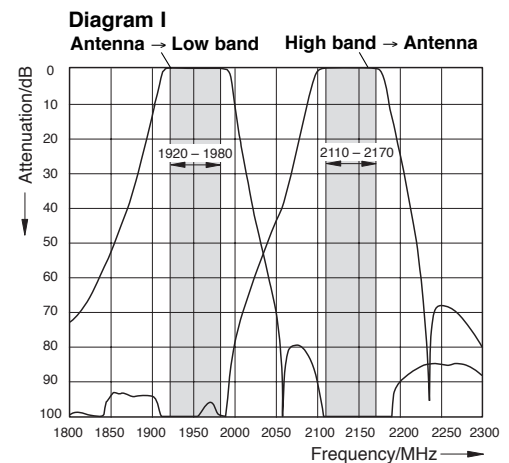
- Suitable for indoor applications
- Built-in DC stop



Technical Data

| | |
|---|--|
| Type No. | 782 10418 |
| Pass band Low band High band | 1920 – 1980 MHz 2110 – 2170 MHz |
| Insertion loss Antenna → Low band High band → Antenna | < 0.3 dB (1920 – 1980 MHz) < 0.3 dB (2110 – 2170 MHz) |
| Isolation Low band ↔ High band | > 90 dB (1920 – 1980 / 2110 – 2170 MHz) |
| VSWR | < 1.25 (1920 – 1980 / 2110 – 2170 MHz) |
| Impedance | 50 Ω |
| Input power | < 250 W (low band or high band) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors | 7-16 female |
| Application | Indoor, 19" drawer |
| Special features | Built-in DC stop between all ports |
| Mounting | With 4 screws (max. 6 mm diameter) |
| Weight | Approx. 2.7 kg |
| Packing size | Approx. 612 x 312 x 224 mm |
| Dimensions (w x h x d) | 19" drawer, 2 height units, plug-in depth 170 mm |

Typical Attenuation Curves



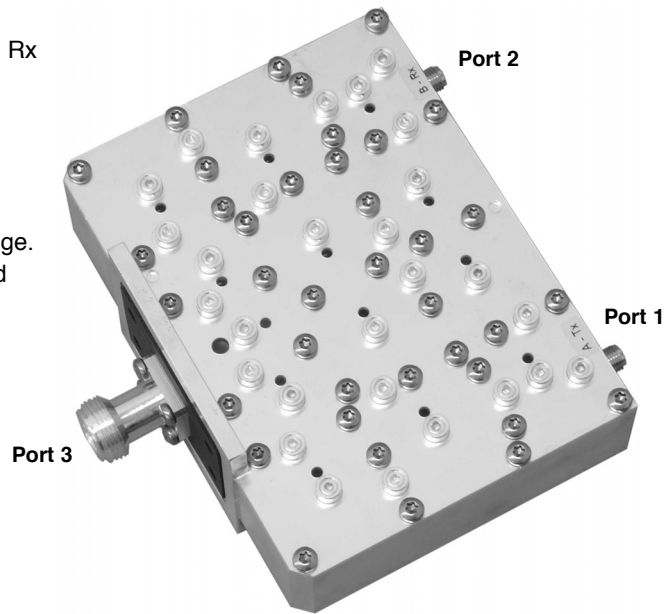
Duplexer

3400 ... 3600 MHz (WiMAX 3.5)

The Duplexer is designed to combine/split WiMAX Tx and Rx signals onto/from one common Tx/Rx antenna in order to save feeder cable and antenna costs.

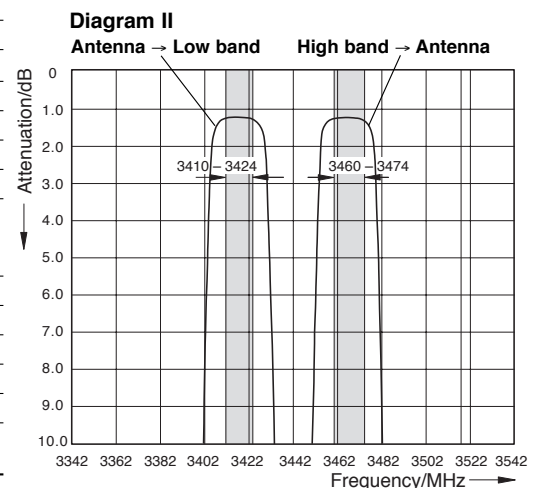
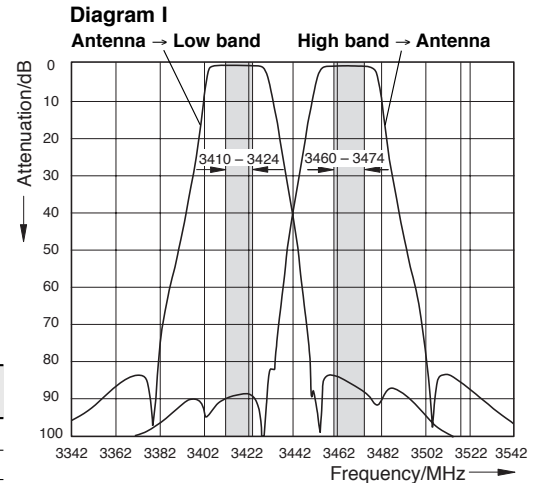
Tuning:

The duplexer is tunable within the specified frequency range. When ordering please note the desired low **and** high band frequencies.



Tuning example:

Calculated Attenuation Curves



Technical Data

| Type No. | 782 10801 |
|--|---|
| Frequency range | 3400 – 3600 MHz |
| Duplex spacing | 50 MHz / 100 MHz |
| Bandwidth | 14 MHz |
| Insertion loss | < 1.8 dB (1.3 typically) |
| Isolation | 80 dB |
| VSWR | < 1.2 |
| Impedance | 50 Ω |
| Input power | < 50 W (low band or high band) |
| Intermodulation products | < -160 dBc (with 2 x 20 W) |
| Temperature range | -20 ... +60 °C |
| Connectors Port 1, Port 2 Port 3 | Tx/Rx input, SMA female Antenna output, N-female |
| Application | Indoor |
| Special features | Built-in DC stop between all ports |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 0.6 kg |
| Packing size | 282 x 252 x 114 mm |
| Dimensions (w x h x d) | 120 x 50 x 120 mm (including connectors) |

Multiband Combiners

Dual-Band Combiners
Triple-Band Combiners
Quad-Band Combiners

Multiband Combiners:

| Description | Type No. | Frequency range | Max. input power | Page |
|--------------------|------------------|--|------------------|----------|
| Dual-Band Combiner | 728 954 | Band 1: 68 – 470 MHz Band 2: 870 – 970 MHz | 50 W 50 W | 231 |
| Dual-Band Combiner | 782 10460 | Band 1: 50 – 470 MHz Band 2: 806 – 2500 MHz | 500 W 500 W | 232, 233 |
| Dual-Band Combiner | 782 10457 | Band 1: 87.5 – 470 MHz Band 2: 806 – 2500 MHz | 500 W 500 W | 232, 233 |
| Dual-Band Combiner | 782 10458 | Band 1: 87.5 – 470 MHz Band 2: 806 – 2500 MHz | 500 W 500 W | 232, 233 |
| Dual-Band Combiner | 791 145 | Band 1: 50 – 1000 MHz Band 2: 1600 – 2000 MHz | 100 W 50 W | 234 |
| Dual-Band Combiner | 782 10341 | Band 1: 824 – 880 MHz Band 2: 890 – 960 MHz | 400 W 400 W | 235 |
| Dual-Band Combiner | 782 10970 | Band 1: 790 – 862 MHz Band 2: 880 – 960 MHz | 200 W 200 W | 236, 237 |
| Dual-Band Combiner | 782 10971 | Band 1: 790 – 862 MHz Band 2: 880 – 960 MHz | 200 W 200 W | 236, 237 |
| Dual-Band Combiner | 782 10972 | Band 1: 790 – 862 MHz Band 2: 880 – 960 MHz | 200 W 200 W | 236, 237 |
| Dual-Band Combiner | 782 10973 | Band 1: 790 – 862 MHz Band 2: 880 – 960 MHz | 200 W 200 W | 236, 237 |
| Dual-Band Combiner | 793 532 | Band 1: 806 – 960 MHz Band 2: 1710 – 2170 MHz | 250 W 200 W | 238, 239 |
| Dual-Band Combiner | 793 533 | Band 1: 806 – 960 MHz Band 2: 1710 – 2170 MHz | 250 W 200 W | 238, 239 |
| Dual-Band Combiner | 782 10248 | Band 1: 470 – 960 MHz Band 2: 1710 – 2170 MHz | 700 W 650 W | 240, 241 |
| Dual-Band Combiner | 782 10249 | Band 1: 470 – 960 MHz Band 2: 1710 – 2170 MHz | 700 W 650 W | 240, 241 |
| Dual-Band Combiner | 782 10250 | Band 1: 470 – 960 MHz Band 2: 1710 – 2170 MHz | 700 W 650 W | 240, 241 |
| Dual-Band Combiner | 782 10251 | Band 1: 470 – 960 MHz Band 2: 1710 – 2170 MHz | 700 W 650 W | 240, 241 |
| Dual-Band Combiner | 782 10660 | Band 1: 470 – 960 MHz Band 2: 1710 – 2700 MHz | 650 W 350 W | 242, 243 |
| Dual-Band Combiner | 782 10661 | Band 1: 470 – 960 MHz Band 2: 1710 – 2700 MHz | 650 W 350 W | 242, 243 |
| Dual-Band Combiner | 782 10662 | Band 1: 470 – 960 MHz Band 2: 1710 – 2700 MHz | 650 W 350 W | 242, 243 |
| Dual-Band Combiner | 782 10663 | Band 1: 470 – 960 MHz Band 2: 1710 – 2700 MHz | 650 W 350 W | 242, 243 |
| Dual-Band Combiner | 782 10680 | Band 1: 380 – 960 MHz Band 2: 1710 – 2700 MHz | 700 W 650 W | 244, 245 |
| Dual-Band Combiner | 782 10681 | Band 1: 380 – 960 MHz Band 2: 1710 – 2700 MHz | 700 W 650 W | 244, 245 |
| Dual-Band Combiner | 782 10682 | Band 1: 380 – 960 MHz Band 2: 1710 – 2700 MHz | 700 W 650 W | 244, 245 |
| Dual-Band Combiner | 782 10683 | Band 1: 380 – 960 MHz Band 2: 1710 – 2700 MHz | 700 W 650 W | 244, 245 |
| Dual-Band Combiner | 782 10278 | Band 1: 806 – 1880 MHz Band 2: 1920 – 2170 MHz | 500 W 500 W | 246, 247 |
| Dual-Band Combiner | 782 10279 | Band 1: 806 – 1880 MHz Band 2: 1920 – 2170 MHz | 500 W 500 W | 246, 247 |
| Dual-Band Combiner | 782 10305 | Band 1: 806 – 1880 MHz Band 2: 1920 – 2170 MHz | 500 W 500 W | 246, 247 |
| Dual-Band Combiner | 782 10306 | Band 1: 806 – 1880 MHz Band 2: 1920 – 2170 MHz | 500 W 500 W | 246, 247 |
| Dual-Band Combiner | 782 10620 | Band 1: 1710 – 1880 MHz Band 2: 1920 – 2170 MHz | 300 W 300 W | 248, 249 |
| Dual-Band Combiner | 782 10621 | Band 1: 1710 – 1880 MHz Band 2: 1920 – 2170 MHz | 300 W 300 W | 248, 249 |

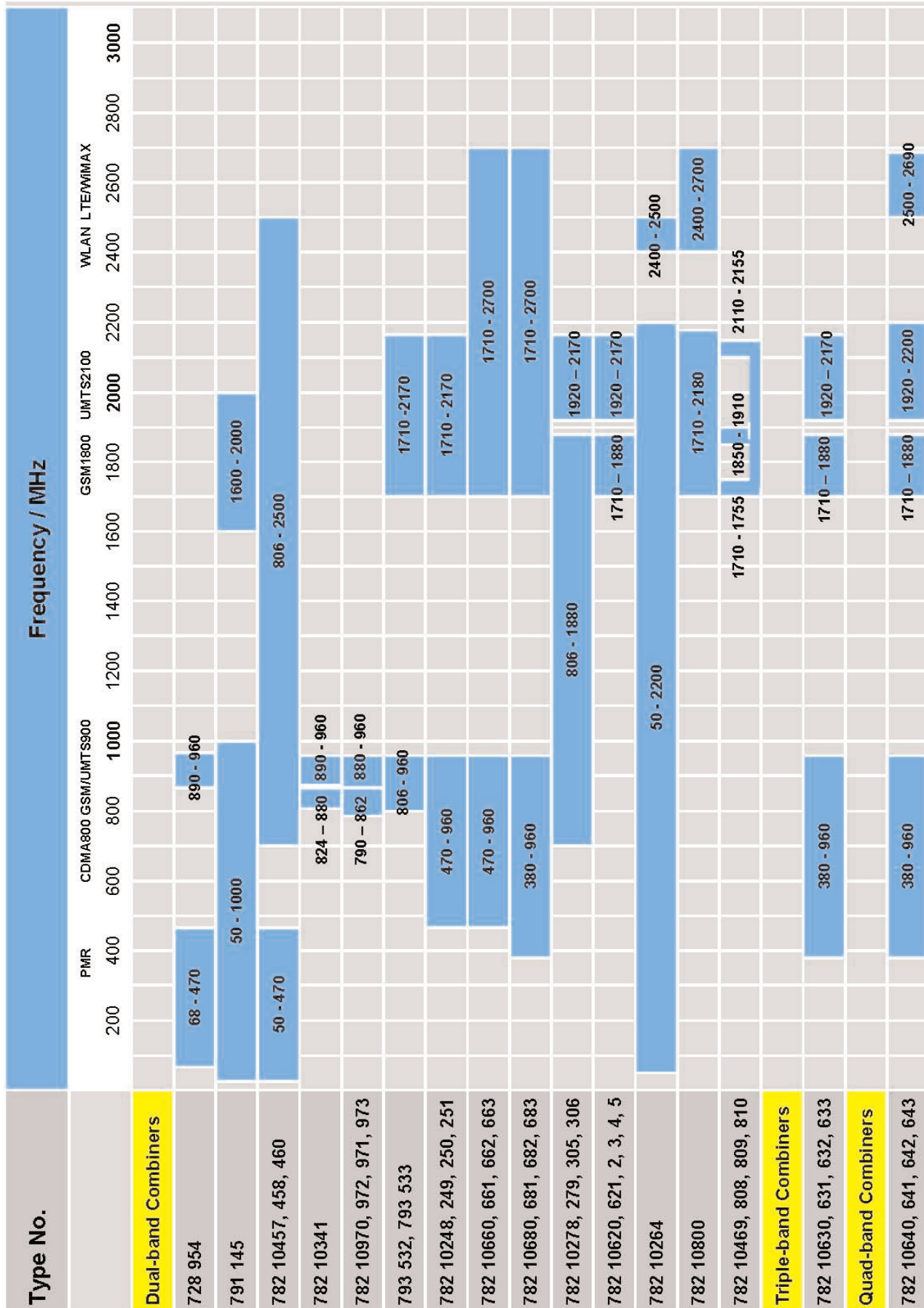
Multiband Combiners:

| Description | Type No. | Frequency range | Max. input power | Page |
|----------------------|------------------|--|----------------------------------|----------|
| Dual-Band Combiner | 782 10622 | Band 1: 1710 – 1880 MHz Band 2: 1920 – 2170 MHz | 300 W 300 W | 248, 249 |
| Dual-Band Combiner | 782 10623 | Band 1: 1710 – 1880 MHz Band 2: 1920 – 2170 MHz | 300 W 300 W | 248, 249 |
| Dual-Band Combiner | 782 10624 | Band 1: 1710 – 1880 MHz Band 2: 1920 – 2170 MHz | 300 W 300 W | 248, 249 |
| Dual-Band Combiner | 782 10625 | Band 1: 1710 – 1880 MHz Band 2: 1920 – 2170 MHz | 300 W 300 W | 248, 249 |
| Dual-Band Combiner | 782 10469 | Band 1: 1850 – 1990 MHz Band 2: 1710 – 2155 MHz | 250 W 250 W | 250 |
| Dual-Band Combiner | 782 10808 | Band 1: 1850 – 1990 MHz Band 2: 1710 – 2155 MHz | 250 W 250 W | 250 |
| Dual-Band Combiner | 782 10809 | Band 1: 1850 – 1990 MHz Band 2: 1710 – 2155 MHz | 250 W 250 W | 251 |
| Dual-Band Combiner | 782 10810 | Band 1: 1850 – 1990 MHz Band 2: 1710 – 2155 MHz | 250 W 250 W | 251 |
| Dual-Band Combiner | 782 10800 | Band 1: 1710 – 2180 MHz Band 2: 2400 – 2700 MHz | 275 W 150 W | 252 |
| Dual-Band Combiner | 782 10264 | Band 1: 50 – 2200 MHz Band 2: 2400 – 2500 MHz | 200 W 200 W | 253 |
| Triple-Band Combiner | 782 10630 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2170 MHz | 700 W 300 W 300 W | 254, 255 |
| Triple-Band Combiner | 782 10631 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2170 MHz | 700 W 300 W 300 W | 254, 255 |
| Triple-Band Combiner | 782 10632 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2170 MHz | 700 W 300 W 300 W | 254, 255 |
| Triple-Band Combiner | 782 10633 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2170 MHz | 700 W 300 W 300 W | 254, 255 |
| Quad-Band Combiner | 782 10640 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2200 MHz Band 4: 2500 – 2690 MHz | 700 W 300 W 300 W 200 W | 256, 257 |
| Quad-Band Combiner | 782 10641 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2200 MHz Band 4: 2500 – 2690 MHz | 700 W 300 W 300 W 200 W | 256, 257 |
| Quad-Band Combiner | 782 10642 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2200 MHz Band 4: 2500 – 2690 MHz | 700 W 300 W 300 W 200 W | 256, 257 |
| Quad-Band Combiner | 782 10643 | Band 1: 380 – 960 MHz Band 2: 1710 – 1880 MHz Band 3: 1920 – 2200 MHz Band 4: 2500 – 2690 MHz | 700 W 300 W 300 W 200 W | 256, 257 |

New Products

Multiband Combiner – Frequency combinations

Dual-Band Combiner, Triple-Band Combiner, Quad-Band Combiner



Dual-Band Combiner

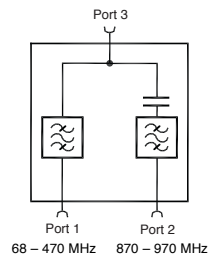
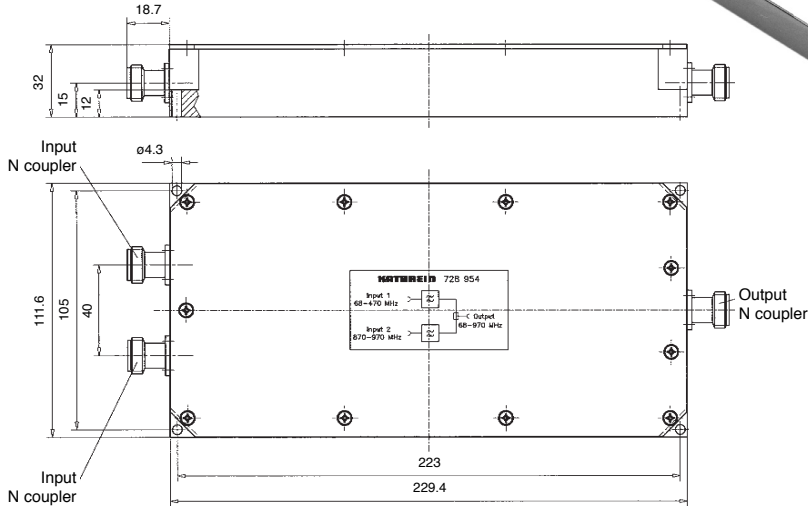
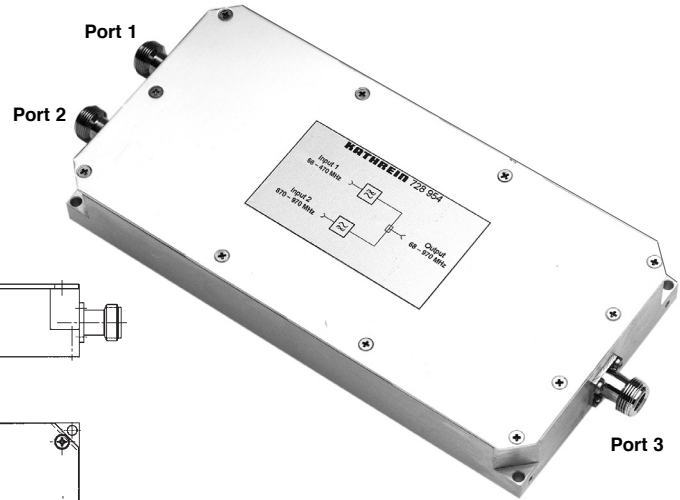
KATHREIN

Antennen · Electronic

68 – 470 MHz
80 / 160 / 400 MHz

870 – 970 MHz
GSM 900

- Designed for inhouse multiband distribution network
- Enables feeder sharing
- DC by-pass between port 1 and port 3
- Built-in DC stop between port 2 and port 3



Typical Attenuation Curves

Diagram I

Port 1 ↔ Port 3

Port 2 ↔ Port 3

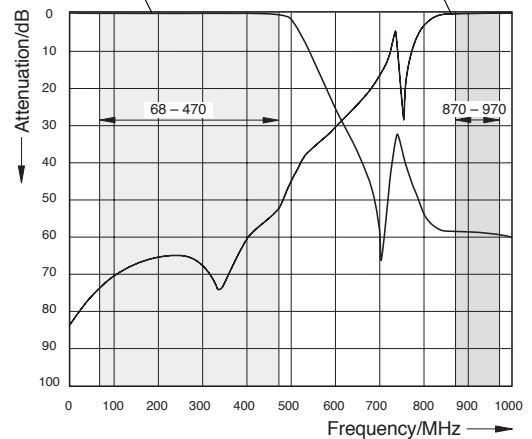
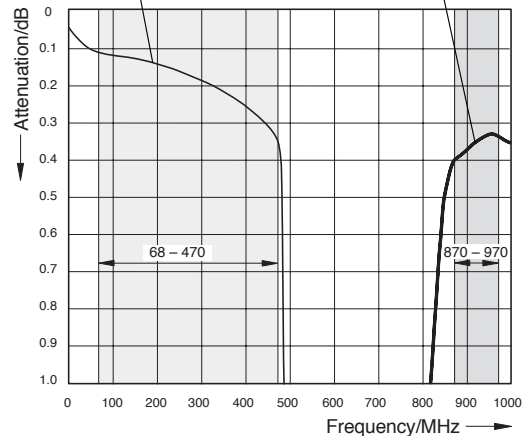


Diagram II

Port 1 ↔ Port 3

Port 2 ↔ Port 3



Technical Data

| Type No. | 728 954 |
|--|--|
| Pass band Band 1 Band 2 | 68 – 470 MHz 870 – 970 MHz |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.5 dB (68 – 470 MHz) < 0.5 dB (870 – 970 MHz) |
| Isolation Port 1 ↔ Port 2 | > 45 dB |
| VSWR | < 1.2 |
| Impedance | 50 Ω |
| Input power Band 1 Band 2 | < 50 W < 50 W |
| Intermodulation products | < -160 dBc (2 nd /3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +70 °C |
| Connectors | N female |
| Application | Indoor |
| DC transparency Port 1 ↔ Port 3 Port 2 → Port 3 Port 3 → Port 2 | By-pass (max. 2500mA) short circuited stop |
| Weight | 0.8 kg |
| Packing size | 285 x 55 x 125 mm |
| Dimensions (w x h x d) | 229.4 x 32 x 111.6 mm (without connectors) |

Dual-Band Combiner

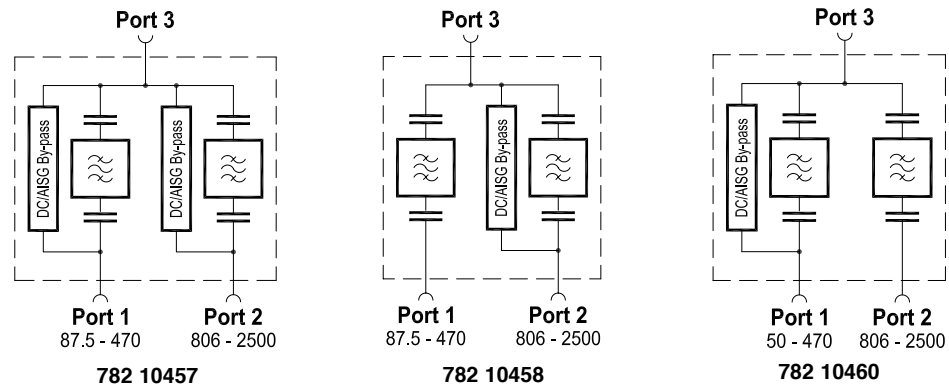
KATHREIN

Antennen · Electronic

50 – 470 MHz
PMR / TETRA / TETRAPOL

806 – 2500 MHz
CDMA 800 / GSM 900 / GSM 1800 / UMTS / WLAN

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- External DC stop available as an accessory
- **Very low insertion loss**
- **High input power**



Technical Data

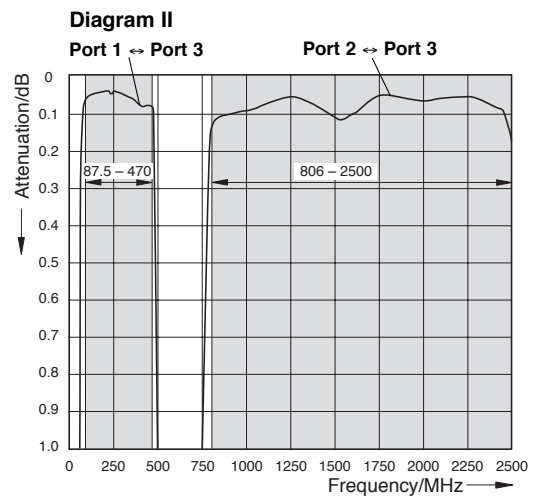
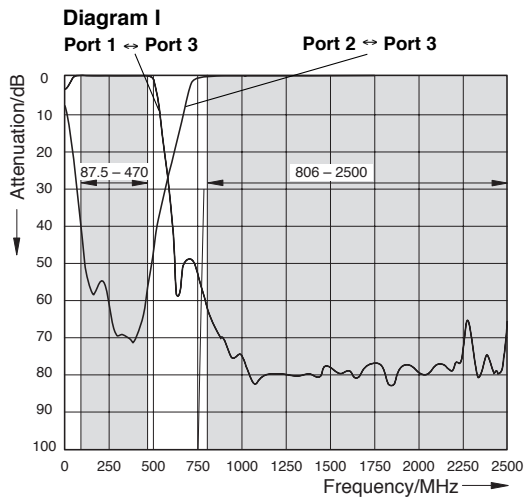
| Type No. | 782 10457 | 782 10458 | 782 10460 |
|--|---|--|--|
| Pass band Band 1 Band 2 | 87.5 – 470 MHz 806 – 2500 MHz | | 50 – 470 MHz 806 – 2500 MHz |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.15 dB (87.5 – 470 MHz) < 0.15 dB (806 – 2500 MHz) | | < 0.15 dB (50 – 470 MHz) < 0.15 dB (806 – 2500 MHz) |
| Isolation Port 1 ↔ Port 2 | > 50 dB (250 – 470 / 806 – 2500 MHz) > 40 dB (87.5 – 250 MHz) | | > 50 dB (50 – 470 / 806 – 2500 MHz) |
| VSWR | < 1.25 (87.5 – 470 / 806 – 960 / 1710 – 2500 MHz) | | < 1.25 (50 – 470 / 806 – 960 / 1710 – 2500 MHz) |
| Impedance | 50 Ω | | |
| Input power Band 1 Band 2 | < 500 W < 500 W | | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | | |
| Temperature range | -55 ... +60 °C | | |
| Connectors | 7-16 female, long neck | | |
| Application | Indoor or outdoor (IP 66) | | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop By-pass (max. 2500 mA) | By-pass (max. 2500 mA) Stop |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | | |
| Weight | 4 kg | | |
| Dimensions (w x h x d) | 122 x 52 x 284.7 mm (without connectors, without mounting brackets) | | |

50 – 470 MHz
PMR / TETRA / TETRAPOL

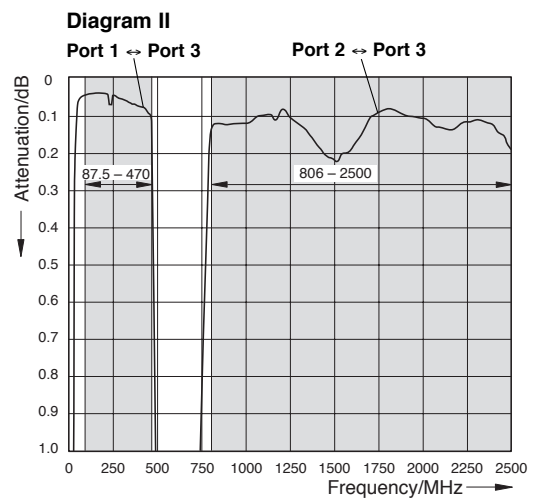
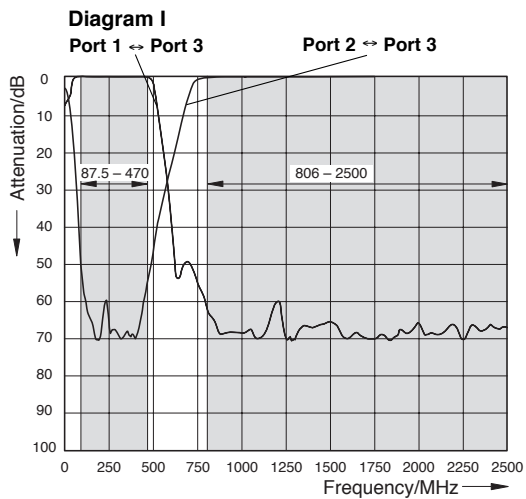
806 – 2500 MHz
CDMA 800 / GSM 900 / GSM 1800 / UMTS / WLAN

Typical Attenuation Curves

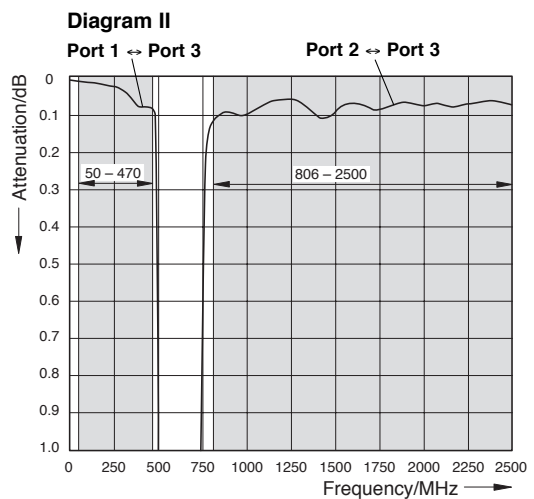
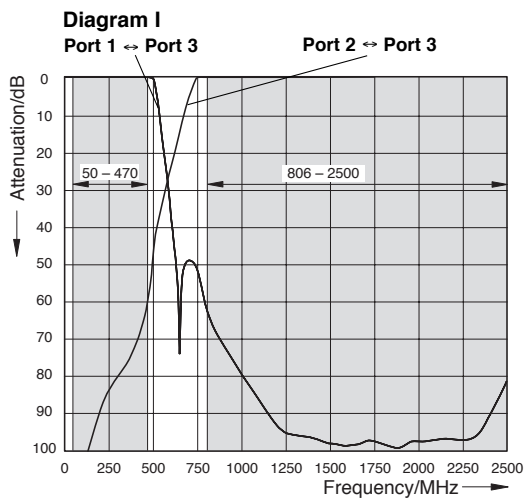
782 10457



782 10458



782 10460



Dual-Band Combiner

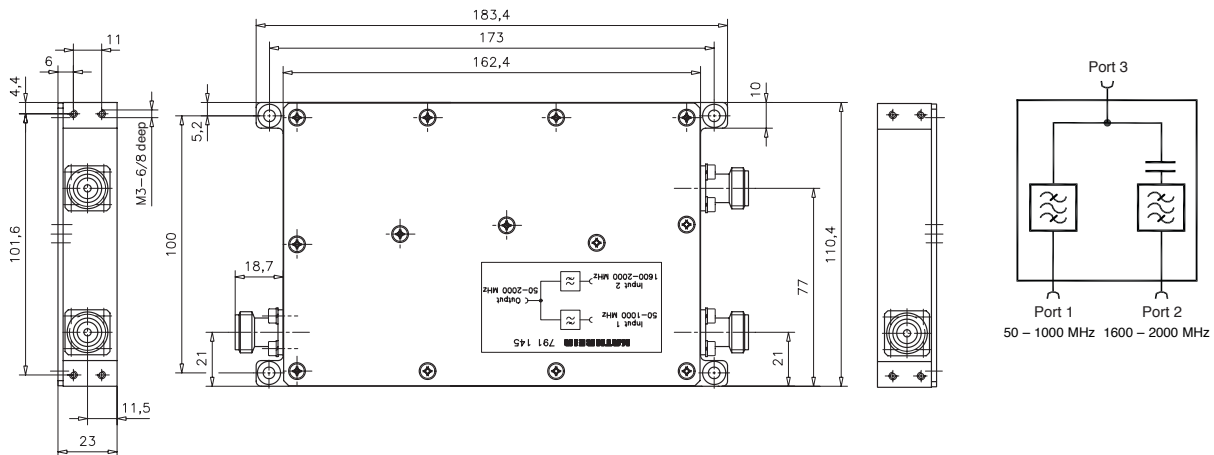
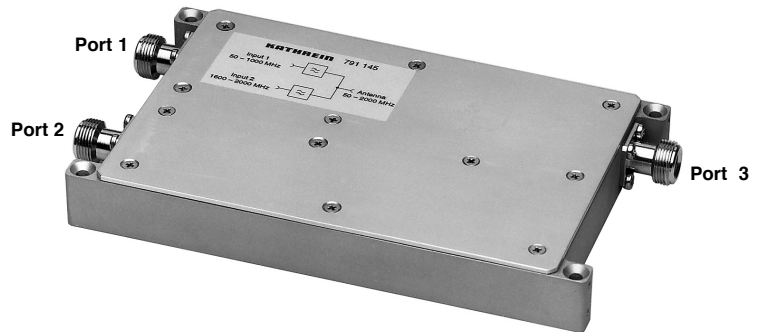
KATHREIN

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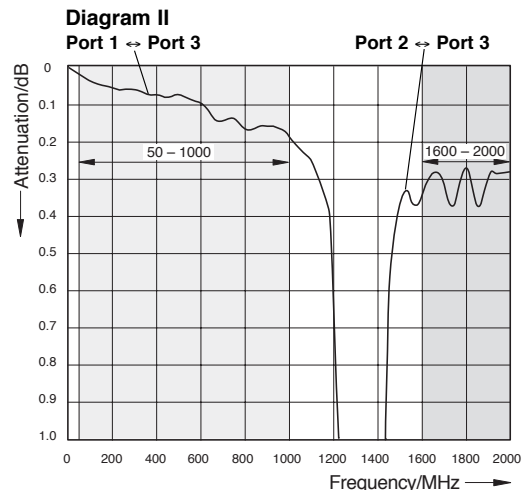
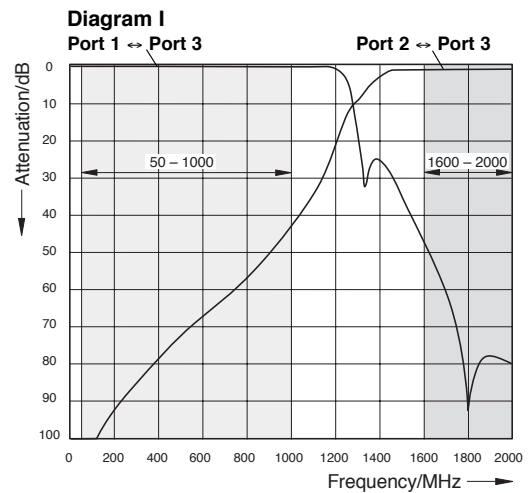
50 – 1000 MHz
80 / 160 / 400 / GSM 900

1600 – 2000 MHz
GSM 1800

- Designed for inhouse multiband distribution network
- Enables feeder sharing
- DC by-pass between port 1 and port 3
- Built-in DC stop between port 2 and port 3



Typical Attenuation Curves



Technical Data

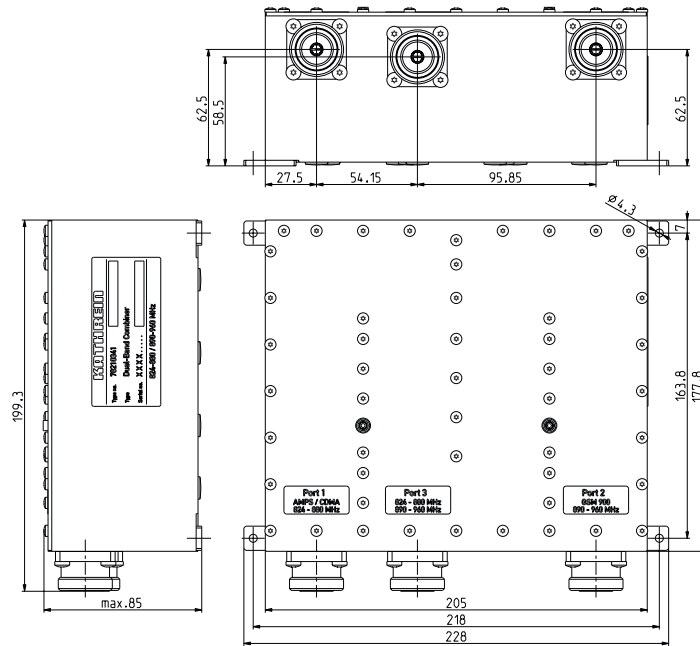
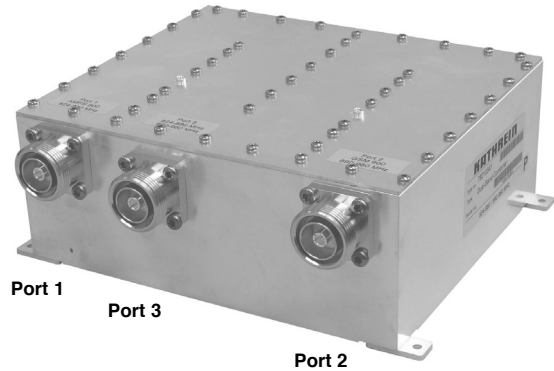
| | |
|--|--|
| Type No. | 791 145 |
| Pass band Band 1 Band 2 | 50 – 1000 MHz 1600 – 2000 MHz |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.3 dB (50 – 1000 MHz) < 0.5 dB (1600 – 2000 MHz) |
| Isolation Port 1 ↔ Port 2 | > 40 dB (50 – 1000 / 1600 – 2000 MHz) |
| VSWR (all ports) | < 1.2 (50 – 1000 / 1600 – 2000 MHz) |
| Impedance | 50 Ω |
| Input power Band 1 Band 2 | < 100 W < 50 W |
| Temperature range | -30 ... +60 °C |
| Connectors | N female |
| Application | Indoor |
| DC transparency Port 1 ↔ Port 3 Port 2 → Port 3 Port 3 → Port 2 | By-pass (max. 2500mA) Short circuited Stop |
| Mounting | With 4 screws (max.4 mm diameter) |
| Weight | 0.7 kg |
| Packing size | 220 x 40 x 140 mm |
| Dimensions (w x h x d) | 201 x 23 x 112 mm (incl. connectors) |

Dual-Band Combiner

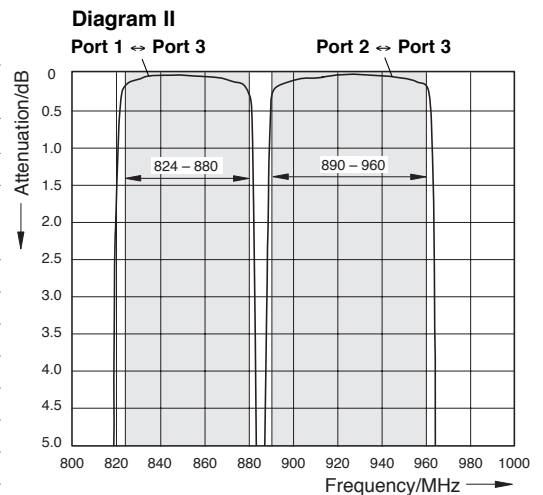
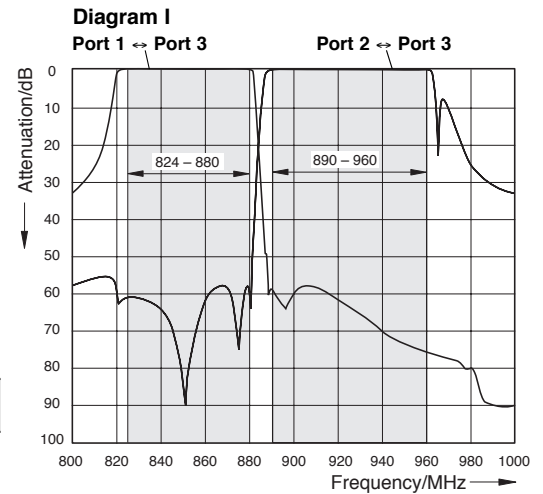
824 – 880 MHz
AMPS / CDMA 800

890 – 960 MHz
GSM 900

- Designed for co-siting purposes
- Enables feeder sharing
- Suitable for indoor applications
- Built-in DC stop between all ports



Typical Attenuation Curves



Technical Data

| Type No. | 782 10341 |
|--------------------------|---|
| Pass band | |
| Band 1 (AMPS / CDMA 800) | 824 – 880 MHz |
| Band 2 (GSM 900) | 890 – 960 MHz |
| Insertion loss | |
| Port 1 ↔ Port 3 | < 0.6 dB (824 – 880 MHz) |
| Port 2 ↔ Port 3 | < 0.6 dB (890 – 960 MHz) |
| Isolation | |
| Port 1 ↔ Port 2 | > 55 dB (824 – 880 / 890 – 960 MHz) |
| VSWR | < 1.2 (824 – 880 / 890 – 960 MHz) |
| Impedance | 50 Ω |
| Input power | |
| Band 1 | < 400 W (with max. 8 carriers) |
| Band 2 | < 400 W (with max. 8 carriers) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| Special features | Built-in DC stop between all ports |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 3.2 kg |
| Dimensions (w x h x d) | 228 x 85 x 199.3 mm (including connectors and mounting feet) |

Dual-Band Combiner

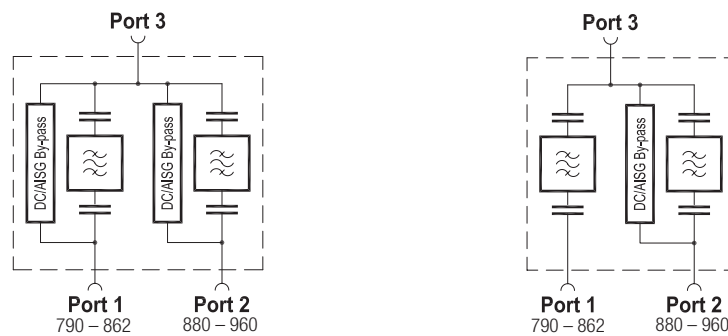
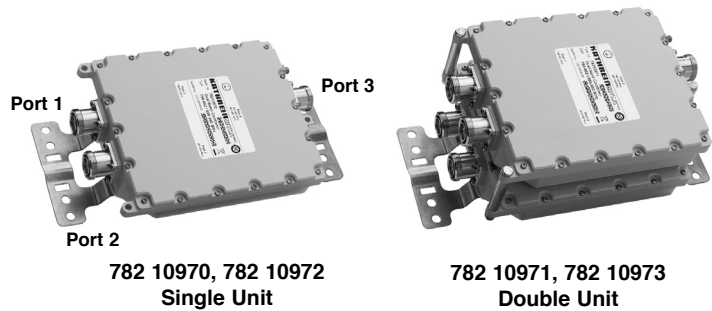
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790 – 862 MHz
DD (Digital Dividend) / CDMA 800

880 – 960 MHz
GSM 900

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC stop available as an accessory



Technical Data

| Type No. | 782 10970 Single Unit | 782 10972 Single Unit |
|--|---|--|
| | 782 10971 Double Unit | 782 10973 Double Unit |
| Pass band Band 1 Band 2 | 790 – 862 MHz 880 – 960 MHz | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.4 dB, typically 0.2 dB (790 – 862 MHz) < 0.4 dB, typically 0.2 dB (880 – 960 MHz) | |
| Isolation Port 1 ↔ Port 2 | > 50 dB (790 – 862 MHz / 880 – 960 MHz) | |
| VSWR | < 1.2 (790 – 862 / 880 – 960 MHz) | |
| Impedance | 50 Ω | |
| Input power Band 1 / Band 2 | < 200 W / < 200 W | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -40 ... +60 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | |
| Weight | Single Unit: Approx. 3.2 kg / Double Unit: Approx. 6.1 kg | |
| Dimensions (w x h x d) | Single Unit: 175 x 51 x 207 mm / Double Unit: 175 x 106 x 207 mm (without connectors, without mounting brackets) | |

Dual-Band Combiner

KATHREIN

Antennen · Electronic

790 – 862 MHz
DD (Digital Dividend) / CDMA 800

880 – 960 MHz
GSM 900

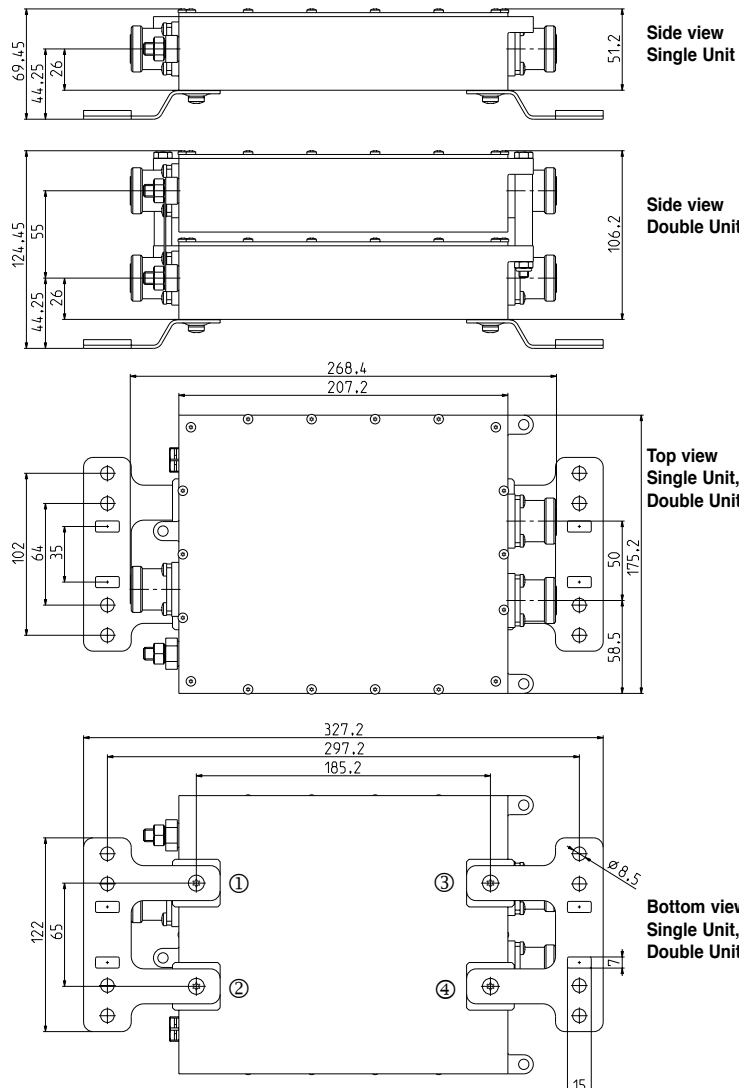
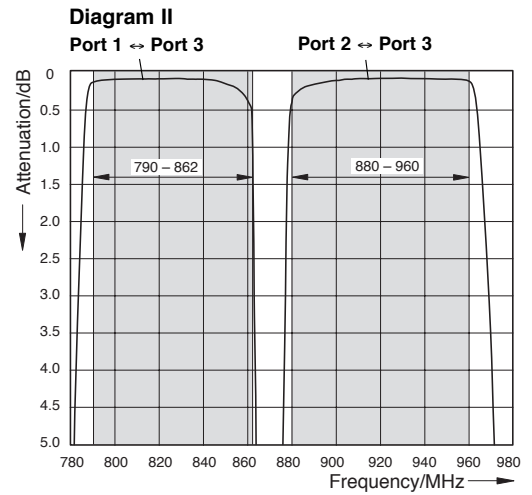
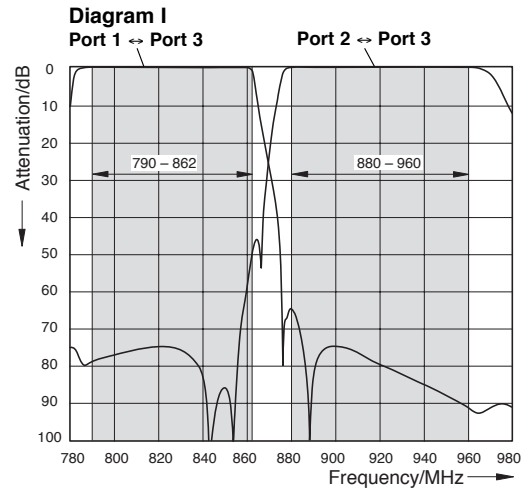
Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

| Type No. | Description |
|------------------|---|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |



Calculated Attenuation Curves



Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 12) and replaced with other means of mounting, always provided that the max. drilled depth of 7.5 mm is respected with the choice of replacement screws.

