790 – 6000 MHz
Base Station Antennas for Mobile Communications

Catalogue 2008

KATHREIN

Antennen · Electronic

Photo on title page: Full integration of active components for a clean site.

Catalogue Issue 01/2008

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, which include 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 principies 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: http://www.kathrein.de

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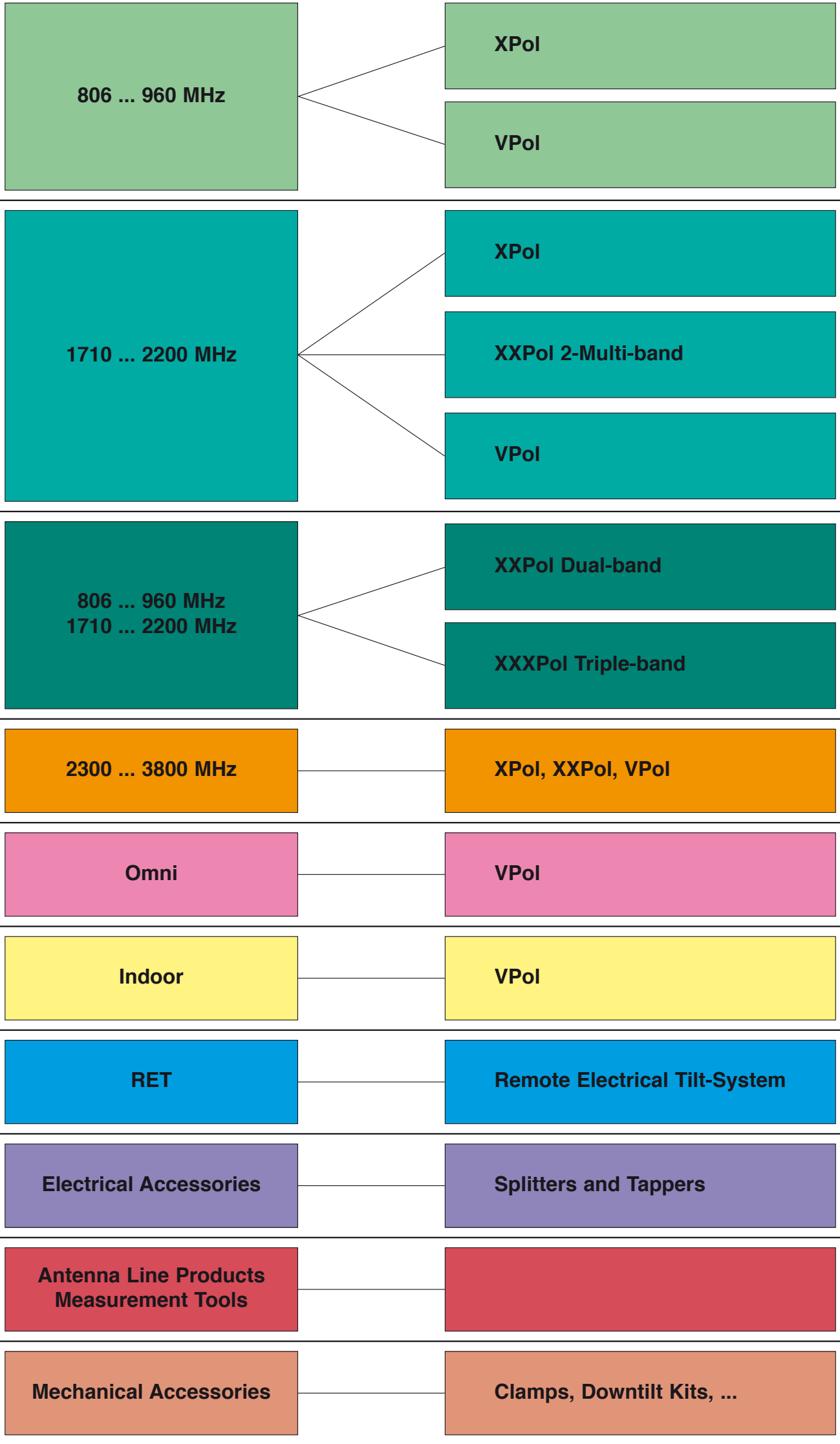
806 ... 960 MHz
XPol
VPol
1710 ... 2200 MHz
XPol
XXPol 2-Multi-band
VPol
806 ... 960 MHz
1710 ... 2200 MHz
XXPol Dual-band
XXXPol Triple-band
2300 ... 3800 MHz
XPol, XXPol, VPol
Omni
VPol
Indoor
VPol
RET
Remote Electrical Tilt-System
Electrical Accessories
Splitters and Tappers
Antenna Line Products
Measurement Tools
Mechanical Accessories
Clamps, Downtilt Kits, ...

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

www.kathrein.de

List of available Catalogues for Mobile Communication Antennas and Accessories

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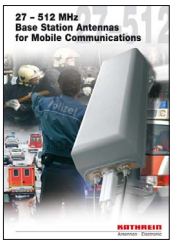
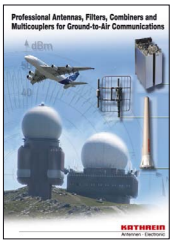
790 – 2500 MHz Base Station Antennas for Mobile Communications

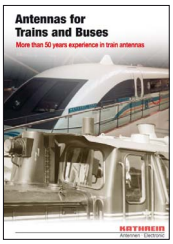
27 – 512 MHz Base Station Antennas for Mobile Communiations



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



Antennas for Trains and Buses



790 – 2500 MHz Filters, Combiners, Amplifiers for Mobile Communications

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

The listed catalogues are also available on CD-ROM

Summary of Types

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The articles are listed by type number in numerical order.

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Antennen · Electronic

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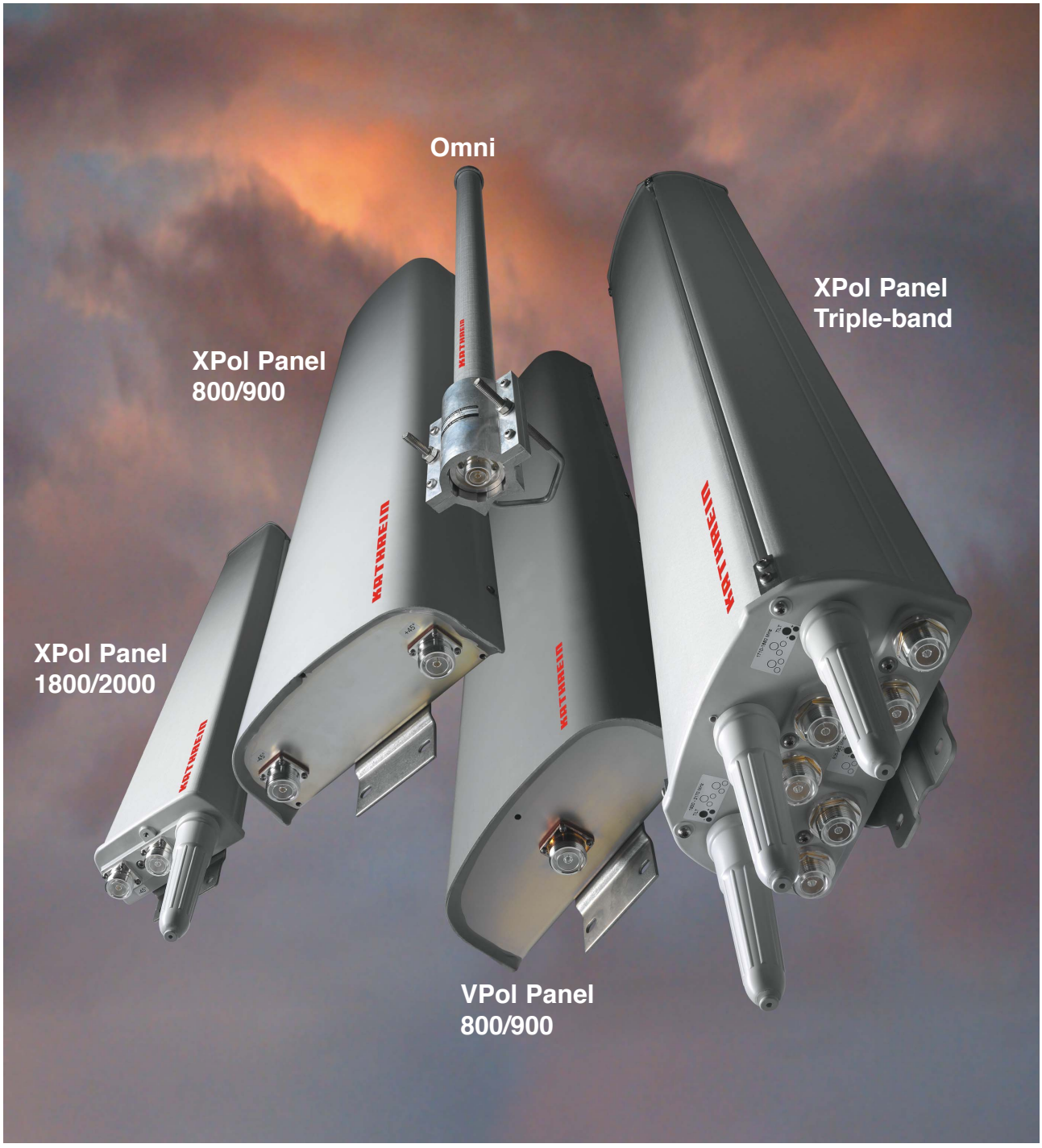
Omni
XPol Panel
800/900
XPol Panel
Triple-band
XPol Panel
1800/2000
VPol Panel
800/900

Directional Antenna Designs:
Special Directional Antennas
For Particular Applications

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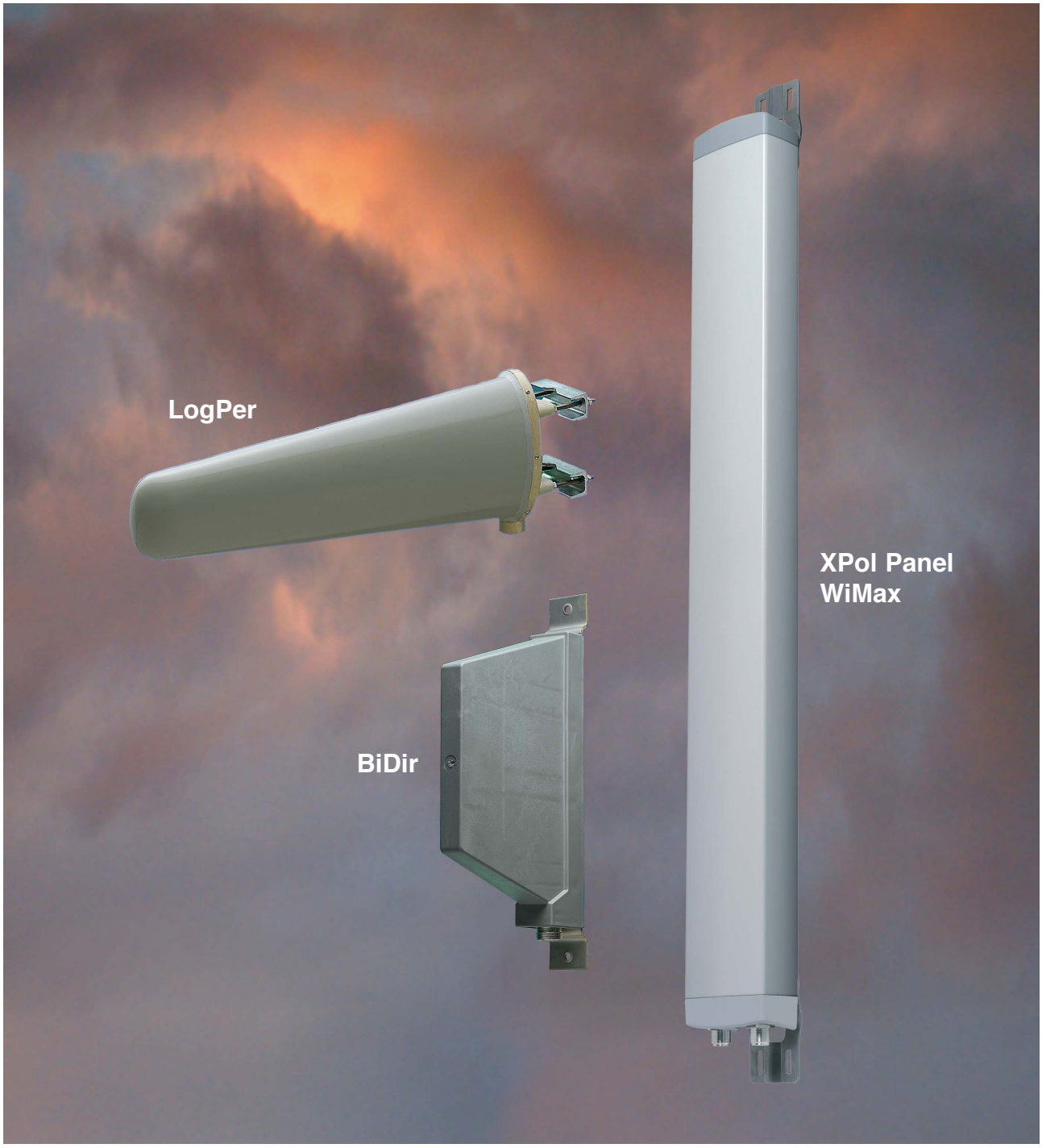
Antennas for

- **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.**



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

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 varity 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 mechnical 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 Electical 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.

Mechanical downtilt

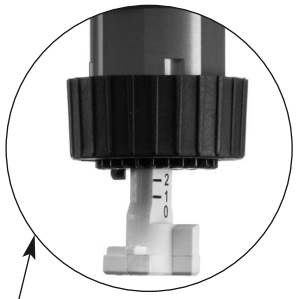
For further technical information please see “Mechanical Accessories”, pages 238 – 242.

Electrical downtilt

Description of the adjustment mechanism (protective cap removed):

① Adjustment wheel with twist-lock function.
② Downtilt spindle with integrated scale.

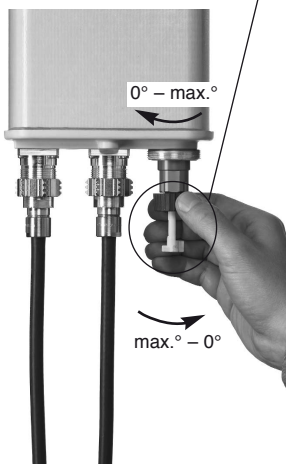
① Thread for fixing the protective cap or the RCU (Remote Control Unit).
② Gearwheel for RCU power drive.



To set the downtilt angle exactly, you must look horizontally at the scale. The lower edge of the gearwheel must be used for alignment.

Manual adjustment procedure:

Remove the protective cap.



Set downtilt angle by rotating the adjustment wheel.

Screw on the protective cap again.

For antennas without RET, the interface looks different. In this case you just have to rotate the adjustment wheel in order to set the downtilt.

Remote Electrical Tilt (RET)

For further technical information please see “RET”, pages 174 – 183.

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)

Summary – Directional Antennas
Dual Polarization +45°/–45°
800/900

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Dual Polarization +45°/–45°

Type					Type No.	Height [mm]	Connector position	Page
XPol Panel	870–960	30°	15.5dBi	0°T	741 717	656	bottom	14
XPol Panel	806–960	30°	18.5dBi	0°T	800 10141	1296	bottom	15
XPol Panel	806–960	33°	21dBi	0°T	800 10302	2254	rearside	16
XPol Panel	806–960	30°	21dBi	0°–10°T	**800 10456**	2254	bottom	17
XPol Panel	806–960	65°	9dBi	0°T	739 619	256	bottom or top	18
XPol Panel	806–960	65°	12.5dBi	0°T	739 620	656	bottom or top	18
XPol Panel	806–960	65°	15.5dBi	0°T	800 10202	1294	bottom	19
XPol Panel	806–960	65°	15dBi	6°T	800 10207	1294	bottom	20
XPol Panel	806–960	65°	15dBi	0°–14°T	800 10303	1294	bottom	21
XPol Panel	806–960	65°	17dBi	0°T	800 10203	1934	rearside	22
XPol Panel	806–960	65°	17dBi	3°T	800 10293	1934	rearside	23
XPol Panel	806–960	65°	17dBi	6°T	800 10294	1934	rearside	24
XPol Panel	824–960	65°	17dBi	9°T	741 622	1936	bottom	25
XPol Panel	806–960	65°	16.3dBi	0°–10°T	800 10304	1694	rearside	26
XPol Panel	806–960	65°	18dBi	0°T	800 10204	2254	rearside	27
XPol Panel	806–960	65°	17.5dBi	0°–8°T	800 10305	2254	rearside	28
XPol Panel	870–960	65°	18dBi	0°T	739 630	2580	bottom or top	29
XPol Panel	806–960	65°	18dBi	6°T	739 636	2580	bottom	29
XPol Panel	806–960	65°	18dBi	9°T	739 637	2580	bottom	30
XPol Panel	806–960	65°	17.5dBi	0°–10°T	**800 10306**	2574	bottom	31
XPol Panel	806–960	88°	13.5dBi	0°T	739 648	1296	bottom or top	32
XPol Panel	806–960	88°	14dBi	6°T	739 658	1296	bottom	33
XPol Panel	824–960	88°	13.5dBi	0°–14°T	739 664	1296	bottom	34
XPol Panel	806–960	88°	15.5dBi	0°T	739 649	1936	bottom or top	35
XPol Panel	806–960	88°	15.5dBi	6°T	739 660	1936	bottom	35
XPol Panel	806–960	88°	15dBi	0°–10°T	739 665	1996	bottom	36
XPol Panel	806–960	88°	17dBi	0°T	800 10213	2254	rearside	37
XPol Panel	806–960	88°	17dBi	6°T	739 662	2580	bottom	38
XPol Panel	806–960	88°	16dBi	0°–7°T	739 666	2580	bottom	39

New Products

Panel
Dual Polarization
Half-power Beam Width

870–960

X

30°

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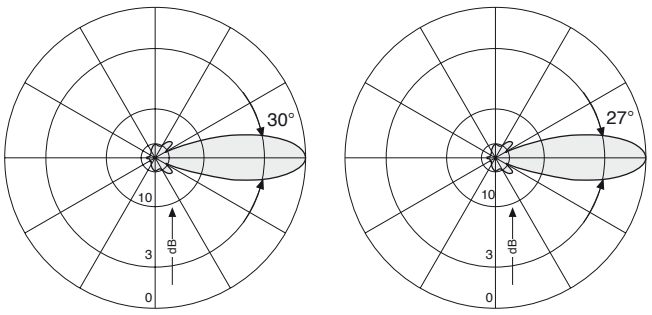
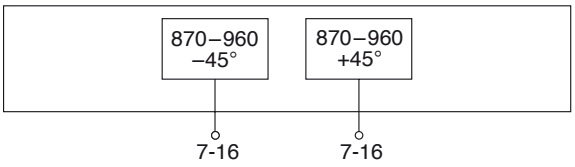
XPol Panel 870–960 30° 15.5dBi

Type No.	741 717
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 27°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	500 W (at 50 °C ambient temperature)

+45°/–45° Polarization



Horizontal Pattern | Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	13 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 60 N (at 150 km/h) Rearside: 470 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	752 x 572 x 254 mm
Height/width/depth	656 / 560 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width

806–960
X
30°

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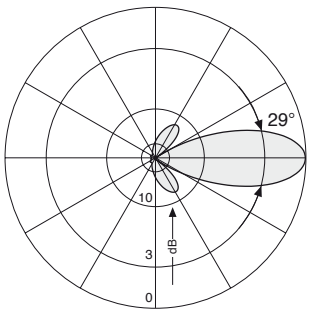
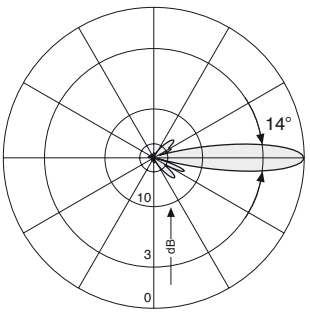
XPol Panel 806–960 30° 18.5dBi

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
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	

880 – 960 MHz: +45°/–45° Polarization

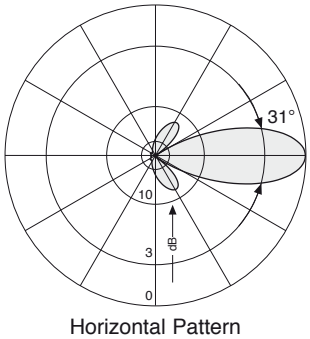


Horizontal Pattern

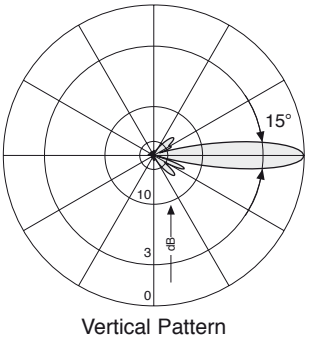


Vertical Pattern

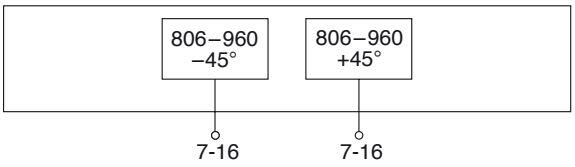
806 – 894 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	22 kg
Wind load	Frontal: 680 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 970 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1392 x 572 x 254 mm
Height/width/depth	1296 / 560 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

806–960
X
33°
0°

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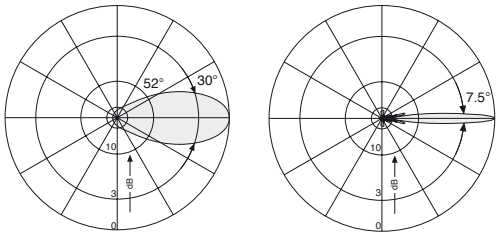
XPol Panel 806–960 33° 21dBi 0°T

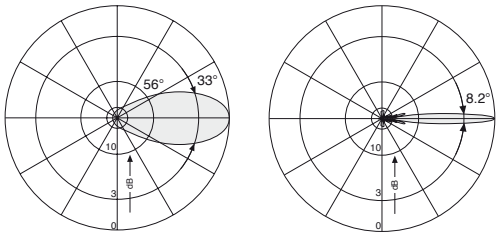
Type No.	800 10302		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.2 dBi	2 x 20.4 dBi	2 x 20.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 34° Vertical: 8.5°	Horizontal: 33° Vertical: 8.2°	Horizontal: 30° Vertical: 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
Impedance 50 Ω	50 Ω	50 Ω	
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



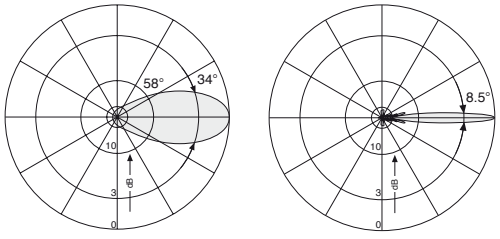
Horizontal Pattern Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

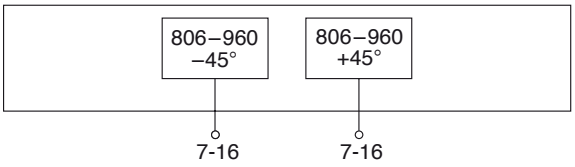


Horizontal Pattern Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Weight	30 kg
Wind load	Frontal: 1275 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 1750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2416 x 564 x 204 mm
Height/width/depth	2254 / 527 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel 806–960
Dual Polarization X
Half-power Beam Width 30°
Adjust. Electrical Downtilt 0°–10°

set by hand or by optional RCU (Remote Control Unit)

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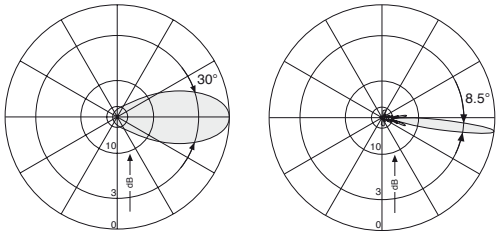
Preliminary Issue

XPol Panel 806–960 30° 21dBi 0°–10°T

Type No.	800 10456		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain	2 x 20.2 dBi	2 x 20.4 dBi	2 x 20.8 dBi
Horizontal Pattern:			
Half-power beam width	30°	30°	30°
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0°	Typically: 20 dB	Typically: 20 dB	Typically: 20 dB
Vertical Pattern:			
Half-power beam width	9.1°	8.8°	8.5°
Electrical tilt	0°–10°, continuously adjustable		
Sidelobe suppression for first sidelobe above main beam	> 15 dB	> 15 dB	> 15 dB

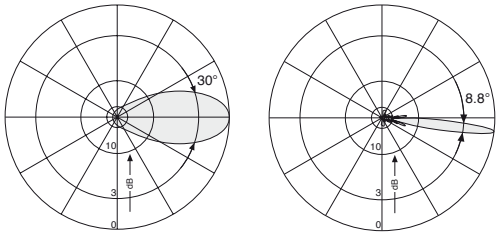
Impedance	50 Ω
VSWR	< 1.5
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	500 W (at 50 °C ambient temperature)

880 – 960 MHz: +45°/–45° Polarization



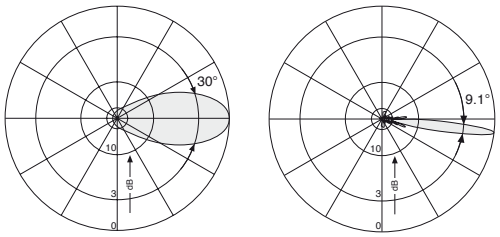
Horizontal Pattern — Vertical Pattern 0°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

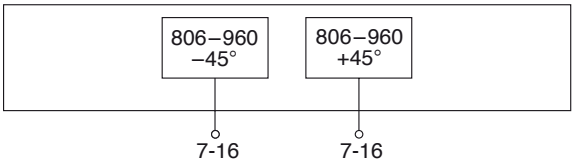


Horizontal Pattern — Vertical Pattern 0°–10° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–10° electrical downtilt



Mechanical specifications	
Input	2x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	20 kg
Wind load	Frontal: 1800 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 2000 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2536 x 590 x 140 mm
Height/width/depth	2254 / 576 / 99 mm

Panel
Dual Polarization
Half-power Beam Width

806–960
X
65°

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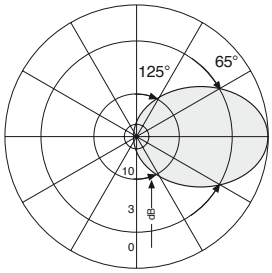
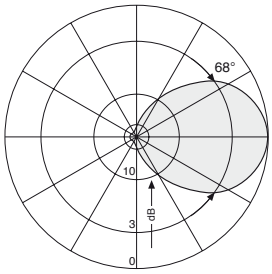
XPol Panel 806–960 65° 9dBi

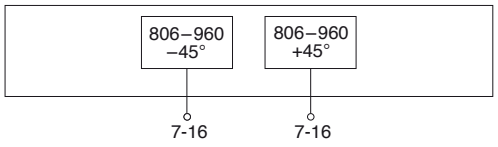
Type No.	739 619	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 9 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 70°	Horizontal: 65° Vertical: 68°
Front-to-back ratio, copolar	> 27 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
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 N / 25 N / 90 N	
Max. wind velocity	200 km/h	
Height/width/depth	256 / 262 / 116 mm	



Horizontal Pattern

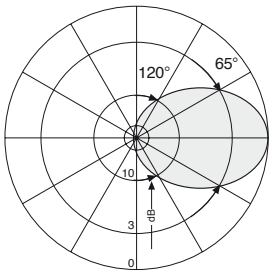


Vertical Pattern

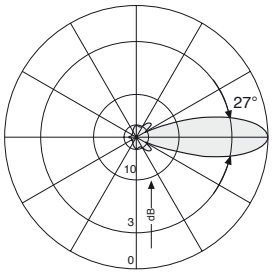


XPol Panel 806–960 65° 12.5dBi

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	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
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 N / 60 N / 240 N	
Max. wind velocity	200 km/h	
Height/width/depth	656 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

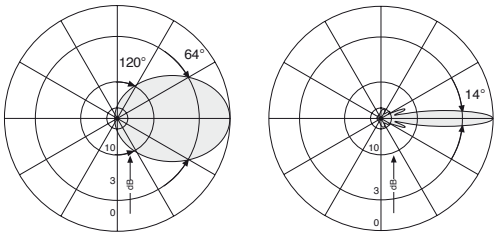
806–960
X
65°
0°

KATHREIN
Antennen · Electronic

XPol Panel 806–960 65° 15.5dBi 0°T

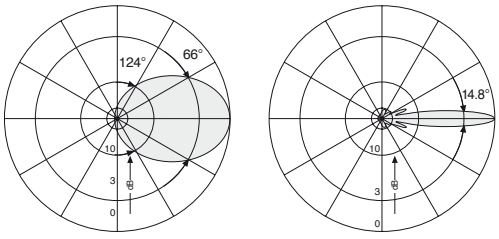
Type No.	800 10202		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 15.5°	Horizontal: 66° Vertical: 14.8°	Horizontal: 64° Vertical: 14°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	 > 15 dB > 15 dB	 > 15 dB > 15 dB	 > 14 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Crosspolar ratio Maindirection 0° Sector ±30° Sector ±60°	 > 20 dB > 19 dB > 11 dB	 > 20 dB > 19 dB > 11 dB	 > 20 dB > 20 dB > 11 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



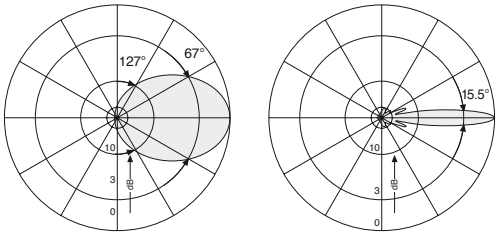
Horizontal Pattern Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

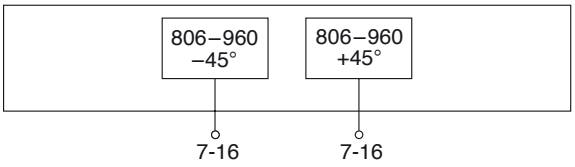


Horizontal Pattern Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	7.5 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1436 x 292 x 138 mm
Height/width/depth	1294 / 259 / 99 mm

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

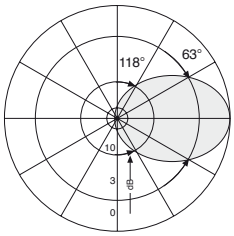
806–960
X
65°
6°

KATHREIN
Antennen · Electronic

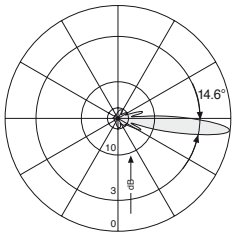
XPol Panel 806–960 65° 15dBi 6°T

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°	 Tpyically: > 20 dB Typically: > 10 dB	 Typically: > 20 dB Typically: > 10 dB	 Typically: > 20 dB Typically: > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.3	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

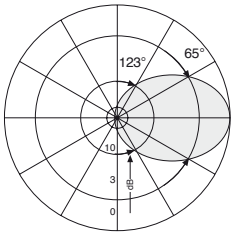


Horizontal Pattern

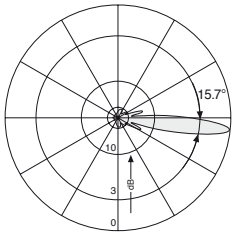


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

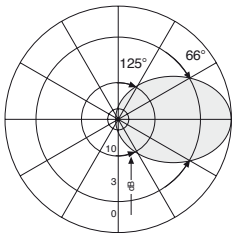


Horizontal Pattern

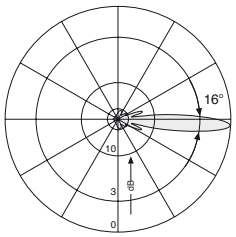


Vertical Pattern
6° electrical downtilt

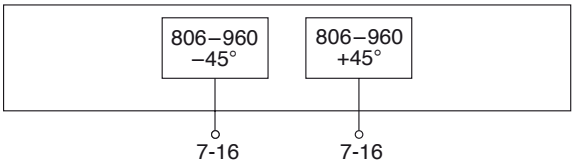
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications		
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	7.5 kg	
Wind load	Frontal: Lateral: Rearside:	220 N (at 150 km/h) 140 N (at 150 km/h) 490 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	1436 x 292 x 138 mm	
Height/width/depth	1294 / 259 / 99 mm	

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel 806–960
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electr. Downtilt 0°–14°

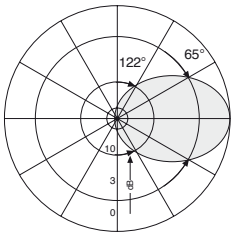
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

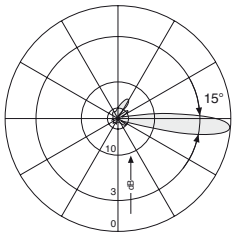
XPol Panel 806–960 65° 15dBi 0°–14°T

Type No.	800 10303		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	14.5 ... 14.5 ... 14.2 0° ... 7° ... 14°	14.7 ... 14.7 ... 14.5 0° ... 7° ... 14°	15 ... 15.1 ... 14.8 0° ... 7° ... 14°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 16°	Horizontal: 67° Vertical: 15.5°	Horizontal: 65° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°	0°–14°
Sidelobe suppression for first sidelobe above horizon	0° ... 7° ... 14° 14 ... 14 ... 13 dB	0° ... 7° ... 14° 15 ... 15 ... 14 dB	0° ... 7° ... 14° 15 ... 15 ... 15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

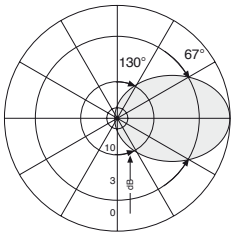


Horizontal Pattern

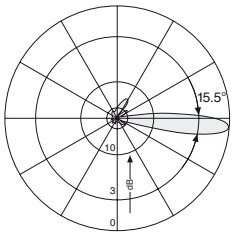


Vertical Pattern
0°–14° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

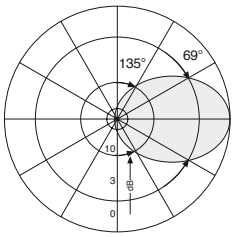


Horizontal Pattern

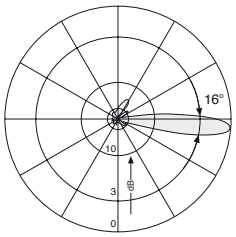


Vertical Pattern
0°–14° electrical downtilt

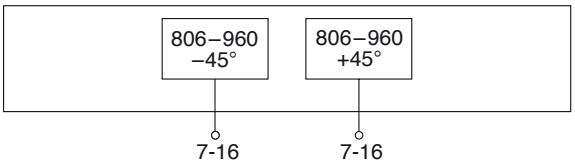
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1586 x 292 x 138 mm
Height/width/depth	1294 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

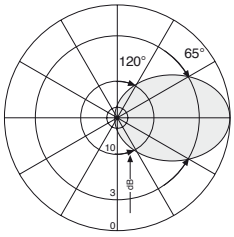
806–960
X
65°
0°

KATHREIN
Antennen · Electronic

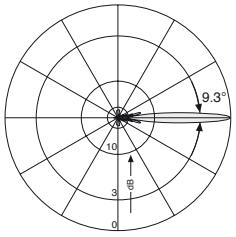
XPol Panel 806–960 65° 17dBi 0°T

Type No.	800 10203		
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: 65° Vertical: 9.3°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	 > 17 dB > 15 dB	 > 17 dB > 15 dB	 > 17 dB > 15 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 ±30° Sector ±60°	 > 20 dB > 18 dB > 12 dB	 > 20 dB > 18 dB > 12 dB	 > 20 dB > 18 dB > 12 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

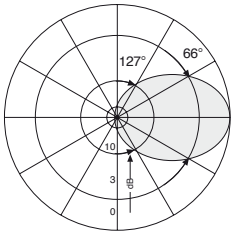


Horizontal Pattern

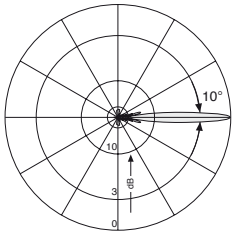


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

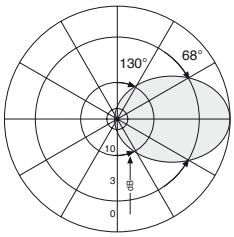


Horizontal Pattern

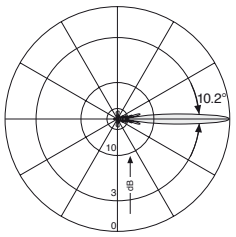


Vertical Pattern

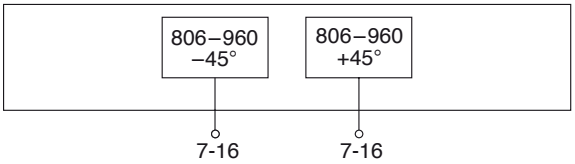
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2066 x 292 x 192 mm
Height/width/depth	1934 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

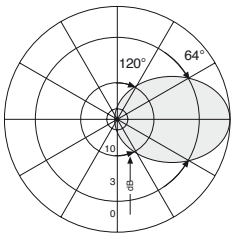
806–960
X
65°
3°

KATHREIN
Antennen · Electronic

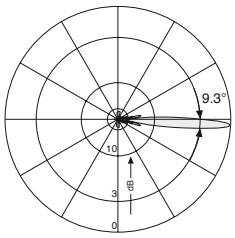
XPol Panel 806–960 65° 17dBi 3°T

Type No.	800 10293		
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	3°, fixed	3°, fixed	3°, fixed
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	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30° Sector ±60°	 > 20 dB > 17 dB > 10 dB	 > 20 dB > 17 dB > 10 dB	 > 20 dB > 17 dB > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

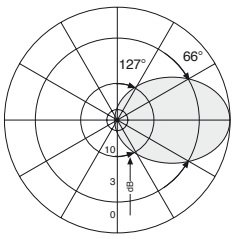


Horizontal Pattern

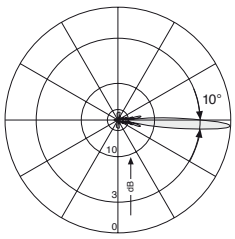


Vertical Pattern
3° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

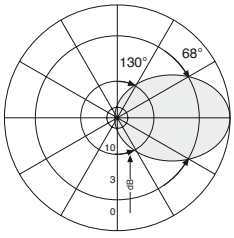


Horizontal Pattern

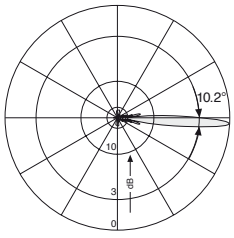


Vertical Pattern
3° electrical downtilt

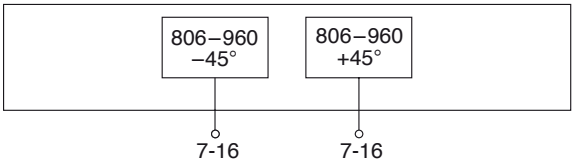
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
3° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2066 x 292 x 192 mm
Height/width/depth	1934 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

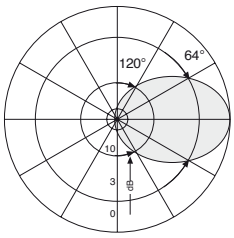
806–960
X
65°
6°

KATHREIN
Antennen · Electronic

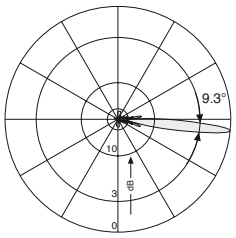
XPol Panel 806–960 65° 17dBi 6°T

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 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

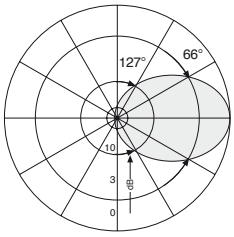


Horizontal Pattern

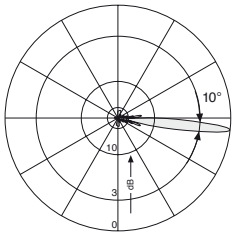


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

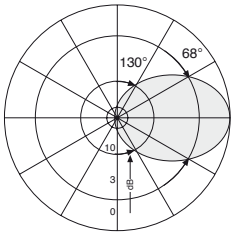


Horizontal Pattern

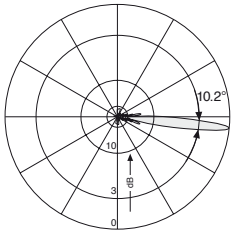


Vertical Pattern
6° electrical downtilt

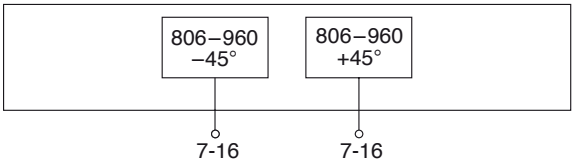
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2066 x 292 x 192 mm
Height/width/depth	1934 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width

824–960

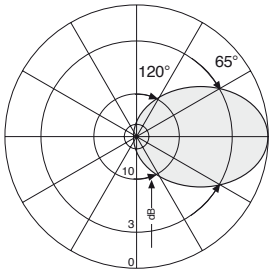
X

65°

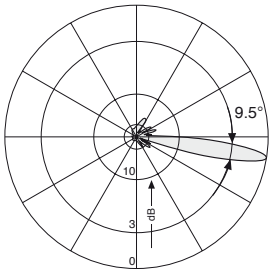
KATHREIN
Antennen · Electronic

XPol Panel 824–960 65° 17dBi 9°T

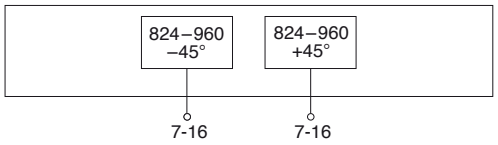
Type No.	741 622	
Frequency range	824–960	
	824 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt	9°, fixed	9°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 16 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 32 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
9° electrical downtilt



Panel 806–960
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electr. Downtilt 0°–10°

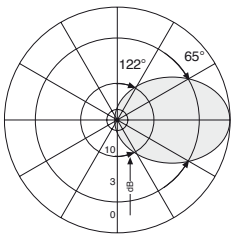
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

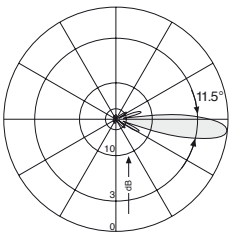
XPol Panel 806–960 65° 16.3dBi 0°–10°T

Type No.	800 10304		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Average gain (dBi) Tilt	15.6 ... 15.8 ... 15.5 0° ... 5° ... 10°	15.7 ... 16.1 ... 15.7 0° ... 5° ... 10°	16 ... 16.3 ... 15.9 0° ... 5° ... 10°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 12.5°	Horizontal: 67° Vertical: 12°	Horizontal: 65° Vertical: 11.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 3° ... 6° ... 10°T 15 ... 14 ... 12 ... 12 dB	0° ... 3° ... 6° ... 10°T 15 ... 15 ... 15 ... 14 dB	0° ... 3° ... 6° ... 10°T 15 ... 15 ... 15 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

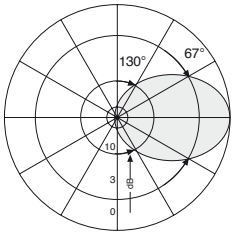


Horizontal Pattern

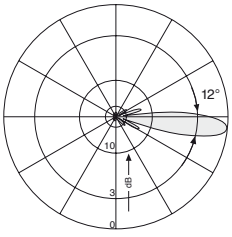


Vertical Pattern
0°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

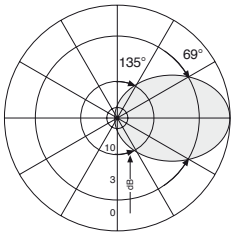


Horizontal Pattern

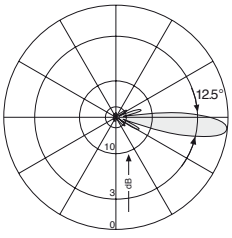


Vertical Pattern
0°–10° electrical downtilt

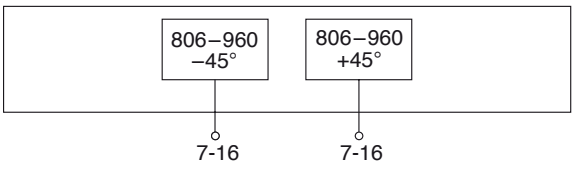
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	13 kg
Wind load	Frontal: 300 N (at 150 km/h) Lateral: 195 N (at 150 km/h) Rearside: 660 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1976 x 292 x 192 mm
Height/width/depth	1694 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

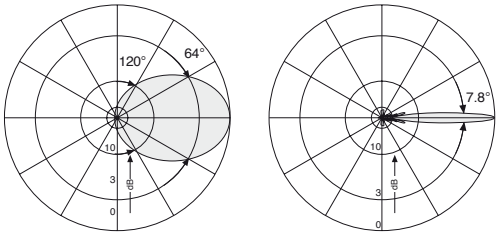
806–960	
X	
65°	
0°	

KATHREIN
Antennen · Electronic

XPol Panel 806–960 65° 18dBi 0°T

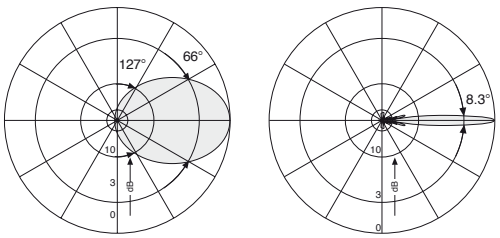
Type No.	800 10204		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.4 dBi	2 x 17.6 dBi	2 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.5°	Horizontal: 66° Vertical: 8.3°	Horizontal: 64° Vertical: 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
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30° Sector ±60°	 > 18 dB > 16 dB > 10 dB	 > 19 dB > 16 dB > 10 dB	 > 20 dB > 17 dB > 11 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



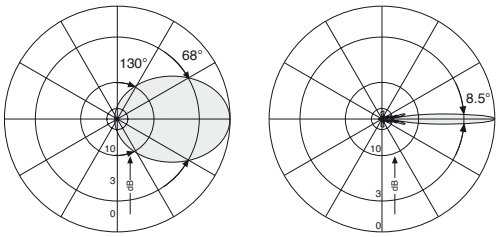
Horizontal Pattern Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

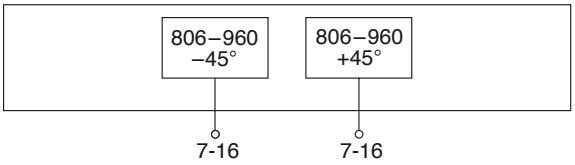


Horizontal Pattern Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	12.5 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2386 x 292 x 192 mm
Height/width/depth	2254 / 259 / 99 mm

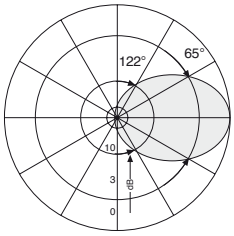
Panel 806–960
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–8°

set by hand or by optional RCU (Remote Control Unit)

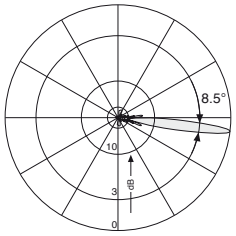
XPol Panel 806–960 65° 17.5dBi 0°–8°T

Type No.	800 10305		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	16.8 ... 17 ... 16.7 0° ... 4° ... 8°	16.9 ... 17.1 ... 16.9 0° ... 4° ... 8°	17.2 ... 17.4 ... 17.1 0° ... 4° ... 8°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 9.1°	Horizontal: 67° Vertical: 8.8°	Horizontal: 65° Vertical: 8.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 8° T 17 ... 16 ... 15 ... 14 dB	0° ... 2° ... 4° ... 8° T 17 ... 16 ... 15 ... 14 dB	0° ... 2° ... 4° ... 8° T 20 ... 18 ... 17 ... 15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB Typically: > 10 dB	Typically: 25 dB Typically: > 10 dB	Typically: 25 dB Typically: > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

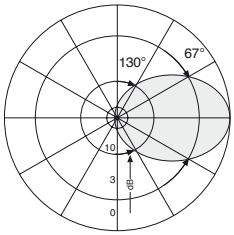


Horizontal Pattern

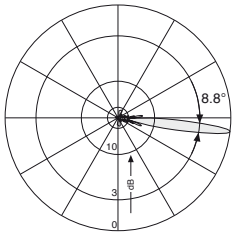


Vertical Pattern
0°–8° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

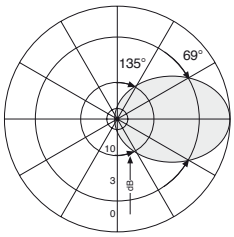


Horizontal Pattern

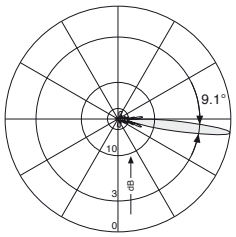


Vertical Pattern
0°–8° electrical downtilt

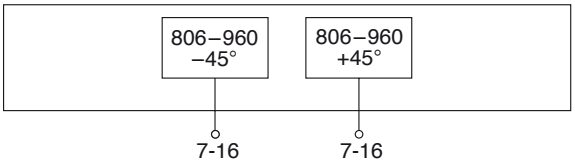
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	16 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2536 x 292 x 192 mm
Height/width/depth	2254 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

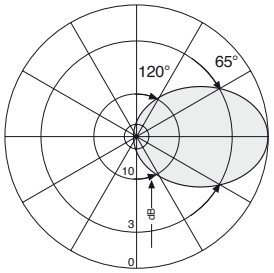
Panel
Dual Polarization
Half-power Beam Width

800/900
X
65°

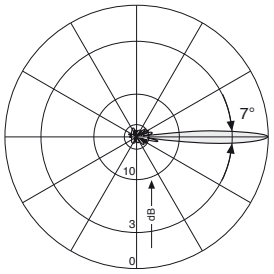
KATHREIN
Antennen · Electronic

XPol Panel 870–960 65° 18dBi

Type No.	739 630
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB
Front-to-back ratio, copolar	> 30 dB
Isolation	> 32 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	600 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: 470 N / 280 N / 1040 N
Max. wind velocity	200 km/h
Height/width/depth	2580 / 262 / 116 mm

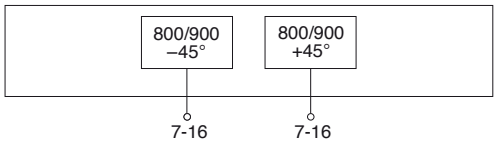


Horizontal Pattern



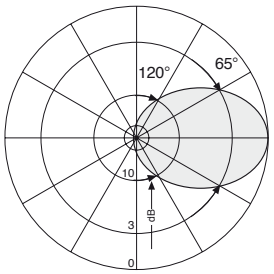
Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain

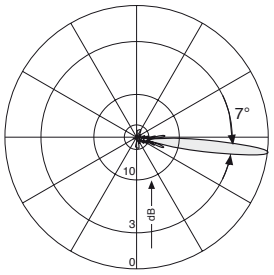


XPol Panel 806–960 65° 18dBi 6°T

Type No.	739 636	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 7.5°	Horizontal: 65° Vertical: 7°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width

806–960

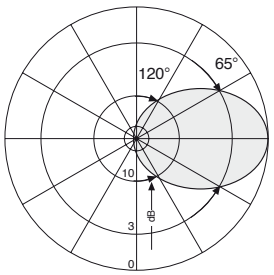
X

65°

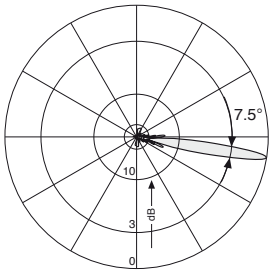
KATHREIN
Antennen · Electronic

XPol Panel806–960 65° 18dBi 9°T

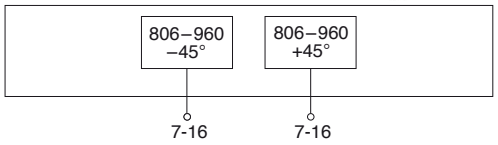
Type No.	739 637	
Frequency range	806–960	
	806 – 870 MHz	870 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7.5°	
Electrical tilt	9°, fixed	
Sidelobe suppression for first sidelobe above horizon	better 18 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
9° electrical downtilt



Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel 806–960
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–10°

set by hand or by optional RCU (Remote Control Unit)

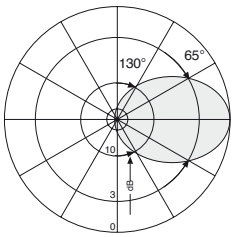
KATHREIN
Antennen · Electronic

XPol Panel 806–960 65° 17.5dBi 0°–10°T

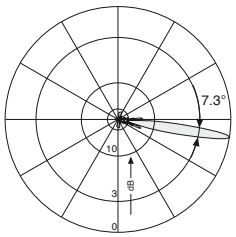
Type No.	800 10306		
Frequency range	806 – 866 MHz	806–960 824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	17.0 ... 17.1 ... 17.0 0.5° ... 5° ... 9.5°	17.1 ... 17.2 ... 17.1 0.5° ... 5° ... 9.5°	17.3 ... 17.4 ... 17.3 0.5° ... 5° ... 9.5°
Horizontal Pattern:			
Half-power beam width	68°	66°	65°
Front-to-back ratio (180°±30°)	> 24 dB	> 25 dB	> 25 dB
Cross polar ratio 0° Sector ±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		

Impedance	50 Ω
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)

880 – 960 MHz: +45°/–45° Polarization

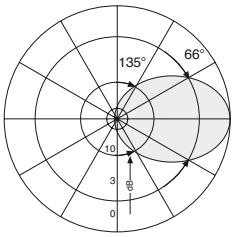


Horizontal Pattern

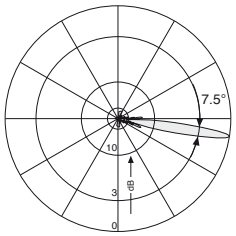


Vertical Pattern
0.5°–9.5° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

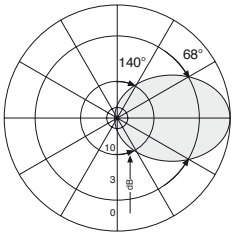


Horizontal Pattern

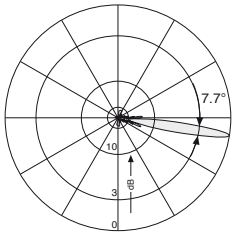


Vertical Pattern
0.5°–9.5° electrical downtilt

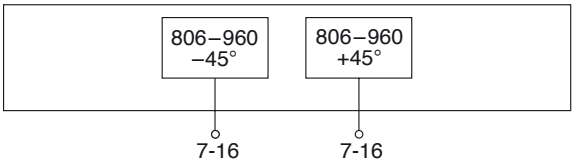
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0.5°–9.5° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 300 N (at 150 km/h) Rearside: 1020 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2876 x 272 x 127 mm
Height/width/depth	2574 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel
Dual Polarization
Half-power Beam Width

806–960

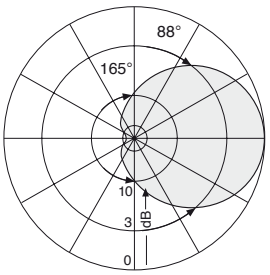
X

88°

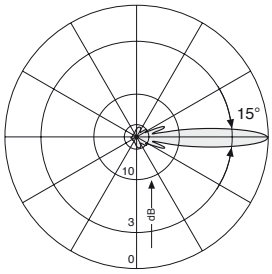
KATHREIN
Antennen · Electronic

XPol Panel 806–960 88° 13.5dBi

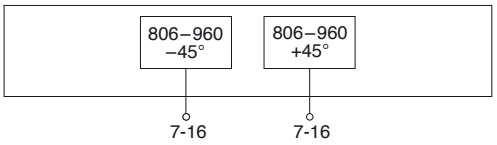
Type No.	739 648	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 13 dBi	2 x 13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 16°	Horizontal: 88° Vertical: 15°
Sidelobe suppression for first sidelobe above horizon	≥ 16 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	8.3 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern



Mounting accessories are not included in the scope of delivery (see page 231 and 238)

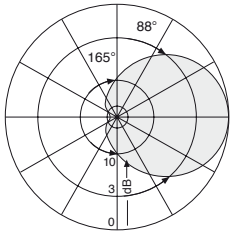
Panel 806–960
Dual Polarization X
Half-power Beam Width 88°
Fixed Electrical Downtilt 6°

KATHREIN
Antennen · Electronic

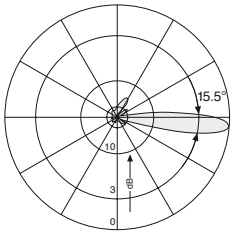
XPol Panel 806–960 88° 14dBi 6°T

Type No.	739 658		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 13.3 dBi	2 x 13.5 dBi	2 x 13.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 17°	Horizontal: 85° Vertical: 16.5°	Horizontal: 88° Vertical: 15.5°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for sector 0°–30° above horizon	16 dB	16 dB	16 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	> 18 dB > 14 dB	> 20 dB > 14 dB	> 20 dB > 14 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

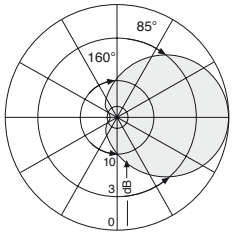


Horizontal Pattern

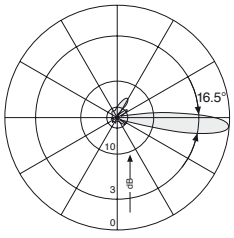


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

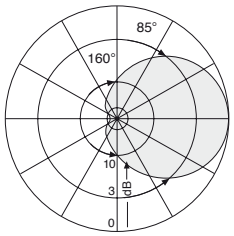


Horizontal Pattern

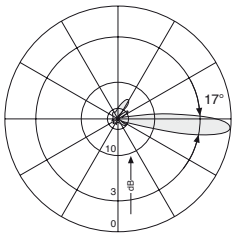


Vertical Pattern
6° electrical downtilt

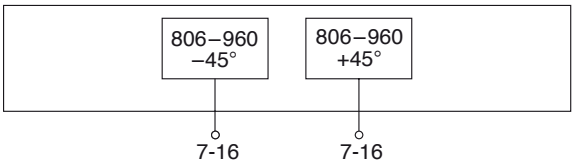
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	8.3 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1425 x 302 x 172 mm
Height/width/depth	1296 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

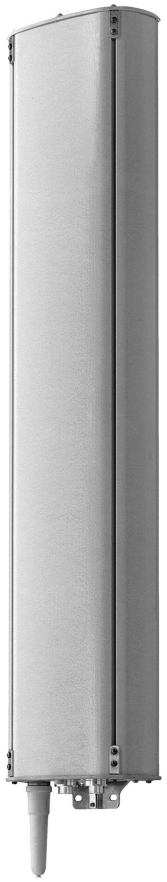
Panel 824–960
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electr. Downtilt 0°–14°

set by hand or by optional RCU (Remote Control Unit)

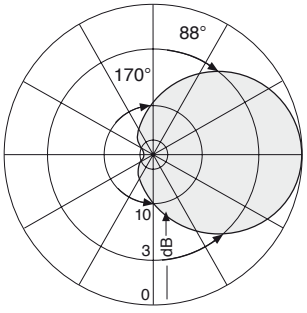
KATHREIN
Antennen · Electronic

XPol Panel 824–960 88° 13.5dBi 0°–14°T

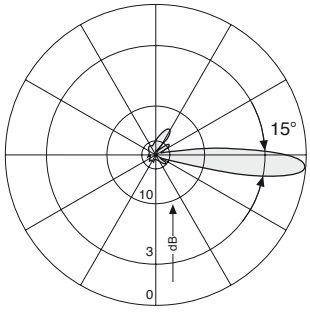
Type No.	739 664	
Frequency range	824–960	
	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	13.5 dBi	13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 15.5°	Horizontal: 88° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 14° T 16 ... 16 ... 16 ... 16 dB	0° ... 4° ... 8° ... 14° T 15 ... 16 ... 16 ... 16 dB
Front-to-back ratio, copolar	> 23 dB	> 23 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	400 W (at 50 °C ambient temperature)	



880 – 960 MHz: +45°/–45° Polarization

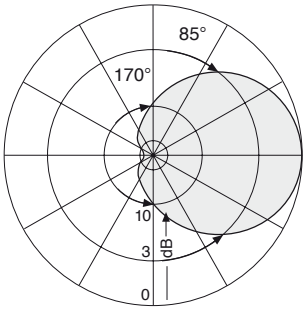


Horizontal Pattern

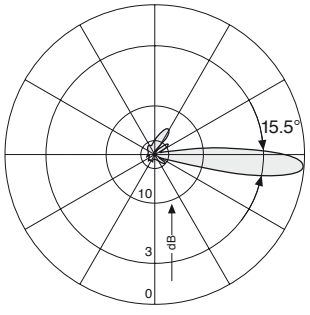


Vertical Pattern
0°–14° electrical downtilt
continuously adjustable

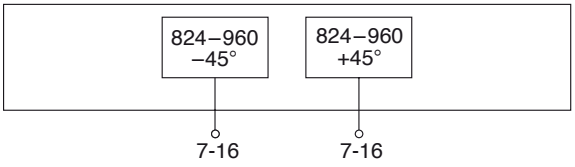
824 – 894 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt
continuously adjustable



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1562 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

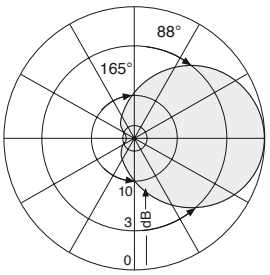
Panel
Dual Polarization
Half-power Beam Width

806–960
X
88°

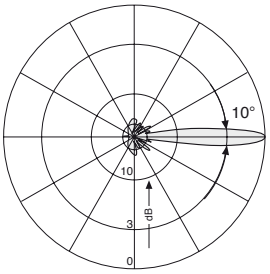
KATHREIN
Antennen · Electronic

XPol Panel 806–960 88° 15.5dBi

Type No.	739 649	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 88° Vertical: 10°
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	17.1 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	

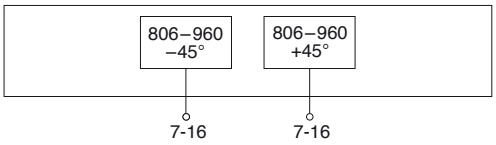


Horizontal Pattern



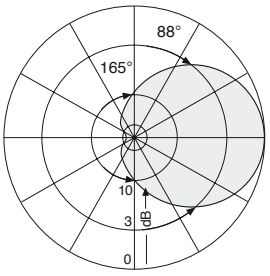
Vertical Pattern

first null-fill below horizon better or equal –25 dB below maximum gain

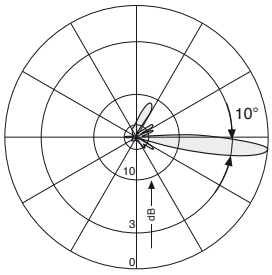


XPol Panel 806–960 88° 15.5dBi 6°T

Type No.	739 660	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 88° Vertical: 10°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	17 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Panel 806–960
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electr. Downtilt 0°–10°