Dual-Band Combiner

806 – 960 MHz
CDMA 800 / GSM 900

1710 – 2170 MHz
GSM 1800 / UMTS

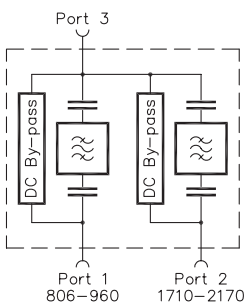
- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- DC by-pass between all ports
- DC stop available as an accessory



793 532
Single Unit

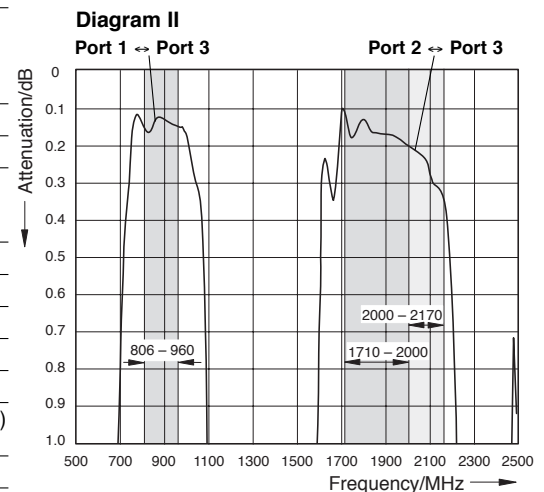
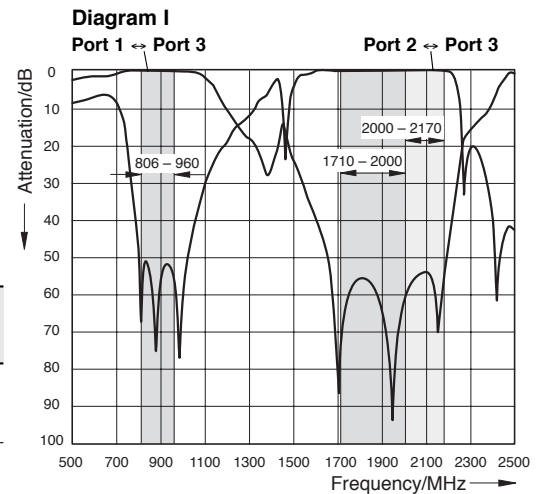


793 533
Double Unit



Single Unit 793 532
Double Unit 793 533
(only 1 unit shown)

Typical Attenuation Curves



Technical Data

| Type No. | 793 532 Single Unit | 793 533 Double Unit |
|--|---|--|
| Pass band Band 1 Band 2 | 806 – 960 MHz 1710 – 2170 MHz | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | Typically 0.15 dB (806 – 960 MHz) Typically 0.25 dB (1710 – 2000 MHz) Typically 0.35 dB (2000 – 2170 MHz) | |
| Isolation Port 1 ↔ Port 2 | > 45 dB (806 – 824 MHz) > 50 dB (824 – 960 MHz) > 50 dB (1710 – 2170 MHz) | |
| VSWR | < 1.2 (806 – 960 / 1710 – 2170 MHz) | |
| Impedance | 50 Ω | |
| Input power Band 1 Band 2 | < 250 W < 200 W | |
| Intermodulation products | < -160 dBc (2 nd /3 rd order; with 2 x 20 W) | |
| Temperature range | -55 ... +60 °C | |
| Connectors | 7-16 female | |
| Application | Indoor or outdoor (IP 66) | |
| Special features | DC by-pass between all ports (max. 2500 mA) | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | |
| Weight | 1.6 kg | 3.0 kg |
| Packing size | 350 x 165 x 138 mm | 350 x 165 x 190 mm |
| Dimensions (w x h x d) | 125 x 197.7 x 41.4 mm | 125 x 197.7 x 91.8 mm (without connectors, without mounting brackets) |

Dual-Band Combiner

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Antennen · Electronic

806 – 960 MHz
CDMA 800 / GSM 900

1710 – 2170 MHz
GSM 1800 / UMTS

Accessories (order separately)

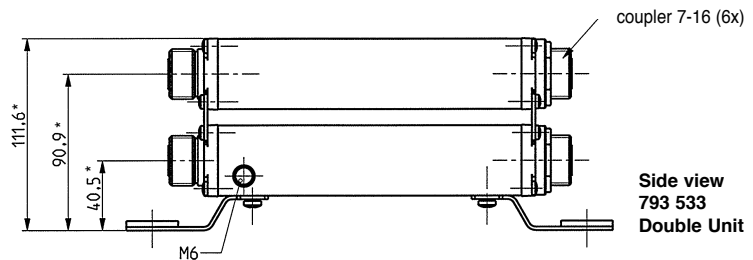
| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



| Type No. | Description |
|-----------|-----------------------------------|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W indoor or outdoor |

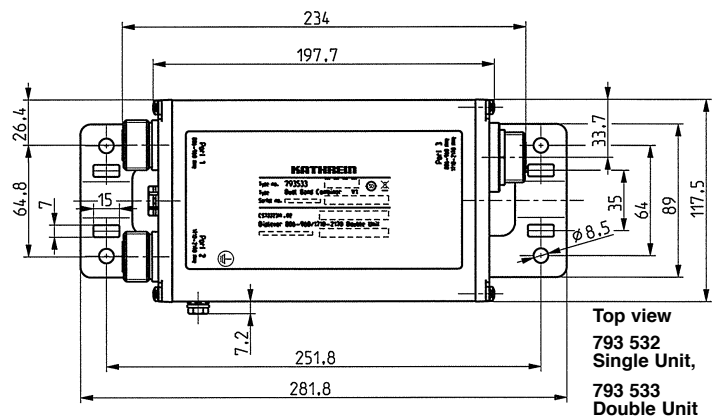


Side view
793 532
Single Unit

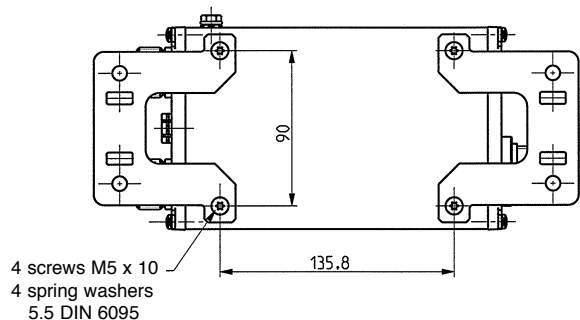


Side view
793 533
Double Unit

* Valid if labelled "Dual-Band Combiner V1" (not valid for previous version labelled "Dual-Band Combiner")



Top view
793 532
Single Unit,
793 533
Double Unit



Bottom view
793 532
Single Unit,
793 533
Double Unit

Dual-Band Combiner

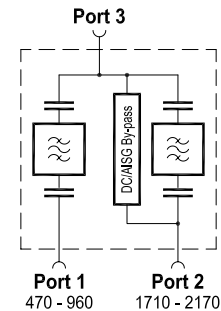
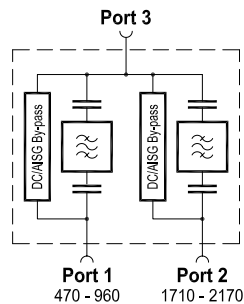
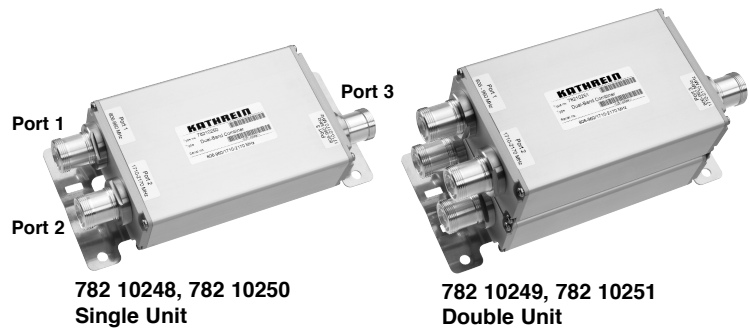
KATHREIN

Antennen · Electronic

470 – 960 MHz
DVB-H / CDMA 800 / GSM 900

1710 – 2170 MHz
GSM 1800 / UMTS

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC stop available as an accessory
- **Very low insertion loss**
- **High input power**



Technical Data

| Type No. | 782 10248 Single Unit | 782 10250 Single Unit |
|--|--|--|
| | 782 10249 Double Unit | 782 10251 Double Unit |
| Pass band Band 1 Band 2 | 470 – 960 MHz 1710 – 2170 MHz | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.1 dB (470 – 960 MHz), typically 0.05 dB (470 – 960 MHz) < 0.1 dB (1710 – 2170 MHz), typically 0.05 dB (1710 – 2170 MHz) | |
| Isolation Port 1 ↔ Port 2 | > 45 dB (470 – 550 MHz) / > 55 dB (550 – 960 MHz) / > 65 dB (1710 – 2170 MHz) | |
| VSWR | < 1.2 (470 – 960 / 1710 – 2170 MHz) | |
| Impedance | 50 Ω | |
| Input power Band 1 / Band 2 | < 700 W / < 650 W | |
| Intermodulation products | < -160 dBc (2 nd /3 rd order; with 2 x 20 W) | |
| Temperature range | -55 ... +60 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | |
| Weight | Single Unit: 2.9 kg / Double Unit: 5.7 kg | |
| Packing size | Single Unit: 365 x 207 x 150 mm / Double Unit: 365 x 207 x 214 mm | |
| Dimensions (w x h x d) | Single Unit: 125 x 194.5 x 50 mm / Double Unit: 125 x 194.5 x 105.4 mm (without connectors, without mounting brackets) | |

Dual-Band Combiner

KATHREIN

Antennen · Electronic

470 – 960 MHz
DVB-H / CDMA 800 / GSM 900

1710 – 2170 MHz
GSM 1800 / UMTS

Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

Clamp Set



50-Ω load

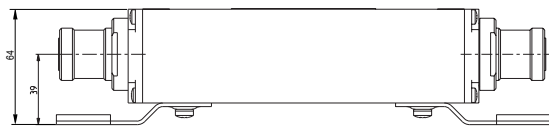
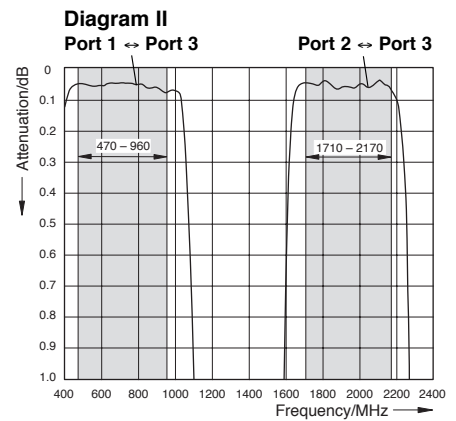
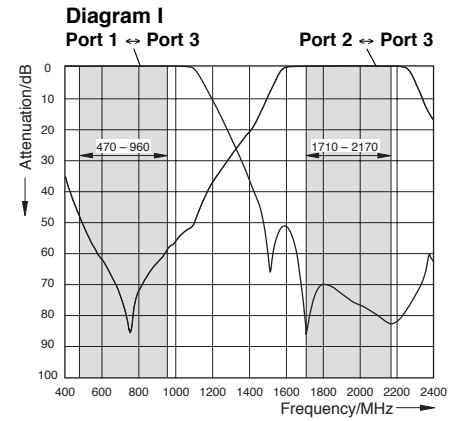


DC stop

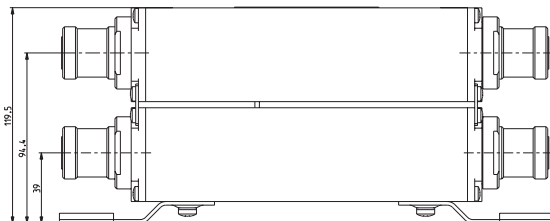


| Type No. | Description |
|-----------|--|
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |
| 793 301 | DC stop |

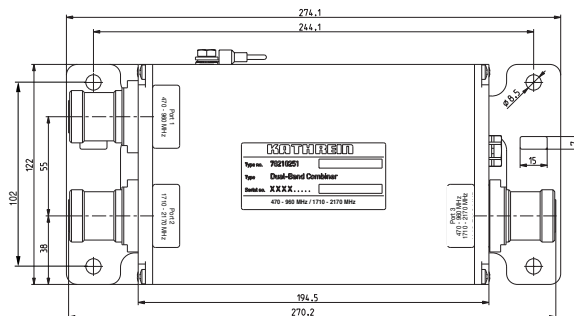
Typical Attenuation Curves



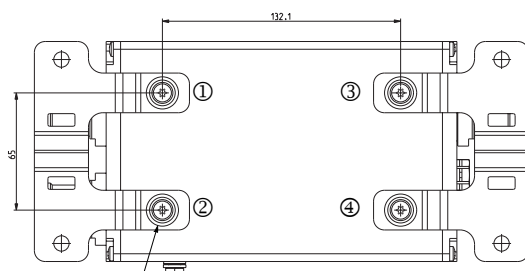
Side view
Single Unit



Side view
Double Unit



Top view
Single Unit,
Double Unit



Bottom view
Single Unit,
Double Unit

4 screws M5 x 10
4 spring washers
5.5 DIN 6095

Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 10) and replaced with other means of mounting, always provided that the max. drilled depth of 8.5 mm is respected with the choice of replacement screws.

Dual-Band Combiner

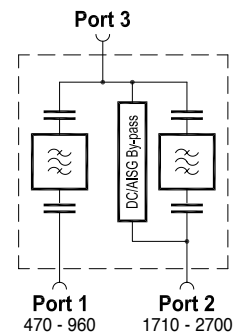
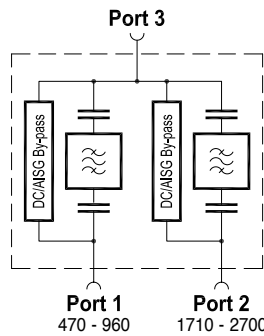
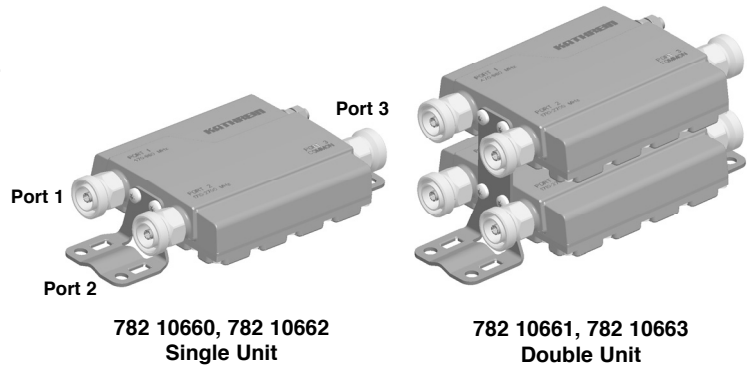
KATHREIN

Antennen · Electronic

470 – 960 MHz
DVB-H / CDMA 800 / GSM 900

1710 – 2700 MHz
GSM 1800 / UMTS / WiMAX / LTE 2600

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC stop available as an accessory
- **Extremely small dimensions and low weight**
- **Very low insertion loss**
- **High input power**



Technical Data

| Type No. | 782 10660 Single Unit | 782 10662 Single Unit |
|--|---|--|
| | 782 10661 Double Unit | 782 10663 Double Unit |
| Pass band Band 1 Band 2 | 470 – 960 MHz 1710 – 2700 MHz | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.15 dB (470 – 960 MHz), typically 0.1 dB (470 – 960 MHz) < 0.2 dB (1710 – 2700 MHz), typically 0.1 dB (1710 – 2700 MHz) | |
| Isolation Port 1 ↔ Port 2 | > 55 dB (470 – 960 MHz) / > 65 dB (1710 – 2700 MHz) | |
| VSWR | < 1.2 (470 – 960 / 1710 – 2700 MHz) | |
| Impedance | 50 Ω | |
| Input power Band 1 / Band 2 | < 650 W / < 350 W | |
| Intermodulation products | < -160 dBc (3 rd order with 2 x 20 W) | |
| Temperature range | -55 ... +60 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | |
| Weight | Single Unit: Approx. 1.0 kg / Double Unit: Approx. 1.9 kg | |
| Dimensions (w x h x d) | Single Unit: 126 x 145 x 38 mm / Double Unit: 126 x 145 x 93 mm (without connectors, without mounting brackets) | |

Dual-Band Combiner

KATHREIN

Antennen · Electronic

470 – 960 MHz
DVB-H / CDMA 800 / GSM 900

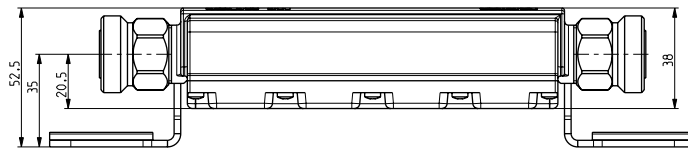
1710 – 2700 MHz
GSM 1800 / UMTS / WiMAX / LTE 2600

Accessories (order separately)

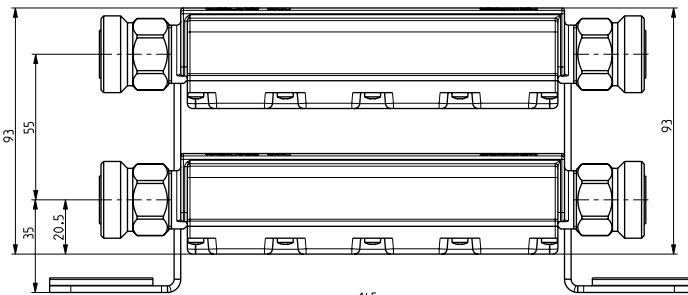
| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



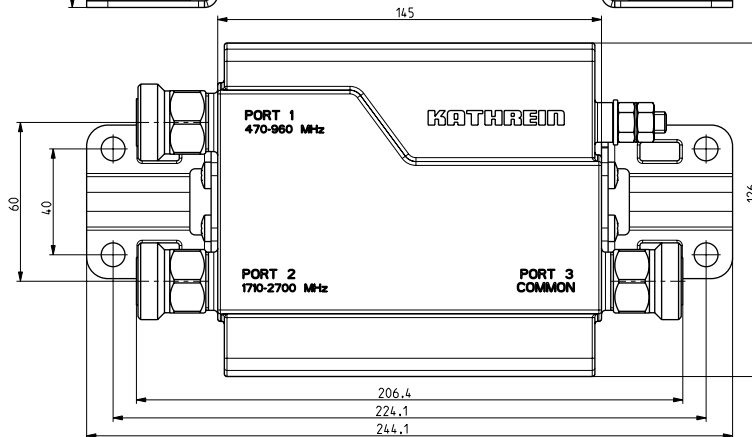
| Type No. | Description |
|------------------|---|
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |
| 793 301 | DC stop |



Side view
Single Unit



Side view
Double Unit



Top view
Single Unit,
Double Unit

Dual-Band Combiner

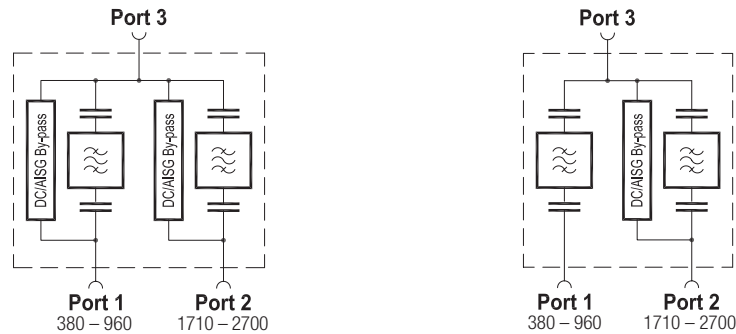
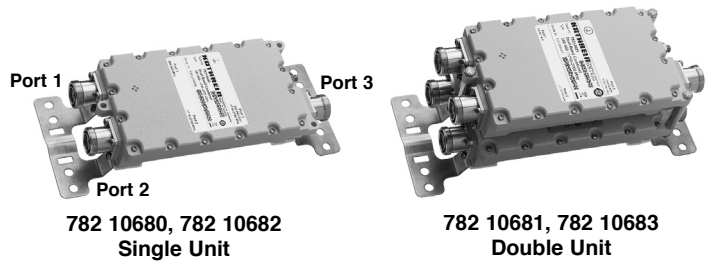
KATHREIN

Antennen · Electronic

380 – 960 MHz
TETRA / DVB-H / CDMA 800 / GSM 900

1710 – 2700 MHz
GSM 1800 / UMTS / WiMAX / LTE 2600

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC stop available as an accessory
- **Extremely low insertion loss**
- **High input power**



Technical Data

| Type No. | 782 10680 Single Unit | 782 10682 Single Unit |
|--|--|--|
| | 782 10681 Double Unit | 782 10683 Double Unit |
| Pass band Band 1 Band 2 | 380 – 960 MHz 1710 – 2700 MHz | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.1 dB (380 – 960 MHz), typically 0.05 dB (380 – 960 MHz) < 0.1 dB (1710 – 2700 MHz), typically 0.05 dB (1710 – 2700 MHz) | |
| Isolation Port 1 ↔ Port 2 | > 55 dB (380 – 550 MHz) / > 65 dB (550 – 960 MHz) / > 65 dB (1710 – 2700 MHz) | |
| VSWR | < 1.2 (380 – 960 / 1710 – 2700 MHz) | |
| Impedance | 50 Ω | |
| Input power Band 1 / Band 2 | < 700 W / < 650 W | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -55 ... +60 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | |
| Weight | Single Unit: 2.2 kg / Double Unit: 4.3 kg | |
| Packing size | Single Unit: 365 x 207 x 150 mm / Double Unit: 365 x 207 x 214 mm | |
| Dimensions (w x h x d) | Single Unit: 117 x 210 x 50 mm / Double Unit: 117 x 210 x 102 mm (without connectors, without mounting brackets) | |

Dual-Band Combiner

KATHREIN

Antennen · Electronic

380 – 960 MHz
TETRA / DVB-H / CDMA 800 / GSM 900

1710 – 2700 MHz
GSM 1800 / UMTS / WiMAX / LTE 2600

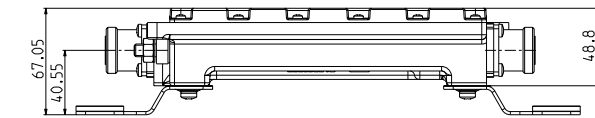
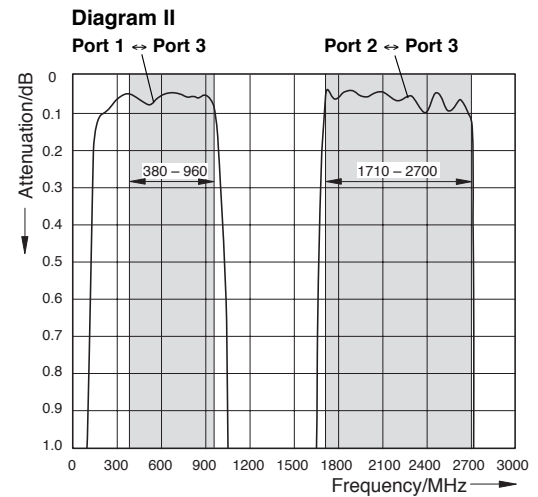
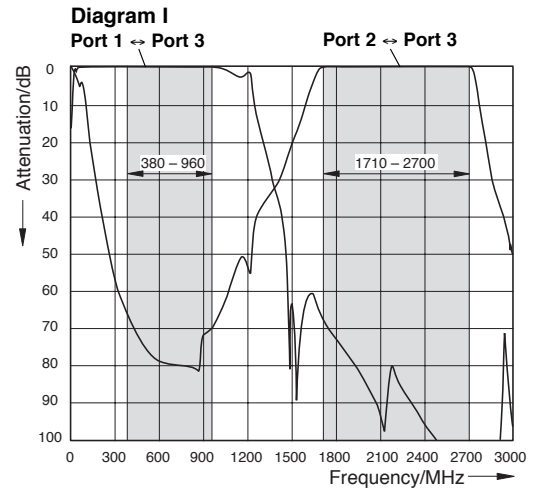
Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

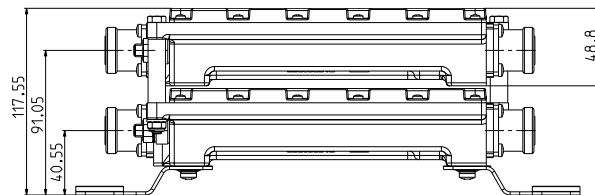
| Type No. | Description |
|-----------|--|
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |
| 793 301 | DC stop |



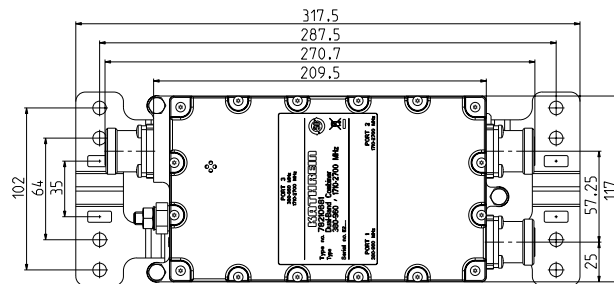
Typical Attenuation Curves



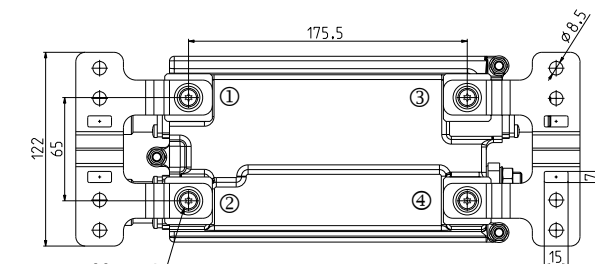
Side view
Single Unit



Side view
Double Unit



Top view
Single Unit,
Double Unit



Bottom view
Single Unit,
Double Unit

4 screws M5 x 12

Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 12) and replaced with other means of mounting, always provided that the max. drilled depth of 7.5 mm is respected with the choice of replacement screws.

Dual-Band Combiner

KATHREIN

Antennen · Electronic

806 – 1880 MHz
CDMA 800 / GSM 900 / GSM 1800

1920 – 2170 MHz
UMTS

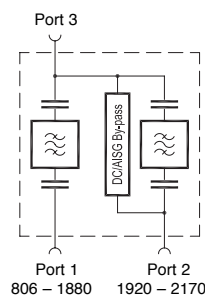
- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC Stop available as an accessory



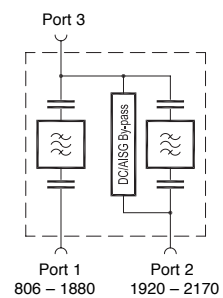
782 10278, 782 10305
Single Unit



782 10279, 782 10306
Double Unit



Single Unit 782 10278
Double Unit 782 10279
(only 1 unit shown)



Single Unit 782 10305
Double Unit 782 10306
(only 1 unit shown)

Technical Data

| Type No. | 782 10278 Single Unit | 782 10279 Double Unit | 782 10305 Single Unit | 782 10306 Double Unit |
|--|---|--|--|--------------------------|
| Pass band Band 1 Band 2 | 806 – 1880 MHz 1920 – 2170 MHz | | | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.1 dB, typically 0.05 dB (806 – 960 MHz) / < 0.4 dB, typically 0.2 dB (1710 – 1880 MHz) < 0.4 dB typically 0.2 dB (1920 – 2170 MHz) | | | |
| Isolation Port 1 ↔ Port 2 | > 55 dB (806 – 960 MHz) / > 50 dB (1710 – 1880 MHz) > 50 dB (1920 – 1980 MHz) / > 50 dB (2110 – 2170 MHz) | | | |
| VSWR | < 1.2 (806 – 960 MHz) / < 1.25 (1710 – 1880 MHz) < 1.2 (1920 – 2170 MHz) | | | |
| Impedance | 50 Ω | | | |
| Input power Band 1 / Band 2 | < 500 W / < 500 W | | | |
| Intermodulation products | < -160 dBc (2 nd /3 rd order; with 2 x 20 W) | | | |
| Temperature range | -55 ... +60 °C | | | |
| Connectors | 7-16 female (long neck) | | | |
| Application | Indoor <i>or</i> outdoor (IP 66) | | | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | | Stop By-pass (max. 2500 mA) | |
| Lightning protection | 3 kA, 10/350 μs pulse | | | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | | | |
| Weight | 3.4 kg | 6.6 kg | 3.4 kg | 6.6 kg |
| Packing size | 430 x 210 x 150 mm | 430 x 210 x 220 mm | 430 x 210 x 150 mm | 430 x 210 x 220 mm |
| Dimensions (w x h x d) | 130 x 269.6 x 43 mm | 130 x 269.6 x 98.5 mm (without connectors, without mounting brackets) | 130 x 269.6 x 43 mm | 130 x 269.6 x 98.5 mm |

Dual-Band Combiner

KATHREIN

Antennen · Electronic

806 – 1880 MHz
CDMA 800 / GSM 900 / GSM 1800

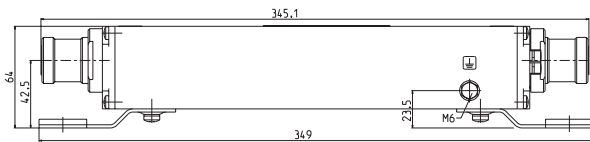
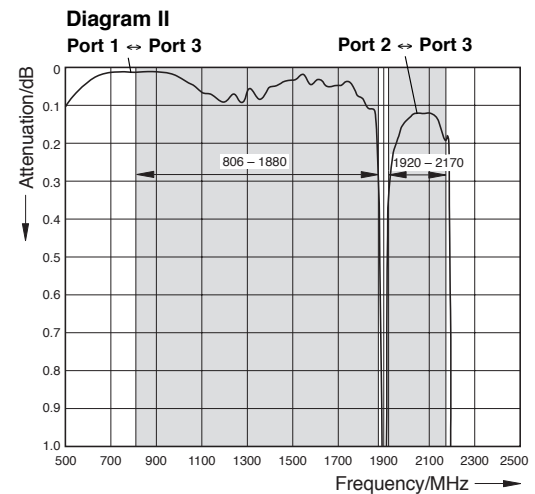
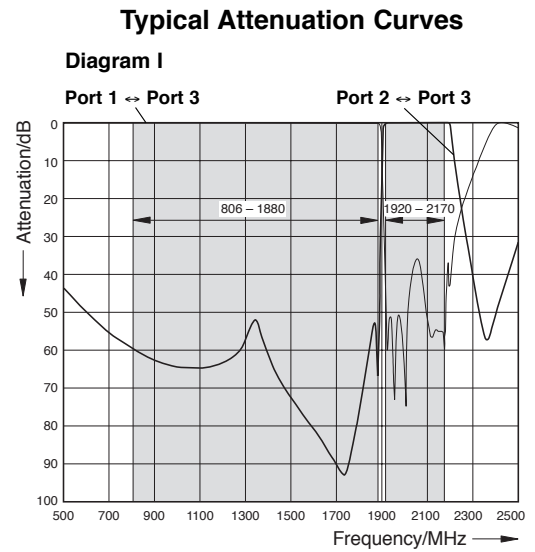
1920 – 2170 MHz
UMTS

Accessories (order separately)

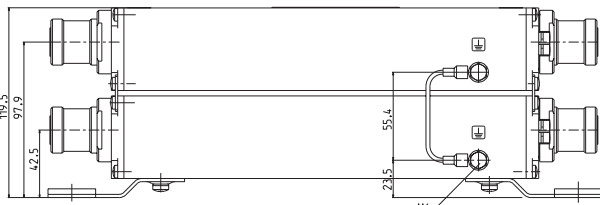
| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



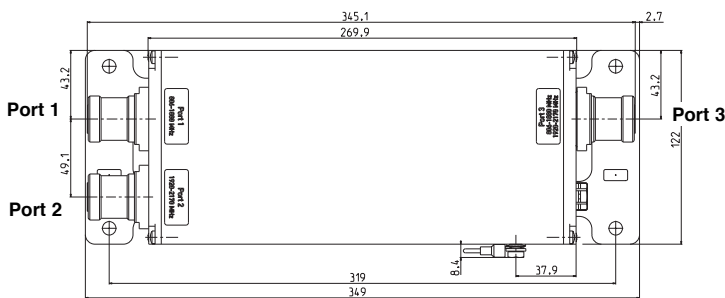
| Type No. | Description |
|-----------|-----------------------------------|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W indoor or outdoor |



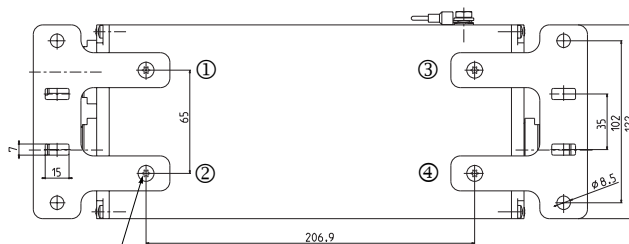
Side view, 782 10278, 782 10305 Single Unit



Side view, 782 10279, 782 10306 Double Unit



Top view, 782 10278, 782 10305 Single Unit,
782 10279, 782 10306 Double Unit



- 4 screws M5 x 10
- 4 spring washers 5.5 DIN 6095

Bottom view, 782 10278, 782 10305 Single Unit,
782 10279, 782 10306 Double Unit

Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 10) and replaced with other means of mounting, always provided that the max. drilled depth of 8.5 mm is respected with the choice of replacement screws.

Dual-Band Combiner

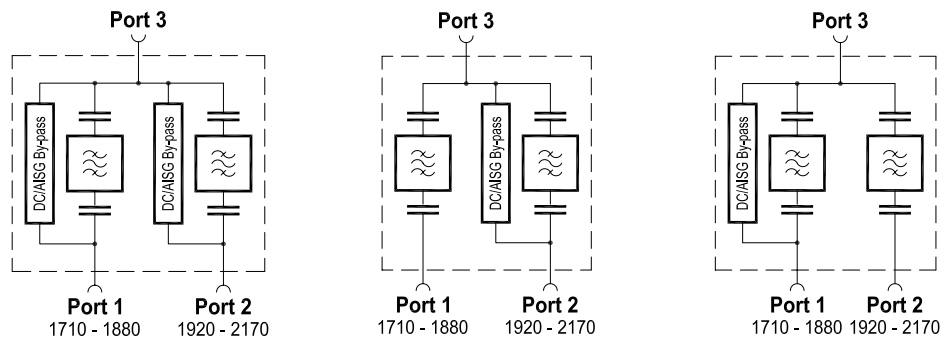
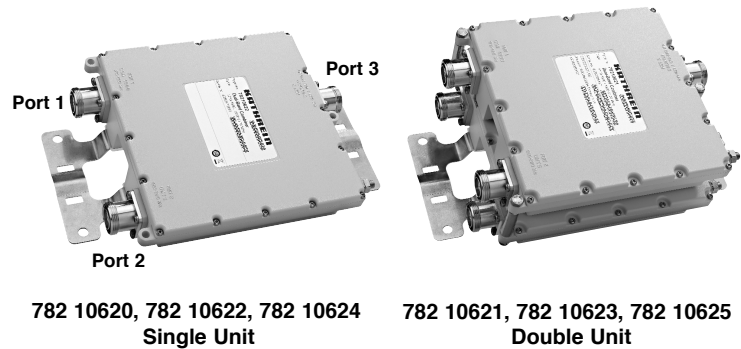
KATHREIN

Antennen · Electronic

1710 – 1880 MHz
GSM 1800

1920 – 2170 MHz
UMTS

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC Stop available as an accessory



Technical Data

| Type No. | 782 10620 Single Unit | 782 10622 Single Unit | 782 10624 Single Unit |
|--|---|--|--|
| | 782 10621 Double Unit | 782 10623 Double Unit | 782 10625 Double Unit |
| Pass band Band 1 (GSM 1800) Band 2 (UMTS) | 1710 – 1880 MHz 1920 – 2170 MHz | | |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.3 dB (1710 – 1880 MHz) < 0.3 dB (1920 – 2170 MHz) | | |
| Isolation Port 1 ↔ Port 2 | > 50 dB (1710 – 1880 / 1920 – 2170 MHz) | | |
| VSWR | < 1.25 (1710 – 1880 / 1920 – 2170 MHz) | | |
| Impedance | 50 Ω | | |
| Input power Band 1 / Band 2 | < 300 W / < 300 W | | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | | |
| Temperature range | -40 ... +60 °C | | |
| Connectors | 7-16 female (long neck) | | |
| Application | Indoor or outdoor (IP 66) | | |
| DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop By-pass (max. 2500 mA) | By-pass (max. 2500 mA) Stop |
| Lightning protection | 3 kA, 10/350 μs pulse | | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | | |
| Weight | Single Unit: 2.9 kg / Double Unit: 5.7 kg | | |
| Packing size | Single Unit: 392 x 272 x 139 mm / Double Unit: 392 x 272 x 189 mm | | |
| Dimensions (w x h x d) | Single Unit: 199 x 199 x 48 mm / Double Unit: 199 x 199 x 100 mm (without connectors, without mounting brackets) | | |

Dual-Band Combiner

KATHREIN

Antennen · Electronic

1710 – 1880 MHz
GSM 1800

1920 – 2170 MHz
UMTS

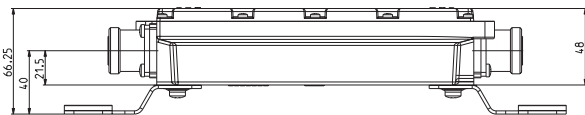
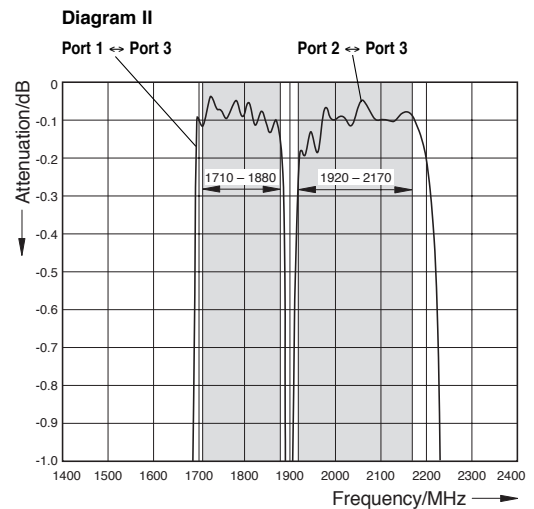
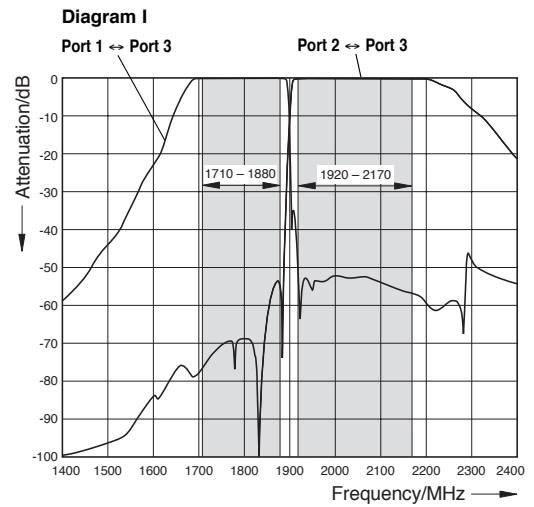
Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

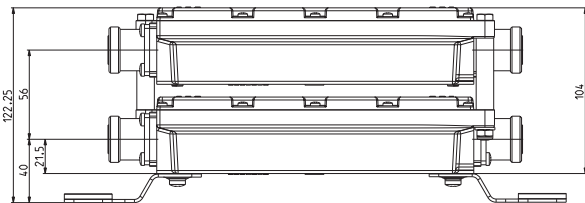
| Type No. | Description |
|-----------|-----------------------------------|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W indoor or outdoor |



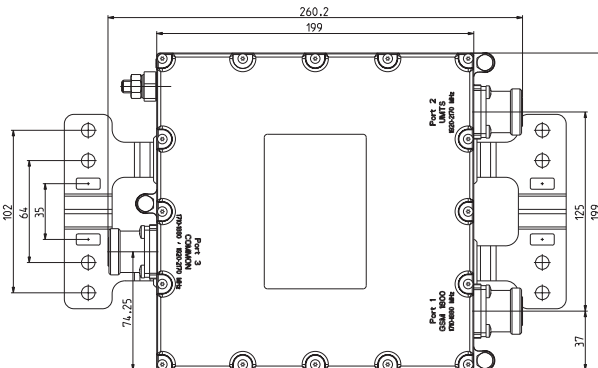
Typical Attenuation Curves



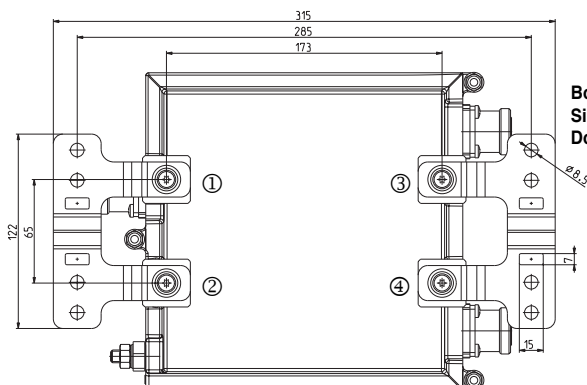
Side view
Single Unit



Side view
Double Unit



Top view
Single Unit,
Double Unit



Bottom view
Single Unit,
Double Unit

Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 12) and replaced with other means of mounting, always provided that the max. drilled depth of 7.5 mm is respected with the choice of replacement screws.

Dual-Band Combiner

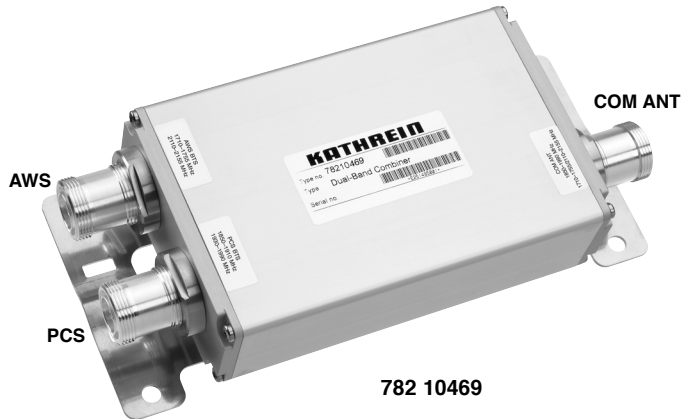
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Antennen · Electronic

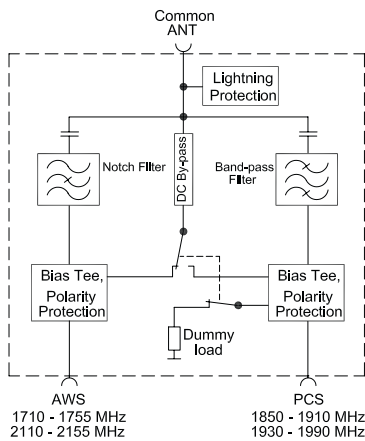
1850 – 1910 / 1930 – 1990 MHz
PCS

1710 – 1755 / 2110 – 2155 MHz
AWS

- Designed for co-siting purposes
- Enables feeder sharing
- Suitable for indoor or outdoor applications
- With fault detection and integrated switch for multiple DC power supply



782 10469



Typical Attenuation Curves

Diagram I

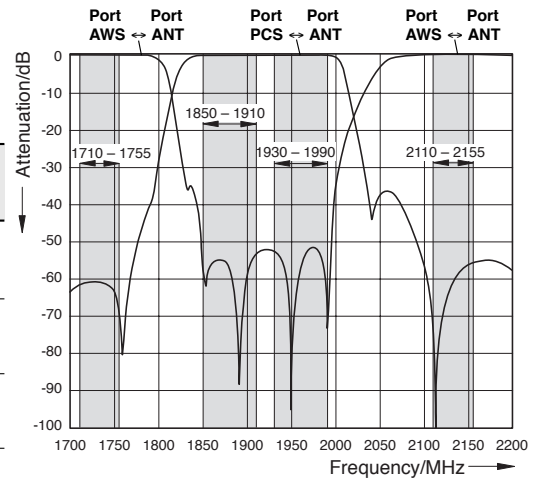
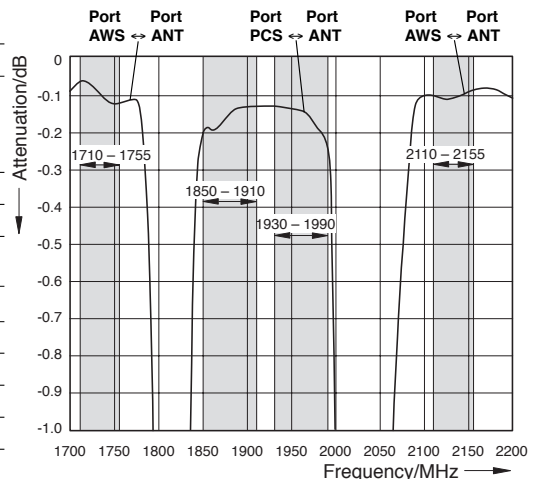


Diagram II



Technical Data

| Type No. | 782 10469 Single unit | 782 10808 Double unit |
|---|--|---|
| Pass band Band 1 (PCS) Band 2 (AWS) | 1850 – 1910 (Rx) / 1930 – 1990 (Tx) MHz 1710 – 1755 (Rx) / 2110 – 2155 (Tx) MHz | |
| Insertion loss Port PCS ↔ Port ANT Port AWS ↔ Port ANT | < 0.3 dB (1850 – 1910 / 1930 – 1990 MHz) < 0.2 dB (1710 – 1755 / 2110 – 2155 MHz) | |
| Isolation Port PCS ↔ Port AWS | > 50 dB (1850 – 1910 / 1930 – 1990 MHz) > 50 dB (1710 – 1755 / 2110 – 2155 MHz) | |
| VSWR | < 1.25 (1850 – 1910 / 1930 – 1990 MHz) < 1.25 (1710 – 1755 / 2110 – 2155 MHz) | |
| Impedance | 50 Ω | |
| Input power Port PCS Port AWS | < 250 W (1850 – 1910 / 1930 – 1990 MHz) < 250 W (1710 – 1755 / 2110 – 2155 MHz) | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Power supply voltage operational survival | +10 ... +15 V DC (Port PCS) +10 ... +30 V DC (Port AWS) +10 ... +35 V DC | |
| Polarity protection | -48 V DC (Port PCS, Port AWS) | |
| Max. Current | 1.5 A (Port ANT) | |
| Power supply current at PCS port operating with dummy load | 100 mA ±20 mA (+10 ... +15 V DC) | |
| Lightning protection | 8/20 μs, 20 kA; 10/350 μs, 3 kA (Port ANT) | |
| Temperature range | -40 ... +65 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| Weight | 2.5 kg | 5 kg |
| Dimensions (w x h x d) | 122 x 216.3 x 47 mm | 122 x 216.3 x 102.6 mm (without connectors, without mounting brackets) |

Dual-Band Combiner

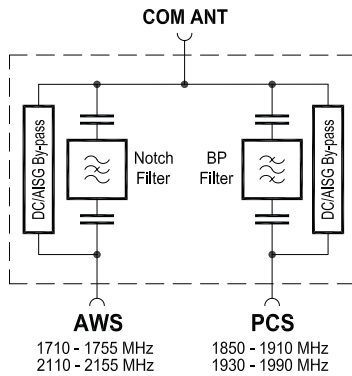
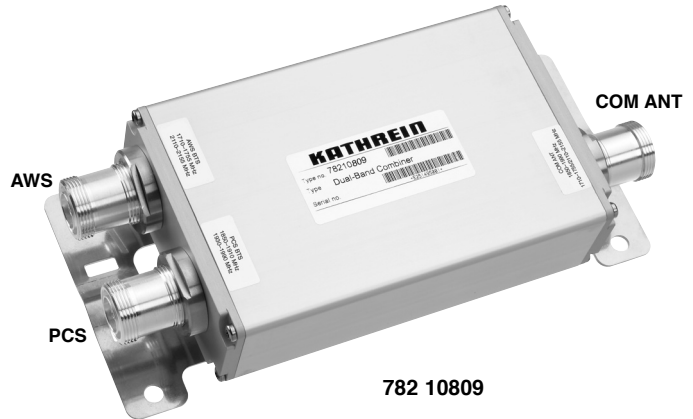
KATHREIN

Antennen · Electronic

1850 – 1910 / 1930 – 1990 MHz
PCS

1710 – 1755 / 2110 – 2155 MHz
AWS

- Designed for co-siting purposes
- Enables feeder sharing
- Suitable for indoor or outdoor applications
- DC by-pass between all ports
- External DC stop available as an accessory



Typical Attenuation Curves

Diagram I

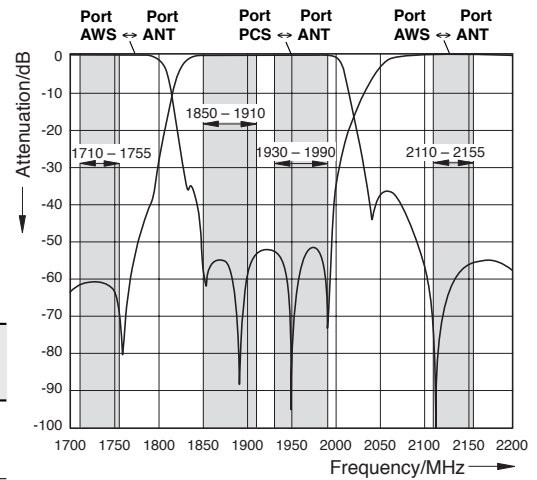
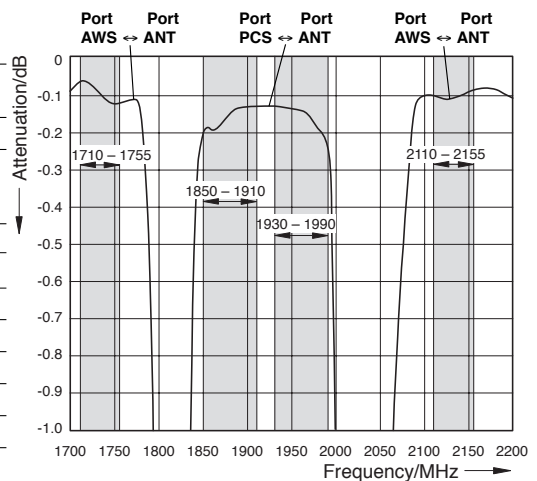


Diagram II



Technical Data

| Type No. | 782 10809 Single unit | 782 10810 Double unit |
|--|--|---|
| Pass band Band 1 (PCS) Band 2 (AWS) | 1850 – 1910 (Rx) / 1930 – 1990 (Tx) MHz 1710 – 1755 (Rx) / 2110 – 2155 (Tx) MHz | |
| Insertion loss Port PCS ↔ Port ANT Port AWS ↔ Port ANT | < 0.3 dB (1850 – 1910 / 1930 – 1990 MHz) < 0.2 dB (1710 – 1755 / 2110 – 2155 MHz) | |
| Isolation Port PCS ↔ Port AWS | > 50 dB (1850 – 1910 / 1930 – 1990 MHz) > 50 dB (1710 – 1755 / 2110 – 2155 MHz) | |
| VSWR | < 1.25 (1850 – 1910 / 1930 – 1990 MHz) < 1.25 (1710 – 1755 / 2110 – 2155 MHz) | |
| Impedance | 50 Ω | |
| Input power Port PCS Port AWS | < 250 W (1850 – 1910 / 1930 – 1990 MHz) < 250 W (1710 – 1755 / 2110 – 2155 MHz) | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Temperature range | -40 ... +65 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency | By-pass between all ports (max. 2500 mA) | |
| Weight | 2.5 kg | 5 kg |
| Dimensions (w x h x d) | 122 x 216.3 x 47 mm | 122 x 216.3 x 102.6 mm (without connectors, without mounting brackets) |

Dual-Band Combiner

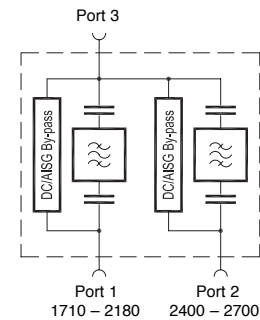
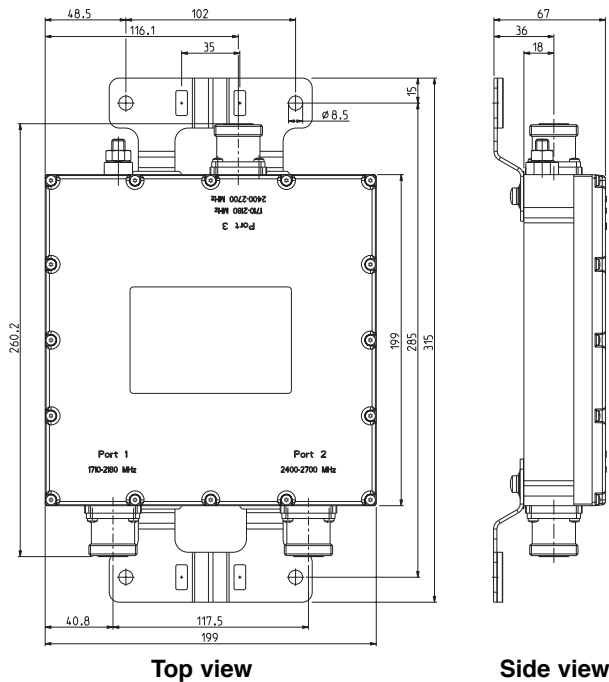
KATHREIN

Antennen · Electronic

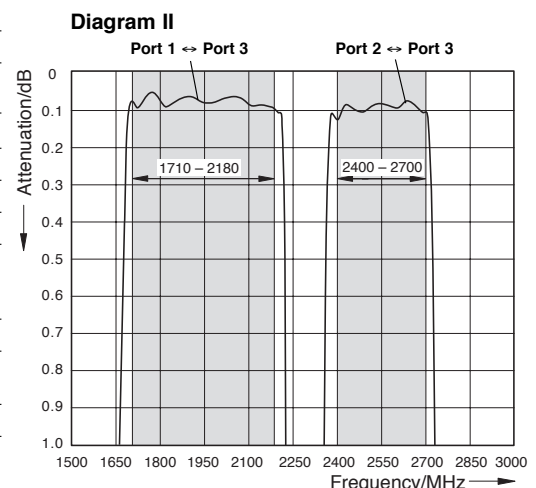
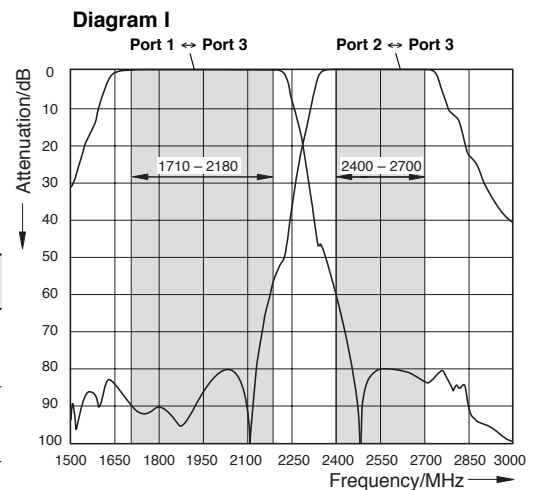
1710 – 2180 MHz
GSM 1800 / PCS 1900 / AWS / UMTS

2400 – 2700 MHz
WLAN / WiMAX 2.6 / UMTS 2.6 / BRS / LTE

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Built-in lightning protection
- External DC stop available as an accessory



Typical Attenuation Curves



Technical Data

| | |
|--------------------------|---|
| Type No. | 782 10800 |
| Pass band | |
| Band 1 | 1710 – 2180 MHz |
| Band 2 | 2400 – 2700 MHz |
| Insertion loss | |
| Port 1 ↔ Port 3 | < 0.15 dB |
| Port 2 ↔ Port 3 | < 0.15 dB |
| Isolation | |
| Port 1 ↔ Port 2 | > 50 dB |
| VSWR | < 1.25 (1710 – 2180 / 2400 – 2700 MHz) |
| Impedance | 50 Ω |
| Input power | |
| Band 1 / Band 2 | < 275 W / < 150 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female, long neck |
| Application | Indoor or outdoor (IP 66) |
| DC/ASG transparency | |
| Port 1 ↔ Port 3 | By-pass (max. 2500 mA) |
| Port 2 ↔ Port 3 | By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 2.9 kg |
| Dimensions (w x h x d) | 199 x 199 x 49 mm (without connectors, without mounting brackets) |

Dual-Band Combiner

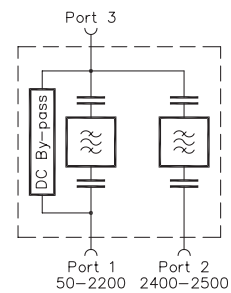
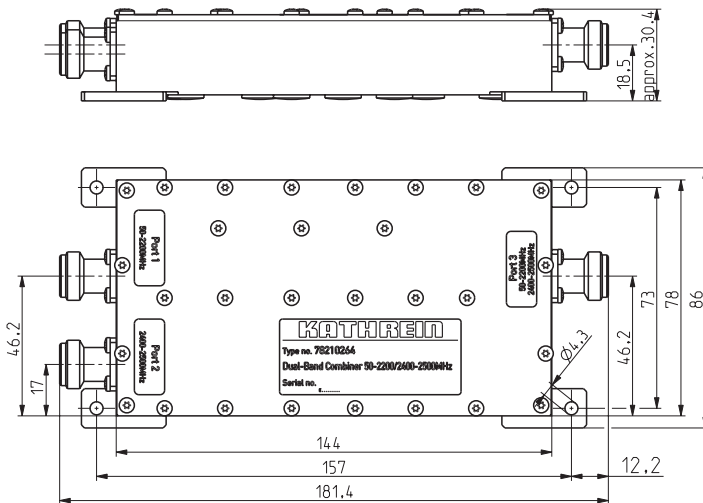
KATHREIN

Antennen · Electronic

50 – 2200 MHz
80 / 160 / 400 / 900 / 1800 / UMTS

2400 – 2500 MHz
WLAN

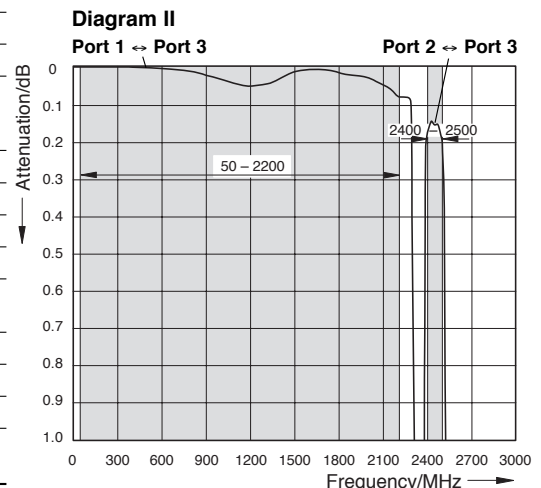
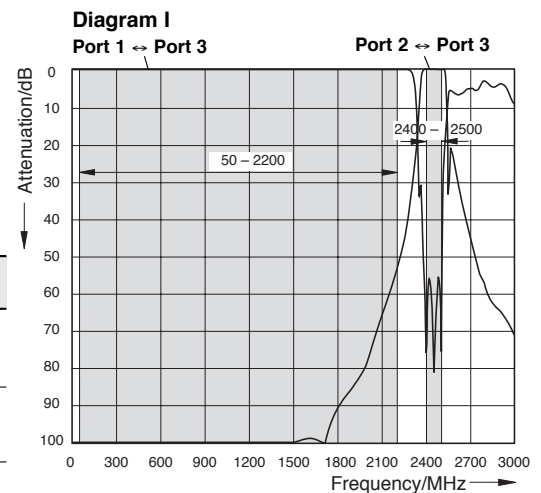
- Designed for inhouse multiband distribution networks
- Enables feeder sharing
- DC by-pass between ports 1 and 3
- Built-in DC stop between ports 2 and 3



Technical Data

| | |
|--|---|
| Type No. | 782 10264 |
| Pass band Band 1 Band 2 | 50 – 2200 MHz 2400 – 2500 MHz |
| Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3 | < 0.1 dB (50 – 2200 MHz) < 0.2 dB (2400 – 2500 MHz) |
| Isolation Port 1 ↔ Port 2 | > 50 dB (50 – 2200 / 2400 – 2500 MHz) |
| VSWR | < 1.25 (50 – 2200 / 2400 – 2500 MHz) |
| Impedance | 50 Ω |
| Input power Band 1 Band 2 | < 200 W < 200 W |
| Intermodulation products | < -150 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors | N female |
| Application | Indoor |
| Special features | Built-in DC stop between ports 2 and 3 DC by-pass between ports 1 and 3 (max. 2500 mA) |
| Mounting | With 4 screws (max. 4 mm diameter) |
| Weight | 0.47 kg |
| Packing size | 225 x 140 x 75 mm |
| Dimensions (w x h x d) | 86 x 30.4 x 181.4 mm (including connectors and mounting feet) |

Typical Attenuation Curves



Triple-Band Combiner

KATHREIN

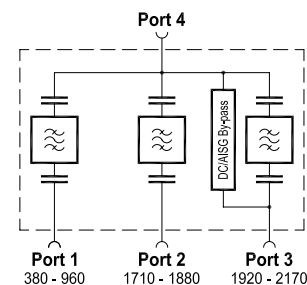
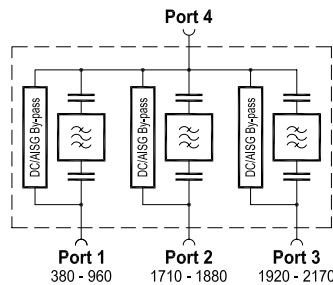
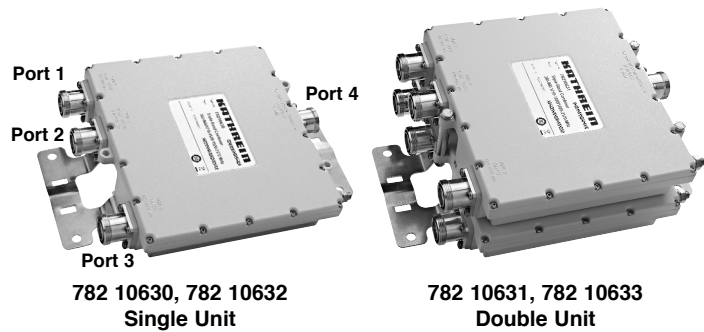
Antennen · Electronic

380 – 960 MHz
TETRA, DVB-H, CDMA 800, GSM 900

1710 – 1880 MHz
GSM 1800

1920 – 2170 MHz
UMTS

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC Stop available as an accessory



Technical Data

| Type No. | 782 10630 Single Unit | 782 10632 Single Unit |
|---|---|---|
| | 782 10631 Double Unit | 782 10633 Double Unit |
| Pass band Band 1 (TETRA ... GSM 900) Band 2 (GSM 1800) Band 3 (UMTS) | 380 – 960 MHz 1710 – 1880 MHz 1920 – 2170 MHz | |
| Insertion loss Port 1 ↔ Port 4 Port 2 ↔ Port 4 Port 3 ↔ Port 4 | < 0.2 dB (380 – 960 MHz) < 0.3 dB (1710 – 1880 MHz) < 0.3 dB (1920 – 2170 MHz) | |
| Isolation Port 1 ↔ Port 2 Port 1 ↔ Port 3 Port 2 ↔ Port 3 | > 45 dB (380 – 600 MHz) / > 50 dB (600 – 960 / 1710 – 1880 MHz) > 45 dB (380 – 600 MHz) / > 50 dB (600 – 960 / 1920 – 2170 MHz) > 50 dB (1710 – 1880 / 1920 – 2170 MHz) | |
| VSWR | < 1.25 (380 – 960 / 1710 – 1880 / 1920 – 2170 MHz) | |
| Impedance | 50 Ω | |
| Input power Band 1 / Band 2 / Band 3 | < 700 W / < 300 W / < 300 W | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -40 ... +60 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency Port 1 ↔ Port 4 Port 2 ↔ Port 4 Port 3 ↔ Port 4 | By-pass (max. 2500 mA) By-pass (max. 2500 mA) By-pass (max. 2500 mA) | Stop Stop By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | |
| Weight | Single Unit: 3.2 kg / Double Unit: 6.3 kg | |
| Packing size | Single Unit: 392 x 292 x 139 mm / Double Unit: 392 x 292 x 189 mm | |
| Dimensions (w x h x d) | Single Unit: 219 x 199 x 48 mm / Double Unit: 219 x 199 x 104 mm (without connectors, without mounting brackets) | |

Triple-Band Combiner

KATHREIN

Antennen · Electronic

380 – 960 MHz
TETRA, DVB-H, CDMA 800, GSM 900

1710 – 1880 MHz
GSM 1800

1920 – 2170 MHz
UMTS

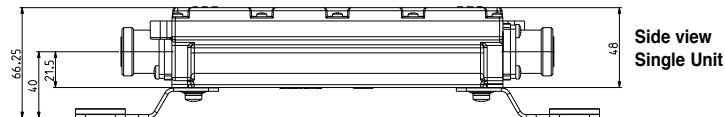
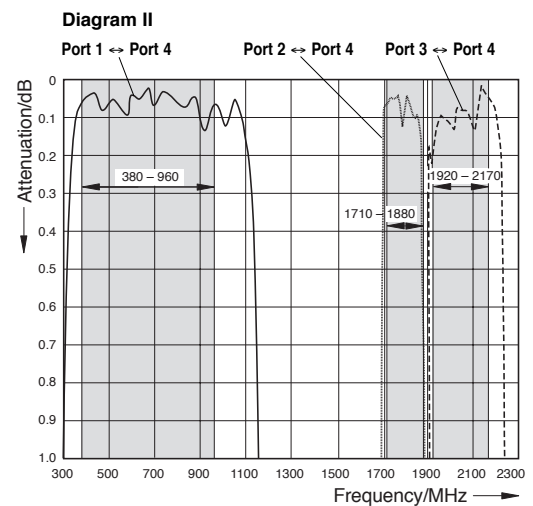
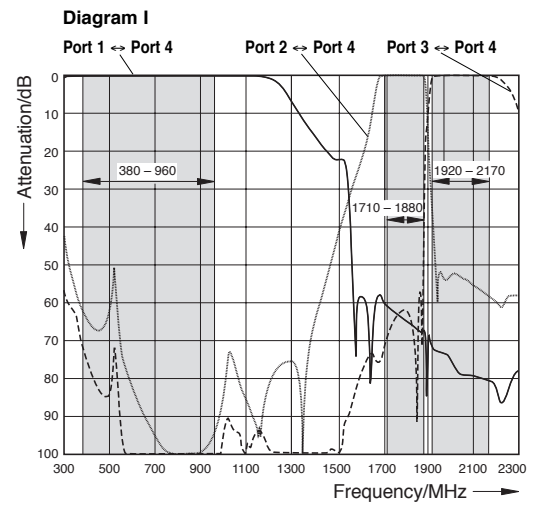
Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

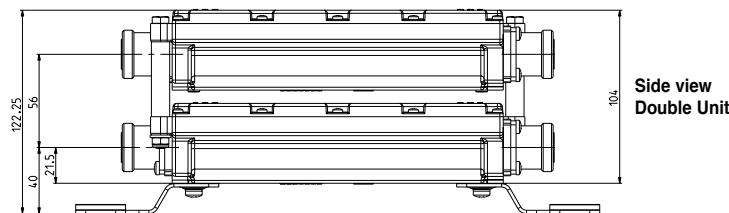


| Type No. | Description |
|-----------|--|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |

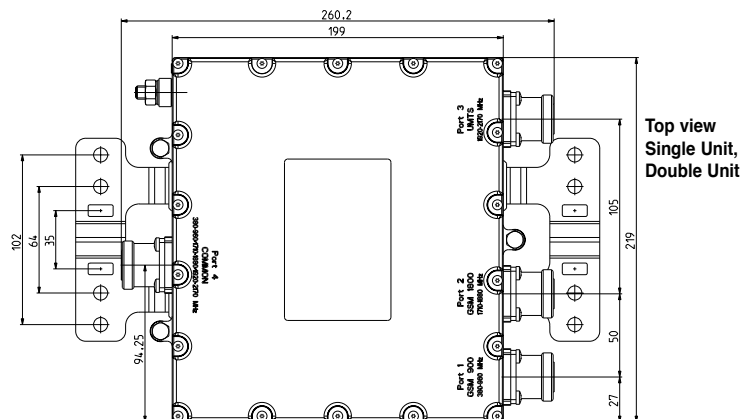
Typical Attenuation Curves



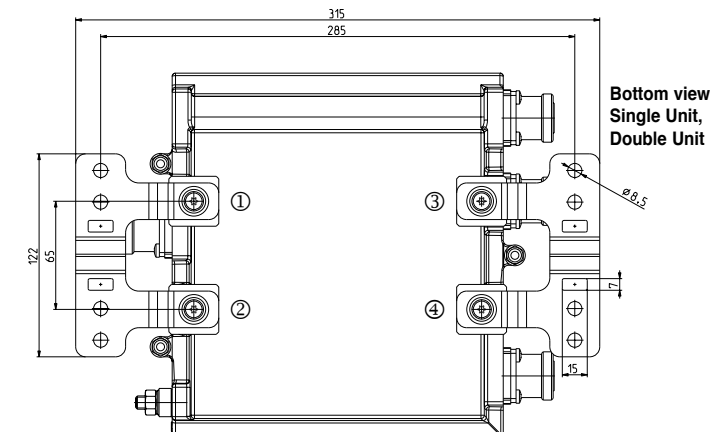
Side view
Single Unit



Side view
Double Unit



Top view
Single Unit,
Double Unit



Bottom view
Single Unit,
Double Unit

Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 12) and replaced with other means of mounting, always provided that the max. drilled depth of 7.5 mm is respected with the choice of replacement screws.

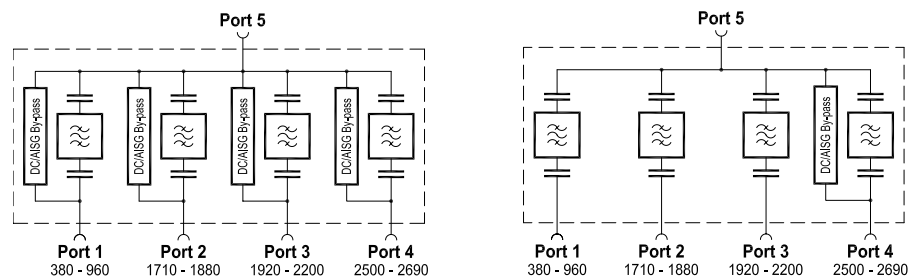
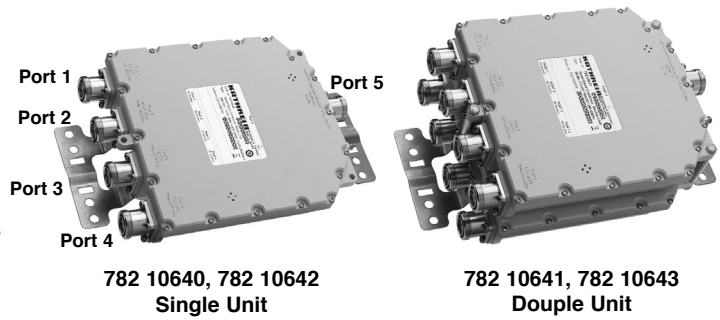
Quad-Band Combiner

KATHREIN

Antennen · Electronic

| | | | |
|--|------------------------------------|--------------------------------|------------------------------------|
| 380 – 960 MHz TETRA / DVB-H / CDMA 800 / GSM 900 | 1710 – 1880 MHz GSM 1800 | 1920 – 2200 MHz UMTS | 2500 – 2690 MHz LTE 2600 |
|--|------------------------------------|--------------------------------|------------------------------------|

- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Available as a single unit, or for XPol antennas as a double unit
- Built-in lightning protection
- External DC Stop available as an accessory



Technical Data

| Type No. | 782 10640 Single Unit | 782 10642 Single Unit |
|--------------------------|--|---|
| | 782 10641 Double Unit | 782 10643 Double Unit |
| Pass band | Band 1 (TETRA ... GSM 900) 380 – 960 MHz Band 2 (GSM 1800) 1710 – 1880 MHz Band 3 (UMTS) 1920 – 2200 MHz Band 4 (LTE 2600) 2500 – 2690 MHz | |
| Insertion loss | Port 1 ↔ Port 5 < 0.2 dB (380 – 960 MHz) Port 2 ↔ Port 5 < 0.3 dB (1710 – 1880 MHz) Port 3 ↔ Port 5 < 0.3 dB (1920 – 2200 MHz) Port 4 ↔ Port 5 < 0.2 dB (2500 – 2690 MHz) | |
| Isolation | Port 1 ↔ Port 2 > 45 dB (380 – 600 MHz) / > 50 dB (600 – 960 / 1710 – 1880 MHz) Port 1 ↔ Port 3 > 45 dB (380 – 600 MHz) / > 50 dB (600 – 960 / 1920 – 2200 MHz) Port 1 ↔ Port 4 > 45 dB (380 – 600 MHz) / > 50 dB (600 – 960 / 2500 – 2690 MHz) Port 2 ↔ Port 3 > 50 dB (1710 – 1880 / 1920 – 2200 MHz) Port 2 ↔ Port 4 > 50 dB (1710 – 1880 / 2500 – 2690 MHz) Port 3 ↔ Port 4 > 50 dB (1920 – 2200 / 2500 – 2690 MHz) | |
| VSWR | < 1.25 (380 – 960 / 1710 – 1880 / 1920 – 2200 / 2500 – 2690 MHz) | |
| Impedance | 50 Ω | |
| Input power | Band 1 / Band 2 / Band 3 / Band 4 < 700 W / < 300 W / < 300 W / < 200 W | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Temperature range | -40 ... +60 °C | |
| Connectors | 7-16 female (long neck) | |
| Application | Indoor or outdoor (IP 66) | |
| DC/AISG transparency | Max. 2500 mA By-pass By-pass By-pass By-pass | Max. 2500 mA Stop Stop Stop By-pass |
| Lightning protection | 3 kA, 10/350 μs pulse | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set | |
| Weight | Single Unit: Approx. 4 kg / Double Unit: Approx. 8 kg | |
| Dimensions (w x h x d) | Single Unit: 214 x 228 x 52 mm / Double Unit: 214 x 228 x 108 mm (without connectors, without mounting brackets) | |

Quad-Band Combiner

KATHREIN

Antennen · Electronic

| | | | |
|--|------------------------------------|--------------------------------|------------------------------------|
| 380 – 960 MHz TETRA / DVB-H / CDMA 800 / GSM 900 | 1710 – 1880 MHz GSM 1800 | 1920 – 2200 MHz UMTS | 2500 – 2690 MHz LTE 2600 |
|--|------------------------------------|--------------------------------|------------------------------------|

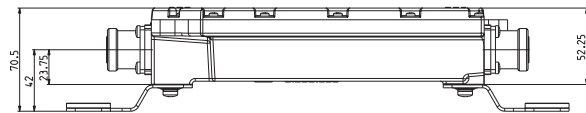
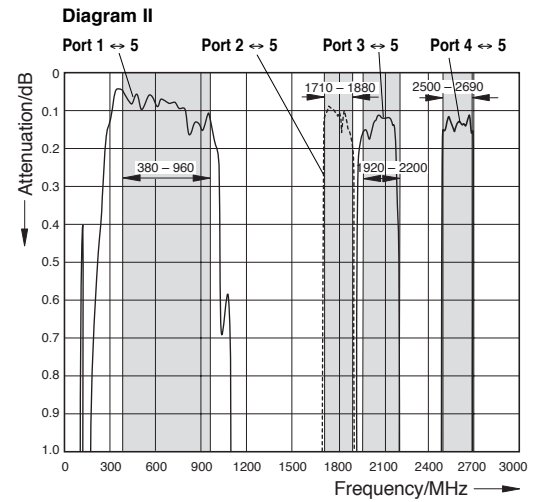
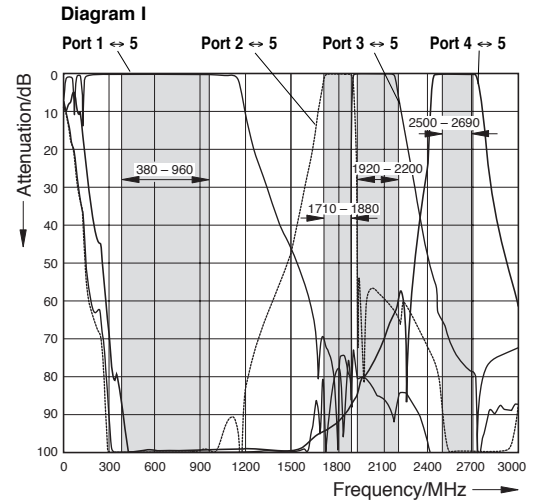
Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

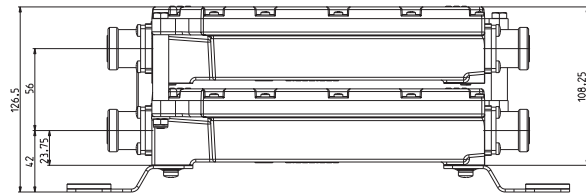
| Type No. | Description |
|-----------|--|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |



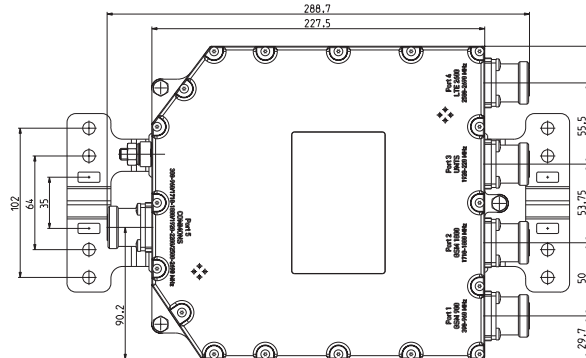
Typical Attenuation Curves



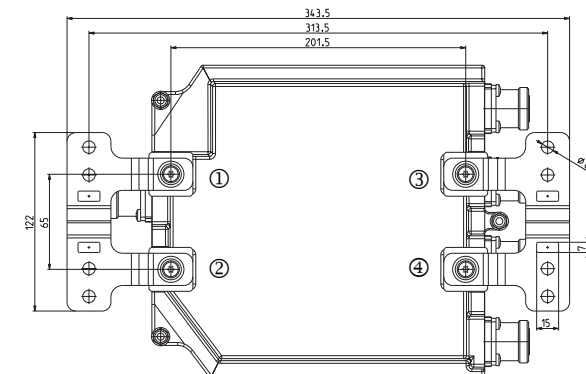
Side view
Single Unit



Side view
Double Unit



Top view
Single Unit,
Double Unit



Bottom view
Single Unit,
Double Unit

Please note:

The mounting plates can be removed by loosening the screws ① to ④ (M5 x 12) and replaced with other means of mounting, always provided that the max. drilled depth of 7.5 mm is respected with the choice of replacement screws.