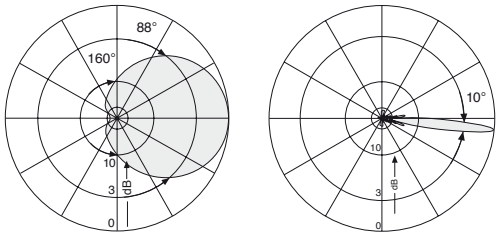
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

XPol Panel 806–960 88° 15dBi 0°–10°T

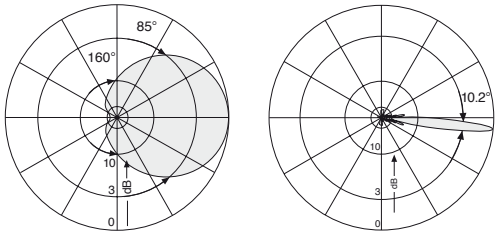
Type No.	739 665		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 15 dBi	2 x 15 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 85° Vertical: 10.2°	Horizontal: 88° Vertical: 10°
Electrical tilt continuously adjustable	0.5°–10°	0.5°–10°	0.5°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 18 ... 18 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



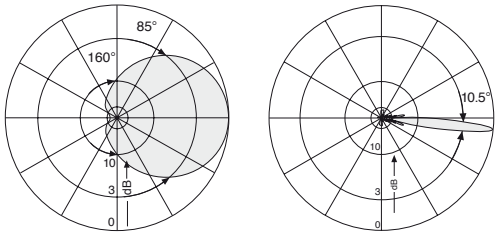
Horizontal Pattern — Vertical Pattern 0.5°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

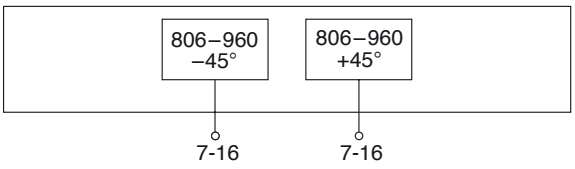


Horizontal Pattern — Vertical Pattern 0.5°–10° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0.5°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2262 x 287 x 165 mm
Height/width/depth	1996 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

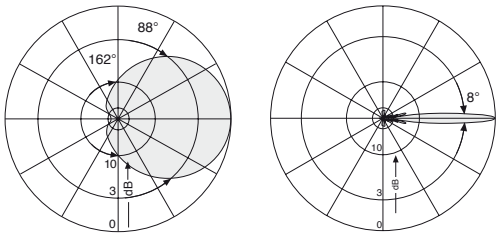
806–960
X
88°
0°

KATHREIN
Antennen · Electronic

XPol Panel 806–960 88° 17dBi 0°T

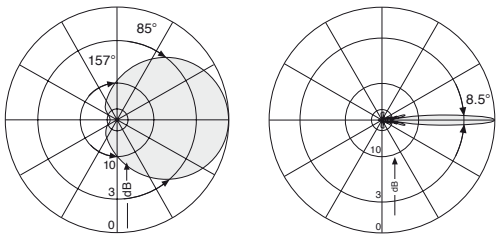
Type No.	800 10213		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.6 dBi	2 x 16.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.7°	Horizontal: 85° Vertical: 8.5°	Horizontal: 88° Vertical: 8°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Sidelobe suppression for first sidelobe above horizon	> 18 dB	> 18 dB	> 18 dB
Front-to-back ratio, copolar	> 28 dB	> 28 dB	> 27 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30° Sector ±60°	 Typically: 20 dB > 20 dB > 15 dB	 Typically: 20 dB > 20 dB > 15 dB	 Typically: 20 dB > 17 dB > 14 dB
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



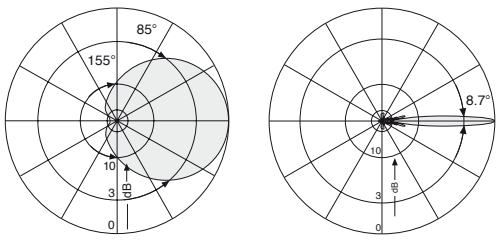
Horizontal Pattern Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

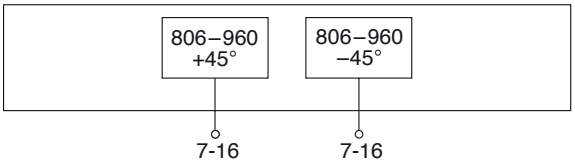


Horizontal Pattern Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	17 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2400 x 292 x 192 mm
Height/width/depth	2254 / 259 / 99 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

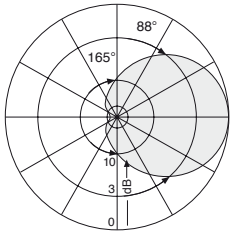
806–960
X
88°
6°

KATHREIN
Antennen · Electronic

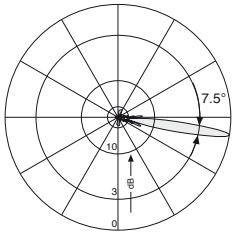
XPol Panel 806–960 88° 17dBi 6°T

Type No.	739 662		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16.3 dBi	2 x 16.5 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.3°	Horizontal: 85° Vertical: 7.9°	Horizontal: 88° Vertical: 7.5°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	16 dB	16 dB	17 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation	> 32 dB	> 32 dB	> 32 dB
Cross polar ratio Maindirection 0° Sector ±60°	 > 23 dB > 14 dB	 > 23 dB > 14 dB	 > 23 dB > 14 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

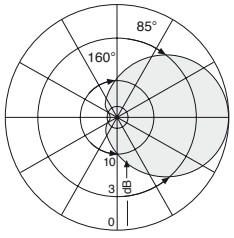


Horizontal Pattern

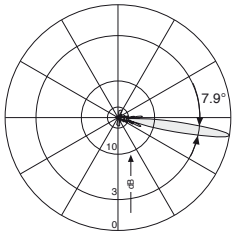


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

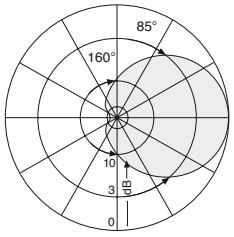


Horizontal Pattern

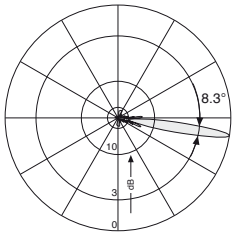


Vertical Pattern
6° electrical downtilt

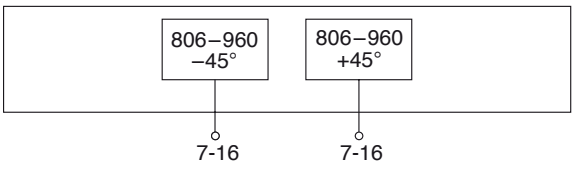
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	21.4 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2721 x 302 x 172 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel 806–960
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electr. Downtilt 0°–7°

set by hand or by optional RCU (Remote Control Unit)

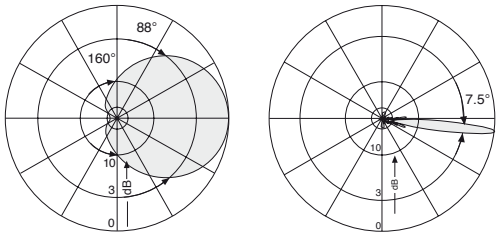
KATHREIN
Antennen · Electronic

XPol Panel 806–960 88° 16dBi 0°–7°T

Type No.	739 666		
Frequency range		806–960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16 dBi	2 x 16.1 dBi	2 x 16.2 dBi
Horizontal Pattern:			
Half-power beam width	85°	85°	88°
Front-to-back ratio, copolar (180°±30°)	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio 0° Sector ±60°	Typically: 25 dB > 15 dB	Typically: 25 dB > 15 dB	Typically: 25 dB > 15 dB
Vertical Pattern:			
Half-power beam width	8.2°	8°	7.5°
Electrical tilt	0°–7°, continuously adjustable		
Sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB

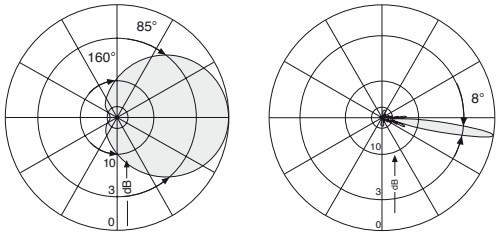
Impedance	50 Ω
VSWR	< 1.5
Isolation	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	400 W (at 50 °C ambient temperature)

880 – 960 MHz: +45°/–45° Polarization



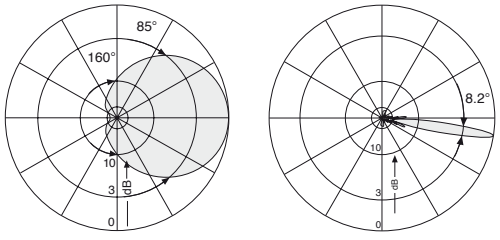
Horizontal Pattern — Vertical Pattern 0°–7° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

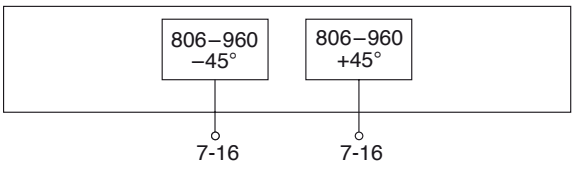


Horizontal Pattern — Vertical Pattern 0°–7° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–7° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	22 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2846 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Summary – Directional Antennas
Vertical Polarization
800/900

KATHREIN
Antennen · Electronic

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	42
VPol LogPer	790–960	51°	12dBi	0°T	K 73 22 67	300	bottom	43
VPol Panel	860–960	65°	9dBi	0°T	730 677	264	bottom or top	44
VPol Panel	870–960	65°	15.5dBi	0°T	730 368	1294	bottom	44
VPol Panel	870–960	65°	15.5dBi	6°T	732 691	1294	bottom	45
VPol Panel	870–960	65°	17dBi	0°T	730 691	1934	rearside	45
VPol Panel	870–960	65°	17dBi	9°T	737 547	1934	rearside	46
VPol Panel	870–960	65°	18.5dBi	0°T	730 376	2574	rearside	46
VPol Panel	870–960	65°	18.5dBi	6°T	732 689	2574	rearside	47
VPol Panel	870–960	65°	19dBi	2°T	741 749	2900	rearside	47
VPol Panel	872–960	90°	7.5dBi	0°T	736 854	262	bottom or top	48
VPol Panel	870–960	90°	17dBi	0°T	730 378	2574	rearside	49
VPol Panel	870–960	90°	17.5dBi	2°T	741 750	2900	rearside	49
VPol Panel	870–960	120°	16dBi	0°T	730 382	2574	rearside	50

Additional versions on request

New Products

Panel
Vertical Polarization
Half-power Beam Width

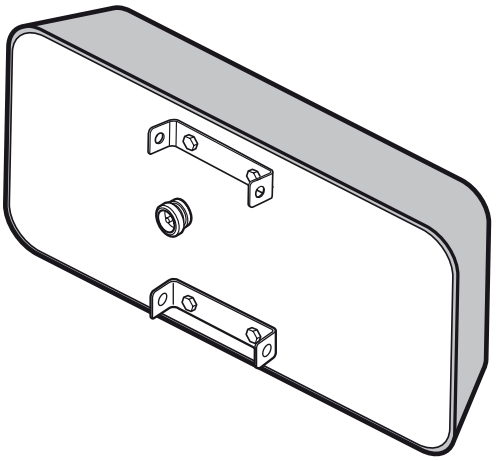
870–960
V
20°

KATHREIN
Antennen · Electronic

VPol Panel 870–960 20° 16.5dBi

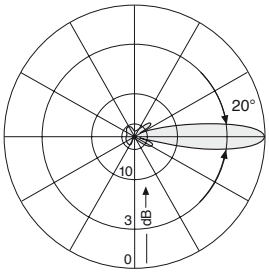
Type No.	735 727
Input	7-16 female
Frequency range	870 – 960 MHz
VSWR	< 1.3
Gain	16.5 dBi
Impedance	50 Ω
Polarization	Vertical
Front-to-back ratio	> 24 dB
Half-power Beam Width	H-plane: 20°/ E-plane: 33°
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
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)
Max. wind velocity	230 km/h
Packing size	1062 x 562 x 275 mm
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.

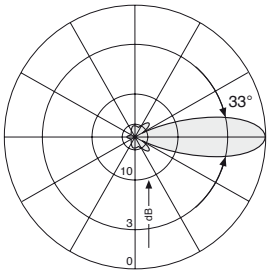


Accessories (order separately)

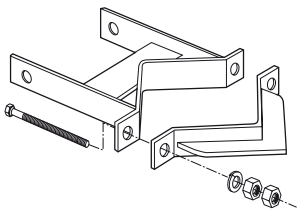
Type No.	Description	Remarks
K 61 14 02	2 clamps	Mast: 60 – 115 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter



Horizontal Pattern



Vertical Pattern


K 61 14 03

Logarithmic periodic
Vertical Polarization
Half-power Beam Width

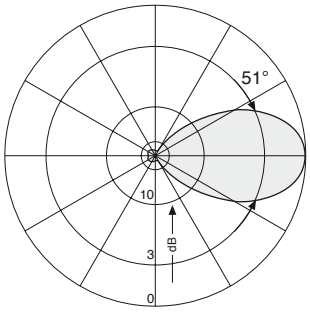
790–960
V
51°

KATHREIN
Antennen · Electronic

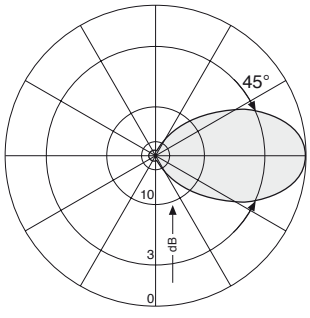
VPol LogPer 790–960 51° 12dBi

Type No.	K 73 22 67
Input	7-16 female
Frequency range	790 – 960 MHz
VSWR	< 1.4
Gain	12 dBi
Impedance	50 Ω
Polarization	Vertical
Side-lobe supression	> 25 dB
Front-to-back ratio	> 30 dB
Half-power Beam Width	Horizontal: 51°/ Vertical: 45°
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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)
Max. wind velocity	200 km/h
Packing size	1000 x 360 x 175 mm
Height/width/depth	300 / 155 / 785 mm

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.



Horizontal Pattern



Vertical Pattern

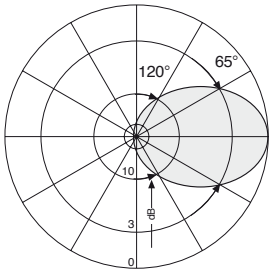
Panel
Vertical Polarization
Half-power Beam Width

900
V
65°

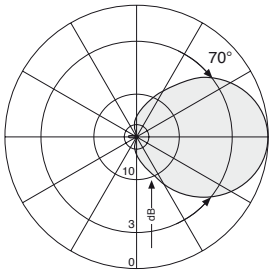
KATHREIN
Antennen · Electronic

VPol Panel 860–960 65° 9dBi

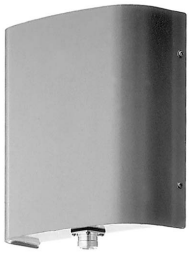
Type No.	730 677
Frequency range	860 – 960 MHz
Polarization	Vertical
Gain	9 dBi
Half-power beam width	H-plane: 65° E-plane: 70°
Front-to-back ratio	> 25 dB (890 – 960 MHz) > 20 dB (860 – 890 MHz)
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	350 W (at 50 °C ambient temperature)
Input	N female
Connector position	Bottom or top
Weight	1.2 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 40 N / 25 N / 90 N
Max. wind velocity	230 km/h
Height/width/depth	264 / 258 / 103 mm



Horizontal Pattern

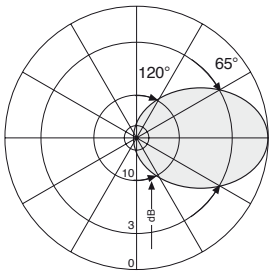


Vertical Pattern

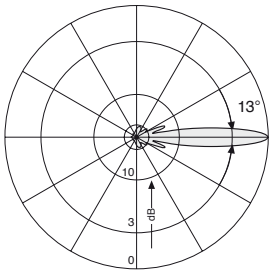


VPol Panel 870–960 65° 15.5dBi

Type No.	730 368
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	15.5 dBI
Half-power beam width	H-plane: 65° E-plane: 13°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 140 N / 490 N
Max. wind velocity	200 km/h
Height/width/depth	1294 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

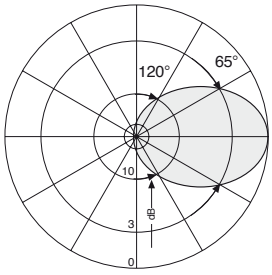
Panel
Vertical Polarization
Half-power Beam Width

800/900
V
65°

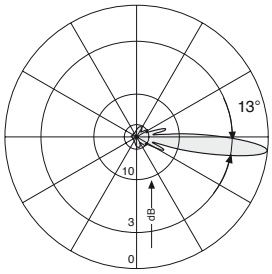
KATHREIN
Antennen · Electronic

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
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 140 N / 490 N
Max. wind velocity	200 km/h
Height/width/depth	1294 / 258 / 103 mm



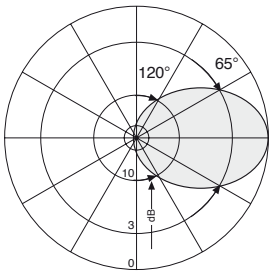
Horizontal Pattern



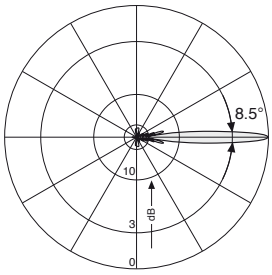
Vertical Pattern
6° electrical downtilt

VPol Panel 870–960 65° 17dBi

Type No.	730 691
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 65° E-plane: 8.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 220 N / 750 N
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

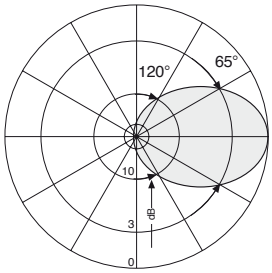
Panel
Vertical Polarization
Half-power Beam Width

870–960
V
65°

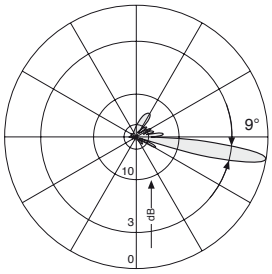
KATHREIN
Antennen · Electronic

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
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 220 N / 750 N
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



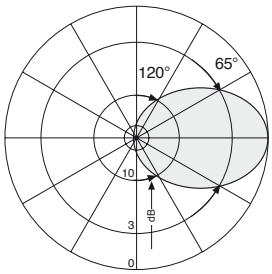
Horizontal Pattern



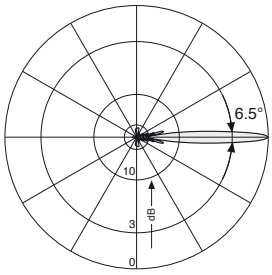
Vertical Pattern
9° electrical downtilt

VPol Panel 870–960 65° 18.5dBi

Type No.	730 376
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18.5 dBi
Half-power beam width	H-plane: 65° E-plane: 6.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Vertical Polarization
Half-power Beam Width

870–960

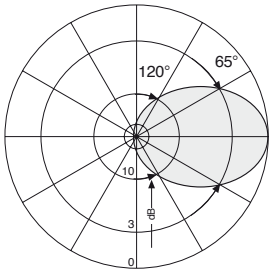
V

65°

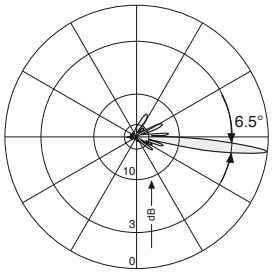
KATHREIN
Antennen · Electronic

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
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



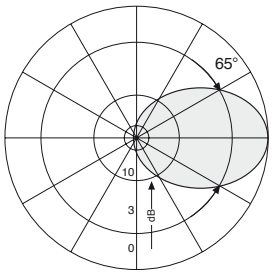
Horizontal Pattern



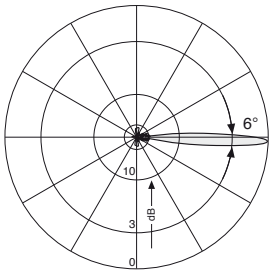
Vertical Pattern
6° electrical downtilt

VPol Panel 870–960 65° 19dBi 2°T

Type No.	741 749
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	1 x 19 dBi
Half-power beam width	Horizontal: 65° Vertical: 6°
Electrical tilt	2°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)
Input	1 x 7-16 female
Connector position	Rearside
Weight	20 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 530 N / 320 N / 1180 N
Max. wind velocity	190 km/h
Height/width/depth	2900 / 262 / 116 mm



Horizontal Pattern



Vertical Pattern
2° electrical downtilt

Panel
Vertical Polarization
Half-power Beam Width

872–960

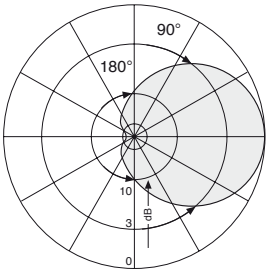
V

90°

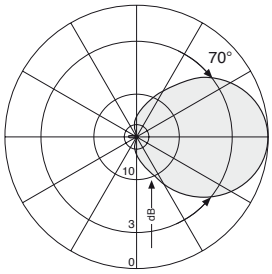
KATHREIN
Antennen · Electronic

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
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –140 dBc
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 N / 20 N / 60 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	262 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Vertical Polarization
Half-power Beam Width

870–960

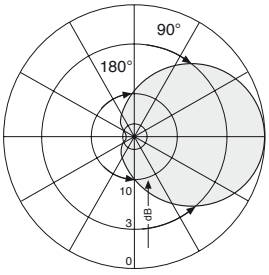
V

90°

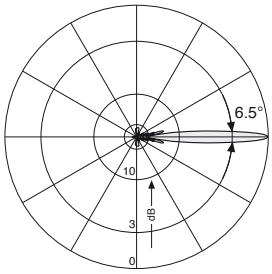
KATHREIN
Antennen · Electronic

VPol Panel 870–960 90° 17dBi

Type No.	730 378
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 90° E-plane: 6.5°
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



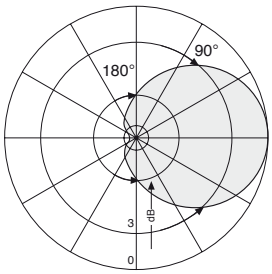
Horizontal Pattern



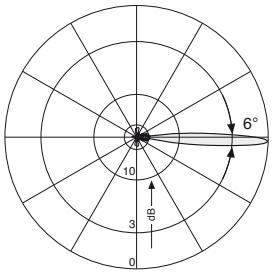
Vertical Pattern

VPol Panel 870–960 90° 17.5dBi 2°T

Type No.	741 750
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	1 x 17.5 dBi
Half-power beam width	Horizontal: 90° Vertical: 6°
Electrical tilt	2°, fixed
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)
Input	1 x 7-16 female
Connector position	Rearside
Weight	20 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 530 N / 320 N / 1180 N (at 150 km/h)
Max. wind velocity	190 km/h
Height/width/depth	2900 / 262 / 116 mm



Horizontal Pattern



Vertical Pattern
2° electrical downtilt

Panel
Vertical Polarization
Half-power Beam Width

870–960

V

120°

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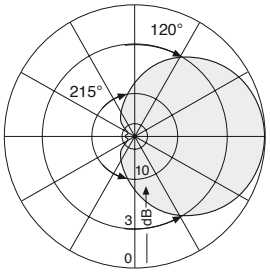
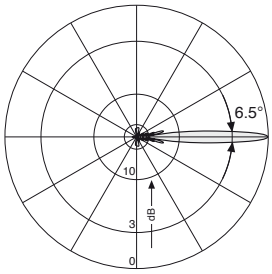
VPol Panel 870–960 120° 16dBi

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
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
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 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Summary – Directional Antennas
Dual Polarization +45°/–45°
1800/1900/2000

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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	52
XPol Panel	1710–2170	33°	21dBi	0°–8°T	742 351	1304	bottom	53
XPol Panel	1710–1880	33°	22dBi	2°T	741 623	1942	bottom	54
XPol Panel	1710–2170	45°	19.5dBi	0°–8°T	742 218	1306	bottom	55
XPol Panel	1710–2180	45°	21.5dBi	0°–6°T	742 219	1946	bottom	56
XPol Panel	1710–2170	65°	9dBi	0°T	742 210	155	bottom or top	57
XPol Panel	1710–2170	65°	12dBi	2°T	739 489	342	bottom	58
XPol Panel	1710–2170	65°	16dBi	0°T	742 196	735	bottom or top	59
XPol Panel	1710–2200	65°	15.5dBi	6°T	800 10424	735	bottom	60
XPol Panel	1710–2170	65°	15.5dBi	0°–10T	742 211	662	bottom	61
XPol Panel	1710–2200	65°	15.5dBi	0°–12°T	800 10247	735	bottom	62
XPol Panel	1710–2200	65°	18.3dBi	0°T	800 10425	1302	bottom	63
XPol Panel	1710–2200	65°	18.3dBi	2°T	800 10426	1302	bottom	64
XPol Panel	1710–2200	65°	18dBi	6°T	800 10428	1302	bottom	65
XPol Panel	1710–2200	65°	18dBi	0°–10°T	742 215	1302	bottom	66
XPol Panel	1710–2200	65°	18dBi	0°–15°T	800 10504	1374	bottom	67
XPol Panel	1710–2170	65°	19.5dBi	2°T	739 498	342	bottom	68
XPol Panel	1710–2170	65°	19.5dBi	0°–6°T	742 213	1942	bottom	69
XPol Panel	1710–2200	65°	19dBi	0°–10°T	800 10505	1984	bottom	70
XPol Panel	1710–2170	65°	20.5dBi	0°T	742 186	2160	bottom	71
XPol Panel	1710–2200	65°	21dBi	0°T	800 10439	2172	bottom or top	72
XPol Panel	1710–1990	90°	8dBi	0°T	739 695	174	bottom or top	73
XPol Panel	1710–2170	88°	11.5dBi	0°T	741 984	342	bottom or top	74
XPol Panel	1710–2170	88°	14dBi	0°–10°T	741 988	662	bottom	75
XPol Panel	1710–2200	88°	17dBi	2°T	741 987	1302	bottom	76
XPol Panel	1710–2200	88°	17dBi	0°–8°T	741 989	1302	bottom	77
XPol Panel	1710–1880	90°	17.5dBi	2°T	739 710	1902	bottom	78
XPol Panel	1710–2170	88°	18dBi	0°–6°T	741 990	1942	bottom	79

Antennas with integrated RET

XPol Panel IRT	1710–2200	65°	18dBi	0°–10°T	800 10314	1302	bottom	80
XPol Panel IRT+ISB	1710–2200	65°	18dBi	0°–10°T	800 10414	1380	bottom	81

Tri-Sector Pipe Antenna

XPol Tri-Sector Pipe	1710–2170	65°	15.5dBi	0°–12°T	800 10375	1241	bottom	82
XPol Tri-Sector Pipe	1710–2170	65°	18dBi	0°–10°T	800 10360	1823	bottom	83
XPol Tri-Sector Pipe	1710–2170	65°	18dBi	0°–10°T	800 10270	2296	bottom	84
XPol Tri-Sector Pipe	1710–2170	65°	19.5dBi	0°–6°T	800 10271	2945	bottom	85
Tri-Sector Service Area					850 10012			86
Flexible Sealing Frame					850 10010			87

New Products

Multi-band Panel 1710–2170
Dual Polarization X
Half-power Beam Width 33°
Adjust. Electrical Downtilt 0°–12°

set by hand or by optional RCU (Remote Control Unit)

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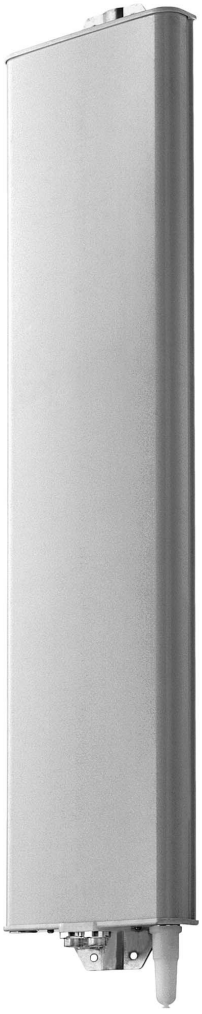
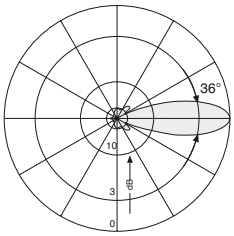


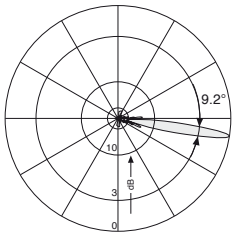
XPol Panel 1710–2170 33° 20dBi 0°–12°T

Type No.	800 10251		
Frequency range	1710 – 1880 MHz	1710–2170 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
Half-power beam width Copolar +45°/–45°	Horizontal: 36° Vertical: 9.2°	Horizontal: 35° Vertical: 9°	Horizontal: 33° Vertical: 8.5°
Electrical tilt continuously adjustable	0°–12°	0°–12°	0°–12°
Sidelobe suppression: Vertical Pattern – first side-lobe above main beam Horizontal Pattern	0° ... 6° ... 12° T 15 ... 17 … 17 dB > 18 dB	0° ... 6° ... 12° T 15 ... 17 ... 17 dB > 17 dB	0° ... 6° ... 12° T 15 ... 17 ... 17 dB > 15 dB
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
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

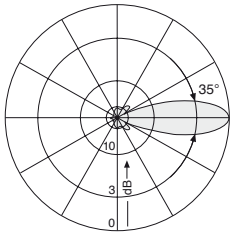


Horizontal Pattern

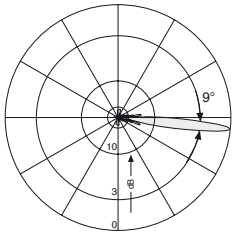


Vertical Pattern
0°–12° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

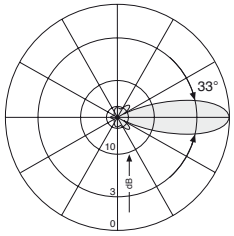


Horizontal Pattern

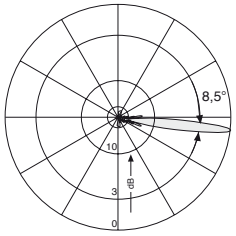


Vertical Pattern
0°–12° electrical downtilt

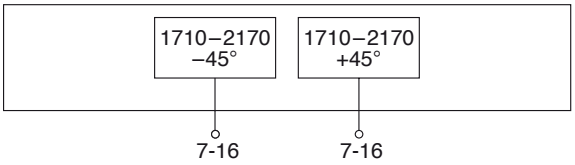
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	11.5 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 90 N (at 150 km/h) Rearside: 460 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1336 x 337 x 112 mm
Height/width/depth	1032 / 299 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel 1710–2170
Dual Polarization X
Half-power Beam Width 33°
Adjust. Electrical Downtilt 0°–8°

set by hand or by optional RCU (Remote Control Unit)

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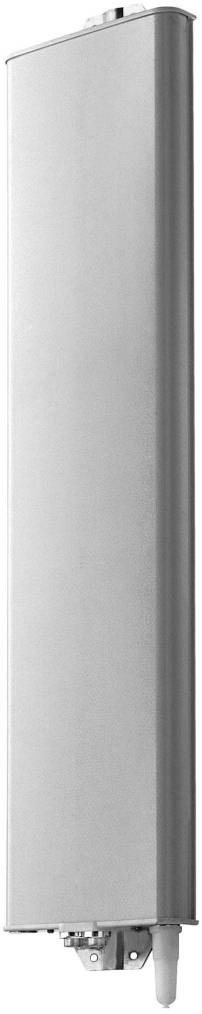
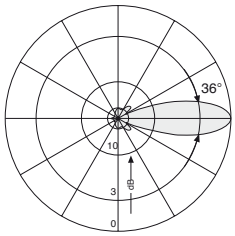


XPol Panel 1710–2170 33° 21dBi 0°–8°T

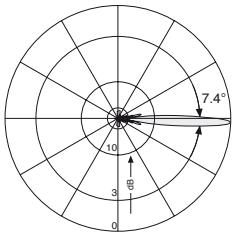
Type No.	742 351		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.2 dBi	2 x 20.5 dBi	2 x 20.7 dBi
Horizontal Pattern:			
Half-power beam width	36°	35°	33°
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar 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

Impedance	50 Ω
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)

1710 – 1880 MHz: +45°/–45° Polarization

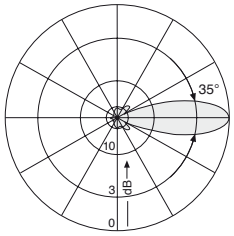


Horizontal Pattern

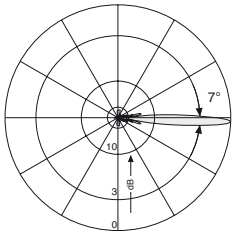


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

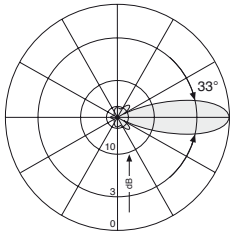


Horizontal Pattern

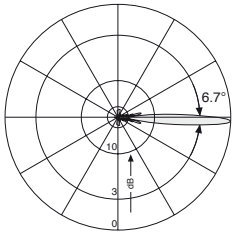


Vertical Pattern
0°–8° electrical downtilt

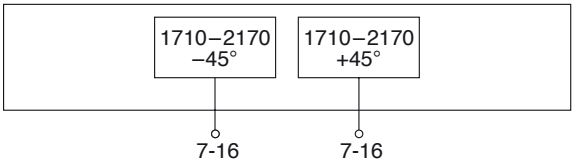
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	13.5 kg
Wind load	Frontal: 570 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 570 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1589 x 322 x 108 mm
Height/width/depth	1304 / 299 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel 1710–1880
Dual Polarization X
Half-power Beam Width 33°
Fixed Electrical Downtilt 2°

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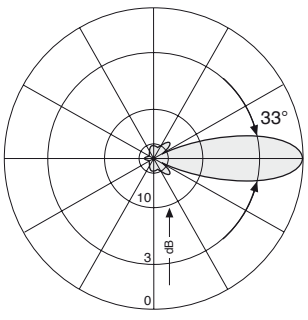
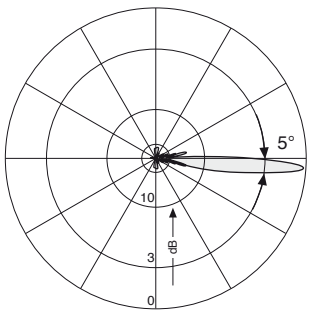
XPol Panel 1710–1880 33° 22dBi 2°T

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	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	200 W (at 50 °C ambient temperature)	

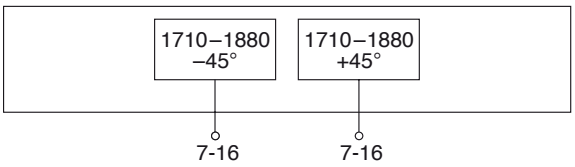
+45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	11 kg
Wind load	Frontal: 540 N (at 150 km/h) Lateral: 210 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 282 x 99 mm
Height/width/depth	1942 / 262 / 59 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel 1710–2170
Dual Polarization X
Half-power Beam Width 45°
Adjust. Electrical Downtilt 0°–8°

set by hand or by optional RCU (Remote Control Unit)

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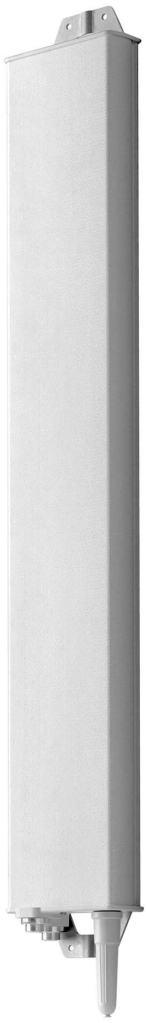
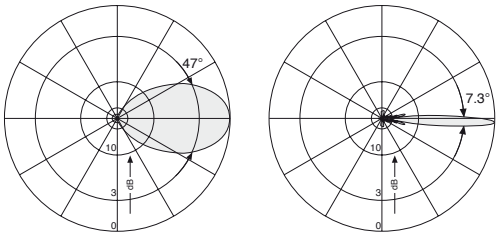


XPol Panel 1710–2170 45° 19.5dBi 0°–8°T

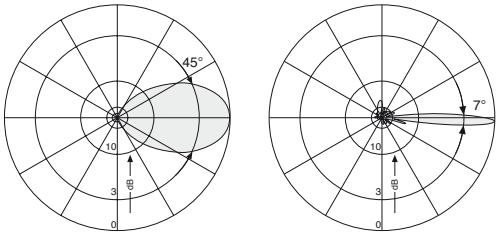
Type No.	742 218		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19 dBi	2 x 19.5 dBi	2 x 19.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 47° Vertical: 7.3°	Horizontal: 45° Vertical: 7°	Horizontal: 44° Vertical: 6.7°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression: Vertical Pattern – first side-lobe above main beam Horizontal Pattern	0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 ... 15 dB > 18 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 17 ... 17 dB > 18 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 15 ... 15 dB > 18 dB
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
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



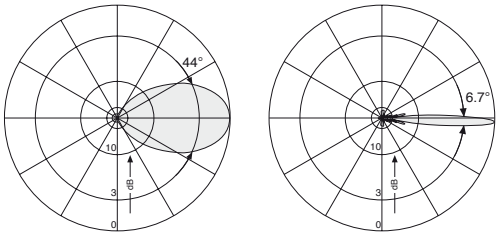
Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

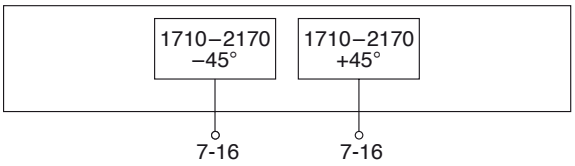


Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10.2 kg
Wind load	Frontal: 250 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 390 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1604 x 221 x 107 mm
Height/width/depth	1306 / 199 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel 1710–2180
Dual Polarization X
Half-power Beam Width 45°
Adjust. Electrical Downtilt 0°–6°

set by hand or by optional RCU (Remote Control Unit)

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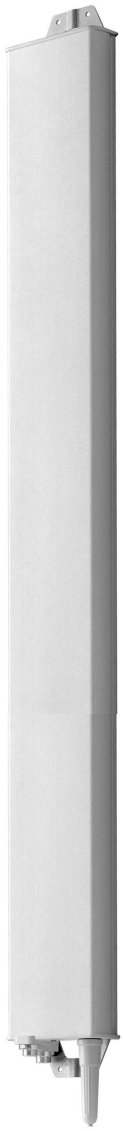
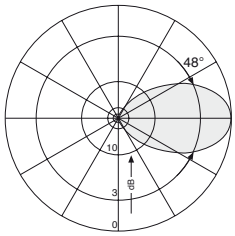


XPol Panel 1710–2180 45° 21.5dBi 0°–6°T

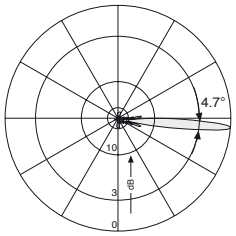
Type No.	742 219		
Frequency range		1710–2180	
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	20.5 ... 20.6 ... 20.3 0° ... 3° ... 6°	20.9 ... 21.1 ... 20.9 0° ... 3° ... 6°	21 ... 21.4 ... 21 0° ... 3° ... 6°
Horizontal Pattern:			
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 supression	> 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

Impedance	50 Ω
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)

1710 – 1880 MHz: +45°/–45° Polarization

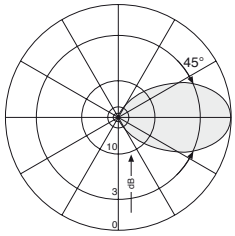


Horizontal Pattern

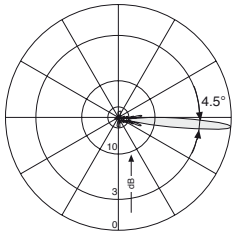


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

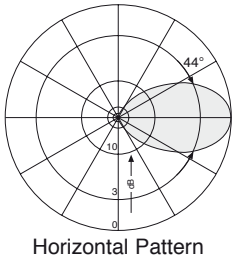


Horizontal Pattern

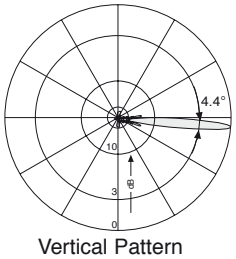


Vertical Pattern
0°–6° electrical downtilt

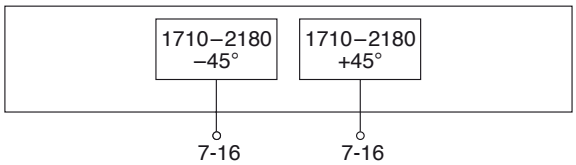
1920 – 2180 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 390 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 590 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2244 x 221 x 107 mm
Height/width/depth	1946 / 199 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170	
X	
65°	
0°	

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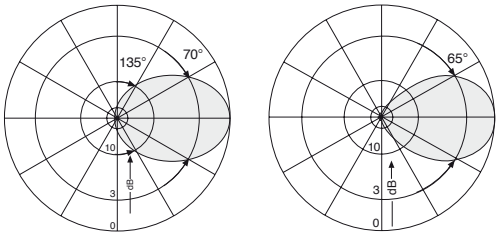
XPol Panel 1710–2170 65° 9dBi 0°T

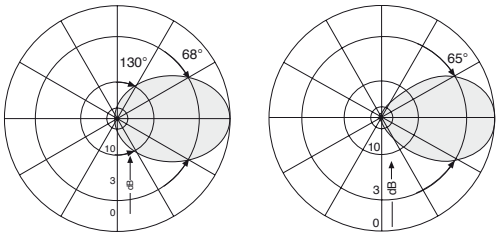
Type No.	742 210		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 8.6 dBi	2 x 8.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 65°	Horizontal: 68° Vertical: 65°	Horizontal: 65° Vertical: 63°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Front-to-back ratio, copolar	> 25 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



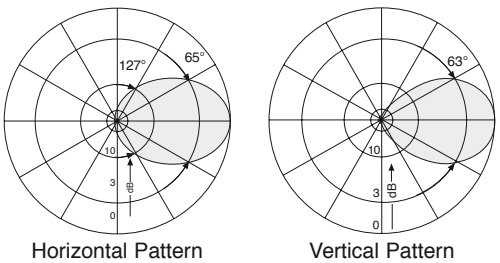
Horizontal Pattern Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

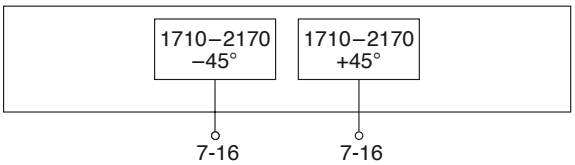


Horizontal Pattern Vertical Pattern

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	1.5 kg
Wind load	Frontal: 20 N (at 150 km/h) Lateral: 15 N (at 150 km/h) Rearside: 40 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	257 x 172 x 92 mm
Height/width/depth	155 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
65°
2°

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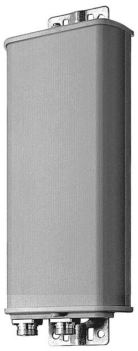
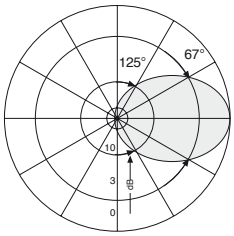
XPol Panel 1710–2170 65° 12dBi 2°T

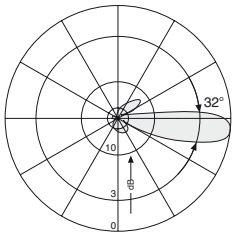


Type No.	739 489		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.5 dBi	2 x 12 dBi	2 x 12 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 32°	Horizontal: 65° Vertical: 30°	Horizontal: 63° Vertical: 28°
Electrical tilt	3°, fixed	2°, fixed	0°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

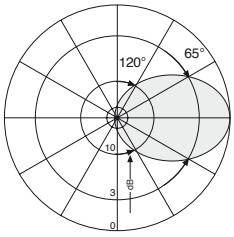


Horizontal Pattern

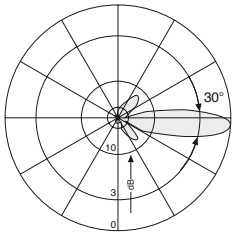


Vertical Pattern
3° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

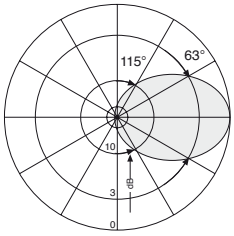


Horizontal Pattern

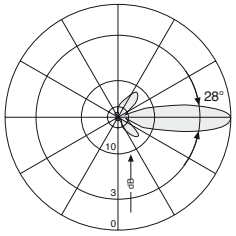


Vertical Pattern
2° electrical downtilt

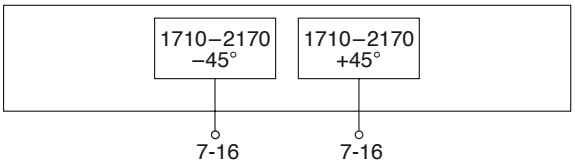
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0° electrical downtilt



Mechanical specifications		
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	2 kg	
Wind load	Frontal: Lateral: Rearside:	35 N (at 150 km/h) 25 N (at 150 km/h) 80 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	444 x 172 x 92 mm	
Height/width/depth	342 / 155 / 69 mm	

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

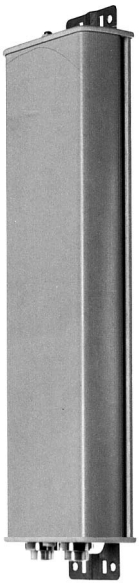
Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
65°
0°

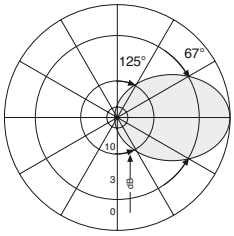
KATHREIN
Antennen · Electronic

XPol Panel 1710–2170 65° 16dBi 0°T

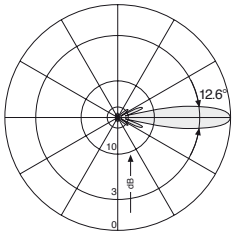
Type No.	742 196		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.3 dBi	2 x 15.6 dBi	2 x 15.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.6°	Horizontal: 66° Vertical: 11.8°	Horizontal: 64° Vertical: 11°
Sidelobe suppression for first sidelobe above horizon	> 14 dB	> 16 dB	> 14 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 > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

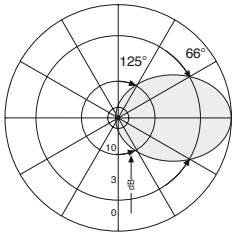


Horizontal Pattern

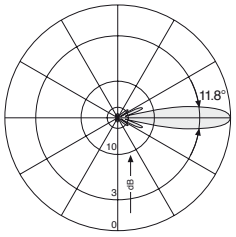


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

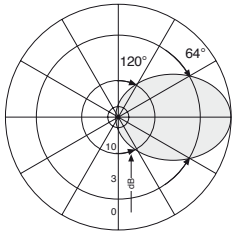


Horizontal Pattern

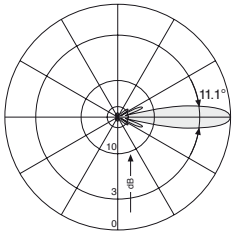


Vertical Pattern

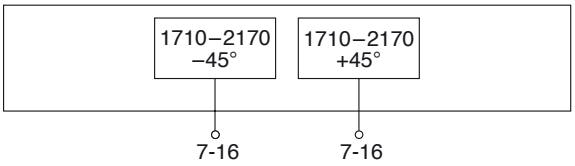
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	3.7 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 172 x 95 mm
Height/width/depth	735 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

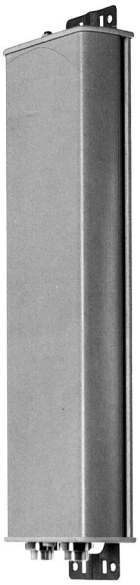
1710–2200
X
65°
6°

KATHREIN
Antennen · Electronic

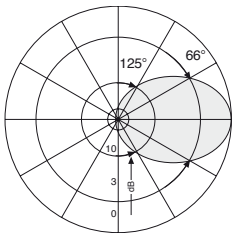
XPol Panel 1710–2200 65° 15.5dBi 6°T

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 0° Sector ±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

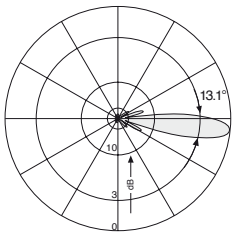
Impedance	50 Ω
VSWR	< 1.3
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	250 W (at 50 °C ambient temperature)



1710 – 1880 MHz: +45°/–45° Polarization

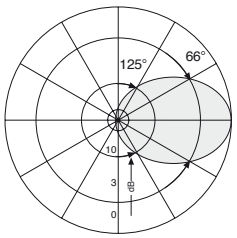


Horizontal Pattern

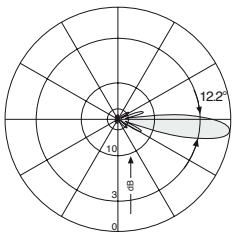


Vertical Pattern
6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

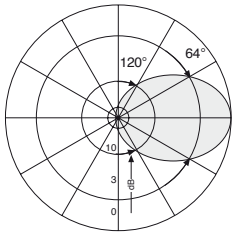


Horizontal Pattern

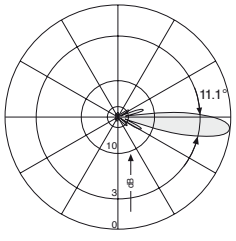


Vertical Pattern
6° electrical downtilt

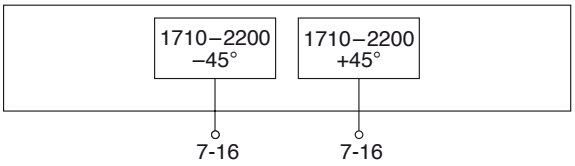
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	3.7 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 172 x 95 mm
Height/width/depth	735 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electrical Downtilt

1710–2170
X
65°
0°–10°

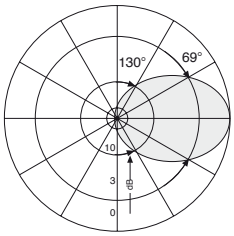
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

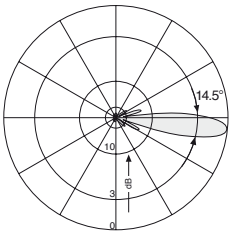
XPol Panel 1710–2170 65° 15.5dBi 0°–10°T

Type No.	742 211		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 67° Vertical: 14°	Horizontal: 64° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10°T 18 ... 16 ... 15 .... 15 dB	0° ... 4° ... 8° ... 10°T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10°T 18 ... 18 ... 18 ... 16 dB
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	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.4	< 1.4	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

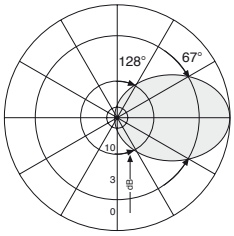


Horizontal Pattern

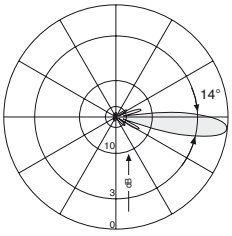


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

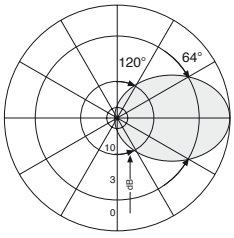


Horizontal Pattern

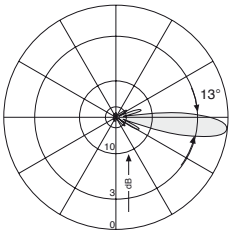


Vertical Pattern
0°–10° electrical downtilt

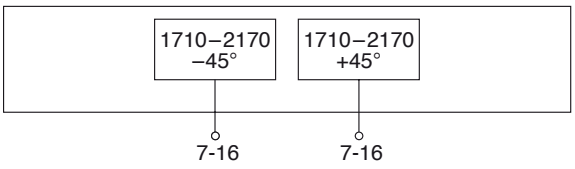
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.5 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel 1710–2200
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–12°

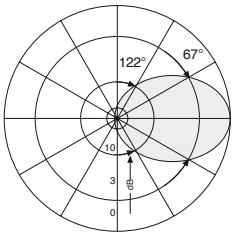
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

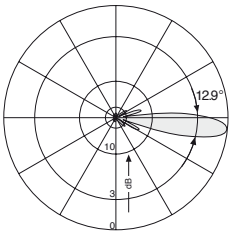
XPol Panel 1710–2200 65° 15.5dBi 0°–12°T

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
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.9°	Horizontal: 66° Vertical: 12.3°	Horizontal: 64° Vertical: 11.5°
Electrical tilt continuously adjust.	0°–12°	0°–12°	0°–12°
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
Front-to-back ratio	Copolar: > 27 dB	Copolar: > 27 dB	Copolar: > 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

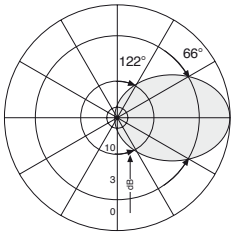


Horizontal Pattern

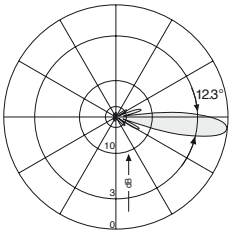


Vertical Pattern
0°–12° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

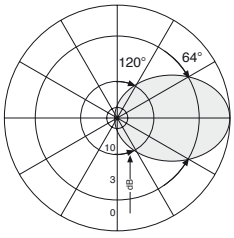


Horizontal Pattern

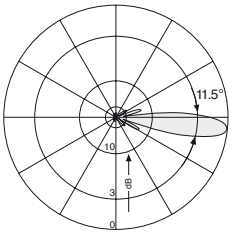


Vertical Pattern
0°–12° electrical downtilt

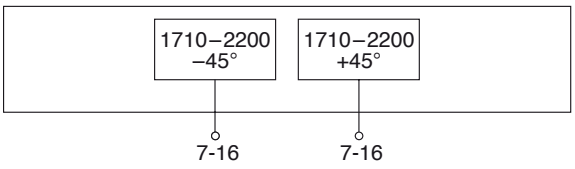
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.5 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1015 x 172 x 92 mm
Height/width/depth	735 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

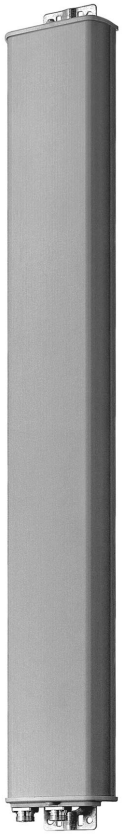
1710–2200
X
65°
0°

KATHREIN
Antennen · Electronic

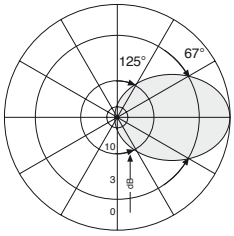
XPol Panel 1710–2200 65° 18.3dBi 0°T

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 0° Sector ±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	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

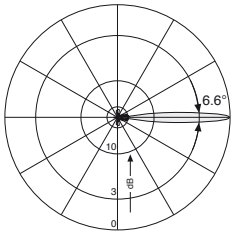
Impedance	50 Ω
VSWR	< 1.4
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	300 W (at 50 °C ambient temperature)



1710 – 1880 MHz: +45°/–45° Polarization

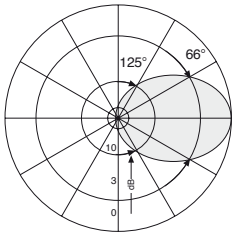


Horizontal Pattern

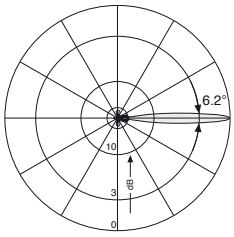


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

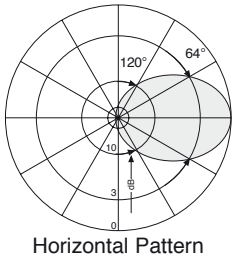


Horizontal Pattern

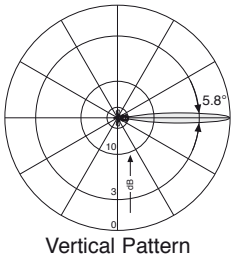


Vertical Pattern

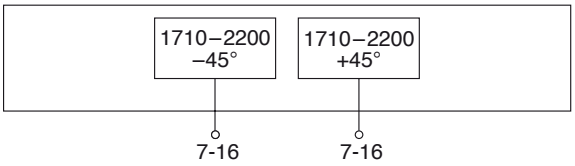
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications		
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	6.6 kg	
Wind load	Frontal: Lateral: Rearside:	130 N (at 150 km/h) 110 N (at 150 km/h) 310 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	1404 x 172 x 92 mm	
Height/width/depth	1302 / 155 / 69 mm	

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

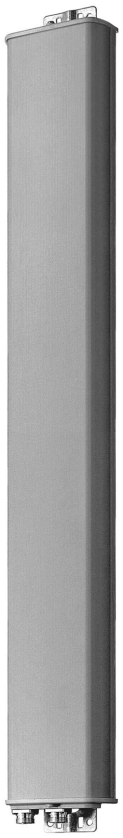
1710–2200
X
65°
2°

KATHREIN
Antennen · Electronic

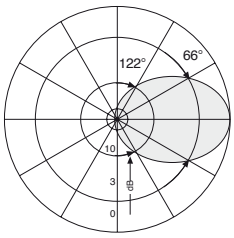
XPol Panel 1710–2200 65° 18.3dBi 2°T

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 0° Sector ±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

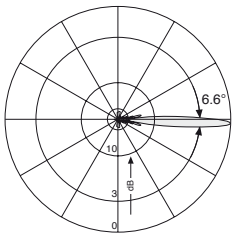
Impedance	50 Ω
VSWR	< 1.4
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	300 W (at 50 °C ambient temperature)



1710 – 1880 MHz: +45°/–45° Polarization

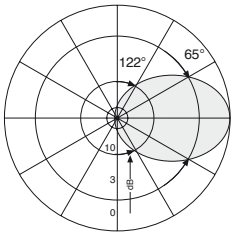


Horizontal Pattern

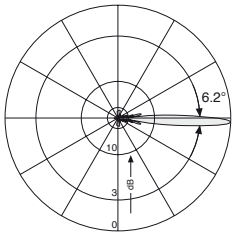


Vertical Pattern
2° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

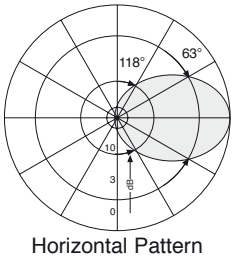


Horizontal Pattern

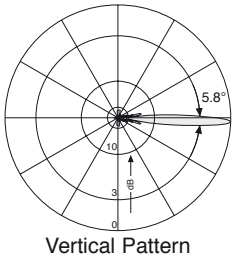


Vertical Pattern
2° electrical downtilt

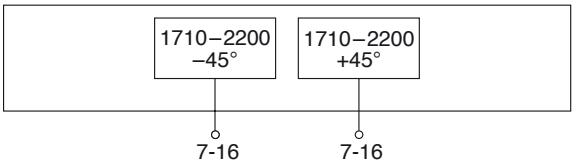
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.6 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

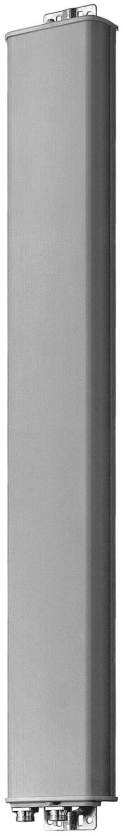
1710–2200
X
65°
6°

KATHREIN
Antennen · Electronic

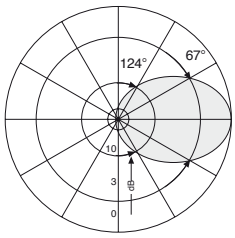
XPol Panel 1710–2200 65° 18dBi 6°T

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 0° Sector ±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

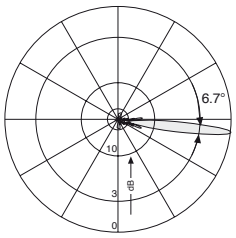
Impedance	50 Ω
VSWR	< 1.3
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	300 W (at 50 °C ambient temperature)



1710 – 1880 MHz: +45°/–45° Polarization

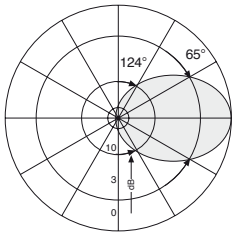


Horizontal Pattern

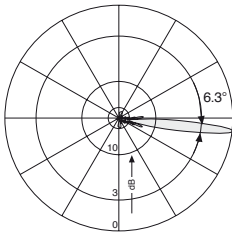


Vertical Pattern
6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

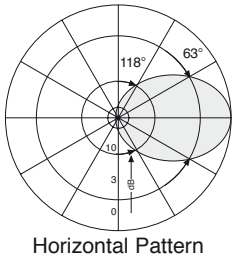


Horizontal Pattern

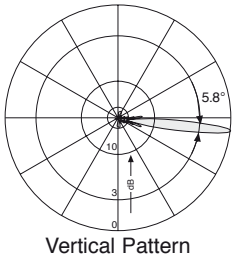


Vertical Pattern
6° electrical downtilt

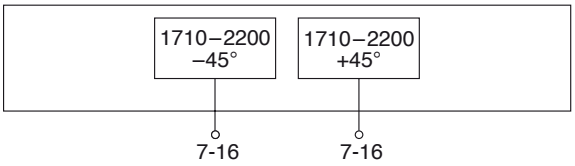
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.6 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electrical Downtilt