Same-Band Combiners Hybrid Combiners

Same-Band Combiner
Duplex Hybrid Combiner
Hybrid Combiner 2 : 1
Hybrid Combiner 4 : 4
3-dB Couplers
Hybrid Ring Junctions

Hybrid Combiners and Couplers:

| Description | Type No. | Frequency range | Max. input power | Connector | Page |
|------------------------|------------------|--|----------------------|-----------|----------|
| Hybrid Combiner 2:1 | 792 699 | 806 – 960 MHz | 150 W per Tx/Rx port | 7-16 | 261 |
| Hybrid Combiner 2:1 | 792 702 | 1700 – 2200 MHz | 150 W per Tx/Rx port | 7-16 | 262 |
| Hybrid Combiner 2:1 | 793 555 | 800 – 2200 MHz | 150 W per Tx/Rx port | 7-16 | 263 |
| Hybrid Combiner 2:1 | 782 10500 | 806 – 960 MHz | 60 W at each port | 7-16 | 264 |
| Hybrid Combiner 2:1 | 782 10502 | 1710 – 2170 MHz | 60 W at each port | 7-16 | 265 |
| Hybrid Combiner 2:1 | 782 10504 | 698 – 2690 MHz | 60 W at each port | 7-16 | 266 |
| Hybrid Combiner 4:4 | 782 10532 | 1710 – 2170 MHz | 60 W at each port | 7-16 | 267 |
| Hybrid Combiner 4:4 | 782 10203 | 800 – 2200 MHz | 150 W at each port | 7-16 | 268 |
| Hybrid Combiner 8:4 | 782 10858 | 806 – 960 MHz 1710 – 2170 MHz | 60 W at each port | 7-16 | 269 |
| Duplex Hybrid Combiner | 78210805 | Rx: 880 – 915 MHz Tx: 925 – 960 MHz | 250 W | 7-16 | 270, 271 |
| Same-Band Combiner | 782 10925 | 1920 – 2170 MHz | 100 W at each port | 7-16 | 272, 273 |
| Hybrid Ring Junction | K 63 73 621 | 806 – 960 MHz | 100 W per input | N | 274, 275 |
| Hybrid Ring Junction | 790 881 | 890 – 960 MHz | 100 W per input | N | 274, 275 |
| Hybrid Ring Junction | 791 498 | 1710 – 1880 MHz | 50 W per input | N | 274, 275 |
| 3-dB Coupler | 793 506 | 806 – 960 MHz | 500 W | 7-16 | 276 |
| 3-dB Coupler | 793 006 | 1700 – 2200 MHz | 300 W | 7-16 | 277 |
| 3-dB Coupler | 793 554 | 800 – 2200 MHz | 300 W | 7-16 | 278 |

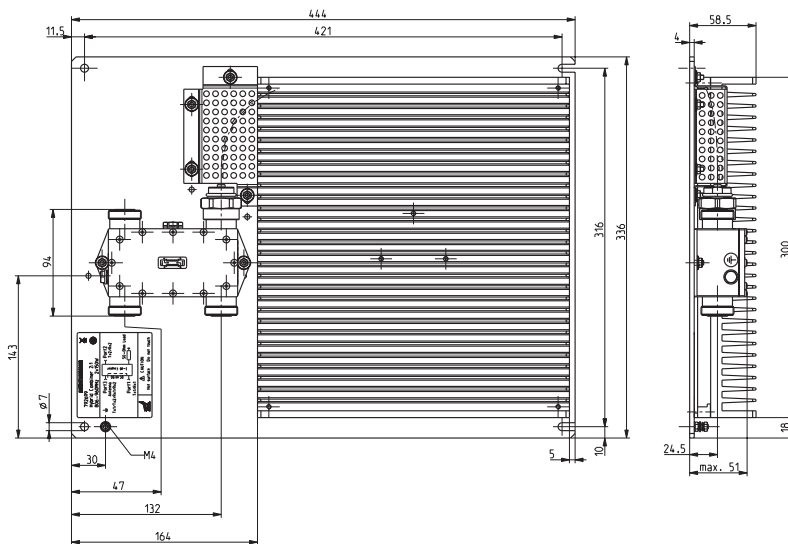
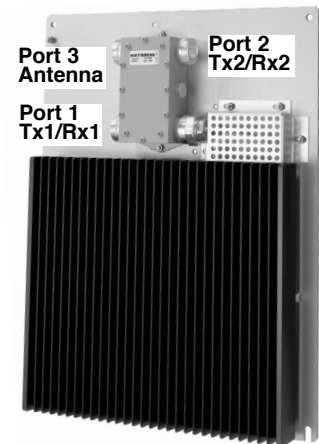
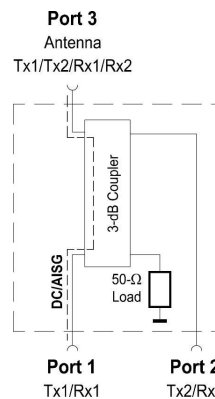
New Products

Hybrid Combiner 2:1

806 – 960 MHz

2 x 150 W

- Designed for the decoupled combining of 2 transmitter or receiver signals onto one common antenna
- The frequency spacing between transmitter signals can be as small as required
- **Excellent intermodulation performance**
- Suitable for indoor applications
- Wall or 19" rack mounting
- DC by-pass between port 1 and port 3
- External DC stop available as an accessory

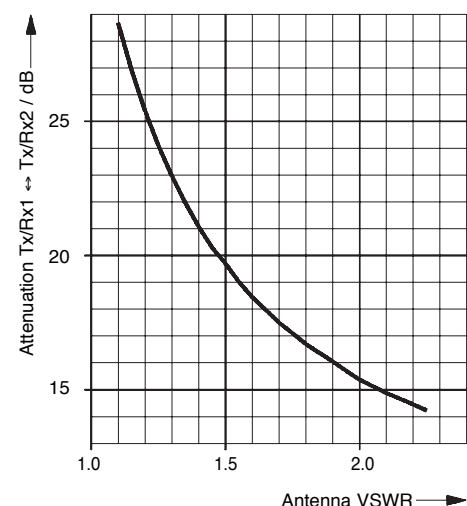


Technical Data

| Type No. | 792 699 |
|--------------------------|--|
| Frequency range | 806 – 960 MHz |
| Attenuation | |
| Port 1 ↔ Port 3 | 3.1 ± 0.4 dB |
| Port 2 ↔ Port 3 | 3.1 ± 0.4 dB |
| Port 1 ↔ Port 2 | > 27 dB* |
| VSWR (all ports) | < 1.11 |
| Impedance | 50 Ω |
| Input power | |
| Port 1 | < 150 W (with max. 16 signals) |
| Port 2 | < 150 W (with max. 16 signals) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +50 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| DC/AISG transparency | |
| Port 1 ↔ Port 3 | By-pass (max. 2500 mA) |
| Port 2 | Short circuit (External DC stop available as an accessory) |
| Mounting | Wall mounting: With 4 screws (max. 7 mm diameter) 19" rack mounting: To be inserted on pre-installed 19" sliding bars (2 height units required) |
| Weight | 10.3 kg |
| Packing size | 510 x 410 x 100 mm |
| Dimensions (w x h x d) | 336 x 444 x 64 mm |

* Valid if all ports are terminated with 50-Ω loads (see diagram).

Typical attenuation Tx/Rx1 ↔ Tx/Rx2 vs. Antenna VSWR



Note:

The input power rating of 150 W per port is specified at an ambient temperature of +55 °C with the combiner mounted vertically (see photo), without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

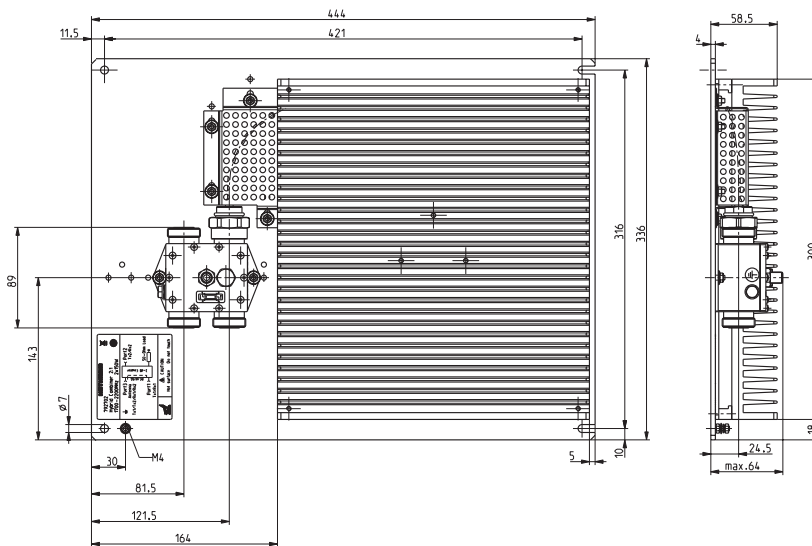
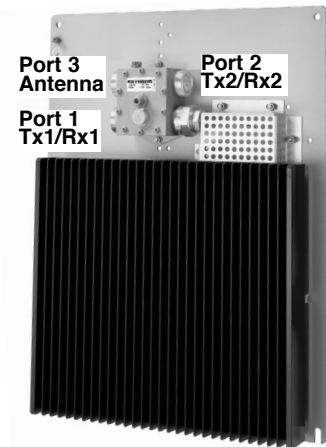
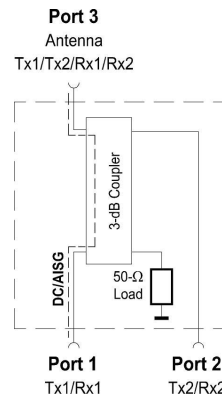
When installed in a 19" rack, it must be ensured that the max. power of 150 W is sufficiently dissipated, so that the ambient temperature does not rise above +50 °C. This can be achieved for example by the additional installation of a correspondingly dimensioned ventilator in the 19" rack or by reducing the maximum input power.

Hybrid Combiner 2:1

1700 – 2200 MHz

2 x 150 W

- Designed for the decoupled combining of 2 transmitter or receiver signals onto one common antenna
- The frequency spacing between transmitter signals can be as small as required
- **Excellent intermodulation performance**
- Suitable for indoor applications
- Wall or 19" rack mounting
- DC by-pass between port 1 and port 3
- External DC stop available as an accessory

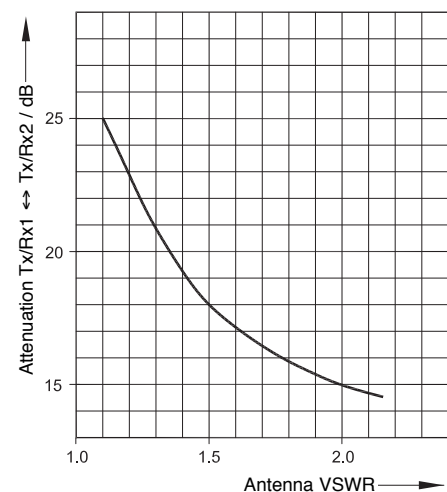


Technical Data

| Type No. | 792 702 |
|--------------------------|--|
| Frequency range | 1700 – 2200 MHz |
| Attenuation | |
| Port 1 ↔ Port 3 | 3.1 ± 0.4 dB |
| Port 2 ↔ Port 3 | 3.1 ± 0.4 dB |
| Port 1 ↔ Port 2 | > 24 dB* |
| VSWR (all ports) | < 1.15 |
| Impedance | 50 Ω |
| Input power | |
| Port 1 | < 150 W (with max. 16 signals) |
| Port 2 | < 150 W (with max. 16 signals) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +50 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| DC/AISG transparency | |
| Port 1 ↔ Port 3 | By-pass (max. 2500 mA) |
| Port 2 | Short circuit (External DC stop available as an accessory) |
| Mounting | Wall mounting: With 4 screws (max. 7 mm diameter) 19" rack mounting: To be inserted on pre-installed 19" sliding bars (2 height units required) |
| Weight | 9.8 kg |
| Packing size | 510 x 410 x 100 mm |
| Dimensions (w x h x d) | 336 x 444 x 64 mm |

* Valid if all ports are terminated with 50-Ω loads (see diagram).

Typical attenuation Tx/Rx1 ↔ Tx/Rx2 vs. Antenna VSWR



Note:

The input power rating of 150 W per port is specified at an ambient temperature of +55 °C with the combiner mounted vertically (see photo), without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

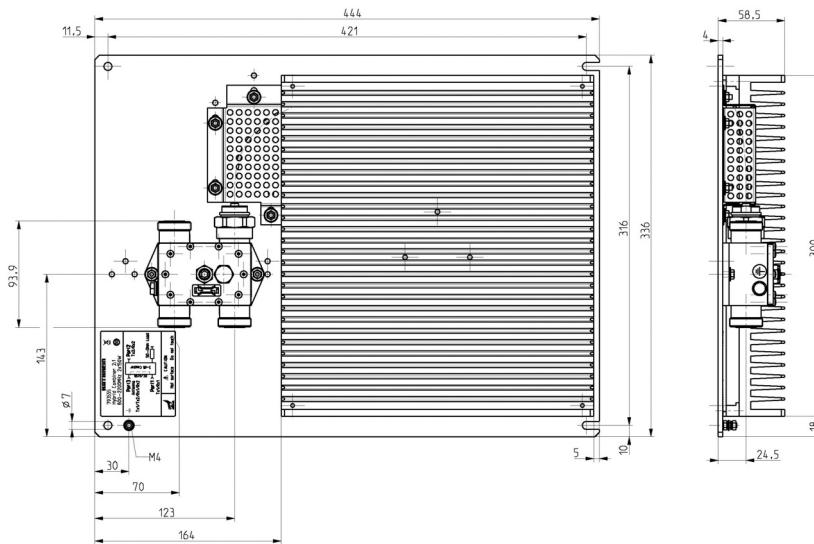
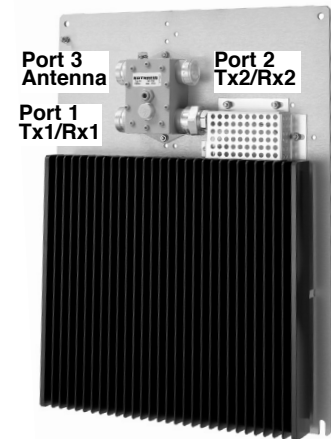
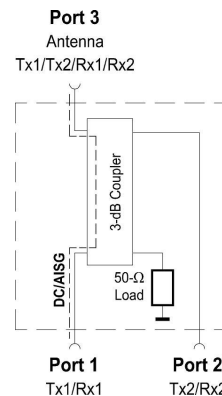
When installed in a 19" rack, it must be ensured that the max. power of 150 W is sufficiently dissipated, so that the ambient temperature does not rise above +50 °C. This can be achieved for example by the additional installation of a correspondingly dimensioned ventilator in the 19" rack or by reducing the maximum input power.

Hybrid Combiner 2:1

800 – 2200 MHz

2 x 150 W

- Designed for the decoupled combining of 2 transmitter or receiver signals onto one common antenna
- The frequency spacing between transmitter signals can be as small as required
- **Excellent intermodulation performance**
- Suitable for indoor applications
- Wall or 19" rack mounting
- DC by-pass between port 1 and port 3
- External DC stop available as an accessory

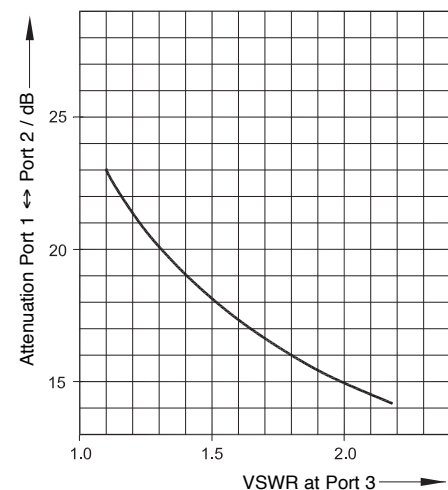


Technical Data

| Type No. | 793 555 |
|--------------------------|--|
| Frequency range | 800 – 2200 MHz |
| Attenuation | |
| Port 1 ↔ Port 3 | 3.1 ±1.2 dB |
| Port 2 ↔ Port 3 | 3.1 ±1.2 dB |
| Port 1 ↔ Port 2 | > 22 dB* |
| VSWR (all ports) | < 1.2 |
| Impedance | 50 Ω |
| Input power | |
| Port 1 | < 150 W (with max. 16 signals) |
| Port 2 | < 150 W (with max. 16 signals) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +50 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| DC/AISG transparency | |
| Port 1 ↔ Port 3 | By-pass (max. 2500 mA) |
| Port 2 | Short circuit (External DC stop available as an accessory) |
| Mounting | Wall mounting: With 4 screws (max. 7 mm diameter) 19" rack mounting: To be inserted on pre-installed 19" sliding bars (2 height units required) |
| Weight | 10 kg |
| Packing size | 510 x 410 x 100 mm |
| Dimensions (w x h x d) | 336 x 444 x 64 mm |

* Valid if all ports are terminated with 50-Ω loads (see diagram)

Typical attenuation Port 1 ↔ Port 2 vs. VSWR at Port 3



Note:

The input power rating of 150 W per port is specified at an ambient temperature of +55 °C with the combiner mounted vertically (see photo), without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

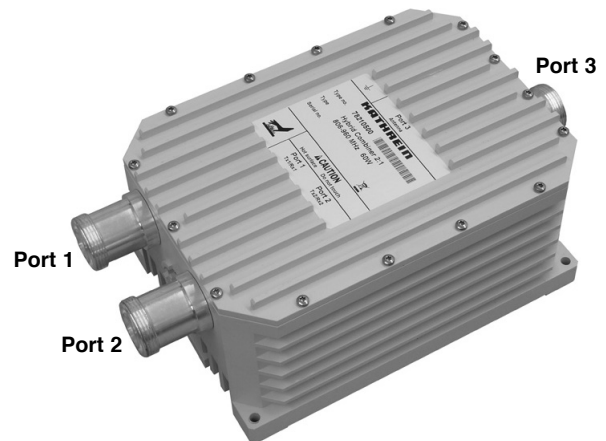
When installed in a 19" rack, it must be ensured that the max. power of 150 W is sufficiently dissipated, so that the ambient temperature does not rise above +50 °C. This can be achieved for example by the additional installation of a correspondingly dimensioned ventilator in the 19" rack or by reducing the maximum input power.

Hybrid Combiner 2:1

806 – 960 MHz

2 x 60 W

- Designed for the decoupled combining of 2 transmitter or receiver signals onto one common antenna
- The frequency spacing between transmitter signals can be as small as required
- **Excellent intermodulation performance**
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- DC by-pass between all ports
- External DC stop available as an accessory



Technical Data

| Type No. | 782 10500 |
|--------------------------|--|
| Frequency range | 806 – 960 MHz |
| Attenuation | |
| Port 1 ↔ Port 3 | 3.1 ± 0.5 dB |
| Port 2 ↔ Port 3 | 3.1 ± 0.5 dB |
| Port 1 ↔ Port 2 | > 23 dB* |
| VSWR (all ports) | < 1.15 |
| Impedance | 50 Ω |
| Input power | |
| Port 1 | < 60 W |
| Port 2 | < 60 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +55 °C |
| Connectors | 7-16 female (long neck) |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency | By-pass between all ports (max. 2500 mA) AISG: Attenuation 3 dB with / 6 dB without external DC stop at either Port 1 or Port 2 |
| Mounting | Wall mounting: With 4 screws (max. 6.5 mm diameter) Mast mounting: With additional clamp set (see data sheet) |
| Weight | 3.7 kg |
| Packing size | 377 x 232 x 189 mm |
| Dimensions (w x h x d) | 143.6 x 258 x 97.5 mm (including connectors) |

* Valid if all ports are terminated with 50-Ω loads.

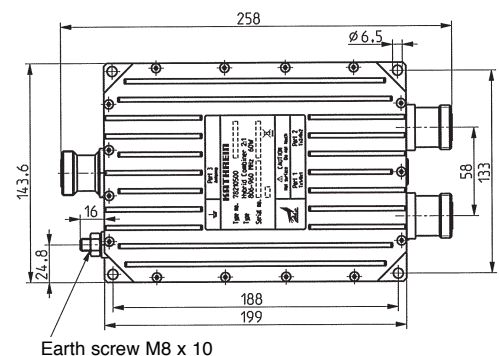
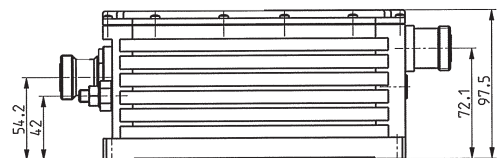
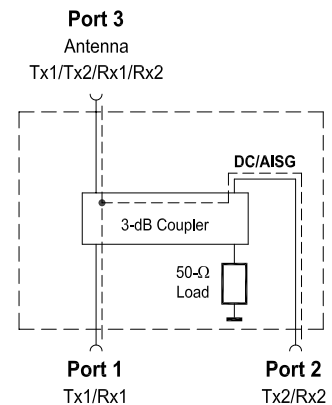
Note:

The input power rating of 60 W per port is specified at an ambient temperature of +55 °C with the combiner mounted horizontally, without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

If mounted vertically and/or used at a lower ambient temperature, then a higher input power in accordance with the following table is possible:

Max. input power per port

| | Mounted horizontally | Mounted vertically |
|--------------------------|----------------------|--------------------|
| Max. ambient temperature | | |
| +55 °C | 60 W | 70 W |
| +40 °C | 70 W | 80 W |
| +25 °C | 75 W | 85 W |

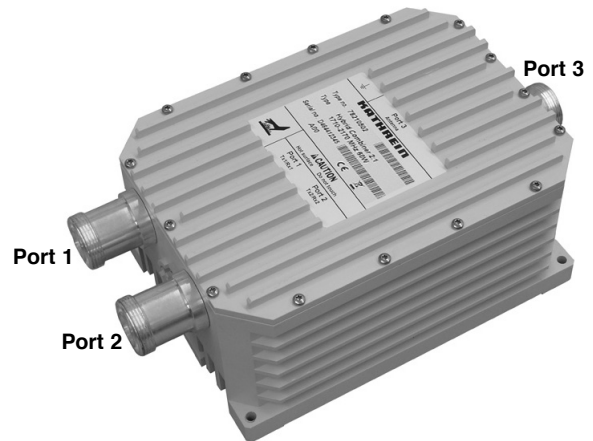


Hybrid Combiner 2:1

1710 – 2170 MHz

2 x 60 W

- Designed for the decoupled combining of 2 transmitter or receiver signals onto one common antenna
- The frequency spacing between transmitter signals can be as small as required
- **Excellent intermodulation performance**
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- DC by-pass between all ports
- External DC stop available as an accessory



Technical Data

| Type No. | 782 10502 |
|--------------------------|--|
| Frequency range | 1710 – 2170 MHz |
| Attenuation | |
| Port 1 ↔ Port 3 | 3.1 ± 0.5 dB |
| Port 2 ↔ Port 3 | 3.1 ± 0.5 dB |
| Port 1 ↔ Port 2 | > 22 dB* |
| VSWR (all ports) | < 1.25 |
| Impedance | 50 Ω |
| Input power | |
| Port 1 | < 60 W |
| Port 2 | < 60 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +55 °C |
| Connectors | 7-16 female (long neck) |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency | By-pass between all ports (max. 2500 mA) AISG: Attenuation 3 dB with / 6 dB without external DC stop at either Port 1 or Port 2 |
| Mounting | Wall mounting: With 4 screws (max. 6.5 mm diameter) Mast mounting: With additional clamp set |
| Weight | 3.7 kg |
| Packing size | 377 x 232 x 189 mm |
| Dimensions (w x h x d) | 143.6 x 256 x 97.5 mm (including connectors) |

* Valid if all ports are terminated with 50-Ω loads.

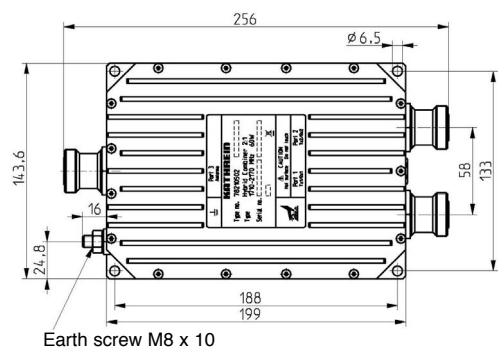
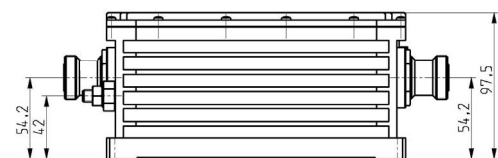
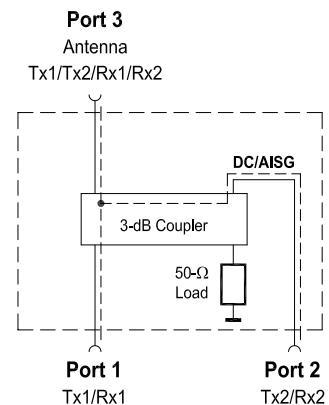
Note:

The input power rating of 60 W per port is specified at an ambient temperature of +55 °C with the combiner mounted horizontally, without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

If mounted vertically and/or used at a lower ambient temperature, then a higher input power in accordance with the following table is possible:

Max. input power per port

| | Mounted horizontally | Mounted vertically |
|--------------------------|----------------------|--------------------|
| Max. ambient temperature | | |
| +55 °C | 60 W | 70 W |
| +40 °C | 70 W | 80 W |
| +25 °C | 75 W | 85 W |



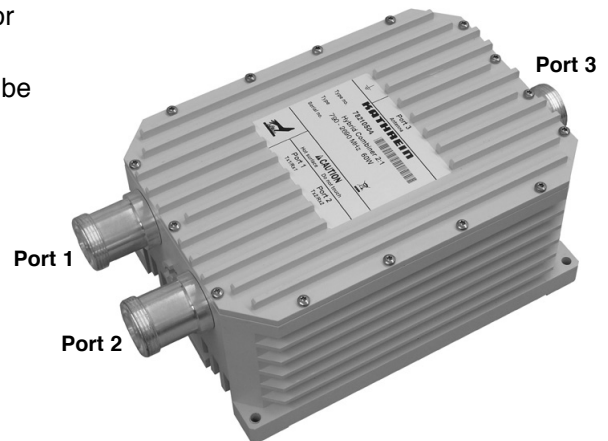
Earth screw M8 x 10

Hybrid Combiner 2:1

790 – 2690 MHz

2 x 60 W

- Designed for the decoupled combining of 2 transmitter or receiver signals onto one common antenna
- The frequency spacing between transmitter signals can be as small as required
- **Excellent intermodulation performance**
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- DC by-pass between port 1 and port 3
- External DC stop available as an accessory



Technical Data

| Type No. | 782 10504 |
|--------------------------|--|
| Frequency range | 790 – 2690 MHz |
| Attenuation | |
| Port 1 ↔ Port 3 | 3.1 ±0.5 dB |
| Port 2 ↔ Port 3 | 3.1 ±0.5 dB |
| Port 1 ↔ Port 2 | > 23 dB* |
| VSWR (all ports) | < 1.25 |
| Impedance | 50 Ω |
| Input power | |
| Port 1 | < 60 W |
| Port 2 | < 60 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +55 °C |
| Connectors | 7-16 female (long neck) |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency | |
| Port 1 ↔ Port 3 | By-pass (max. 2500 mA) |
| Port 2 | Short circuit (External DC stop available as an accessory) |
| Mounting | Wall mounting: With 4 screws (max. 6.5 mm diameter) Mast mounting: With additional clamp set (see data sheet) |

* Valid if all ports are terminated with 50-Ω loads.

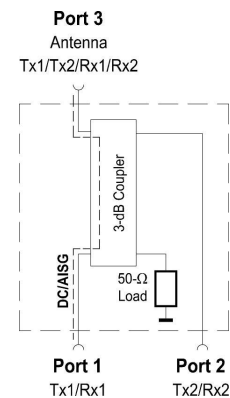
Note:

The input power rating of 60 W per port is specified at an ambient temperature of +55 °C with the combiner mounted horizontally, without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

If mounted vertically and/or used at a lower ambient temperature, then a higher input power in accordance with the following table is possible:

Max. input power per port

| | Mounted horizontally | Mounted vertically |
|--------------------------|----------------------|--------------------|
| Max. ambient temperature | | |
| +55 °C | 60 W | 70 W |
| +40 °C | 70 W | 80 W |
| +25 °C | 75 W | 85 W |

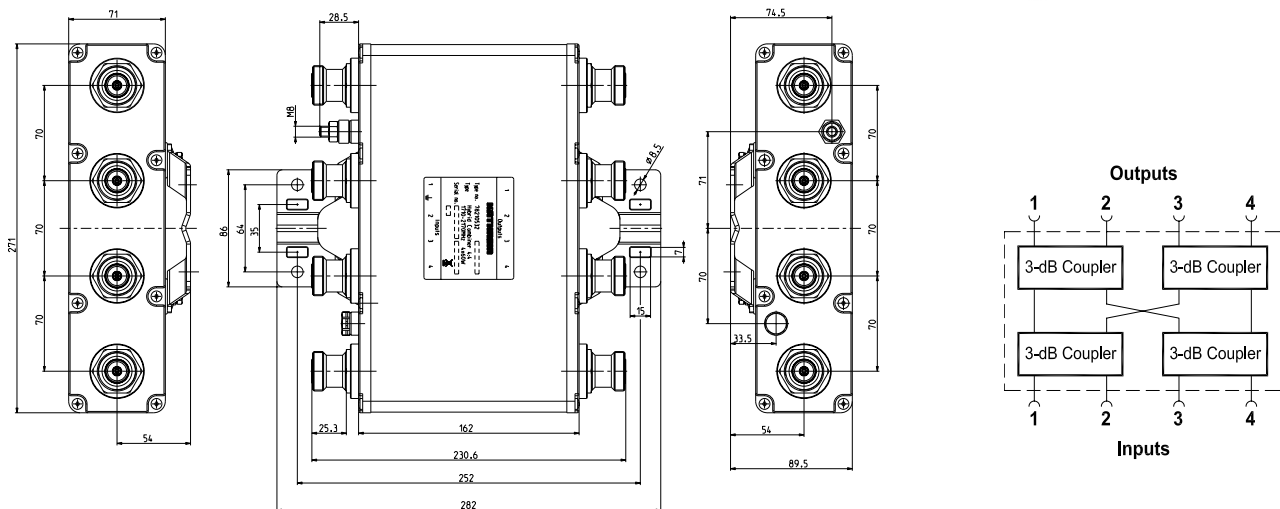
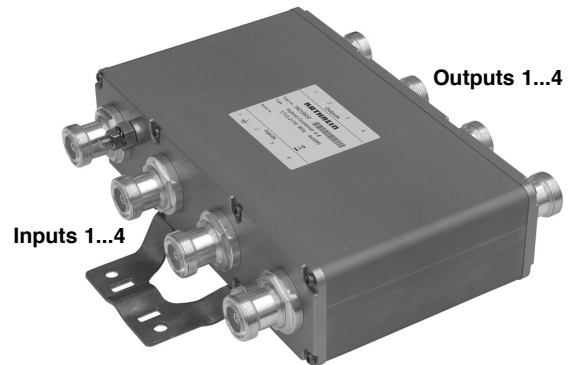


Hybrid Combiner 4:4

1710 – 2170 MHz

4 x 60 W

- Designed for the decoupled combining of 4 transmitter or receiver signals and distributing these signals equally onto 4 antenna outputs
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- DC by-pass between all ports
- External DC stop available as an accessory



Technical Data

| Type No. | 782 10532 |
|---|---|
| Frequency range | 1710 – 2170 MHz |
| Insertion Loss Input 1...4 ↔ Output 1...4 | 0.5 dB ±0.2 dB |
| Power distribution loss (excluding insertion loss) Input 1...4 ↔ Output 1...4 | 6 ±0.75 dB |
| Isolation Input 1...4 ↔ Input 1...4 Output 1...4 ↔ Output 1...4 | > 22 dB* > 22 dB* |
| VSWR (all ports) | < 1.25 |
| Impedance | 50 Ω |
| Input power | < 60 W at each port |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female (long neck) |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency | By-pass between all ports (max. 2500 mA) External DC stop available as an accessory |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 4.4 kg |
| Packing size | 357 x 312 x 189 mm |
| Dimensions (w x h x d) | 271 x 262 x 89.5 mm (including connectors and mounting brackets) |

* Valid if all ports are terminated with 50-Ω loads

Note:

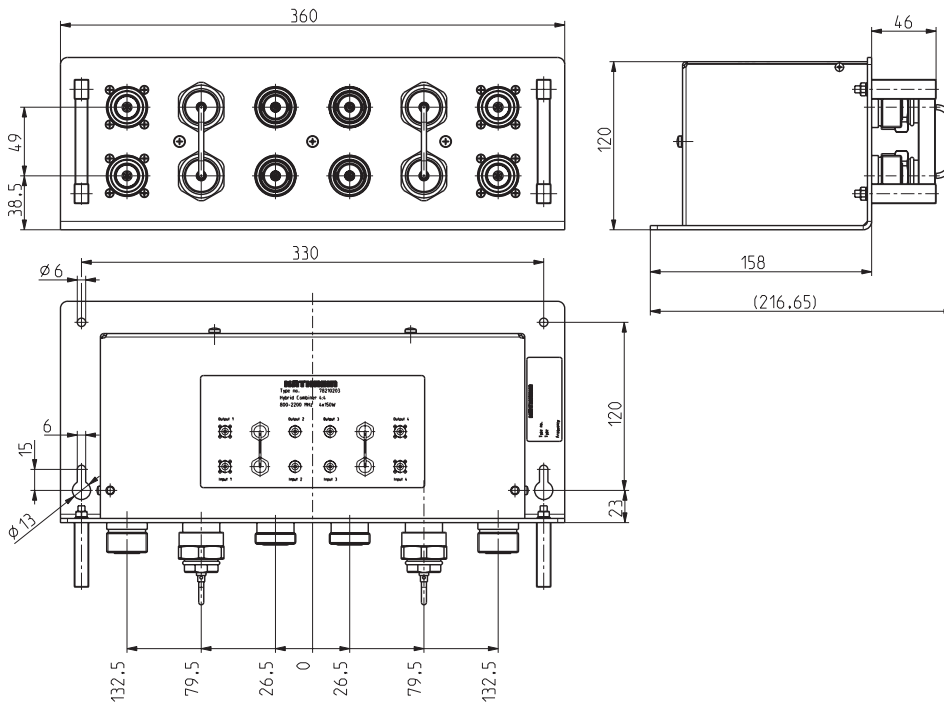
The use of fewer than 4 inputs or outputs is possible. Any unused input ports have to be terminated with low-power 50-Ohm loads (e.g. Kathrein type 784 10367), unused output ports have to be terminated with high-power 50-Ohm loads (e.g. Kathrein low-intermodulation type 782 10474).

Hybrid Combiner 4:4

800 – 2200 MHz

4 x 150 W

- Designed for the decoupled combining of 4 transmitter or receiver signals and distributing these signals evenly onto 4 antenna outputs.



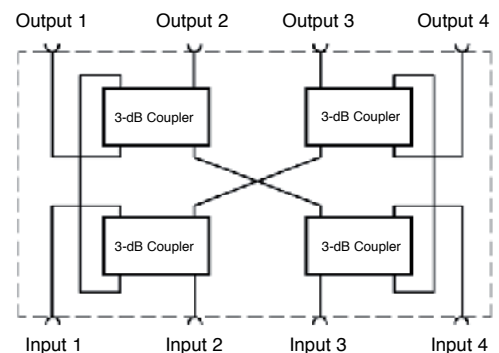
Technical Data

| Type No. | 782 10203 |
|---|---|
| Frequency range | 800 – 2200 MHz |
| Power distribution loss (including insertion loss) Input 1...4 ↔ Output 1...4 | < 6.5 ±2 dB |
| Insertion Loss | < 0.5 dB |
| Isolation Input 1...4 ↔ Input 1...4 | > 20 dB |
| Output 1...4 ↔ Output 1...4 | > 20 dB |
| VSWR (all ports) | < 1.3 * |
| Impedance | 50 Ω |
| Input power | < 150 W at each port |
| Intermodulation products | < -155 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) |
| Dimensions (w x h x d) | 360 x 180 x 216 mm |

* Valid if all ports are terminated with 50-Ω loads.

Note:

The use of fewer than 4 inputs or outputs is possible. Any unused input ports have to be terminated with low-power 50-Ω loads (e.g. Kathrein type 784 10367), unused output ports have to be terminated with high-power 50-Ω loads (e.g. Kathrein low-intermodulation type 782 10474).

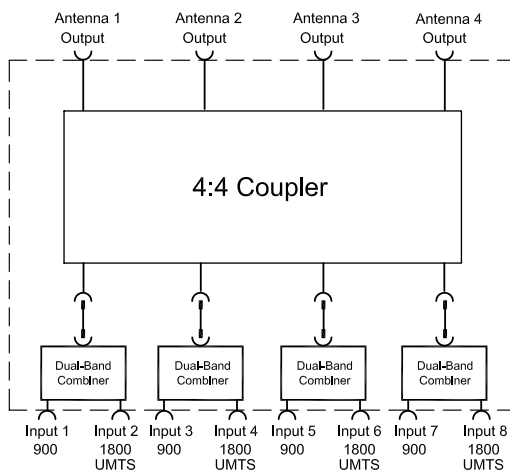
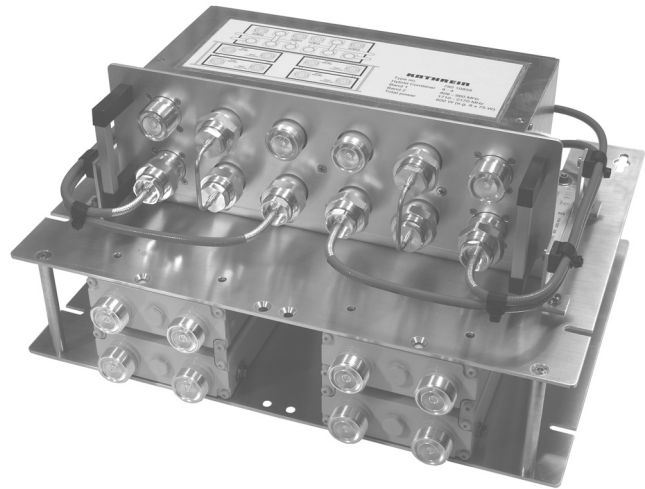


Hybrid Combiner 8:4

806 – 2170 MHz

8 x 75 W

- Designed for the decoupled combining of 8 transmitter or receiver signals and distributing these signals evenly onto 4 antenna outputs.



Technical Data

| | |
|---|---|
| Type No. | 782 10858 |
| Frequency range | |
| Band 1: | 806 – 960 MHz |
| Band 2: | 1710 – 2170 MHz |
| Power distribution loss (excluding insertion loss) Input 1...8 ↔ Output 1...4 | 6 ±2 dB |
| Insertion Loss Input 1...8 ↔ Output 1...4 | < 1.0 dB |
| Isolation between input ports | |
| Same bands | > 22 dB |
| Different bands | > 50 dB |
| Impedance | 50 Ω |
| Input power | 600 W total (e.g. 8 x 75 W) |
| Intermodulation products | < -150 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female |
| Application | Indoor |
| Mounting | Wall mounting: With 4 screws (max. 6 mm diameter) |
| Weight | 17.1 kg |
| Dimensions (w x h x d) | 448 x 223.5 x 330 mm |

Note:

The use of fewer than 8 inputs or 4 outputs is possible. Any unused input ports have to be terminated with low-power 50-Ohm loads (e.g. Kathrein type 784 10367), unused output ports have to be terminated with high-power 50-Ohm loads (e.g. Kathrein low-intermodulation type 782 10474).

Duplex Hybrid Combiner (Same-Band Combiner)

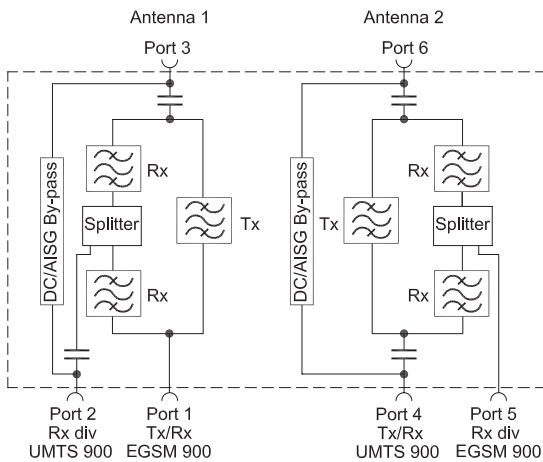
KATHREIN

Antennen · Electronic

880 – 960 MHz
GSM 900

880 – 960 MHz
UMTS 900

- Enables antenna and feeder sharing for two base stations in the 900 MHz frequency band
- Very low insertion loss over full EGSM/UMTS 900 Tx bandwidth compared to standard hybrid combiners
- Double unit in one housing for XPol antennas
- Suitable for indoor or outdoor applications
- DC/AISG by-pass for DTMA supply (for UMTS paths only)



Typical Attenuation Curves

Diagram I

Port 1 ↔ Port 3
Port 4 ↔ Port 6

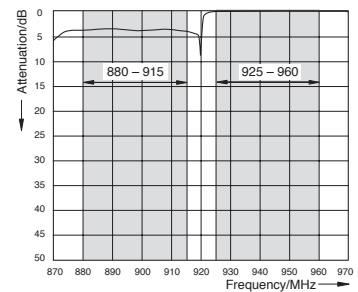


Diagram II

Port 1 ↔ Port 3
Port 4 ↔ Port 6

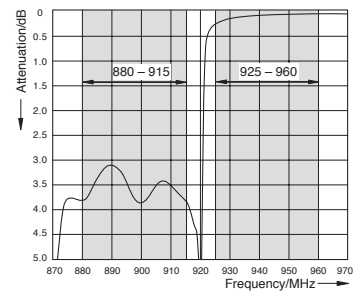


Diagram III

Port 2 ↔ Port 3
Port 5 ↔ Port 6

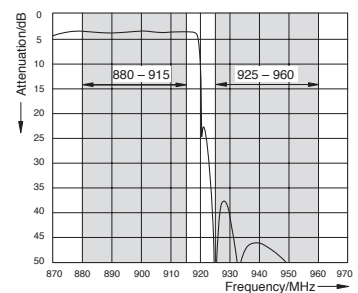
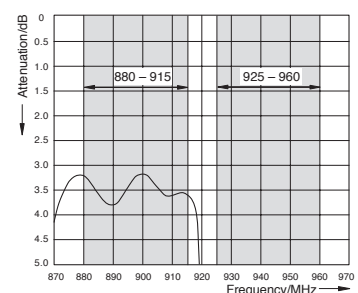


Diagram IV

Port 2 ↔ Port 3
Port 5 ↔ Port 6



Technical Data

| | |
|-----------------------------------|--|
| Type No. | 782 10805 |
| Pass band | |
| Rx | 880 – 915 MHz |
| Tx | 925 – 960 MHz |
| Insertion loss | |
| Port 1 ↔ Port 3 / Port 4 ↔ Port 6 | < 0.4 dB, typically 0.2 dB (925 – 960 MHz) – see Diagram I and II |
| Port 2 ↔ Port 3 / Port 5 ↔ Port 6 | < 4.3 dB, typically 3.6 dB (880 – 915 MHz) – see Diagram I and II |
| Port 2 ↔ Port 3 / Port 5 ↔ Port 6 | < 4.0 dB, typically 3.5 dB (880 – 915 MHz) – see Diagram III and IV |
| Isolation | |
| Port 1 ↔ Port 2 / Port 4 ↔ Port 5 | > 25 dB (880 – 915 MHz) > 35 dB (925 – 960 MHz) |
| VSWR | < 1.2 (880 – 915 / 925 – 960 MHz) |
| Impedance | 50 Ω |
| Input power | Port 1: < 250 W Port 4: < 250 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female (long neck) |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency | |
| Port 1 ↔ Port 3 / Port 5 ↔ Port 6 | Stop |
| Port 2 ↔ Port 3 / Port 4 ↔ Port 6 | By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse |
| Mounting | With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 6.5 kg |
| Packing size | 390 x 470 x 160 mm |
| Dimensions (w x h x d) | 287.1 x 278.6 x 71 mm (without connectors, without mounting brackets) |

Duplex Hybrid Combiner (Same-Band Combiner) **KATHREIN**

Antennen · Electronic

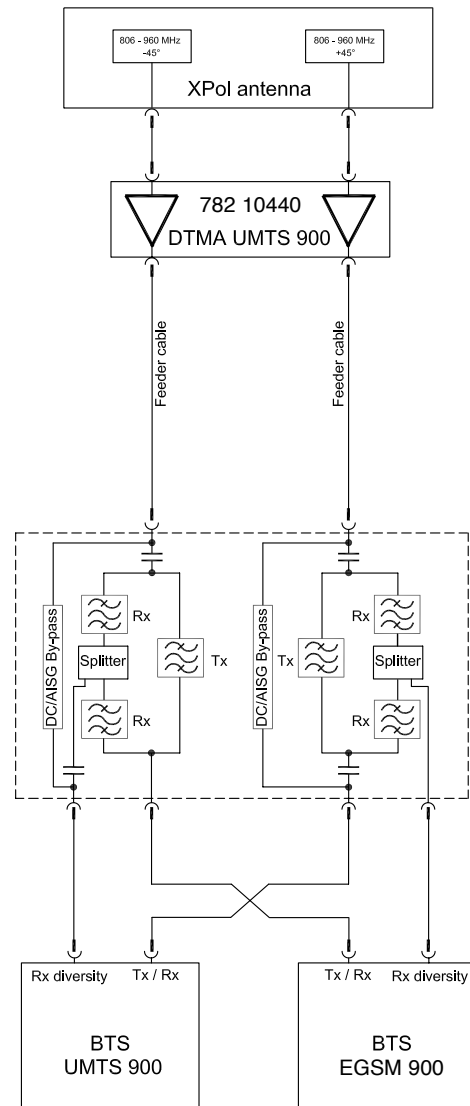
880 – 960 MHz
GSM 900

880 – 960 MHz
UMTS 900

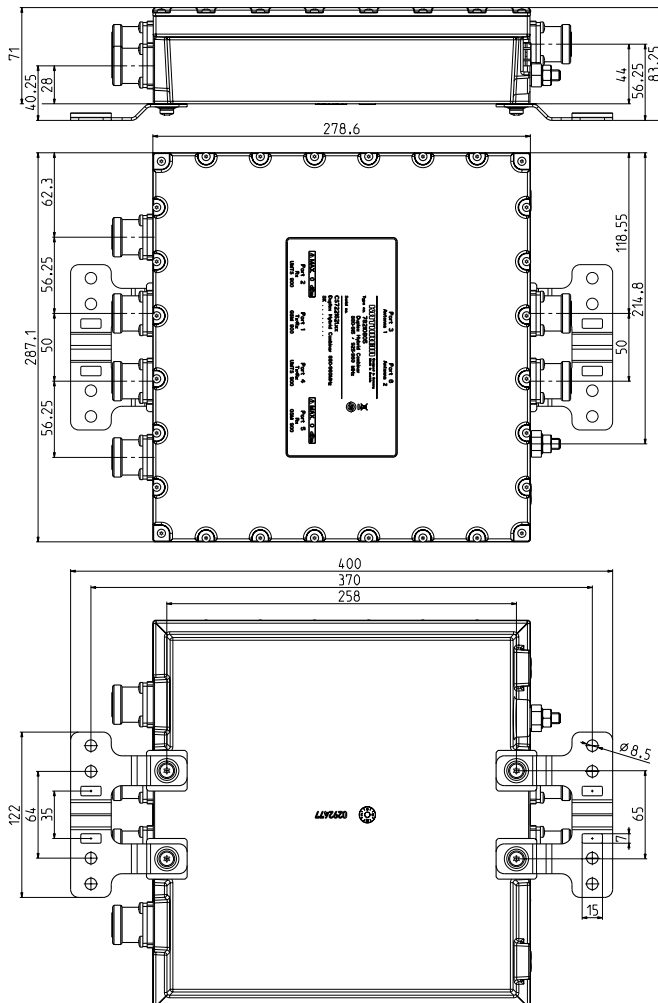
Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

| Type No. | Description |
|-----------|-----------------------------------|
| 793 301 | DC stop |
| 784 10367 | 50-Ω load 1.5 W indoor or outdoor |



Application example



Same-Band Combiner

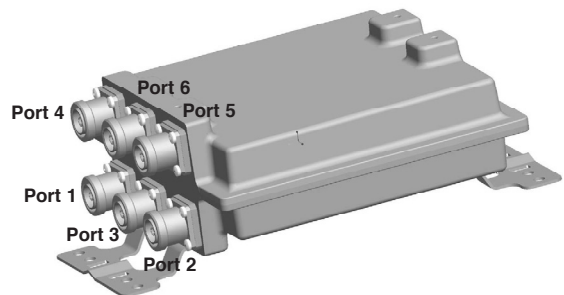
KATHREIN

Antennen · Electronic

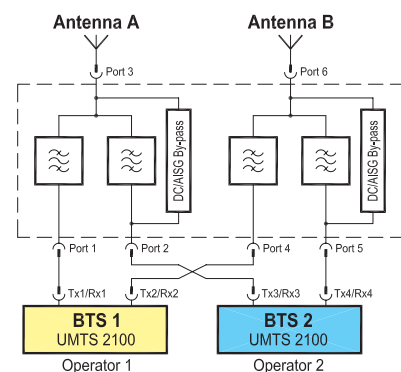
1920 – 1980 / 2110 – 2170 MHz
UMTS 2100

1920 ... 1980 / 2110 ... 2170 MHz
UMTS 2100 (10 MHz Bandwidth)

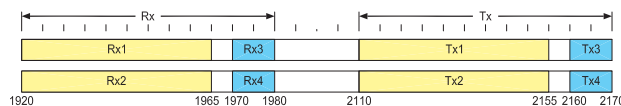
- Enables antenna and feeder sharing for two base stations in the same frequency band
- Customized 10 MHz Tx/Rx bandpass filters (factory tunable) available for inserting a second UMTS 2100 base station
- Full pass-band (without the second UMTS 2100 10 MHz Tx/Rx frequency blocks) available for the first UMTS 2100 base station
- Low insertion loss over complete UMTS 2100 Tx/Rx bandwidth compared to standard hybrid combiners
- Double unit for XPol antennas
- Suitable for indoor or outdoor applications
- DC/AISG by-pass for DTMA supply



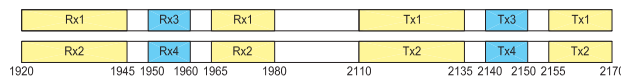
Block Diagram



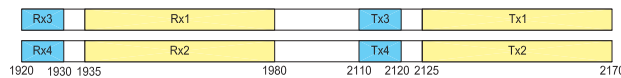
Tuning Example 1



Tuning Example 2



Tuning Example 3



Technical Data

| | |
|--|--|
| Type No. | 782 10925 |
| Pass band BTS 1 (UMTS 2100) BTS 2 (UMTS 2100) | Rx = 1920 – 1980 / Tx = 2110 – 2170 MHz (without assigned BTS 2 10 MHz Tx/Rx frequency blocks and ±5 MHz guard bands) Rx = 1920 ... 1980 / Tx = 2110 ... 2170 MHz (factory tunable 10 MHz frequency blocks) |
| Guard band | 5 MHz (between Tx1/Rx1 and Tx3/Rx3, between Tx2/Rx2 and Tx4/Rx4 e.g. tuning example 1: Rx1 (Rx2) = 1920 – 1965 and Tx1 (Tx2) = 2110 – 2155 MHz Rx3 (Rx4) = 1970 – 1980 and Tx3 (Tx4) = 2160 – 2170 MHz |
| Insertion loss Port 1 ↔ Port 3 / Port 4 ↔ Port 6 Port 2 ↔ Port 3 / Port 5 ↔ Port 6 | < 0.8 dB – see diagram I and II for tuning example 1 < 0.8 dB – see diagram III and IV for tuning example 1 |
| Isolation Port 1 ↔ Port 2 / Port 4 ↔ Port 5 | > 30 dB (1920 – 1980 / 2110 – 2170 MHz) |
| VSWR | < 1.25 (pass bands) |
| Impedance | 50 Ω |
| Input power Tx1 / Tx2 / Tx3 / Tx4 | < 100 W / < 100 W / < 100 W / < 100 W |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +60 °C |
| Connectors | 7-16 female (long neck) |
| Application | Indoor <i>or</i> outdoor (IP66) |
| DC/AISG transparency Port 1 ↔ Port 3 / Port 4 ↔ Port 6 Port 2 ↔ Port 3 / Port 5 ↔ Port 6 | Stop By-pass (max. 2500 mA) |
| Lightning protection | 3 kA, 10/350 μs pulse |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) / Mast mounting: With additional clamp set |
| Weight | 6.5 kg |
| Dimensions (w x h x d) | 243 x 240 x 100 mm (without connectors, without mountain brackets) |

Same-Band Combiner

KATHREIN

Antennen · Electronic

1920 – 1980 / 2110 – 2170 MHz
UMTS 2100

1920 ... 1980 / 2110 ... 2170 MHz
UMTS 2100 (10 MHz Bandwidth)

Accessories (order separately)

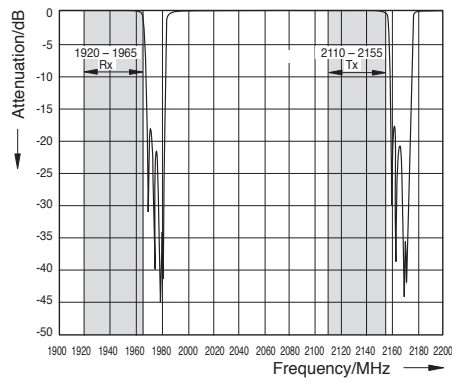
| Type No. | Clamp set suitable for mast diameter of |
|----------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



Calculated Attenuation Curves (Tuning Example 1)

BTS 1 (UMTS 2100)

Diagram I (Port 1 ↔ Port 3 / Port 4 ↔ Port 6)



BTS 2 (UMTS 2100)

Diagram III (Port 2 ↔ Port 3 / Port 5 ↔ Port 6)

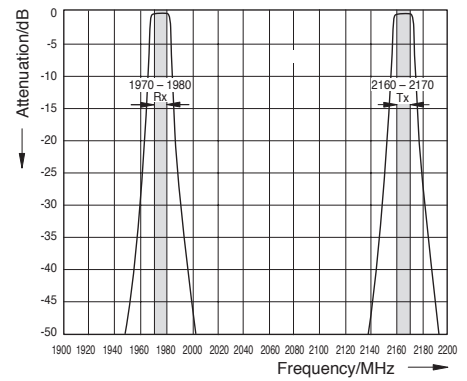


Diagram II (Port 1 ↔ Port 3 / Port 4 ↔ Port 6)

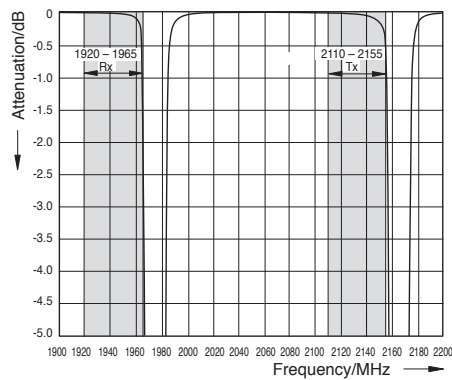
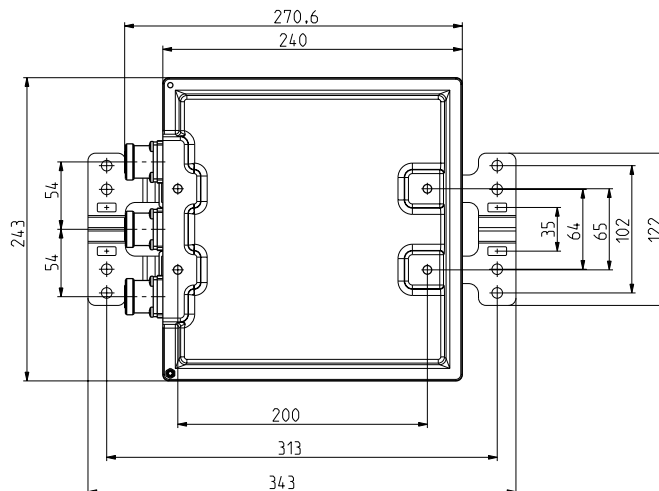
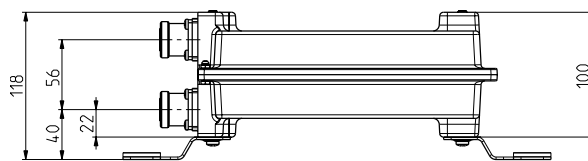
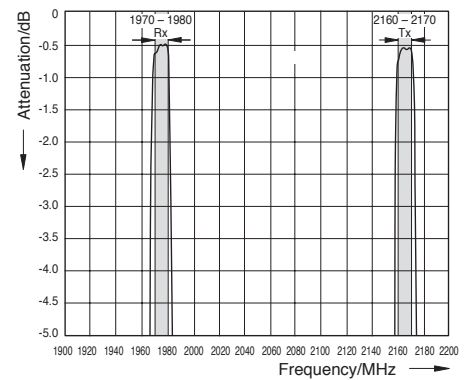


Diagram IV (Port 2 ↔ Port 3 / Port 5 ↔ Port 6)



Hybrid Ring Junction (180° Hybrid)

806 – 960 MHz / 1710 – 1880 MHz

The hybrid ring junction can be used:

- as a power splitter with a ratio of 1:1,
- for the decoupled combining of two transmitters with arbitrarily low frequency spacing (at 3 dB loss),
- for the decoupled combining of two receivers with arbitrarily low frequency spacing,
- for the decoupled combining of two transmitter/receiver units, whose integrated duplexers are within the same frequency range,
- as component to form combiners.

Description:

The hybrid ring junction has four ports, two of which are decoupled from each other. For example effective power entering into port 1 is distributed into ports 2 and 4, port 3 is decoupled and without power if ports 2 and 4 are ideally matched. In practice an absorber of suitable power at port 3 is to be planned for according to the mismatch of ports 2 and 4.

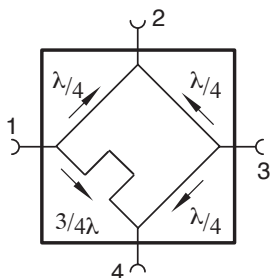
Decoupled combining can be made via ports 1 and 3 or 2 and 4.



K 63 73 621
790 881



791 498



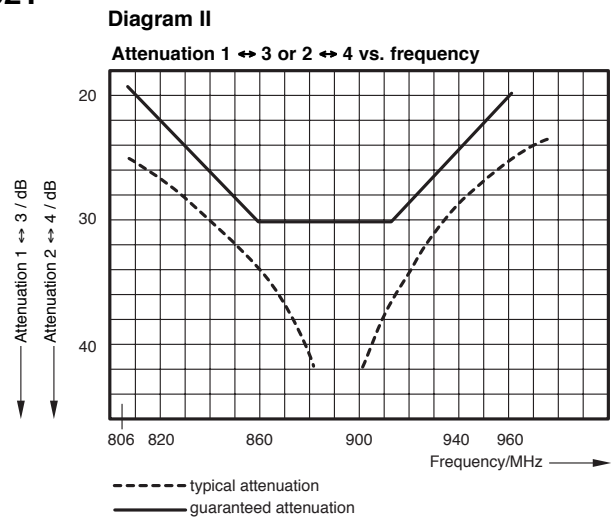
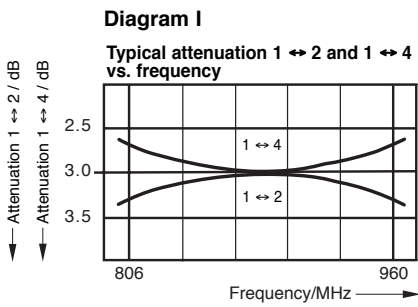
Technical Data

| Type No. | K 63 73 621 | 790 881 | 791 498 |
|----------------------------|---|------------------------------|--|
| Frequency range | 806 – 960 MHz | 890 – 960 MHz | 1710 – 1880 MHz |
| Attenuation 1 ↔ 2 or 1 ↔ 4 | 3 ±0.4 dB (see diagram I) | 3 ±0.3 dB (see diagram I) | 3 ±0.4 dB (see diagram I) |
| Attenuation 1 ↔ 3 or 2 ↔ 4 | See diagram II | | See diagram II |
| VSWR | < 1.2 | | < 1.3 |
| Impedance | 50 Ω | | 50 Ω |
| Input power | < 100 W per input | | < 50 W per input |
| Connectors | N female | | N female |
| Application | Indoor | | Indoor |
| Mounting | With 2 screws (max. 4.5 mm diameter) | | With 4 screws (max. 4.5 mm diameter) |
| Weight | 0.32 kg | | 0.25 kg |
| Packing size | Approx. 160 x 40 x 105 mm | | 90 x 40 x 110 mm |
| Dimensions (w x h x d) | 150 x 30 x 87 mm (including connectors) | | 80 x 26 x 106 mm (including connectors) |

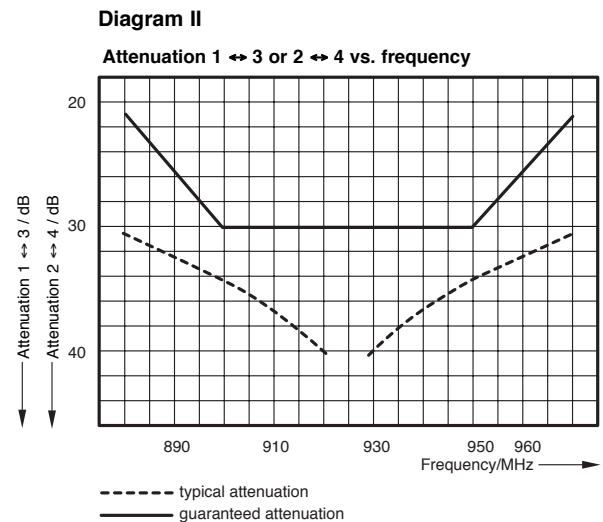
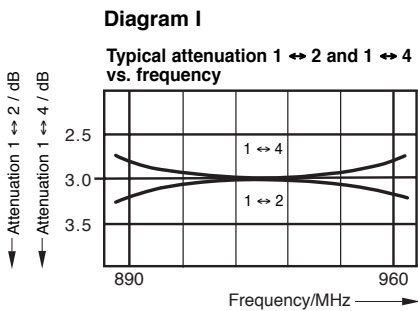
Note: VSWR and attenuation values are measured when the remaining ports are terminated with 50-Ω loads.

Typical Attenuation Curves

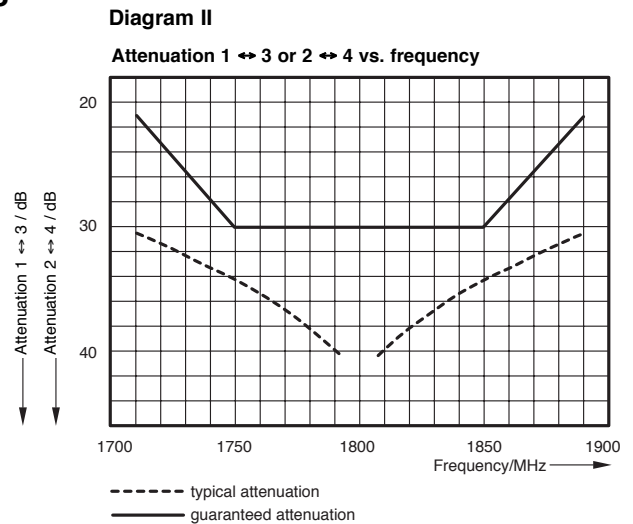
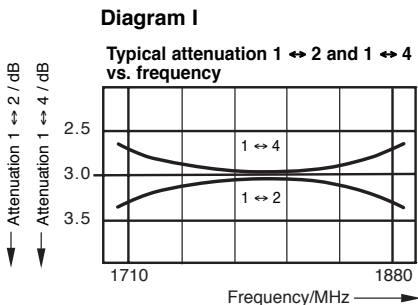
K 63 73 621



790 881



791 498



3-dB Coupler (90° Hybrid) 806 – 960 MHz

The 3-dB coupler can be used:

- as a decoupled power splitter with a ratio of 1:1,
- for the decoupled combining of two transmitters with frequency spacing as narrow as desired (at 3 dB loss),
- for the decoupled combining of two receivers with frequency spacing as narrow as desired,
- for the decoupled combining of two transmitter/receiver units, whose integrated duplexers are within the same frequency range,
- as a frequency-independent 90° phase shifter,
- as a component to form combiners.

Function:

The 3-dB coupler has four ports, two of which are decoupled from each other. For example effective power entering into port 1 is distributed into ports 2 and 3. Port 4 is decoupled and without power if ports 2 and 3 are ideally matched. In practice an absorber of suitable power at port 4 is to be planned in accordance with the mismatch of ports 2 and 3. Decoupled combining can be achieved via the diagonally opposite ports 2 and 3 or 1 and 4.

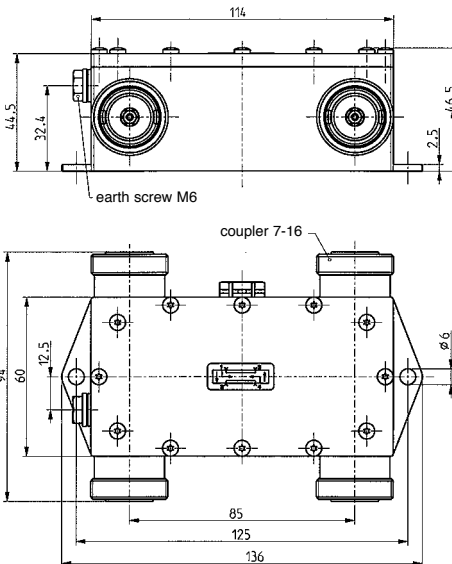
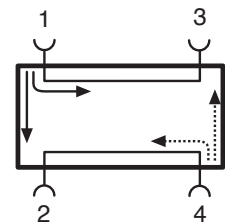
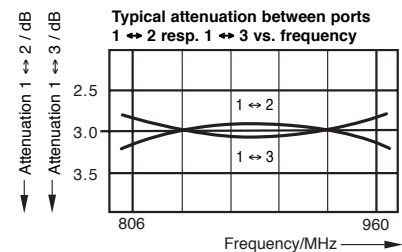


Diagram I

Typical attenuation between ports 1 ↔ 2 resp. 1 ↔ 3 vs. frequency

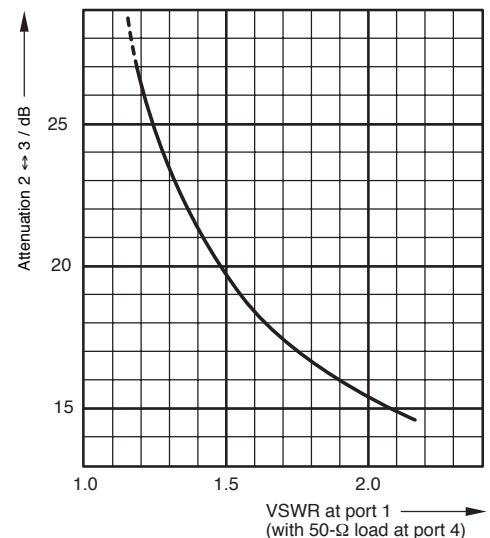


Technical Data

| Type No. | 793 506 |
|---------------------------|---|
| Frequency range | 806 – 960 MHz |
| Attenuation 1 ↔ 2 / 1 ↔ 3 | 3 ± 0.4 dB (see diagram I) |
| Attenuation 2 ↔ 3 | See diagram II |
| Directivity | > 30 dB |
| VSWR | < 1.1 |
| Impedance | 50 Ω |
| Input power | < 500 W total power at <i>two</i> inputs, with max. 350 W at <i>one</i> input |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -30 ... +70 °C |
| Connectors | 7-16 female |
| Application | Indoor or outdoor (IP66) |
| Mounting | With 2 screws (max. 6 mm diameter) |
| Weight | 1.8 kg |
| Packing size | 160 x 95 x 65 mm |
| Dimensions (w x h x d) | 136 x 46.5 x 94 mm (including connectors) |

Diagram II

Typical attenuation 2 ↔ 3 vs. VSWR at port 1



Note: VSWR and attenuation values are measured when the remaining ports are terminated with 50-Ω loads.

3-dB Coupler (90° Hybrid) 1700 – 2200 MHz

The 3-dB coupler can be used:

- as a decoupled power splitter with a ratio of 1:1,
- for the decoupled combining of two transmitters with frequency spacing as narrow as desired (at 3 dB loss),
- for the decoupled combining of two receivers with frequency spacing as narrow as desired,
- for the decoupled combining of two transmitter/receiver units, whose integrated duplexers are within the same frequency range,
- as a frequency-independent 90° phase shifter,
- as a component to form combiners.



Function:

The 3-dB coupler has four ports, two of which are decoupled from each other. For example effective power entering into port 1 is distributed into ports 2 and 3. Port 4 is decoupled and without power if ports 2 and 3 are ideally matched. In practice an absorber of suitable power at port 4 is to be planned in accordance with the mismatch of ports 2 and 3. Decoupled combining can be achieved via the diagonally opposite ports 2 and 3 or 1 and 4.

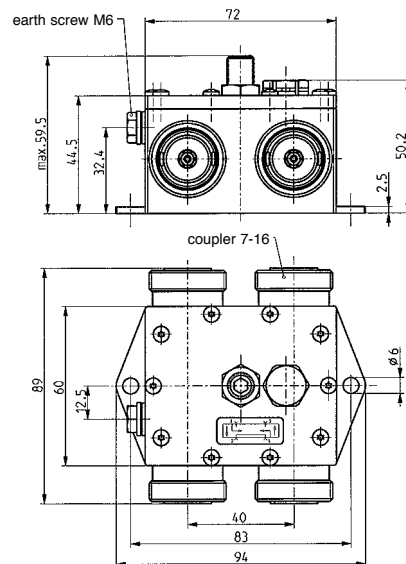
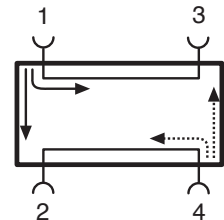
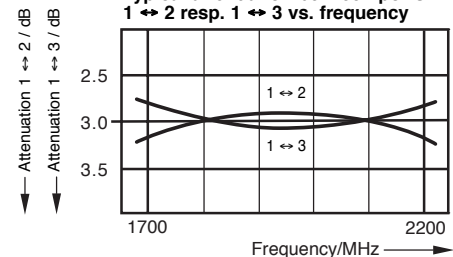


Diagram I

Typical attenuation between ports 1 ↔ 2 resp. 1 ↔ 3 vs. frequency

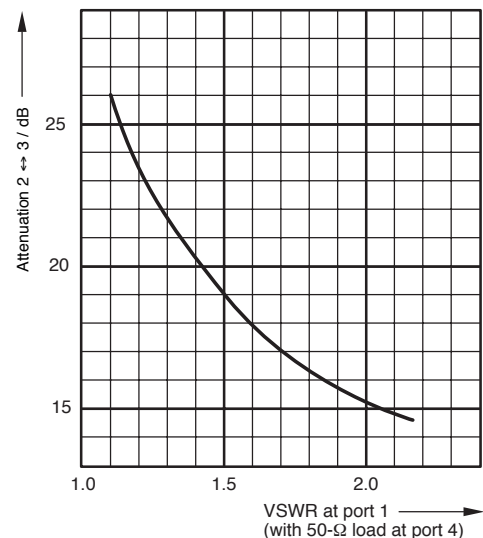


Technical Data

| Type No. | 793 006 |
|---------------------------|---|
| Frequency range | 1700 – 2200 MHz |
| Attenuation 1 ↔ 2 / 1 ↔ 3 | 3 ± 0.4 dB (see diagram I) |
| Attenuation 2 ↔ 3 | See diagram II |
| Directivity | > 25 dB |
| VSWR | < 1.15 |
| Impedance | 50 Ω |
| Input power | < 300 W total power at <i>two</i> inputs, with max. 200 W at <i>one</i> input |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -30 ... +70 °C |
| Connectors | 7-16 female |
| Application | Indoor or outdoor (IP66) |
| Mounting | With 2 screws (max. 5.5 mm diameter) |
| Weight | 1.3 kg |
| Packing size | 160 x 95 x 65 mm |
| Dimensions (w x h x d) | 94 x 59.5 x 89 mm (including connectors) |

Diagram II

Typical attenuation 2 ↔ 3 vs. VSWR at port 1



Note: VSWR and attenuation values are measured when the remaining ports are terminated with 50-Ω loads.

3-dB Coupler (90° Hybrid) 800 – 2200 MHz

The 3-dB coupler can be used:

- as a decoupled power splitter with a ratio of 1 : 1,
- for the decoupled combining of two transmitters with frequency spacing as narrow as desired (at 3 dB loss),
- for the decoupled combining of two receivers with frequency spacing as narrow as desired,
- for the decoupled combining of two transmitter/receiver units whose integrated duplexers are within the same frequency range,
- as a frequency-independent 90° phase shifter,
- as a combiner component.

Function:

The 3-dB coupler has four ports, two of which are decoupled from each other. For example effective power entering into port 1 is distributed into the ports 2 and 3. Port 4 is decoupled and without power if ports 2 and 3 are ideally matched. In practice an absorber of suitable power at port 4 is to be planned for according to the mismatch of ports 2 and 3.

Decoupled combining can be achieved via the diagonally opposite ports 2 and 3 respectively 1 and 4.

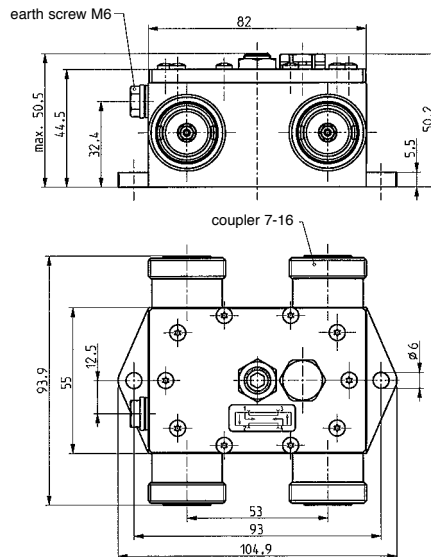
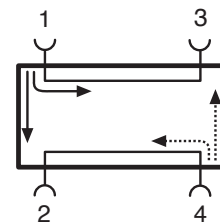
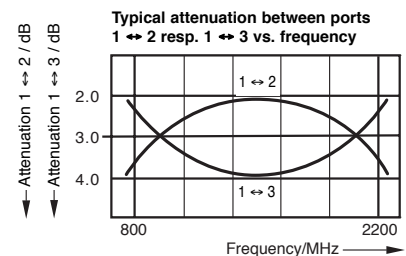


Diagram I

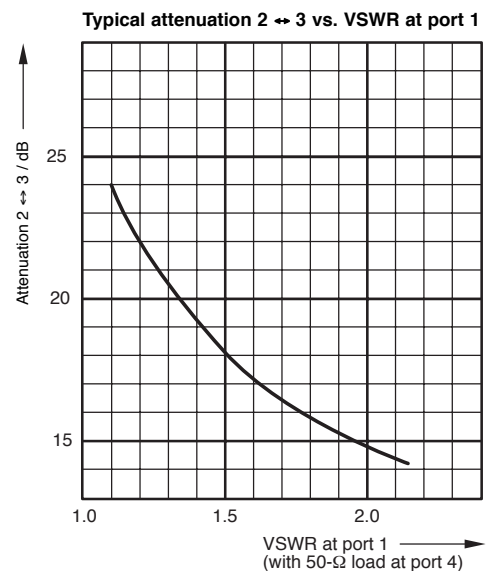


Technical Data

| Type No. | 793 554 |
|---------------------------|--|
| Frequency range | 800 – 2200 MHz |
| Attenuation 1 ↔ 2 / 1 ↔ 3 | 3 ±1.2 dB (see diagram I) |
| Attenuation 2 ↔ 3 | See diagram II |
| Directivity | > 20 dB |
| VSWR | < 1.2 |
| Impedance | 50 Ω |
| Input power | < 300 W total power at <i>two</i> inputs, with max. 200 W at <i>one</i> input |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperatur range | -30 ... +70 °C |
| Connectors | 7-16 female |
| Application | Indoor or outdoor (IP66) |
| Mounting | With 2 screws (max. 5.5 mm diameter) |
| Weight | 1.3 kg |
| Packing size | 160 x 95 x 65 mm |
| Dimensions (w x h x d) | 104.9 x 50.2 x 93.9 mm (including connectors) |

Note: VSWR and attenuation values are measured when the remaining ports are terminated with 50-Ω loads.

Diagram II



System Components

Bias Tees
Measuring Directional Couplers
DC-Stops
Attenuators
50- Ω Loads
Power Distribution Unit

System Components:

| Description | Type No. | Frequency range | Max. input power | Page |
|--------------------------------|------------------|---------------------------------|------------------|-----------|
| DC Stop | 793 301 | 800 – 2170 MHz | 750 W | 281 |
| DC Stop | 782 10850 | 250 – 2700 MHz | 750 W | 282 |
| Bias Tee | 793 304 | 800 – 2170 MHz | 250 W | 283 |
| Bias Tee AISG | 782 10429 | 800 – 2170 MHz | 250 W | 284 |
| Bias Tee AISG/Bulkhead | 782 10550 | 1710 – 2170 MHz | 250 W | 285 |
| Smart Bias Tee 12 V / BTS | 782 10253 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 12 V / Antenna | 782 10254 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 24 V / BTS | 782 10255 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 24 V / Antenna | 782 10256 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 12 V / BTS | 782 10453 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 12 V / Antenna | 782 10454 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 24 V / BTS | 782 10455 | 800 – 2170 MHz | 750 W | 286 – 288 |
| Smart Bias Tee 24 V / Antenna | 782 10456 | 800 – 2170 MHz | 750 W | 286 – 288 |
| 50-Ω Load (7-16 female) Low IM | 782 10474 | 800 – 2700 MHz | 80 W | 289 |
| 50-Ω Load (N male) | K 62 26 61 1 | 0 – 2700 MHz | 0.5 W | 290 |
| 50-Ω Load (7-16 male) | 784 10367 | 0 – 4000 MHz | 1.5 W | 290 |
| 50-Ω Load (7-16 female) | 784 10470 | 0 – 4000 MHz | 1.5 W | 290 |
| 50-Ω Load (N male) | K 62 26 11 1 | 0 – 2700 MHz | 2 W | 290 |
| 50-Ω Load (N female) | K 62 26 40 1 | 0 – 2700 MHz | 10 W | 290 |
| 50-Ω Load (N male) | K 62 26 41 1 | 0 – 2700 MHz | 10 W | 290 |
| 50-Ω Load (N female) | K 62 26 20 1 | 0 – 2700 MHz | 25 W | 291 |
| 50-Ω Load (N male) | K 62 26 21 1 | 0 – 2700 MHz | 25 W | 291 |
| 50-Ω Load (7-16 female) | K 62 26 20 7 | 0 – 2700 MHz | 25 W | 291 |
| 50-Ω Load (7-16 male) | K 62 26 21 7 | 0 – 2700 MHz | 25 W | 291 |
| 50-Ω Load (N female) | K 62 26 30 1 | 0 – 2700 MHz | 50 W | 291 |
| 50-Ω Load (N male) | K 62 26 31 1 | 0 – 2700 MHz | 50 W | 291 |
| 50-Ω Load (7-16 female) | K 62 26 30 7 | 0 – 2700 MHz | 50 W | 291 |
| 50-Ω Load (7-16 male) | K 62 26 31 7 | 0 – 2700 MHz | 50 W | 291 |
| 50-Ω Load (N female) | K 62 26 50 1 | 0 – 1000 MHz | 100 W | 291 |
| 50-Ω Load (N male) | K 62 26 51 1 | 0 – 1000 MHz | 100 W | 291 |
| 50-Ω Load (7-16 female) | K 62 26 50 7 | 0 – 1000 MHz | 100 W | 291 |
| Attenuator 3 dB | 784 10235 | 0 – 4000 MHz | 2 W | 294 |
| Attenuator 6 dB | 784 10236 | 0 – 4000 MHz | 2 W | 294 |
| Attenuator 10 dB | 784 10237 | 0 – 4000 MHz | 2 W | 294 |
| Attenuator 20 dB | 784 10238 | 0 – 4000 MHz | 2 W | 294 |
| Attenuator 3 dB | 791 918 | 0 – 4000 MHz | 15 W | 294 |
| Attenuator 6 dB | 791 919 | 0 – 4000 MHz | 12 W | 294 |
| Attenuator 10 dB | 791 920 | 0 – 4000 MHz | 10 W | 294 |
| Attenuator 20 dB | 791 921 | 0 – 4000 MHz | 10 W | 294 |
| Measuring Directional Coupler | 792 972 | 824 – 960 MHz 960 – 2500 MHz | 800 W 200 W | 295 |

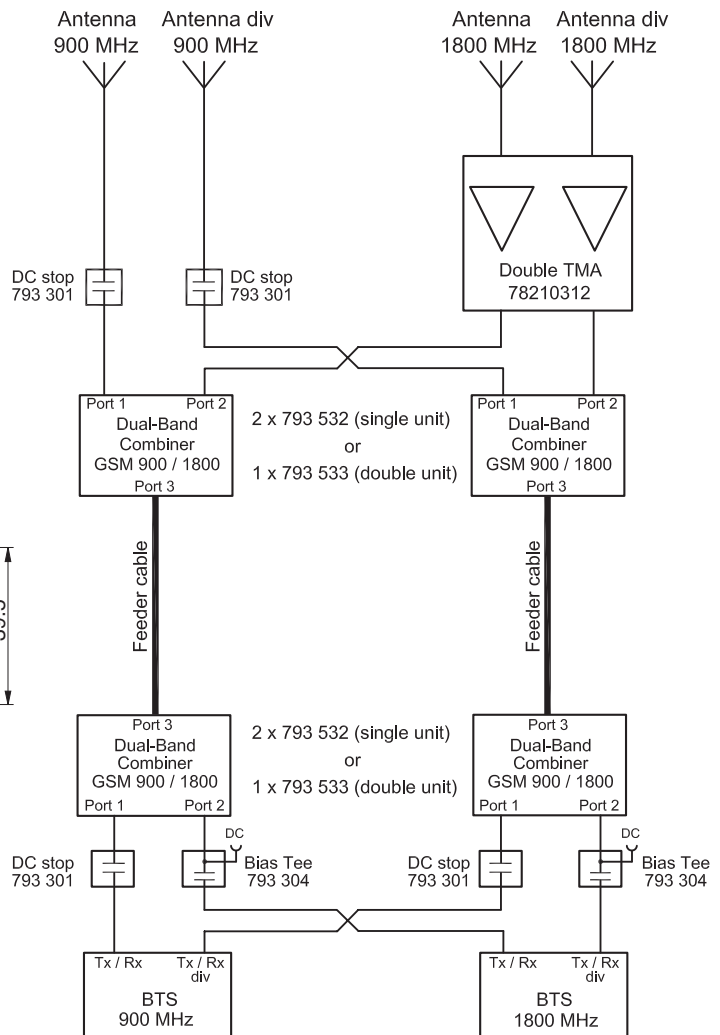
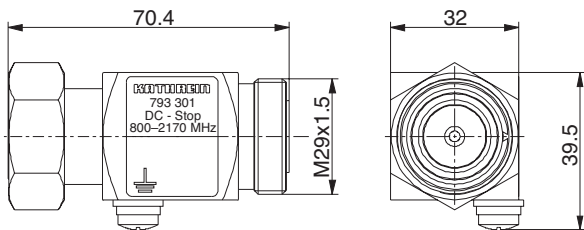
| Description | Type No. | Power supply (DC input) | Page |
|-------------------------------|-----------|-------------------------|----------|
| Power Distribution Unit (PDU) | 782 10344 | 38 ... 72 V DC | 292, 293 |

New Products

DC Stop 800 – 2170 MHz

DC Stop is used in dual- or multi-band antenna systems where one or more antenna systems require a DC supply for an installed mast head amplifier. The DC Stop prevents DC voltage from being shorted within the non-biased antenna system(s) and isolates the corresponding base station output(s) from DC voltage.

- Low RF signal insertion loss
- High DC signal isolation from port 1 to port 2 and vice versa
- Suitable for indoor or outdoor applications



Application Example

Technical Data

| Type No. | 793 301 |
|-----------------------------------|--|
| Frequency range | 800 – 2170 MHz |
| Insertion loss Port 1 ↔ Port 2 | < 0.1 dB (800 – 2170 MHz) |
| Isolation Port 1 ↔ Port 2 | > 70 dB (DC) |
| VSWR | < 1.1 (800 – 2000 MHz) < 1.2 (2000 – 2170 MHz) |
| Impedance | 50 Ω |
| Input power | < 750 W (800 – 2170 MHz) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +70 °C |
| Connectors Port 1 Port 2 | 7-16 male 7-16 female |
| Application | Indoor or outdoor (IP 67) |
| Weight | 0.32 kg |
| Dimensions (w x h x d) | 70.4 x 39.5 x 32 mm (including connectors and earthing screw of 6 mm diameter) |

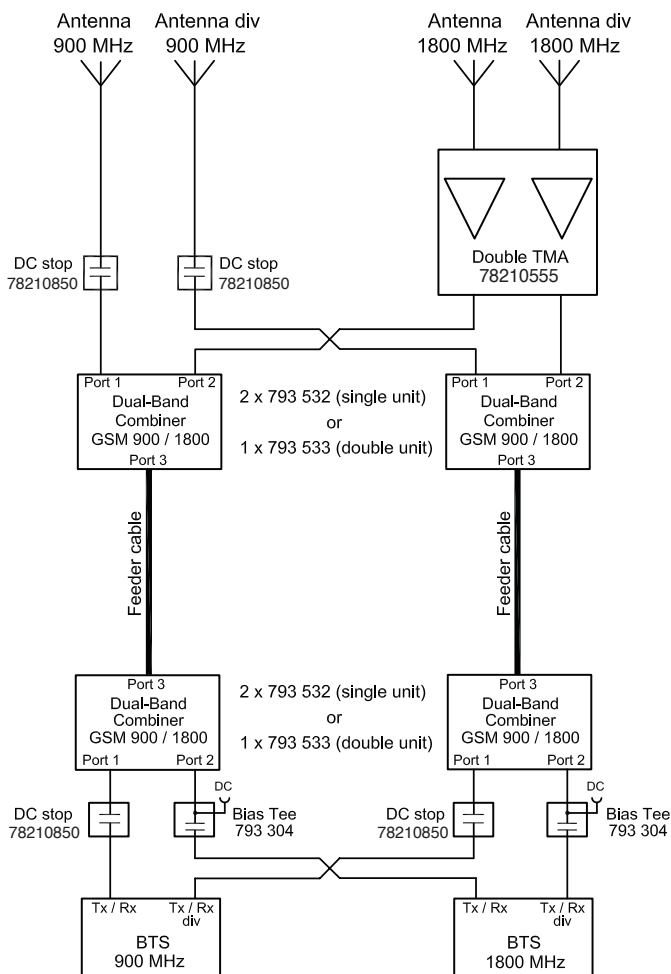
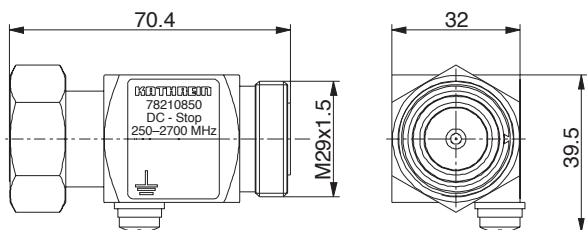


DC Stop

250 – 2700 MHz

DC Stop is used in dual- or multi-band antenna systems where one or more antenna systems require a DC supply for an installed mast head amplifier. The DC Stop prevents DC voltage from being shorted within the non-biased antenna system(s) and isolates the corresponding base station output(s) from DC voltage.

- Low RF signal insertion loss
- High DC signal isolation from port 1 to port 2 and vice versa
- Suitable for indoor or outdoor applications



Application Example

Technical Data

| Type No. | 782 10850 |
|-----------------------------------|--|
| Frequency range | 250 – 2700 MHz |
| Insertion loss Port 1 ↔ Port 2 | < 0.1 dB (250 – 2700 MHz) |
| Isolation Port 1 ↔ Port 2 | > 70 dB (DC) |
| VSWR | < 1.1 (380 – 2700 MHz) < 1.2 (250 – 380 MHz) |
| Impedance | 50 Ω |
| Input power | < 750 W (250 – 2700 MHz) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +70 °C |
| Connectors Port 1 Port 2 | 7-16 male 7-16 female |
| Application | Indoor or outdoor (IP 67) |
| Weight | 0.32 kg |
| Dimensions (w x h x d) | 70.4 x 39.5 x 32 mm (including connectors and earthing screw of 6 mm diameter) |

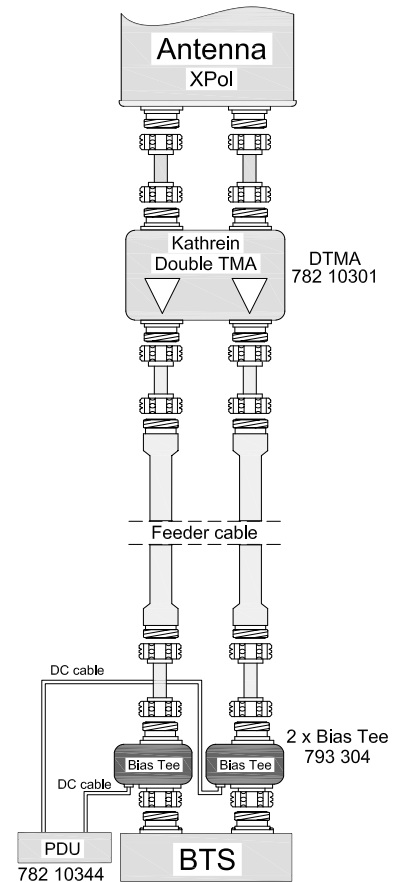
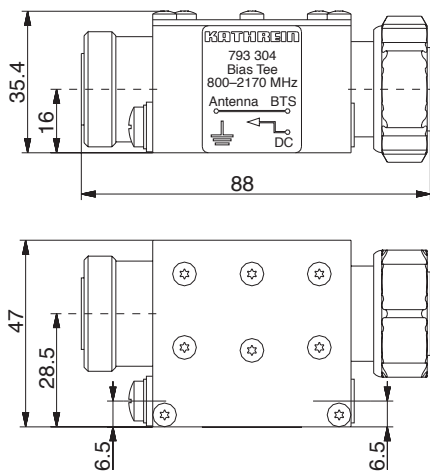


Bias Tee

800 – 2170 MHz

The Bias Tee is suitable to feed DC voltage into the feeder cable of a receiving and/or transmitting antenna system in order to provide the operating voltage for a mast head amplifier.