1710–2200
X
65°
0°–10°

set by hand or by optional RCU (Remote Control Unit)

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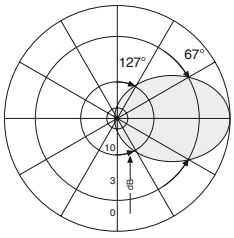
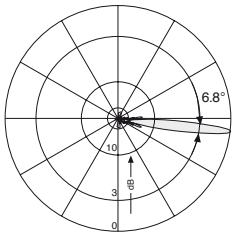
XPol Panel 1710–2200 65° 18dBi 0°–10°T

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
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 6.8°	Horizontal: 66° Vertical: 6.5°	Horizontal: 65° Vertical: 6.2°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 18 ... 17 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 18 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 > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

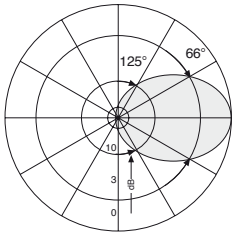


Horizontal Pattern

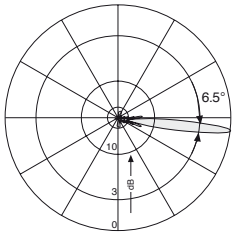


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

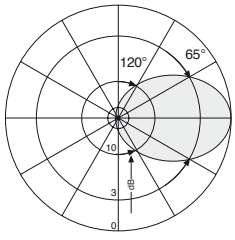


Horizontal Pattern

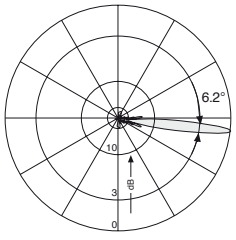


Vertical Pattern
0°–10° electrical downtilt

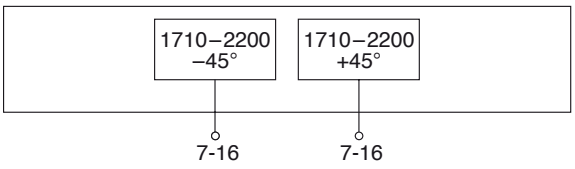
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel 1710–2200
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–15°
Enhanced Sidelobe Suppression 18dB

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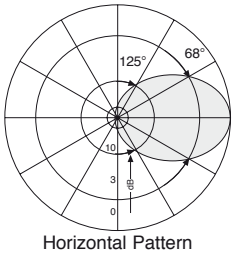
Downtilt set by hand or by optional RCU (Remote Control Unit)

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

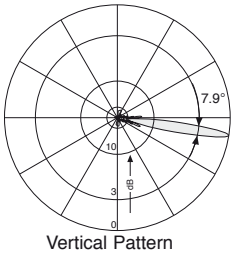
Type No.	800 10504			
Frequency range	1710–2200			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	2000 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain at 0° tilt	2 x 17.5 dBi	2 x 17.6 dBi	2 x 17.7 dBi	2 x 17.8 dBi
Horizontal Pattern:				
Half-power beam width	68°	66°	64°	62°
Front-to-back ratio (180° ±30°)	≥ 28 dB	≥ 28 dB	≥ 28 dB	≥ 28 dB
Cross polar ratio 0° Sector ±60°	22 dB ≥ 10 dB	22 dB ≥ 10 dB	24 dB ≥ 10 dB	26 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 – for first sidelobe above main beam – within 0°–20° sector above horizon	0° ... 5° ... 10° ... 15° T ≥ 17 ... 20 ... 18 ... 17 dB ≥ 16 ... 18 ... 18 ... 16 dB	0° ... 5° ... 10° ... 15° T ≥ 16 ... 20 ... 18 ... 17 dB ≥ 16 ... 18 ... 17 ... 16 dB	0° ... 5° ... 10° ... 15° T ≥ 16 ... 20 ... 18 ... 17 dB ≥ 15 ... 18 ... 17 ... 16 dB	0° ... 5° ... 10° ... 15° T ≥ 15 ... 20 ... 18 ... 15 dB ≥ 15 ... 16 ... 16 ... 15 dB
Null-fill at 0° tilt	21 dB	20 dB	19 dB	18 dB

Impedance	50 Ω
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)

1710 – 1880 MHz: +45°/–45° Polarization

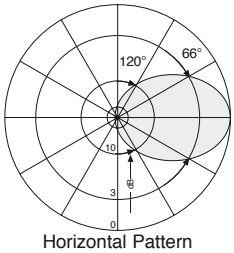


Horizontal Pattern

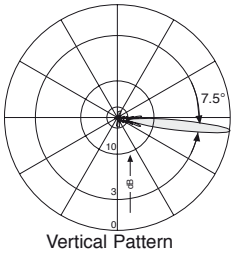


Vertical Pattern
0°–15° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

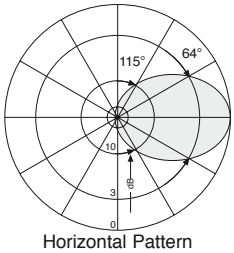


Horizontal Pattern

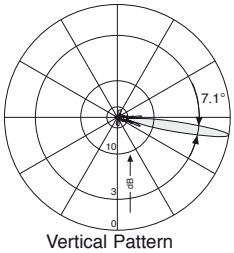


Vertical Pattern
0°–15° electrical downtilt

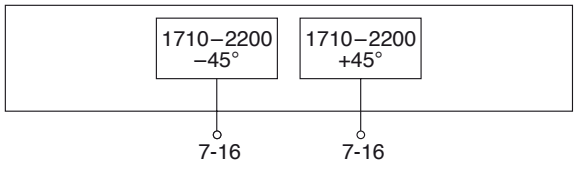
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–15° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1 x, Position bottom continuously adjustable
Weight	8 kg
Wind load	Frontal: 140 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 330 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1655 x 172 x 92 mm
Height/width/depth	1374 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

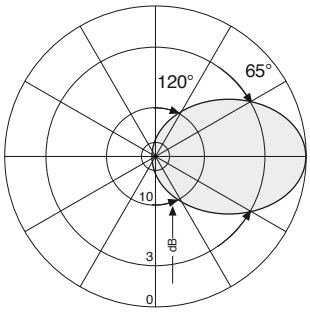
Panel 1710–1990
Dual Polarization X
Half-power Beam Width 65°
Fixed Electrical Downtilt 2°

KATHREIN
Antennen · Electronic

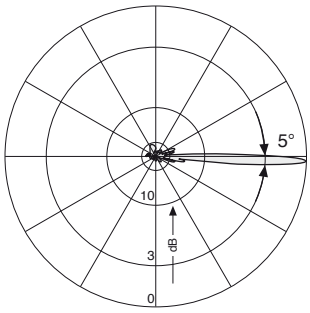
XPol Panel 1710–1990 65° 19.5dBi 2°T

Type No.	739 498
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 19.5 dBi (1880 – 1990 MHz) 2 x 19 dBi (1710 – 1880 MHz)
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 5°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)

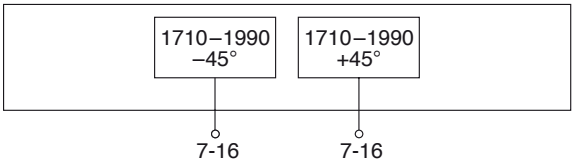
+45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	8.5 kg
Wind load	Frontal: 480 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 380 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2044 x 172 x 72 mm
Height/width/depth	1942 / 155 / 49 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electrical Downtilt

1710–2170
X
65°
0°–6°

set by hand or by optional RCU (Remote Control Unit)

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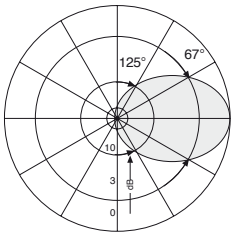
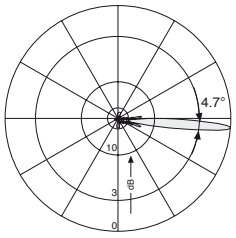
XPol Panel 1710–2170 65° 19.5dBi 0°–6°T

Type No.	742 213		
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 19.2 dBi	2 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 4.7°	Horizontal: 65° Vertical: 4.5°	Horizontal: 63° Vertical: 4.3°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 6° T 18 ... 17 ... 15 .... 15 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 15 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 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 > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

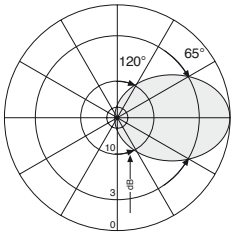


Horizontal Pattern

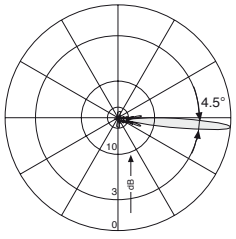


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

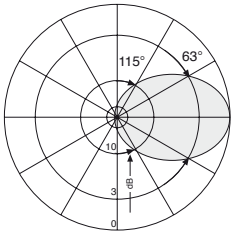


Horizontal Pattern

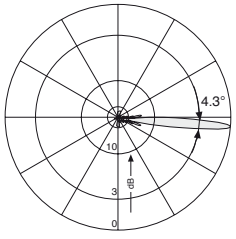


Vertical Pattern
0°–6° electrical downtilt

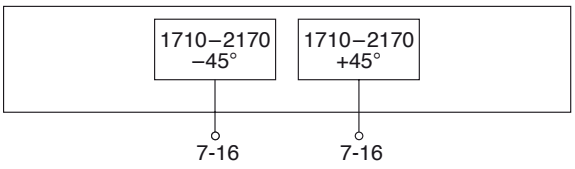
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10 kg
Wind load	Frontal: 195 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 480 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2214 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel 1710–2200
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–10°
Enhanced Sidelobe Suppression 18dB

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Preliminary Issue

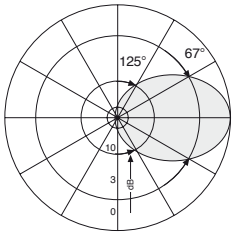
Downtilt set by hand or by optional RCU (Remote Control Unit)

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

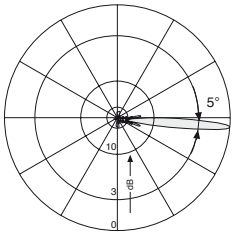
Type No.	800 10505			
Frequency range	1710–2200			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	2000 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 18.5 dBi	2 x 18.8 dBi	2 x 19 dBi	2 x 19 dBi
Horizontal Pattern:				
Half-power beam width	67°	65°	64°	63°
Front-to-back ratio (180° ±30°)	≥ 30 dB	≥ 30 dB	≥ 30 dB	≥ 28 dB
Cross polar ratio 0°	Typically: 25 dB	Typically: 22 dB	Typically: 22 dB	Typically: 22 dB
Sector ±60°	≥ 11 dB	≥ 11 dB	≥ 11 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	≥ 20 ... 20 ... 18 ... 18 dB	≥ 20 ... 20 ... 18 ... 18 dB
– within 0°–20° sector above horizon	≥ 18 ... 18 ... 18 ... 17 dB	≥ 17 ... 18 ... 18 ... 17 dB	≥ 15 ... 18 ... 17 ... 17 dB	≥ 15 ... 16 ... 16 ... 17 dB

Impedance	50 Ω
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)

1710 – 1880 MHz: +45°/–45° Polarization

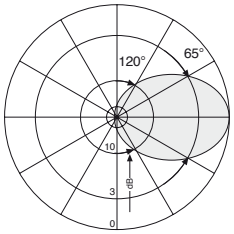


Horizontal Pattern

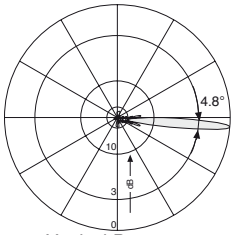


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

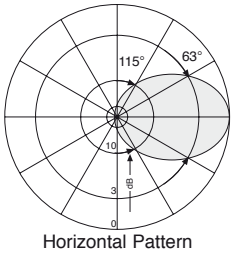


Horizontal Pattern

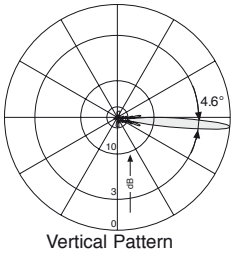


Vertical Pattern
0°–10° electrical downtilt

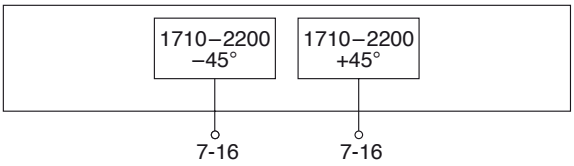
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1 x, Position bottom continuously adjustable
Weight	11 kg
Wind load	Frontal: 210 N (at 150 km/h) Lateral: 170 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2264 x 172 x 92 mm
Height/width/depth	1984 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
65°
0°

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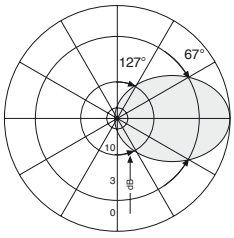
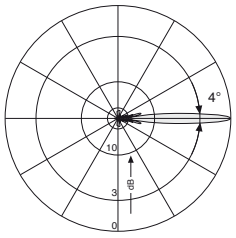
XPol Panel 1710–2170 65° 20.5dBi 0°T

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
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 4°	Horizontal: 65° Vertical: 3.8°	Horizontal: 61° Vertical: 3.5°
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 0° Sector ±60°	Typically: 25 dB > 14 dB	Typically: 25 dB > 14 dB	Typically: 25 dB > 14 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

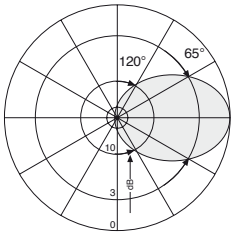


Horizontal Pattern

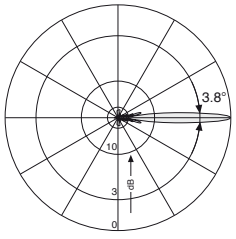


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

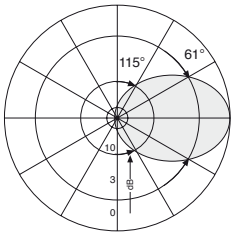


Horizontal Pattern

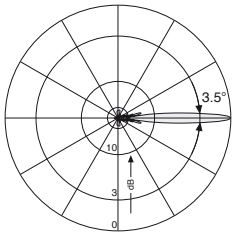


Vertical Pattern

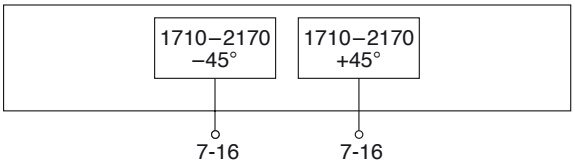
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	7-16 female
Connector position	Bottom
Weight	9.5 kg
Wind load	Frontal: 215 N (at 150 km/h) Lateral: 185 N (at 150 km/h) Rearside: 530 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2271 x 172 x 92 mm
Height/width/depth	2160 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2200
X
65°
0°

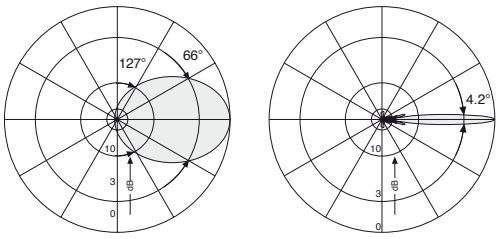
KATHREIN
Antennen · Electronic

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°	25 dB	23 dB	23 dB	23 dB
Sector ±60°	> 12 dB	> 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 – for first sidelobe above main beam – within 0°–30° sector above horizon	 > 15 dB > 15 dB			
First null-fill below main beam	< 20 dB			

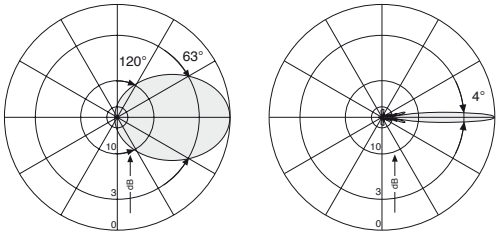
Impedance	50 Ω
VSWR	< 1.5
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	300 W (at 50 °C ambient temperature)

1710 – 1880 MHz: +45°/–45° Polarization



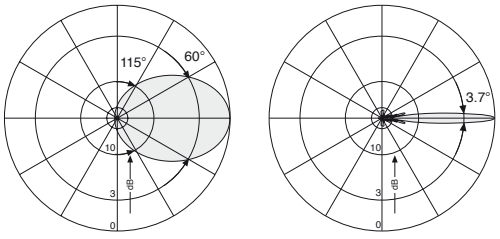
Horizontal Pattern Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

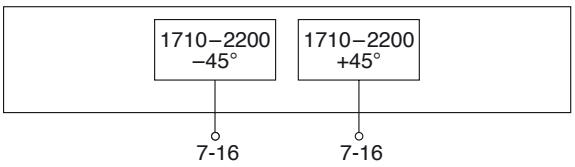


Horizontal Pattern Vertical Pattern

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	11.5 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 550 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2300 x 172 x 122 mm
Height/width/depth	2172 / 155 / 89 mm

* Inverted mounting:
Connector position top: Change 2 drain hole screws.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Dual Polarization
Half-power Beam Width

1710–1990

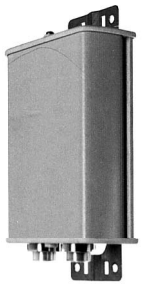
X

90°

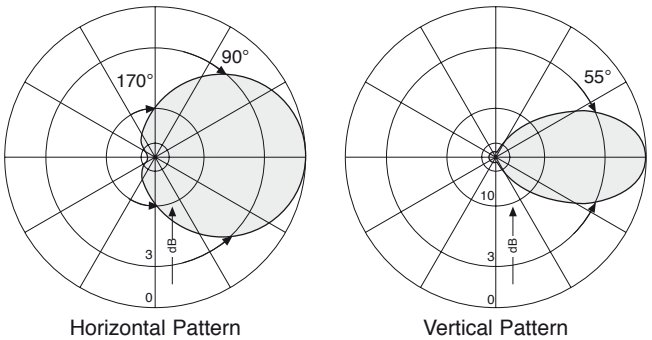
KATHREIN
Antennen · Electronic

XPol Panel 1710–1990 90° 8dBi

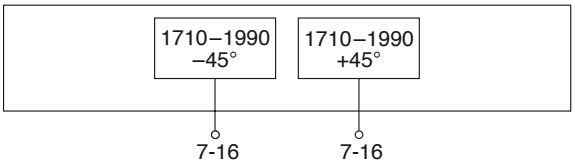
Type No.	739 695
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 55°
Front-to-back ratio, copolar	> 20 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)



+45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	3 kg
Wind load	Frontal: 20 N (at 150 km/h) Lateral: 15 N (at 150 km/h) Rearside: 30 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	284 x 172 x 92 mm
Height/width/depth	174 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

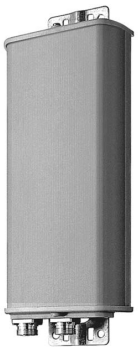
Multi-band Panel
Dual Polarization
Half-power Beam Width
Excellent Sidelobe Suppression

1710–2170
X
88°
20 dB

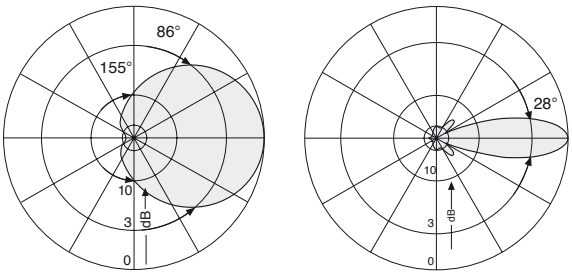
KATHREIN
Antennen · Electronic

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
Half-power beam width Copolar +45°/–45°	Horizontal: 86° Vertical: 28°	Horizontal: 87° Vertical: 26°	Horizontal: 88° Vertical: 26°
Sidelobe suppression vertical sector ±45°	> 20 dB	> 20 dB	> 20 dB
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 0° Sector ±60°	Typically: 20 dB > 18 dB	Typically: 25 dB > 18 dB	Typically: 20 dB > 15 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		

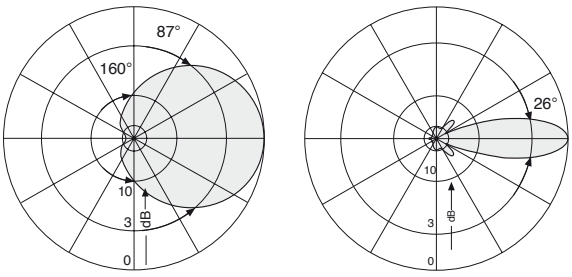


1710 – 1880 MHz: +45°/–45° Polarization



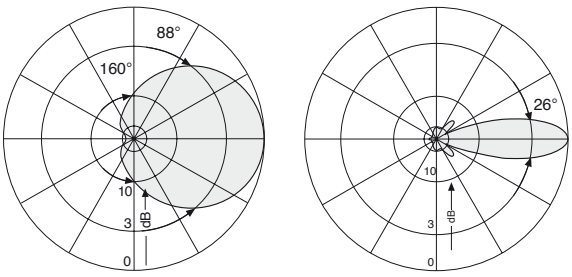
Horizontal Pattern Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

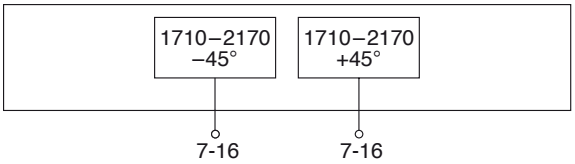


Horizontal Pattern Vertical Pattern

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications		
Input	2 x 7-16 female	
Connector position*	Bottom or top	
Weight	2 kg	
Wind load	Frontal:	35 N (at 150 km/h)
	Lateral:	25 N (at 150 km/h)
	Rearside:	80 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	444 x 172 x 92 mm	
Height/width/depth	342 / 155/ 69 mm	

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel 1710–2170
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electrical Downtilt 0°–10°

set by hand or by optional RCU (Remote Control Unit)

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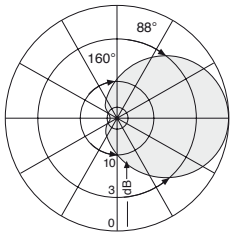
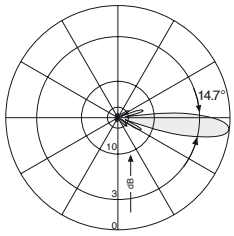
XPol Panel 1710–2170 88° 14dBi 0°–10°T

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
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 14.7°	Horizontal: 88° Vertical: 14°	Horizontal: 88° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – 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
Front-to-back ratio, copolar total power	> 25 dB > 25 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: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

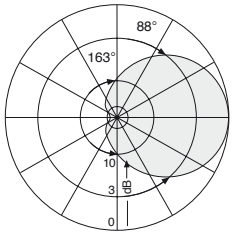


Horizontal Pattern

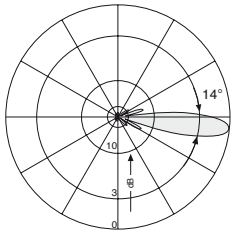


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

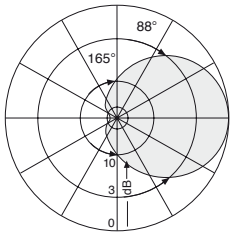


Horizontal Pattern

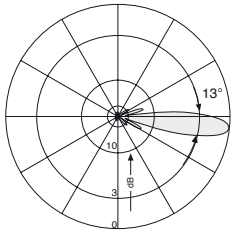


Vertical Pattern
0°–10° electrical downtilt

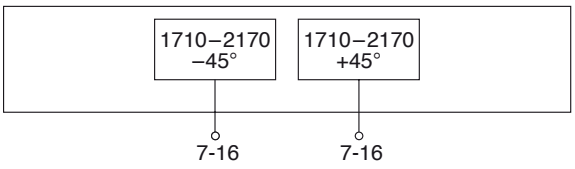
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.2 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	935 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2200
X
88°
2°

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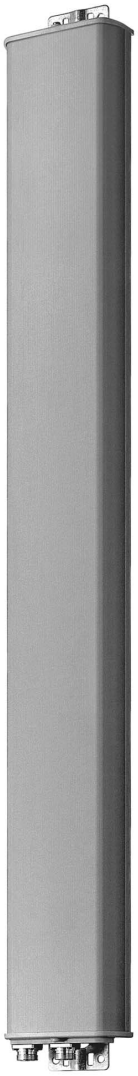
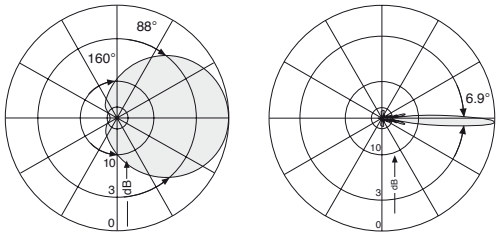
XPol Panel 1710–2200 88° 17dBi 2°T



Type No.	741 987		
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 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 6.9°	Horizontal: 88° Vertical: 6.5°	Horizontal: 88° Vertical: 6.2°
Electrical tilt	2°, fixed	2°, fixed	2°, fixed
Sidelobe suppression for first sidelobe above horizon	> 16 dB	> 16 dB	> 16 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

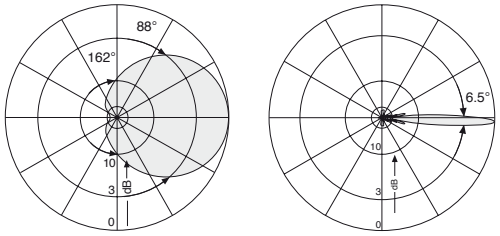
1710 – 1880 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
2° electrical downtilt

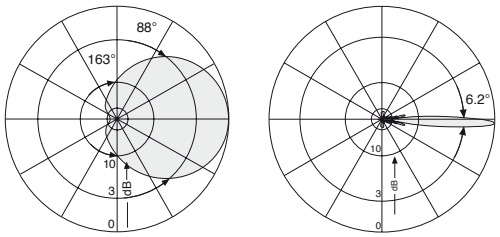
1850 – 1990 MHz: +45°/–45° Polarization



Horizontal Pattern

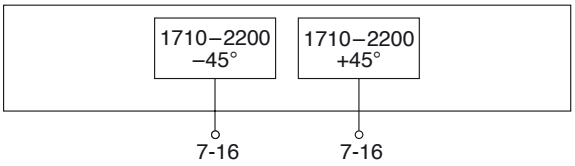
Vertical Pattern
2° electrical downtilt

1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel 1710–2200
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electrical Downtilt 0°–8°

set by hand or by optional RCU (Remote Control Unit)

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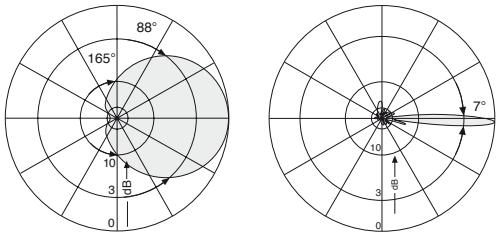
XPol Panel 1710–2200 88° 17dBi 0°–8°T

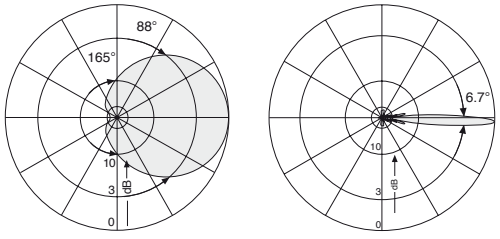
Type No.	741 989		
Frequency range	1710–2200		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.8 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 7°	Horizontal: 88° Vertical: 6.7°	Horizontal: 88° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Vertical Pattern – 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
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 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



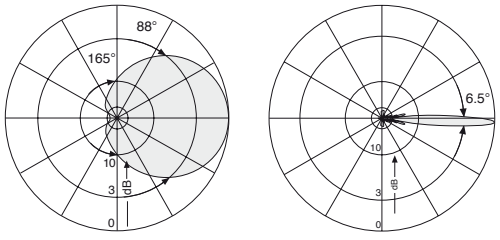
Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

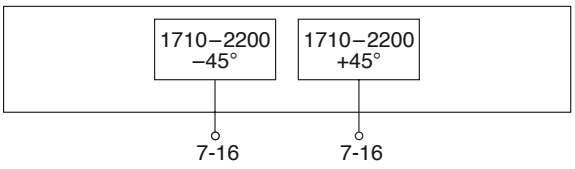


Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panels 1710–1880
Dual Polarization X
Half-power Beam Width 90°
Fixed Electrical Downtilt 2°

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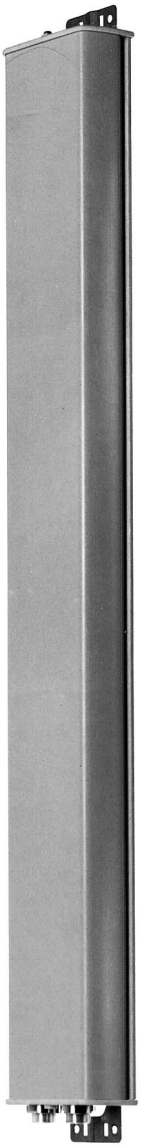
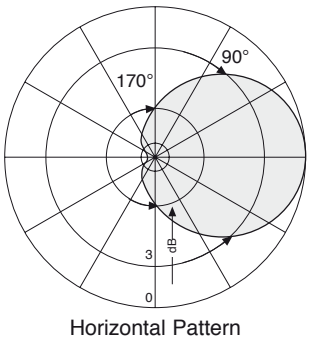


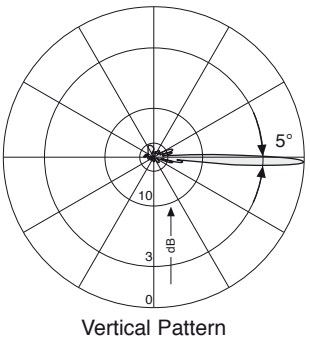
XPol Panel 1710–1880 90° 17.5dBi 2°T

Type No.	739 710
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° 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
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)

+45°/–45° Polarization

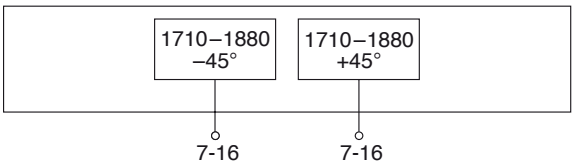


Horizontal Pattern



Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal –25 dB below maximum gain



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	9 kg
Wind load	Frontal: 190 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 470 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2004 x 172 x 92 mm
Height/width/depth	1902 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel 1710–2170
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electrical Downtilt 0°–6°

set by hand or by optional RCU (Remote Control Unit)

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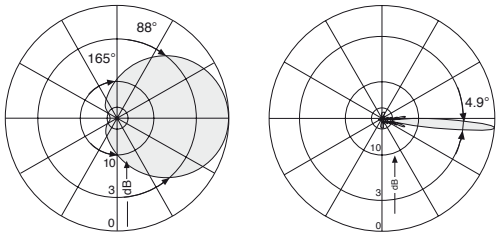
XPol Panel 1710–2170 88° 18dBi 0°–6°T

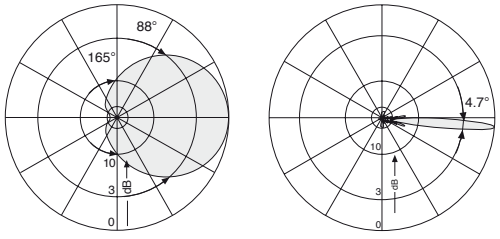
Type No.	741 990		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 18 dBi	2 x 18.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 4.9°	Horizontal: 88° Vertical: 4.7°	Horizontal: 88° Vertical: 4.5°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Vertical Pattern – 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
Front-to-back ratio, copolar total power	> 25 dB > 25 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: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



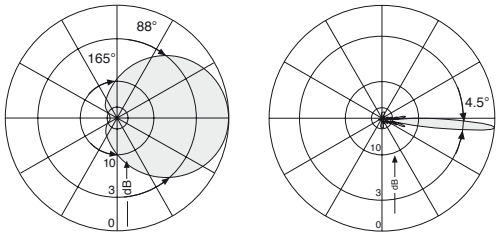
Horizontal Pattern — Vertical Pattern 0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

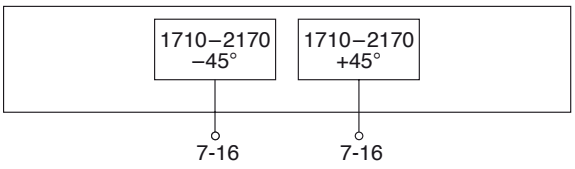


Horizontal Pattern — Vertical Pattern 0°–6° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	9 kg
Wind load	Frontal: 195 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 480 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2214 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Multi-band Panel — 1710–2200
Dual Polarization — X
Half-power Beam Width — 65°
Integrated Remote Tilt — IRT
Adjust. Electrical Downtilt — 0°–10°

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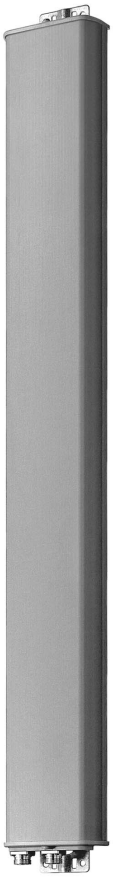
AISG™ Antenna Interface Standards Group

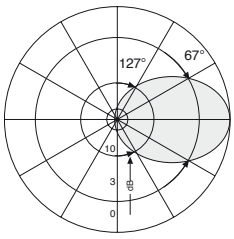
XPol Panel IRT 1710–2200 65° 18dBi 0°–10°T

Type No.	800 10314		
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	 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

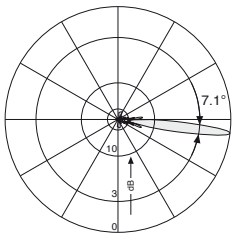
Impedance	50 Ω
VSWR	< 1.5
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	120 W (at 50 °C ambient temperature)



1710 – 1880 MHz: +45°/–45° Polarization

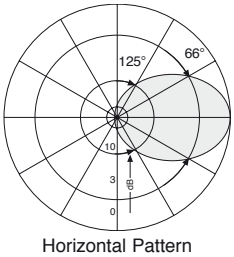


Horizontal Pattern

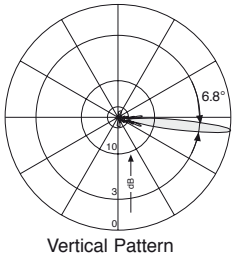


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

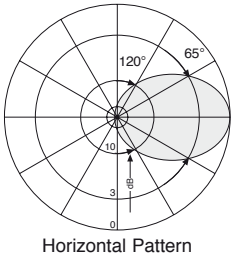


Horizontal Pattern

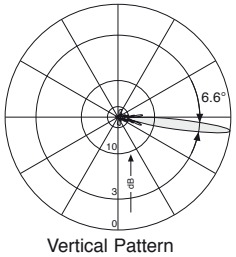


Vertical Pattern
0°–10° electrical downtilt

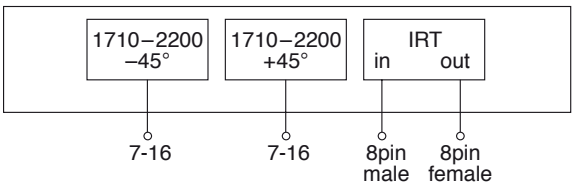
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



B) IRT specifications	
Power supply	10 ... 30 V
Power consumption	< 1 W (stand by) < 8.5 W (motor activated)
Hardware interface[1)]	2 x 8pin connector acc. IEC 60130-9; according to AISG: – IRT in (male): Control / Daisy chain in – IRT out (female): Daisy chain out
Logical interface[2)]	HEX coded commands based on HDLC protocol; according to AISG
Adjustment time (full range)	40 sec.
Adjustment cycles	> 50,000

[1)] Tightning torque for fixing the connector must lie between 0.5 – 1.0 Nm.

[2)] **Please note:** The SW of the unit, which is controlling the remote tilt unit, has to be able to handle also an integrated remote tilt unit, like Kathrein CCU with firmware 1.29 or higher and the Kathrein PCA with software 2.2 or higher.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel

Dual Polarization

Half-power Beam Width

Integrated Remote Tilt + Smart Bias-T

Adjust. Electrical Downtilt

1710–2200 | X | 65° | IRT + ISB | 0°–10°

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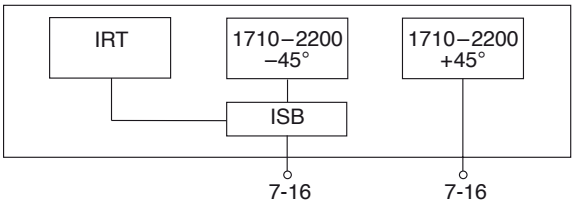
AISG Antenna Interface Standards Group
3GPP A GLOBAL INITIATIVE

1800/1900/2000 XPol

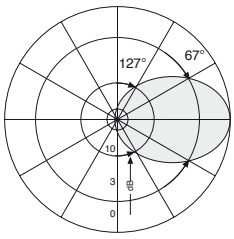
XPol Panel IRT 1710–2200 65° 18dBi 0°–10°T

Type No.	800 10414		
A) Antenna specifications			
Frequency range	1710 – 1880 MHz	**1710–2200** 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	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

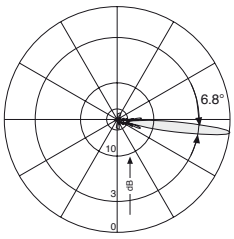
Impedance	50 Ω
VSWR	< 1.5
Isolation, between ports	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	100 W (at 45 °C ambient temperature)



1710 – 1880 MHz: +45°/–45° Polarization

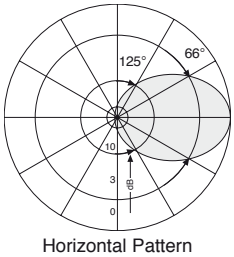


Horizontal Pattern

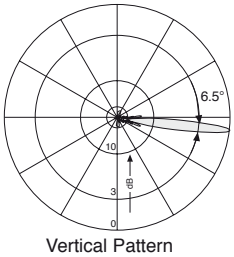


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

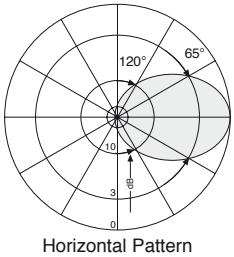


Horizontal Pattern

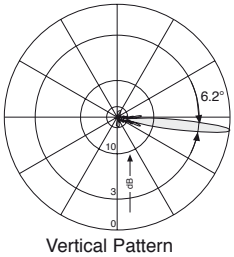


Vertical Pattern
0°–10° electrical downtilt

1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt

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 software of the unit, which is controlling the remote tilt unit, has to be able to handle also an integrated remote tilt unit, like Kathrein CCU with firmware 1.29 or higher and the Kathrein PCA with software 2.0 or higher.

Tri-Sector Pipe Antenna

	0°	120°	240°
Frequency Range	1710–2170	1710–2170	1710–2170
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	0°–12°	0°–12°	0°–12°

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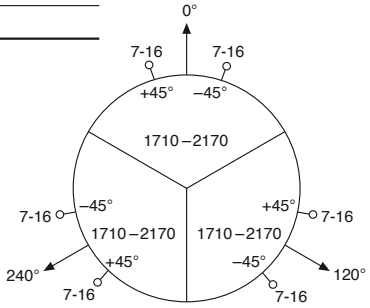
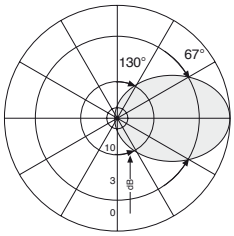
XPol Tri-Sector Pipe 1710–2170 65° 15.5dBi 0°–12°T

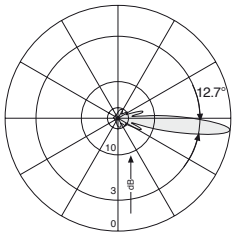
Type No.	800 10375		Electrical datas per sector
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain per Input (dBi)	0° ... 4° ... 8° … 12° T 15.4 ... 15.2 ... 15.0 ... 14.8	0° ... 4° ... 8° … 12° T 15.5 ... 15.4 ... 15.3 ... 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 0° Sector ±60°	Typically: 20 dB Typically: > 10 dB	Typically: 20 dB Typically: > 10 dB	Typically: 20 dB Typically: > 10 dB
Isolation: Intrasystem Isolation: Intersystem	> 30 dB > 40 dB	> 30 dB > 40 dB	> 30 dB > 40 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)		< –150 dBc	
Max. power per input	250 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

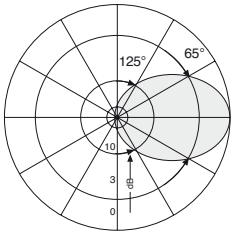


Horizontal Pattern

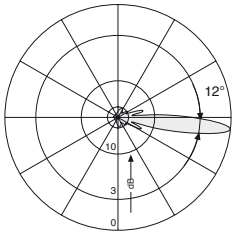


Vertical Pattern
0°–12° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

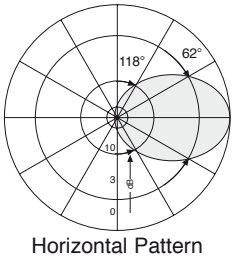


Horizontal Pattern

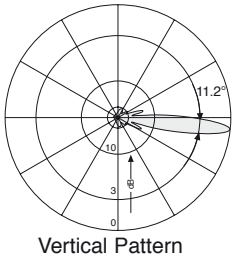


Vertical Pattern
0°–12° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt

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

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Tri-Sector Pipe Antenna

	0°	120°	240°
Frequency Range	1710–2170	1710–2170	1710–2170
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	0°–10°	0°–10°	0°–10°

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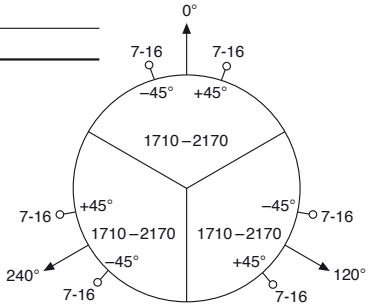
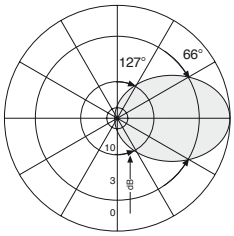
XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T

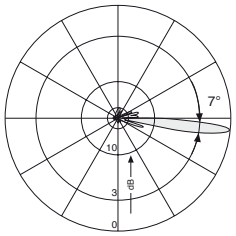
Type No.	800 10360		Electrical datas per sector
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	17.2 ... 17.5 ... 17.2 0° ... 5° ... 10°	17.6 ... 17.8 ... 17.6 0° ... 5° ... 10°	17.8 ... 17.9 ... 17.4 0° ... 5° ... 10°
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 7°	Horizontal: 63° Vertical: 6.7°	Horizontal: 60° 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 Isolation: Intersystem	> 30 dB > 45 dB	> 30 dB > 42 dB	> 30 dB > 42 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

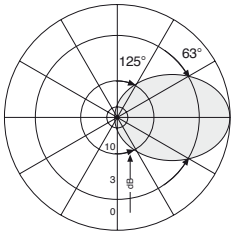


Horizontal Pattern

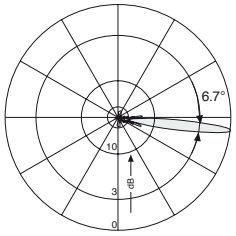


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

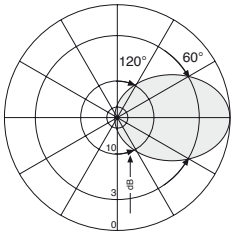


Horizontal Pattern

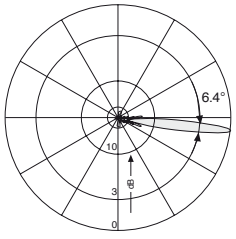


Vertical Pattern
0°–10° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt

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

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Tri-Sector Pipe Antenna

	0°	120°	240°
Frequency Range	1710–2170	1710–2170	1710–2170
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	0°–10°	0°–10°	0°–10°

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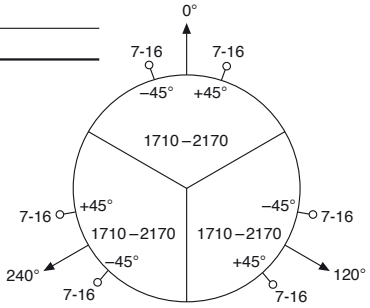
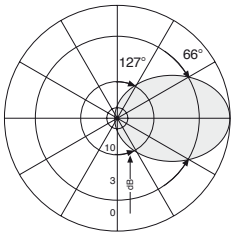
extended service area

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

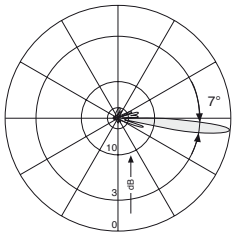
Type No.	800 10270		Electrical datas per sector
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	17.2 ... 17.5 ... 17.2 0° ... 5° ... 10°	17.6 ... 17.8 ... 17.6 0° ... 5° ... 10°	17.8 ... 17.9 ... 17.4 0° ... 5° ... 10°
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 7°	Horizontal: 63° Vertical: 6.7°	Horizontal: 60° 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 Isolation: Intersystem	> 30 dB > 45 dB	> 30 dB > 42 dB	> 30 dB > 42 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

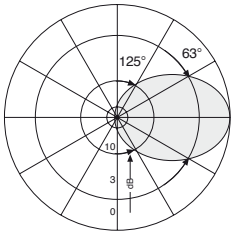


Horizontal Pattern

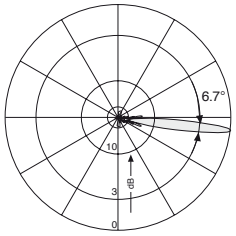


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

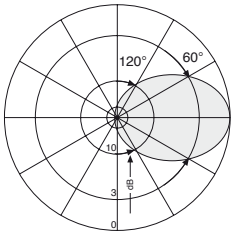


Horizontal Pattern

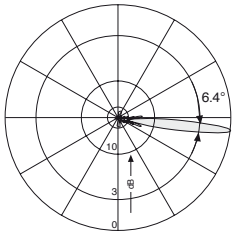


Vertical Pattern
0°–10° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt

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

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Tri-Sector Pipe Antenna

	0°	120°	240°
Frequency Range	1710–2170	1710–2170	1710–2170
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	0°–6°	0°–6°	0°–6°

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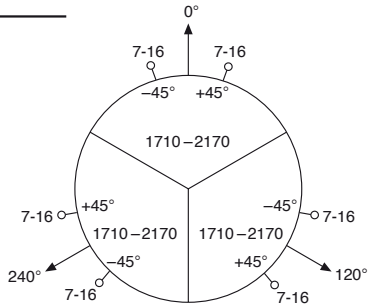
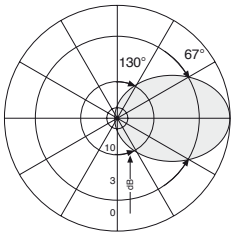
set by hand or by optional RCUs (Remote Control Units)

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

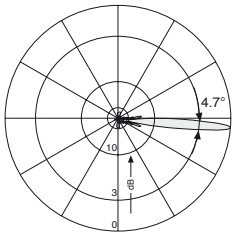
Type No.	800 10271		Electrical datas per sector
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	18.7 ... 19.0 ... 18.7 0° ... 3° ... 6°	18.8 ... 19.2 ... 19.1 0° ... 3° ... 6°	19.0 ... 19.5 ... 19.3 0° ... 3° ... 6°
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 4.7°	Horizontal: 66° Vertical: 4.5°	Horizontal: 64° 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°	Typically: 25 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem Isolation: Intersystem	> 30 dB > 45 dB	> 30 dB > 42 dB	> 30 dB > 42 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

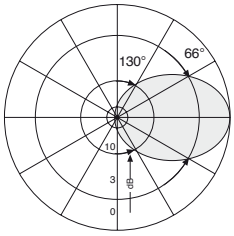


Horizontal Pattern

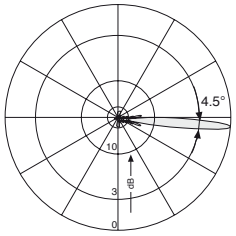


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

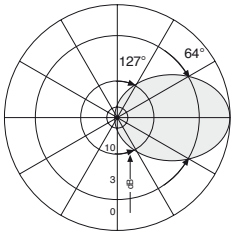


Horizontal Pattern

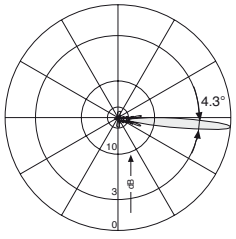


Vertical Pattern
0°–6° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt

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

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Tri-Sector Pipe Antennas
Mounting Hardware
TMA Service Area

KATHREIN
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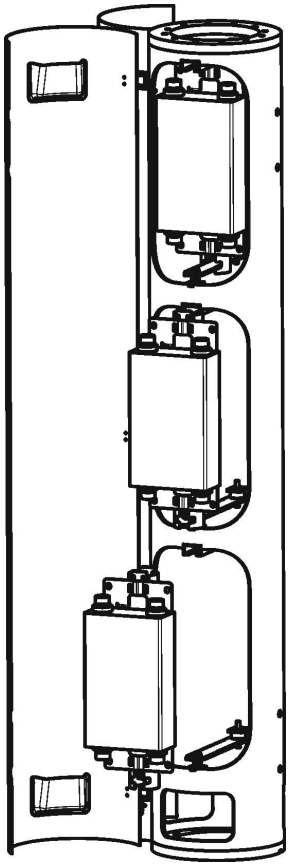
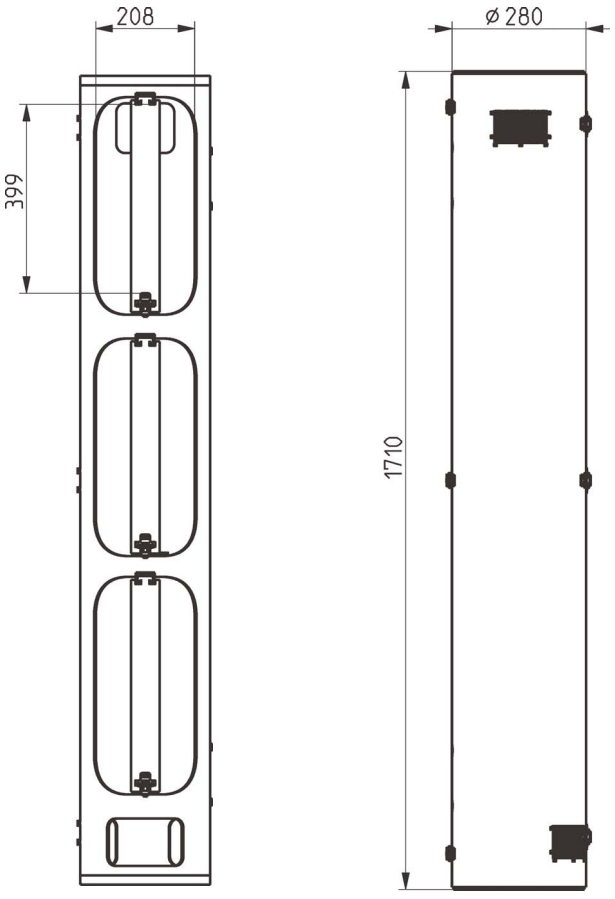
Cylindrical shaped TMA Service Area for installation of 3 DTMA's for use with a Kathrein tri-sector pipe antenna mounted on top of TMA Service Area



TMA Service Area

Type No.	850 10012
Height/Diameter	1710 / 280 mm
Wind load	325 N (at 150 km/h)
Max. wind velocity	200 km/h
Dynamic stiffness	$E \cdot I = 3.6 \cdot 10^{12}$ Nmm²
Logarithmic decrement of structural damping	$\delta = 0.03$
Mechanical interface bottom and top	Flange connection 12 x M12 at a graduated diameter of 208 mm
Required assembly tools	wrench size 19 mm
Natural air ventilation	
Material	Hot-dip galanized steel
Cover	Aluminum, powdercoated color RAL 7035
Material of screws	Stainless steel
Packing size (L x W x H)	1850 x 314 x 327 mm
Weight netto/brutto	77.3 / 84.0 kg



Additional Options for Tri-Sector-Antennas

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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:

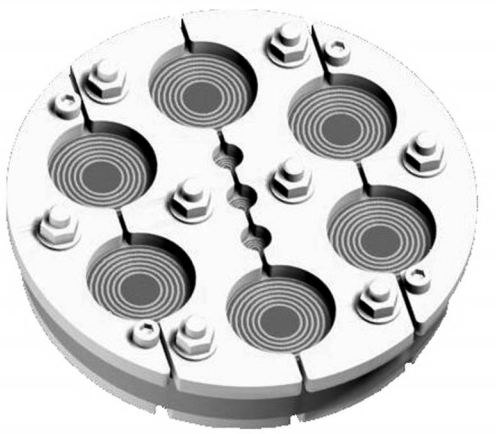
The following components may be ordered separately

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 211
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 181)

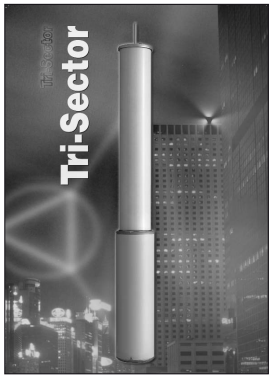
View inside service zone with MPTMA and Slimline RCUs

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	Hot-dip galvanized steel
Sealing-Material	Halogen free cross linkable compound on ethylene-propylene rubber (EPDM)
Material of screws, washers and nuts	Stainless steel
Accessories	Mounting lubricant
Required assembly tools	Wrench size 13 mm, Socket wrench size 5 mm
Weight	2.7 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

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Dual Polarization +45°/–45°

Type					Type No.	Height [mm]	Connector position	Page
XXPol Panel	1710–2170 1710–2170	65° 65°	15dBi 15dBi	0°–10°T 0°–10°T	742 233	679	bottom	90
XXPol Panel	1710–2180 1710–2180	65° 65°	18dBi 18dBi	0°–10°T 0°–10°T	742 236	1319	bottom	91
XXPol Panel	1710–2200 1710–2200	65° 65°	18dBi 18dBi	0°–15°T 0°–15°T	800 10510	1389	bottom	92
XXPol Panel	1710–2170 1710–2170	65° 65°	19.5dBi 19.5dBi	0°–6°T 0°–6°T	742 235	1959	bottom	93
XXPol Panel	1710–2200 1710–2200	65° 65°	19dBi 19dBi	0°–10°T 0°–10°T	800 10511	1999	bottom	94
XXPol Panel	1710–2180 1710–2180	88° 88°	16.5dBi 16.5dBi	0°–10°T 0°–10°T	742 352	1319	bottom	95

New Products

2-Multi-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

1710–2170	1710–2170
X	X
65°	65°
0°–10°	0°–10°

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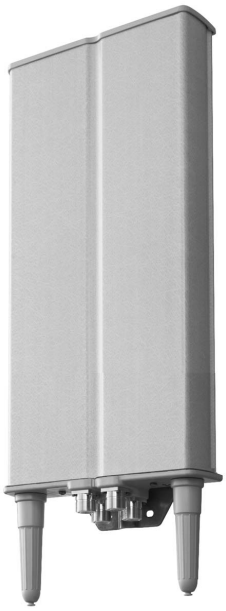
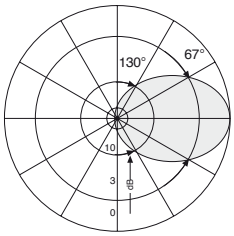
set by hand or by optional RCU (Remote Control Unit)

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

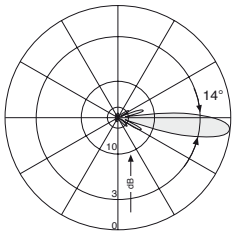
Type No.	742 233		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 15 dBi	4 x 15.2 dBi	4 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 14°	Horizontal: 65° Vertical: 13.7°	Horizontal: 62° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – 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
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 Maindirection 0° Sector ±60°	Typically: 20 dB Typically: 10 dB	Typically: 20 dB Typically: 10 dB	Typically: 20 dB Typically: 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

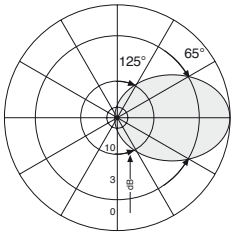


Horizontal Pattern

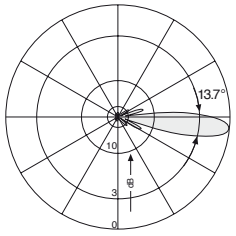


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

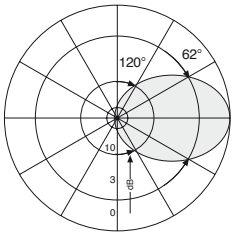


Horizontal Pattern

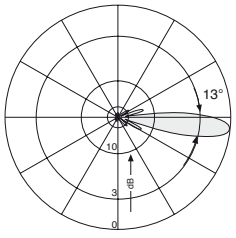


Vertical Pattern
0°–10° electrical downtilt

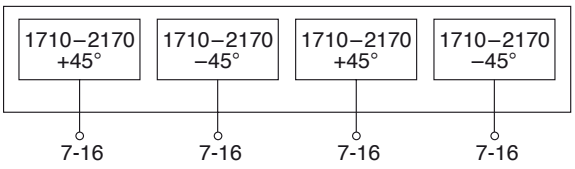
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	10.4 kg
Wind load	Frontal: 300 N (at 150 km/h) Lateral: 60 N (at 150 km/h) Rearside: 300 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 360 x 130 mm
Height/width/depth	679 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

2-Multi-band Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	1710–2180	1710–2180
	X	X
	65°	65°
	0°–10°	0°–10°

set by hand or by optional RCU (Remote Control Unit)

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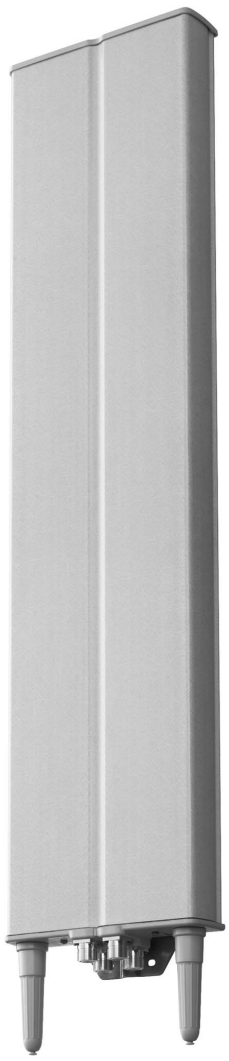
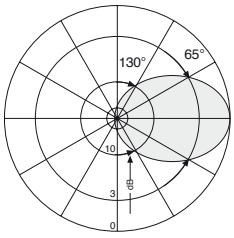
XXPol Panel 1710–2180/1710–2180 65°/65° 18/18dBi 0°–10°/0°–10°T

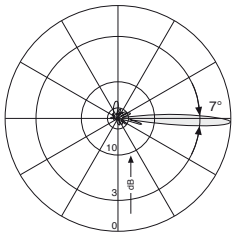
Type No.	742 236		
Frequency range	1710–2180		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 17.5 dBi	4 x 17.7 dBi	4 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 64° Vertical: 6.8°	Horizontal: 62° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 17 ... 15 .... 15 dB	0° ... 5° ... 10° T 20 ... 18 ... 18 dB	0° ... 5° ... 10° T 20 ... 18 ... 16 dB
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 Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

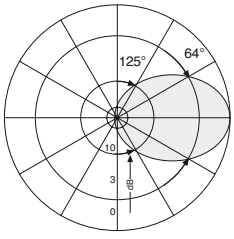


Horizontal Pattern

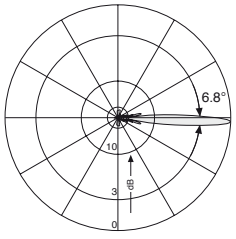


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

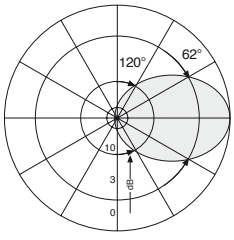


Horizontal Pattern

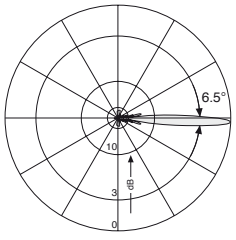


Vertical Pattern
0°–10° electrical downtilt

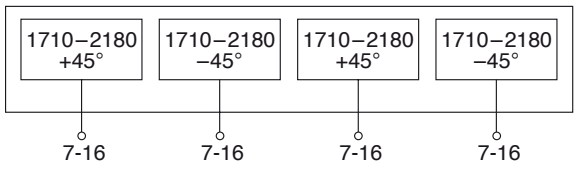
1920 – 2180 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 600 N (at 150 km/h) Lateral: 120 N (at 150 km/h) Rearside: 600 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 360 x 130 mm
Height/width/depth	1319 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

2-Multi-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Enhanced Sidelobe Suppression

1710–2200	1710–2200
X	X
65°	65°
0°–15°	0°–15°
18dB	18dB

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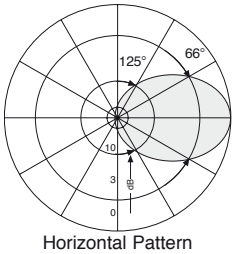
Downtilt set by hand or by optional RCU (Remote Control Unit)

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

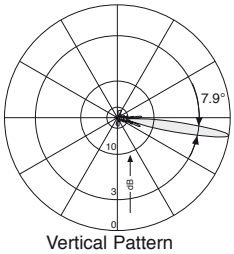
Type No.	800 10510			
Frequency range	1710–2200			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	2000 – 2200 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain at 0° tilt	4 x 17.5 dBi	4 x 17.6 dBi	4 x 17.7 dBi	4 x 17.8 dBi
Horizontal Pattern:				
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° Sector ±60°	24 dB ≥ 9 dB	24 dB ≥ 9 dB	24 dB ≥ 10 dB	26 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 – for first sidelobe above main beam – within 0°–20° sector above horizon	0° ... 5° ... 10° ... 15° T ≥ 17 ... 20 ... 18 ... 17 dB ≥ 17 ... 18 ... 18 ... 16 dB	0° ... 5° ... 10° ... 15° T ≥ 16 ... 20 ... 18 ... 18 dB ≥ 16 ... 17 ... 17 ... 16 dB	0° ... 5° ... 10° ... 15° T ≥ 15 ... 19 ... 18 ... 17 dB ≥ 15 ... 17 ... 17 ... 16 dB	0° ... 5° ... 10° ... 15° T ≥ 14 ... 18 ... 18 ... 16 dB ≥ 14 ... 16 ... 16 ... 15 dB
Null-fill at 0° tilt	23 dB	22 dB	21 dB	20 dB