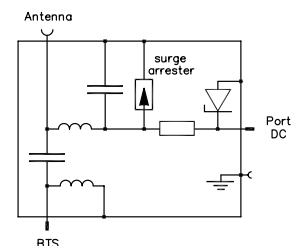
- The Bias Tee provides low RF signal insertion loss from the BTS to the antenna port and vice versa.
- The DC voltage is fed from the DC port to the antenna port while providing a high level of DC isolation from the DC to the BTS port and from the antenna to the BTS port.
- The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.



Application Example

Technical Data

| Type No. | 793 304 |
|---|---|
| Frequency range | 800 – 2170 MHz |
| Insertion loss BTS ↔ Antenna | < 0.1 dB (800 – 2170 MHz) |
| Isolation BTS ↔ Antenna BTS ↔ DC | > 70 dB (DC) > 70 dB (DC) |
| VSWR | < 1.1 (800 – 2170 MHz) |
| Impedance | 50 Ω |
| Input power BTS DC | < 250 W (800 – 2170 MHz) < 1000 mA / 0 ... +30 VDC |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Lightning protection | 5 kA, 8/20 μs pulse |
| Temperature range | -40 ... +70 °C |
| Connectors BTS Antenna Port DC | 7-16 male 7-16 female SMB male |
| Application | Indoor |
| Weight | 0.6 kg |
| Packing size | 145 x 145 x 50 mm |
| Dimensions (w x h x d) | 88 x 47 x 35.4 mm (including connectors and earthing screw of 6 mm diameter) |



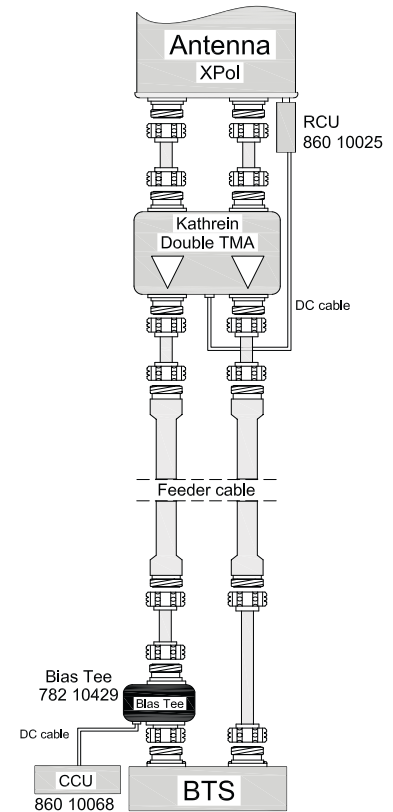
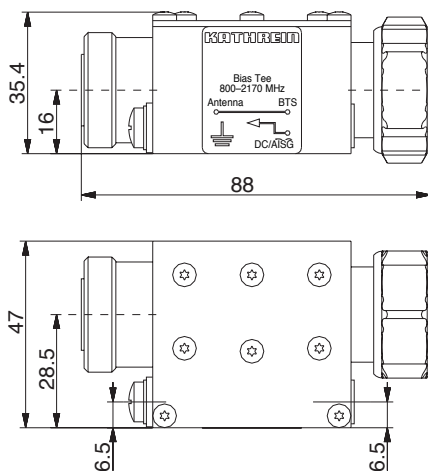
Bias Tee

800 – 2170 MHz

The Bias Tee is suitable to feed DC voltage and AISG control signals into the feeder cable in order to provide operating voltage and control signals via the RF feeder cable to the TMA or RCU.



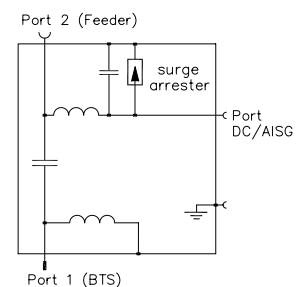
- The Bias Tee provides low RF signal insertion loss from the BTS to the antenna port and vice versa.
- The DC voltage and AISG control signal (2.176 MHz) is fed from the DC port to the antenna port while providing a high level of DC isolation from the DC to the BTS port and from the antenna to the BTS port.
- The measures taken in conjunction with the CCU-LOC to protect against static discharge and lightning ensure a high level of reliability and operational safety.



Application Example

Technical Data

| | |
|--|---|
| Type No. | 782 10429 |
| Frequency range | 800 – 2170 MHz |
| Insertion loss BTS ↔ Antenna | < 0.1 dB (800 – 2170 MHz) |
| Isolation BTS ↔ Antenna BTS ↔ DC/AISG | > 70 dB (DC) > 70 dB (DC) |
| VSWR | < 1.1 (800 – 2170 MHz) |
| Impedance | 50 Ω |
| Input power BTS DC/AISG | < 250 W (800 – 2170 MHz) < 1.8 A / 13 VDC < 0.8 A / 29 VDC |
| Lightning protection | 3 kA, 10/350 μs pulse |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +70 °C |
| Connectors Port 1 BTS Port 2 Antenna Port DC/AISG | 7-16 male 7-16 female SMB male |
| Application | Indoor |
| Weight | 0.6 kg |
| Packing size | 145 x 145 x 50 mm |
| Dimensions (w x h x d) | 88 x 47 x 35.4 mm (including connectors and earthing screw of 6 mm diameter) |



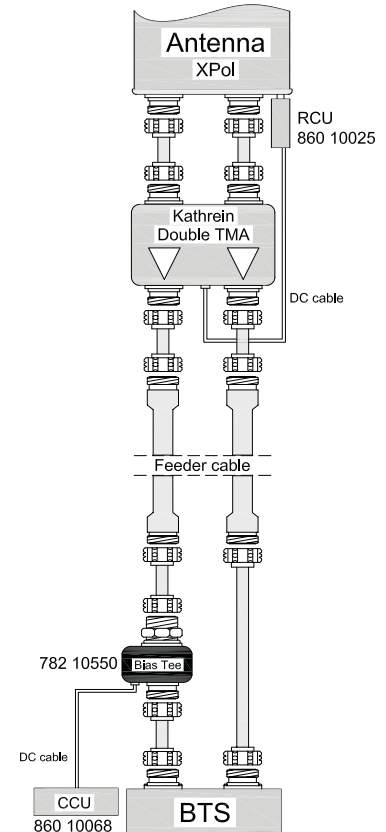
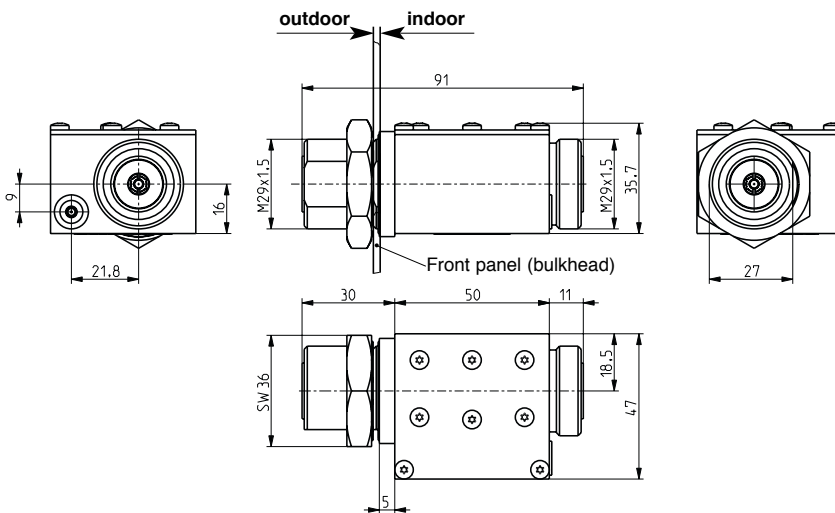
Bias Tee

1710 – 2170 MHz



The Bias Tee is suitable to feed DC voltage and AISG control signals into the feeder cable in order to provide operating voltage and control signals via the RF feeder cable to the TMA or RCU.

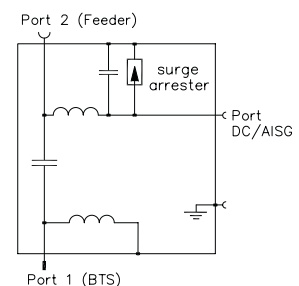
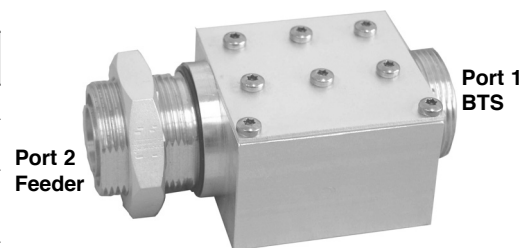
- The Bias Tee provides low RF signal insertion loss from the BTS to the antenna port and vice versa.
- The DC voltage and AISG control signal (2.176 MHz) is fed from the DC port to the antenna port while providing a high level of DC isolation from the DC to the BTS port and from the antenna to the BTS port.
- The measures taken in conjunction with the CCU-LOC to protect against static discharge and lightning ensure a high level of reliability and operational safety
- Designed for front panel mounting (Bulkhead version).



Application Example

Technical Data

| Type No. | 782 10550 |
|--|---|
| Frequency range | 1710 – 2170 MHz |
| Insertion loss BTS ↔ Antenna | < 0.1 dB (1710 – 2170 MHz) |
| Isolation BTS ↔ Antenna BTS ↔ DC/AISG | > 70 dB (DC) > 70 dB (DC) |
| VSWR | < 1.1 (1710 – 2170 MHz) |
| Impedance | 50 Ω |
| Input power BTS DC/AISG | < 250 W (1710 – 2170 MHz) < 1.8 A / 13 VDC < 0.8 A / 29 VDC |
| Lightning protection | 3 kA, 10/350 μs pulse; 20 kA, 8/20 μs pulse |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +70 °C |
| Connectors Port 1 BTS Port 2 Antenna Port DC/AISG | 7-16 female 7-16 female SMB male |
| Application | Indoor, port 2 connector outdoor with sealing (O-ring) |
| Weight | 0.6 kg |
| Packing size | 145 x 145 x 50 mm |
| Dimensions (w x h x d) | 91 x 47 x 35.4 mm (including connectors) |



Smart Bias Tee

800 – 2170 MHz



The **Smart Bias Tee** combines the performance of a standard Bias Tee (e.g. type 793 304) with the function of an additional modem (AISG standard) in order to provide either DC voltage as well as remote control signals via an RF feeder cable to a TMA or RCU.

The **Smart Bias Tee** provides low RF signal insertion loss from port 1 to port 2 and vice versa. The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.

- **782 10253, 782 10453:** 12 V version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **782 10254, 782 10454:** 12 V version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)
- **782 10255, 782 10455:** 24 V version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **782 10256, 782 10456:** 24 V version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)

Abbreviations:

RCU = Remote Control Unit for remote electrical control of antenna tilt

BTS = Base Transceiver Station

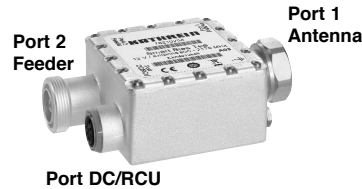
TMA = Tower Mounted Amplifier

AISG = Antenna Interface Standards Group

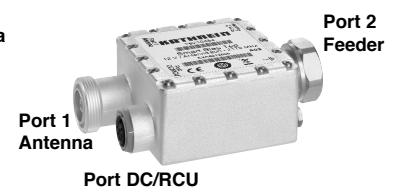
Port 1 = Port for BTS or for Antenna

Port 2 = Port for Feeder Cable

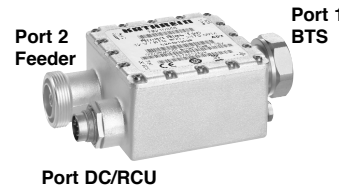
Port DC/RCU = Port for DC voltage and remote control unit signals



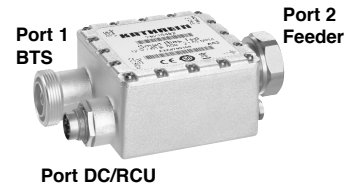
782 10254
782 10256



782 10454
782 10456



782 10253
782 10255



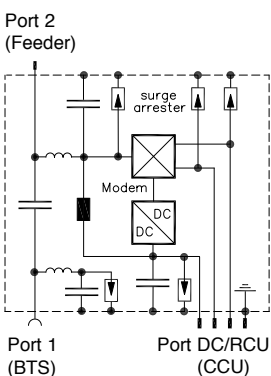
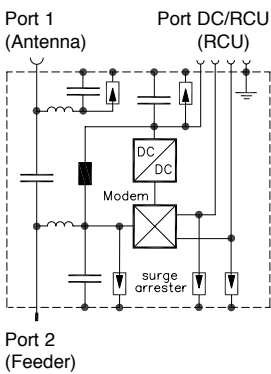
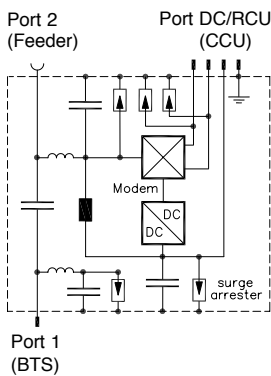
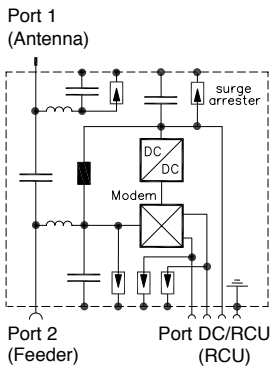
782 10453
782 10455

Technical Data

| Type No. | 782 10253 12 V / BTS | 782 10254 12 V / Antenna | 782 10255 24 V / BTS | 782 10256 24 V / Antenna |
|---|--|------------------------------------|--|------------------------------------|
| Port 1: 7-16 male | BTS | Antenna | BTS | Antenna |
| Port 2: 7-16 female | Feeder | Feeder | Feeder | Feeder |
| Type No. | 782 10453 12 V / BTS | 782 10454 12 V / Antenna | 782 10455 24 V / BTS | 782 10456 24 V / Antenna |
| Port 1: 7-16 female | BTS | Antenna | BTS | Antenna |
| Port 2: 7-16 male | Feeder | Feeder | Feeder | Feeder |
| Frequency range | 800 – 2170 MHz | | | |
| Insertion loss Port 1 ↔ Port 2 | < 0.1 dB (800 – 2170 MHz) | | | |
| Isolation for DC and RCU signals Port 1 ↔ Port 2 Port 1 ↔ Port DC/RCU Port 2 ↔ Port DC/RCU | > 70 dB > 70 dB > 0 dB | | | |
| VSWR | < 1.1 (800 – 2170 MHz) | | | |
| Impedance | 50 Ω | | | |
| Input power Port 1 ↔ port 2 Port DC/RCU | < 750 W (800 – 2170 MHz) < 2.5 A / +8 ... +14 VDC | | < 750 W (800 – 2170 MHz) < 2.5 A / +8 ... +30 VDC | |
| Power consumption | Typically 0.6 W | | | |
| Lightning protection | 3 kA, 10/350 μs pulse | | | |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) | | | |
| Temperature range | -40 ... +60 °C | | | |
| Modem carrier frequency | 2.176 MHz | | | |
| Application | Indoor or outdoor (IP66) | | | |
| Weight | 1.5 kg | | | |
| Packing size | 167 x 102 x 86 mm | | | |
| Dimensions (w x h x d) | 79 x 79 x 43.5 mm (without connectors) | | | |

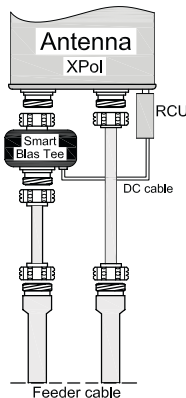


Block diagrams

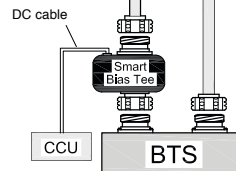


Application Examples

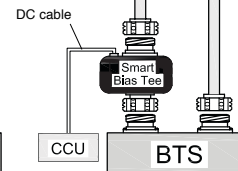
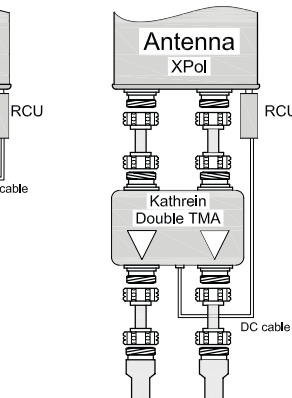
782 10254 (12V)
or
782 10256 (24V)



782 10253 (12V)
or
782 10255 (24V)



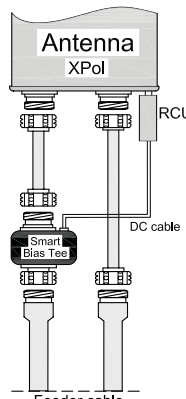
Antenna system
(1 sector)
without TMA



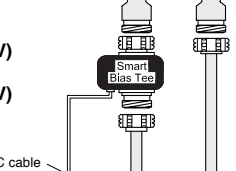
Antenna system
(1 sector)
with Kathrein TMA

Warning:
Don't mix 12 V and 24 V
Bias Tees in any configura-
tion. Always choose
corresponding voltage to
suit the TMA.

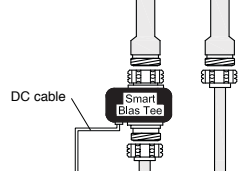
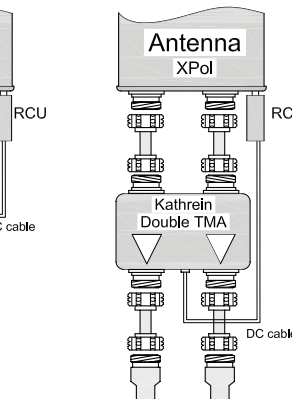
782 10454 (12V)
or
782 10456 (24V)



782 10453 (12V)
or
782 10455 (24V)



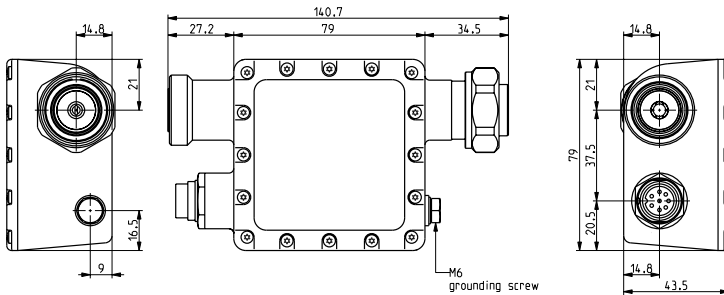
Antenna system
(1 sector)
without TMA



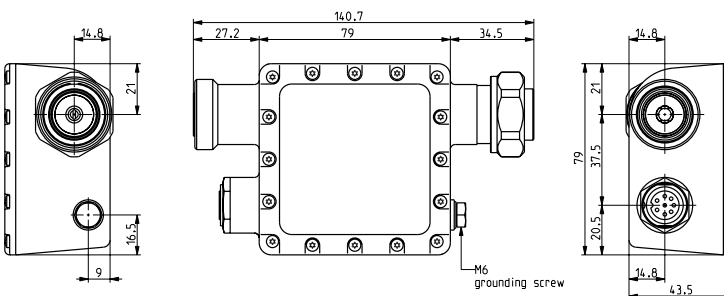
Antenna system
(1 sector)
with Kathrein TMA

Smart Bias Tee

800 – 2170 MHz



782 10253, 782 10255
782 10453, 782 10455



782 10254, 782 10256
782 10454, 782 10456

Please note:

The Smart Bias Tees are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E and have passed environmental tests as recommended in ETS 300 019-2-4.

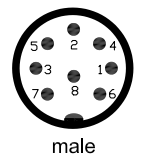
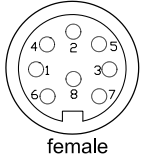
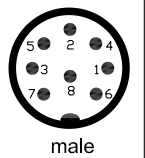
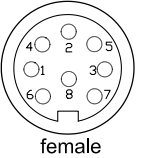
The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

The coupling torque at 7-16 connectors is 25 – 30 Nm!

Hold the smart bias tee housing securely while tightening the 7-16 locking nut.

The tightening torque for fixing the AISG connector must be 0.5 – 1.0 Nm ('hand-tightened').

Pin connections

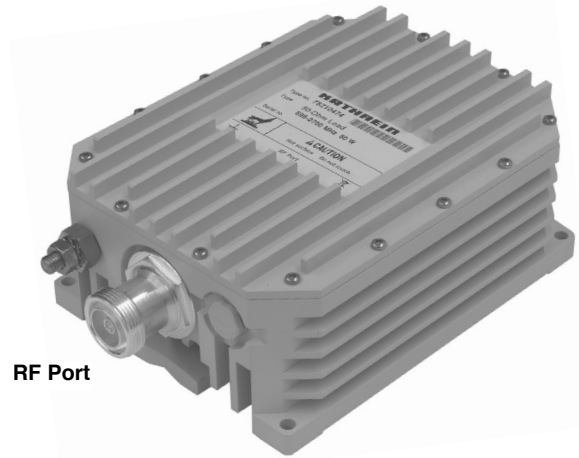
| | 782 10253 | 782 10254 | 782 10255 | 782 10256 |
|----------------------------------|---|---|---|---|
| | 782 10453 | 782 10454 | 782 10455 | 782 10456 |
| 8-pin connector (IEC 60130-9) |  male |  female |  male |  female |
| | Pin 1 | 12 VDC in | 12 VDC out | Not connected |
| Pin 2 | Not connected | Not connected | Not connected | Not connected |
| Pin 3 | RS485-B | RS485-B | RS485-B | RS485-B |
| Pin 4 | Not connected | Not connected | Not connected | Not connected |
| Pin 5 | RS485-A | RS485-A | RS485-A | RS485-A |
| Pin 6 | Not connected | Not connected | 24 VDC in | 24 VDC out |
| Pin 7 | DC return (grounded) | DC return (grounded) | DC return (grounded) | DC return (grounded) |
| Pin 8 | Not connected | Not connected | Not connected | Not connected |

50-Ohm Load

698 – 2700 MHz

80 W

- Designed as 50-Ohm termination wherever improved intermodulation performance compared to standard loads is required
- **Excellent intermodulation performance**
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- Built-in DC stop



RF Port

Technical Data

| Type No. | 782 10474 |
|--------------------------|--|
| Frequency range | 698 – 2700 MHz |
| VSWR | < 1.12 |
| Impedance | 50 Ω |
| Input power | < 80 W (see table) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -40 ... +55 °C |
| Connector | 7-16 female (long neck) |
| Application | Indoor or outdoor (IP 66) |
| DC/AISG transparency | Built-in DC stop AISG: Attenuation up to 3 dB when used in a network |
| Mounting | Wall mounting: With 4 screws (max. 6.5 mm diameter) Mast mounting: With additional clamp set (see data sheet) |
| Weight | 3.1 kg |
| Packing size | 377 x 232 x 189 mm |
| Dimensions (w x h x d) | 143.6 x 216 x 79.2 mm (including connector) |

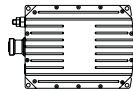
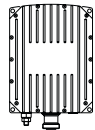
Note:

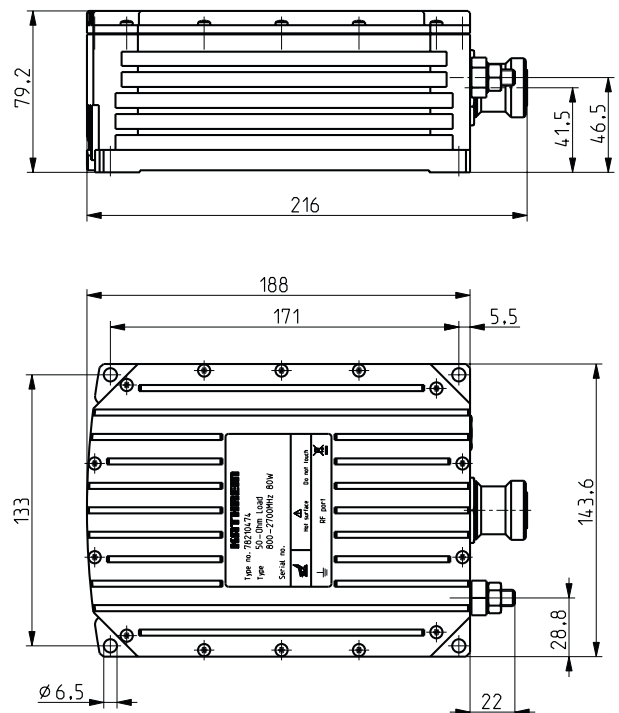
The RF port connector should always point downwards if mounted outdoors.

The input power rating of 80 W is specified at an ambient temperature of +40 °C with the combiner mounted vertically, without additional cooling, and while respecting the safety standard EN IEC 60950 (max. surface temperature +90 °C).

The max. power rating increases or decreases with falling or rising ambient temperature and depending on horizontal or vertical mounting in accordance with the following table:

Max. input power

| | Mounted horizontally | Mounted vertically |
|--------------------------|---|---|
| Max. ambient temperature |  |  |
| +55 °C | 50 W | 60 W |
| +40 °C | 70 W | 80 W |
| +25 °C | 90 W | 100 W |



50-Ohm Load

0 ... 4000 MHz

0.5 ... 100 W

- Standard 50-Ohm terminations for small and medium power
- Suitable for terminating open ports on RF equipment for indoor and/or outdoor applications

0.5 Watt *

| Type No. | K 62 26 61 1 |
|-----------------|---------------------|
| Connector | N male |
| Frequency range | 0 – 2700 MHz |
| VSWR | |
| 0 – 1000 MHz | < 1.08 |
| 1000 – 2000 MHz | < 1.15 |
| 2000 – 2700 MHz | < 1.20 |
| Application | Indoor |
| Weight | 40 g |
| Packing size | 90 x 60 x 25 mm |
| Dimensions | 33 / 21 mm diameter |



K 62 26 61 1

1.5 Watt *

| Type No. | 784 10367 | 784 10470 |
|-----------------|---------------------------------|---------------------|
| Connector | 7-16 male | 7-16 female |
| Frequency range | 0 – 4000 MHz | |
| VSWR | | |
| 0 – 2000 MHz | < 1.10 | |
| 2000 – 4000 MHz | < 1.30 | |
| Application | Indoor <i>or</i> outdoor (IP65) | |
| Weight | 120 g | |
| Packing size | Approx. 50 x 90 x 100 mm | |
| Dimensions | 40 / 32 mm diameter | 42 / 29 mm diameter |



784 10367

2 Watt *

| Type No. | K 62 26 11 1 |
|-----------------|---------------------|
| Connector | N male |
| Frequency range | 0 – 2700 MHz |
| VSWR | |
| 0 – 1000 MHz | < 1.08 |
| 1000 – 2000 MHz | < 1.15 |
| 2000 – 2700 MHz | < 1.20 |
| Application | Indoor |
| Weight | 40 g |
| Packing size | 90 x 60 x 25 mm |
| Dimensions | 30 / 21 mm diameter |



K 62 26 11 1

10 Watt *

| Type No. | K 62 26 40 1 | K 62 26 41 1 |
|------------------------|--|--|
| Connector | N female | N male |
| Frequency range | 0 – 2700 MHz | |
| VSWR | | |
| 0 – 1000 MHz | < 1.08 | |
| 1000 – 2000 MHz | < 1.15 | |
| 2000 – 2700 MHz | < 1.20 | |
| Application | Indoor | |
| Weight | Approx. 250 g | |
| Packing size | 50 x 90 x 100 mm | |
| Dimensions (w x h x d) | 40 x 82 x 77 mm (including connector) | 40 x 82 x 85 mm (including connector) |



K 62 26 40 1

50-Ohm Load

0 ... 4000 MHz

0.5 ... 100 W

25 Watt *

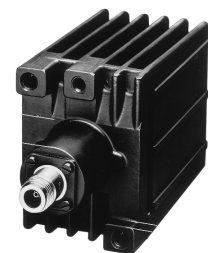
| Type No. | K 62 26 20 1 | K 62 26 21 1 | K 62 26 20 7 | K 62 26 21 7 |
|------------------------|---|---------------------------------------|---------------------------------------|---------------------------------------|
| Connector | N female | N male | 7-16 female | 7-16 male |
| Frequency range | 0 – 2700 MHz | | | |
| VSWR | 0 – 1000 MHz < 1.08 1000 – 2000 MHz < 1.15 2000 – 2700 MHz < 1.20 | | | |
| Application | Indoor | | | |
| Weight | Approx. 0.5 kg | | | |
| Packing size | 50 x 100 x 135 mm | | | |
| Dimensions (w x h x d) | 35 x 94 x 113 mm (incl. connector) | 35 x 94 x 121 mm (incl. connector) | 35 x 94 x 125 mm (incl. connector) | 35 x 94 x 124 mm (incl. connector) |



K 62 26 20 1

50 Watt *

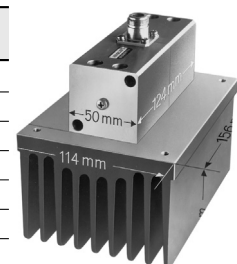
| Type No. | K 62 26 30 1 | K 62 26 31 1 | K 62 26 30 7 | K 62 26 31 7 |
|------------------------|---|---------------------------------------|---------------------------------------|---------------------------------------|
| Connector | N female | N male | 7-16 female | 7-16 male |
| Frequency range | 0 – 2700 MHz | | | |
| VSWR | 0 – 1000 MHz < 1.08 1000 – 2000 MHz < 1.15 2000 – 2700 MHz < 1.20 | | | |
| Application | Indoor | | | |
| Weight | Approx. 0.8 kg | | | |
| Packing size | 80 x 95 x 145 mm | | | |
| Dimensions (w x h x d) | 67 x 90 x 130 mm (incl. connector) | 67 x 90 x 138 mm (incl. connector) | 67 x 90 x 134 mm (incl. connector) | 67 x 90 x 133 mm (incl. connector) |



K 62 26 30 1

100 Watt *

| Type No. | K 62 26 50 1 | K 62 26 51 1 | K 62 26 50 7 |
|------------------------|---|---|---|
| Connector | N female | N male | 7-16 female |
| Frequency range | 0 – 1000 MHz | | |
| VSWR | 0 – 1000 MHz < 1.08 | | |
| Application | Indoor | | |
| Weight | Approx. 2.4 kg | | |
| Packing size | 130 x 195 x 180 mm | | |
| Dimensions (w x h x d) | 114 x 153 x 156 mm (including connector) | 114 x 161 x 156 mm (including connector) | 114 x 170 x 156 mm (including connector) |



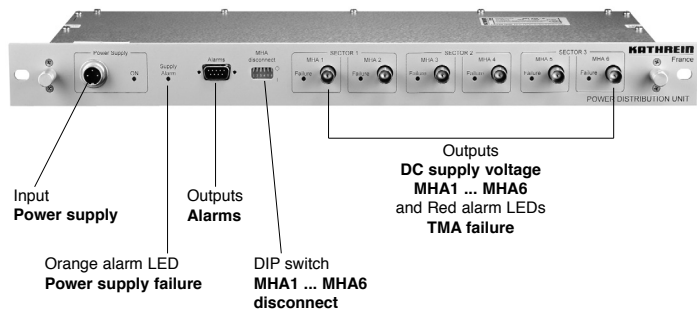
K 62 26 50 1

* Rated power at 40 °C ambient temperature. The max. power rating increases or decreases with falling or rising ambient temperature.

Note: The 50-Ohm load, type 782 010474, should be used if intermodulation requirements are of high priority.

The PDU provides DC supply voltage and alarm interfacing for up to 6 TMAs / MHAs (Tower Mounted Amplifiers / Mast Head Amplifiers) with current window alarming.

- Suitable for low DC power requirements, e.g. Kathrein DTMA 782 10301 (UMTS) or 782 10312 (GSM1800)
- Alarm signals available on SubD 9-pin connector and LEDs
- Bias Tees and cable sets for connection of up to 6 Bias Tees for servicing 6 TMAs (or 3 DTMAAs = double TMAs) are available as accessories



Alarm interface function: Under normal operating conditions each TMA pulls the nominal current from the PDU. In case of failure when a TMA consumes a current outside the specified alarm window, then an internal TMA circuit pulls an increased alarm current. Once the respective TMA failure detection threshold is registered by the PDU, then the following alarms are activated:

1. The DC supply voltage for the defective TMA is switched off.
 2. The corresponding red alarm LED lights up.
 3. The contacts 4 and 5 on the SubD 9-pin connector are closed. In addition, the respective pins 1 (TMA1), 2 (TMA2), 3 (TMA3), 6 (TMA4), 7 (TMA5), or 8 (TMA6) are grounded. This contact status can be used for monitoring purposes.
- If required, the additional DIP switch can be used to override the individual alarm and turn off the respective TMA supply voltage (1 = supply voltage and red LED alarm OFF, 0 = supply voltage and red LED alarm ON).

Technical Data

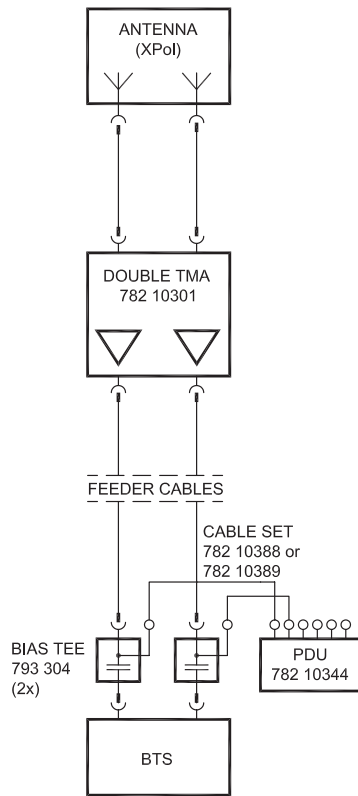
| | |
|---|---|
| Type No. | 782 10344 |
| Power supply (DC input) | 38 ... 72 V DC |
| DC supply voltage (DC outputs to MHA1 ... MHA6) | 6x +12 ±0.3 V / nominal current: 110 mA ±20% |
| Failure detection threshold | > 230 mA ±10% |
| Alarms LED indicators | Red LED ON = TMA failure at indicated DC output Orange LED ON = power supply failure (back-up power supply in use), Green LED ON = power supply ON |
| SubD 9-pin connector | Contact pins 4 + 5 closed when failure detection threshold is exceeded = MHA or power supply failure Contact pins 1 ... 3, 6 ... 8 grounded when failure detection threshold is exceeded = MHA failure |
| Electrical protection against | Reverse voltage on DC outputs Reverse polarity voltage, over-current and over-voltage on DC input (power supply) |
| Temperature range | -40 ... +60 °C |
| Connectors | Power supply: DIN 3-pin male DC supply voltage: BNC female (6x) Alarms: SubD 9-pin |
| Scope of delivery | PDU, 3 m power supply cable with DIN 3-pin female connector, (brown (+), blue (-), green-yellow (grd)) |
| MTBF | > 450 000 hours |
| Mounting | With 2 screws (M6) |
| Application | Indoor (IP20) |
| Weight | 2.2 kg |
| Dimensions (w x h x d) | 19 " drawer, 2 height units, plug-in depth 171 mm |

Accessories (order separately)

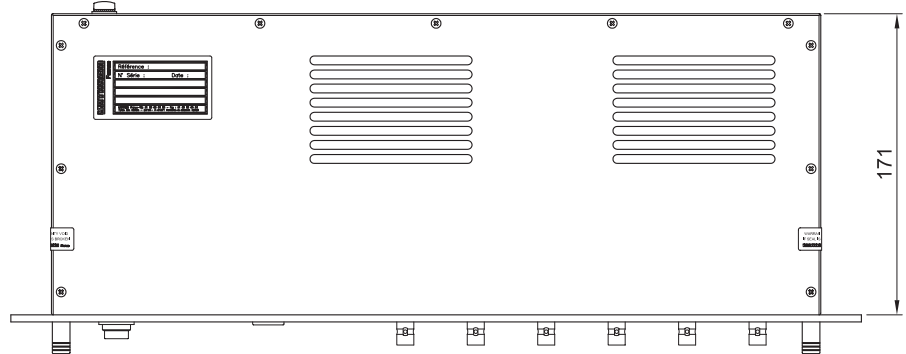
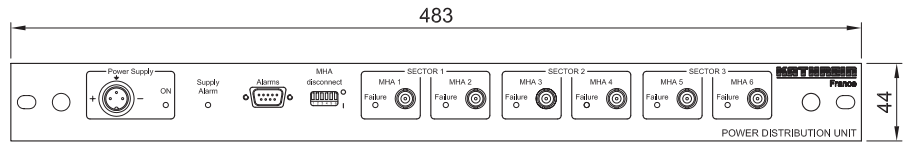
| Type No. | Description | Technical data |
|------------------|---------------------------------|--|
| 782 10388 | Cable set 2 m (6 cables) | Lenth: 2.0 m Cable type: RG 316 Connectors: BNC male / SMB female Voltage drop at 110 mA nominal current: < 0.2 V |
| 782 10389 | Cable set 5 m (6 cables) | Lenth: 5.0 m Cable type: RG 316 Connectors: BNC male / SMB female Voltage drop at 110 mA nominal current: < 0.2 V |
| 793 304 | Bias Tee | Please see separate data sheet |



Bias Tee 793 304



Application example
Antenna system (1 sector) with
Kathrein PDU 782 10344,
Bias Tees 793 304 and
UMTS Double TMA 782 10301



Detail
Power supply
connector



Detail
SupD 9-pin
connector



SubD 9-pin connector and LED alarms

| | | SubD 9-pin connector pin # | | | | | | | | | Red alarm LED # | | | | | | Orange alarm LED | Green alarm LED |
|---------------------|------------|----------------------------|------|------|---------------------------------------|------|------|------|-----|-----|-----------------|-----|-----|-----|-----|-----|------------------|-----------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | | |
| MHA1 | failure | grd | - | - | contacts closed if at least 1 failure | - | - | - | grd | ON | - | - | - | - | - | - | - | ON |
| | no failure | open | - | - | | - | - | - | grd | OFF | - | - | - | - | - | - | - | ON |
| MHA2 | failure | - | grd | - | | - | - | - | grd | - | ON | - | - | - | - | - | - | ON |
| | no failure | - | open | - | | - | - | - | grd | - | OFF | - | - | - | - | - | - | ON |
| MHA3 | failure | - | - | grd | | - | - | - | grd | - | - | ON | - | - | - | - | - | ON |
| | no failure | - | - | open | | - | - | - | grd | - | - | OFF | - | - | - | - | - | ON |
| MHA4 | failure | - | - | - | | grd | - | - | grd | - | - | - | ON | - | - | - | - | ON |
| | no failure | - | - | - | | open | - | - | grd | - | - | - | OFF | - | - | - | - | ON |
| MHA5 | failure | - | - | - | | - | grd | - | grd | - | - | - | - | ON | - | - | - | ON |
| | no failure | - | - | - | | - | open | - | grd | - | - | - | - | OFF | - | - | - | ON |
| MHA6 | failure | - | - | - | | - | - | grd | grd | - | - | - | - | - | ON | - | - | ON |
| | no failure | - | - | - | | - | - | open | grd | - | - | - | - | - | OFF | - | - | ON |
| Power supply | failure | - | - | - | - | - | - | grd | - | - | - | - | - | - | - | ON | ON | |
| | no failure | - | - | - | - | - | - | grd | - | - | - | - | - | - | - | OFF | ON | |

- contact status not defined
grd contact grounded

Attenuator

2 – 15 W

0 – 4000 MHz

Air-cooled attenuator for low power rating

- Signal attenuation for test, measuring or tuning purposes
- Good matching over large frequency range
- Closed metal housing, very stable and RF proof
- Free choice of mounting position due to convection-cooling



Technical Data

| Type No. | 784 10235 | 784 10236 | 784 10237 | 784 10238 |
|---------------------------|--------------|-----------|------------|------------|
| Attenuation | 3 ±0.3 dB | 6 ±0.3 dB | 10 ±0.3 dB | 20 ±0.5 dB |
| Frequency range | 0 – 4000 MHz | | | |
| VSWR | < 1.12 | | | |
| Impedance | 50 Ω | | | |
| Max. power | 2 W | | | |
| Connectors | N | | | |
| IP rating | IP65 | | | |
| Application | Outdoor | | | |
| Weight | 60 g | | | |
| Dimensions (L x diameter) | 49 x 21 mm | | | |

Air-cooled attenuator for medium power rating

- Signal attenuation for test, measuring or tuning purposes
- Good matching over large frequency range
- Closed metal housing, very stable and RF proof
- Free choice of mounting position due to convection-cooling



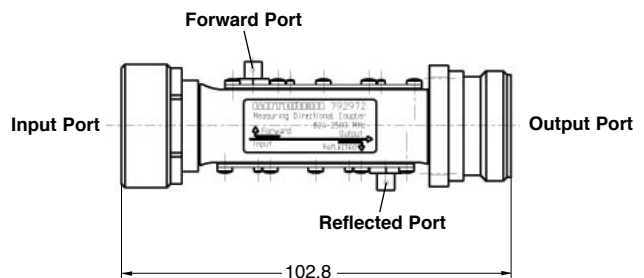
Technical Data

| Type No. | 791 918 | 791 919 | 791 920 | 791 921 |
|---------------------------|--------------|-----------|------------|------------|
| Attenuation | 3 ±0.3 dB | 6 ±0.3 dB | 10 ±0.3 dB | 20 ±0.5 dB |
| Max. power | 15 W | 12 W | 10 W | 10 W |
| Frequency range | 0 – 4000 MHz | | | |
| VSWR | < 1.15 | | | |
| Impedance | 50 Ω | | | |
| Connectors | N | | | |
| IP rating | IP65 | | | |
| Application | Outdoor | | | |
| Weight | 70 g | | | |
| Dimensions (L x diameter) | 50 x 26 mm | | | |

Measuring Directional Coupler 824 – 2500 MHz

The Measuring Directional Coupler provides measurement ports for monitoring the forward and reflected power of a RF signal.