Impedance	50 Ω
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)

1710 – 1880 MHz: +45°/–45° Polarization

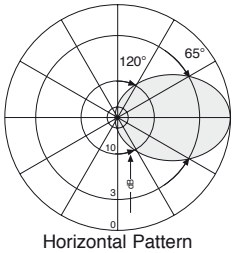


Horizontal Pattern

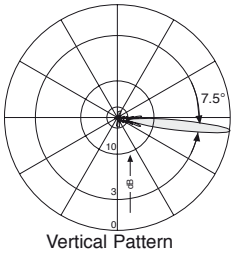


Vertical Pattern
0°–15° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

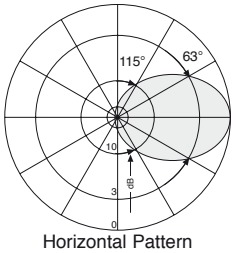


Horizontal Pattern

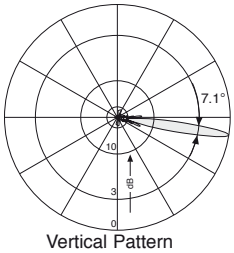


Vertical Pattern
0°–15° electrical downtilt

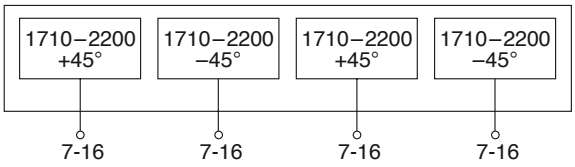
1920 – 2200 MHz: +45°/–45° Polarization

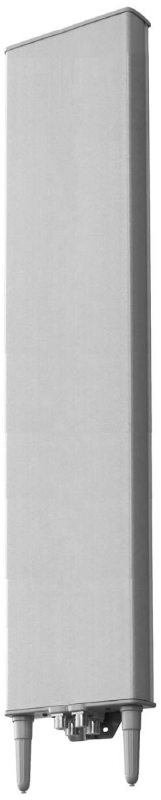


Horizontal Pattern



Vertical Pattern
0°–15° electrical downtilt





Mechanical specifications	
Input	4x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	17 kg
Wind load	Frontal: 600 N (at 150 km/h) Lateral: 120 N (at 150 km/h) Rearside: 650 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1686 x 337 x 112 mm
Height/width/depth	1389 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

2-Multi-band Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	1710–2170	1710–2170
	X	X
	65°	65°
	0°–6°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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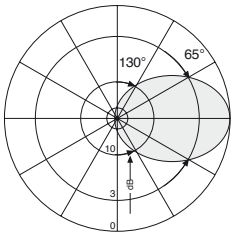
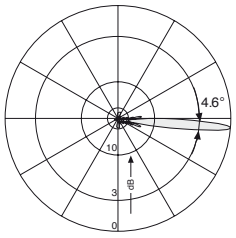
XXPol Panel 1710–2170/1710–2170 65°/65° 19.5/19.5dBi 0°–6°/0°–6°T

Type No.	742 235		
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 19 dBi	4 x 19.2 dBi	4 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 4.6°	Horizontal: 64° Vertical: 4.4°	Horizontal: 63° Vertical: 4.2°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Vertical Pattern – 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
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 Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

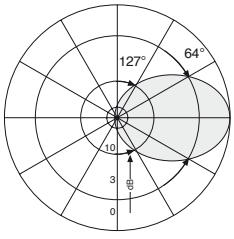


Horizontal Pattern

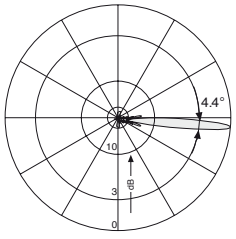


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

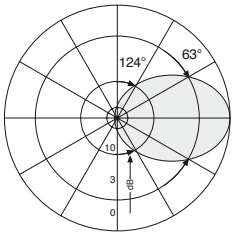


Horizontal Pattern

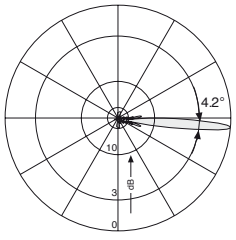


Vertical Pattern
0°–6° electrical downtilt

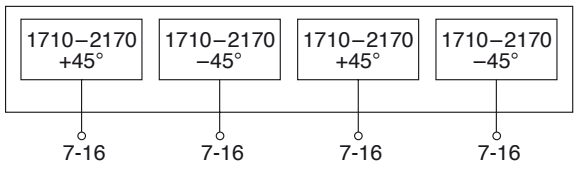
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 920 N (at 150 km/h) Lateral: 190 N (at 150 km/h) Rearside: 920 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2384 x 360 x 130 mm
Height/width/depth	1959 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

2-Multi-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Enhanced Sidelobe Suppression

1710–2200	1710–2200
X	X
65°	65°
0°–10°	0°–10°
18dB	18dB

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Preliminary Issue

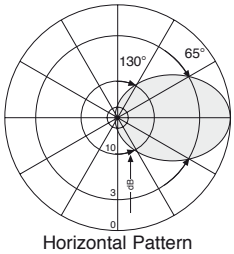
Downtilt set by hand or by optional RCU (Remote Control Unit)

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

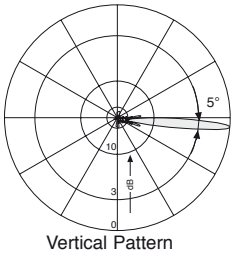
Type No.	800 10511			
Frequency range	1710–2200			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	2000 – 2200 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 18.5 dBi	4 x 18.7 dBi	4 x 19 dBi	4 x 19 dBi
Horizontal Pattern:				
Half-power beam width	65°	63°	62°	62°
Front-to-back ratio (180° ±30°)	≥ 30 dB	≥ 30 dB	≥ 30 dB	≥ 28 dB
Cross polar ratio 0°	Typically: 22 dB	Typically: 22 dB	Typically: 22 dB	Typically: 22 dB
Sector ±60°	≥ 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	≥ 18 ... 18 ... 18 ... 18 dB	≥ 18 ... 18 ... 18 ... 18 dB
– within 0°–20° sector above horizon	≥ 18 ... 18 ... 18 ... 17 dB	≥ 17 ... 18 ... 18 ... 17 dB	≥ 15 ... 18 ... 17 ... 17 dB	≥ 15 ... 16 ... 16 ... 17 dB

Impedance	50 Ω
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)

1710 – 1880 MHz: +45°/–45° Polarization

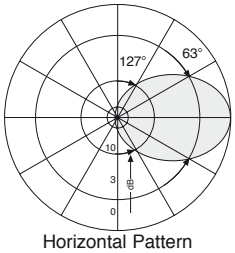


Horizontal Pattern

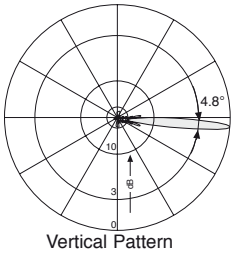


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

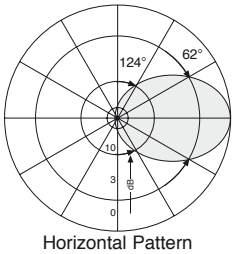


Horizontal Pattern

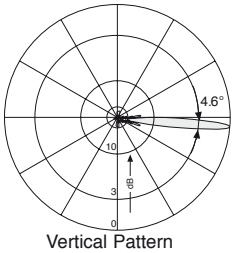


Vertical Pattern
0°–10° electrical downtilt

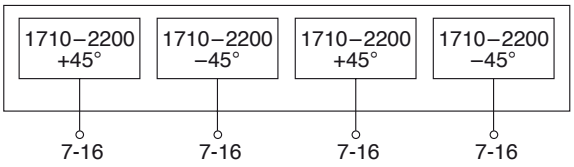
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	4x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 920 N (at 150 km/h) Lateral: 190 N (at 150 km/h) Rearside: 950 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2296 x 337 x 112 mm
Height/width/depth	1999 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

2-Multi-band Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	1710–2180	1710–2180
Dual Polarization	X	X
Half-power Beam Width	88°	88°
Adjust. Electr. Downtilt	0°–10°	0°–10°

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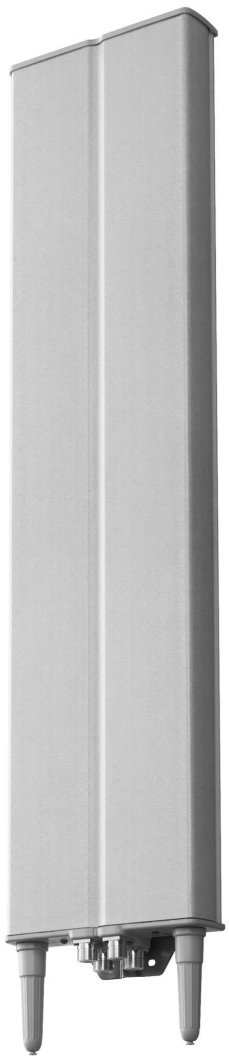
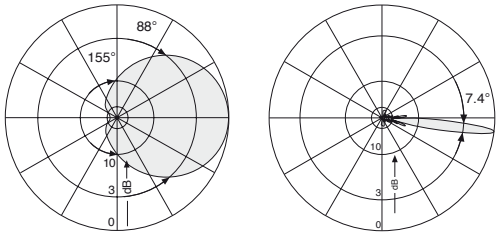
set by hand or by optional RCU (Remote Control Unit)

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



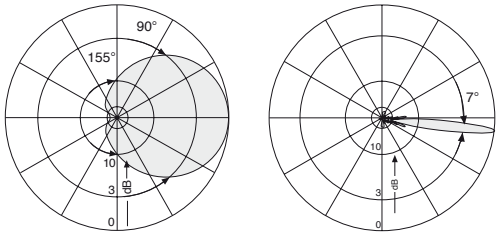
Type No.	742 352		
Frequency range	1710–2180		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain (average) Tilt	16.1 ... 16.3 ... 16.0 dBi 0° ... 5° ... 10°	16.2 ... 16.4 ... 16.1 dBi 0° ... 5° ... 10°	16.5 ... 16.7 ... 16.2 dBi 0° ... 5° ... 10°
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 7.4°	Horizontal: 90° Vertical: 7°	Horizontal: 88° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – 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
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	Typically: 15 dB > 7 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



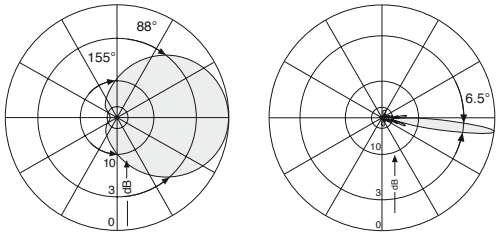
Horizontal Pattern — Vertical Pattern
0° – 10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

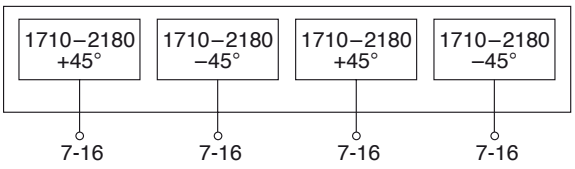


Horizontal Pattern — Vertical Pattern
0° – 10° electrical downtilt

1920 – 2180 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern
0° – 10° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 600 N (at 150 km/h) Lateral: 120 N (at 150 km/h) Rearside: 600 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 360 x 130 mm
Height/width/depth	1319 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Summary – Directional Antennas
Vertical Polarization
1800/1900/2000

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VPol

Type					Type No.	Height [mm]	Connector position	Page
VPol Panel	1710–2180	12°	18.5dBi	0°T	800 10368	299	side	98
VPol Panel	1710–1900	65°	10dBi	0°T	734 304	182	bottom or top	99
VPol BiDir	806–960 / 1710–2170	65°	5dBi	0°T	738 445	310		100
VPol BiDir	806–960 / 1710–2170	65°	5dBi	0°T	738 446	310		100
VPol LogPer	806–2170	65°	11dBi	0°T	742 192	300	bottom	101
VPol Panel	1710–2170	65°	18dBi	0°–10°T	742 445	1302	bottom	102

VVPol

VVPol Panel	824–960 1710–2170	C	90° 82°	7dBi 7dBi	0°T 0°T	742 290	328	bottom or top	103
VVPol Panel	824–960 1710–2170	C	90° 82°	10dBi 11dBi	0°T 0°T	800 10046	662	bottom or top	104

Multi-band Panel
Vertical Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2180
V
12°
0°

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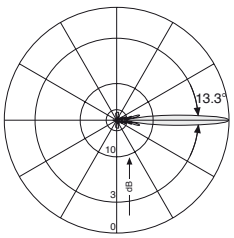
VPol Panel 1710–2180 12° 18.5dBi 0°T

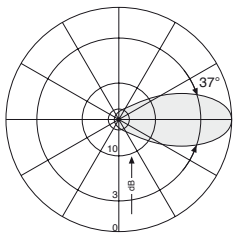
Type No.	800 10368		
Frequency range		1710–2180	
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	Vertical	Vertical	Vertical
Gain	18.1 dBi	18.4 dBi	18.7 dBi
Horizontal Pattern:			
Half-power beam width	13.3°	12.8°	12°
Front-to-back ratio (180° ± 30°)	> 30 dB	> 30 dB	> 30 dB
Sidelobe suppression	> 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

Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power	300 W (at 50 °C ambient temperature)

1710 – 1880 MHz

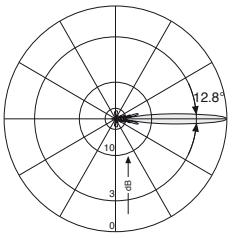


Horizontal Pattern

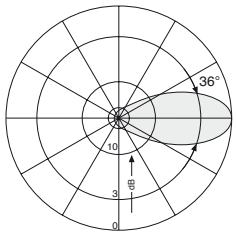


Vertical Pattern

1850 – 1990 MHz

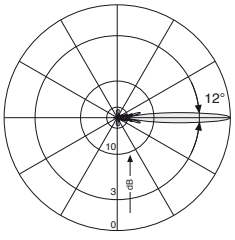


Horizontal Pattern

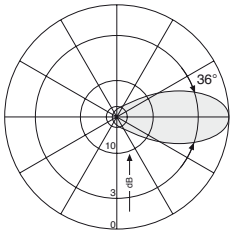


Vertical Pattern

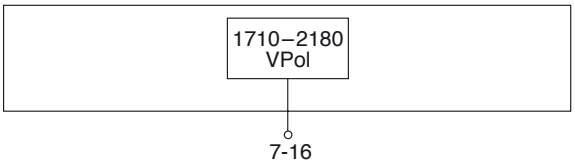
1920 – 2180 MHz



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	1 x 7-16 female
Connector position	Side (see picture)
Weight	9 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 400 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	442 x 852 x 124 mm
Height/width/depth	299 / 743 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel
Vertical Polarization
Half-power Beam Width

1710–1900

V

65°

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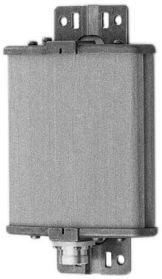
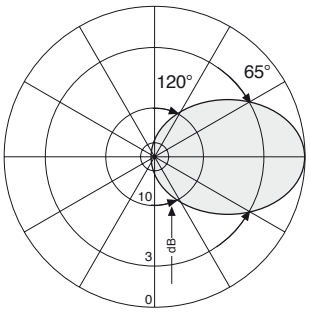
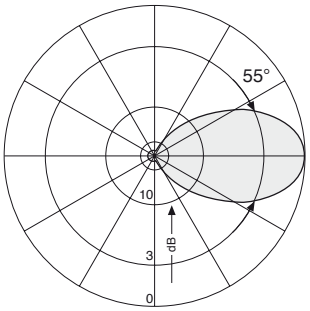
VPol Panel 1710–1900 65° 10dBi

Type No.	734 304
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	10 dBi
Half-power beam width	H-plane: 65° E-plane: 55°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)





Horizontal Pattern



Vertical Pattern

Mechanical specifications	
Input	7-16 female
Connector position*	Bottom or top
Weight	1.3 kg
Wind load	Frontal: 30 N (at 150 km/h) Lateral: 5 N (at 150 km/h) Rearside: 40 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	282 x 172 x 62 mm
Height/width/depth	182 / 155 / 36 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Bidirectional Antenna
Vertical Polarization
Half-power Beam Width

806–960/1710–2170

V

65°

KATHREIN
Antennen · Electronic

VPol BiDir 806–960/1710–2170 65° 5dBi

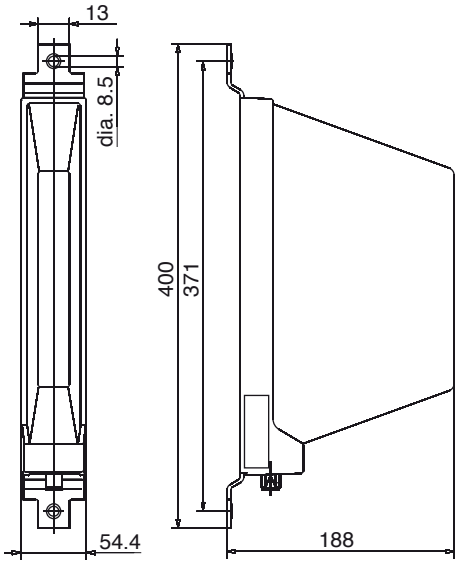
Type No.	738 445	738 446
Input	1 x 7-16 female	1 x N female
Frequency range	806 – 960 MHz, 1710 – 2170 MHz	
VSWR	< 1.7 (806 – 824 MHz) < 1.5 (824 – 960 / 1710 – 2170 MHz)	
Gain	806 – 960 MHz: 5 dBi 1710 – 1880 MHz: 5.5 dBi 1880 – 2170 MHz: 6.5 dBi	
Impedance	50 Ω	
Polarization	Vertical	
Max. power (total)	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.

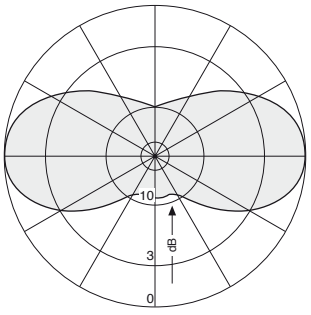
Grounding: All metal parts of the antenna as well as the inner conductor are DC grounded.



All dimensions in mm

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



Typical Horizontal Pattern

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
Impedance	50 Ω	50 Ω	50 Ω
Polarization	Vertical	Vertical	Vertical
Front-to-back ratio	> 25 dB	> 25 dB	> 23 dB
Half-power Beam Width horizontal vertical	 65° 55°	 55° 50°	 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)		
Max. wind velocity	200 km/h		
Packing size	360 x 175 x 1000 mm		
Height/width/depth	300 / 155 / 785 mm		

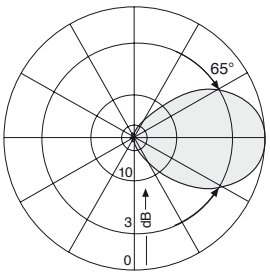
Material: Radiator: Weather-proof aluminum.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: Grey.
All screws and nuts: Stainless steel.

Mounting: The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.

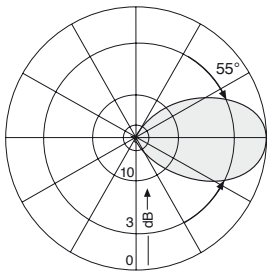
Ice protection: Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

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

806 – 1000 MHz

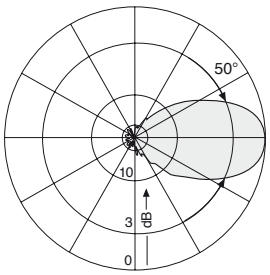


Horizontal Pattern

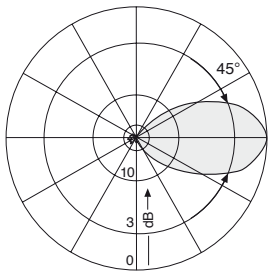


Vertical Pattern

1700 – 2170 MHz



Horizontal Pattern



Vertical Pattern

Multi-band Panel
Vertical Polarization
Half-power Beam Width
Adjust. Electrical Downtilt
set by hand or by optional RCU (Remote Control Unit)

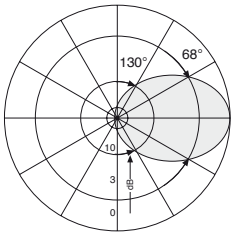
1710–2170
V
65°
0°–10°

KATHREIN
Antennen · Electronic

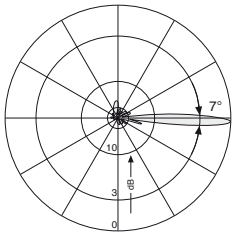
VPol Panel 1710–2170 65° 18dBi 0°–10°T

Type No.	742 445		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	Vertical	Vertical	Vertical
Gain	17.5 dBi	17.9 dBi	18.1 dBi
Half-power beam width	Horizontal: 68° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt	0°–10° continuously adjustable	0°–10° continuously adjustable	0°–10° continuously adjustable
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 18 ... 16 .... 13 dB	0° ... 5° ... 10° T 18 ... 17 ... 14 dB	0° ... 5° ... 10° T 18 ... 17 ... 14 dB
Front-to-back ratio	> 25 dB	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz

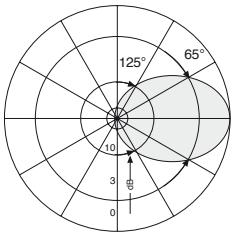


Horizontal Pattern

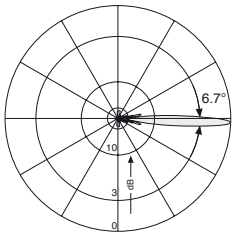


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

1850 – 1990 MHz

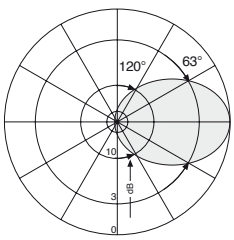


Horizontal Pattern

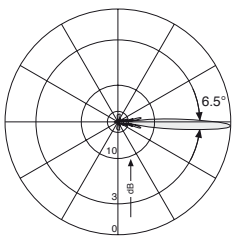


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

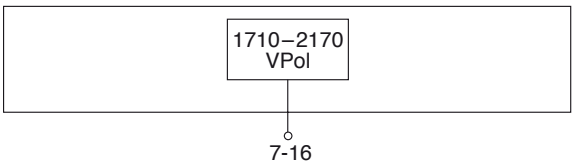
1920 – 2170 MHz



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt
continuously adjustable



Mechanical specifications	
Input	1 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	6.8 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Vertical Polarization
Half-power Beam Width
Integrated Combiner

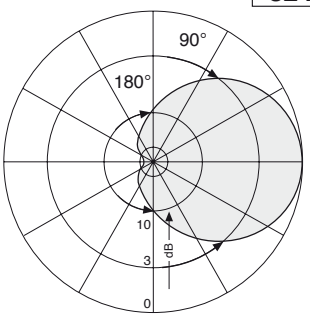
824–960	1710–2170
V	V
90°	82°
C	

KATHREIN
Antennen · Electronic

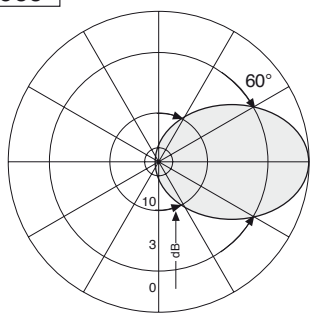
VVPol Panel 824–960/1710–2170 C 90°/82° 7/7dBi

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
Impedance	50 Ω	50 Ω
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)	

824–960

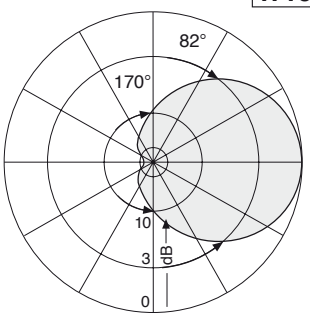


Horizontal Pattern

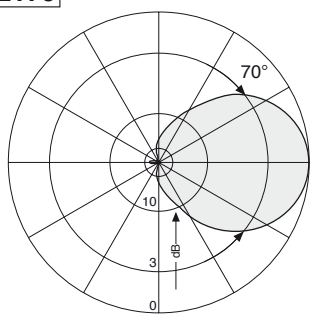


Vertical Pattern

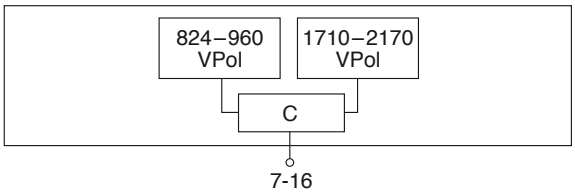
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	1 x 7-16 female
Connector position*	Bottom or top
Weight	2.5 kg
Wind load	Frontal: 30 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 70 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	444 x 172 x 92 mm
Height/width/depth	328 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

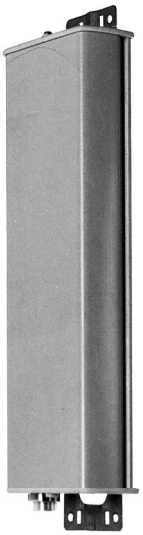
Dual-band Panel
Vertical Polarization
Half-power Beam Width
Integrated Combiner

824–960	1710–2170
V	V
90°	82°
C	

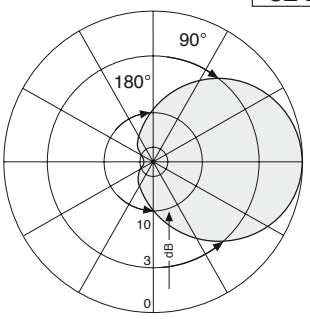
KATHREIN
Antennen · Electronic

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

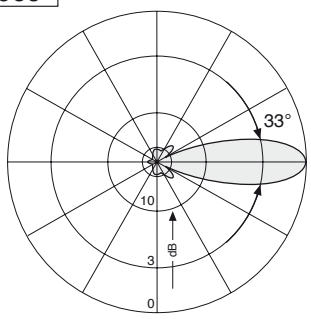
Type No.	800 10046	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	10 dBi	11 dBi
Half-power beam width	Horizontal: 90° Vertical: 33°	Horizontal: 82° Vertical: 19°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)	



824–960

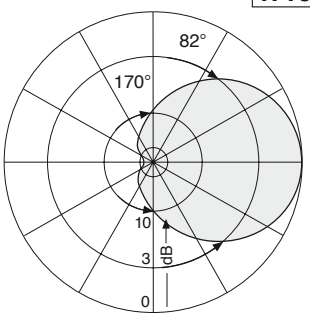


Horizontal Pattern

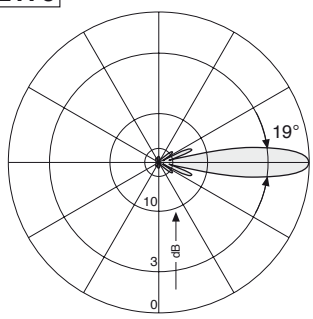


Vertical Pattern

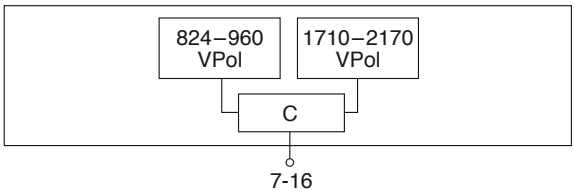
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	1 x 7-16 female
Connector position*	Bottom or top
Weight	4.4 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	804 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Summary – Directional Antennas
Dual-band
800/900 – 1800/2000

KATHREIN
Antennen · Electronic

Dual Polarization +45°/–45°

Type						Type No.	Height [mm]	Connector position	Page
XXPol Panel	806–960	C	65°	8.5dBi	0°T	800 10454	270	bottom or top	106
	1710–2180		60°	9.5dBi	0°T				
XXPol Panel	806–960		65°	12dBi	0°T	742 226	579	bottom or top	107
	1710–2170		60°	14dBi	0°T				
XXPol Panel	806–960	C	65°	12dBi	0°T	742 222	579	bottom or top	108
	1710–2170		60°	14dBi	0°T				
XXPol Panel	824–960	C	65°	14.5dBi	0°–10°T	742 151	1296	bottom	109
	1710–1880		63°	16.5dBi	2°T				
XXPol Panel	824–960		65°	14dBi	0°–14°T	742 264	1316	bottom	110
	1710–2180		65°	17dBi	0°–8°T				
XXPol Panel	824–960	C	65°	14dBi	0°–14°T	742 223	1316	bottom	111
	1710–2180		65°	17dBi	0°–8°T				
XXPol Panel	870–960		65°	17dBi	0°T	741 327	1936	bottom or top	112
	1710–1880		60°	18.5dBi	0°T				
XXPol Panel	870–960	C	65°	17dBi	0°T	741 322	1936	bottom or top	113
	1710–1880		60°	18dBi	0°T				
XXPol Panel	824–960		65°	16dBi	0°–10°T	742 265	1916	bottom	114
	1710–2180		65°	18.5dBi	0°–6°T				
XXPol Panel	824–960	C	65°	16dBi	0°–10°T	742 224	1916	bottom	115
	1710–2180		65°	18.5dBi	0°–6°T				
XXPol Panel	870–960		65°	17.5dBi	6°T	741 344	2580	bottom	116
	1710–1880		60°	18dBi	0°T				
XXPol Panel	870–960	C	65°	17.5dBi	6°T	741 336	2580	bottom	117
	1710–1880		60°	17.5dBi	0°T				
XXPol Panel	870–960	C	65°	17dBi	2°–8°T	742 047	2580	bottom	118
	1710–1880		60°	18dBi	2°T				
XXPol Panel	824–960		65°	17dBi	0°–7°T	742 266	2516	bottom	119
	1710–2180		65°	18.5dBi	0°–6°T				
XXPol Panel	806–960		65°	17.5dBi	4°–12°T	800 10486	2576	bottom	120
	1710–2180		65°	17.5dBi	4°–14°T				
XXPol Panel	824–960	C	65°	17dBi	0°–7°T	742 225	2516	bottom	121
	1710–2180		65°	18.5dBi	0°–6°T				
XXPol Panel	806–960		88°	13.5dBi	0°–12°T	800 10121	1384	bottom	122
	1710–2180		88°	16.5dBi	0°–10°T				
XXPol Panel	806–960		88°	15.2dBi	0°–10°T	800 10122	1917	bottom	123
	1710–2180		88°	18dBi	0°–6°T				
XXPol Panel	806–960		88°	16.5dBi	0°–7°T	800 10123	2635	bottom	124
	1710–2180		88°	18dBi	0°–6°T				

C = integrated Combiner

New Products

Dual-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electr. Downtilt
Integrated Combiner

806–960	1710–2180
X	X
65°	65°
0°	0°
C	

KATHREIN
Antennen · Electronic

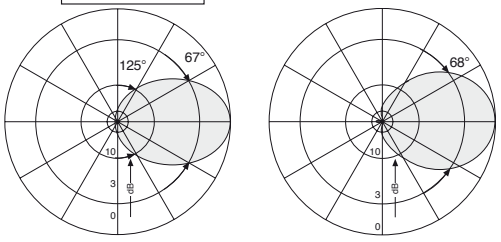
XXPol Panel 806–960/1710–2180 C 65°/65° 8.5/9.5dBi

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 Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 19 dB > 10 dB	Typically: 20 dB > 10 dB
Vertical Pattern:						
Half-power beam width	68°	68°	69°	64°	62°	60°

Impedance	50 Ω
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)

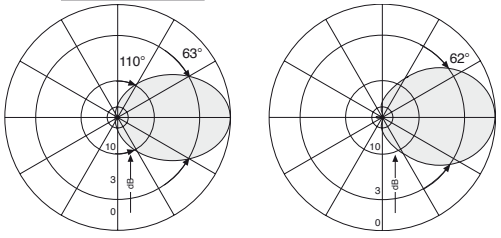
Integrated combiner	The insertion loss is included in the given antenna gain values.

806–960 +45°/–45° Polarization

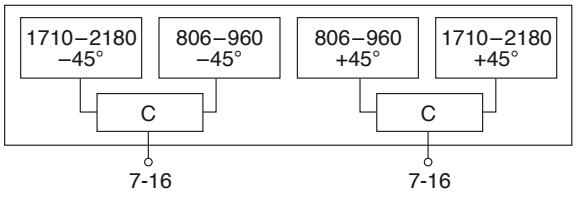


Horizontal Pattern Vertical Pattern

1710–2180 +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	4.3 kg
Wind load	Frontal: 45 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 95 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	377 x 287 x 165 mm
Height/width/depth	270 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Dual-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electr. Downtilt

	806–960	1710–2170
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Fixed Electr. Downtilt	0°	0°

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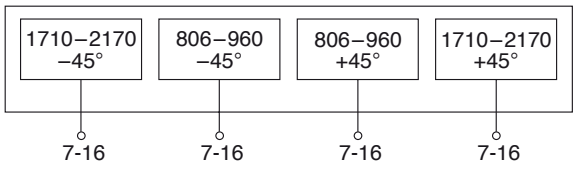
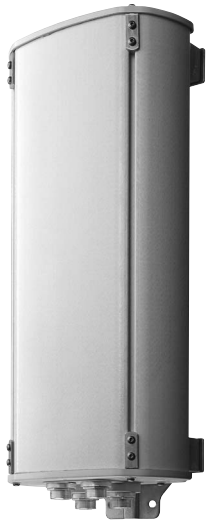
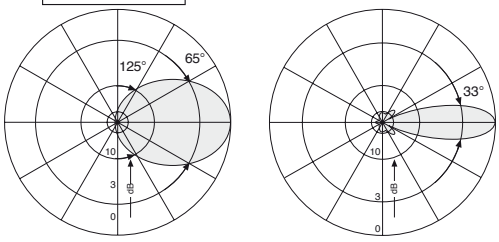
XXPol Panel 806–960/1710–2170 65°/60° 12/14dBi 0°/0°T

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 [dB] (180° ±30°) [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	Copolar: > 25 Total power: > 22
Cross polar ratio Maindirection 0° Sector ±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	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 45 dB (806–960 // 1710–2170 MHz)					
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
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)		



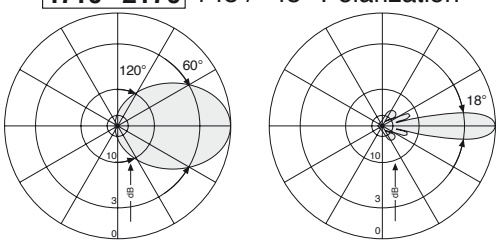


806–960 +45°/–45° Polarization



Horizontal Pattern Vertical Pattern

1710–2170 +45°/–45° Polarization



Horizontal Pattern Vertical Pattern

Mechanical specifications	
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 N / 80 N / 180 N
Max. wind velocity	200 km/h
Packing size	736 x 302 x 192 mm
Height/width/depth	579 / 262 / 139 mm

* Inverted mounting:
Connector position top: Change 3 drain hole screws.

Dual-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electr. Downtilt
Integrated Combiner

	806–960	1710–2170
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Fixed Electr. Downtilt	0°	0°
Integrated Combiner	C	

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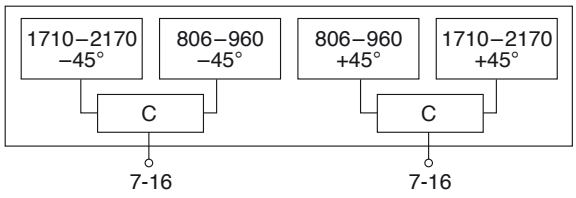
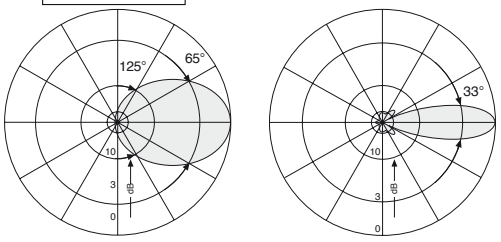
XXPol Panel 806–960/1710–2170 C 65°/60° 12/14dBi 0°/0°T

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 [dB] (180° ± 30°) [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	Copolar: > 25 Total power: > 22
Cross polar ratio Maindirection 0° Sector ±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	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)			< –150 dBc (2 x 43 dBm carrier)		
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)					
Integrated combiner	The insertion loss is included in the given antenna gain values.					

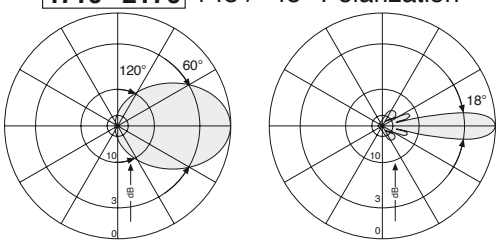


806–960 +45°/–45° Polarization



Horizontal Pattern Vertical Pattern

1710–2170 +45°/–45° Polarization



Horizontal Pattern Vertical Pattern

Mechanical specifications	
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 N / 80 N / 180 N
Max. wind velocity	200 km/h
Packing size	736 x 302 x 192 mm
Height/width/depth	579 / 262 / 139 mm

* Inverted mounting:
Connector position top: Change 3 drain hole screws.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Integrated Combiner

824–960	1710–1880
X	X
65°	63°
0°–10°	2°
C	

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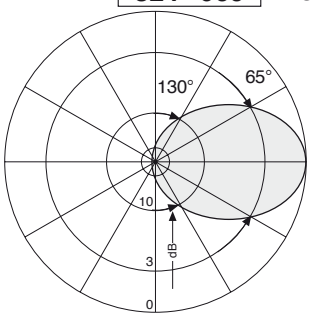
XXPol Panel 824–960/1710–1880 C 65°/63° 14.5/16.5dBi 0°–10°T/2°T

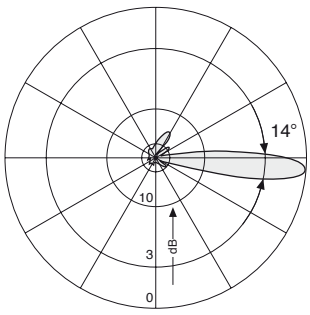
Type No.	742 151		
Frequency range	824–960		1710–1880
	824 – 880 MHz	880 – 960 MHz	1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14.5 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 65° Vertical: 14°	Horizontal: 63° Vertical: 8.5°
Electrical tilt	0°–10°	0°–10°	2°
Sidelobe suppression for first sidelobe above horizon	0° ... 6° ... 10°T 16 ... 13 ... 12 dB	0° ... 6° ... 10°T 17 ... 15 ... 13 dB	16 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		> 30 dB
Impedance	50 Ω		50 Ω
VSWR	< 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)		150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

824–960 +45°/–45° Polarization

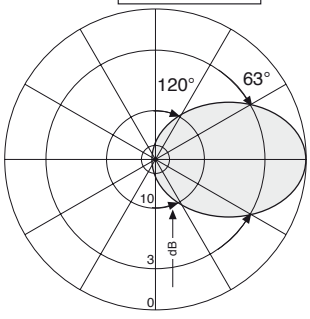


Horizontal Pattern

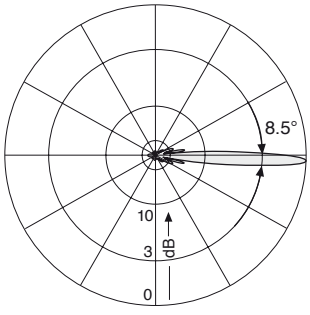


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

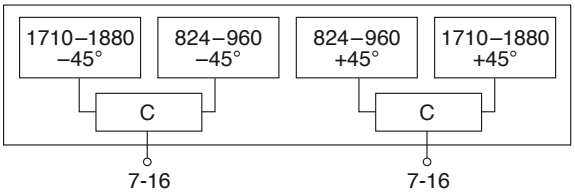
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	824–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–14°	0°–8°

set by hand or by optional RCU (Remote Control Unit)

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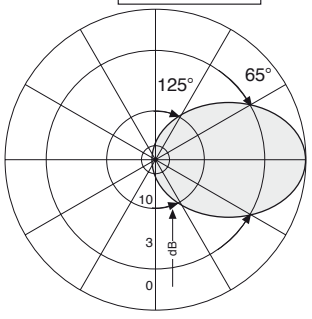
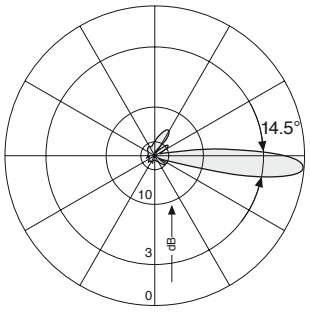
XXPol Panel 824–960/1710–2180 65°/65° 14/17dBi 0°–14°/0°–8°T

Type No.	742 264				
Frequency range	824–960		1710–2180		
	824–894 MHz	870–960 MHz	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
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
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	> 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		

824–960 +45°/–45° Polarization

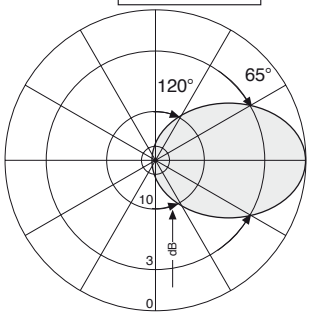


Horizontal Pattern

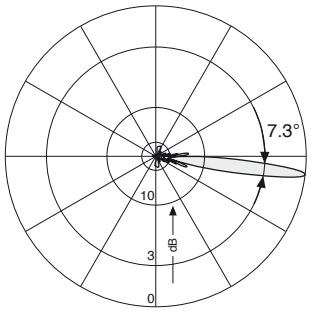


Vertical Pattern
0°–14° electrical downtilt

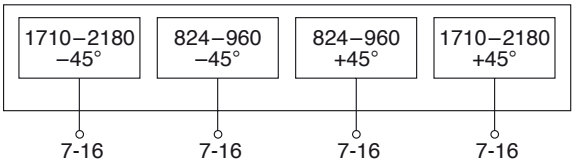
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 430 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1615 x 302 x 192 mm
Height/width/depth	1316 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Integrated Combiner

	824–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–14°	0°–8°
Integrated Combiner	C	

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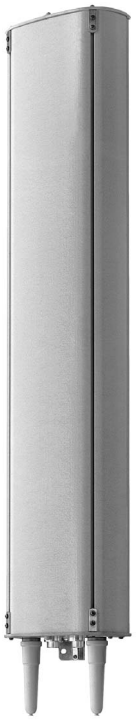
Downtilt set by hand or by optional RCU (Remote Control Unit)

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

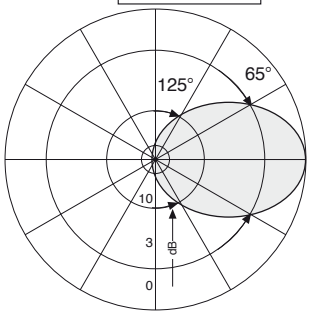


Type No.	742 223				
Frequency range	824–960		1710–2180		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1900–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14 dBi	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	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°	7.3°	6.8°
Electrical tilt continuously adjust.	0°–14°		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

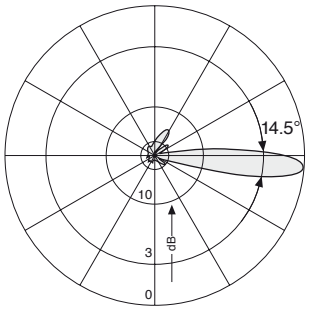
Impedance	50 Ω	
VSWR	< 1.5	
Isolation: Intrasystem	> 30 dB	
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)	
Max. power	250 W	200 W
	(at 50 °C ambient temperature)	
Max. power per combined input	450 W (at 50 °C ambient temperature)	

Integrated combiner	The insertion loss is included in the given antenna gain values.

824–960 +45°/–45° Polarization

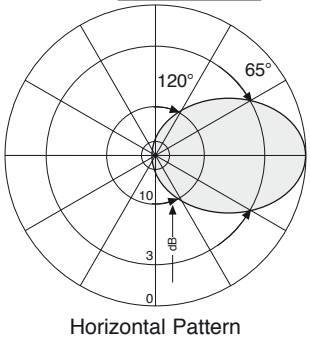


Horizontal Pattern

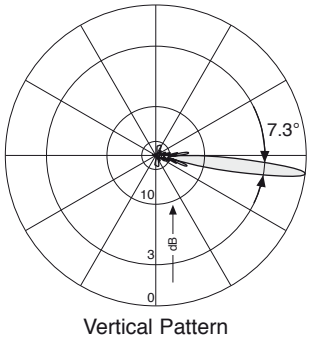


Vertical Pattern
0°–14° electrical downtilt

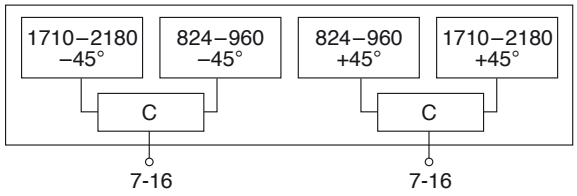
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 430 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1626 x 302 x 192 mm
Height/width/depth	1316 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°

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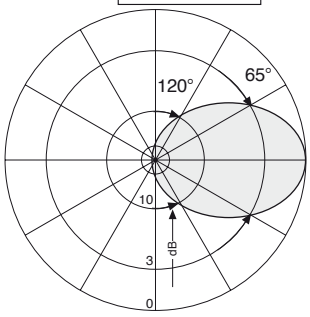
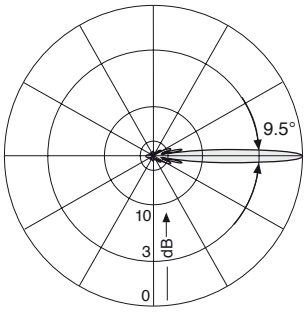
XXPol Panel 870–960/1710–1880 65°/60° 17/18.5dBi

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)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W

870–960 +45°/–45° Polarization

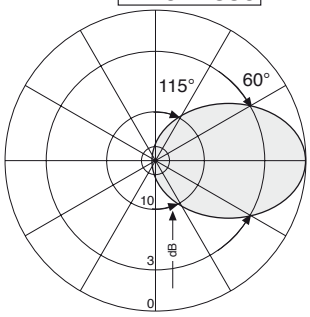


Horizontal Pattern

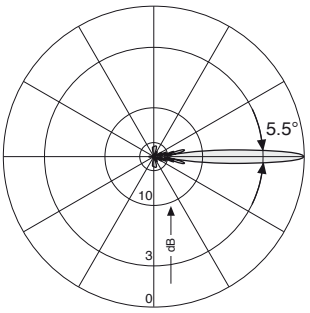


Vertical Pattern

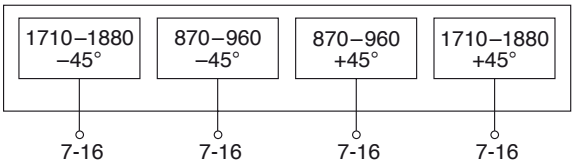
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	19 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 287 x 165 mm
Height/width/depth	1936 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Dual-band Panel
Dual Polarization
Half-power Beam Width
Integrated Combiner

870–960	1710–1880
X	X
65°	60°
C	

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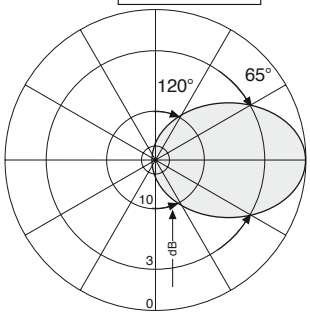
XXPol Panel 870–960/1710–1880 C 65°/60° 17/18dBi

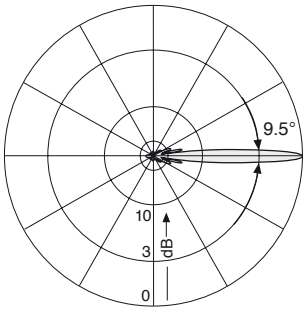
Type No.	741 322	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 9.5°	Horizontal: 60° Vertical: 5.5°
Sidelobe suppression for first sidelobe above horizon	> 15 dB	> 15 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 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)	150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

870–960 +45°/–45° Polarization

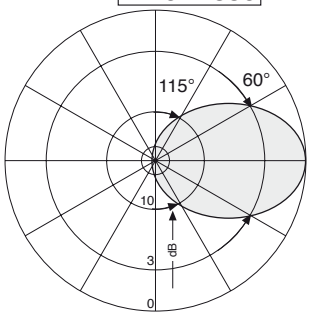


Horizontal Pattern

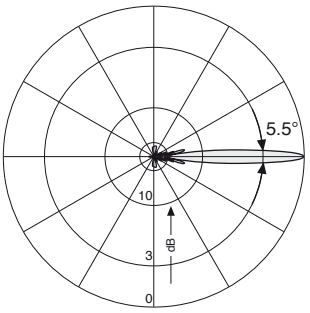


Vertical Pattern

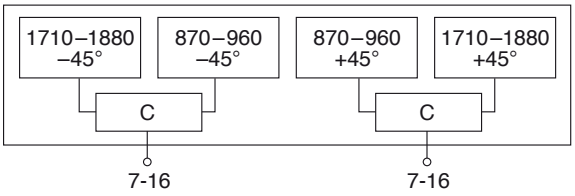
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	19 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 287 x 165 mm
Height/width/depth	1936 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	824–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–10°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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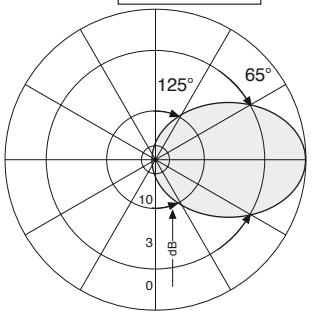
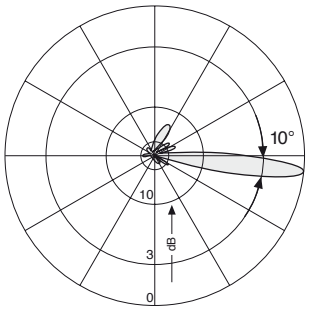
XXPol Panel 824–960/1710–2180 65°/65° 16/18.5dBi 0°–10°/0°–6°T

Type No.	742 265				
Frequency range	824–960		1710–2180		
	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°
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
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
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	> 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		

824–960 +45°/–45° Polarization

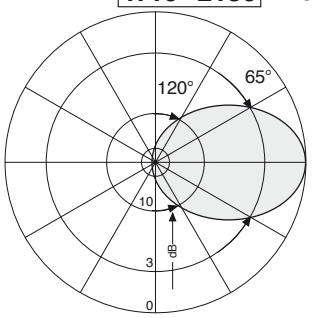


Horizontal Pattern

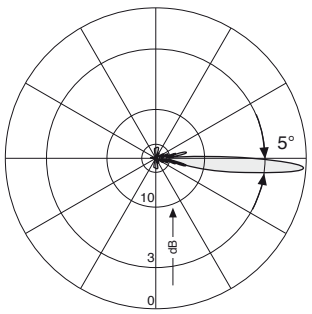


Vertical Pattern
0.5°–9.5° electrical downtilt

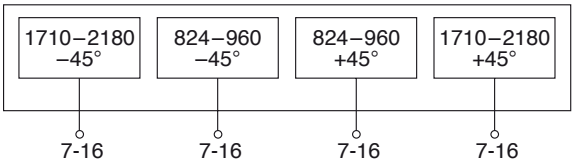
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	22 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 640 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2215 x 302 x 192 mm
Height/width/depth	1916 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Integrated Combiner

824–960	1710–2180
X	X
65°	65°
0°–10°	0°–6°
C	

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Downtilt set by hand or by optional RCU (Remote Control Unit)

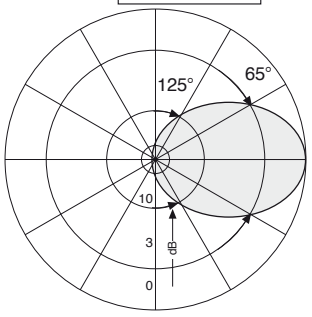
XXPol Panel 824–960/1710–2180 C 65°/65° 16/18.5dBi 0°–10°/0°–6°T

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°	66°	65°	63°
Front-to-back ratio, copolar	> 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: 20 dB > 10 dB
Vertical Pattern:					
Half-power beam width	10.5°	10°	5.2°	5.0°	4.7°
Electrical tilt continuously adjust.	0.5°–9.5°		0°–6°		
Sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 16 ... 16 ... 17 dB	0° ... 5° ... 10° T 18 ... 18 ... 18 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 16 ... 16 ... 15 dB

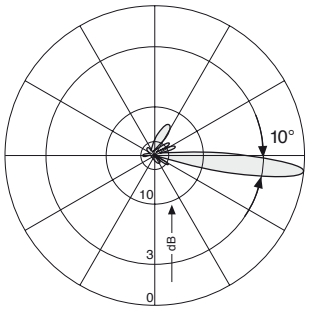
Impedance	50 Ω
VSWR	< 1.5
Isolation: Intrasystem	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power	250 W | 200 W (at 50 °C ambient temperature)
Max. power per combined input	450 W (at 50 °C ambient temperature)

Integrated combiner	The insertion loss is included in the given antenna gain values.

824–960 +45°/–45° Polarization

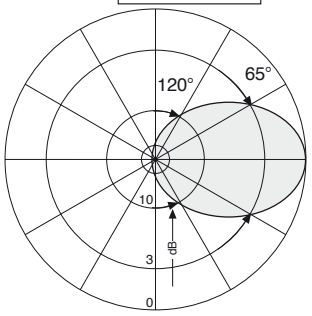


Horizontal Pattern

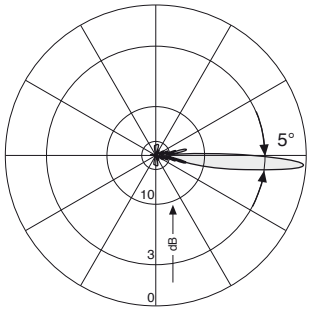


Vertical Pattern
0.5°–9.5° electrical downtilt

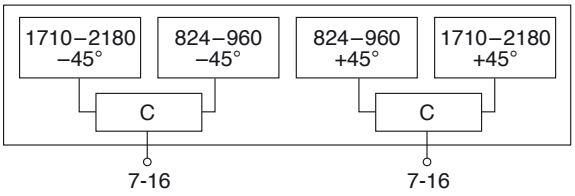
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	23 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 640 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2227 x 302 x 192 mm
Height/width/depth	1916 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Fixed Electrical Downtilt	6°	6°

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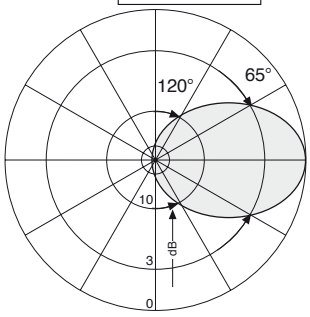
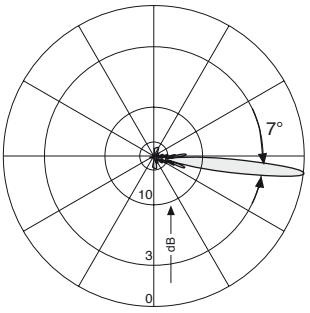
XXPol Panel 870–960/1710–1880 65°/60° 17.5/18dBi 6°T

Type No.	741 344	
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 18 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 (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W

870–960 +45°/–45° Polarization

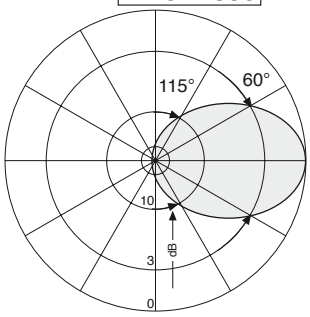


Horizontal Pattern

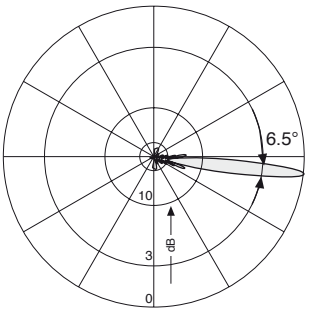


Vertical Pattern
6° electrical downtilt

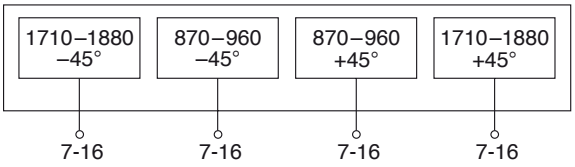
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Dual-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt
Integrated Combiner

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Fixed Electrical Downtilt	6°	6°
Integrated Combiner	C	

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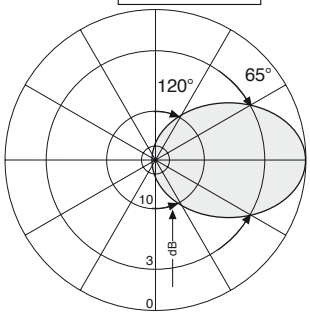
Antennen · Electronic

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

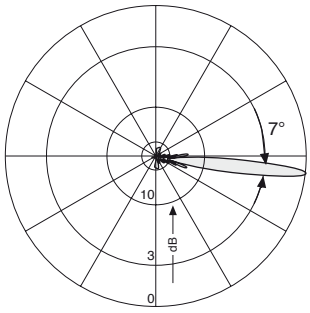
Type No.	741 336	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6.5°
Electrical tilt	6°, fixed	6°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 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)	150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

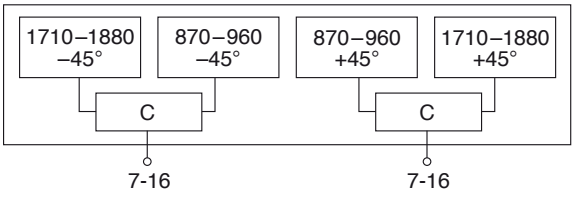
870–960 +45°/–45° Polarization



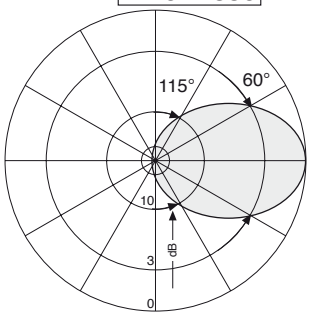
Horizontal Pattern



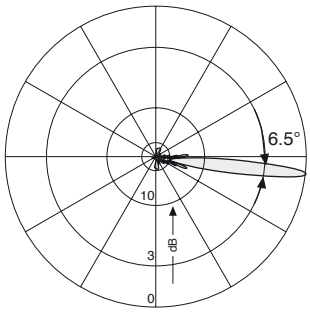
Vertical Pattern
6° electrical downtilt



1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Integrated Combiner

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Adjust. Electr. Downtilt	2°–8°	2°
Integrated Combiner	C	

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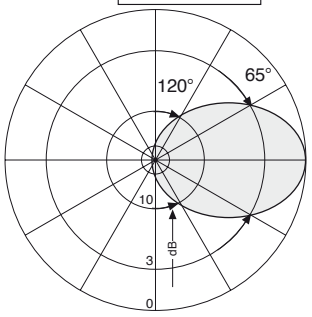
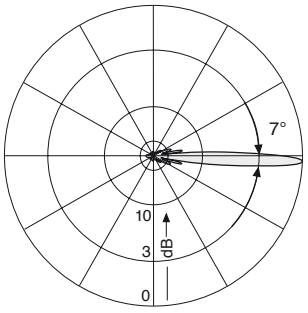
XXPol Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T

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
Impedance	50 Ω	50 Ω
VSWR	< 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)	150 W
Integrated combiner	The insertion loss is included in the given antenna gain values.	