- Easy implementation into existing RF systems due to male/female connectors
- Input and output ports are reciprocal in nature
- Front panel mounting possible via flange
- Suitable for indoor applications



Technical Data

| Type No. | 792 972 |
|---|---|
| Frequency range | 824 – 2500 MHz |
| Insertion loss Input port → Output port | < 0.05 dB (824 – 2500 MHz) |
| Coupling attenuation Input port → Forward port | 32.0 ±0.75 dB (824 – 960 MHz) 28.5 ±1.50 dB (1710 – 2500 MHz) |
| Output port → Reflected port | 32.0 ±0.75 dB (824 – 960 MHz) 28.5 ±1.50 dB (1710 – 2500 MHz) |
| Directivity | > 28 dB (824 – 2200 MHz) > 25 dB (2200 – 2500 MHz) |
| VSWR Input port, Output port | < 1.04 (824 – 960 MHz) < 1.08 (960 – 2500 MHz) |
| Forward port, Reflected port | < 1.2 (824 – 2500 MHz) |
| Impedance | 50 Ω |
| Input power | < 800 W (824 – 960 MHz) < 200 W (960 – 2500 MHz) |
| Intermodulation products | < -160 dBc (3 rd order; with 2 x 20 W) |
| Temperature range | -20 ... +55 °C |
| Connectors Input port | 7-16 male |
| Output port | 7-16 female |
| Forward port, Reflected port | MCX female |
| Application | Indoor |
| Mounting | Front panel mounting possible with 4 screws (max. 2.5 mm diameter) |
| Weight | 0.26 kg |
| Dimensions (w x h x d) | 32 x 32 x 102.3 mm |

DTMAs

DTMAs:

| Description | Type No. | Frequency range | Gain | Page |
|-----------------------------------|------------------|--|----------------|----------|
| Single Mode AISG or CWA | | | | |
| DTMA-1800-12-CWA | 782 10312 | UL: 1710 – 1785 / DL: 1805 – 1880 MHz | 12 dB | 300 |
| DTMA-1900-12-AISG | 782 10403 | UL: 1850 – 1910 / DL: 1930 – 1990 MHz | 12 dB | 302 |
| DTMA-1900-850 BYP-12-AISG | 782 10406 | UL: 1850 – 1910 / DL: 1930 – 1990 MHz Bypass: 806 – 896 MHz | 12 dB | 303 |
| DTMA-UMTS-24-AISG | 782 10448 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz | 24 dB | 309 |
| Dual Mode AISG and CWA | | | | |
| DTMA-900-12-32-AISG-CWA | 782 10440 | UL: 880 – 915 / DL: 925 – 960 MHz | 12/32 dB | 299 |
| DTMA-900-12-32-AISG-CWA | 782 10442 | UL: 880 – 915 / DL: 925 – 960 MHz | 12/32 dB | 299 |
| DTMA-1800-12-AISG-CWA | 782 10555 | UL: 1710 – 1785 / DL: 1805 – 1880 MHz | 12 dB | 301 |
| DTMA-1800-12-AISG-CWA | 782 10556 | UL: 1710 – 1785 / DL: 1805 – 1880 MHz | 12 dB | 301 |
| DTMA-1800-12-AISG-CWA | 782 10557 | UL: 1710 – 1785 / DL: 1805 – 1880 MHz | 12 dB | 301 |
| DTMA-1800-12-AISG-CWA | 782 10558 | UL: 1710 – 1785 / DL: 1805 – 1880 MHz | 12 dB | 301 |
| DTMA-1900-12-AISG-CWA | 782 10811 | UL: 1850 – 1910 / DL: 1930 – 1990 MHz | 12 dB | 304 |
| TMA-PCS-12-CWA/TMA-AWS-12-AISG | 782 10601 | PCS: UL: 1850 – 1910 / DL: 1930 – 1990 MHz AWS: UL: 1710 – 1755 / DL: 2110 – 2155 MHz | 12 dB 12 dB | 305 |
| TMA-PCS-AWS-12-AISG-CWA | 782 10602 | PCS: UL: 1850 – 1910 / DL: 1930 – 1990 MHz AWS: UL: 1710 – 1755 / DL: 2110 – 2155 MHz | 12 dB | 306 |
| DTMA-UMTS-12-AISG-CWA | 782 10153 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 307 |
| DTMA-UMTS-12-AISG-CWA | 782 10154 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 307 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10561 | UL: 1970 – 1985 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10562 | UL: 1970 – 1985 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10563 | UL: 1965 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10564 | UL: 1965 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10565 | UL: 1950 – 1965 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10566 | UL: 1920 – 1935 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10567 | UL: 1920 – 1935 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10568 | UL: 1950 – 1965 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10569 | UL: 1970 – 1985 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10570 | UL: 1920 – 1935 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10571 | UL: 1965 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA-FB-BS | 782 10579 | UL: 1965 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 308 |
| DTMA-UMTS-12-AISG-CWA | 782 10610 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 310 |
| DTMA-UMTS-12-AISG-CWA | 782 10612 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz | 12 dB | 310 |
| DTMA-UMTS-24-AISG-CWA | 782 10613 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz | 24 dB | 311 |
| DTMA-UMTS-BYP900/1800-12-AISG-CWA | 782 10652 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz Bypass: 806 – 896 MHz | 12 dB | 312, 313 |
| DTMA-UMTS-BYP900/1800-12-AISG-CWA | 782 10653 | UL: 1920 – 1980 / DL: 2110 – 2170 MHz Bypass: 806 – 896 MHz | 12 dB | 312, 313 |
| DTMA-2600-12-AISG | 782 10860 | UL: 2500 – 2570 / DL: 2620 – 2690 MHz | 12 dB | 314 |

New Products

UL = Up Link // DL = Down Link

DTMA-900-12-32-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic



- Double units for easy use with XPol antennas
- Gain setting switchable from 12 dB (default) to 32 dB
- Both versions support CWA, AISG 1.1 and AISG 2.0 (default)
782 10440: CWA alarm 170 – 200 mA / 800 – 900 mA
782 10442: CWA alarm 230 – 295 mA / 800 – 900 mA
- AISG and gain setting switchable as described on data sheet
- CWA and AISG configurations as described on data sheet
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group

CWA = Current Window Alarm



Technical Data

| | | |
|----------|---|---|
| Type No. | CWA alarm 170 – 200 mA / 800 – 900 mA | 782 10440 DTMA-900-12-32-AISG-CWA (12/32 dB gain) |
| | CWA alarm 230 – 295 mA / 800 – 900 mA | 782 10442 DTMA-900-12-32-AISG-CWA (12/32 dB gain) |

Tx Characteristics

| | |
|-------------------------------------|--|
| Frequency range | 925 – 960 MHz |
| Insertion loss* | < 0.5 dB |
| Input power (per input) | < 180 W (+52.5 dBm) CW / < 1.6 kW (+62 dBm) peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |

Rx Characteristics

| | |
|--|--|
| Frequency range | 880 – 915 MHz |
| Loss in by-pass mode | < 4 dB (DC OFF) |
| Return loss | > 16 dB (DC ON) / > 12 dB (DC OFF) |
| Gain | 12/32 ±0.7 dB (+22 ... +28 °C) 12/32 ±1.0 dB (-40 ... +55 °C) |
| Noise figure ** | < 1.3 dB (+22 ... +28 °C) |
| Input 1-dB compression point | > -7 dBm |
| Input 3 rd order intercept point (IIP3) | > 5 dBm |

Environmental Characteristics

| | |
|-----------------------------|-----------------------------|
| Operating temperature range | -40 ... +55 °C |
| IP rating | IP 67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | According to ETS 300 342-3 |

DC and Alarm Characteristics

| | CWA Mode | AISG Mode |
|---|--|--|
| DC supply | 8.5 – 15 V | 10 – 30 V |
| Operating current per TMA (without RET) | 80 – 130 mA (12 dB gain) 360 – 400 mA (32 dB gain) | < 110 mA (12 dB gain) < 350 mA (32 dB gain) |
| Alarm management | 12 dB gain: 782 10440: 170 – 200 mA 782 10442: 230 – 295 mA 32 dB gain: 800 – 900 mA | AISG *** |

Mechanical Characteristics

| | | |
|------------------------|---|--|
| Material | Aluminium housing | |
| Connectors | RF | 7-16 female (long neck) 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Weight | 8.7 kg | |
| Packing size | 342 x 579 x 212 mm | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | |
| Dimensions (w x h x d) | 250 x 353 x 94 mm (without connectors, without mounting brackets) | |

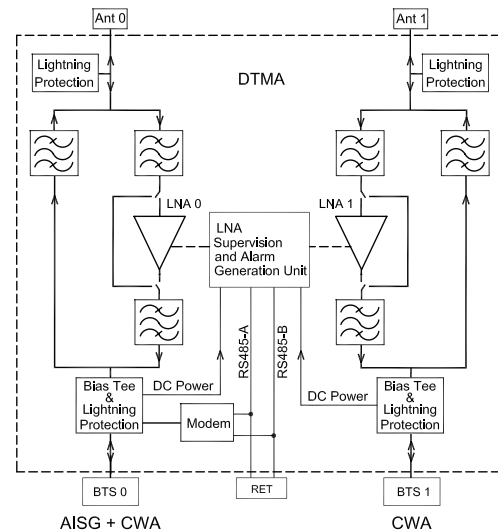
$$* \text{ Insertion loss } \bar{IL} = \frac{IL_{925 \text{ MHz}} + 2 \times IL_{942.5 \text{ MHz}} + IL_{960 \text{ MHz}}}{4}$$

$$** \text{ Noise figure } \bar{NF} = \frac{NF_{880 \text{ MHz}} + 2 \times NF_{897.5 \text{ MHz}} + NF_{915 \text{ MHz}}}{4}$$

(Additional variation at -40 ... +55 °C: $\Delta \bar{NF} < 0.3 \text{ dB}$)

*** AISG and Gain Setting

The protocol of the software interface can be switched between AISG 2.0 / 3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start-up. Please contact Kathrein for further information. Gain setting according to AISG commands.



Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



DTMA-1800-12-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

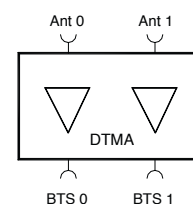
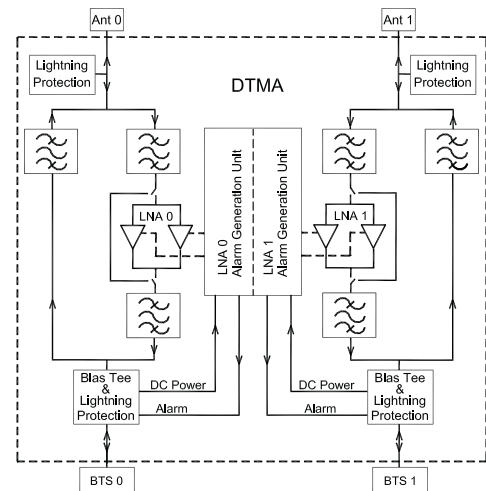
- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of TMA (Alarm 2) or DC power down
- Alarm management: Supports 2 alarm levels
 - Alarm 1: One LNA of the balanced circuit failed.
 - Alarm 2: Both LNAs of the balanced circuit failed.
 - Automatically switched to by-pass mode
- Built-in lightning protection
- Compact size
- DTMA DC supply and alarming separately via BTS 0 respectively BTS 1 port

CWA = Current Window Alarm



Technical Data

| Type No. | 782 10312 DTMA-1800-12-CWA (12 dB gain) |
|--|--|
| Tx Characteristics | |
| Frequency range | 1805 – 1880 MHz |
| Bandwidth | 75 MHz |
| Insertion loss | < 0.45 dB over the middle 80% of BW, a further 0.25 dB over the remaining BW. |
| Input power | < 160 W (+52 dBm) CW < 1.6 kW (+62 dBm) Peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |
| Rx Characteristics | |
| Frequency range | 1710 – 1785 MHz |
| Bandwidth (BW) | 75 MHz |
| Loss in by-pass mode | < 2.8 dB typically |
| Return loss | > 18 dB (DC ON) > 15 dB By-pass mode |
| Gain | +22 ... +28 °C -40 ... +65 °C 12 ±0.7 dB 12 ±1.3 dB |
| Noise figure | +22 ... +28 °C < 1.7 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW. |
| Noise figure | -40 ... +65 °C < 2.2 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW. |
| Output 1-dB compression point | > 15 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm |
| Environmental Characteristics | |
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | ETS 300 342-3 |
| Lightning protection | 5 kA, 8/20 µs pulse |
| DC and Alarm Characteristics | |
| DC supply | +12 V nominal (7.5 – 15 V, minus grounded) Typically 110 mA per TMA |
| Alarm management | Current window alarm handling |
| Alarm current I _a | Alarm 1: I _a > 230 mA Alarm 2: I _a > 330 mA |
| Mechanical Characteristics | |
| Material | Aluminium housing |
| RF connectors | 7-16 female |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 5 kg |
| Packing size | 262 x 502 x 214 mm |
| Dimensions (w x h x d) | 166 x 278 x 77.5 mm (without connectors, without mounting brackets) |



DTMA-1800-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

- Double units for easy use with XPol antennas
- All versions support CWA, AISG 1.1 and AISG 2.0
782 10555: Default setting AISG 1.1, CWA alarm 170 – 200 mA
782 10556: Default setting AISG 1.1, CWA alarm 230 – 295 mA
782 10557: Default setting AISG 2.0, CWA alarm 170 – 200 mA
782 10558: Default setting AISG 2.0, CWA alarm 230 – 295 mA
- AISG setting switchable
- CWA and AISG configurations
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt
AISG = Antenna Interface Standards Group
CWA = Current Window Alarm



Technical Data

| | |
|--|--|
| Default setting AISG 1.1 CWA alarm 170 – 200 mA | 782 10555 DTMA-1800-12-AISG-CWA (12 dB gain) |
| Default setting AISG 1.1 CWA alarm 230 – 295 mA | 782 10556 DTMA-1800-12-AISG-CWA (12 dB gain) |
| Default setting AISG 2.0 CWA alarm 170 – 200 mA | 782 10557 DTMA-1800-12-AISG-CWA (12 dB gain) |
| Default setting AISG 2.0 CWA alarm 230 – 295 mA | 782 10558 DTMA-1800-12-AISG-CWA (12 dB gain) |

Tx Characteristics

| | |
|-------------------------------------|--|
| Frequency range | 1805 – 1880 MHz |
| Insertion loss* | < 0.4 dB |
| Input power (per input) | < 160 W (+52 dBm) CW / < 1.6 kW (+62 dBm) peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |

Rx Characteristics

| | |
|--|---|
| Frequency range | 1710 – 1785 MHz |
| Loss in by-pass mode | Typically 2.8 dB (DC OFF) |
| Return loss | > 18 dB (DC ON) / > 15 dB (DC OFF) |
| Gain | 12 ± 0.7 dB (+22 ... +28 °C) / 12 ± 1.3 dB (-40 ... +65 °C) |
| Noise figure** | < 1.4 dB (+22 ... +28 °C) |
| Output 1-dB compression point | > 10 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm |

Environmental Characteristics

| | |
|-----------------------------|-----------------------------|
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP 67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | According to ETS 300 342-3 |

DC and Alarm Characteristics

| | CWA Mode | AISG Mode |
|---|--|---|
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA (without RET) | 80 – 130 mA | Nom. 95 mA at 9 V Nom. 35 mA at 30 V |
| Alarm management | 782 10555: 170 – 200 mA 782 10556: 230 – 295 mA 782 10557: 170 – 200 mA 782 10558: 230 – 295 mA | AISG *** |

Mechanical Characteristics

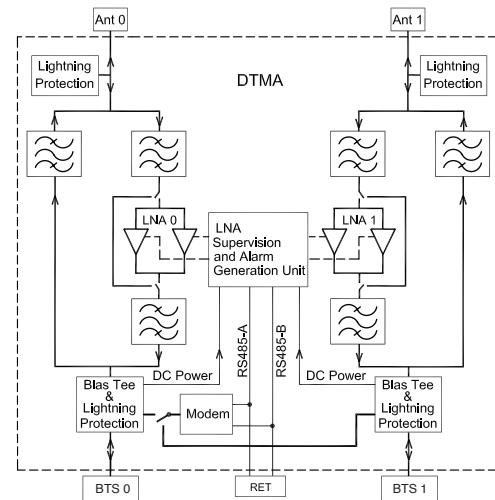
| | |
|------------------------|---|
| Material | Aluminium housing |
| Connectors | RF AISG 7-16 female (long neck) 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Weight | 5 kg |
| Packing size | 262 x 502 x 214 mm |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Dimensions (w x h x d) | 166 x 278 x 77.5 mm (without connectors, without mounting brackets) |

$$* \text{ Insertion loss } \overline{IL} = \frac{IL_{1805 \text{ MHz}} + 2 \times IL_{1842.5 \text{ MHz}} + IL_{1880 \text{ MHz}}}{4}$$

$$** \text{ Noise figure } \overline{NF} = \frac{NF_{1710 \text{ MHz}} + 2 \times NF_{1747.5 \text{ MHz}} + NF_{1785 \text{ MHz}}}{4}$$

(Additional variation at -40 ... +65 °C: $\Delta \overline{NF} < 0.5 \text{ dB}$)

*** The protocol of the software interface can be switched between AISG 2.0/3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start up. Please contact Kathrein for further information.



Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



DTMA-1900-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic



- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via Node B0 port for both TMAs**

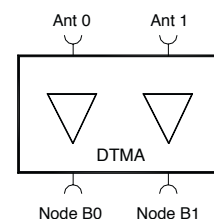
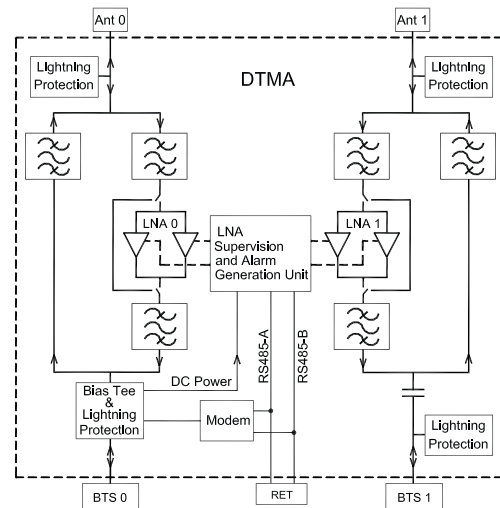
RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group



Technical Data

| | |
|--|--|
| Type No. | 782 10403 DTMA-1900-12-AISG (12 dB gain) |
| Tx Characteristics | |
| Frequency range | 1930 – 1990 MHz |
| Bandwidth | 60 MHz |
| Insertion loss | < 0.5 dB over the middle 80% of BW, a further 0.25 dB over the remaining BW. |
| Input power | < 160 W (+52 dBm) CW < 1.6 kW (+62 dBm) Peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |
| Rx Characteristics | |
| Frequency range | 1850 – 1910 MHz |
| Bandwidth | 60 MHz |
| Loss in by-pass mode | 2.8 dB typically |
| Return loss | > 18 dB (DC ON) > 15 dB (DC OFF) |
| Gain | +22 ... +28 °C: 12 ±0.7 dB -40 ... +65 °C: 12 ±1.3 dB |
| Noise figure | +22 ... +28 °C: < 1.7 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW. -40 ... +65 °C: < 2.2 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW. |
| Noise figure | -40 ... +65 °C: < 2.2 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW. |
| Output 1-dB compression point | > 15 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm |
| Environmental Characteristics | |
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | ETS 300 342-3 |
| Lightning protection | 5 kA, 8/20 µs RF connections and AISG port |
| DC and Alarm Characteristics | |
| Through Node B0 Port only | |
| DC supply without RET | +12 V nominal (9 – 15 V, minus grounded) Typically 150 mA per TMA |
| Alarm management | According to AISG standard 1.1 |
| Modem Characteristics | According to AISG standard 1.1 (Data rate: 9.6 kB) |
| Mechanical Characteristics | |
| Material | Aluminium housing |
| Connectors | |
| RF | 7-16 female |
| AISG Connector (Compliance AISG 1.1) | 8-pin female, IEC 60130-9 (Pin 1: +12 V DC nominal, pin 3: RS485B, pin 5: RS485A, pin 7: DC return; other pins: Not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 5 kg |
| Packing size | 262 x 502 x 214 mm |
| Dimensions (w x h x d) | 166 x 278 x 77.5 mm (without connectors, without mounting brackets) |



DTMA-1900-850 BYP-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic



- Double unit for easy use with XPol antennas
- RF-Bypass feature for 850 MHz
- DC-stop integrated to 850 MHz ports
- Kathrein redundancy amplifier design for improved system reliability
- Bypass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via BTS 0 port for both TMAs**

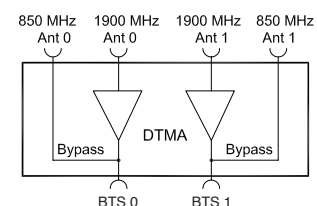
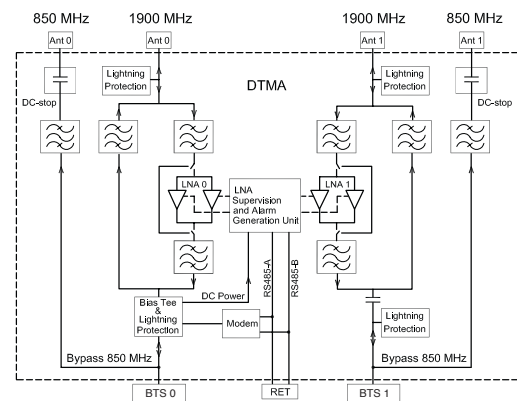
RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group

BYP = RF-BYPass

Technical Data

| Type No. | 782 10406 DTMA-1900-850 BYP-12-AISG (12 dB gain) |
|--|--|
| 850 MHz Bypass | |
| Frequency range | 806 – 896 MHz |
| Insertion loss | < 0.15 dB |
| Isolation to 1900 MHz | > 80 dB |
| Input power | 500 W CW / per input |
| Return loss | > 18 dB |
| 1900 MHz DTMA | |
| Tx Characteristics | |
| Frequency range | 1930 – 1990 MHz |
| Bandwidth | 60 MHz |
| Insertion loss | < 0.5 dB at 80% of BW, a further 0.25 dB at 100% BW. |
| Input power | < 160 W (+52 dBm) CW / per input < 1.6 kW (+62 dBm) Peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |
| Rx Characteristics | |
| Frequency range | 1850 – 1910 MHz |
| Bandwidth | 60 MHz |
| Loss in by-pass mode | 2.8 dB typically |
| Return loss | > 18 dB (DC ON) > 15 dB (DC OFF) |
| Gain | +22 ... +28 °C -40 ... +65 °C 12 ±0.7 dB 12 ±1.3 dB |
| Noise figure | +22 ... +28 °C < 1.7 dB at 80% of BW, a further 0.3 dB at 100% BW. |
| Noise figure | -40 ... +65 °C < 2.2 dB at 80% of BW, a further 0.3 dB at 100% BW. |
| Output 1-dB compression point | > 15 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm |
| Environmental Characteristics | |
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | ETS 300 342-3 |
| Lightning protection | 5 kA, 8/20 µs RF connections and AISG port |
| DC and Alarm Characteristics | |
| Through BTS 0 Port only | |
| DC supply without RET | +12 V nominal (9 – 15 V, minus grounded) Typically 150 mA per TMA |
| Alarm management | According to AISG standard 1.1 |
| Modem Characteristics | According to AISG standard 1.1 (Data rate: 9.6 kB) |
| Mechanical Characteristics | |
| Material | Aluminium housing |
| Connectors | 7-16 female |
| RF | 8-pin female, IEC 60130-9 (Pin 1: +12 V DC nominal, pin 3: RS485B, pin 5: RS485A, pin 7: DC return; other pins: Not connected) |
| AISG Connector (Compliance AISG 1.1) | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | Approx. 8.7 kg |
| Dimensions (w x h x d) | 271 x 278 x 77.5 mm (without connectors, without mounting brackets) |



DTMA-1900-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

- Double unit for easy use with XPol antennas
- Supports CWA, AISG 1.1 and AISG 2.0 (default)
- AISG setting switchable as described on data sheet
- CWA and AISG configurations as described on data sheet
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group

CWA = Current Window Alarm



Technical Data

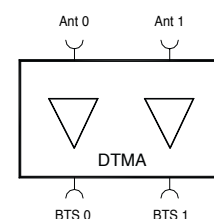
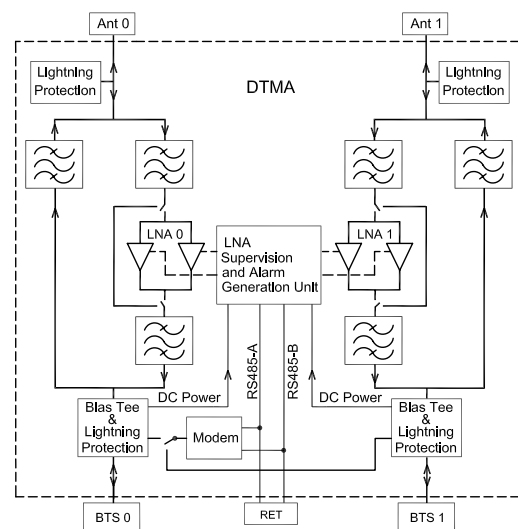
| | | |
|--|---|---|
| Type No. | 782 10811 | |
| | DTMA-1900-12-AISG-CWA (12 dB gain) | |
| Tx Characteristics | | |
| Frequency range | 1930 – 1990 MHz | |
| Insertion loss* | < 0.5 dB | |
| Input power (per input) | < 160 W (+52 dBm) CW / < 1.6 kW (+62 dBm) peak | |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) | |
| Return loss | > 18 dB | |
| Rx Characteristics | | |
| Frequency range | 1850 – 1910 MHz | |
| Loss in by-pass mode | Typically 2.8 dB (DC OFF) | |
| Return loss | > 18 dB (DC ON) / > 15 dB (DC OFF) | |
| Gain | 12 ±0.7 dB (+22 ... +28 °C) / 12 ±1.3 dB (-40 ... +65 °C) | |
| Noise figure** | < 1.4 dB (+22 ... +28 °C) | |
| Output 1-dB compression point | > 10 dBm | |
| 3 rd order intercept point (OIP3) | > 25 dBm | |
| Environmental Characteristics | | |
| Operating temperature range | -40 ... +65 °C | |
| IP rating | IP67 | |
| MTBF | > 1 000 000 hours (per TMA) | |
| EMC | According to ETS 300 342-3 | |
| DC and Alarm Characteristics | | |
| | CWA-Mode | AISG-Mode |
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA (without RET) | 80 – 130 mA | Nom. 95 mA at 9 V Nom. 35 mA at 30 V |
| Alarm management | 170 – 200 mA | AISG*** |
| Mechanical Characteristics | | |
| Material | Aluminium housing | |
| Connectors | RF AISG 7-16 female (long neck) 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) | |
| Weight | 5 kg | |
| Packing size | 262 x 502 x 214 mm | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | |
| Dimensions (w x h x d) | 166 x 278 x 77.5 mm (without connectors, without mounting brackets) | |

$$* \text{ Insertion loss } \overline{IL} = \frac{IL_{1930 \text{ MHz}} + 2 \times IL_{1960 \text{ MHz}} + IL_{1990 \text{ MHz}}}{4}$$

$$** \text{ Noise figure } \overline{NF} = \frac{NF_{1850 \text{ MHz}} + 2 \times NF_{1880 \text{ MHz}} + NF_{1910 \text{ MHz}}}{4}$$

(Additional variation at -40 ... +65 °C: $\Delta \overline{NF} < 0.5 \text{ dB}$)

*** The protocol of the software interface can be switched between AISG 2.0/3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start up. Please contact Kathrein for further information.



TMA-PCS-12-CWA/TMA-AWS-12-AISG

Fullband Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

- Kathrein redundancy amplifier design for improved system reliability
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard

RET = Remote Electrical Tilt

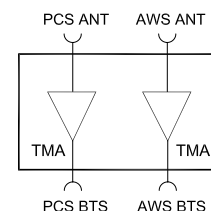
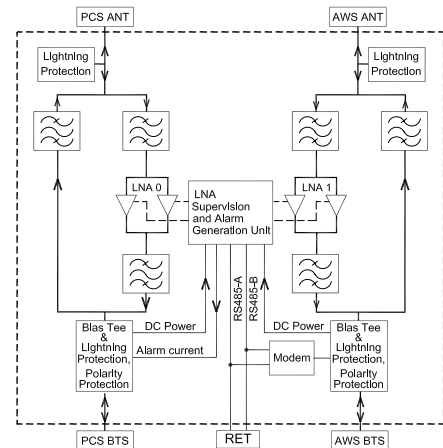
AISG = Antenna Interface Standards Group

CWA = Current Window Alarm



Technical Data

| Type No. | 782 10601 TMA-PCS-12-CWA/TMA-AWS-12 AISG (12 dB gain) | |
|---|---|-----------------|
| TMA | PCS | AWS |
| Tx Characteristics | | |
| Frequency range | 1930 – 1990 MHz | 2110 – 2155 MHz |
| Bandwidth | 60 MHz | 45 MHz |
| Insertion loss | < 0.5 dB over the middle 80% of BW, a further 0.25 dB over the remaining BW. | < 0.3 dB |
| Ripple | ±0.2 | ±0.1 |
| Input power | < 200 W (+53 dBm) | |
| Intermodulation products in Rx band | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Return loss | 18 dB | |
| Rx Characteristics | | |
| Frequency range | 1850 – 1910 MHz | 1710 – 1755 MHz |
| Bandwidth (BW) | 60 MHz | 45 MHz |
| Gain | | |
| -40 ... +65 °C | 12 ±1.3 dB | 12 ±1 dB |
| +22 ... +28 °C | 12 ±0.7 dB | 12 ±0.35 dB |
| Return loss | 18 dB | 18 dB |
| Noise figure | | |
| +22 ... +28 °C | < 1.6 dB over the middle 80% of BW, a further 0.30 dB over the remaining BW. | < 1 dB |
| Noise figure | | |
| -40 ... +65 °C | < 2.1 dB over the middle 80% of BW, a further 0.30 dB over the remaining BW. | < 1.3 dB |
| Output 1-dB compression point | > 15 dBm | |
| 3 rd order output intercept point (OIP3) | > 25 dBm | |
| Environmental Characteristics | | |
| Operating temperature range | -40 ... +65 °C | |
| IP rating | IP67 | |
| MTBF | > 1 000 000 hours (per TMA) | |
| EMC | ETS 300 342-3 | |
| DC and Alarm Characteristics | | |
| DC supply without RET | +10 ... +30 V DC (minus grounded) | |
| Operating current | 100 ±20 mA (+10 ... +15 V DC) | < 200 mA |
| Alarm management | CWA, > 180 mA | AISG |
| Modem Characteristics | According to AISG standard 1.1 (Data rate: 9.6 kB) | |
| Mechanical Characteristics | | |
| Connectors | | |
| RF | 7-16 female long neck | |
| AISG Connector (Compliance AISG) | 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: +24 V DC nominal, pin 7: DC return; other pins: NC) | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | |
| Weight | 5 kg | |
| Packing size | 262 x 502 x 214 mm | |
| Dimensions (w x h x d) | 166 x 278 x 77.5 mm (without connectors, without mounting brackets) | |



TMA-PCS-AWS-12-AISG-CWA

Fullband Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard

RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group

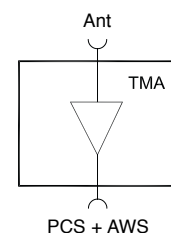
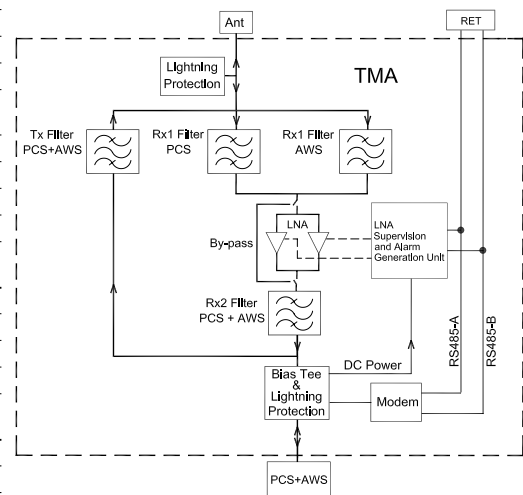
CWA = Current Window Alarm



BTS
PCS + AWS

Technical Data

| Type No. | 782 10602 TMA-PCS-AWS-12-AISG-CWA (12 dB gain) | |
|--|---|--|
| Tx Characteristics | | |
| PCS frequency range | 1930 – 1990 MHz | |
| AWS frequency range | 2110 – 2155 MHz | |
| Bandwidth | 60 MHz (PCS); 45 MHz (AWS) | |
| Insertion loss | < 0.5 dB | |
| Ripple per 5 MHz | < 0.2 dB | |
| Input power | < 250 W (+54 dBm) | |
| Intermodulation products in Rx band | < -160 dBc (3 rd order; with 2 x 20 W) | |
| Return loss | > 18 dB | |
| Rx Characteristics | | |
| PCS frequency range | 1850 – 1910 MHz | |
| AWS frequency range | 1710 – 1755 MHz | |
| Bandwidth | 60 MHz (PCS); 45 MHz (AWS) | |
| Gain | +22 ... +28 °C | 12 ±0.5 dB |
| | -40 ... +65 °C | 12 ±1.0 dB |
| Gain ripple per 5 MHz | < 0.2 dB | |
| Return loss | > 18 dB (DC on), > 15 dB By-pass mode | |
| Noise figure | < 1.2 dB AWS Band, < 2 dB PCS Band | |
| Output 1-dB compression point | > 15 dBm | |
| 3 rd order intercept point (OIP3) | > 25 dBm | |
| Environmental Characteristics | | |
| Operating temperature range | -40 ... +65 °C | |
| IP rating | IP67 | |
| MTBF | > 1 000 000 hours | |
| EMC | ETS 300 342-3 | |
| DC and Alarm Characteristics | | |
| | CWA-Mode | AISG-Mode |
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA without RET | 80 – 130 mA | Nom. 120 mA at 9 V Nom. 50 mA at 30 V |
| Alarm management | 170 – 200 mA | AISG 1.1 |
| Modem Characteristics | | AISG1.1 (Data rate: 9.6 kB) |
| Mechanical Characteristics | | |
| Material | Aluminium housing | |
| Connectors | 7-16 female, long neck 8-pin female, IEC 60130-9 (Pin 6: 9 – 30 V DC, pin 3: RS485B, pin 5: RS485A, pin 7: DC return; other pins: Not connected) | |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | |
| Weight | 5 kg | |
| Packing size | 262 x 502 x 214 mm | |
| Dimensions (w x h x d) | 166 x 278 x 77.5 mm (without connectors, without mounting brackets) | |



DTMA-UMTS-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic



- Double units for easy use with XPol antennas
- Both versions support CWA, AISG 1.1 and AISG 2.0
782 10153 default setting: AISG 1.1
782 10154 default setting: AISG 2.0
- AISG setting switchable as described on data sheet
- CWA and AISG configurations as described on data sheet
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt
AISG = Antenna Interface Standards Group
CWA = Current Window Alarm



Technical Data

| | | |
|----------|-----------------------------|--|
| Type No. | Default setting AISG 1.1 | 782 10153 DTMA-UMTS-12-AISG-CWA (12 dB gain) |
| | Default setting AISG 2.0 | 782 10154 DTMA-UMTS-12-AISG-CWA (12 dB gain) |

Tx Characteristics

| | |
|-------------------------------------|--|
| Frequency range | 2110 – 2170 MHz |
| Insertion loss | Typ. 0.3 dB |
| Ripple | < 0.1 dB |
| Input power (per input) | < 100 W (+50 dBm) CW / < 1.6 kW (+62 dBm) peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |

Rx Characteristics

| | |
|--|---|
| Frequency range | 1920 – 1980 MHz |
| Loss in by-pass mode | < 2.5 dB (DC OFF) |
| Return loss | > 18 dB (DC ON) / > 12 dB (DC OFF) |
| Gain | 12 ±0.5 dB (+22 ... +28 °C) / 12 ±1.0 dB (-40 ... +65 °C) |
| Gain ripple | < ±0.3 dB |
| Noise figure | < 1.6 dB (25 °C) / < 2.0 dB (60 °C) |
| Output 1-dB compression point | > 15 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm |

Environmental Characteristics

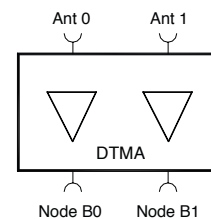
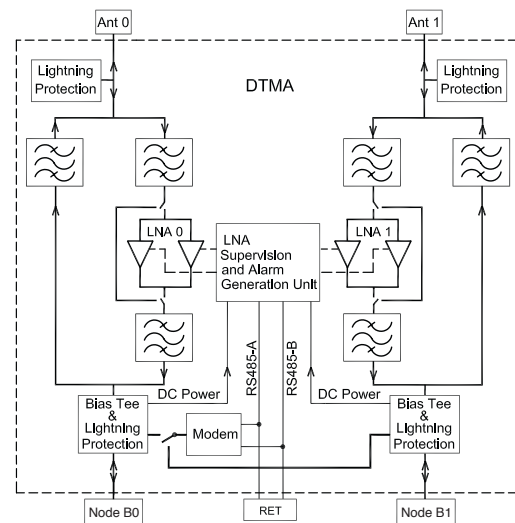
| | |
|-----------------------------|-----------------------------|
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | According to ETS 300 342-3 |

DC and Alarm Characteristics

| | CWA Mode | AISG Mode |
|---|--------------|--|
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA (without RET) | 80 – 145 mA | Nom. 115 mA at 9 V Nom. 40 mA at 30 V |
| Alarm management | 170 – 200 mA | AISG* |

Mechanical Characteristics

| | |
|------------------------|---|
| Material | Aluminium housing |
| Connectors | RF AISG 7-16 female (long neck) 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 5 kg |
| Packing size | 262 x 502 x 214 mm |
| Dimensions (w x h x d) | 166 x 262 x 77.5 mm (without connectors, without mounting brackets) |



* The protocol of the software interface can be switched between AISG 2.0/3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start up. Please contact Kathrein for further information.

DTMA-UMTS-12-AISG-CWA-FB-BS

Tx-Fullband / Rx-Band Selective Double Dual Duplex

Tower Mounted Amplifier (Masthead Amplifier)

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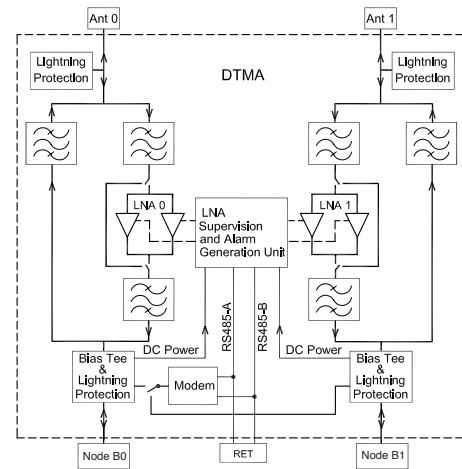
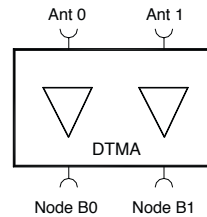
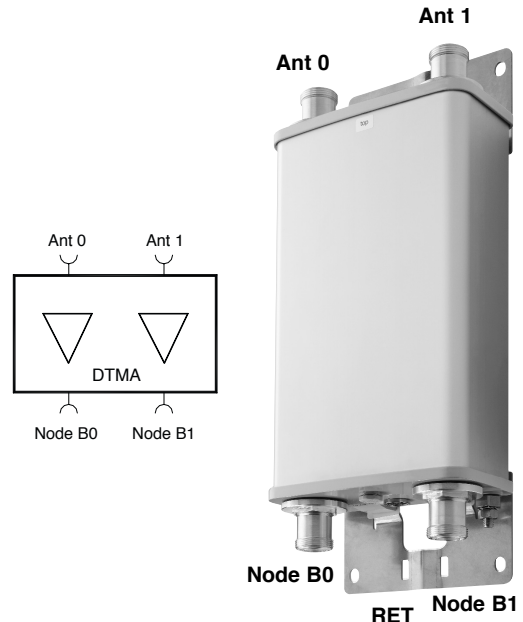
- Double unit for easy use with XPol antennas
- Supports AISG 1.1 and 2.0 (default version see table)*
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- DC supply
 - CWA: Via Node B0 and B1
 - AISG: Via Node B0, Node B1 or both
- Signalling
 - CWA: Via Node B0 and B1 for each LNA
 - AISG: Via Node B0, Node B1 for both LNAs
- Suitable for antenna RET control according to AISG/3GPP standard
- **DTMA DC supply and AISG feed via Node B0 or Node B1 port for both TMAs**



RET = Remote Electrical Tilt
AISG = Antenna Interface Standards Group
FB = Full Band in Tx-Band
BS = Band Selective in Rx-Band
CWA = Current Window Alarm

Technical Data

| Type | DTMA-UMTS-12-AISG-CWA-FB-BS (12 dB gain) |
|--|---|
| Tx Characteristics | |
| Frequency range | 2110 – 2170 MHz |
| Bandwidth | 60 MHz |
| Insertion loss | < 0.4 dB |
| Ripple | < 0.1 dB |
| Max. Group Delay | 50 ns |
| Max. Delta Group Delay in 5 MHz Bandwidth | 5 ns |
| Input power | < 100 W (+50 dBm) CW < 1.6 kW (+62 dBm) Peak |
| Intermodulation products in Rx band | < -122 dBm (2 x 43 dBm carriers) |
| Return loss | > 18 dB |
| Rx Characteristics | |
| Frequency range | factory tunable within 1920 – 1985 MHz |
| Bandwidth | 15 MHz |
| Loss in by-pass mode | < 3.0 dB (DC OFF) |
| Gain ripple | < 0.4 dB |
| Return loss | > 18 dB (DC ON) > 16 dB (DC OFF) |
| Gain | +22 ... +28 °C: 12 ±0.5 dB -40 ... +60 °C: 12 ±1.0 dB |
| Max. Group Delay | 100 ns |
| Max. Delta Group Delay in 5 MHz Bandwidth | 10 ns |
| Noise figure | < 1.5 dB / 25 °C |
| Noise figure | < 1.8 dB / 60 °C |
| Output 1-dB compression point | > 7 dBm |
| 3 rd order intercept point (OIP3) | > 17 dBm |
| Environmental Characteristics | |
| Operating temperature range | -40 ... +60 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours |
| EMC | ETS 300 342-3 |
| DC and Alarm Characteristics | |
| DC supply | 9 – 30 V, minus grounded |
| Alarm management | CWA or according to AISG standard* |
| Modem Characteristics | According to AISG standard* |
| Mechanical Characteristics | |
| Material | Aluminium housing |
| Connectors | RF: 7-16 female long neck AISG Connector (Compliance AISG): 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return; other pins: NC) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 5 kg |
| Packing size | 262 x 502 x 214 mm |
| Dimensions (w x h x d) | 166 x 262 x 77.5 mm (without connectors, without mounting brackets) |



| Type no. | Rx-Frequency (MHz) | Current in CWA mode (mA) | |
|-----------------------------------|--------------------|--------------------------|-----------|
| | | nominal | alarm |
| AISG 1.1 (default version) | | | |
| 782 10561 | 1970 – 1985 | 50 – 190 | 230 – 295 |
| 782 10562 | 1970 – 1985 | 80 – 120 | 170 – 200 |
| 782 10563 | 1965 – 1980 | 50 – 190 | 230 – 295 |
| 782 10564 | 1965 – 1980 | 80 – 120 | 170 – 200 |
| 782 10565 | 1950 – 1965 | 80 – 120 | 170 – 200 |
| 782 10566 | 1920 – 1935 | 50 – 190 | 230 – 295 |
| 782 10567 | 1920 – 1935 | 80 – 120 | 170 – 200 |
| 782 10568 | 1950 – 1965 | 50 – 190 | 230 – 295 |

| Type no. | Rx-Frequency (MHz) | Current in CWA mode (mA) | |
|-----------------------------------|--------------------|--------------------------|-----------|
| | | nominal | alarm |
| AISG 2.0 (default version) | | | |
| 782 10569 | 1970 – 1985 | 50 – 190 | 230 – 295 |
| 782 10570 | 1920 – 1935 | 50 – 190 | 230 – 295 |
| 782 10571 | 1965 – 1980 | 50 – 190 | 230 – 295 |
| 782 10579 | 1965 – 1980 | 80 – 120 | 170 – 200 |

* The protocol of the software interface can be switched between AISG 2.0/3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start up. Please contact Kathrein for further information.