870–960 +45°/–45° Polarization

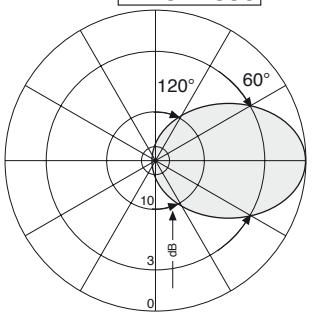


Horizontal Pattern

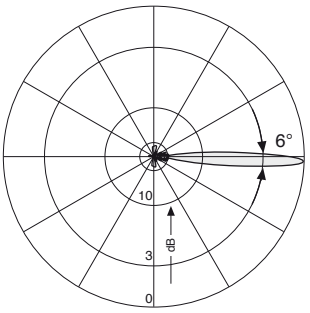


Vertical Pattern
2°–8° electrical downtilt
continuously adjustable

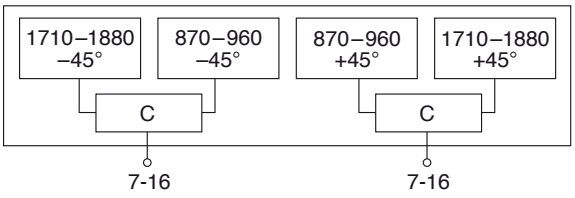
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	824–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–7°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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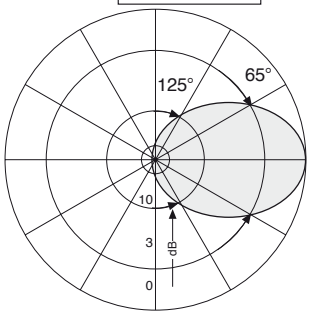
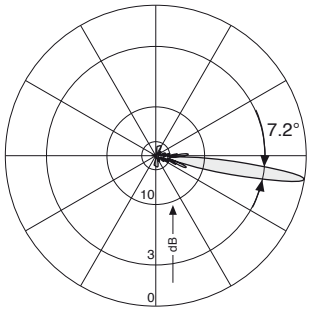
XXPol Panel 824–960/1710–2180 65°/65° 17/18.5dBi 0°–7°/0°–6°T

Type No.	742 266				
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 17 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°	62°
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: 17 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 18 dB > 10 dB
Vertical Pattern:					
Half-power beam width	7.3°	7.0°	5.2°	5.0°	4.7°
Electrical tilt continuously adjustable	0.5°–7°	0.5°–7°	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above main beam	0.5° ... 4° ... 7° T 14 ... 14 ... 14 dB	0.5° ... 4° ... 7° T 16 ... 16 ... 16 dB	0° ... 3° ... 6° T 13 ... 13 ... 13 dB	0° ... 3° ... 6° T 16 ... 15 ... 14 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
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	> 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		

824–960 +45°/–45° Polarization

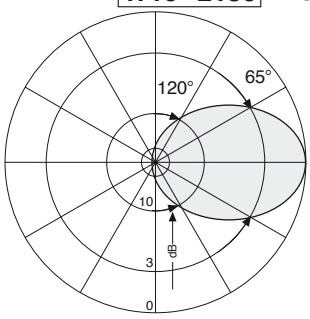


Horizontal Pattern

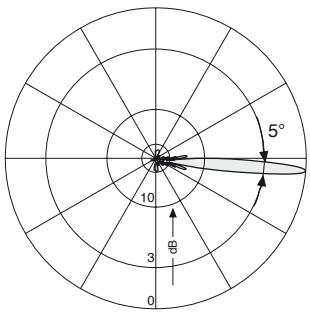


Vertical Pattern
0.5°–7° electrical downtilt

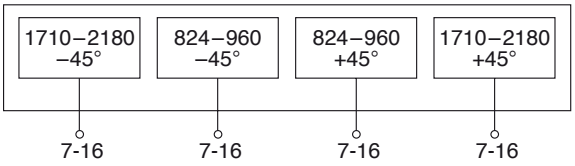
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	27 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2815 x 302 x 192 mm
Height/width/depth	2516 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	4°–12°	4°–14°

set by hand or by optional RCU (Remote Control Unit)

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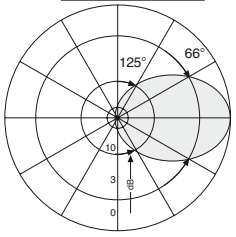
XXPol Panel 806–960/1710–2180 65°/65° 17.5/18.5dBi 4°–12°/4°–14°T

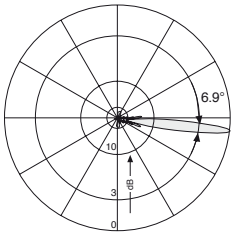
Type No.	800 10486					
Frequency range	806–960			1710–2180		
	806 – 866 MHz	824 – 896 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	16.8 ... 17 ... 16.8	17 ... 17.1 ... 17	17.2 ... 17.2 ... 17	17.8 ... 17.8 ... 17.5	18.2 ... 18.2 ... 17.8	18.5 ... 18.5 ... 18
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	69°	66°	66°	67°	65°	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°	25 dB	25 dB	25 dB	18 dB	18 dB	20 dB
Sector ±60°	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Vertical Pattern:						
Half-power beam width	7.3°	7.2°	6.9°	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	17 ... 16 ... 14 dB	17 ... 16 ... 14 dB	18 ... 18 ... 16 dB	18 ... 18 ... 16 dB	18 ... 18 ... 16 dB	18 ... 18 ... 16 dB
– within 0°–20° sector above horizon	17 ... 16 ... 14 dB	17 ... 16 ... 14 dB	18 ... 18 ... 16 dB	17 ... 17 ... 15 dB	17 ... 17 ... 15 dB	17 ... 17 ... 15 dB

Impedance	50 Ω	
VSWR	< 1.5	
Isolation: Intrasystem	> 30 dB	
Isolation: Intersystem	> 45 dB (806–960 // 1710–2180 MHz)	
Intermodulation IM3	< –153 dBc (2 x 43 dBm carrier)	
Max. power per input Total power	400 W (at 50 °C ambient temperature) 800 W (at 50 °C ambient temperature)	250 W (at 50 °C ambient temperature) 500 W (at 50 °C ambient temperature)

806–960 +45°/–45° Polarization

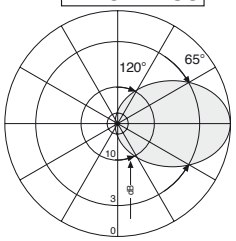


Horizontal Pattern

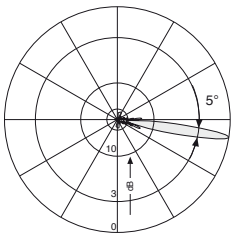


Vertical Pattern
4°–12° electrical downtilt

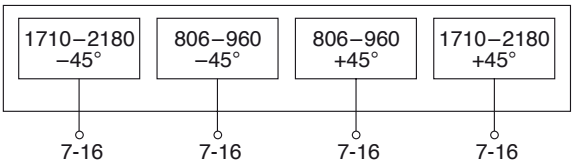
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
4°–14° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2 x, Position bottom continuously adjustable
Weight	26 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2886 x 302 x 192 mm
Height/width/depth	2576 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel | 824–960 | 1710–2180
Dual Polarization | X | X
Half-power Beam Width | 65° | 65°
Adjust. Electr. Downtilt | 0°–7° | 0°–6°
Integrated Combiner | C

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Downtilt set by hand or by optional RCU (Remote Control Unit)

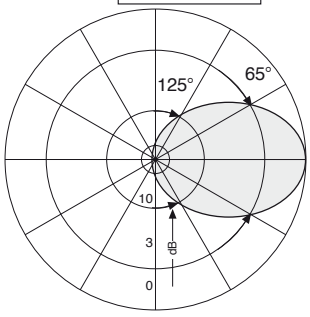
XXPol Panel 824–960/1710–2180 C 65°/65° 17/18.5dBi 0°–7°/0°–6°T

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 17 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.5 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	66°	65°	63°
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: 20 dB > 10 dB
Vertical Pattern:					
Half-power beam width	8.1°	7.5°	5.2°	5.0°	4.7°
Electrical tilt continuously adjust.	0.5°–7°		0°–6°		
Sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 3° ... 6° T 15 ... 16 ... 16 dB	0° ... 3° ... 6° T 16 ... 16 ... 15 dB	0° ... 3° ... 6° T 16 ... 16 ... 15 dB

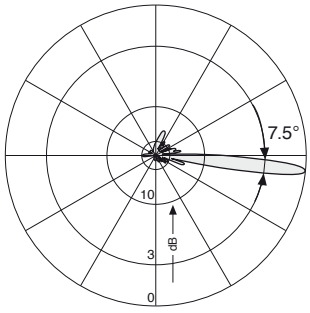
Impedance	50 Ω
VSWR	< 1.5
Isolation: Intrasystem	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power	250 W | 200 W (at 50 °C ambient temperature)
Max. power per combined input	450 W (at 50 °C ambient temperature)

Integrated combiner	The insertion loss is included in the given antenna gain values.

824–960 +45°/–45° Polarization

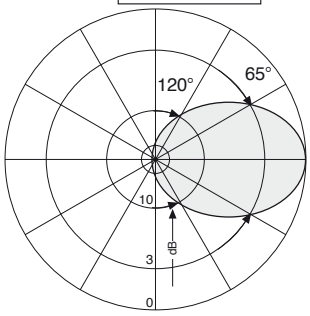


Horizontal Pattern

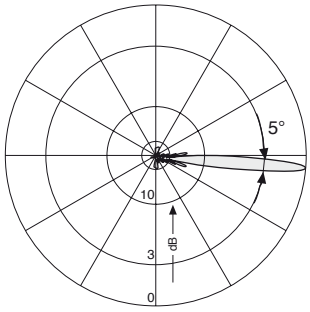


Vertical Pattern
0.5°–7° electrical downtilt

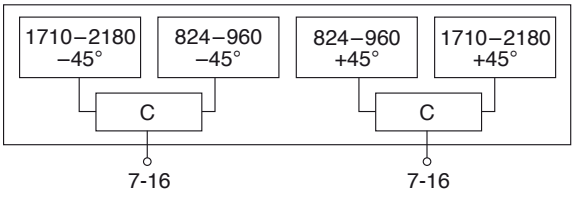
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	26 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2826 x 302 x 192 mm
Height/width/depth	2516 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	88°	88°
Adjust. Electr. Downtilt	0°–12°	0°–10°

set by hand or by optional RCU (Remote Control Unit)

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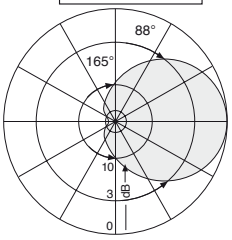
XXPol Panel 806–960/1710–2180 88°/88° 13.5/16.5dBi 0°–12°/0°–10°T

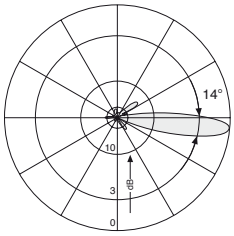
Type No.	800 10121					
Frequency range		806–960			1710–2180	
	806 – 866 MHz	824 – 896 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	13.4 ... 13.4 ... 13.1 0° ... 6° ... 12°	13.6 ... 13.6 ... 13.4 0° ... 6° ... 12°	13.9 ... 13.8 ... 13.5 0° ... 6° ... 12°	16.4 ... 16.4 ... 16.2 0° ... 5° ... 10°	16.4 ... 16.5 ... 16 0° ... 5° ... 10°	16.4 ... 15.9 ... 15.3 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 Maindirection 0° Sector ±60° ±60°	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 20 dB > 13 dB avg. 19 dB	Typically: 17 dB > 10 dB avg. 17 dB	Typically: 16 dB > 12 dB avg. 19 dB	Typically: 15 dB > 10 dB avg. 19 dB
Vertical Pattern:						
Half-power beam width	15.0°	14.5°	13.5°	7.1°	6.8°	6.5°
Electrical tilt continuously adjustable	0.5°–12.5°	0.5°–12.5°	0.5°–12.5°	0.5°–10°	0.5°–10°	0.5°–10°
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

Impedance	50 Ω	
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 Total power	500 W (at 50 °C ambient temperature) 1000 W (at 50 °C ambient temperature)	250 W (at 50 °C ambient temperature) 500 W (at 50 °C ambient temperature)

806–960 +45°/–45° Polarization

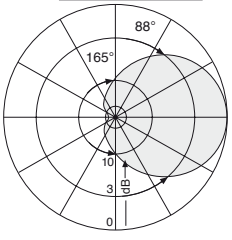


Horizontal Pattern

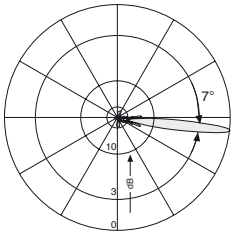


Vertical Pattern
0.5°–12° electr. downtilt

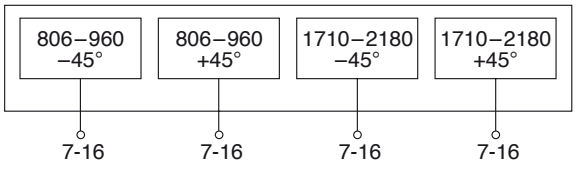
1710–2180 +45°/–45° Polarization



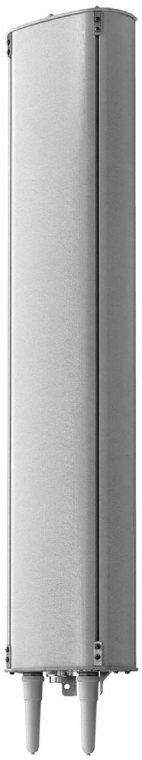
Horizontal Pattern



Vertical Pattern
0.5°–10° electr. downtilt



Mechanical specifications	
Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	21 kg
Wind load	Frontal: 260 N (at 150 km/h) Lateral: 210 N (at 150 km/h) Rearside: 580 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1716 x 304 x 204 mm
Height/width/depth	1384 / 262 / 149 mm



Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	88°	88°
Adjust. Electr. Downtilt	0°–10°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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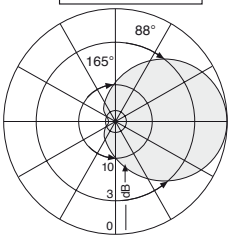
XXPol Panel 806–960/1710–2180 88°/88° 15.2/18dBi 0°–10°/0°–6°T

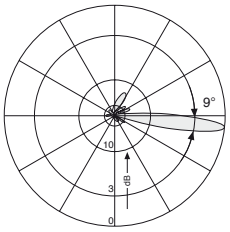
Type No.	800 10122					
Frequency range	806–960			1710–2180		
	806 – 866 MHz	824 – 896 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	14.7 ... 14.9 ... 14.7 0° ... 5° ... 10°	15.0 ... 15.2 ... 15.0 0° ... 5° ... 10°	15.0 ... 15.2 ... 15.0 0° ... 5° ... 10°	17.7 ... 17.8 ... 17.7 0° ... 3° ... 6°	17.7 ... 18.0 ... 17.6 0° ... 3° ... 6°	17.6 ... 17.8 ... 17.4 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 Maindirection 0° Sector ±60° ±60°	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 20 dB > 13 dB avg. 19 dB	Typically: 17 dB > 10 dB avg. 17 dB	Typically: 16 dB > 12 dB avg. 19 dB	Typically: 15 dB > 10 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 16 ... 16 ... 14 dB	0° ... 5° ... 10° T 16 ... 16 ... 16 dB	0° ... 5° ... 10° T 16 ... 16 ... 14 dB	0° ... 3° ... 6° T 18 ... 18 ... 16 dB	0° ... 3° ... 6° T 18 ... 18 ... 16 dB	0° ... 3° ... 6° T 18 ... 18 ... 16 dB

Impedance	50 Ω	
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 Total power	500 W (at 50 °C ambient temperature) 1000 W (at 50 °C ambient temperature)	250 W (at 50 °C ambient temperature) 500 W (at 50 °C ambient temperature)

806–960 +45°/–45° Polarization

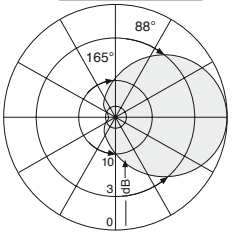


Horizontal Pattern

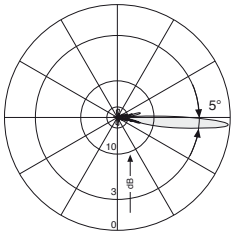


Vertical Pattern
0°–10° electr. downtilt

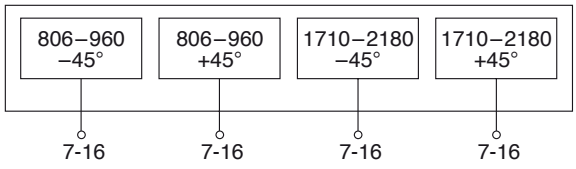
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electr. downtilt



Mechanical specifications		
Input	4 x 7-16 female (long neck)	
Connector position	Bottom	
Adjustment mechanism	2x, Position bottom continuously adjustable	
Weight	27 kg	
Wind load	Frontal: Lateral: Rearside:	340 N (at 150 km/h) 280 N (at 150 km/h) 640 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	2249 x 304 x 204 mm	
Height/width/depth	1917 / 262 / 149 mm	

Dual-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–2180
Dual Polarization	X	X
Half-power Beam Width	88°	88°
Adjust. Electr. Downtilt	0°–7°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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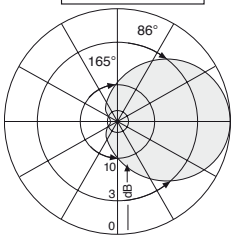
XXPol Panel 806–960/1710–2180 88°/88° 16.5/18dBi 0°–7°/0°–6°T

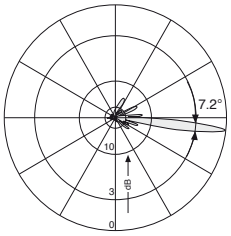
Type No.	800 10123					
Frequency range	806–960			1710–2180		
	806 – 866 MHz	824 – 896 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	16.1 ... 16.2 ... 16.1 0° ... 4° ... 7°	16.3 ... 16.4 ... 16.3 0° ... 4° ... 7°	16.5 ... 16.6 ... 16.5 0° ... 4° ... 7°	17.8 ... 17.7 ... 17.4 0° ... 3° ... 6°	18.0 ... 17.9 ... 17.4 0° ... 3° ... 6°	17.9 ... 17.8 ... 17.3 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 Maindirection 0° Sector ±60° ±60°	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 20 dB > 13 dB avg. 19 dB	Typically: 16 dB > 10 dB avg. 16 dB	Typically: 16 dB > 12 dB avg. 17 dB	Typically: 15 dB > 10 dB avg. 18 dB
Vertical Pattern:						
Half-power beam width	7.3°	7.2°	6.9°	4.8°	4.5°	4.2°
Electrical tilt continuously adjustable	0.5°–7°			0°–6°		
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

Impedance	50 Ω	
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 Total power	500 W (at 50 °C ambient temperature) 1000 W (at 50 °C ambient temperature)	250 W (at 50 °C ambient temperature) 500 W (at 50 °C ambient temperature)

806–960 +45°/–45° Polarization

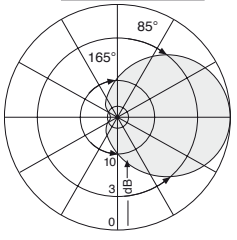


Horizontal Pattern

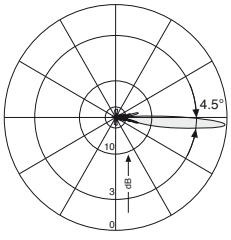


Vertical Pattern
0.5°–7° electr. downtilt

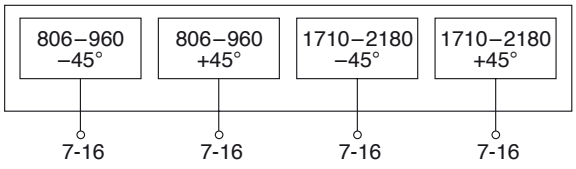
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electr. downtilt



Mechanical specifications	
Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	33 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2966 x 304 x 204 mm
Height/width/depth	2635 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Summary – Directional Antennas
Triple-band
800/900 – 1800/2000

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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	126
	1710–1880	66°	16.5dBi	0°–8°T				
	1920–2170	65°	17dBi	0°–8°T				
XXXPol Panel	806–960	67°	16.5dBi	0°–10°T	742 271	2058	bottom	127
	1710–1880	65°	17.5dBi	0°–6°T				
	1920–2170	65°	18dBi	0°–6°T				
XXXPol Panel	806–960	65°	16dBi	2°–14°T	800 10291	1999	bottom	128
	1710–2180	65°	16dBi	0°–14°T				
	1710–2180	65°	16dBi	0°–14°T				
XXXPol Panel	806–960	66°	17.5dBi	0°–7°T	742 272	2628	bottom	129
	1710–1880	67°	17.5dBi	0°–6°T				
	1920–2170	65°	18dBi	0°–6°T				
XXXPol Panel	806–960	65°	17.5dBi	2°–10°T	800 10292	2694	bottom	130
	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	131
	1710–2180	65°	17dBi	0°–14°T				
	1710–2180	65°	17dBi	0°–14°T				

New Products

Triple-band Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–1880	1920–2170
Dual Polarization	X	X	X
Half-power Beam Width	66°	66°	65°
Adjust. Electr. Downtilt	0°–12°	0°–8°	0°–8°

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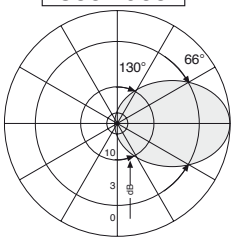
set by hand or by optional RCU (Remote Control Unit)

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

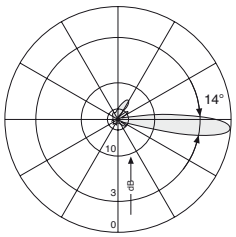
Type No.	742 270				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.8 dBi	2 x 15 dBi	2 x 15.2 dBi	2 x 16.5 dBi	2 x 17.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.3°	Horizontal: 68° Vertical: 14°	Horizontal: 66° Vertical: 13.3°	Horizontal: 66° Vertical: 7.1°	Horizontal: 65° Vertical: 6.5°
Electrical tilt continuously adjustable	0.5°–12°	0.5°–12°	0.5°–12°	0.5°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 6° ... 12° T 13 ... 12 ... 10 dB	0° ... 6° ... 12° T 14 ... 14 ... 14 dB	0° ... 6° ... 12° T 16 ... 16 ... 16 dB	0° ... 4° ... 8° T 17 ... 16 ... 15 dB	0° ... 4° ... 8° T 17 ... 15 ... 13 dB
Front-to-back ratio, copolar	> 27 dB	> 27 dB	> 27 dB	> 23 dB	> 23 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

800/900 – 1800/2000 XXXPol

806–960 +45°/–45° Polarization

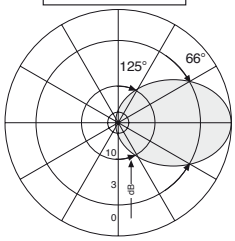


Horizontal Pattern

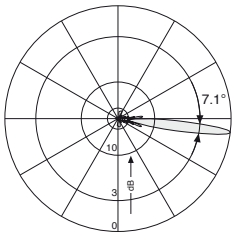


Vertical Pattern
0.5°–12° electrical downtilt

1710–1880 +45°/–45° Polarization

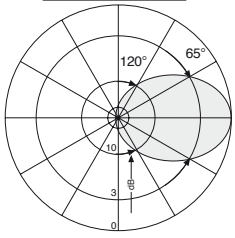


Horizontal Pattern

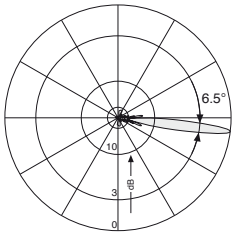


Vertical Pattern
0.5°–8° electrical downtilt

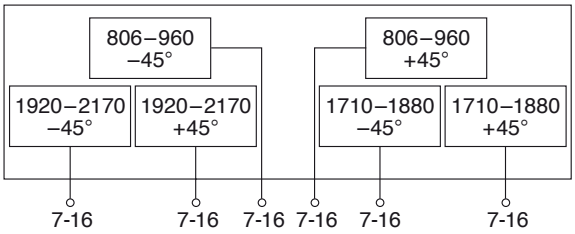
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	25 kg
Wind load	Frontal: 260 N (at 150 km/h) Lateral: 210 N (at 150 km/h) Rearside: 580 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1819 x 304 x 204 mm
Height/width/depth	1498 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Triple-band Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	806–960	1710–1880	1920–2170
Dual Polarization	X	X	X
Half-power Beam Width	67°	65°	65°
Adjust. Electr. Downtilt	0°–10°	0°–6°	0°–6°

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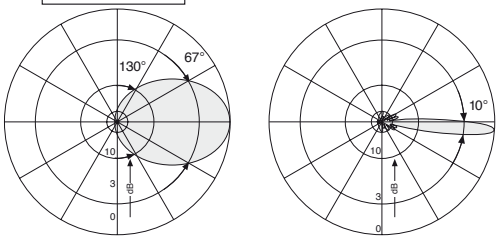
set by hand or by optional RCU (Remote Control Unit)

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

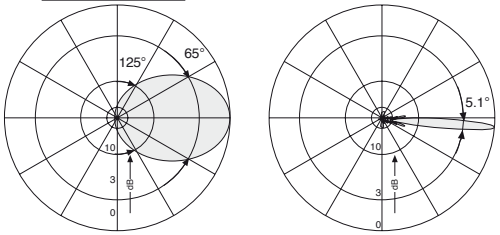
Type No.	742 271				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16 dBi	2 x 16.1 dBi	2 x 16.3 dB	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 11°	Horizontal: 68° Vertical: 10.7°	Horizontal: 67° Vertical: 9.8°	Horizontal: 65° Vertical: 5.1°	Horizontal: 65° Vertical: 4.8°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–6°	0°–6°
Vertical Pattern – 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 14 ... 15 ... 16 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 24 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization



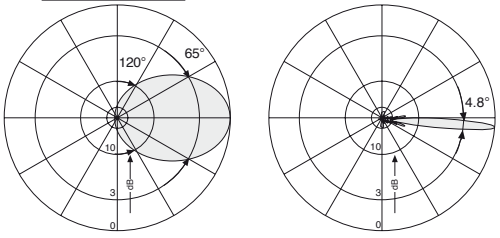
Horizontal Pattern — Vertical Pattern 0°–10° electrical downtilt

1710–1880 +45°/–45° Polarization

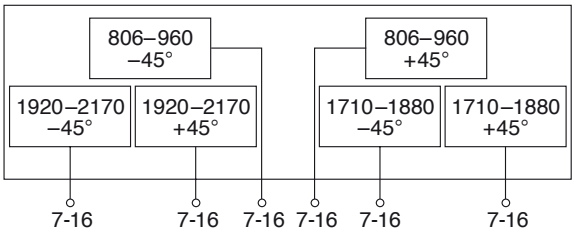


Horizontal Pattern — Vertical Pattern 0°–6° electrical downtilt

1920–2170 +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–6° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	33 kg
Wind load	Frontal: 370 N (at 150 km/h) Lateral: 300 N (at 150 km/h) Rearside: 820 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2391 x 304 x 204 mm
Height/width/depth	2058 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Triple-multiband Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

806–960	1710–2180	1710–2180
X	X	X
65°	65°	65°
2°–14°	0°–14°	0°–14°

set by hand or by optional RCU (Remote Control Unit)

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Preliminary Issue

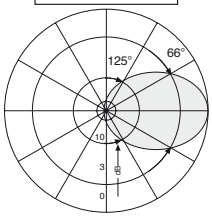
Product Proposal

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

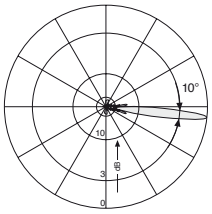
Type No.	800 10291					
Frequency range		806–960			1710–2180	1710–2180
	806 – 866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average Gain: (dBi)	16.2 ... 16 ... 15.8	16.3 ... 16.1 ... 15.9	16.4 ... 16.2 ... 16.1			
1710–2180 MHz (Syst. bottom)				15.7 ... 15.7 ... 15.4	16.4 ... 16.4 ... 15.7	16.6 ... 16.5 ... 15.8
1710–2180 MHz (Syst. top)				15.9 ... 15.8 ... 15.4	16.3 ... 16.2 ... 15.6	16.5 ... 16.4 ... 15.7
Tilt	2° ... 8° ... 14°	2° ... 8° ... 14°	2° ... 8° ... 14°	0° ... 7° ... 14°	0° ... 7° ... 14°	0° ... 7° ... 14°
Horizontal Pattern:						
Half-power beam width	68°	67°	65°	67°	63°	60°
Front-to-back ratio (180°±30°)	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Vertical Pattern:						
Half-power beam width	10.2°	10°	9.5°	9.5°	9°	8.5°
Electrical tilt	2°–14° continuously adjustable			0°–14° continuously adjustable		
Sidelobe suppression – for first sidelobe above main beam	2 °... 8° ... 14° T 17 ... 16 ... 15 dB	2° ... 8 °... 14° T 17 ... 17 ... 16 dB	2° ... 8° ... 14° T 18 ... 18 ... 17 dB	0° ... 7° ... 14° T 18 ... 16 ... 15 dB	0° ... 7° ... 14° T 18 ... 16 ... 15 dB	0° ... 7° ... 14° T 18 ... 16 ... 15 dB

Impedance	50 Ω					
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)		

806–960 +45°/–45° Polarization

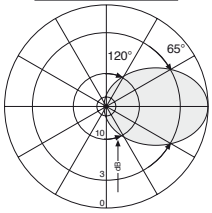


Horizontal Pattern

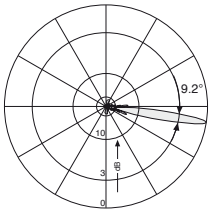


Vertical Pattern
2°–14° electrical downtilt

1710–1990 +45°/–45° Polarization

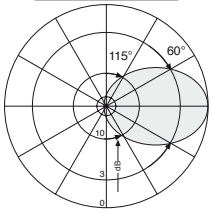


Horizontal Pattern

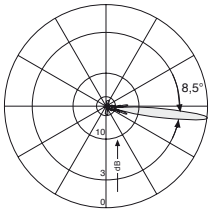


Vertical Pattern
0°–14° electrical downtilt

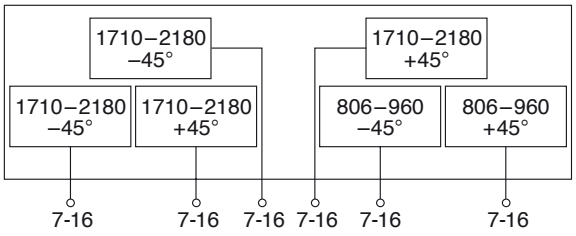
1920–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	33 kg
Wind load	Frontal: 370 N (at 150 km/h) Lateral: 300 N (at 150 km/h) Rearside: 820 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2391 x 304 x 204 mm
Height/width/depth	1999 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Triple-band Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	806–960	1710–1880	1920–2170
Dual Polarization	X	X	X
Half-power Beam Width	66°	67°	65°
Adjust. Electr. Downtilt	0°–7°	0°–6°	0°–6°

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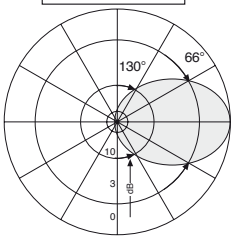
set by hand or by optional RCU (Remote Control Unit)

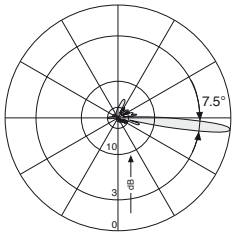
XXXPol Panel 806–960/1710–1880/1920–2170 66°/67°/65° 17.5/17.5/18dBi 0°–7°/0°–6°/0°–6°T

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
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 7.8°	Horizontal: 68° Vertical: 7.4°	Horizontal 66° Vertical: 7°	Horizontal: 67° Vertical: 5.2°	Horizontal: 65° Vertical: 4.8°
Electrical tilt continuously adjustable	0.5°– 7°	0.5°– 7°	0.5°– 7°	0°– 6°	0°– 6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 15 ... 15 ... 14 dB	0° ... 4° ... 7° T 15 ... 15 ... 14 dB	0° ... 4° ... 7° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization

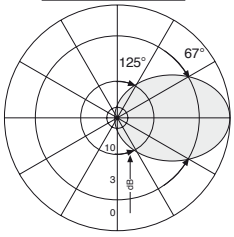


Horizontal Pattern

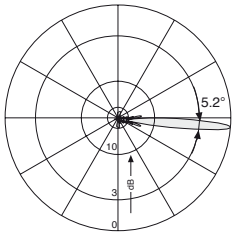


Vertical Pattern
0.5°–7° electrical downtilt

1710–1880 +45°/–45° Polarization

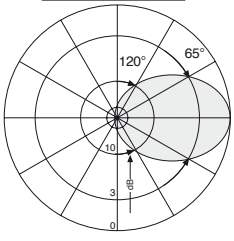


Horizontal Pattern

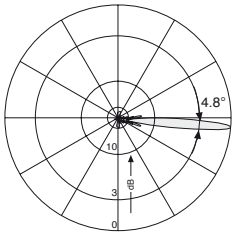


Vertical Pattern
0°–6° electrical downtilt

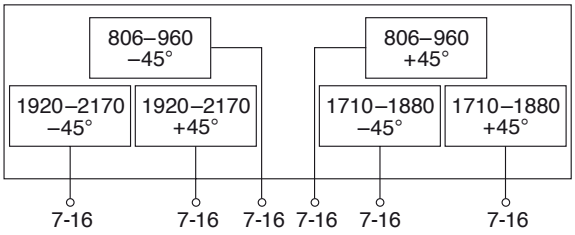
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	40 kg
Wind load	Frontal: 480 N (at 150 km/h) Lateral: 390 N (at 150 km/h) Rearside: 1060 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3027 x 304 x 204 mm
Height/width/depth	2628 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Triple-multiband Panel

	806–960	1710–2180	1710–2180
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	2°–10°	0°–10°	0°–10°

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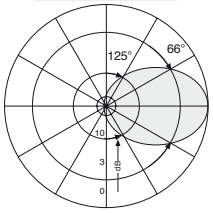
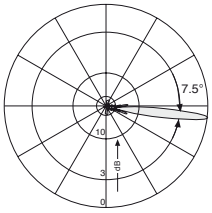
XXXPol Panel 806–960/1710–2180/1710–2180 65°/65°/65° 17.5/17.5/17dBi 2°–10°/0°–10°/0°–10°T

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) 1710–2180 MHz (Syst. bottom) 1710–2180 MHz (Syst. top) Tilt	16.8...17.0...16.8 2°...6°...10°	17.0...17.1...17.0 2°...6°...10°	17.4...17.4...17.1 2°...6°...10°	 16.5...16.7...16.5 16.2...16.3...16.1 0°...5°...10°	 17.0...17.1...16.7 16.7...16.7...16.4 0°...5°...10°	 17.3...17.4...16.8 17.0...17.0...16.5 0°...5°...10°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 7.8°	Horizontal: 68° Vertical: 7.6°	Horizontal: 66° Vertical: 7.1°	Horizontal: 65° Vertical: 7.4°	Horizontal: 64° Vertical: 7.2°	Horizontal: 60° Vertical: 6.8°
Electrical tilt continuously adjustable	2.5°–9.5°	2.5°–9.5°	2.5°–9.5°	0°–10°	0°–10°	0°–10°
Vertical Pattern – 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
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB	> 26 dB	> 26 dB	> 26 dB
Cross polar ratio Maindirection 0° Sector ±60° ±60°	Typically: 25 dB > 10 dB avg. 20 dB	Typically: 25 dB > 10 dB avg. 20 dB	Typically: 25 dB > 10 dB avg. 17 dB	Typically: 18 dB > 10 dB avg. 14 dB	Typically: 18 dB > 10 dB avg. 16 dB	Typically: 18 dB > 10 dB avg. 16 dB
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)					
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
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)		

806–960 +45°/–45° Polarization

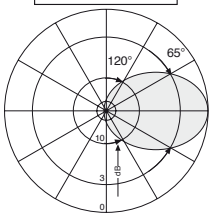


Horizontal Pattern

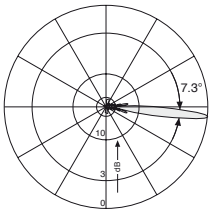


Vertical Pattern
2°–10° electrical downtilt

1710–1990 +45°/–45° Polarization

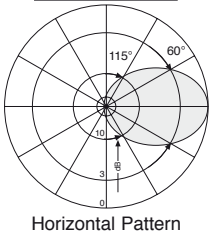


Horizontal Pattern

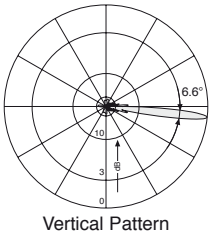


Vertical Pattern
0°–10° electrical downtilt

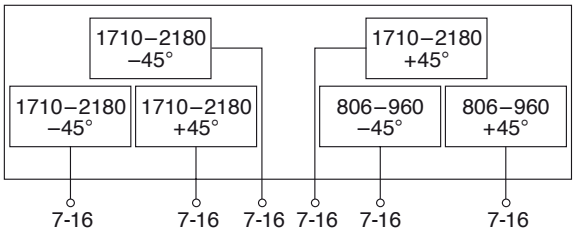
1920–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	36 kg
Wind load	Frontal: 490 N (at 150 km/h) Lateral: 400 N (at 150 km/h) Rearside: 1090 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3027 x 304 x 204 mm
Height/width/depth	2694 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Triple-multiband Panel

	806–960	1710–2180	1710–2180
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	4°–12°	0°–14°	0°–14°

set by hand or by optional RCU (Remote Control Unit)

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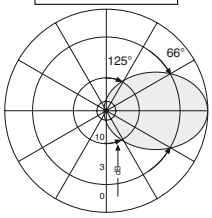
XXXPol Panel 806–960/1710–2180/1710–2180 65°/65°/65° 17.5/17/17dBi 4°–12°/0°–14°/0°–14°T

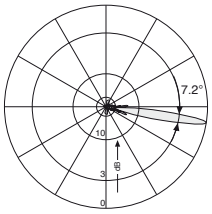
Type No.	800 10492					
Frequency range		806–960			1710–2180	1710–2180
	806 – 866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average Gain: (dBi)	16.8 ... 16.7 ... 16.6	17.0 ... 16.9 ... 16.8	17.2 ... 17.0 ... 16.8			
1710–2180 MHz (Syst. bottom)				16.1 ... 16.3 ... 16.0	16.7 ... 16.8 ... 16.3	17.0 ...17.0 ... 16.6
1710–2180 MHz (Syst. top)				16.1 ...16.1 ... 15.8	16.7 ... 16.5 ... 16.2	17.0 ... 16.9 ... 16.4
Tilt	4° ... 8° ... 12°	4° ... 8° ... 12°	4° ... 8° ... 12°	0° ... 7° ... 14°	0° ... 7° ... 14°	0° ... 7° ... 14°
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 0°	23 dB	24 dB	25 dB	18 dB	18 dB	19 dB
Sector ±60°	> 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

Impedance	50 Ω	
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)

806–960 +45°/–45° Polarization

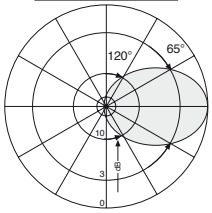


Horizontal Pattern

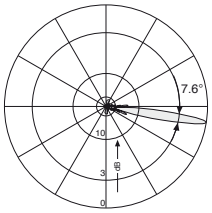


Vertical Pattern
4°–12° electrical downtilt

1710–1990 +45°/–45° Polarization

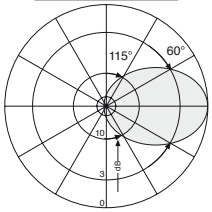


Horizontal Pattern

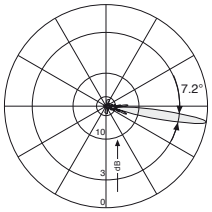


Vertical Pattern
0°–14° electrical downtilt

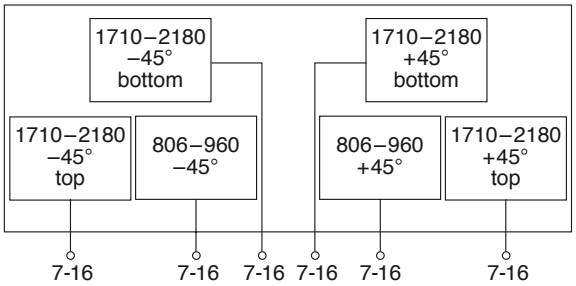
1920–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	34 kg
Wind load	Frontal: 490 N (at 150 km/h) Lateral: 400 N (at 150 km/h) Rearside: 1090 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3027 x 304 x 204 mm
Height/width/depth	2694 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Summary – Directional Antennas
Omnidirectional Antennas
2300 ... 3800

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Dual Polarization +45°/–45° – Directional

Type					Type No.	Height [mm]	Connector position	Page
XPol Panel	1850–2690	65°	18dBi	2°T	800 10438	1302	bottom	134
XPol Panel	2300–2690	60°	18dBi	0°–12°T	800 10541	1160	bottom	135
XPol Panel	2300–2690	60°	18dBi	0°–12°T	800 10551	1160	bottom (Type N)	135
XPol Panel	3300–3800	65°	17.5dBi	0°T	800 10390	650	bottom or top	136
XPol Panel	3300–3800	88°	16dBi	0°T	800 10436	650	bottom or top	137
XXPol Panel	2300–2690	60°	18dBi	0°–12°T	800 10543	1220	bottom	138
XXPol Panel	2300–2690	60°	18dBi	0°–12°T	800 10553	1220	bottom (Type N)	138

Vertical Polarization – Directional

VPol Panel	3300–3800	65°	17.5dBi	0°T	800 10457	650	bottom or top	139

Vertical Polarization – Omnidirectional

VPol Omni	2500–2700	360°	11dBi	0°T	800 10442	1132	bottom	157
VPol Omni	3400–3600	360°	11dBi	0°T	800 10528	860	bottom	158

New Products

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

Multi-band Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1850–2690	
X	
65°	
2°	

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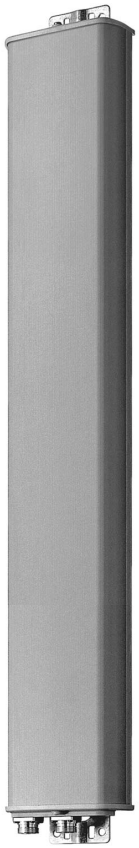
XPol Panel 1850–2690 65° 18dBi 2°T

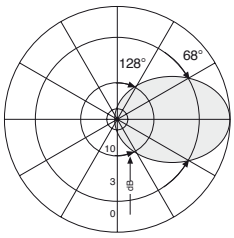


Type No.	800 10438			
Frequency range	1850–2690			
	1850 – 1990 MHz	1920 – 2200 MHz	2200 – 2490 MHz	2490 – 2690 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18.0 dBi	2 x 18.0 dBi	2 x 17.6 dBi
Horizontal Pattern:				
Half-power beam width	68°	66°	66°	65°
Front-to-back ratio	> 30 dB	> 30 dB	> 25 dB	> 25 dB
Cross polar ratio 0° Sector ±60°	20 dB > 10 dB	20 dB > 10 dB	20 dB > 10 dB	20 dB > 8 dB
Vertical Pattern:				
Half-power beam width	6.3°	5.9°	5.5°	5.0°
Electrical tilt	2° fixed			
Sidelobe suppression for first sidelobe above main beam	> 14 dB	> 15 dB	> 18 dB	> 18 dB

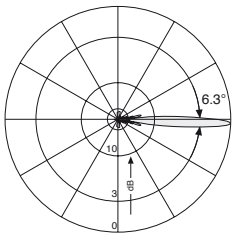
Impedance	50 Ω
VSWR	< 1.5
Isolation, between inputs	> 30 dB
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input	250 W (at 50 °C ambient temperature)

2300 ... 3800 XPol, VPol

1850 – 1990 MHz: +45°/–45° Polarization

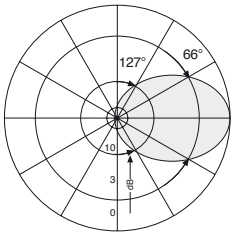


Horizontal Pattern

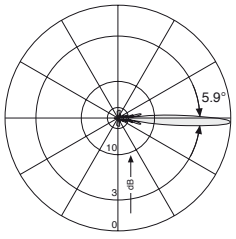


Vertical Pattern
2° electrical downtilt

1920 – 2200 MHz: +45°/–45° Polarization

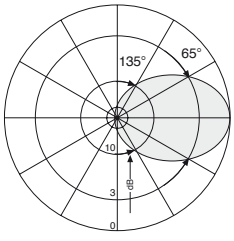


Horizontal Pattern

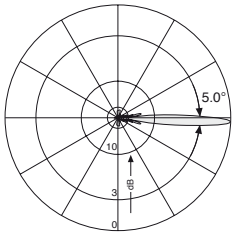


Vertical Pattern
2° electrical downtilt

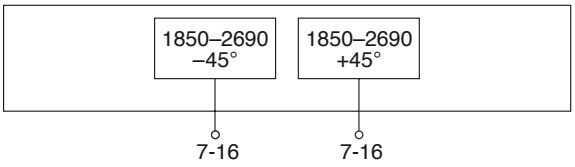
2490 – 2690 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.4 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Multi-band Panel 2300–2690
Dual Polarization X
Half-power Beam Width 60°
Adjustable Electrical Downtilt 0°–12°

set by hand or by optional RCU (Remote Control Unit)

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Antennen · Electronic

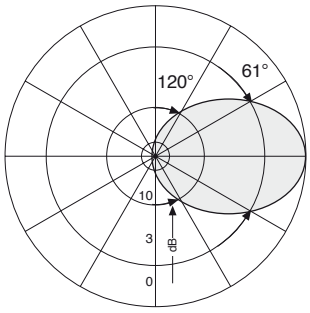
Preliminary Issue

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

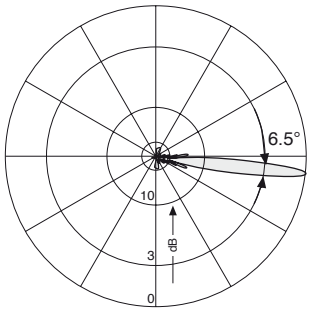
Type No.	800 10541 / 800 10551	
Frequency range	2300–2690	
	2300 – 2500 MHz	2490 – 2690 MHz
Polarization	+45°, –45°	+45°, –45°
Gain at 0° tilt	2 x 18 dBi	2 x 18 dBi
Horizontal Pattern:		
Half-power beam width	61°	58°
Front-to-back ratio (180°±30°)	≥ 25 dB	≥ 25 dB
Cross polar ratio 0° Sector ±60°	20 dB ≥ 10 dB	20 dB ≥ 10 dB
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

Impedance	50 Ω
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)

2300 – 2500 MHz: +45°/–45° Polarization

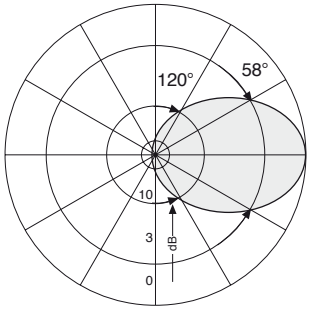


Horizontal Pattern

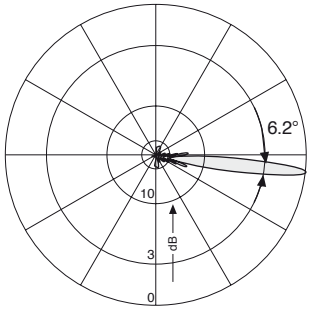


Vertical Pattern
0°–12° electrical downtilt

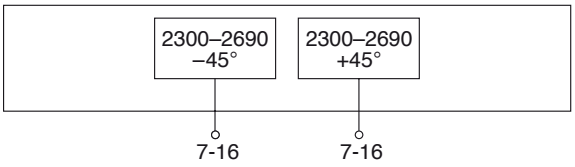
2490 – 2690 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications	800 10541	800 10551
Input	2 x 7-16 female	2 x N connector female
Connector position	Bottom	
Weight	6.8 kg	
Wind load	Frontal: 120 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 290 N (at 150 km/h)	
Max. wind velocity	200 km/h	
Packing size	Approx. 1432 x 172 x 92 mm	
Height/width/depth	1149 / 155 / 69 mm	

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel 3300–3800
Dual Polarization X
Half-power Beam Width 65°
Fixed Electrical Downtilt 0°

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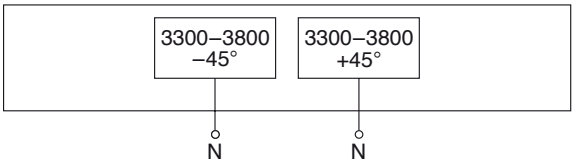
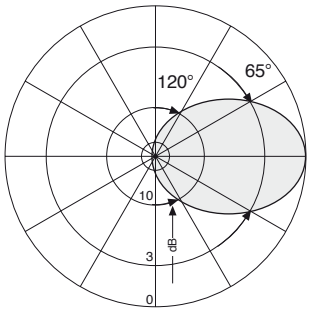
XPol Panel 3300–3800 65° 17.5dBi 0°T

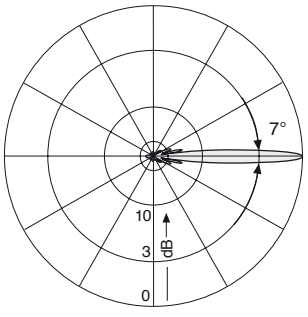
Type No.	800 10390
Frequency range	3300 – 3800 MHz
Polarization	+45°, –45°
Gain	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Electrical tilt	0°, fixed
Front-to-back ratio (180° ±30°)	> 30 dB
Isolation, between ports	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 40 dBm carrier)	< –140 dBc
Max. power per input	50 W (at 50 °C ambient temperature)



3300–3800 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

Mechanical specifications	
Input	2 x N-connector female
Connector position	Bottom or top
Weight	1.7 kg
Wind load	Frontal: 160 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	822 x 122 x 67 mm
Height/width/depth	736 / 112 / 50 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Panel 3300–3800
Dual Polarization X
Half-power Beam Width 88°
Fixed Electrical Downtilt 0°

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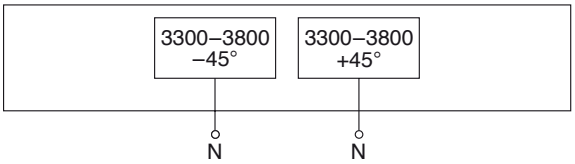
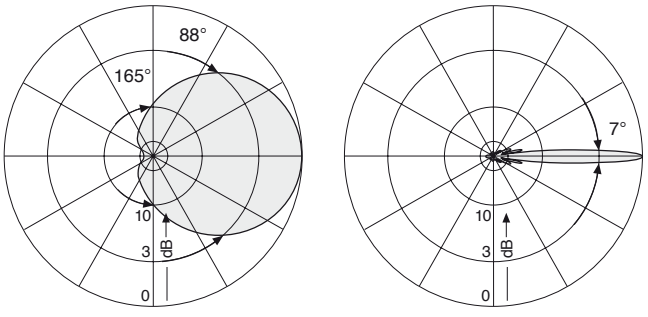
Preliminary Issue

XPol Panel 3300–3800 88° 16.5dBi 0°T

Type No.	800 10436
Frequency range	3300 – 3800 MHz
Polarization	+45°, –45°
Gain	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 7°
Electrical tilt	0°, fixed
Front-to-back ratio (180° ±30°)	> 25 dB
Isolation, between ports	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	Intended < –150 dBc
Max. power per input	50 W (at 50 °C ambient temperature)



3300–3800 +45°/–45° Polarization



Horizontal Pattern Vertical Pattern

Mechanical specifications	
Input	2 x N-connector female
Connector position	Bottom or top
Weight	1.7 kg
Wind load	Frontal: 160 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	822 x 122 x 67 mm
Height/width/depth	736 / 112 / 50 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

2-Multi-band Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	2300–2690	2300–2690
	X	X
	60°	60°
	0°–12°	0°–12°

set by hand or by optional RCU (Remote Control Unit)

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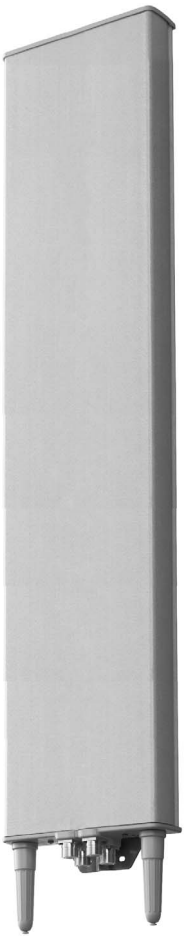
Preliminary Issue

Product Proposal

XXPol Panel 2300–2690/2300–2690 60°/60° 18/18dBi 0°–12°/0°–12°T

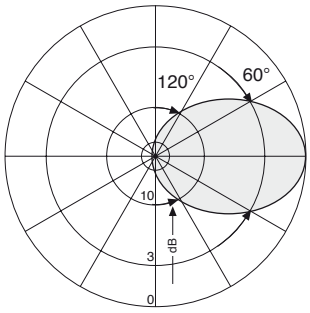
Type No.	800 10543 / 80010553	
Frequency range	2300–2690	
	2300 – 2500 MHz	2490 – 2690 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain at 0° tilt	4 x 18 dBi	4 x 18 dBi
Horizontal Pattern:		
Half-power beam width	60°	58°
Front-to-back ratio (180°±30°)	≥ 25 dB	≥ 25 dB
Cross polar ratio 0° Sector ±60°	20 dB ≥ 10 dB	20 dB ≥ 10 dB
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

Impedance	50 Ω
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)

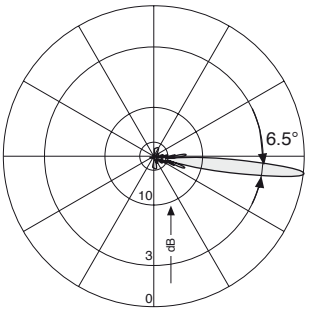


2300 ... 3800 XPol, VPol

2300 – 2500 MHz: +45°/–45° Polarization

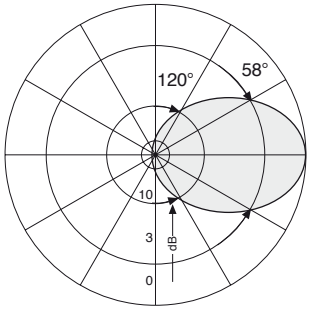


Horizontal Pattern

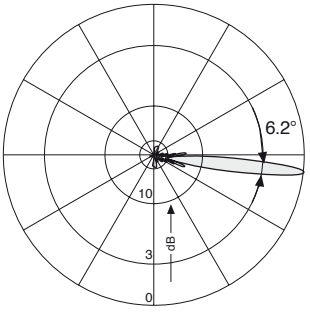


Vertical Pattern
0°–12° electrical downtilt

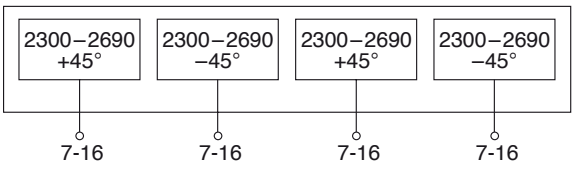
2490 – 2690 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications	800 10543	800 10553
Input	4 x 7-16 female	4 x N connector female
Connector position	Bottom	
Adjustment mechanism	2x, Position bottom continuously adjustable	
Weight	15 kg	
Wind load	Frontal: 560 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 560 N (at 150 km/h)	
Max. wind velocity	200 km/h	
Packing size	Approx. 1475 x 360 x 130 mm	
Height/width/depth	Approx. 1220 / 323 / 71 mm	

Mounting accessories are not included in the scope of delivery (see page 231 and 238)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 174 – 183

Panel 3300–3800
Vertical Polarization V
Half-power Beam Width 65°
Fixed Electrical Downtilt 0°

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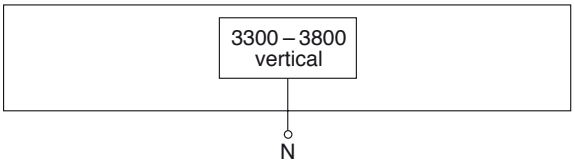
VPol Panel 3300–3800 65° 17.5dBi 0°T

Type No.	800 10457
Frequency range	3300 – 3800 MHz
Polarization	Vertical
Gain	17.5 dBi
Half-power beam width	Horizontal: 65° Vertical: 7°
Electrical tilt	0°, fixed
Front-to-back ratio (180° ±30°)	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	Intended < –150 dBc
Max. power per input	50 W (at 50 °C ambient temperature)



Mechanical specifications	
Input	N-connector female
Connector position	Bottom or top
Weight	1.6 kg
Wind load	Frontal: 160 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	822 x 122 x 67 mm
Height/width/depth	736 / 112 / 50 mm

Mounting accessories are not included in the scope of delivery (see page 231 and 238)

Summary – Omnidirectional Antennas 800/900/1800/2000

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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	142
VPol Omni	806–960	360°	2dBi	0°T	K 75 11 61	N	348		143
VPol Omni	890–960	360°	5dBi	0°T	K 75 15 64 1	N	715		144
VPol Omni	870–960	360°	8dBi	0°T	736 350	7-16	1543		145
VPol Omni	806–894	360°	11dBi	0°T	738 192	7-16	3237		146
VPol Omni	870–960	360°	11dBi	0°T	736 347	7-16	3033		147
VPol Omni	870–960	360°	10.5dBi	5°T	736 349	7-16	2954		148

Vertical Polarization – Dual-band

VPol Omni	870–960/1710–1880	360°	2dBi	0°T	738 449	N	216	indoor/outdoor	149
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	800 10274	7-16	3033	separate	151
	1920–2170	360°	10dBi	0°T				inputs	
VVPol Omni	870–960/1710–1880	360°	2dBi	0°T	800 10111	N	493	separate	152
	1920–2170	360°	2dBi	0°T				inputs	

Vertical Polarization – 1800

VPol Omni	1710–1880	360°	11dBi	0°T	738 187	7-16	1568		153
VPol Omni	1710–1880	360°	11dBi	6°T	737 190	7-16	1560		154

Vertical Polarization – 1800/2000/2500/3500

VPol Omni	1920–2170	360°	11 dBi	0°T	741 790	7-16	1387		155
VPol Omni	1710–2700	360°	2 dBi	0°T	800 10431	N	115	indoor/outdoor	156
VPol Omni	2500–2700	360°	11dBi	0°T	**800 10442**	7-16	1132		157
VPol Omni	3400–3600	360°	11dBi	0°T	**800 10528**	7-16	860		158

New Products

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

870–960

V

KATHREIN
Antennen · Electronic

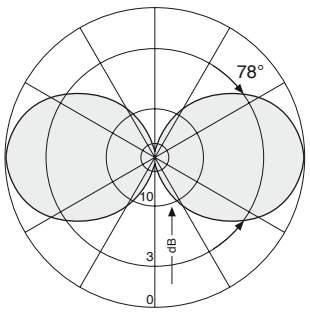
VPol Omni 870–960 360° 2dBi

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 (2 x 43 dBm carrier)	< –150 dBc
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

Omni VPol

Omnidirectional Antenna Vertical Polarization

806–960

V

KATHREIN
Antennen · Electronic

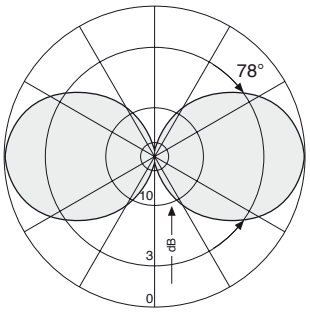
VPol Omni 806–960 360° 2dBi

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

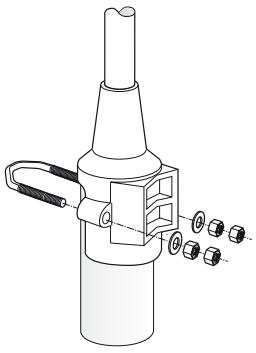
Mounting: The antenna can be attached in two ways with the supplied mounting kit:
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

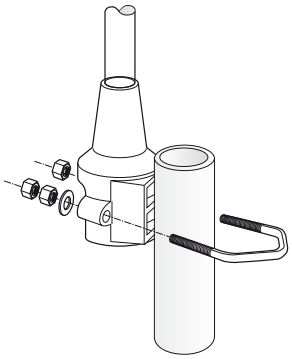
Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

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



Vertical Pattern


On the tip


Laterally at the tip

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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization

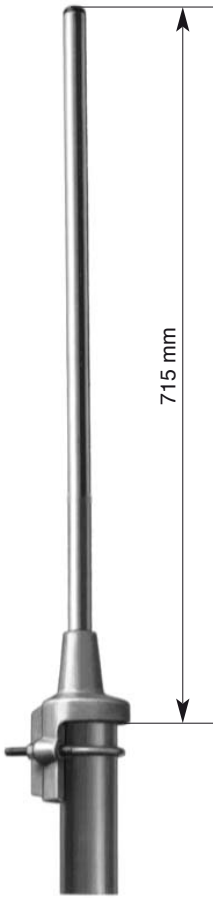
890–960

V

KATHREIN
Antennen · Electronic

VPol Omni 890–960 360° 5dBi

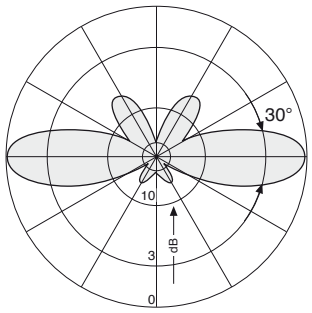
Type No.	K 75 15 64 1
Frequency range	890 – 960 MHz
Polarization	Vertical
Gain	5 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 37 dBm carrier)	< –150 dBc
Max. power	250 W (at 50 °C ambient temperature)



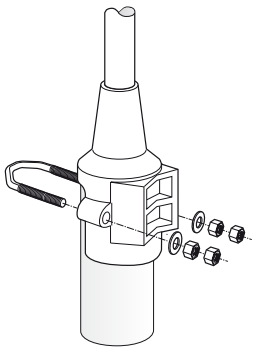
Mounting: The antenna can be attached in two ways with the supplied mounting kit:
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

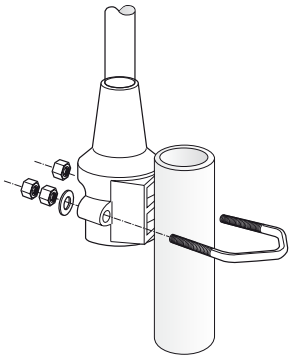
Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization

870–960

V

KATHREIN
Antennen · Electronic

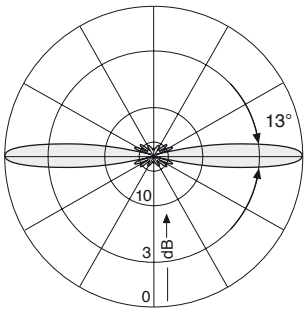
VPol Omni 870–960 360° 8dBi

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

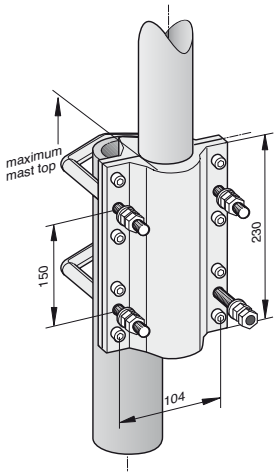
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization

806–894

V

KATHREIN
Antennen · Electronic

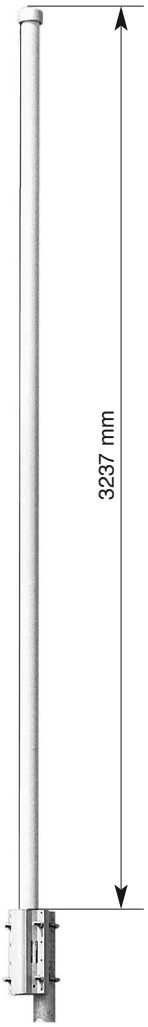
VPol Omni 806–894 360° 11dBi

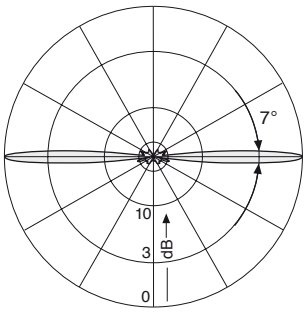
Type No.	738 192
Frequency range	806 – 894 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

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).

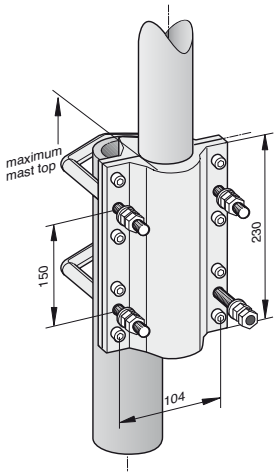
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.





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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization

870–960

V

KATHREIN
Antennen · Electronic

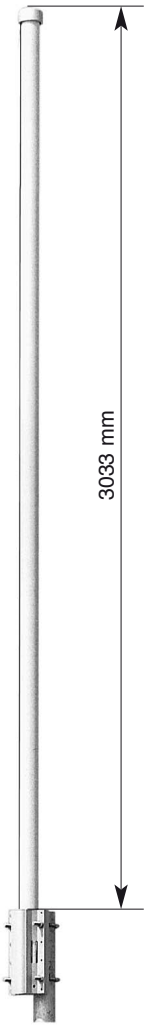
VPol Omni 870–960 360° 11dBi

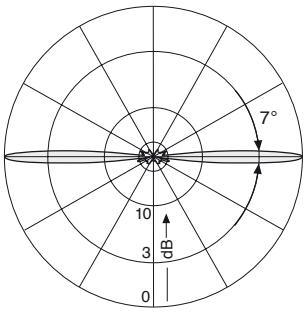
Type No.	736 347
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

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).

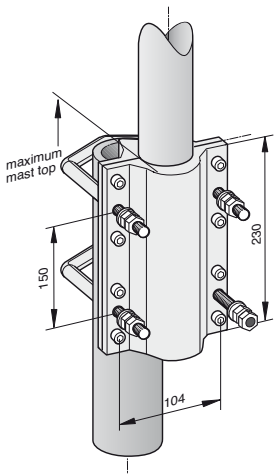
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.





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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization
Fixed Electrical Downtilt

870–960

V

5°

KATHREIN
Antennen · Electronic

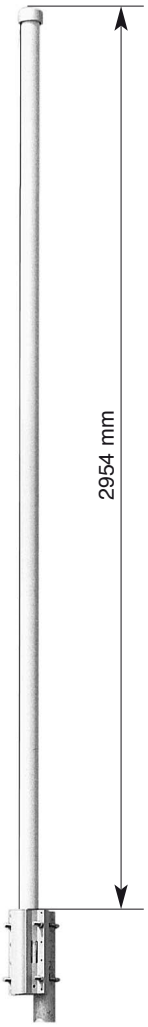
VPol Omni 870–960 360° 10.5dBi 5°T

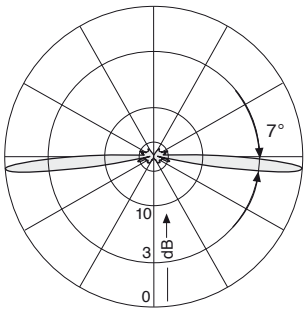
Type No.	736 349
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	10.5 dBi
Electrical tilt	5°, fixed
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

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).

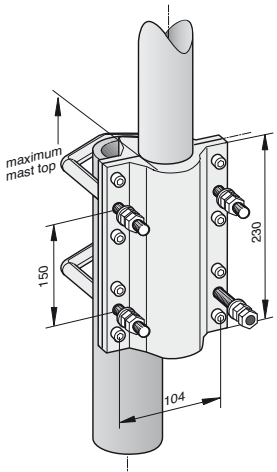
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.





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

Brackets for side mounting (see page 244 – 246)

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

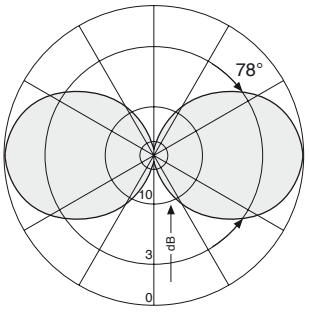
KATHREIN
Antennen · Electronic

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 Watt: 870 – 960 MHz 50 Watt: 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

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

KATHREIN
Antennen · Electronic

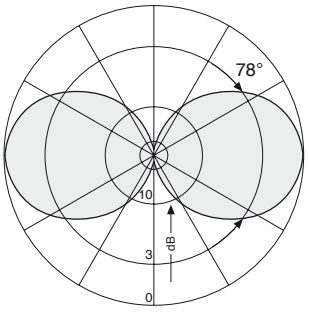
VPol Omni 824–960/1805–2170 360° 2dBi

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

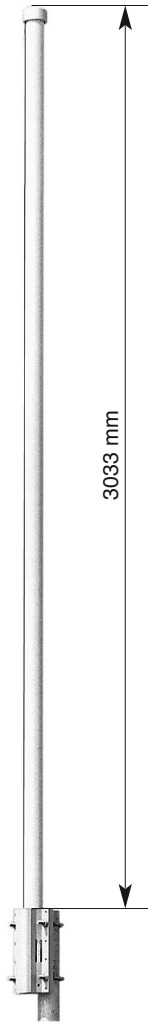
Omni VPol

Dual-band Omni Antenna 870–960 1920–2170
Vertical Polarization V V

KATHREIN
Antennen · Electronic

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 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	150 W (at 50 °C ambient temperature)	100 W

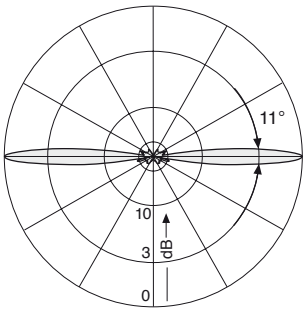


Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

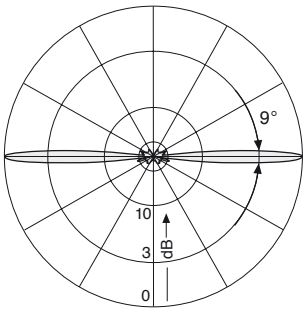
Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductors of both systems are coupled capacitively.

870–960

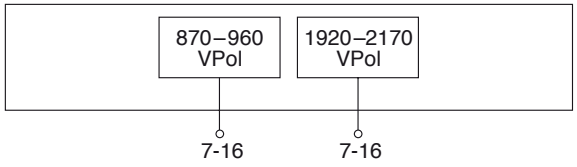


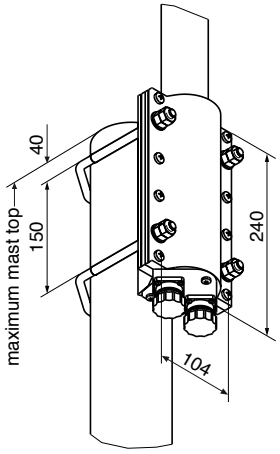
Vertical Pattern

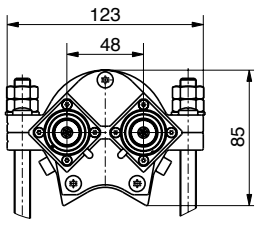
1920–2170



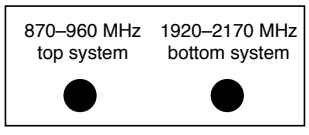
Vertical Pattern







Bottom view



Layout of interface

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

Brackets for side mounting (see page 244 – 246)

Multi-band Omni Antenna

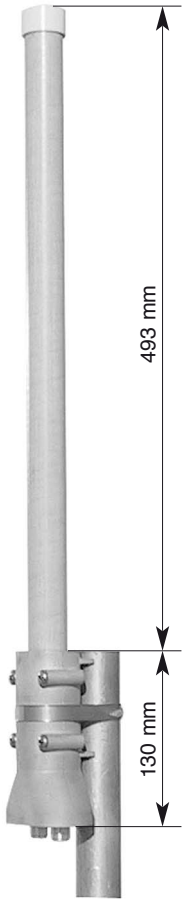
870–960 1710–1880	1920–2170
V	V

KATHREIN
Antennen · Electronic

Vertical Polarization

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

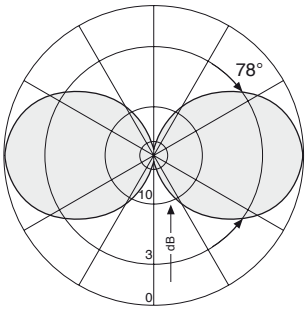
Type No.	800 10111	
Frequency range	Upper unit 870 – 960 MHz 1710 – 1880 MHz	Lower unit 1920 – 2170 MHz
Polarization	Vertical	Vertical
Gain	2 dBi	2 dBi
Isolation, between ports	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input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



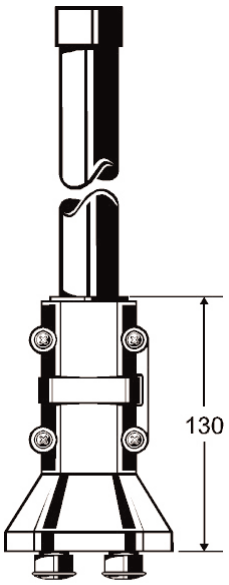
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit and screws: Stainless steel.

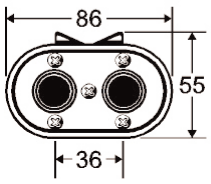
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 40 – 70 mm diameter with a mounting clamp supplied with the antenna. The connecting cables (not supplied) run outside the mast.

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

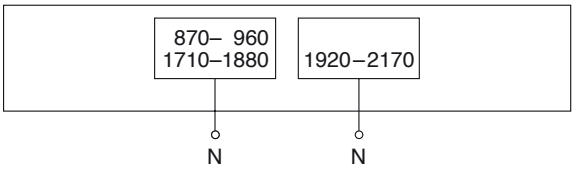


Vertical Pattern





Bottom view



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

KATHREIN
Antennen · Electronic

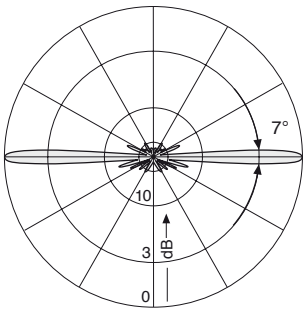
VPol Omni 1710–1880 360° 11dBi

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

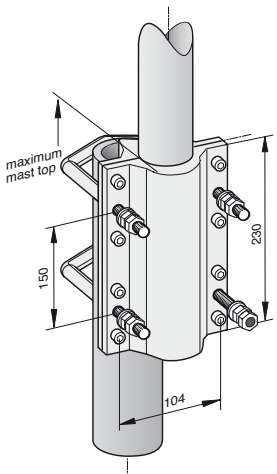
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization
Fixed Electrical Downtilt

1710–1880

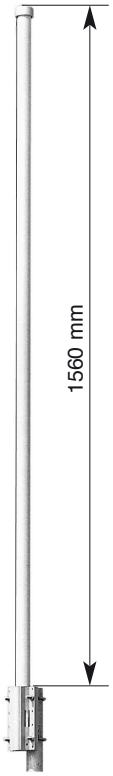
V

6°

KATHREIN
Antennen · Electronic

VPol Omni 1710–1880 360° 11dBi 6°T

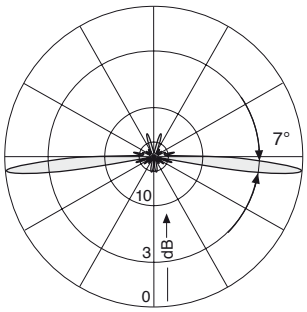
Type No.	737 190
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	11 dBi
Electrical tilt	6°, fixed
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)



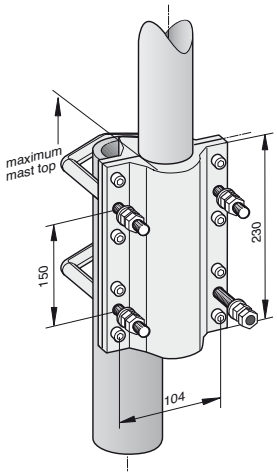
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern
6° electrical downtilt



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	1560 mm

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization

1920–2170

V

KATHREIN
Antennen · Electronic

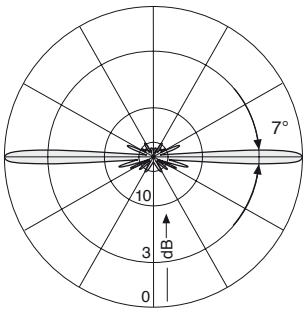
VPol Omni 1920–2170 360° 11dBi

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

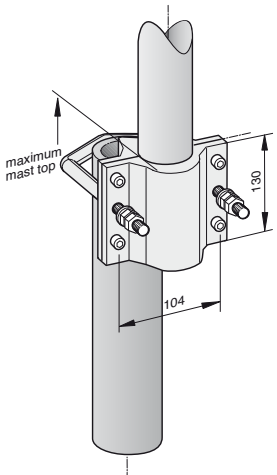
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

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

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

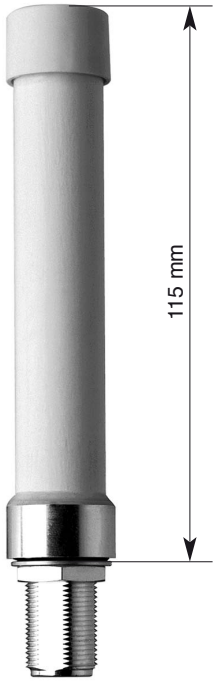
1710–2700

V

KATHREIN
Antennen · Electronic

VPol Omni 1710–2700 360° 2dBi

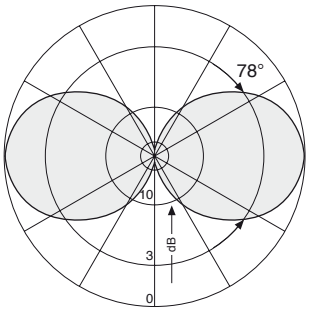
Type No.	800 10431
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2700 MHz
VSWR	< 1.8
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	150 g
Radome diameter	20 mm
Height	115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

Omnidirectional Antenna
Vertical Polarization

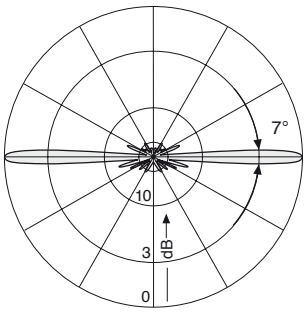
2500–2700

V

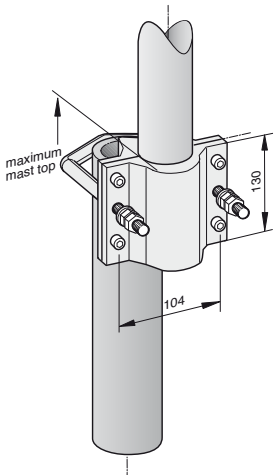
KATHREIN
Antennen · Electronic

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 (2 x 43 dBm carrier)	< –150 dBc
Max. power	150 W (at 50 °C ambient temperature)



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

Brackets for side mounting (see page 244 – 246)

Omnidirectional Antenna
Vertical Polarization

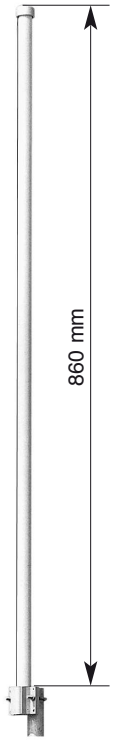
3400–3600

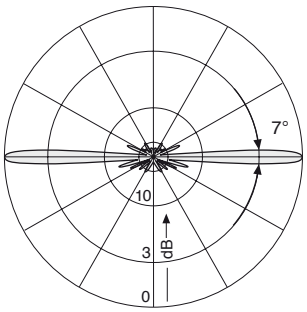
V

KATHREIN
Antennen · Electronic

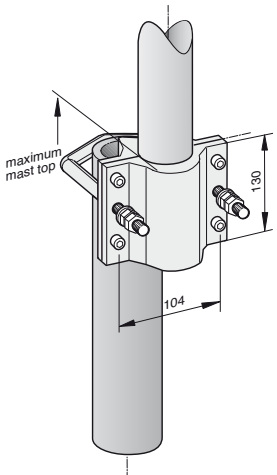
VPol Omni 3400–3600 360° 11dBi 0°T

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





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

Brackets for side mounting (see page 244 – 246)

Summary – Indoor Antennas 806 ... 6000

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Antennen · Electronic

Vertical Polarization

Multi-band Directional

Type			Type No.	Frequency range	Connector female	Page
VPol BiDir	65°	5dBi	738 446	824–960/1710–2170	N	160
VPol Indoor	90°	7dBi	800 10465	806–960/1710–2700	N	161

Multi-band Omnidirectional

VPol Indoor	360°	2dBi	741 573	876–960/1710–2500	N	162
VPol Indoor	360°	2dBi	**800 10430**	1710–6000	N	163
VPol Indoor	360°	2dBi	**800 10433**	1710–6000	N	164
VPol Indoor	360°	2dBi	800 10137	876–960/1710–2500	N	165
VPol Indoor	360°	2dBi	800 10173	876–960/1710–2500	N	166
VPol Indoor	360°	2dBi	800 10249	806–960/1425–3800/5150–6000	N	167

Indoor / Outdoor – Single-band

VPol Omni	360°	2dBi	738 450	870–960	N	168
VPol Panel	90°	7.5dBi	736 854	872–960	N	169

Indoor / Outdoor – Dual-band / Multi-band

VPol Omni	360°	2dBi	738 454	1710–2200	N	170
VPol Omni	360°	2dBi	738 449	870–960/1710–1880	N	171
VPol Omni	360°	2dBi	800 10147	824–960/1805–2170	N	172

New Products

Multi-band Bidirectional Antenna 824–960/1710–2170
Vertical Polarization V
Half-power Beam Width 65°

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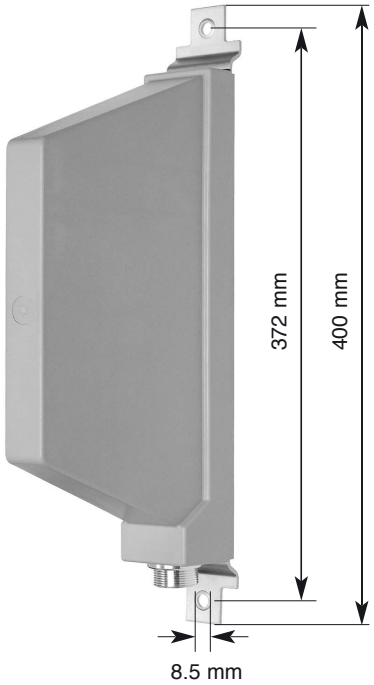
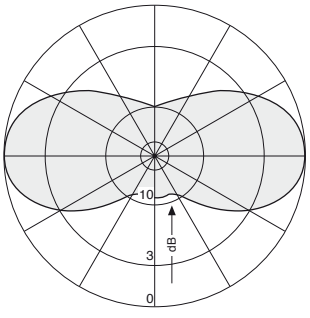
Antennen · Electronic

VPol BiDir 824–960/1710–2170 65° 5dBi

Type No.	738 446
Input	1 x N female
Frequency range	824 – 960 MHz, 1710 – 2170 MHz
VSWR	< 1.5
Gain	824 – 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	310 / 55 / 190 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 on the datasheet (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.



Typical Horizontal Pattern

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

806–960	1710–2700
V	V
90°	90°
C	

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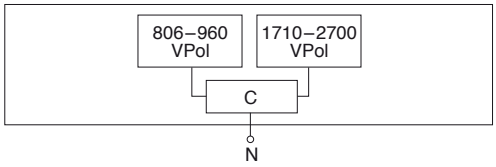
Antennen · Electronic

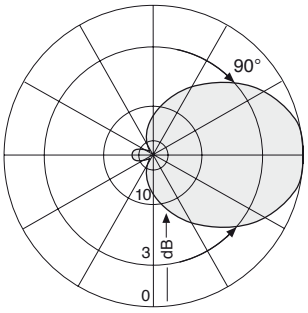
Preliminary Issue



VVPol Indoor 806–960/1710–2700 C 90° 7dBi

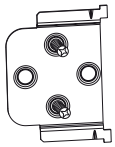
Type No.	800 10465
Frequency range	806 – 960 MHz / 1710 – 2700 MHz
Polarization	Vertical
Gain	Approx. 7 dBi
Half-power beam width	Horizontal: Approx. 90°
Impedance	50 Ω
VSWR	806 – 960 MHz: < 2.0 1710 – 2200 MHz: < 2.0 2200 – 2400 MHz: < 2.5 2400 – 2700 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
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 and tappers (800 – 2700 MHz).

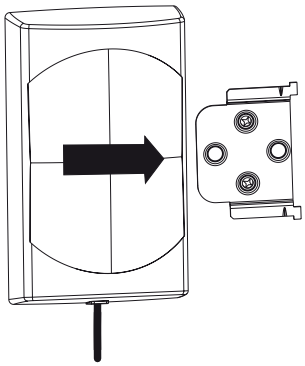


Horizontal Pattern

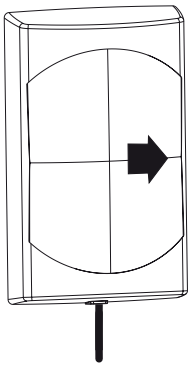
Mounting:



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 Omnidirectional Antenna
Vertical Polarization
Multi-band

1710–2500

V

KATHREIN
Antennen · Electronic

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

VPol Indoor 1710–2500 360° 2dBi

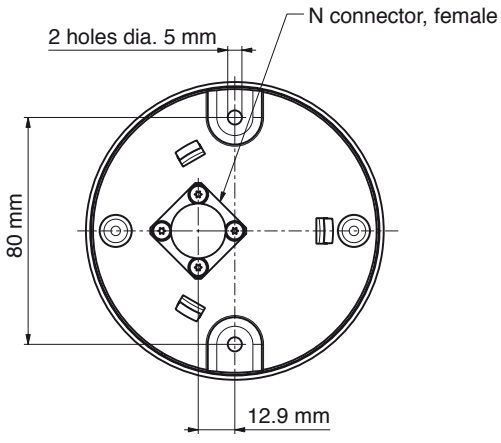
Type No.	741 573
Frequency range	1710 – 2500 MHz
VSWR	1710 – 1880 MHz: < 1.6 1850 – 1990 MHz: < 1.6 1920 – 2170 MHz: < 1.6 2170 – 2500 MHz: < 2.0
Input	1 x N female
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power (per band)	50 W (at 50 °C ambient temperature)
Weight	150 g
Diameter	100 mm
Height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

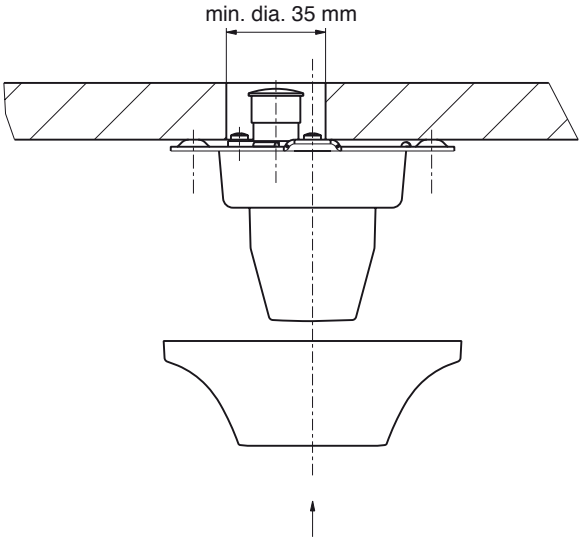
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

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 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 VPol

Indoor Omnidirectional Antenna Vertical Polarization Multi-band

1710–6000

V

KATHREIN
Antennen · Electronic

Preliminary Issue

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

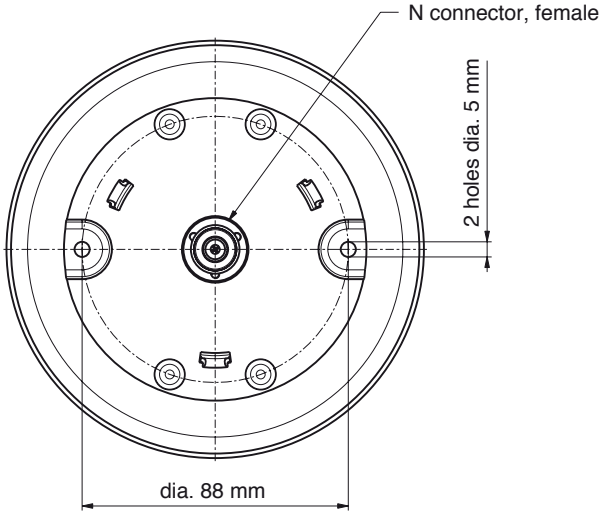
VPol Indoor 1710–6000 360° 2dBi

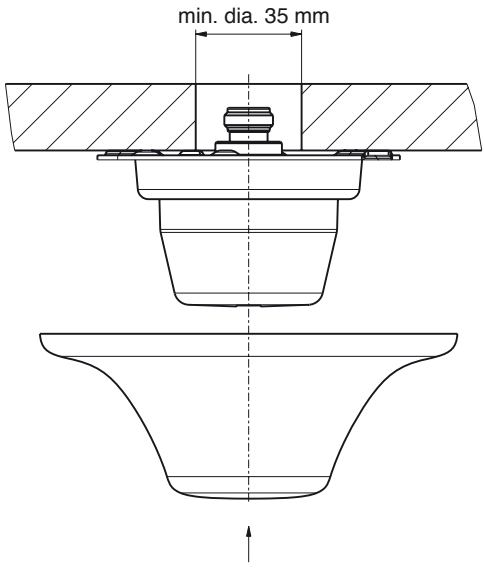
Type No.	800 10430
Frequency range	1710 – 6000 MHz
Polarization	Vertical
Gain	2 dBi
Impedance	50 Ω
VSWR	< 1.5
Max. power	50 W (at 50 °C ambient temperature)
Input	1 x N female
Weight	133 g
Diameter	138 mm
Height	56 mm (without connector)

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.

Indoor Directional Antenna
Vertical Polarization
Half-power Beam Width

3300–3800

V

90°

KATHREIN
Antennen · Electronic

Preliminary Issue

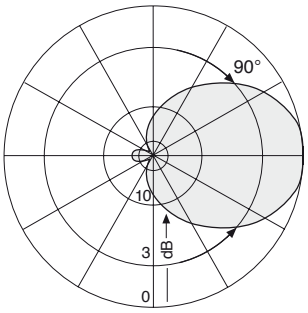
VPol Indoor 3300–3800 90° 7dBi

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.

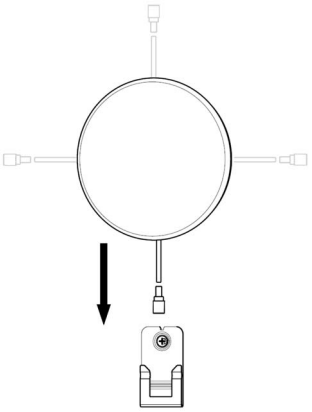
Cable: Minimum bending radius: Single bending 10 mm, repeated bending 20 mm.



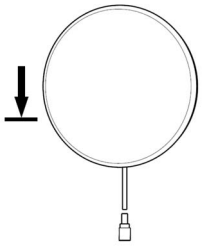
Horizontal Pattern

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 Omni Antenna Vertical Polarization

876–960 | 1710–2500

V

KATHREIN
Antennen · Electronic

- 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)

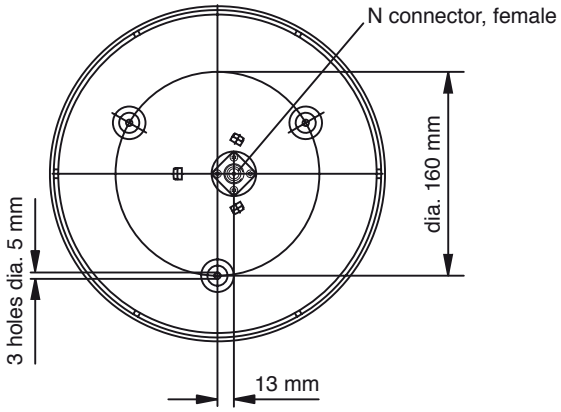
741 572

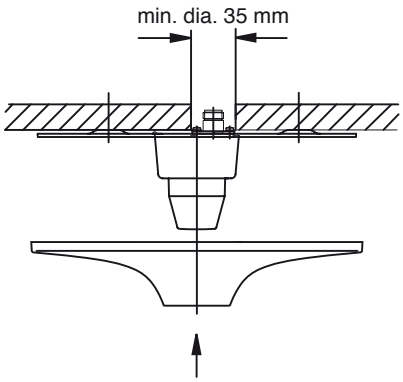
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

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

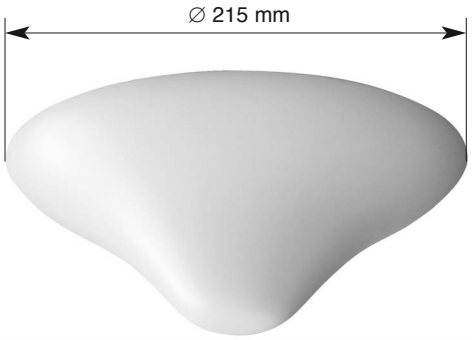
V

KATHREIN
Antennen · Electronic

- 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)

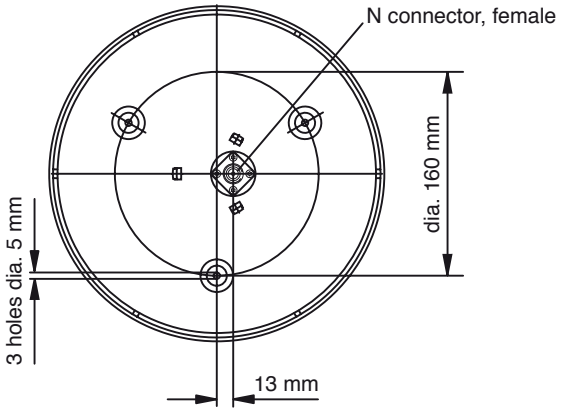


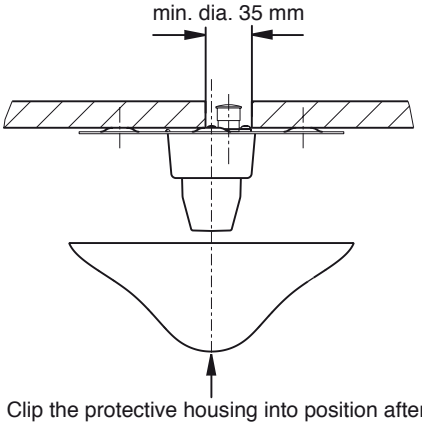
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

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

806–960 | 1425–3800 | 5150–6000

V

KATHREIN
Antennen · Electronic

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

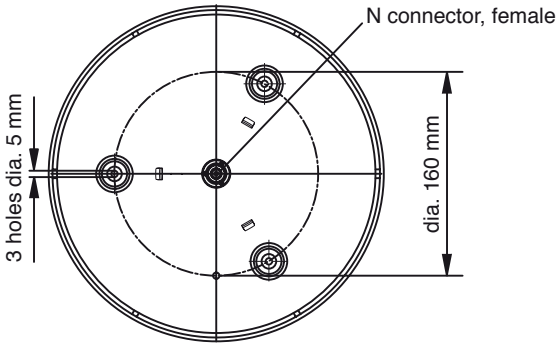
VPol Indoor 806–960/1425–3800/5150–6000 360° 2dBi

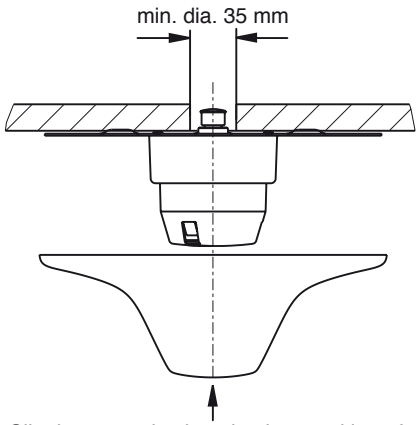
Type No.	800 10249
Frequency range	806 – 960 MHz 1425 – 3800 MHz 5150 – 6000 MHz
Polarization	Vertical
Gain	≈ 2 dBi
Impedance	50 Ω
VSWR	806 – 960 MHz: < 1.5 1425 – 1710 MHz: < 2.0 1710 – 2200 MHz: < 1.4 2200 – 3800 MHz: < 1.6 5150 – 6000 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
Input	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 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.

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

870–960

V

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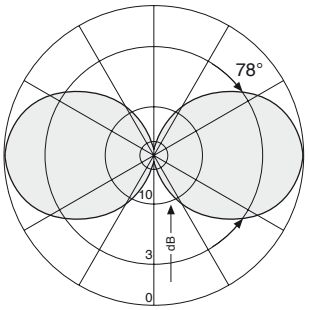
VPol Omni 870–960 360° 2dBi

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 (2 x 43 dBm carrier)	< –150 dBc
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

Indoor VPol

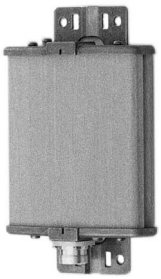
Panel
Vertical Polarization
Half-power Beam Width

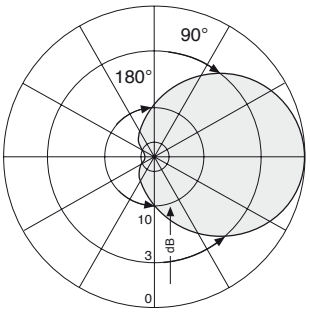
872–960
V
90°

KATHREIN
Antennen · Electronic

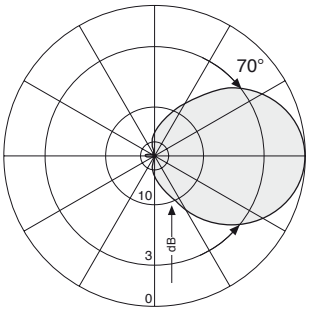
VPol Panel 872–960 90° 7.5dBi

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
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –140 dBc
Max. power	350 W (at 50 °C ambient temperature)





Horizontal Pattern



Vertical Pattern

Mechanical specifications	
Input	N female
Connector position*	Bottom or top
Weight	1.5 kg
Wind load	Frontal: 45 N (at 150 km/h) Lateral: 20 N (at 150 km/h) Rearside: 60 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	369 x 172 x 72 mm
Height/width/depth	262 / 155 / 49 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

1710–2200

V

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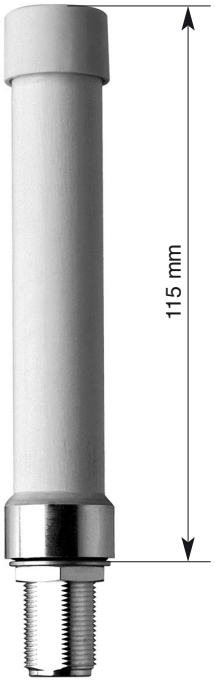
VPol Omni 1710–2200 360° 2dBi

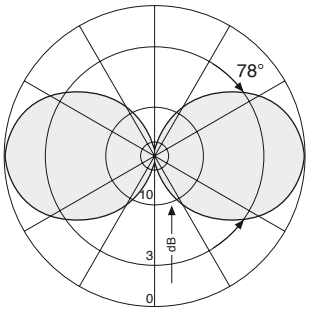
Type No.	738 454
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2200 MHz
VSWR	1710 – 2170 MHz: < 1.5 2170 – 2200 MHz: < 1.8
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	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

Indoor VPol

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

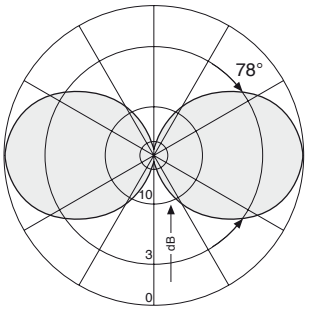
KATHREIN
Antennen · Electronic

VPol Omni 870–960/1710–1880 360° 2dBi

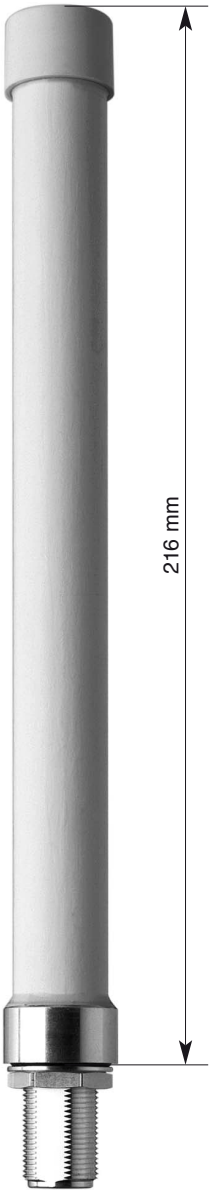
Type No.	738 449
Input	1 x N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz / 1710 – 1880 MHz
VSWR	< 1.7
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W: 870 – 960 MHz 50 W: 1710 – 1880 MHz (at 50 °C ambient temperature)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



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

KATHREIN
Antennen · Electronic

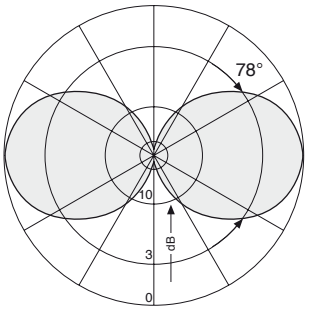
VPol Omni 824–960/1805–2170 360° 2dBi

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

Indoor VPol

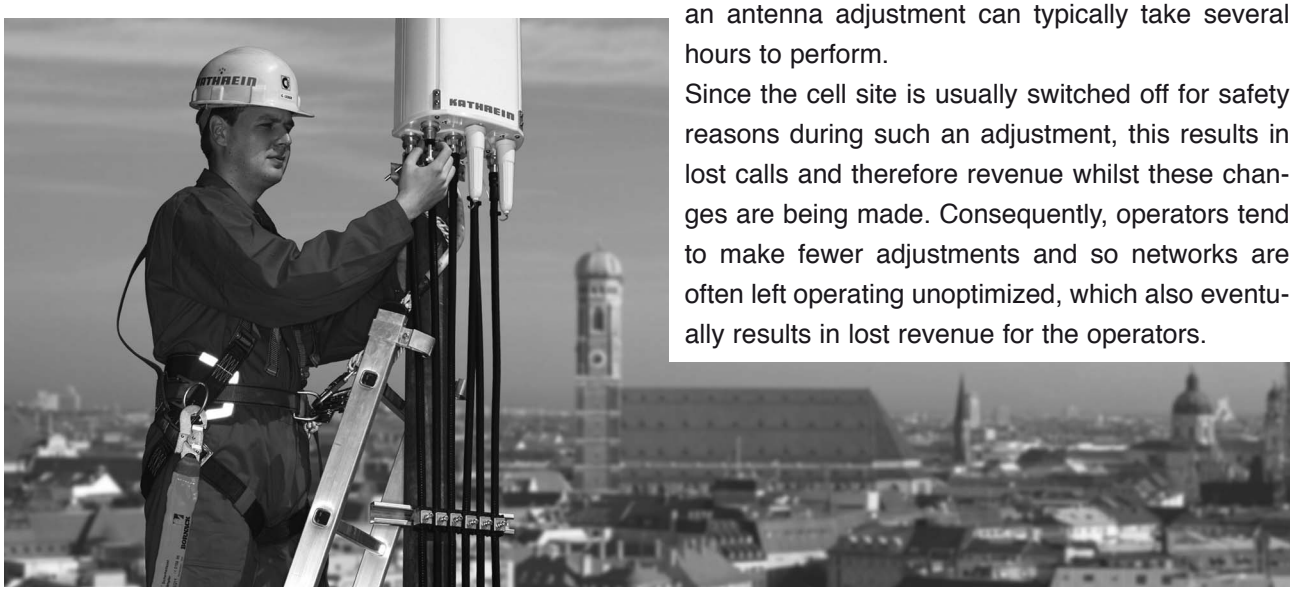
Summary – Remote Electrical Tilt (RET)

KATHREIN
Antennen · Electronic

New Products

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

Slimline RCU
(Remote Control Unit)

Optional:

Smart Bias Tee

DTMA (Double Tower Mounted Amplifier)

Bias Tee

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

AISG
Antenna Interface Standards Group

3GPP
A GLOBAL INITIATIVE

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

Ways of controlling the RET System: Central Control Unit (CCU)

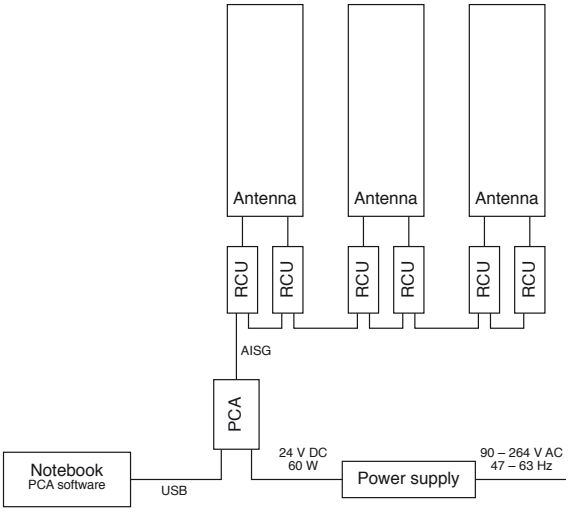
The major component for controlling the RCU is the Central Control Unit (CCU), which is located at the BTS. In order to cover all required applications, the CCU can be accessed from the Operational Maintenance Center (OMC) via the Ethernet input and/or directly through a personal computer via the RS 232 input.

The maximum number of RCUs controlled by a single CCU and the amount of cable length usable, depend on losses suffered along the cables (e.g. a maximum of 9 RCUs with 100 m of cable). Controlling several RCUs can be achieved through the use of splitters or the daisy-chain functionality of the RCUs.

Communication between the CCU and RCU
Three options are offered:
– Separate cables
– Using Smart Bias Tee´s in the feeder lines
– Via TMA

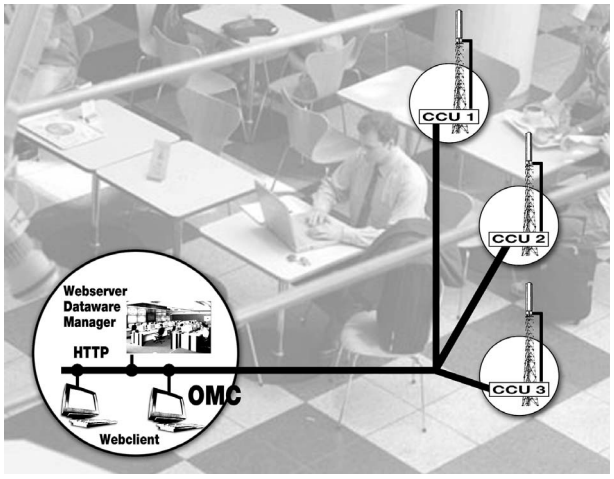
Portable Control Adapter (PCA)

The PCA is a portable controller for Kathrein's Remote Electrical Tilt system (RET). It is a simple device for running the remote control unit (RCU) attached to Kathrein base station antennas, and for adjusting the vertical electrical downtilt locally.
This product is designed for portable applications and for use by installers or maintenance staff with temporary access to the RCUs. The standard Central Control Unit (CCU) is not required.



The PCA consists of a small control box and Windows-based software to be installed on a laptop. The control box with dimensions of 160 x 95 x 40 (W x L x H) transforms the USB interface into an **AISG-conform** interface (RS 485 + DC voltage). Together with the supplied software, all functions of the RCU can be controlled via a laptop or PC.
Up to nine RCUs can be controlled using a single PCA.
This can be achieved either through the use of a splitter or via the daisy-chain functionality of the RCUs.
Upgrading the unit to offer remote control via the OMC is very easily possible, by just connecting the standard CCU instead of the PCA.

Ways of controlling the RET System: Communication between the OMC and CCU



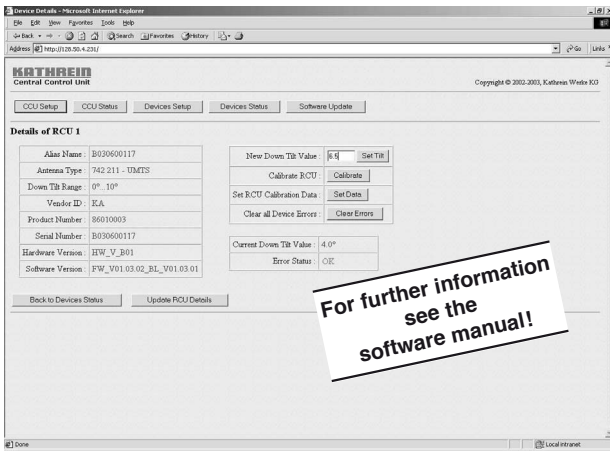
The electrical tilt can be controlled either locally or remotely.

Local control:
The configuration of the RET system and simple adaptation to network changes can be effected via local control. In this case, an installation team must be sent to the site. A laptop is basically connected to the Ethernet interface on the CCU. Alternatively, the RS 232 interface may be used. Instead of a CCU, a PCA can also be used for local control.

Remote control:
Due to the required UMTS network optimizations, the downtilt of an antenna's vertical radiation pattern has to be adjusted much more frequently than as compared with a GSM network. To meet this demand, a remote controlled system via the OMC is inevitable. The Ethernet interface can be selected for implementing remote control in a local area network (LAN) or a wide area network (WAN).

The following transport and application protocols are served by the CCU: TCP/IP, UDP, PPP, DHCP, HTML and ICMP/Ping, FTP, and SNMP.

RET – Software Tools
RET – Browser Application



The CCU runs a web-server. RCUs and CCUs, as part of a network, can be configured and controlled through a standard browser, e.g. Netscape, Internet Explorer – no additional software is required. The RET system can be controlled over a long distance directly on site.

The connection to each CCU is easily generated simply by typing in its own individual IP address. The website which appears contains all the required control functions for normal service and installation. In addition to permitting the configuration and control of the connected RCUs and TMAs, the CCU program also displays the device status, command history list and various types of system errors. Via the alarm interface all AISG alarms can be read off.

It is also possible to perform CCU software updates. The browser application is a helpful tool for the installation team on site, especially during the initial configuration of a RET system.

Each CCU, and with it each of the connected RCUs, can be addressed and controlled individually. Therefore, the browser application also offers a practical solution for responding to new situations by changing the individual downtilt angles quickly and easily.

RET – Antenna System Manager (ASM)

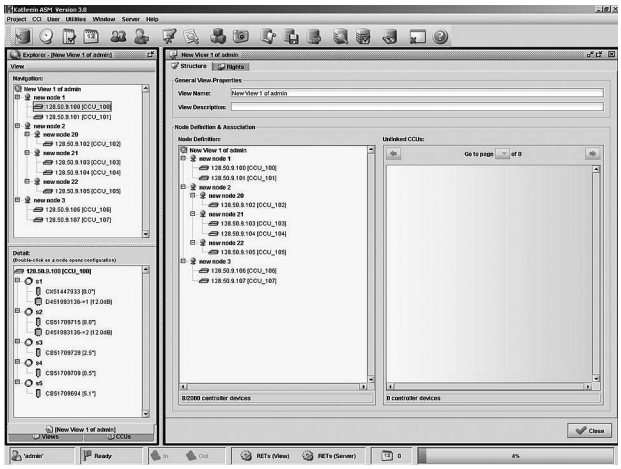
An OMC may control hundreds of sites. The IP/Browser solution is not suitable for the easy control of more than one CCU. Access to the various CCUs takes place in a serial form, which consequently takes up rather a lot of time. Further adverse features of such a Browser solution for an OMC are:

– No reference to site names.
– With HTML the whole page has to be transferred, even if only one value changes (very time consuming, especially with a modem).

Optimised solution: Antenna System Manager

The **A**ntenna **S**ystem **M**anager is a type of SNMP-based software installed on the OMC computer. The ASM offers the following features:

– The number of controllable CCUs and connected AISG devices is unlimited.
– The current data is collected and permanently updated in the OMC computer. The CCU access is only required for new adjustments.
– The CCU access is organized by the ASM automatically.
– Fast transfer rates due to reduced data quantity (especially with modem mode).
– Explorer enables "family-tree" structure, giving regions and site names.
– The ASM offers the basis for a customized interface connection to the OMC software.

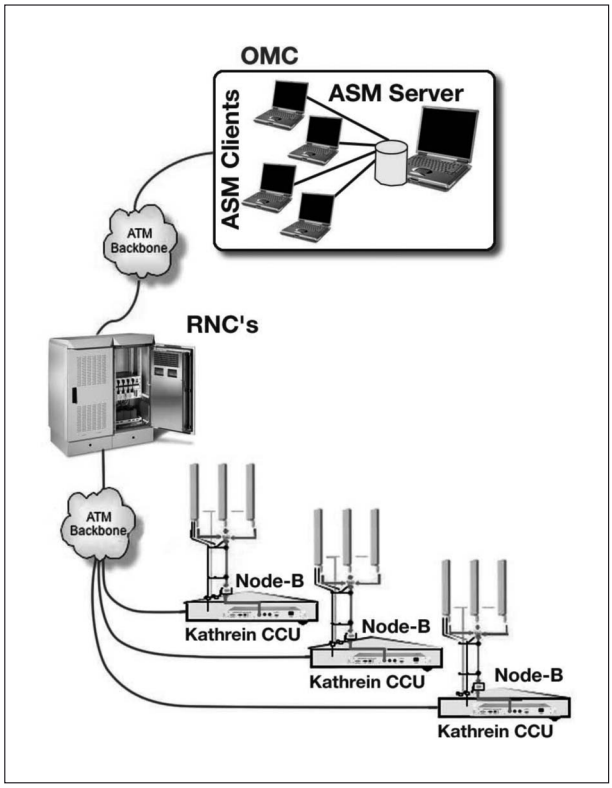


KATHREIN provides the Antenna System Manager (ASM) for a convenient way of network and alarm management of the Kathrein RET system. It gathers the access to the functionality of all CCUs into one single application.

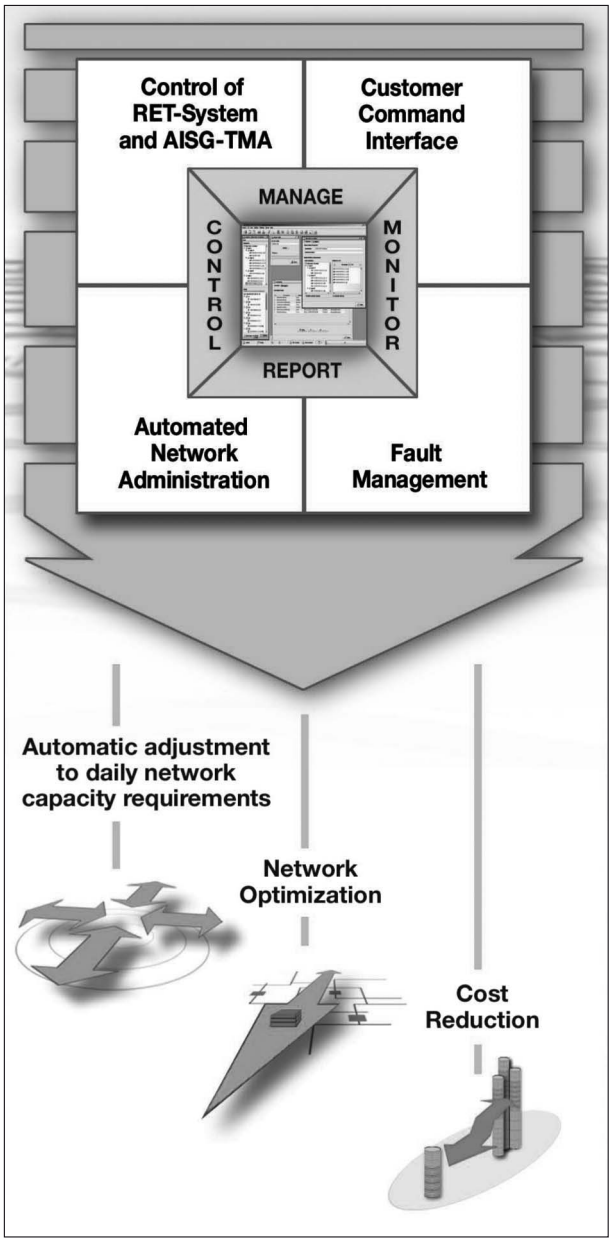
The ASM presents an invaluable tool for detecting faults, network changes and events in real-time. It is an optimized solution for controlling up to thousands of RET systems. It is based on the platform-independent JavaTM technology and the popular SNMP protocol.

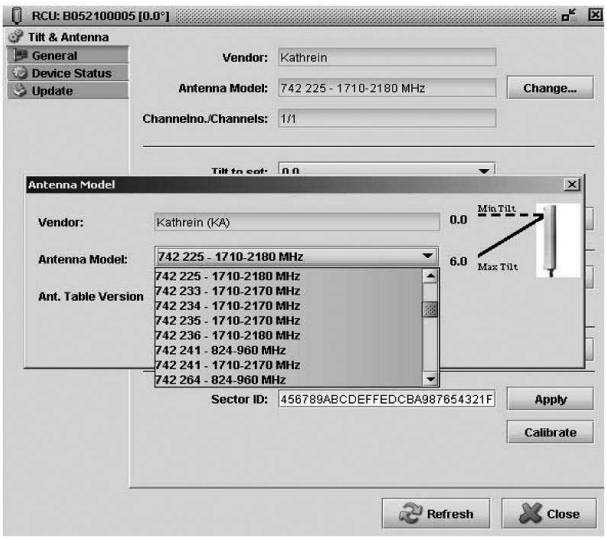
The ASM is designed in a Client Server Architecture. The server holds the database that contains all network parameters including the configuration and the current status of the RET systems. The clients connect to the server to watch the status of the system or to make configuration changes.

ASM integration into the network infrastructure:



ASM function overview:





General features and capabilities:

- Management of up to 10.000 CCUs and connected AISG devices (RCU, TMA)
- Client Server Architecture
- Platform independence (Win 2k/XP and SuSE Linux 9.0 or higher)
- Role-based user management with customizable access rights for each user account
- Freely configurable views on controlled systems
- Scripting functionality (CCI, “Customized Control Interface”, based on XML) for performing bulk operations in the system.
  The CCI scripting language includes for example operations like setting or validating RCU tilt values, performing software updates or registering RET systems in the ASM for a complete network.
- Alarm management of CCUs, RCUs and TMAs, report / export functionality
- Support of integrated RCUs and TMAs
- Possibility to process alarms and events via SNMP notifications
- Possibility to forward alarms and events to an upper layer SNMP management system
- Open interfaces for OMC and/or Optimizer Software integration
- Report generation in XML and PDF format
- Database export / import capability
- Automatic task scheduling to backup the database or export device information
- Snapshot Generation of certain scenarios, like for example rush hours, sport events, ..., and (re-)import of those scenarios, if required
- Event logging and possibility to filter the events in order to browse them or export them to a file.

Editions and Support

Edition	Short Description
ASM PRO	Professional Client Server Edition Management of up to 10.000 CCUs
ASM PRO Demo	30 days trial version of the ASM PRO limitation of max. 5 CCUs
ASM One Year Support	– 1 year free software updates – Training – Technical support

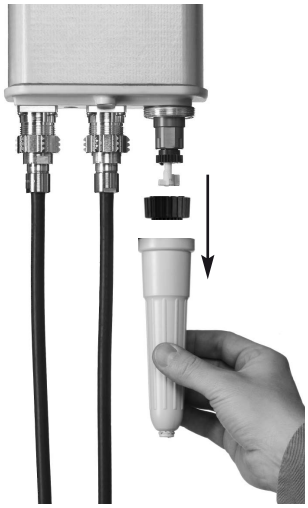
For more detailed information on the ASM software please contact

antennas.mobilcom@kathrein.de

Instructions for RCU Installation

KATHREIN
Antennen · Electronic

Attaching the RCU (Remote Control Unit) for remote-controlled downtilt adjustment:



Twist off the protective cap completely from the antenna.

Check the proper function of the phase shifter over the entire adjustment range by twisting the adjustment wheel in such a way, that the spindle moves completely in and out.

Reset the downtilt to 0 degree.

Completely remove the black adjustement wheel by simply pulling it downwards.

Clean the thread surface.

Apply the mounting-paste evenly onto the full circumference of the thread as illustrated in the figure.

Note!
Avoid ingestion and contact with eyes.
In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.
Avoid long-term contact with skin.
In case of contact with skin wash off with soap and water.

For further information please read the 'Safety data-sheet (91/155 EEC), Anti-Seize 'High-Tech' Assembly Paste different packing sizes' by company WEICON GmbH & Co. KG, Königsberger Str. 225, D-48157 Münster, http://www.weicon.de

Push the attachment nut of the RCU down towards the housing.

Place the RCU carefully over the adjustment spindle, observing the correct alignment of the RCU with regards to the antenna, i.e. the flat surfaces of the attachment fixture on the antenna side and those inside the RCU housing must lie flat against each other.

Push-up the RCU carefully to the stop at the antenna.

Please note!
Do not twist the RCU during attaching to the antenna, as this may damage the adjustment spindle.

Tighten the RCU attachment nut using a torque-wrench; wrench width = 41 mm, min. torque = 15 Nm, max. torque = 18 Nm.

Connect the RCU control cable immediately after attachment of the RCU. The tightening torque for fixing the control cable connector must be 0.5 – 1.0 Nm ('hand-tightened').

Please note!
In cases where a mechanical downtilt unit is installed, this must not be set for a downtilt of more than 14 degrees.

Connecting the control cables:

Connect a control cable to the daisy chain input of the RCU.

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

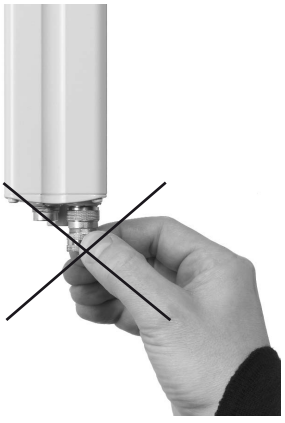
The connector should be thightened by hand only!

Please note: If the daisy chain output is not used, do not remove the daisy chain termination.

For the daisy chain solution, remove the daisy chain termination and attach control cable to interconnect with the daisy chain input of the subsequent RCU.

Please note: Do not remove the daisy chain termination of last RCU device.

Important:
To remove the daisy chain termination, only twist the upper thumb wheel (near the RCU).



Important:
Do not twist the lower thumb wheel of the daisy chain termination as this may cause damage to the RCU output socket.

General Instructions for Feederline Installation on Panels with four Connectors arranged on two Levels

KATHREIN
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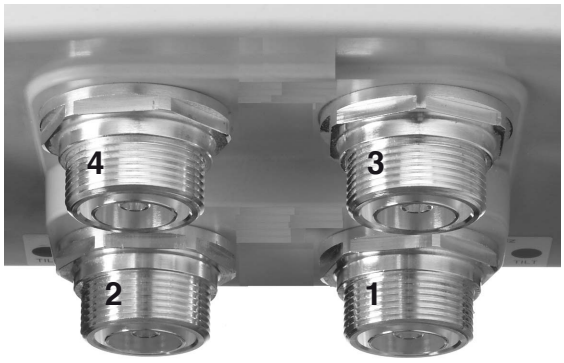
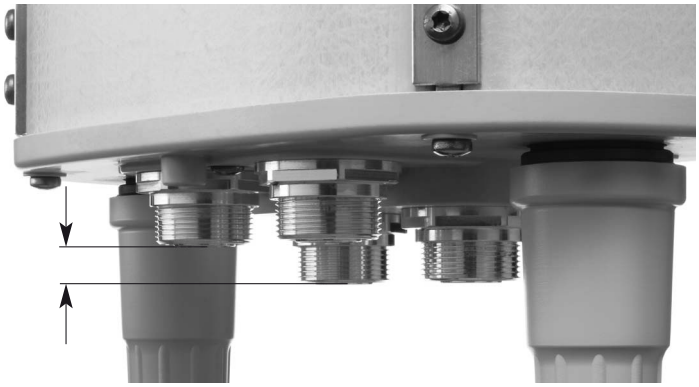
Please note: In order not to damage the interfaces, please make sure that only the right tools are used. Tighten the feederline connector interfaces solely by using a common torque-wrench with a suitable wrench width.

Description of connector arrangement:



There are four interfaces for feeding the antenna located at the bottom.



The connectors are mounted at two levels in order to facilitate feederline installation.

Attachment of the feederline connector and RCU (optional):

In order to protect the adjustment mechanism the protective caps have to be attached during feederline installation!

Start with the rearside located interface no. 1.

Place the connector carefully and fix the nut using a torque-wrench (according to the manufacturers guidelines).

The further sequence for the installation is: feederlines no. 2, 3, 4.

After feederline installation the optional remote control units (RCU) can be mounted if required.

For a full description of RCU installation please refer to the respective data sheet.

RET

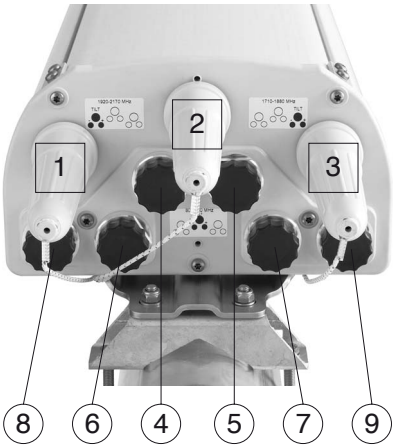
Please note: Additional weather sealing of correctly installed feederline connector interfaces is not required, nor is it recommended by the connector manufacturers.

General Instructions for Feederline Installation for Triple-band Antennas with Kathrein Installation Set, Type No. 850 10005

KATHREIN
Antennen · Electronic

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.

Description of connector arrangement:



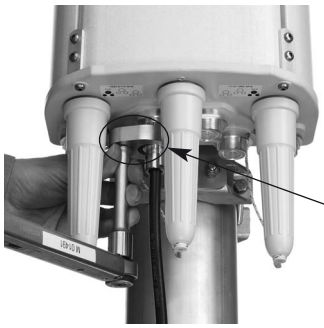
Adjustment mechanisms (1 – 3)

Feederline connectors (4 – 9)

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

Attachment of the feederline connector and RCU (optional):

In order to protect the adjustment mechanism the protective caps have to be attached during feederline installation!

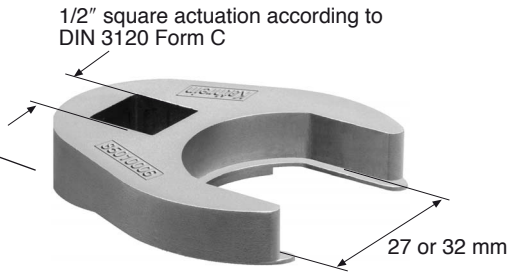


The sequence for installation is: feederline no. 4, 5, 6, 7, 8, 9. Put the connector carefully in place and hand-screw the nut.

Use a torque-wrench to finish installation (see installation tool).

Repeat operations as shown for each feederline!

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.

After feederline installation, the optional remote control units (RCU) can be mounted if required. For a full description of RCU installation please refer to the respective data sheet.

Please note: Additional weather sealing of correctly installed feederline connector interfaces is not required, nor is it recommended by the connector manufacturers.

Remote Control Unit (RCU)

KATHREIN
Antennen · Electronic

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

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

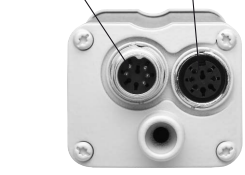
Type No.	860 10025	860 10118
Protocols	compliant to AISG 1.1 and 3GPP/AISG 2.0	
Logical interface ex factory [1]	AISG 1.1	3GPP/AISG 2.0
Input voltage range	10 ... 30 V (pin 1, pin 6)	
Power consumption	< 1 W (stand by); < 8.5 W (motor activated)	
Connectors [2]	2 x 8 pin connector according to IEC 60130-9; 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) (without daisy chain termination)	
Packing size	245 x 93 x 102 mm, (9.6 x 3.6 x 4 inches)	
Dimensions (H x W x D)	194 x 59.5 x 49.5 mm, (7.6 x 2.3 x 1.9 inches) (with daisy chain termination)	

[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.