DTMA-UMTS-24-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

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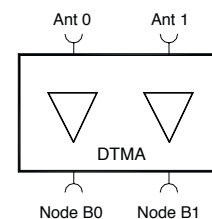
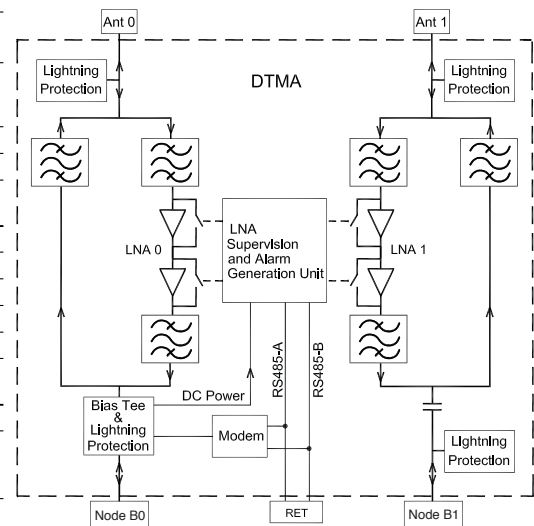
- Double unit for easy use with XPol antennas
- Supports AISG 1.1 or 2.0 (Default version AISG 1.1) *
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG/3GPP standard
- **DTMA DC supply and AISG feed via Node B0 port for both TMAs**

RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group

Technical Data

| Type No. | 782 10448 DTMA-UMTS-24-AISG (24 dB gain) |
|--|--|
| Tx Characteristics | |
| Frequency range | 2110 – 2170 MHz |
| Bandwidth | 60 MHz |
| Insertion loss | Typically 0.3 dB |
| Ripple | < ±0.2 dB |
| Input power | < 100 W (+50 dBm) CW < 1.6 kW (+62 dBm) Peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |
| Rx Characteristics | |
| Frequency range | 1920 – 1980 MHz |
| Bandwidth | 60 MHz |
| Loss in by-pass mode | Typically 2.4 dB (DC OFF) |
| Gain ripple | < ±0.3 dB |
| Return loss | > 18 dB (DC ON) > 12 dB (DC OFF) |
| Gain | -40 ... +65 °C: 24 ±1.0 dB +22 ... +28 °C: 24 ±0.5 dB |
| Noise figure | Typically 1.4 dB |
| Output 1-dB compression point | > 20 dBm |
| 3 rd order intercept point (OIP3) | > 29 dBm |
| Environmental Characteristics | |
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | ETS 300 342-3 |
| Lightning protection | 5 kA, 8/20 μs RF connections and AISG port |
| DC and Alarm Characteristics | |
| Through Node B0 Port only | |
| DC supply without RET | 9 – 30 V, minus grounded Typically 300 mA at 9 V Typically 100 mA at 30 V |
| Alarm management | According to AISG standard * |
| Mechanical Characteristics | |
| Material | Aluminium housing |
| Connectors | RF: 7-16 female AISG Connector (Compliance AISG): 8-pin female, IEC 60130-9 (Pin 6: 9 – 30 V DC, pin1: 9-15 V DC, pin 3: RS485B, pin 5: RS485A, pin 7: DC return; other pins: Not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 5 kg |
| Packing size | 262 x 502 x 214 mm |
| Dimensions (w x h x d) | 166 x 262 x 77.5 mm (without connectors, without mounting brackets) |



* The protocol of the software interface can be switched between AISG 2.0/3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start up. Please contact Kathrein for further information.

DTMA-UMTS-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

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- Slimline design
- Double units for easy use with XPol antennas
- Both versions support CWA, AISG 1.1 and AISG 2.0
782 10610 default setting: AISG 1.1
782 10612 default setting: AISG 2.0
- AISG setting switchable as described on data sheet
- CWA and AISG configurations as described on data sheet
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group

CWA = Current Window Alarm



Technical Data

| Type No. | Default setting | 782 10610 |
|----------|-----------------|------------------------------------|
| | AISG 1.1 | DTMA-UMTS-12-AISG-CWA (12 dB gain) |
| | AISG 2.0 | DTMA-UMTS-12-AISG-CWA (12 dB gain) |

Tx Characteristics

| | |
|-------------------------------------|--|
| Frequency range | 2110 – 2170 MHz |
| Insertion loss | < 0.3 dB (typically 0.15 dB) |
| Ripple | < 0.1 dB |
| Input power (per input) | < 100 W (+50 dBm) CW / < 1.6 kW (+62 dBm) peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |

Rx Characteristics

| | |
|--|---|
| Frequency range | 1920 – 1980 MHz |
| Loss in by-pass mode | < 2.5 dB (DC OFF) |
| Return loss | > 18 dB (DC ON) / > 12 dB (DC OFF) |
| Gain | 12 ±1.0 dB (+22 ... +28 °C) / 12 ±1.2 dB (-40 ... +65 °C) |
| Gain ripple | < ±0.3 dB |
| Noise figure* | < 1.3 dB (+22 ... +28 °C) |
| Output 1-dB compression point | > 11 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm (typically 30 dBm) |

Environmental Characteristics

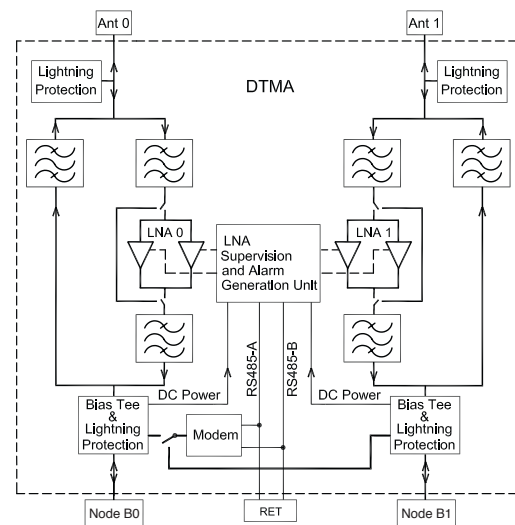
| | |
|-----------------------------|-----------------------------|
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | According to ETS 300 342-3 |

DC and Alarm Characteristics

| | CWA Mode | AISG Mode |
|---|--------------|---|
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA (without RET) | 80 – 140 mA | Nom. 95 mA at 9 V Nom. 35 mA at 30 V |
| Alarm management | 170 – 200 mA | AISG |

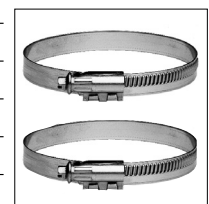
Mechanical Characteristics

| | |
|------------------------|---|
| Material | Aluminium housing |
| Connectors | RF: 7-16 female (long neck) AISG: 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Weight | 3.8 kg |
| Packing size | 262 x 502 x 214 mm |
| Dimensions (w x h x d) | 160 x 205 x 63 mm (without connectors, without mounting brackets) |



Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



* Noise figure $\overline{NF} = \frac{NF_{1920\text{ MHz}} + 2 \times NF_{1950\text{ MHz}} + NF_{1980\text{ MHz}}}{4}$

(Additional variation at -40 ... +65 °C: $\Delta \overline{NF} < 0.3\text{ dB}$)

DTMA-UMTS-24-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

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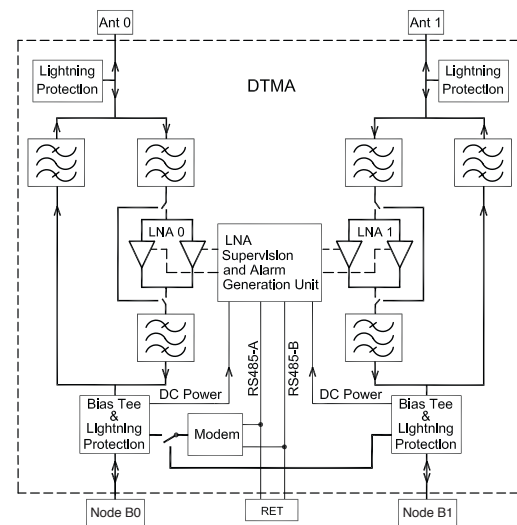
- Slimline design
- Double unit for easy use with XPol antennas
- Supports CWA, AISG 1.1 and AISG 2.0 (default)
- AISG setting switchable as described on data sheet
- CWA and AISG configurations as described on data sheet
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt
AISG = Antenna Interface Standards Group
CWA = Current Window Alarm



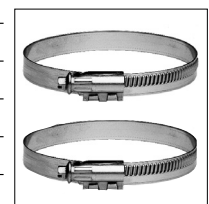
Technical Data

| | | |
|--|---|--|
| Type No. | 782 10613 DTMA-UMTS-24-AISG-CWA (24 dB gain) | |
| Tx Characteristics | | |
| Frequency range | 2110 – 2170 MHz | |
| Insertion loss | < 0.3 dB (typically 0.15 dB) | |
| Ripple | < 0.1 dB | |
| Input power (per input) | < 100 W (+50 dBm) CW / < 1.6 kW (+62 dBm) peak | |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) | |
| Return loss | > 18 dB | |
| Rx Characteristics | | |
| Frequency range | 1920 – 1980 MHz | |
| Loss in by-pass mode | < 2.5 dB (DC OFF) | |
| Return loss | > 18 dB (DC ON) / > 12 dB (DC OFF) | |
| Gain | 24 ±1.0 dB (+22 ... +28 °C) / 24 ±1.2 dB (-40 ... +65 °C) | |
| Gain ripple | < ±0.3 dB | |
| Noise figure* | < 1.4 dB (+22 ... +28 °C) | |
| Output 1-dB compression point | > 18 dBm | |
| 3 rd order intercept point (OIP3) | > 25 dBm (typically 30 dBm) | |
| Environmental Characteristics | | |
| Operating temperature range | -40 ... +65 °C | |
| IP rating | IP67 | |
| MTBF | > 1 000 000 hours (per TMA) | |
| EMC | According to ETS 300 342-3 | |
| DC and Alarm Characteristics | | |
| | CWA Mode | AISG Mode |
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA (without RET) | 130 – 340 mA | Nom. 210 mA at 9 V Nom. 70 mA at 30 V |
| Alarm management | 380 – 420 mA | AISG |
| Mechanical Characteristics | | |
| Material | Aluminium housing | |
| Connectors | RF | 7-16 female (long neck) 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set | |
| Weight | 3.8 kg | |
| Packing size | 262 x 502 x 214 mm | |
| Dimensions (w x h x d) | 160 x 205 x 63 mm (without connectors, without mounting brackets) | |



Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



* Noise figure $\overline{NF} = \frac{NF_{1920\text{ MHz}} + 2 \times NF_{1950\text{ MHz}} + NF_{1980\text{ MHz}}}{4}$
 (Additional variation at -40 ... +60 °C: $\Delta \overline{NF} < 0.4\text{ dB}$)

DTMA-UMTS-BYP900/1800-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier with 900 MHz and 1800 MHz By-pass

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- Double units for easy use with XPol antennas
- Both versions support CWA, AISG 1.1 and AISG 2.0 (default)
782 10652: CWA alarm 170 – 200 mA
782 10653: CWA alarm 230 – 295 mA
- RF Bypass for 900 MHz and 1800 MHz
- Integrated DC stops
- AISG setting switchable as described on data sheet
- CWA and AISG configurations as described on data sheet
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt
AISG = Antenna Interface Standards Group
CWA = Current Window Alarm
BYP = RF BYPass



Technical Data

| | | |
|----------|---------------------------|--|
| Type No. | CWA alarm 170 – 200 mA | 782 10652 DTMA-UMTS-BYP900/1800-12-AISG-CWA (12 dB gain) |
| | CWA alarm 230 – 295 mA | 782 10653 DTMA-UMTS-BYP900/1800-12-AISG-CWA (12 dB gain) |

UMTS Tx Characteristics

| | |
|-------------------------------------|--|
| Frequency range | 2110 – 2170 MHz |
| Insertion loss | < 0.4 dB |
| Input power (per input) | < 100 W (+50 dBm) CW / < 1.6 kW (+62 dBm) peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |

UMTS Rx Characteristics

| | |
|--|---|
| Frequency range | 1920 – 1980 MHz |
| Loss in by-pass mode | < 3.0 dB (DC OFF) |
| Return loss | > 16 dB (DC ON) / > 14 dB (DC OFF) |
| Gain | 12 ±0.7 dB (+22 ... +28 °C) / 12 ±1.3 dB (-40 ... +60 °C) |
| Gain ripple in 5 MHz bandwidth | < ±0.2 dB |
| Noise figure* | < 1.3 dB (+22 ... +28 °C) |
| Output 1-dB compression point | > 10 dBm |
| 3 rd order intercept point (OIP3) | > 23 dBm |

1800 MHz Bypass Characteristics

| | |
|-------------------------|---|
| Frequency range | 1710 – 1880 MHz |
| Insertion loss | < 0.3 dB |
| Return loss | > 18 dB |
| Isolation | > 80 dB (2400 – 2900 MHz) / > 60 dB (2110 – 2170 MHz) / > 50 dB (2010 – 2025 MHz) / > 50 dB (1920 – 1980 MHz) / > 80 dB (880 – 960 MHz) |
| Input power (per input) | 100 W CW / 300 W peak |

900 MHz Bypass Characteristics

| | |
|-------------------------|---|
| Frequency range | 870 – 970 MHz |
| Insertion loss | < 0.3 dB |
| Return loss | > 18 dB |
| Isolation | > 70 dB (2400 – 2900 MHz) / > 60 dB (2110 – 2170 MHz) / > 60 dB (2010 – 2025 MHz) / > 55 dB (1920 – 1980 MHz) / > 30 dB (1710 – 1880 MHz) |
| Input power (per input) | 100 W CW / 300 W peak |

Environmental Characteristics

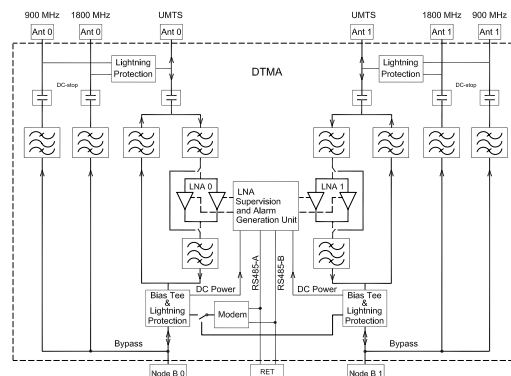
| | |
|-----------------------------|-------------------------------|
| Operating temperature range | -40 ... +60 °C |
| IP rating | IP67 (see note on data sheet) |
| MTBF | > 1 000 000 hours per TMA |
| EMC | According to ETS 300 342-3 |

DC and Alarm Characteristics

| | CWA Mode | AISG Mode |
|---|--|---|
| DC supply | 9 – 15 V | 9 – 30 V |
| Operating current per TMA (without RET) | 80 – 130 mA | Nom. 95 mA at 9 V Nom. 35 mA at 30 V |
| Alarm management | 782 10652: 170 – 200 mA 782 10653: 230 – 295 mA | AISG |

Mechanical Characteristics

| | |
|------------------------|---|
| Material | Aluminium housing |
| Connectors | RF AISG 7-16 female (long neck) 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Dimensions (w x h x d) | 222 x 316.9 x 108.5 mm (without connectors, without mounting brackets) |



Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |

Clamp Set



| Type No. | Description |
|------------------|---|
| 784 10367 | 50-Ω load 1.5 W / indoor or outdoor |

50-Ω load



* Noise figure $\overline{NF} = \frac{NF_{1920\text{ MHz}} + 2 \times NF_{1950\text{ MHz}} + NF_{1980\text{ MHz}}}{4}$
 (Additional variation at -40 ... +60 °C: $\Delta \overline{NF} < 0.3\text{ dB}$)

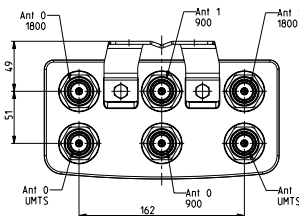
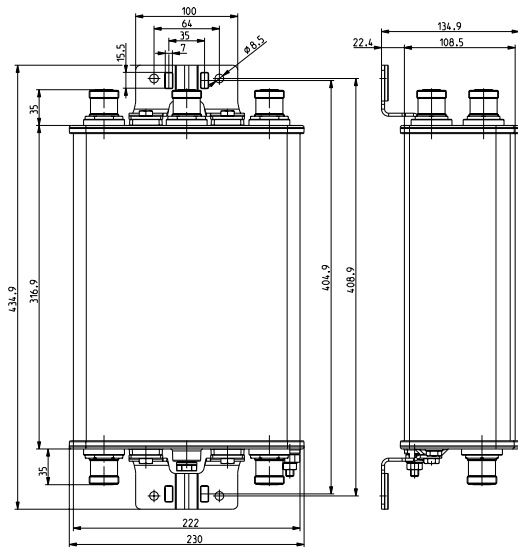
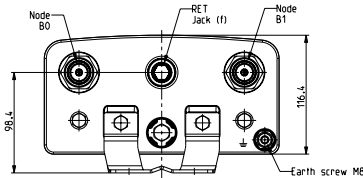
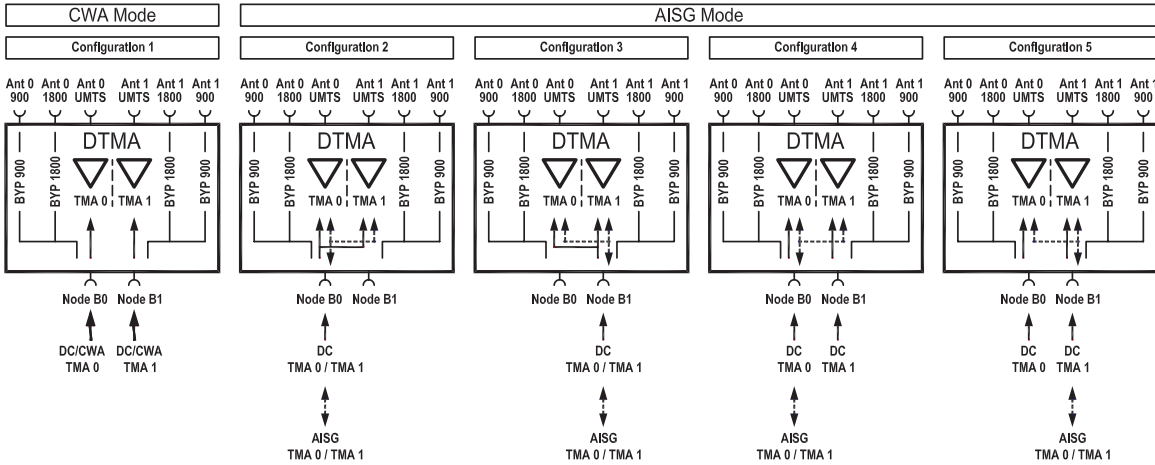
DTMA-UMTS-BYP900/1800-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier with 900 MHz and 1800 MHz By-pass

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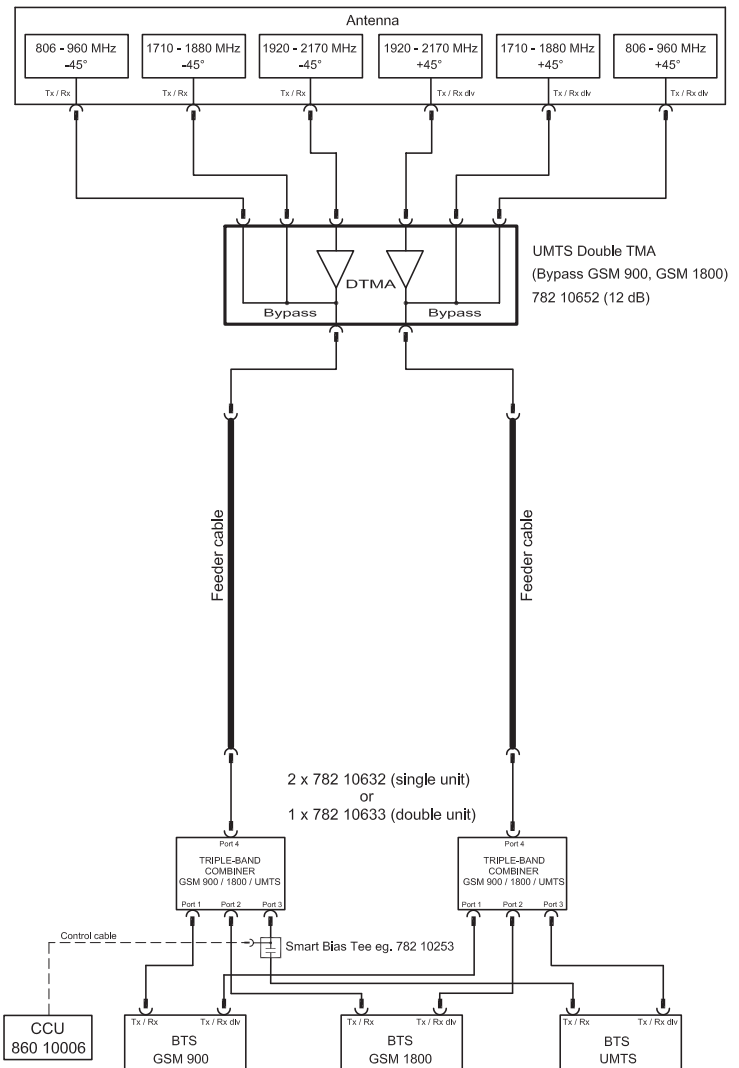
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DC Supply, Current Window Alarm and AISG Configuration (automatically chosen by the DTMA depending on incoming signals)



782 10652, 782 10653

Application Example



AISG Setting

The protocol of the software interface can be switched between AISG 2.0 / 3GPP and AISG 1.1 and vice versa with a vendor specific command (depending on default setting). If the primary station does not support the default setting, it has to be switched over before system start-up. Please contact Kathrein for further information.

DTMA-2600-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

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- Double unit for easy use with XPol antennas
- Supports AISG 1.1 and AISG 2.0 (default)
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection

RET = Remote Electrical Tilt

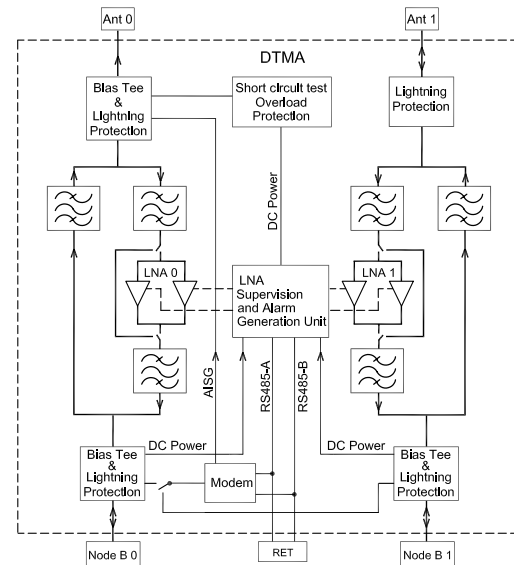
AISG = Antenna Interface Standards Group

CWA = Current Window Alarm



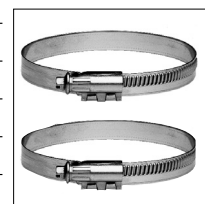
Technical Data

| | |
|--|---|
| Type No. | 782 10860 DTMA-2600-12-AISG (12 dB gain) |
| Tx Characteristics | |
| Frequency range | 2620 – 2690 MHz |
| Insertion loss | < 0.6 dB (typ. 0.35 dB) |
| Ripple | < 0.35 dB |
| Input power (per input) | < 100 W (+50 dBm) CW / < 1.6 kW (+62 dBm) peak |
| Intermodulation products in Rx band | < -117 dBm (2 Tx carriers at +43 dBm) |
| Return loss | > 18 dB |
| Rx Characteristics | |
| Frequency range | 2500 – 2570 MHz |
| Loss in by-pass mode | < 2.5 dB (DC OFF) |
| Return loss | > 18 dB (DC ON) / > 12 dB (DC OFF) |
| Gain | 12 ±0.7 dB (+22 ... +28 °C) / 12 ±1.0 dB (-40 ... +65 °C) |
| Gain ripple | < ±0.5 dB |
| Noise figure* | < 1.3 dB (+22 ... +28 °C) |
| Output 1-dB compression point | > 13 dBm |
| 3 rd order intercept point (OIP3) | > 25 dBm (typically 30 dBm) |
| Environmental Characteristics | |
| Operating temperature range | -40 ... +65 °C |
| IP rating | IP67 |
| MTBF | > 1 000 000 hours (per TMA) |
| EMC | According to ETS 300 342-3 |
| DC and Alarm Characteristics | |
| DC supply | 10 – 30 V |
| Operating current per TMA (without RET) | Nom. 190 mA at 10 V Nom. 80 mA at 30 V |
| Alarm management | AISG |
| Mechanical Characteristics | |
| Material | Aluminium housing |
| Connectors | RF: 7-16 female (long neck) AISG: 8-pin female, IEC 60130-9 (Pin 3: RS485B, pin 5: RS485A, pin 6: 9 – 30 V DC, pin 7: DC return, other pins: not connected) |
| Mounting | Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set |
| Dimensions (w x h x d) | 165.2 x 245.2 x 64.6 mm (without connectors, without mounting brackets) |



Accessories (order separately)

| Type No. | Clamp set suitable for mast diameter of |
|----------------|---|
| 734 360 | 34 – 60 mm |
| 734 361 | 60 – 80 mm |
| 734 362 | 80 – 100 mm |
| 734 363 | 100 – 120 mm |
| 734 364 | 120 – 140 mm |
| 734 365 | 45 – 125 mm |



* Noise figure $\overline{NF} = \frac{NF_{2500\text{ MHz}} + 2 \times NF_{2535\text{ MHz}} + NF_{2570\text{ MHz}}}{4}$

(Additional variation at -40 ... +65 °C: $\Delta \overline{NF} < 0.3\text{ dB}$)

Repeaters

Repeater:

| Description | Type No. | Frequency range | Page |
|-------------------------------------|-----------|--|------|
| 900 Band Selective Repeater | 782 10711 | 880 ... 915 / 925 ... 960 MHz | 317 |
| 900 Double-Band Selective Repeater | 782 10717 | Band 1: 880 ... 915 / 925 ... 960 MHz Band 2: 880 ... 915 / 925 ... 960 MHz | 318 |
| 1800 Band Selective Repeater | 782 10731 | 1710 ... 1785 / 1805 ... 1880 MHz | 319 |
| 1800 Double-Band Selective Repeater | 782 10736 | Band 1: 1710 ... 1785 / 1805 ... 1880 MHz Band 2: 1710 ... 1785 / 1805 ... 1880 MHz | 320 |
| UMTS Band Selective Repeater | 782 10751 | 1920 ... 1980 / 2110 ... 2170 MHz | 321 |

900 Band Selective Repeater

880 ... 915 MHz / 925 ... 960 MHz

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- Indoor repeater solution to easily improve coverage in designated areas
- Easy deployment
- Compact design
- Wall mounting, easy to install
- User-friendly operation
- Customized single-band operation

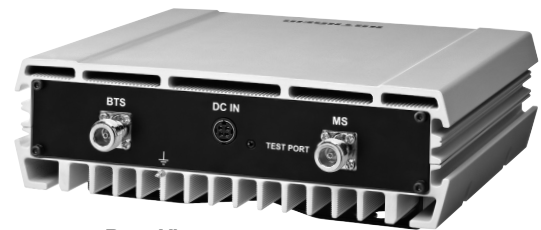


Front View

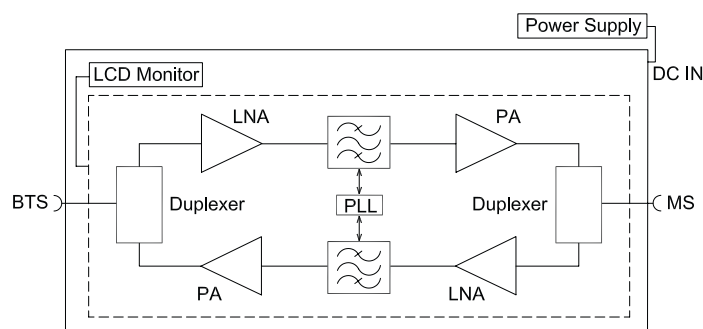
Tuning:

The repeater is tuned to the desired bandwidth at the factory.

When ordering please specify the desired frequency range for uplink and downlink.



Rear View



Technical Data

| Type No. | 782 10711 900 Band Selective Repeater | |
|----------------------------------|--|-----------------|
| Specification | Uplink | Downlink |
| Frequency range | 880 ... 915 MHz | 925 ... 960 MHz |
| Nominal bandwidth | 0.2 ... 25 MHz (Customized tuning) | |
| Maximum gain | ≥ 70 dB | |
| Auto gain control | ≥ 40 dB | |
| Gain control (via control panel) | 31 dB in step of 1 dB | |
| Gain flatness | ≤ 5 dB (p-p) | |
| Output power | ≥ 15 dBm / total output power ≥ 12 dBm / Ch at 2 channels | |
| Intermodulation product | 9 KHz – 1 GHz | ≤ -36 dBm |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm |
| Spurious emission | 9 KHz – 1 GHz | ≤ -36 dBm |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm |
| Out of band gain | ±400 KHz | < 50 dB |
| | ±600 KHz | < 40 dB |
| | ±1 MHz | < 35 dB |
| | ±5 MHz | < 25 dB |
| Noise figure | ≤ 7 dB | |
| Return loss | ≤ -10 dB | |
| Group delay | < 4.5 μs | |
| External power supply | | |
| Nominal input voltage | 115/230 V ~ | |
| Line frequency | 50/60 Hz | |
| Admissible input voltage range | 90 – 264 V ~ | |
| Secondary voltage | +9 V ±5 % = | |
| Current drain | max. 5.5 A = | |
| Consumption | Typ. 33 W | |
| Input connector | IEC 320-C13 | |
| Ingress protection class | IP30 | |
| RF Connector/Impedance | N-type female / 50 Ω (Nominal) | |
| Dimensions | | |
| Repeater (W x H x D) | 232.5 x 81.5 x 202 mm (without connectors) | |
| Power supply unit (W x H x D) | 85 x 50 x 155 mm | |
| Weight | ≤ 4.6 kg | |
| Operating temperature range: | | |
| Repeater | -10 °C – +50 °C | |
| Power supply unit | 0 °C – +40 °C | |



AC input cable,
Length 1830 mm



External power supply unit
with DC output cable,
Length 1050 mm

900 Double-Band Selective Repeater

Band 1: 880 ... 915 MHz / 925 ... 960 MHz

Band 2: 880 ... 915 MHz / 925 ... 960 MHz

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- Indoor repeater solution to easily improve coverage within designated areas
- Easy deployment
- Compact design
- Wall mounting, easy to install
- User-friendly operation
- Two independent customized bands within the operational frequency range



Front View

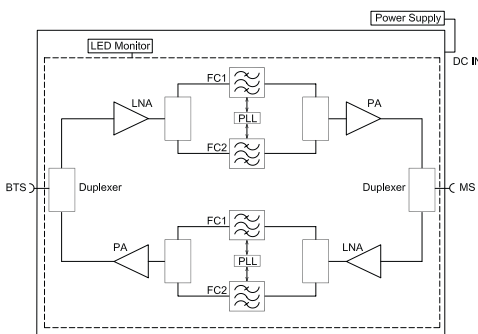


Rear View

Tuning:

The repeater is tuned to the desired bandwidth at the factory.

When ordering please specify the desired frequency range for uplink and downlink.



Technical Data

| Type No. | | 782 10717 | |
|----------------------------------|-------------------|--|-----------------|
| | | 900 Double-Band Selective Repeater | |
| Specification | | Uplink | Downlink |
| Frequency range | Band 1 | 880 ... 915 MHz | 925 ... 960 MHz |
| | Band 2 | 880 ... 915 MHz | 925 ... 960 MHz |
| Nominal bandwidth | Band 1 | 0.2 ... 25 MHz (Customized tuning) | |
| | Band 2 | 0.2 ... 25 MHz (Customized tuning) | |
| Maximum gain | | ≥ 70 dB | |
| Auto gain control | | ≥ 40 dB | |
| Gain control (via control panel) | | 31 dB in step of 1 dB | |
| Gain flatness | | ≤ 5 dB (p-p) | |
| Output power | | ≥ 15 dBm / total output power ≥ 12 dBm / Ch at 2 channels | |
| Intermodulation product | 9 KHz – 1 GHz | ≤ -36 dBm | |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm | |
| Spurious emission | 9 KHz – 1 GHz | ≤ -36 dBm | |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm | |
| Out of band gain | ±400 KHz | < 50 dB | |
| | ±600 KHz | < 40 dB | |
| | ±1 MHz | < 35 dB | |
| | ±5 MHz | < 25 dB | |
| Noise figure | | ≤ 7 dB | |
| Return loss | | ≤ -10 dB | |
| Group delay | | < 4.5 μs | |
| External power supply | | | |
| Nominal input voltage | | 115/230 V ~ | |
| Line frequency | | 50/60 Hz | |
| Admissible input voltage range | | 90 – 264 V ~ | |
| Secondary voltage | | +9 V ±5 % = | |
| Current drain | | max. 5.5 A = | |
| Consumption | | typ. 33 W | |
| Input connector | | IEC 320-C13 | |
| Ingress protection class | | IP30 | |
| RF Connector/Impedance | | N-type female / 50 Ω (Nominal) | |
| Dimensions | | | |
| Repeater (W x H x D) | | 232.5 x 81.5 x 202 mm (without connectors) | |
| Power supply unit (W x H x D) | | 85 x 50 x 155 mm | |
| Weight | | ≤ 4.6 kg | |
| Operating temperature range: | | | |
| Repeater | | -10 °C – +50 °C | |
| Power supply unit | | 0 °C – +40 °C | |



AC input cable,
Length 1830 mm



External power supply unit
with DC output cable,
Length 1050 mm

1800 Band Selective Repeater

1710 ... 1785 MHz / 1805 ... 1880 MHz

- Indoor repeater solution to easily improve coverage in designated areas
- Easy deployment
- Compact design
- Wall mounting, easy to install
- User-friendly operation
- Customized single-band operation

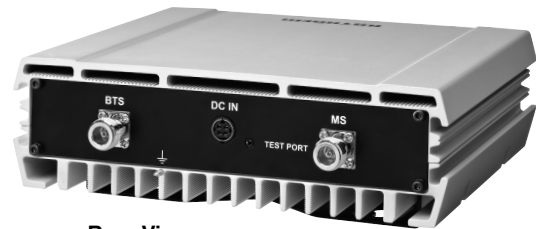


Front View

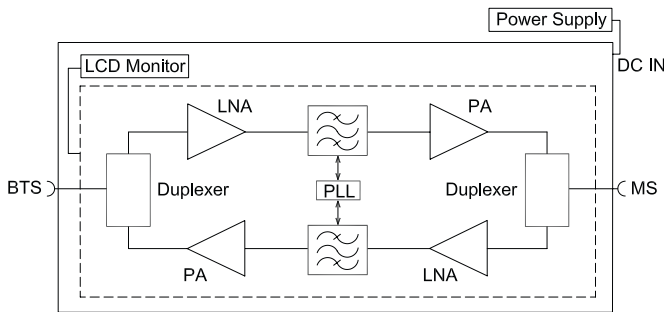
Tuning:

The repeater is tuned to the desired bandwidth at the factory.

When ordering please specify the desired frequency range for uplink and downlink.



Rear View



Technical Data

| Type No. | 782 10731 1800 Band Selective Repeater | |
|----------------------------------|--|-------------------|
| Specification | Uplink | Downlink |
| Frequency range | 1710 ... 1785 MHz | 1805 ... 1880 MHz |
| Nominal bandwidth | 0.2 ... 25 MHz (Customized tuning) | |
| Maximum gain | ≥ 70 dB | |
| Auto gain control | ≥ 40 dB | |
| Gain control (via control panel) | 31 dB in step of 1 dB | |
| Gain flatness | ≤ 5 dB (p-p) | |
| Output power | ≥ 15 dBm / total output power ≥ 12 dBm / Ch at 2 channels | |
| Intermodulation product | 9 KHz – 1 GHz | ≤ -36 dBm |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm |
| Spurious emission | 9 KHz – 1 GHz | ≤ -36 dBm |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm |
| Out of band gain | ±400 KHz | < 50 dB |
| | ±600 KHz | < 40 dB |
| | ±1 MHz | < 35 dB |
| | ±5 MHz | < 25 dB |
| Noise figure | ≤ 7 dB | |
| Return loss | ≤ -10 dB | |
| Group delay | < 4.5 μs | |
| External power supply | | |
| Nominal input voltage | 115/230 V ~ | |
| Line frequency | 50/60 Hz | |
| Admissible input voltage range | 90 – 264 V ~ | |
| Secondary voltage | +9 V ±5 % = | |
| Current drain | max. 5.5 A = | |
| Consumption | Typ. 33 W | |
| Input connector | IEC 320-C13 | |
| Ingress protection class | IP30 | |
| RF Connector/Impedance | N-type female / 50 Ω (Nominal) | |
| Dimensions | | |
| Repeater (W x H x D) | 232.5 x 81.5 x 202 mm (without connectors) | |
| Power supply unit (W x H x D) | 85 x 50 x 155 mm | |
| Weight | ≤ 4.6 kg | |
| Operating temperature range: | | |
| Repeater | -10 °C – +50 °C | |
| Power supply unit | 0 °C – +40 °C | |



AC input cable,
Length 1830 mm



External power supply unit
with DC output cable,
Length 1050 mm

1800 Double-Band Selective Repeater

Band 1: 1710 ... 1785 MHz / 1805 ... 1880 MHz

Band 2: 1710 ... 1785 MHz / 1805 ... 1880 MHz

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- Indoor repeater solution to easily improve coverage within designated areas
- Easy deployment
- Compact design
- Wall mounting, easy to install
- User-friendly operation
- Two independent customized bands within the operational frequency range

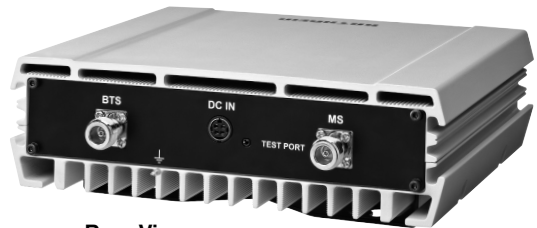
Tuning:

The repeater is tuned to the desired bandwidth at the factory.

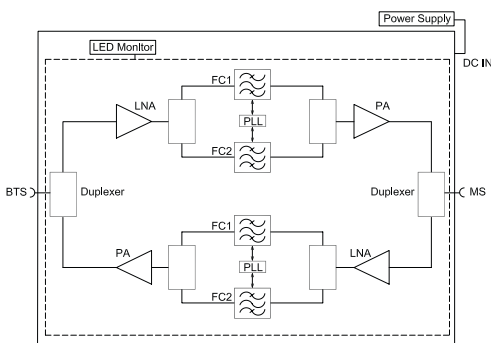
When ordering please specify the desired frequency range for uplink and downlink.



Front View



Rear View



Technical Data

| Type No. | | 782 10736 | |
|----------------------------------|-------------------|--|-------------------|
| | | 1800 Double-Band Selective Repeater | |
| Specification | | Uplink | Downlink |
| Frequency range | Band 1 | 1710 ... 1785 MHz | 1805 ... 1880 MHz |
| | Band 2 | 1710 ... 1785 MHz | 1805 ... 1880 MHz |
| Nominal bandwidth | Band 1 | 0.2 ... 25 MHz (Customized tuning) | |
| | Band 2 | 0.2 ... 25 MHz (Customized tuning) | |
| Maximum gain | | ≥ 70 dB | |
| Auto gain control | | ≥ 40 dB | |
| Gain control (via control panel) | | 31 dB in step of 1 dB | |
| Gain flatness | | ≤ 5 dB (p-p) | |
| Output power | | ≥ 15 dBm / total output power ≥ 12 dBm / Ch at 2 channels | |
| Intermodulation product | 9 KHz – 1 GHz | ≤ -36 dBm | |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm | |
| Spurious emission | 9 KHz – 1 GHz | ≤ -36 dBm | |
| | 1 GHz – 12.75 GHz | ≤ -30 dBm | |
| Out of band gain | ±400 KHz | < 50 dB | |
| | ±600 KHz | < 40 dB | |
| | ±1 MHz | < 35 dB | |
| | ±5 MHz | < 25 dB | |
| Noise figure | | ≤ 7 dB | |
| Return loss | | ≤ -10 dB | |
| Group delay | | < 4.5 μs | |
| External power supply | | | |
| Nominal input voltage | | 115/230 V ~ | |
| Line frequency | | 50/60 Hz | |
| Admissible input voltage range | | 90 – 264 V ~ | |
| Secondary voltage | | +9 V ±5 % = | |
| Current drain | | max. 5.5 A = | |
| Consumption | | Typ. 33 W | |
| Input connector | | IEC 320-C13 | |
| Ingress protection class | | IP30 | |
| RF Connector/Impedance | | N-type female / 50 Ω (Nominal) | |
| Dimensions | | | |
| Repeater (W x H x D) | | 232.5 x 81.5 x 202 mm (without connectors) | |
| Power supply unit (W x H x D) | | 85 x 50 x 155 mm | |
| Weight | | ≤ 4.6 kg | |
| Operating temperature range: | | | |
| Repeater | | -10 °C – +50 °C | |
| Power supply unit | | 0 °C – +40 °C | |



AC input cable,
Length 1830 mm



External power supply unit
with DC output cable,
Length 1050 mm

UMTS Band Selective Repeater

1920 ... 1980 MHz / 2110 ... 2170 MHz

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- Indoor repeater solution to easily improve coverage in designated areas
- Easy deployment
- Compact design
- Wall mounting, easy to install
- User-friendly operation
- Customized single-band operation

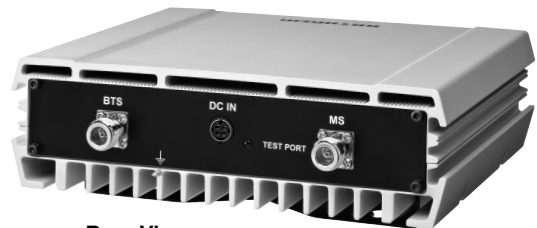


Front View

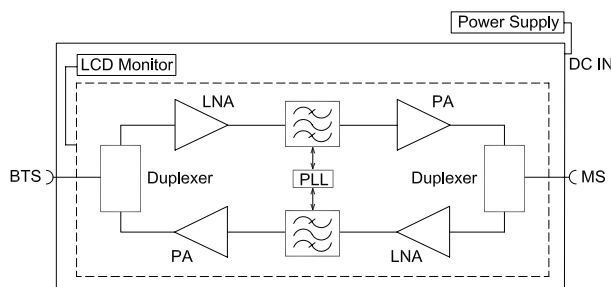
Tuning:

The repeater is tuned to the desired bandwidth at the factory.

When ordering please specify the desired frequency range for uplink and downlink.



Rear View



Technical Data

| Type No. | 782 10751 UMTS Band Selective Repeater | |
|----------------------------------|--|-------------------|
| Specification | Uplink | Downlink |
| Frequency range | 1920 ... 1980 MHz | 2110 ... 2170 MHz |
| Nominal bandwidth | 5 ... 25 MHz (customized tuning) | |
| Maximum gain | ≥ 70 dB | |
| Auto gain control | ≥ 40 dB | |
| Gain control (Via control panel) | 31 dB in step of 1 dB | |
| Gain flatness | ≤ 5 dB (p-p) | |
| Output power | ≥ 15 dBm / total output power ≥ 12 dBm / Ch at 2 channels | |
| Out of band Gain | Maximum Gain | |
| | 2.7 ≤ f offset < 3.5 MHz | < 60 dB |
| | 3.5 ≤ f offset < 7.5 MHz | < 45 dB |
| | 7.5 ≤ f offset < 12.5 MHz | < 45 dB |
| 12.5 ≤ f offset | < 35 dB | |
| ACRR | 20 dBc/30 KHz at ±5 MHz 20 dBc/30 KHz at ±10 MHz | |
| Spurious mission mask | Comply with 3GPP TS 25.106 | |
| Spurious emission | Comply with 3GPP TS 25.106 / Category B | |
| EVM | ≤ 12.5 % | |
| Peak code domain error | ≤ -35 dB at Spreading Factor 256 | |
| Input/output intermodulation | Comply with 3GPP TS 25.143 <content> | |
| Frequency error | ≤ 0.01 ppm | |
| Noise figure | ≤ 7 dB | |
| Return loss | ≤ -10 dB | |
| Group delay | < 4.5 μs | |
| External Power Supply | | |
| Nominal input voltage | 115/230 V ~ | |
| Line frequency | 50/60 Hz | |
| Admissible input voltage range | 90 – 264 V ~ | |
| Secondary voltage | +9 V ±5 % = | |
| Current drain | max. 5.5 A = | |
| Consumption | typ. 33 W | |
| Input connector | IEC 320-C13 | |
| Ingress protection class | IP30 | |
| RF Connector/Impedance | N-type female / 50 Ω (Nominal) | |
| Dimensions | | |
| Repeater (W x H x D) | 232.5 x 81.5 x 202 mm (without connectors) | |
| Power supply unit (W x H x D) | 85 x 50 x 155 mm | |
| Weight | ≤ 4.6 kg | |
| Operating Temperature range: | | |
| Repeater | -10 °C – +50 °C | |
| Power supply unit | 0 °C – +40 °C | |



AC input cable,
Length 1830 mm



External power supply unit
with DC output cable,
Length 1050 mm

Subsidiaries/Affiliates

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9981.1395/1209/8/ZW/MM Subject to alteration.

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