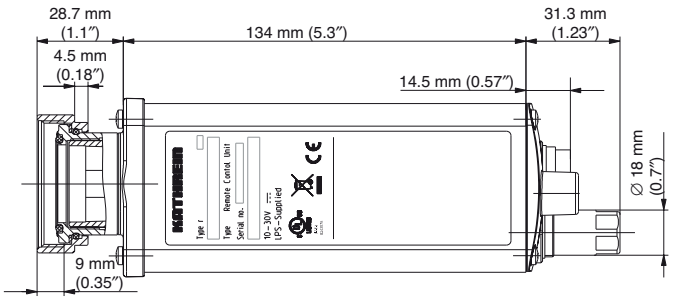
[2] The tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

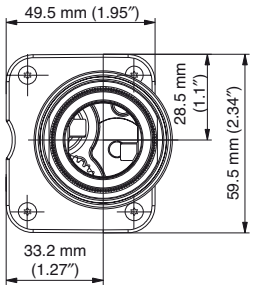


Bottom view of RCU

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 Detachable daisy chain termination Assembly paste


Daisy chain termination





RET

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

KATHREIN
Antennen · Electronic

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

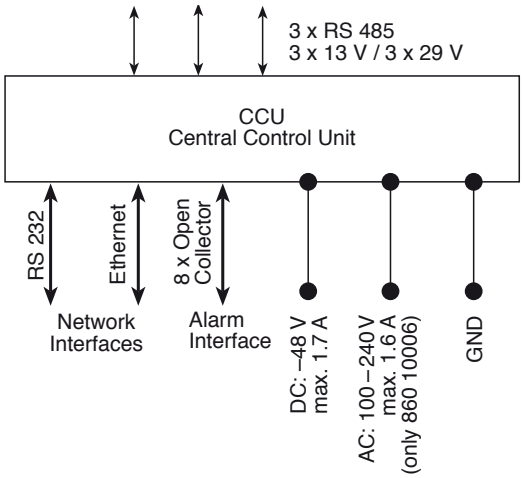
[1)] The tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand tightened'). The connector should be tightened by hand only.

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

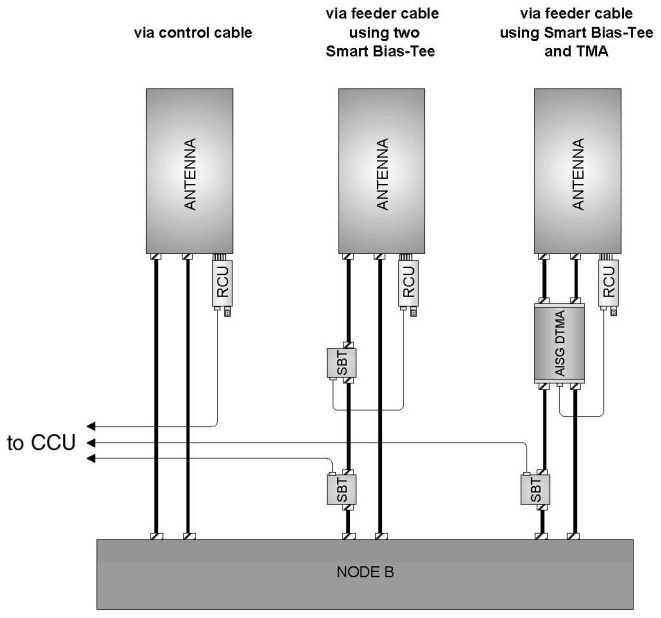
Certifications: CE, FCC part 15 class B; UL

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

CCU Interfaces



Examples of CCU – RCU connections



RET

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.

- Supports AISG 1.1 & AISG 2.0 / 3GPP simultaneously
- 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

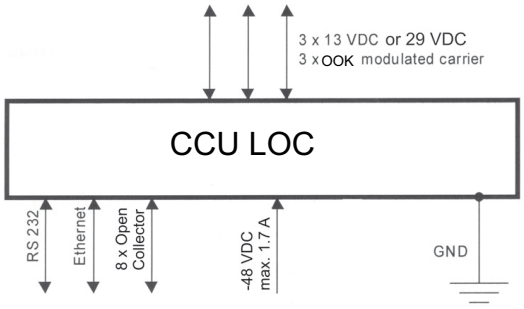
Scope of supply: CCU-LOC
Manual
DC-cable

RET

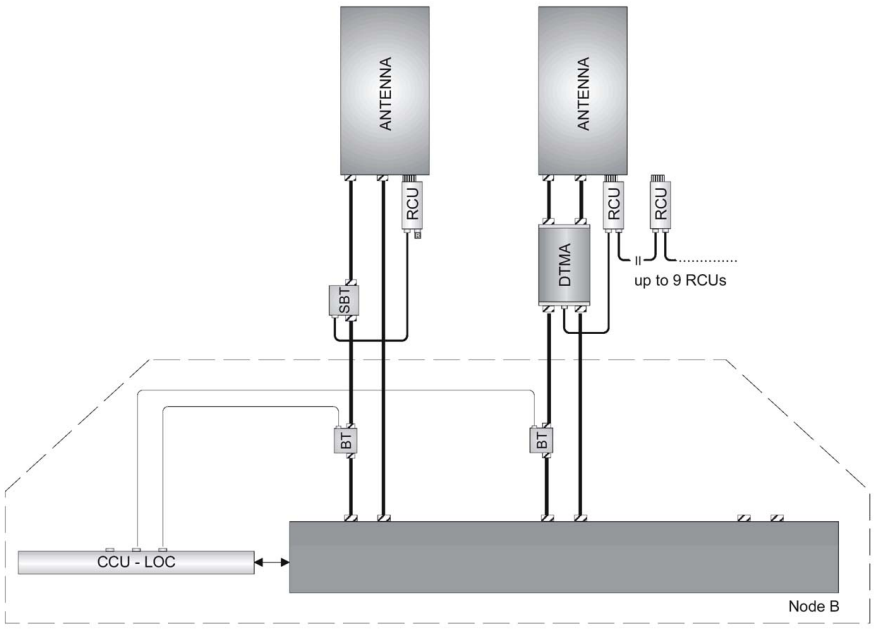
Central Control Unit with Layer-one Converter For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
Antennen · Electronic

Block diagram:



Applications:



Please note:
In order to achieve spurious emission requirements acc. to the AISG and 3GPP specifications, the CCU must be operated with a suitable Bias-Tee (Kathrein 78210429). The Bias-Tee must provide a minimum attenuation of 55 dB from 400MHz to 2170MHz and 30 dB from 2,17 GHz to 12,75 GHz between the DC-port and both RF-ports.

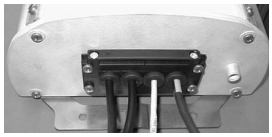
Central Control Unit (CCU) For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
Antennen · Electronic

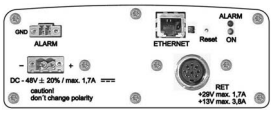
for outdoor use

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	10/350 μs, 3.5 kA 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, RAL 7035) Profile: Glass-fibre reinforced plastic (lightgrey)
Temperature range	–40 °C ... +55 °C ambient temperature
Mounting [3]	Wall and mast mounting (with additional clamps)
Weight	4.5 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.

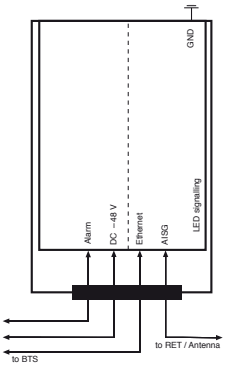
[1] **Please note:** In order to achieve lightning protection acc. to IEC 61643-1/-3 (10/350μs), please install the Kathrein Lightning Protection Device (type-no. 860 10030). For additional information about lightning protection of the CCU, we kindly refer to the RET Installation Manual.

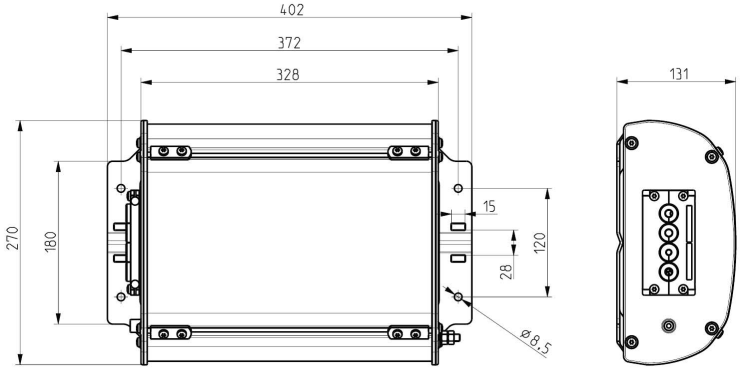
[2] Please refer to the RET Installation Manual for detailed information.

[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

Block diagram: CCU – outdoor





RET

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

KATHREIN
Antennen · Electronic

Portable Control Adapter

Type No.	860 10046
Connector* to RCU	1 x 8-pin connector according to IEC 60130-9, female, conforming to AISG
Input voltage of PCA	24 V DC
Power supply to RCU/TMA	13.5 V DC / max. 2 A 24 V DC / max. 2.5 A
Interface to RCU	RS 485 / power supply
Protocol to RCU	HDLC hex-coded command set, conforming to AISG
Interface to PC	USB 1.1/2.0
Max. number of RCU's	27 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 °C ... +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

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

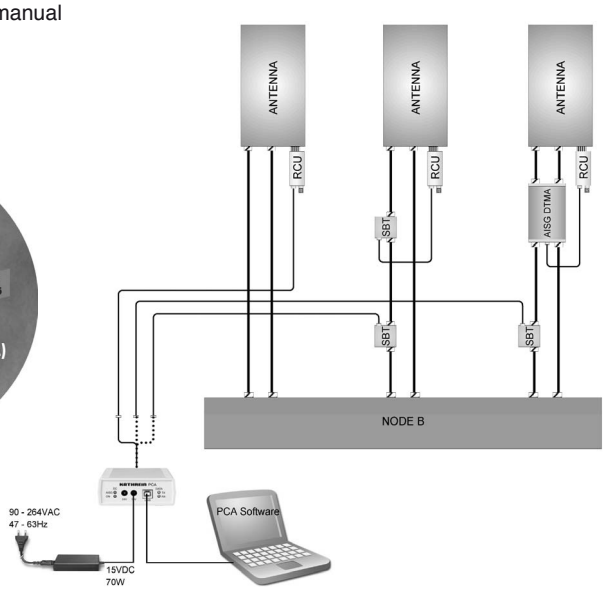
** If powered via AISG-interface, no external power supply is required.

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

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



RET

Connecting Cable
For Remote Electrical Tilt (RET) System

KATHREIN
Antennen · Electronic

For indoor and outdoor use

RET Cable for power supply and control

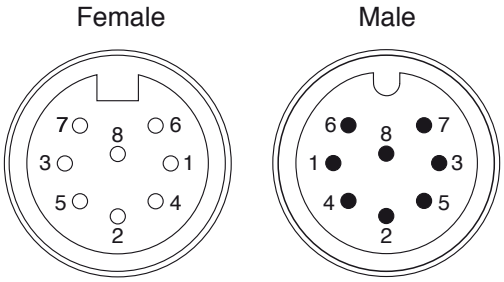
Type No.	860 10007 ...
Connectors	2 x 8 pin connector according IEC 60130-9, female/male
Tightening torque for fixing the connectors	**0.5 – 1 Nm** **(The connector should be tightened by hand only)**
Construction	Screen 1x twisted pair 100 Ω/1 MHz 2x power supply, 1x ground AWM style 20317 I/II A/B + 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, grey, similar to RAL 7004

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	Black colored Type No.	Grey colored Type No.
0.5 m	860 10054	860 10055
1 m	860 10007	860 10056
2 m	860 10008	860 10057
3 m	860 10029	860 10058
5 m	860 10009	860 10059
10 m	860 10010	860 10060
20 m	860 10032	860 10071
25 m	860 10011	860 10072
40 m	860 10012	860 10073
50 m	860 10033	860 10074
60 m	860 10013	860 10075
80 m	860 10014	860 10076
100 m	860 10015	860 10077



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

RET

SMB Control Cable
For Remote Electrical Tilt (RET) System

KATHREIN
Antennen · Electronic

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

KATHREIN
Antennen · Electronic

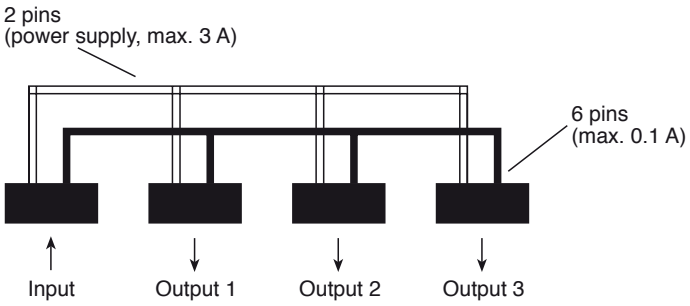
AISG compliant device for splitting of DC-power and control signals from one input to three outputs.

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 tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be thightened 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

RET

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

KATHREIN
Antennen · Electronic

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 μs) inner conductors: 2.5 kA/pin (10/350 μs)
Max. dynamic overvoltage at spark gap (1 kV/μs)	< 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 mm² 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 tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be thightened by hand only!

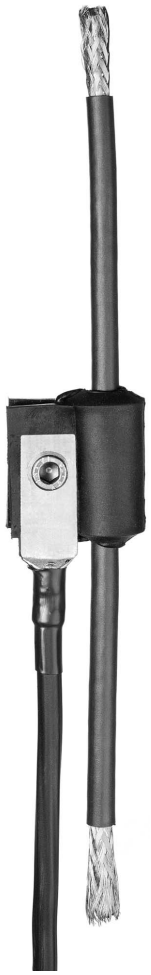
Material:	Connector plate: Aluminum. Cap: Plastic.
Mounting:	Mast mounting (50 – 145 mm diameter) by clamp. Wall mounting by screws (not supplied).
Note:	**No decoupling elements are integrated. The coordination with additional LPD's (device input) should be checked according to IEC 61312.** **Grounding 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:	3-way Splitter Clamp (Art.-No. 1311847)

Clamp, Art. No. 1311847

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

KATHREIN
Antennen · Electronic

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



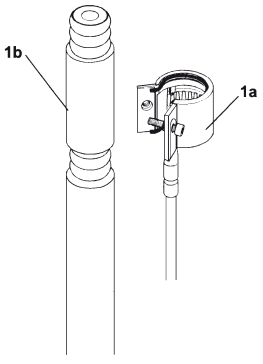
Earthing clamp for RCU power supply and signal cable

Type No.	860 10031
Max. lightning current	20 kA (pulse 10/350 μsec)
Contact resistance	< 3 mΩ
Protection class	IP 68
Grounding	Via stranded grounding wire, 16 mm², 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

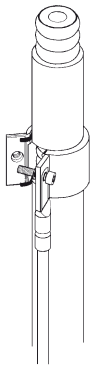
Material:	Body: Stainless steel with vulcanized Ethylene-Propylene-Caoutchouc Screw: Stainless steel Skin: Copper alloy Grounding wire: Copper
Please note:	The earthing clamp is suitable only for the Kathrein Power Supply and Signal Cables, Type No. 860 10007 to 860 10015, 860 10029, 860 10032, 860 10033, 860 10054 to 860 10060 or shielded cables with – shield diameter 6.1 mm – jacket diameter 7.8 mm ±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:

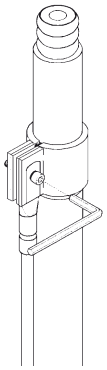
This instruction is written for qualified and experienced personnel. Please read it carefully before starting work. Any liability or responsibility for the result of improper or unsafe installation is disclaimed!



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)

RET

DTMA-UMTS-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

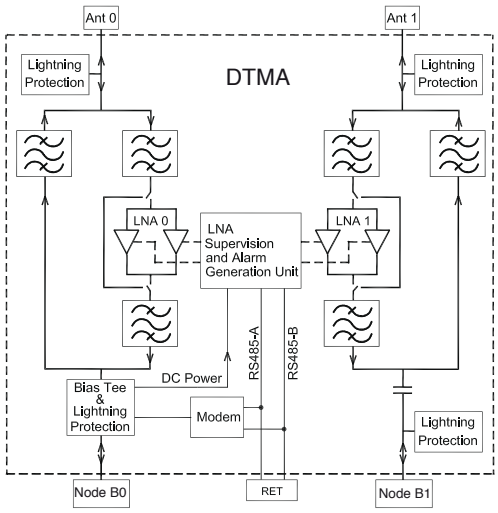
KATHREIN
Antennen · Electronic

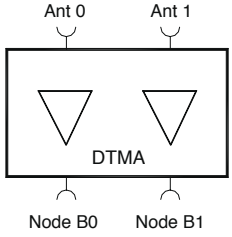
- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via Node B0 port for both TMAs**

RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup

Technical Data

Type No.	**782 10147** **DTMA-UMTS-12-AISG (12 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	< 2.6 dB (DC OFF)
Gain ripple	< ±0.3 dB
Return loss	> 18 dB (DC ON) > 12 dB (DC OFF)
Gain –40 … +65 °C +22 … +28 °C	 12 ±1.0 dB 12 ±0.5 dB
Noise figure	Typically 1.4 dB
Output 1-dB compression point	> 15 dBm
3rd 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 BO 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 AISG Connector (Compliance AISG 1.1)	 7-16 female 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 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 262 mm x 77.5 mm (without connectors, without mounting brackets)





RET

DTMA-UMTS-24-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

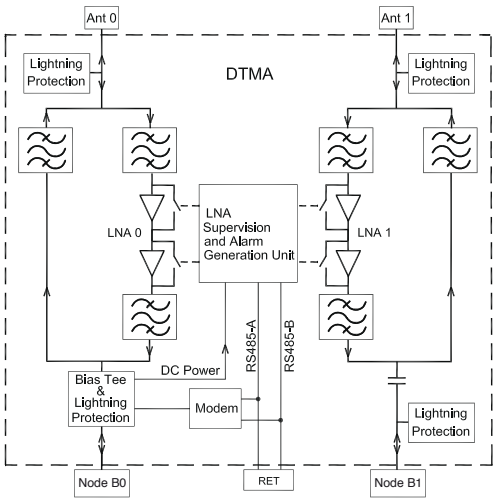
KATHREIN
Antennen · Electronic

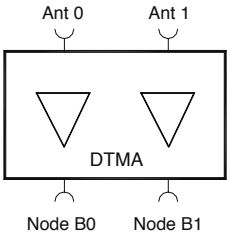
- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via Node B0 port for both TMAs**

RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup

Technical Data

Type No.	**782 10148** **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 +22 … +28 °C	 24 ±1.0 dB 24 ±0.5 dB
Noise figure	Typically 1.4 dB
Output 1-dB compression point	> 20 dBm
3rd 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 BO Port only**
DC supply without RET	+12 V nominal (9 – 15V, minus grounded) Typically 250 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 AISG Connector (Compliance AISG 1.1)	 7-16 female 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 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 262 mm x 77.5 mm (without connectors, without mounting brackets)





RET

DTMA-UMTS-12-AISG-CWA

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

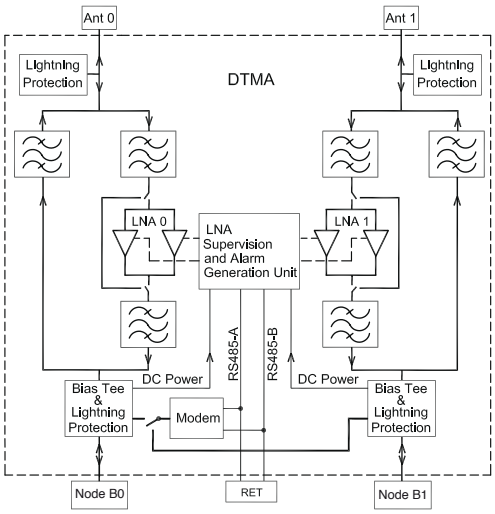
KATHREIN
Antennen · Electronic

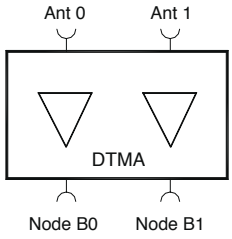
- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA AISG feed via Node B0 port or node B1 port for both TMAs**
- AISG DC supply either through one of the ports Node B0 or Node B1, or simultaniously through both ports Node B0 and Node B1
- CWA DC supply feed via Node B0 (TMA0) and Node B1 (TMA1)

RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup
CWA = **C**urrent **W**indow **A**larm

Technical Data

Type No.	782 10153 DTMA-UMTS-12-AISG-CWA (12 dB gain)	
Tx Characteristics		
Frequency range	2110 – 2170 MHz	
Bandwidth	60 MHz	
Insertion loss	Typ. 0.3 dB	
Ripple	< 0.1 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	< 2.5 dB (DC OFF)	
Gain ripple	< ±0.3 dB	
Return loss	> 18 dB (DC ON) > 12 dB (DC OFF)	
Gain +22 … +28 °C – 40 ... +65 °C	12 ±0.5 dB 12 ±1.0 dB	
Noise figure	< 1.6 dB / 25 °C < 2.0 dB / 60 °C	
Output 1-dB compression point	> 15 dBm	
3rd 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	
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 1.1
Modem Characteristics		AISG1.1 (Data rate: 9.6 kB)
Mechanical Characteristics		
Material	Aluminium housing	
Connectors RF AISG Connector (Compliance AISG 1.1)	 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 mm x 502 mm x 214 mm	
Dimensions (w x h x d)	166 mm x 262 mm x 77.5 mm (without connectors, without mounting brackets)	





* see note on page 2

DTMA-GSM1800-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN
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- Double unit for easy use with XPol antennas
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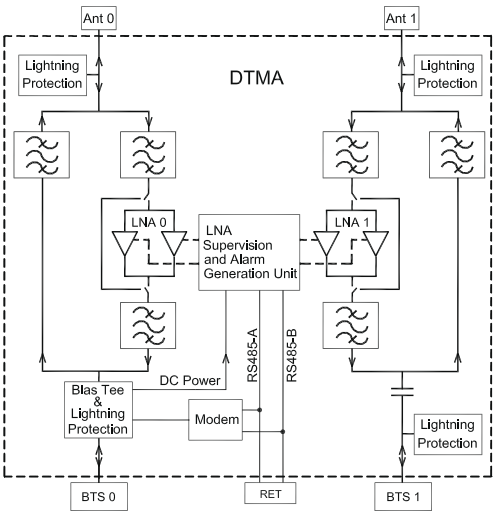
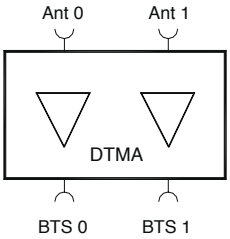
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via BTS 0 port for both TMAs**

RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup

Technical Data

Type No.	782 10315 DTMA-GSM1800-12-AISG (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
3rd 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 RF AISG Connector (Compliance AISG 1.1)	 7-16 female 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 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 278 mm x 77.5 mm (without connectors, without mounting brackets)





RET

DTMA-GSM1800-24-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN
Antennen · Electronic

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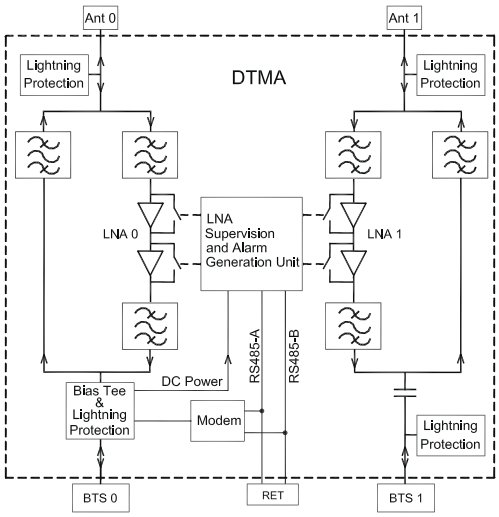
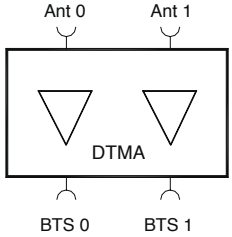
Technical Data

Type No.	782 10316 DTMA-GSM1800-24-AISG (24 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	24 ±0.6 dB 24 ±1.2 dB
Noise figure **+22 … +28 °C**	< 1.6 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW.
Noise figure –40 … +65 °C	< 2.1 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW.
Output 1-dB compression point	> 19 dBm
3rd order intercept point (OIP3)	> 28 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 250 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 AISG Connector (Compliance AISG 1.1)	 7-16 female 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 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 278 mm x 77.5 mm (without connectors, without mounting brackets)





RET

DTMA-GSM/UMTS1900-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

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Antennen · Electronic

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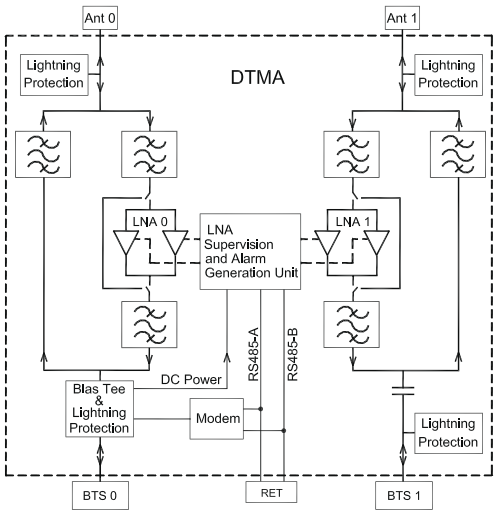
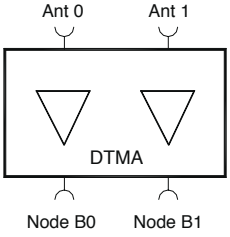
RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup

Technical Data

Type No.	782 10403 DTMA-GSM/UMTS1900-12-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** –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
3rd 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 BO Port only**
DC supply without RET	+12 V nominal (9 – 15V, 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 AISG Connector (Compliance AISG 1.1)	 7-16 female 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 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 278 mm x 77.5 mm (without connectors, without mounting brackets)





RET

DTMA-GSM1900-24-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN
Antennen · Electronic

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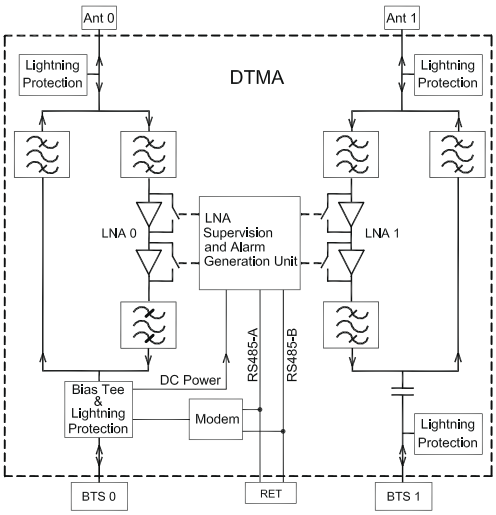
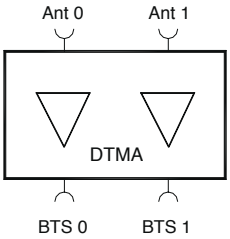
RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup

Technical Data

Type No.	782 10404 DTMA-GSM1900-24-AISG (24 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** –40 … +65 °C	24 ±0.6 dB 24 ±1.2 dB
Noise figure **+22 … +28 °C**	< 1.6 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW.
Noise figure –40 … +65 °C	< 2.1 dB over the middle 80% of BW, a further 0.3 dB over the remaining BW.
Output 1-dB compression point	> 19 dBm
3rd order intercept point (OIP3)	> 28 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 250 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 AISG Connector (Compliance AISG 1.1)	 7-16 female 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 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 278 mm x 77.5 mm (without connectors, without mounting brackets)





DTMA-1900-850 BYP-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

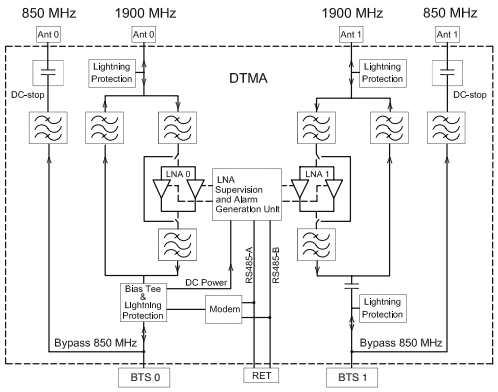
KATHREIN
Antennen · Electronic

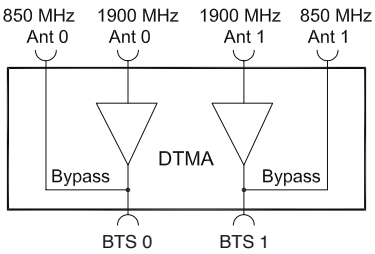
- Double unit for easy use with XPol antennas
- RF-Bypass feature for 850 MHz
- DC-stop integrated to 850 MHz ports
- Kathrein redundancy amplifier design for improved system reliability
- Bypass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via BTS 0 port for both TMAs**

RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup
BYP = RF-**BYP**ass

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
3rd 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 Lightning protection	ETS 300 342-3 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 – 15V, 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 AISG Connector (Compliance AISG 1.1)	 7-16 female 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	Approx. 8.7 kg
Dimensions (w x h x d)	271 mm x 278 mm x 77.5 mm (without connectors, without mounting brackets)





RET

Smart Bias Tee
800 – 2170 MHz

KATHREIN
Antennen · Electronic

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, 78210456:** 24 V version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)

Abbreviations:

RCU = **R**emote **C**ontrol **U**nit for remote electrical control of antenna tilt

BTS = **B**ase **T**ransceiver **S**tation

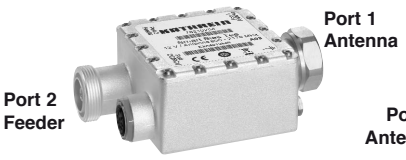
TMA = **T**ower **M**ounted **A**mplifier

AISG= **A**ntenna **I**nterface **S**tandards **G**roup (version 1.1)

Port 1 = Port for BTS or for Antenna

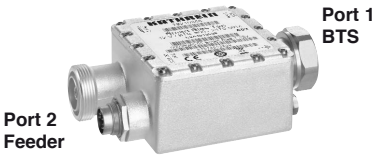
Port 2 = Port for Feeder Cable

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 *or* 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 (3rd order; with 2 x 20 W)	
Temperature range	–40 ... +60 °C	
Modem carrier frequency	2.176 MHz	
Application	Indoor *or* outdoor (IP66)	
Weight	1.3 kg	
Packing size	167 mm x 102 mm x 86 mm	
Dimensions (w x h x d)	79 mm x 79 mm x 43.5 mm (without connectors)	

Bias Tee
800 – 2170 MHz

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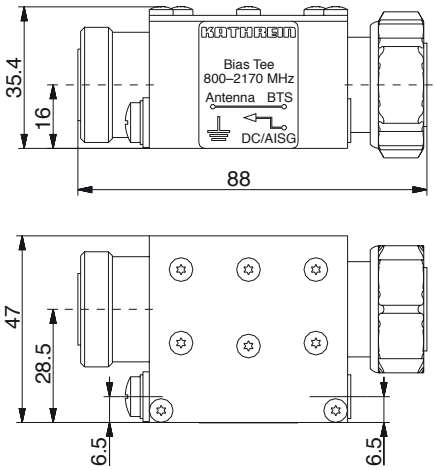
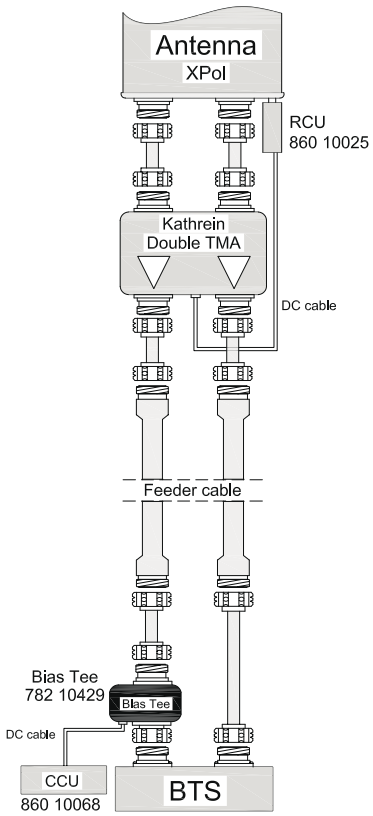
The Bias Tee is suitable to feed DC voltage and AISG control signals into the feeder cable in order to provide operating voltage and control signals via the RF feeder cable to the TMA or RCU.

- 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.



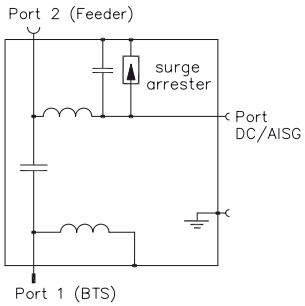


Application Example

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 (3rd 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 mm x 145 mm x 50 mm
Dimensions (w x h x d)	88 mm x 47 mm x 35.4 mm (including connectors and earthing screw of 6 mm diameter)

Port DC/AISG



RET

Summary – Electrical Accessories
800 ... 3800

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Splitters

Type	Type No.	Frequency range	Remark	Max. power	Connector female	Page
2-way-Splitter 800–2200	737 303	800 – 2200 MHz	Indoor/Outdoor	200 W	N	206
2-way-Splitter 800–2200	737 304	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	206
3-way-Splitter 800–2200	737 305	800 – 2200 MHz	Indoor/Outdoor	200 W	N	206
3-way-Splitter 800–2200	737 306	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	206
4-way-Splitter 800–2200	737 307	800 – 2200 MHz	Indoor/Outdoor	200 W	N	206
4-way-Splitter 800–2200	737 308	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	206
2-way-Splitter 800–2500	860 10017	800 – 2500 MHz	Indoor	100 W	N	207
3-way-Splitter 800–2500	860 10018	800 – 2500 MHz	Indoor	100 W	N	207
4-way-Splitter 800–2500	860 10019	800 – 2500 MHz	Indoor	100 W	N	207
2-way-Splitter 800–3800	**860 10100**	800 – 3800 MHz	Indoor/Outdoor	200 W	N	208
2-way-Splitter 800–3800	**860 10101**	800 – 3800 MHz	Indoor/Outdoor	700 W	7-16	208
3-way-Splitter 800–3800	**860 10102**	800 – 3800 MHz	Indoor/Outdoor	200 W	N	208
3-way-Splitter 800–3800	**860 10103**	800 – 3800 MHz	Indoor/Outdoor	700 W	7-16	208
4-way-Splitter 800–3800	**860 10104**	800 – 3800 MHz	Indoor/Outdoor	200 W	N	208
4-way-Splitter 800–3800	**860 10105**	800 – 3800 MHz	Indoor/Outdoor	700 W	7-16	208

Tappers

2-way-Tapper 800–2500 7.0/1.0 dB	860 10020	800 – 2500 MHz	Indoor	100 W	N	209
2-way-Tapper 800–2500 10.4/0.4 dB	860 10021	800 – 2500 MHz	Indoor	100 W	N	209
2-way-Tapper 800–2500 15.1/0.1 dB	860 10022	800 – 2500 MHz	Indoor	100 W	N	209
2-way-Tapper 800–2200 7.0/1.0 dB	K 63 23 60 67	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	210
2-way-Tapper 800–2200 10.4/0.4 dB	K 63 23 61 07	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	210
2-way-Tapper 800–2200 15.1/0.1 dB	K 63 23 61 57	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	210

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	211
2-way-Tapper 870–960/1710–2500 5.0–15.0dB	860 10023	870 – 960 MHz 1710 – 2500 MHz	Indoor	100 W	N	211

New Products

For indoor and outdoor use.

2-way-Splitter 800–2200
3-way-Splitter 800–2200
4-way-Splitter 800–2200

Type No.	737 303	737 304	737 305	737 306	737 307	737 308
Frequency range	800 – 2200 MHz					
For connecting ... antennas	2		3		4	
Insertion loss	< 0.05 dB					
Impedance	50 Ω					
VSWR	< 1.15					
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc					
Max. power (at 50 °C ambient temperature)	200 W	700 W	200 W	700 W	200 W	700 W
Connector (female)	N	7-16	N	7-16	N	7-16
Weight	approx. 1.5 kg					
Packing size	310 x 93 x 107 mm					
Max. size	294 / 82 / 82 mm					

Material: Housing: Aluminum.
Inner conductor: Brass.

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).

Input

737 308

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

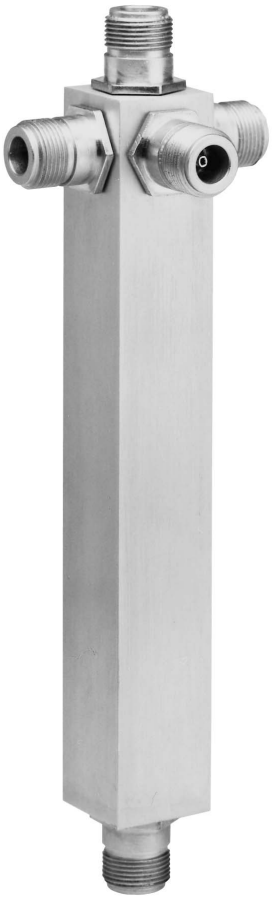
For indoor use.

2-way Splitter 800–2500
3-way Splitter 800–2500
4-way Splitter 800–2500

Type No.	860 10017	860 10018	860 10019
Frequency range	800 – 2500 MHz		
For connecting ... antennas	2	3	4
Insertion loss	< 0.05 dB		
Impedance	50 Ω		
VSWR	< 1.25	< 1.25	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
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
(suitbale for remote power supply systems).



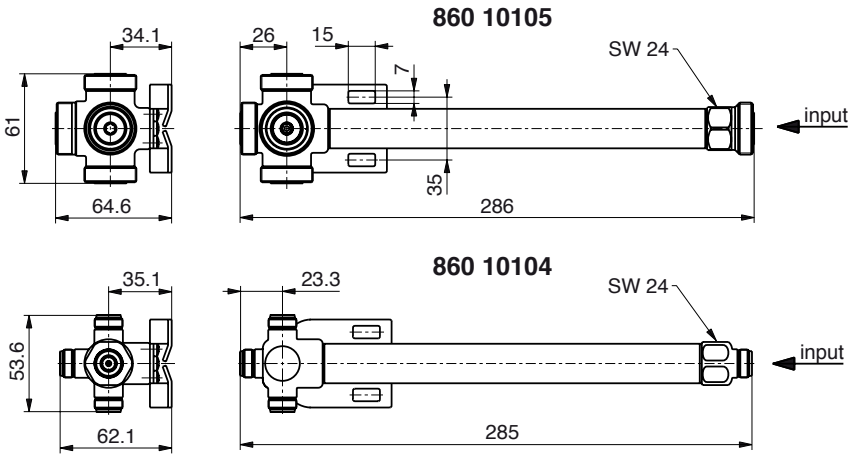
Input
860 10019

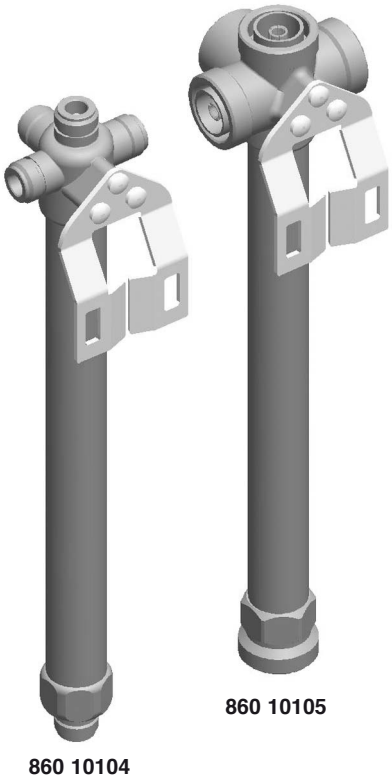
For indoor and outdoor use.

2-way-Splitter 800–3800
3-way-Splitter 800–3800
4-way-Splitter 800–3800

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	800 – 3800 MHz					
VSWR	< 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





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 800–2500 7.0 /1.0dB
2-way-Tapper 800–2500 10.4/0.4dB
2-way-Tapper 800–2500 15.1/0.1dB

Type No.	860 10020	860 10021	860 10022
Frequency range	800 – 2500 MHz		
Tap Loss Input ↔ P_1 Input ↔ P_2	 – 1.0 dB – 7.0 dB	 – 0.4 dB – 10.4 dB	 – 0.1 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	100 W (at 50 °C ambient temperature)		
Connector	N female		
Weight	approx. 0.5 kg		
Profile cross-section	25 x 25 mm		
Packing size	267 x 95 x 111 mm		
Max. size	244 / 64 / 25 mm		

Material: Housing: Aluminum.
Inner conductor: Brass.

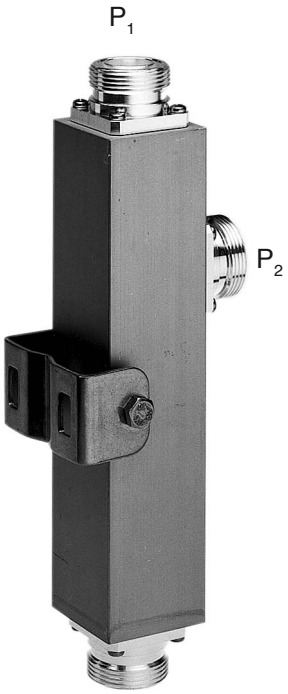
DC capability: DC transmission only between input and port P_1.
P_2 is coupled capacitively.

Input
860 10020

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 Input ↔ P_2	 – 1.0 dB – 7.0 dB	 – 0.4 dB – 10.4 dB	 – 0.1 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		



Material: Housing: Aluminum.
Inner conductor: Brass.

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

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

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 Low-loss Power Tapper Continuously Adjustable

824–960 | 1710–2500

5.0–15.0 | 5.0–15.0

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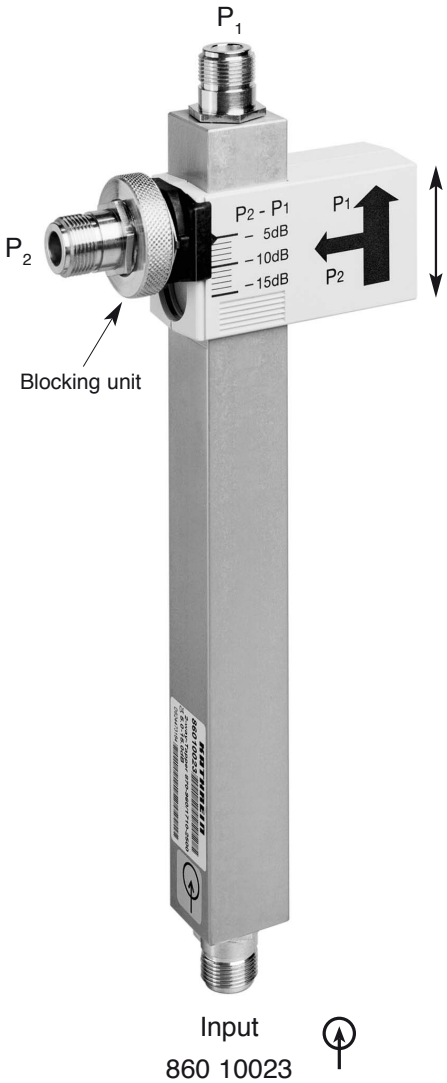
For indoor use.

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.



Splitting table

P_2 / P_1 [dB]	Splitting ratio P_1 / P_2	Splitting attenuation $P_{Input} - P_1$ [dB]	Splitting attenuation $P_{Input} - P_2$ [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

Summary – Antenna Line Products
Measurement Tools

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Combiners

Duplexers

For detailed information see the catalogue "790–2500 MHz Filters, Combiners, Amplifiers for Mobile Communications"

DTMAs, Bias Tees

For detailed information see the catalogue "790–2500 MHz Filters, Combiners, Amplifiers for Mobile Communications"

DTMAs, Bias Tees

For detailed information see the catalogue "790–2500 MHz Filters, Combiners, Amplifiers for Mobile Communications"

Antenna Measurement Tools (from Schomandl)

Power Meter

Dual-band Combiner

793 532	Single Unit	806 – 960 / 1710 – 2170 MHz
793 533	Double Unit	806 – 960 / 1710 – 2170 MHz

793 532
Single Unit

793 533
Double Unit

782 10248	Single Unit, DC pass	806 – 960 / 1710 – 2170 MHz
782 10249	Single Unit, DC pass	806 – 960 / 1710 – 2170 MHz
782 10250	Single Unit, DC stop	806 – 960 / 1710 – 2170 MHz
782 10251	Double Unit, DC stop	806 – 960 / 1710 – 2170 MHz

782 10248,
782 10250
Single Unit

782 10249,
782 10251
Double Unit

793 423	Single Unit	1710 – 1880 / 1920 – 2170 MHz
793 424	Double Unit	1710 – 1880 / 1920 – 2170 MHz
782 10243	Single Unit, DC stop	1710 – 1880 / 1920 – 2170 MHz
782 10244	Double Unit, DC stop	1710 – 1880 / 1920 – 2170 MHz

793 423, 782 10243
Single Unit

793 424, 782 10244
Double Unit

782 10278	Single Unit	806 – 1880 / 1920 – 2170 MHz
782 10279	Double Unit	806 – 1880 / 1920 – 2170 MHz
782 10305	Single Unit, DC stop	806 – 1880 / 1920 – 2170 MHz
782 10306	Double Unit, DC stop	806 – 1880 / 1920 – 2170 MHz

782 10278,
782 10305
Single Unit

782 10279,
782 10306
Double Unit

782 10803	Single Unit	806 – 960 / 2400 – 2700 MHz
782 10800	Single Unit	1710 – 2180 / 2400 – 2700 MHz
782 10804	Single Unit	806 – 960 / 3300 – 3800 MHz

782 10264	Single Unit	50 – 2200 / 2400 – 2500 MHz

782 10460

782 10341,
782 10350

782 10457	DC pass / DC pass	50 – 470 / 806 – 2500 MHz
782 10458	DC stop / DC pass	50 – 470 / 806 – 2500 MHz
782 10460	DC pass / DC stop	50 – 470 / 806 – 2500 MHz
782 10341	Single Unit	824 – 880 / 890 – 960 MHz
782 10350	Single Unit	824 – 894 / 907 – 960 MHz

Triple-band Combiner

793 425	Single Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 426	Double Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz DC pass / DC pass / DC pass
782 10245	Single Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10246	Double Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz DC stop / DC stop / DC pass

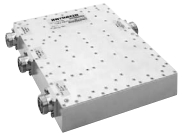
793 425, 782 10245
Single Unit

793 426, 782 10246
Double Unit

793 528	Single Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 529	Double Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10298	Single Unit indoor	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz

793 528
Single Unit

793 529
Double Unit



782 10298, Single Unit (indoor)

Duplexer GSM-R / GSM

793 004	7-16	876 – 880 / 921 – 925 MHz
793 005	N	876 – 880 / 921 – 925 MHz

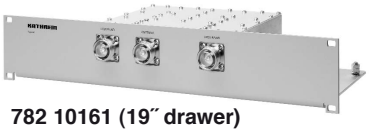
793 004

793 005

782 10164	7-16	890 – 915 / 935 – 960 MHz
782 10165	1 x N, 2 x 7-16	890 – 915 / 935 – 960 MHz
782 10161	7-16, 19" drawer	890 – 915 / 935 – 960 MHz
782 10162	7-16, outdoor	890 – 915 / 935 – 960 MHz

782 10164 (indoor)

782 10162 (outdoor)



782 10161 (19˝ drawer)

782 10167	7-16	880 – 915 / 925 – 960 MHz

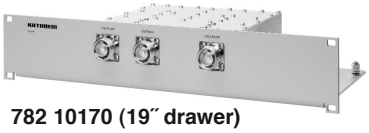
Duplexer AMPS A-Band, B-Band A/B-Band

782 10168	7-16	824 – 835 / 869 – 880 MHz
782 10169	7-16, outdoor	824 – 835 / 869 – 880 MHz
782 10170	7-16, 19" drawer	824 – 835 / 869 – 880 MHz

782 10168, 782 10171 (indoor)

782 10169, 782 10172 (outdoor)

782 10171	7-16	835 – 851 / 880 – 896 MHz
782 10172	7-16, outdoor	835 – 851 / 880 – 896 MHz



782 10170 (19˝ drawer)

782 10215	7-16	824 – 851 / 869 – 896 MHz
782 10216	N	824 – 851 / 869 – 896 MHz

782 10215, 782 10257

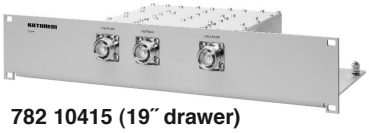
782 10216

782 10257	7-16, 400 W	824 – 846.5 / 869 – 891.5 MHz
782 10265	7-16, 800 W	824 – 846.5 / 869 – 891.5 MHz

Duplexer GSM 1800 / GSM 1900

792 542	7-16	1710 – 1785 / 1805 – 1880 MHz
782 10415	7-16, 19" drawer	1710 – 1785 / 1805 – 1880 MHz
792 544	7-16	1850 – 1910 / 1930 – 1990 MHz

792 542, 792 544



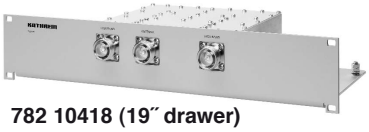
782 10415 (19˝ drawer)

Duplexer UMTS

782 10192	7-16	1920 – 1980 / 2110 – 2170 MHz
782 10193	N	1920 – 1980 / 2110 – 2170 MHz
782 10418	7-16, 19" drawer	1920 – 1980 / 2110 – 2170 MHz

782 10192

782 10193



782 10418 (19˝ drawer)

GSM 900 Double Tower Mounted Amplifier CWA / AISG

782 10440	12 dB gain	UL: 880 – 915 / DL: 925 – 960 MHz

GSM 1800 Double Tower Mounted Amplifier CWA

782 10312	12 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz
782 10313	24 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz

GSM 1800 Double Tower Mounted Amplifier AISG

782 10315	12 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz
782 10316	24 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz

GSM 1900 Double Tower Mounted Amplifier CWA

782 10400	12 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz
782 10401	24 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz

GSM 1900 Double Tower Mounted Amplifier AISG

782 10403	12 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz
782 10404	24 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz
782 10406	12 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz Bypass 806–896 MHz

782 10406

UMTS Double Tower Mounted Amplifier CWA

782 10301	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10302	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz

UMTS Double Tower Mounted Amplifier AISG

782 10147	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10148	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10448	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz

UMTS Double Tower Mounted Amplifier CWA / AISG

782 10153	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10612	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10613	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz

Power Distribution Unit (PDU)

782 10344

Smart Bias Tee

782 10253	12 VDC BTS	800 – 2170 MHz
782 10254	12 VDC Antenna	800 – 2170 MHz
782 10255	24 VDC BTS	800 – 2170 MHz
782 10256	24 VDC Antenna	800 – 2170 MHz
782 10453	12 VDC BTS	800 – 2170 MHz
782 10454	12 VDC Antenna	800 – 2170 MHz
782 10455	24 VDC BTS	800 – 2170 MHz
782 10456	24 VDC Antenna	800 – 2170 MHz

782 10454

782 10453

Bias Tee

793 304	800 – 2170 MHz
782 10429 (AISG)	800 – 2170 MHz
782 10550 (AISG) Bulkhead version	1710 – 2170 MHz

3-dB Couplers, DC Stop, Filters
50 – 3800 MHz

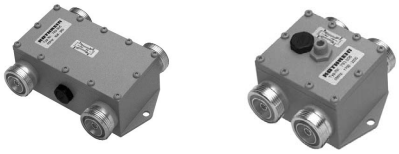
KATHREIN
Antennen · Electronic

DC Stop

793 301	7-16 f/m, outdoor	800 – 2170 MHz

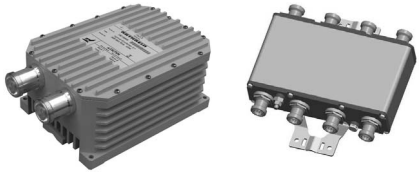
3-dB Coupler

793 506	7-16, outdoor	806 – 960 MHz
793 006	7-16, outdoor	1700 – 2200 MHz
793 554	7-16, outdoor	800 – 2200 MHz

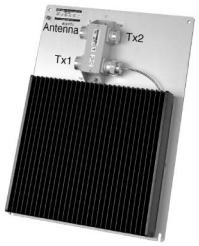


Hybrid Combiner

782 10500	2:1, 2 x 60 W, 7-16, outdoor	806 – 960 MHz
782 10502	2:1, 2 x 60 W, 7-16, outdoor	1710 – 2170 MHz
782 10532	4:4, 4 x 60 W, 7-16, outdoor	1710 – 2170 MHz
782 10203	4:4, 4 x 150 W, 7-16	800 – 2200 MHz



792 699	7-16, 2 x 150 W, 7-16	806 – 960 MHz
792 702	7-16, 2 x 150 W, 7-16	1700 – 2200 MHz
793 555	7-16, 2 x 150 W, 7-16	800 – 2200 MHz



Duplex Hybrid Combiner

782 10805	4 inputs, 2 outputs	880 – 960 MHz

Measuring Directional Coupler

792 972	7-16 f/m	824 – 2500 MHz

Band-pass Filter

793 540	7-16, outdoor	1710 – 1880 MHz

Band-pass Filter
(AMPS/CDMA suppression filter)

782 10390	7-16 f/m, outdoor	890 – 960 MHz
782 10391	7-16 f/m, outdoor	890 – 960 MHz

Low-pass Filter

793 539	7-16 f/m, outdoor	876 – 960 MHz

50-Ω Load Low intermodulation

782 10474	7-16, outdoor	806 – 2500 MHz

Fast-Antenna-Tester FAT 2700

SCHOMANDL
RF-Instruments by a Kathrein-Group Company

KATHREIN
Antennen · Electronic

- Ideal for 50 Ω systems
- Independent of the system-standard
- Easy to use
- Direct VSWR-Measurement
- Accuracy + 5 % (20 MHz ... 800 MHz)
- Frequency range 20 MHz ... 2.700 MHz
- Frequency display RF-Generator: 4 digits
- Battery operated
- Small and handy

The Fast-Antenna-Tester FAT 2700 includes everything that is needed to measure the installation of an antenna or a 50 Ω cable-network: one RF-Generator with continuously settable frequency in the range from 20 MHz to 2,700 MHz and a VSWR-bridge. The result is displayed on an analog meter without any delay.

The Fast-Antenna-Tester FAT 2700 with it's low weight of less than 0.5 kg – including the rechargeable accus – may be used at any place.

The FAT 2700 is easy to use: Power on – set the frequency of the RF-Generator – read out the VSWR – finished.

An accessory-set – consisting of a soft carrying bag for the FAT 2700, an automobile cigarette charger cable and four RF-adapters – completes the test equipment.

Specifications FAT 2700

VSWR-Measurement:
Impedance: ..... 50 Ω
VSWR-Measuring range: ..... 1.0 ... 3.0
Accuracy: Band I: .20 MHz ... .800 MHz: ..... + 5 %
Band II: .800 MHz ... 1,600 MHz: ..... + 10 %
Band III: 1,600 MHz ... 2,700 MHz: ..... + 15 %

RF-Generator:
Frequency range: ..... 20 MHz ... 2700 MHz
Frequency display: .....with counter 4 digits
Resolution: Band I: .20 MHz ... 800 MHz: ..... 0.1 MHz
Band II: .800 MHz ... 1,600 MHz: ..... 1 MHz
Band III: 1,600 MHz ... 2,700 MHz: ..... 1 MHz
Accuracy: .....< + 3 x 10-5
Output level: ..... – 3 dBm (typ.)
Max. permitted RF-level at the RF-connector: ..... < 100 mW
RF-connector: ..... N-socket

General data:
Power requirements: ..... 4 ea. NIMH-Accus AA
Operating temperature: ..... 0 °C ... + 50 °C
Electrical safety: ..... EN 61010
EMC: ..... CE-mark
Dimensions (H x W x D): ..... 184 mm x 92 mm x 34 mm
Weight (including. accus): ..... 0.5 kg
Contents of delivery: ..... Fast-Antenna-Tester
4 ea. Accus (built-in)
1 ea. Battery charger (220 V, 50 Hz)
1 manual English/German

Ordering information:
Fast-Antenna-Tester FAT 2700 ..... BN 86817.000

Accessories:
Accessory set ..... BN 86817.101
Consisting of:
soft carrying bag
RF-adapter set (FME-plug, BNC socket, TNC socket, Mini-UHF socket)
adapter 7-16 to N connector (length approx. 50 cm)
automobile cigarette charger cable

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

WLAN Power Meter

SCHOMANDL
RF-Instruments by a Kathrein-Group Company

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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: – Depth: – Height:	58 mm 23 mm 105 mm
Weight incl. Batteries:		approx. 130g
Temperature:	– Operating – Storage	0 to 40°C –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

SCHOMANDL
RF-Instruments by a Kathrein-Group Company

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Also avalible 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

Safe One
Personal RF Safety Monitor

SCHOMANDL
RF-Instruments by a Kathrein-Group Company

KATHREIN
Antennen · Electronic

Monitors RF fields

Indicates RF pollution

Alarm and Silent modes

Broadband coverage

General Safety According to WHO ICNIRP

Alarm 2W/m² or 10W/m²

Specifications for Safe One Personal Safety Monitor

Model No.:		86817.003
Frequency range:		10 – 10000 MHz
Frequency response		ICNIRP
Absolute accuracy 400–2500MHz:		±6dB
Power range indicated:		0. 1 – 100 W/m²
Field strenght indicated:		19 – 137 V/m
Dynamic range:		>30dB
Audio Alarm		80dBa
LED Alarm always enabled		15mcd
Normal Mode Audio and LED Alarm: (–)		2W/m² – 28V/m or 10W/m² – 137V/m
Timed Mode Silent in: (– –)		5 minutes
Audible Alarm Off Mode: (– – –)		Never
Power Supply:		3Volt (2 X AAA Alkaline)
Max power consumption no alarm:		110µA
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

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

Summary – Mechanical Accessories Clamps, Downtilt Kits ...

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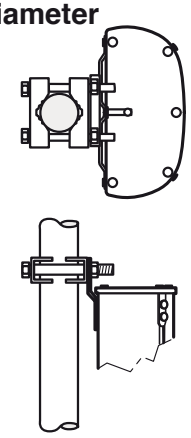
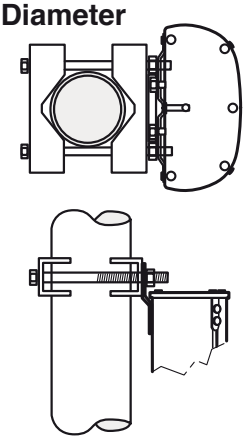
Mounting Configurations

KATHREIN
Antennen · Electronic

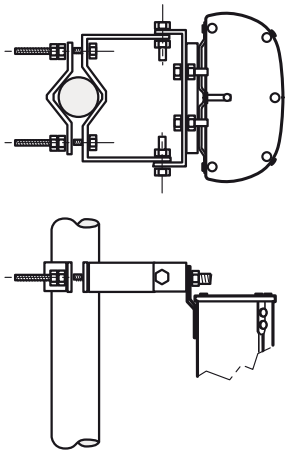
Small Pipe Diameter



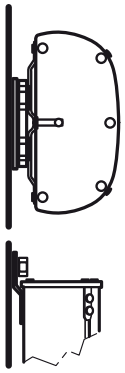
Large Pipe Diameter



Off-set

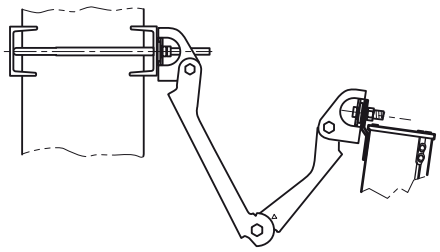


Flat Surface

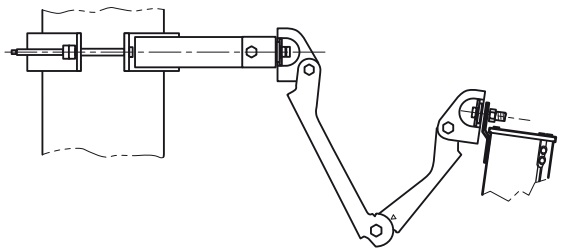


Not applicable for Eurocell Panels with connector position rearside.

Standard Downtilt



Off-set Downtilt



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

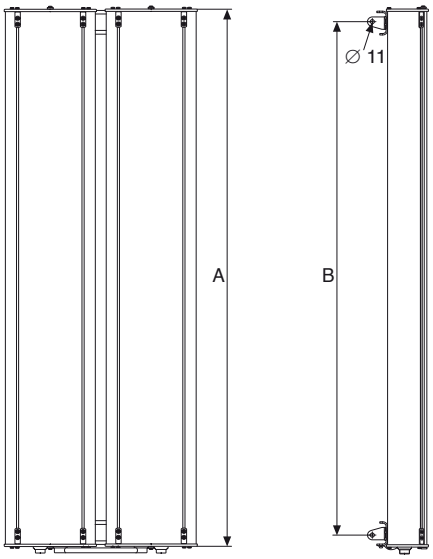
KATHREIN
Antennen · Electronic

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

width 560 mm

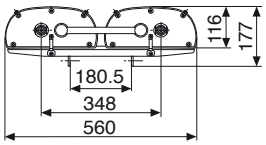
A	656 mm	1296 mm	2580 mm
B	584 mm	1224 mm	2504 mm

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



Front view

Side view



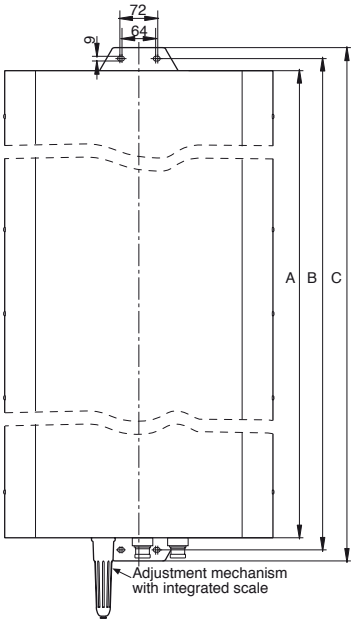
Bottom view

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

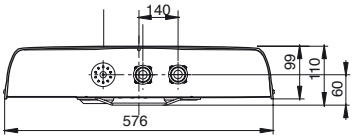
width 576 mm

A	2254 mm
B	2284 mm
C	2326 mm

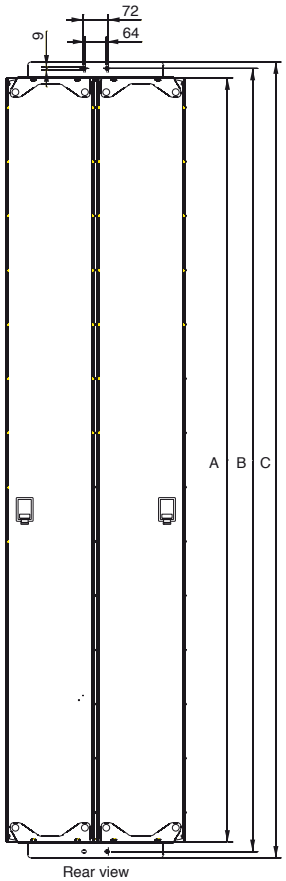
A Corresponds with the antenna height mentioned in the technical data.



Front view



Bottom view



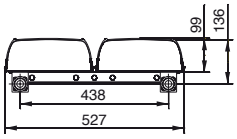
Rear view

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.



Bottom view

Panels VPol / XPol 800/900
65°/90° Half-power Beam Width
Antenna Dimensions

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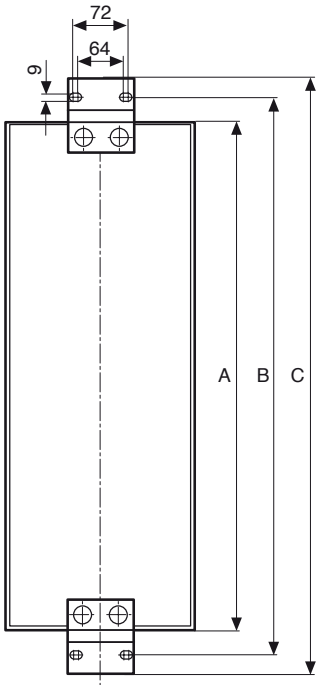
VPol Panel 800/900

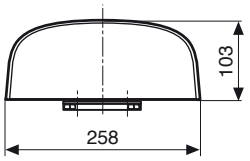
width 258 mm

A	264 mm	654 mm	974 mm	1294 mm	1934 mm	2254 mm	2574 mm
B	—	710 mm	1030 mm	1350 mm	1990 mm	2310 mm	2630 mm
C	—	750 mm	1070 mm	1390 mm	2030 mm	2350 mm	2670 mm

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



Rear view



Top view

XPol Panel 800/900

width 258 mm

A	1294 mm	1694 mm	1934 mm	2254 mm	2574 mm
B	1340 mm	1724 mm	1980 mm	2300 mm	2604 mm
C	1382 mm	1764 mm	2022 mm	2342 mm	2674 mm

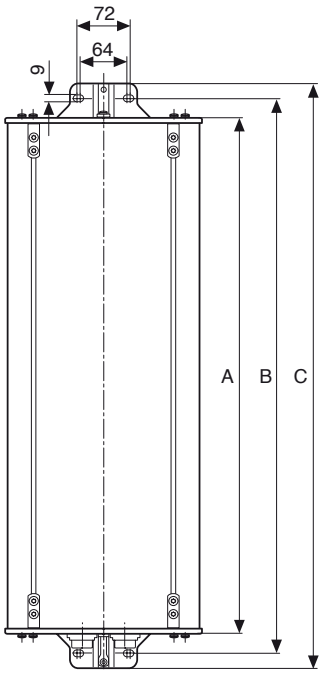
A Corresponds with the antenna height mentioned in the technical data.

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

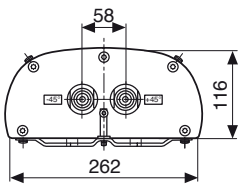
width 262 mm

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.



Front view



Bottom view

Panels Dual-band / Triple-band
Antenna Dimensions

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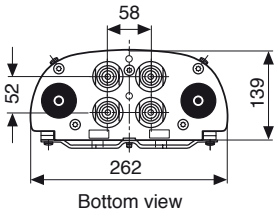
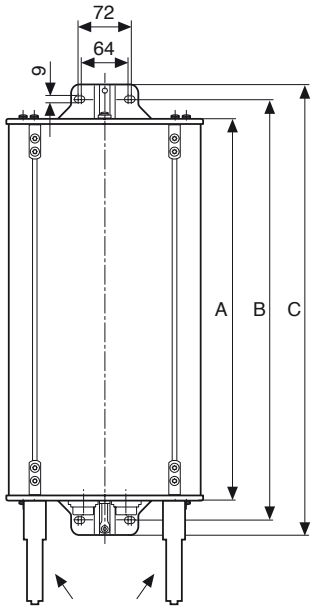
Dual-band XXPol 800/900 / 1800/2000 with 65° Half-power Beam Width

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.



Bottom view

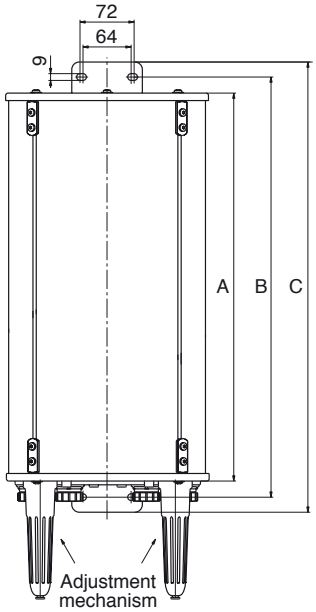


Adjustment mechanism with integrated scale

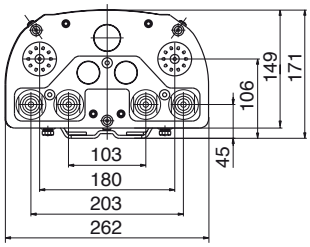
Dual-band XXPol Panel 800/900 / 1800/2000 with 90° Half-power Beam Width

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.



Adjustment mechanism with integrated scale

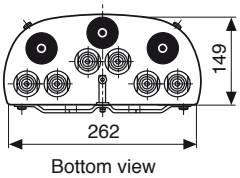


Bottom view

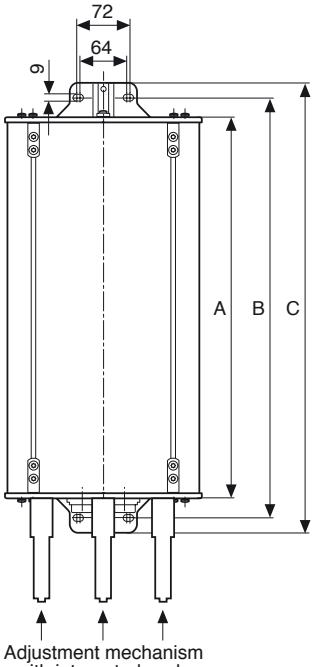
Triple-band XXXPol Panel 800/900 – 1800 – 2000 with 65° Half-power Beam Width

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.



Bottom view



Adjustment mechanism with integrated scale

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

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Dimensions [mm]
('A' corresponds to the antenna height given on the data sheet)

33° – 45° Half-power Beam Width

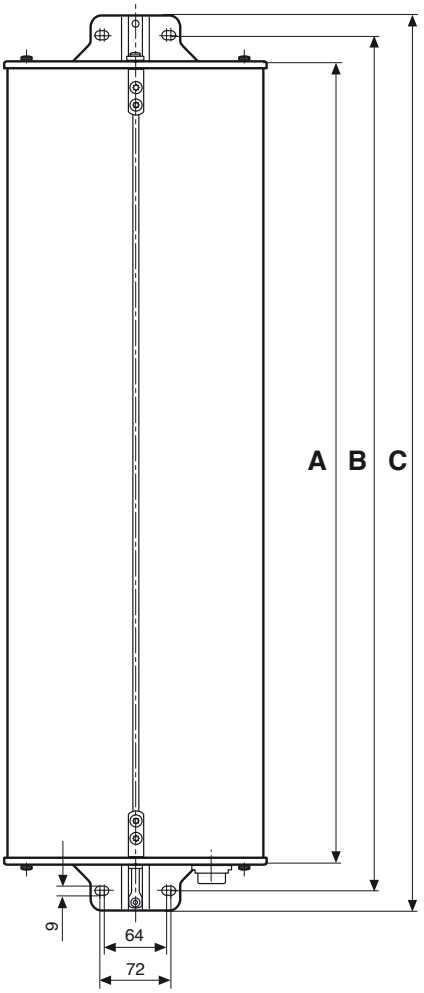
A	B	C
982	1036	1076
1032	1109	1149
1302	1356	1396
1304	1381	1421
1306	1412	1442
1942	1996	2036
1946	2052	2082

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

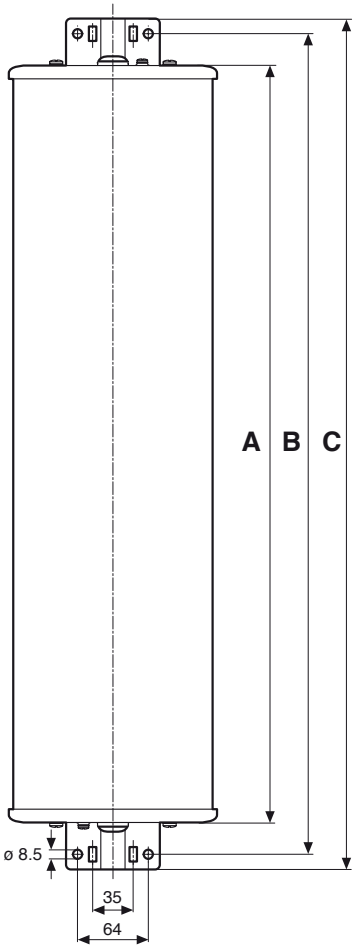
width 199 mm and 299 mm

Front view



width 258 mm

Front view



Panels 1800 – 2700 MHz
Detailed Connector Position
Antenna Dimensions

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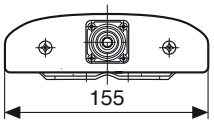
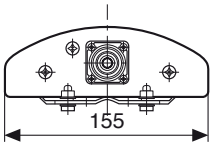
Vertical Polarization

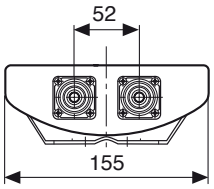


60° – 65° Half-power Beam Width

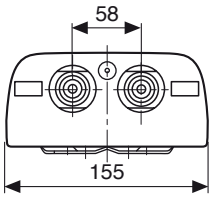


90° Half-power Beam Width

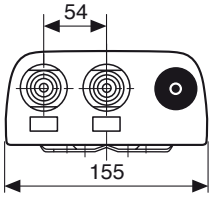
+45°/–45° Polarization



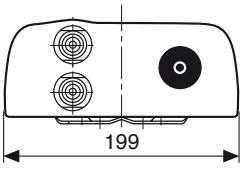
65° Half-power Beam Width



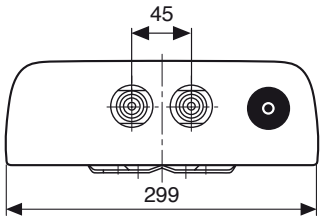
90° Half-power Beam Width



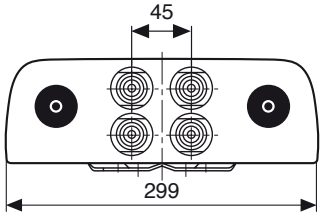
65° and 90° Half-power Beam Width
adjustable electrical downtilt



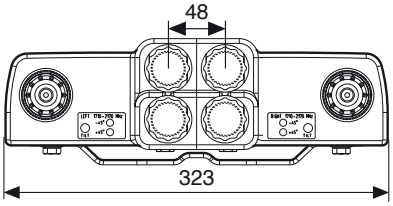
45° Half-power Beam Width
Multi-band
adjustable electrical downtilt



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 VPol / XPol 3300 – 3800 MHz
Antenna Dimensions

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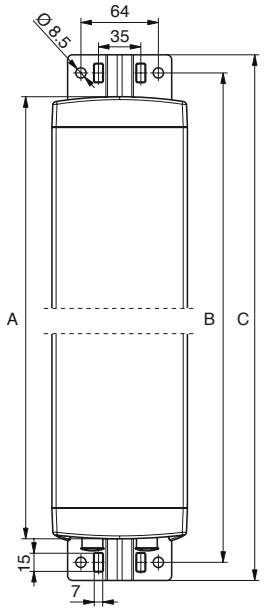
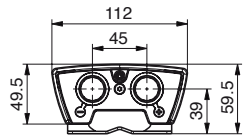
VPol / XPol 65° / 88°
3300 – 3800 MHz

A	736 mm
B	775 mm
C	805 mm

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





Bottom view

Panel width [mm] Additional restriction		576	560	258 – 323 + 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.	mast diameter [mm]								
Clamp Standard									
731 651	28 – 64					X	X	(X)	1 pc
738 546	50 – 115	X		X	X	X	X	(X)	1 pc
850 10002	110 – 220	X		X	X	X	X	(X)	1 pc
850 10003	210 – 380	X		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	X	2 pcs
742 033	114.3				X	X	(X)	(X)	2 pcs
742 034	139.7				X	X	(X)	(X)	2 pcs
2 Panel side-by-side mounting kit									
742 113	smaller panels						X	X	2 pcs
850 10006	broader panels					X	(X)	(X)	2 pcs
Azimuth adjustment kits									
850 10014 – 850 10017		X	X	X	X	X	X	X	2 pcs

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

* **Amount of needed pcs per antenna type, see page 232**

Mounting Hardware
Amount of needed clamps

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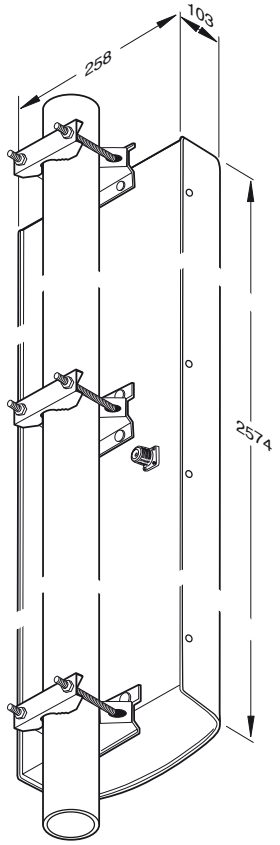
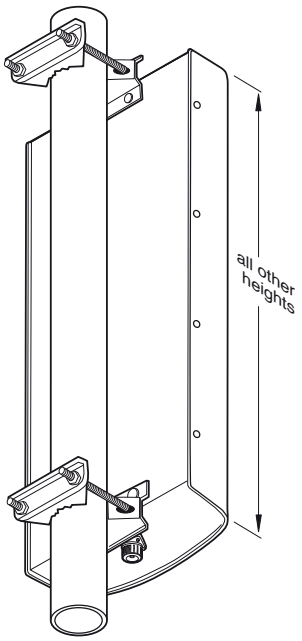
VPol 800/900
Antenna height: 2574 mm

Amount: 3 pcs



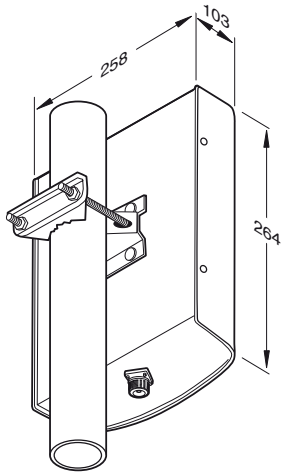
All other Panels

2 pcs



VPol 800/900
Antenna height: 264 mm

1 pc



Description of Clamp Types

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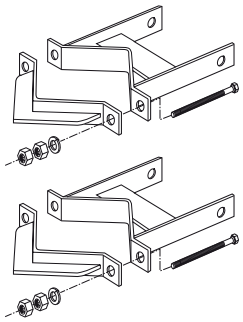
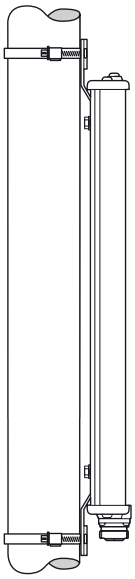
Clamp Types for XPol 800/900 with width 560 mm

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

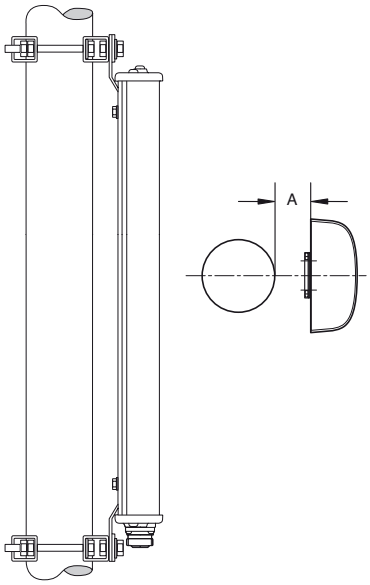
Clamp types for Panels with width 112 mm and 155 mm (height < 1.4 m)



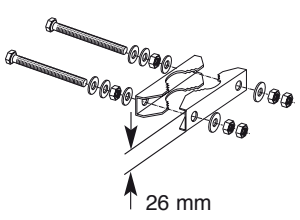
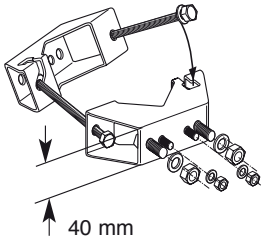
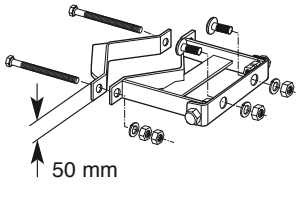
Type No.	Mast diameter	Antenna height	Weight approx.	pcs per antenna
734 360	34 – 60 mm	182 … 1302 mm	60 g	1
734 361	60 – 80 mm	182 … 1302 mm	70 g	1
734 362	80 – 100 mm	182 … 1302 mm	80 g	1
734 363	100 – 120 mm	182 … 1302 mm	90 g	1
734 364	120 – 140 mm	182 … 1302 mm	110 g	1
734 365	45 – 125 mm	182 … 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 232
Large Pipe	50 – 115 mm	738 546	18 – 26	1.0 kg	see page 232
	110 – 220 mm	850 10002	47 – 56	2.7 kg	see page 232
	210 – 380 mm	850 10003	48 – 69	4.8 kg	see page 232
Off-set	60 – 115 mm	733 677	117 – 124	2.0 kg	see page 232
	115 – 210 mm	733 678	146 – 160	2.6 kg	see page 232
	210 – 380 mm	733 679	148 – 168	4.0 kg	see page 232
	380 – 521 mm	733 680	150 – 175	5.3 kg	see page 232

731 651	738 546	733 678
		
26 mm	40 mm	50 mm

3 Sector Panel Arrangement
3 Sector Clamp Kit
for Panels width 112 mm and 155 mm

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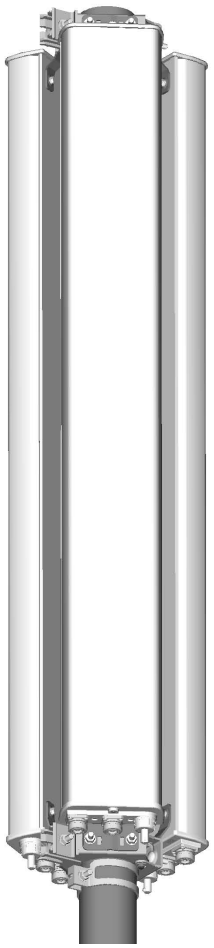
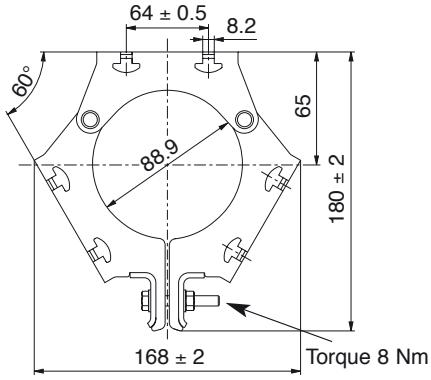
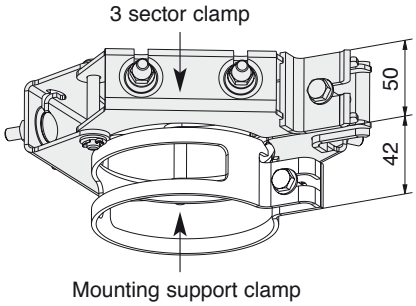
- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all Panels with an antenna housing width of 112 mm and 155 mm

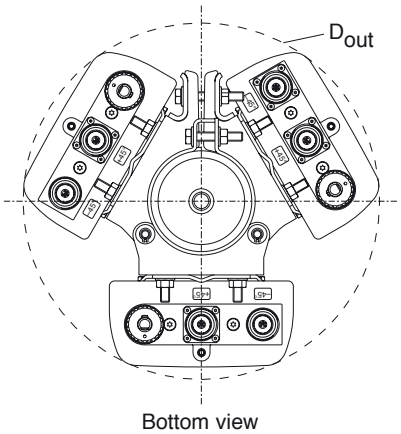


3 Sector Clamp Kit

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 – 3 sector clamp – Mounting support clamp – Screws	Hot-dip galvanized steel Aluminum Stainless steel
Outer diameter (D_{out}) of the 3 F-Panel Arrangement	315 mm
Weight – Clamp kit – 3 sector clamp	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 XXPol 800/900 / 1800/2000
3 Sector Panel Arrangement – Mounting Hardware
3 Sector Clamp Kit / Pipe Mast with Flange Base

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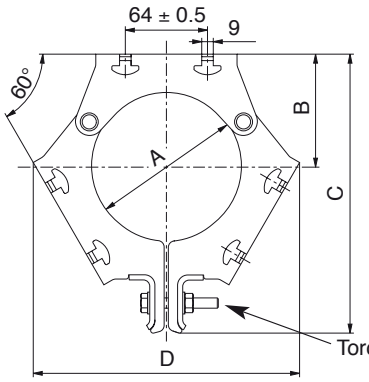
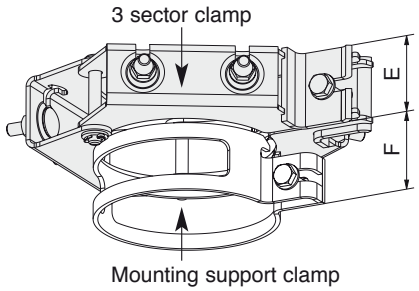
- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all Panels with an antenna housing width less than 350 mm

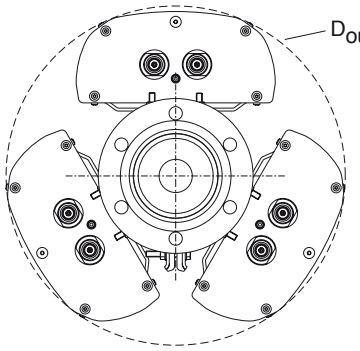
Please note:
If downtilt kits are used the complete weight per sector (antenna and accessories) is limited to 30 kg.
Does not fit for Panels with connector position “Rearside, pointing downwards”.

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	Hot-dip galvanized steel Aluminum Stainless steel
Outer diameter (D_{out}) of the 3 A-Panel Arrangement 3 Dual-band A-Panel Arr. 3 Triple-band A-Panel Arr.	 460 mm 511 mm 532 mm	 482 mm 533 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

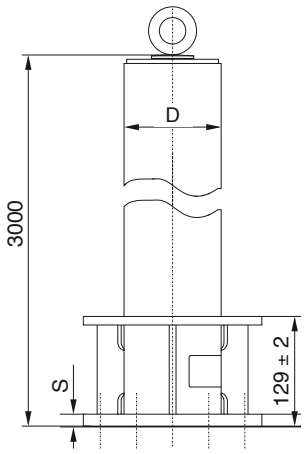
Type No.	A	B	C	D	E	F
742 033	114.3	88	217	207	49	45
742 034	139.7	100	236	228	49	45

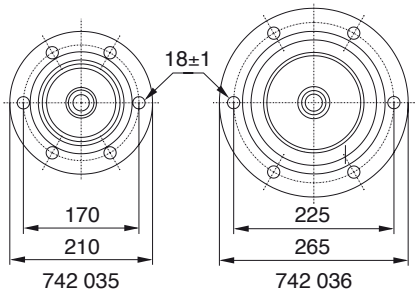
all dimensions in mm

Pipe Mast with Flange Base

Type No.		742 035	742 036
Pipe diameter according DIN 2448	D	114.3 mm	139.7 mm
Wall thickness pipe		6.3 mm	4 mm
Pipe length		3000 mm	3000 mm
Flange diameter		210 mm	265 mm
Flange thickness	S	14 ±1 mm	19 ±1 mm
Hole circle diameter		170 mm	225 mm
Number of holes		6	6
Hole diameter		18 ±1 mm	18 ±1 mm
Enclosed bolts thread x length Hot-dip galvanized steel		M16 x 100 mm Quality min. 8.8	M16 x 100 mm Quality min. 8.8
Weight		60 kg	55 kg
Material pipe mast		S355 J2H (St 52-3N) DIN EN 10210-1	
Material flange base		S235 JR G2 (RSt 37-2) DIN EN 10025	

Maximum permissible load: According DIN 4131 and DIN 4132
Fatigue class K2

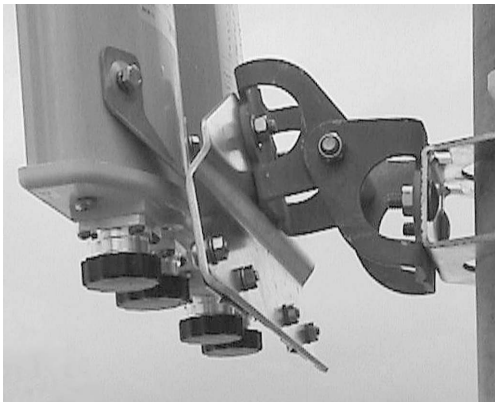




Panel Accessories
2 x Panel Mounting Kit
for Panels width 112 mm and 155 mm

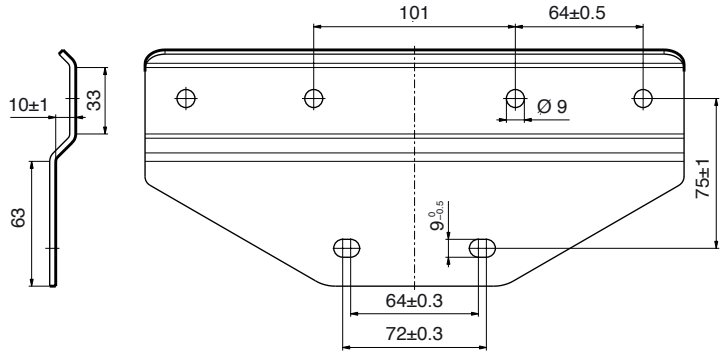
KATHREIN
Antennen · Electronic

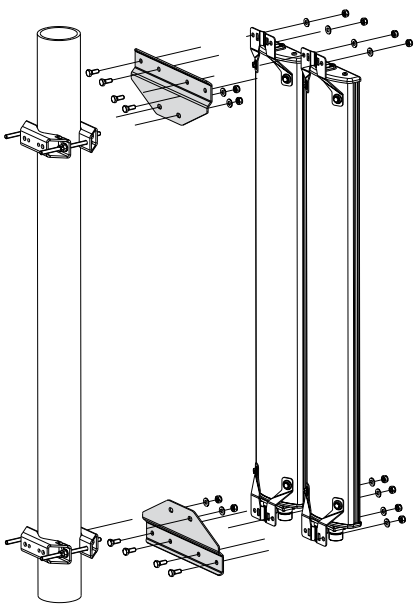
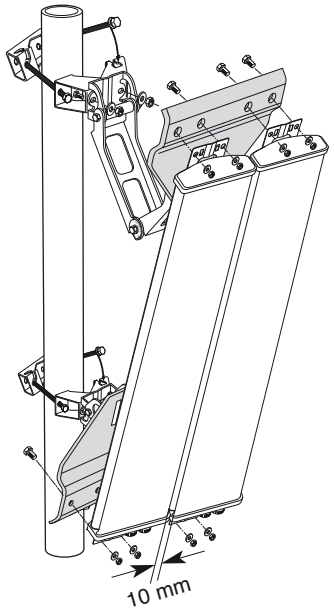
- For arranging two Panels 65°, 90° side by side.
- The mounting kit consists of two mounting plates.



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 235). Three sector clamp 742 263 is not allowed.

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

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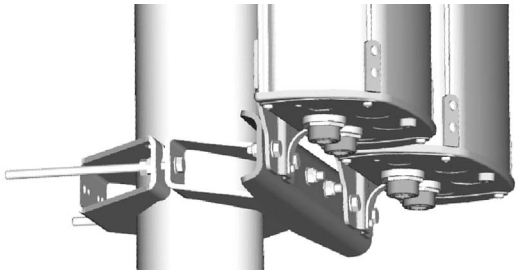
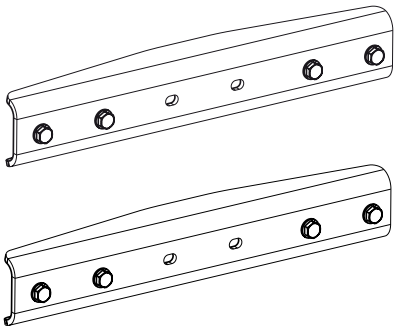
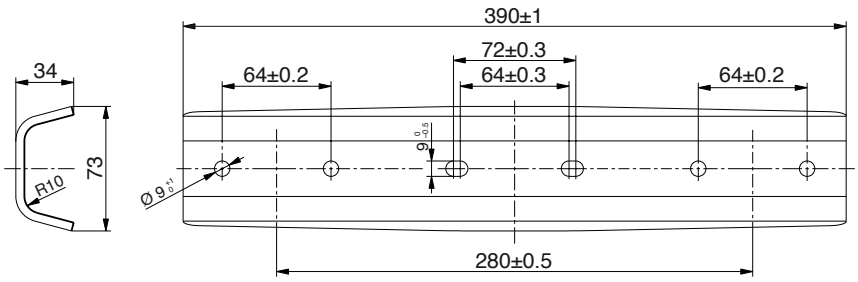
Use this mounting kit only for Panels with a maximum width of 262 mm and less than 25 kg each.

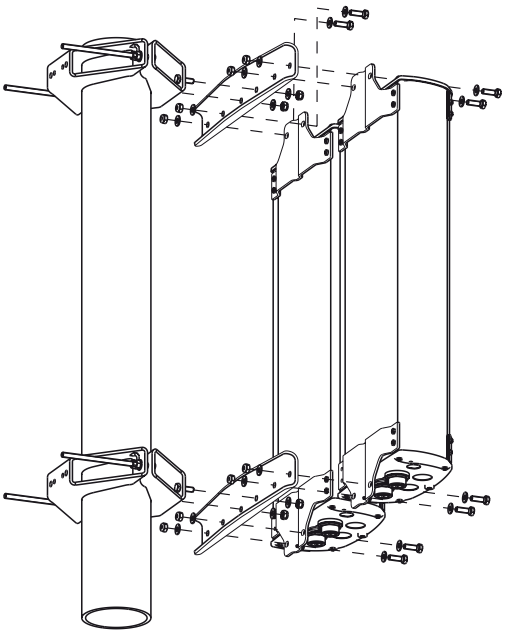


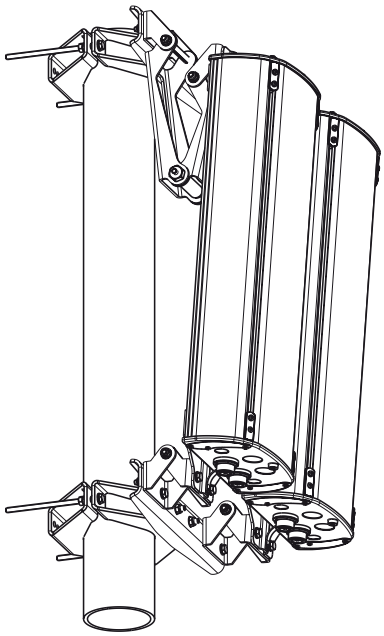
Type No.	850 10006
No. of pieces	2 x brackets
Suitable for Panels 65°, 90° with a max. height	2.6 m
Material: – Clamp – Screws	Hot-dip galvanized steel Stainless steel
Weight	Approx. 3.3 kg
Mounting	Screws are supplied

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

Matrix of Downtilt kits
Usage with Clamps
Possible Combinations

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Downtilt kit Type No.		733 695	737 971 – 737 978	850 10007 weight > 25 kg	732 217 – 732 327
Clamp Type No.	mast diameter [mm]				
Clamp Standard					
731 651	28 – 64		X		(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	(X)
733 678	115 – 210		X	X	(X)
733 679	210 – 380		X	X	(X)
733 680	380 – 521		X	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

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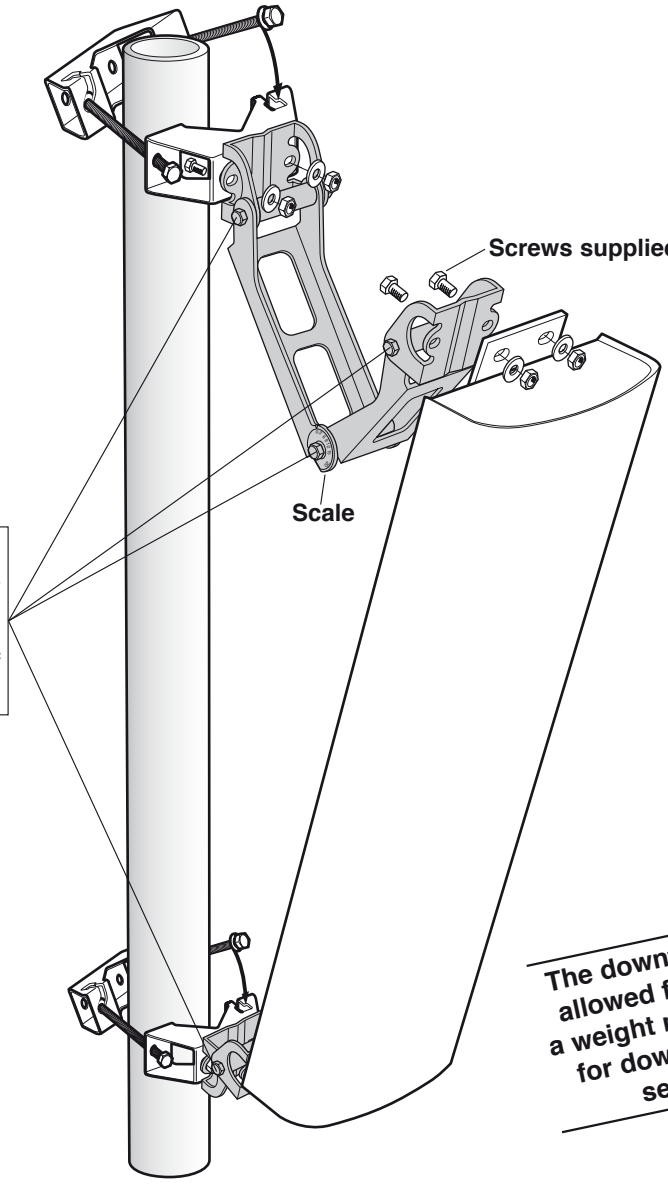
Antenna height: 654 – 735 mm
974 – 1032 mm
1294 – 1306 mm
1622 mm
1934 – 1946 mm
2254 / 2256 mm

Use the downtilt kit together with the clamps (see page 238)



Before the adjustment, all joint screws (13A/F) must be loosened. After the adjustment has been completed, all loosened screws must be tightened with a torque of 12 Nm.

The downtilt kits are not allowed for Panels with a weight more than 25 kg, for downtilt possibility see page 241

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

Downtilt angle

		Downtilt kit with scale	Downtilt kit without scale*	
Antenna height	**Downtilt angle**	**Type No.**	**Type No.**	**Weight**
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°	–		

* 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

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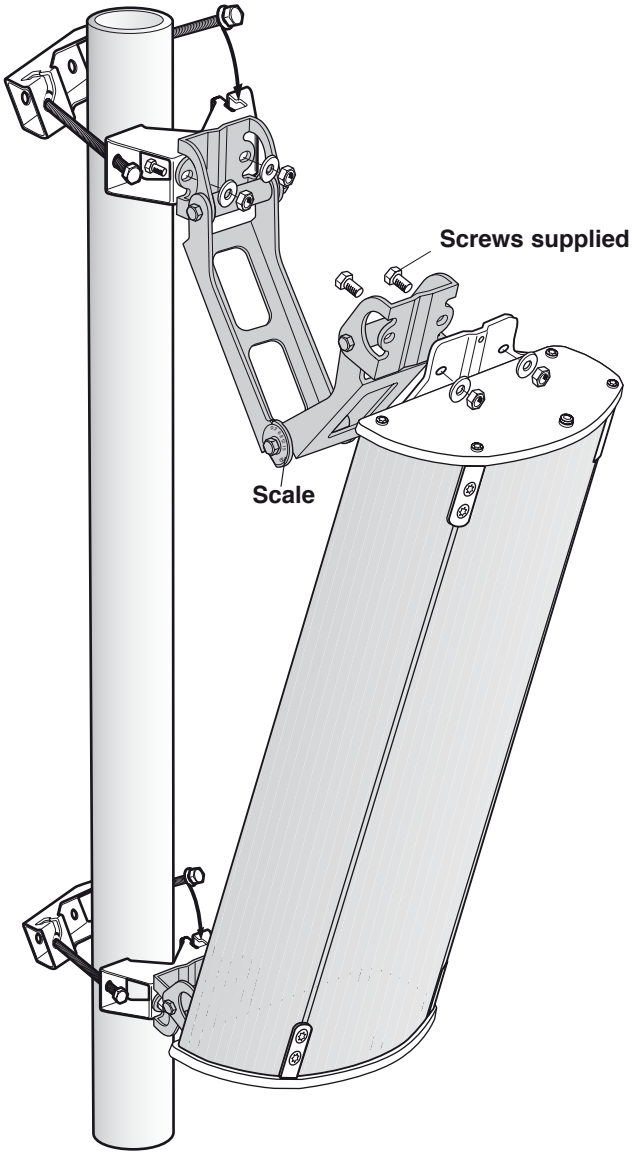
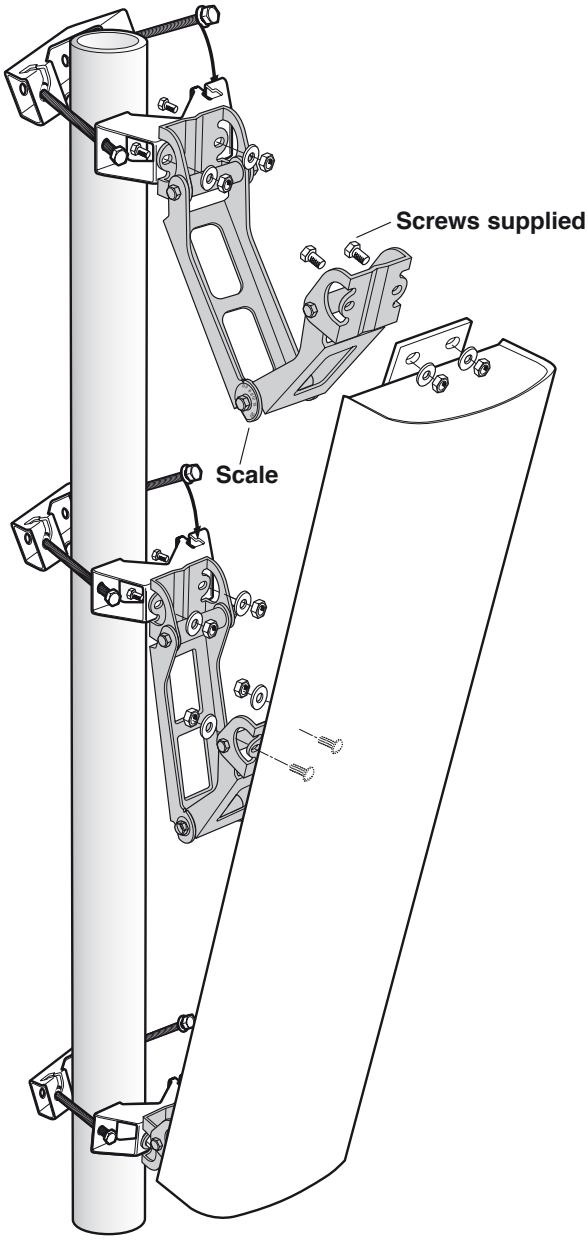
Suitable for:

XPol Panels with an
antenna height of 2574 – 2582 mm



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

VPol Panels with an
antenna height of 2574 mm



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 241**

The downtilt kits should only be mounted with clamps 738 546, 850 10002, 850 10003

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

Panels VPol / XPol
Downtilt Kit
Antenna Weight > 25 kg

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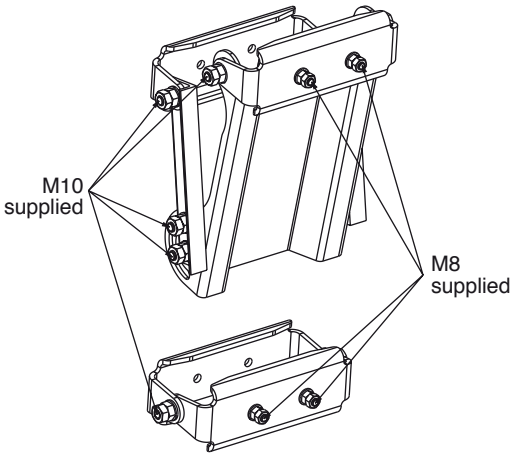
Special downtilt kit for Panel antennas with a weight greater than 25 kg.

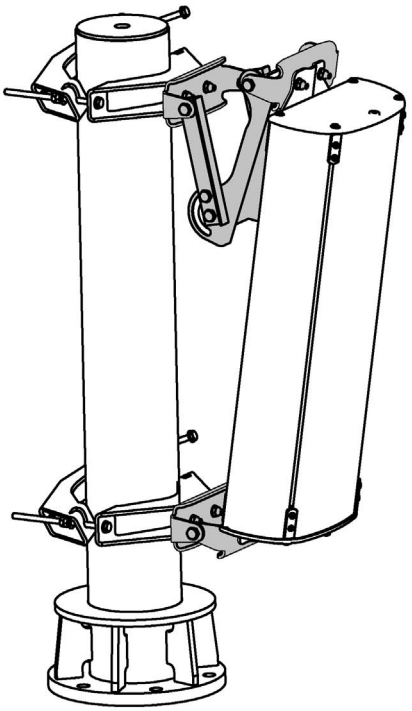


Downtilt kit

Type No.	850 10007
Preferred range of use	– 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:

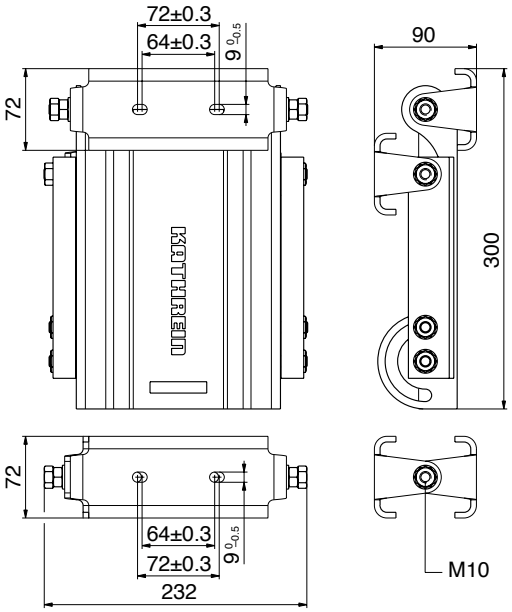
Screw size	Torque
M8	12 Nm
M10	26 Nm

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

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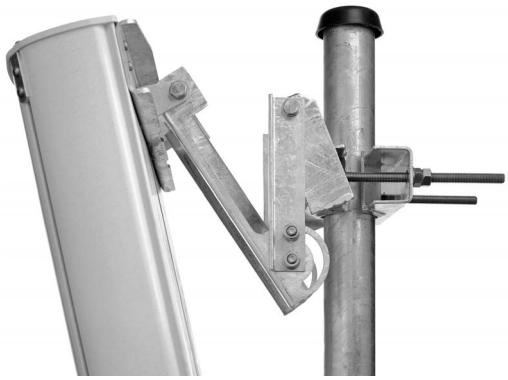
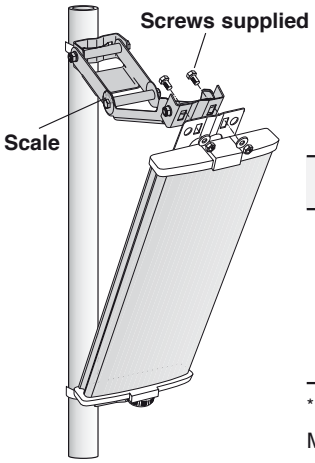
Downtilt kits for XPol 30° width 560 mm

Antenna height	Downtilt angle	Type No.	Weight
656 mm	0 – 33°	733 695	3.4 kg
1296 mm	0 – 16°		
2580 mm	0 – 8°		



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 238).

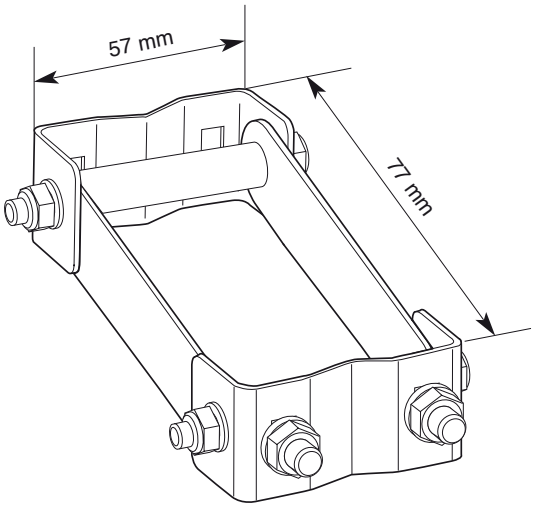
		Downtilt kit with scale	Downtilt kit without scale*	
Antenna height	Downtilt angle	Type No.	Type No.	Weight
342 mm	0° – 40°	–	732 327	approx. 1.0 kg
502 mm	0° – 25°	732 322		
662 mm	0° – 20°	732 321		
982 mm	0° – 14°	732 318		
1302 mm	0° – 10°	732 317		

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside 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 231).



Weight: appr. 200 g

All Panels
Mounting Hardware
Azimuth Adjustment Kits

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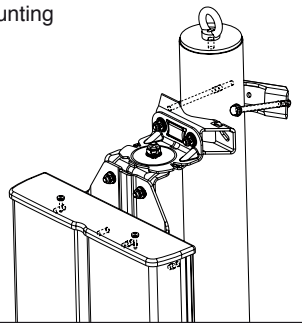
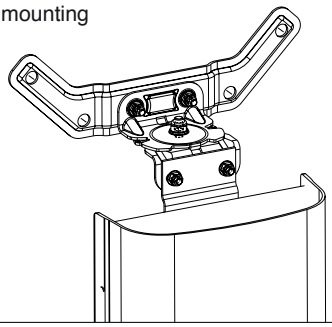
Antennen · Electronic

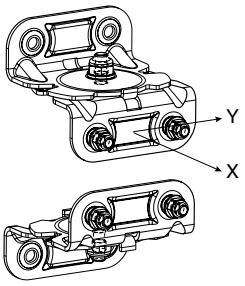
Pole mounting

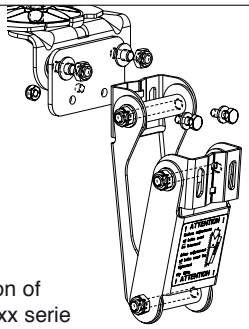


Wall mounting

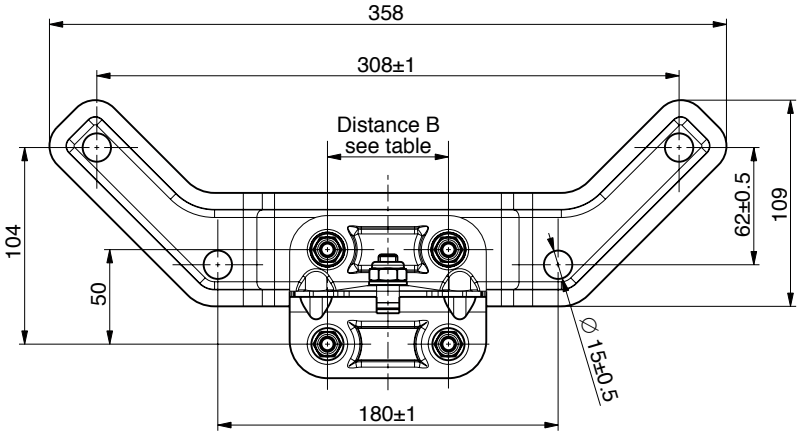


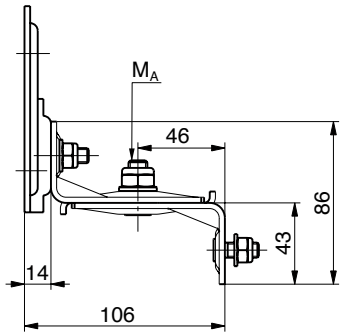
Detail





Adapter for fixation of
downtilt kit 732 3xx serie





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 – Y direction	 2150 N 760 N	 5100 N 1350 N	 2150 N 760 N	 5100 N 1350 N

Recommended torque: Screws M6: 8 Nm; Screws M8: 20 Nm; MoS_2 greased.
Minimum torque M_A: 30 Nm; MoS_2 greased

Side-mounting Clamp
Omnidirectional Antennas
Large Pipe

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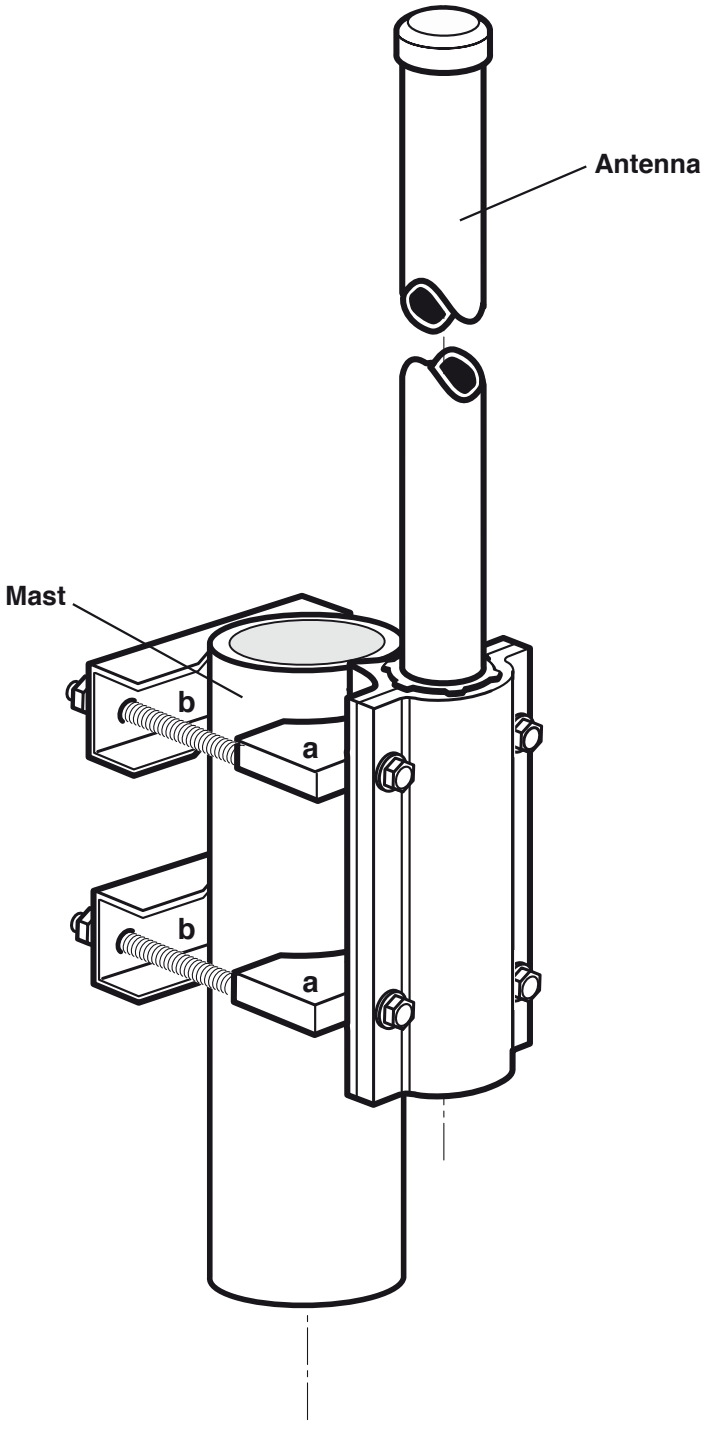
Antennen · Electronic

Type No. 738 908

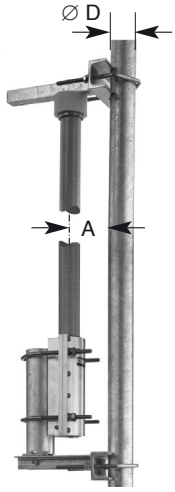
For mast diameters of 94 – 125 mm



Side-mounting Bracket
Omnidirectional Antennas

KATHREIN
Antennen · Electronic

Type No. 737 398



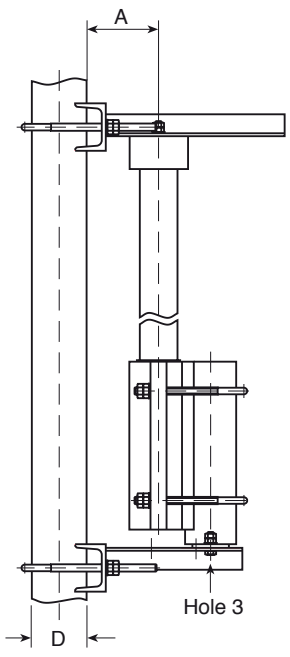
Side-mounting bracket
(for mast diameters of 40 – 105 mm)

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			

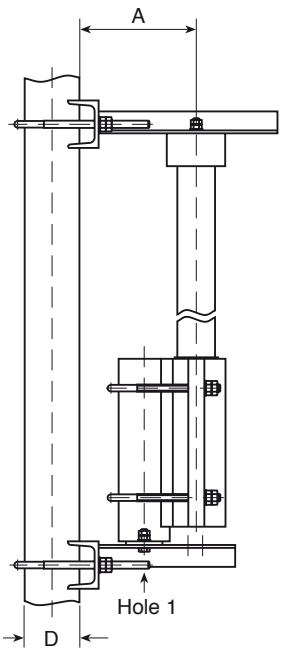
Side-mounting is possible for four fixed distances between the tubular mast and the antenna:

800/900 MHz (holes 1 and 3)

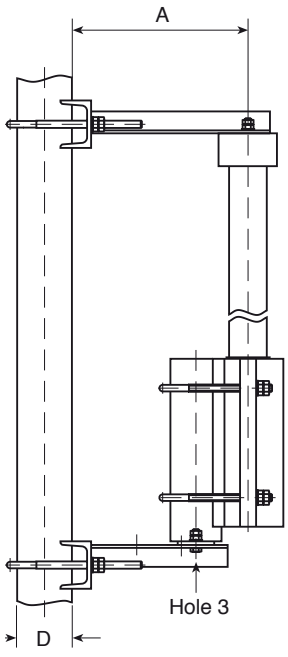
A = 100 mm = 0.3 λ

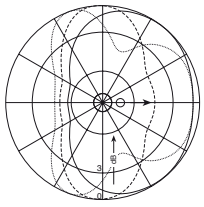


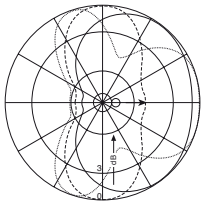
A = 160 mm = 0.5 λ



A = 240 mm = 0.75 λ

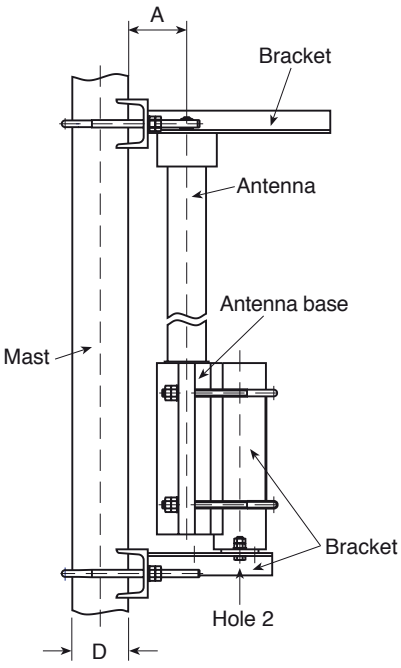


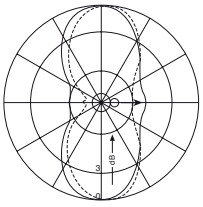
Pipe D	Horizontal Radiation Pattern	Spacing A / Curve
40 mm	 direction from mast to antenna ⟶	100 mm 160 mm 240 mm

Pipe D	Horizontal Radiation Pattern	Spacing A / Curve
100 mm	 direction from mast to antenna ⟶	100 mm 160 mm 240 mm

1800/2000 MHz (hole 2)

A = 80 mm = 0.5 λ



Pipe D / Curve	Horizontal Radiation Pattern	Spacing A
40 mm 100 mm	 direction from mast to antenna ⟶	80 mm

Side-mounting Brackets Omnidirectional Antennas 900

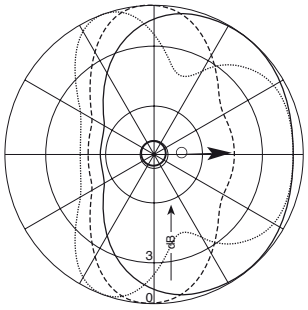
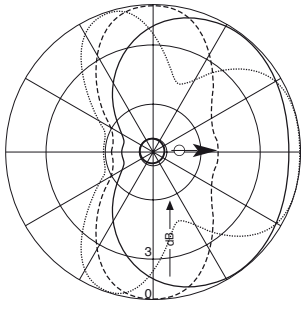
KATHREIN
Antennen · Electronic

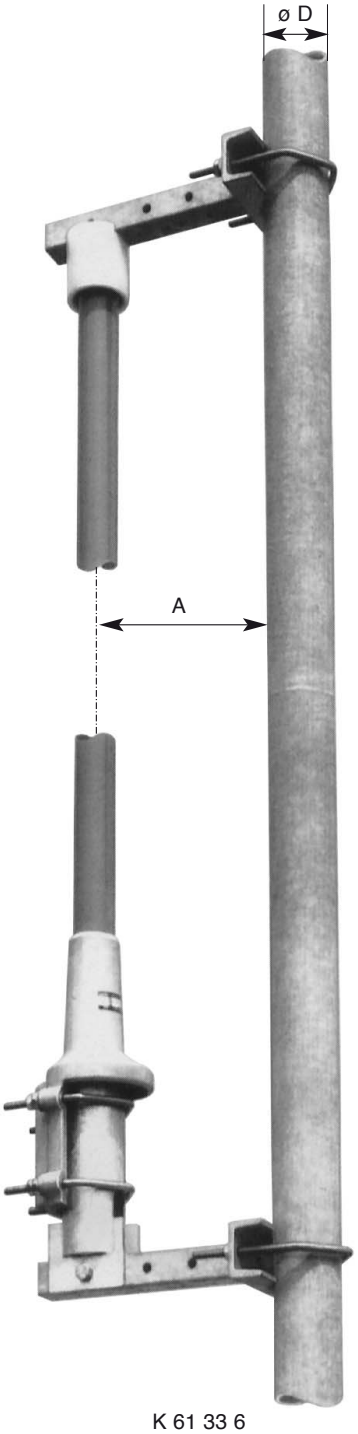
For mast diameters of 40 – 105 mm

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

Pipe D	Horizontal Radiation Pattern	Spacing A / Curve	Additional gain to the nominal value of the antenna gain
40 mm	 direction from mast to antenna	100 mm	2 dB
		160 mm	3 dB
		240 mm	2 dB
100 mm	 direction from mast to antenna	100 mm	2.5 dB
		160 mm	3.5 dB
		240 mm	2.5 dB



K 61 33 6

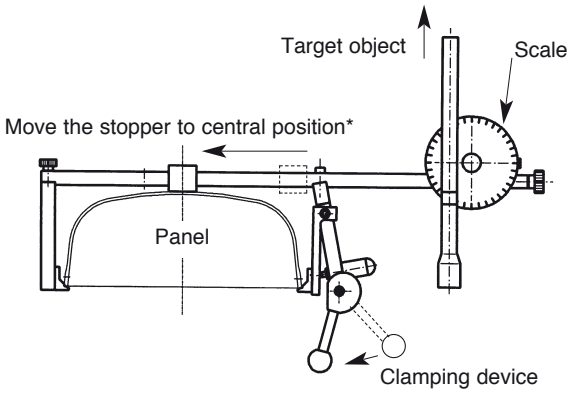
All Panels
Accessories
Azimuth Adjustment Tool

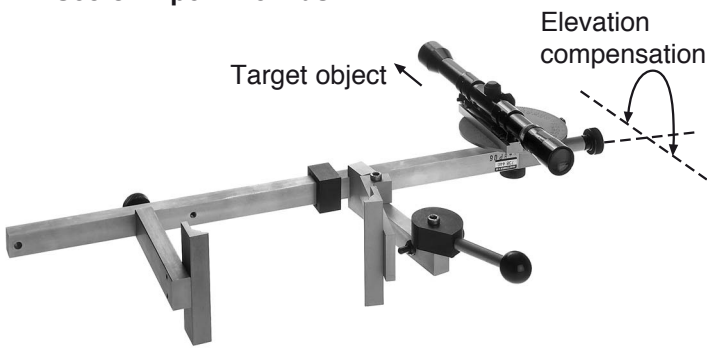
KATHREIN
Antennen · Electronic

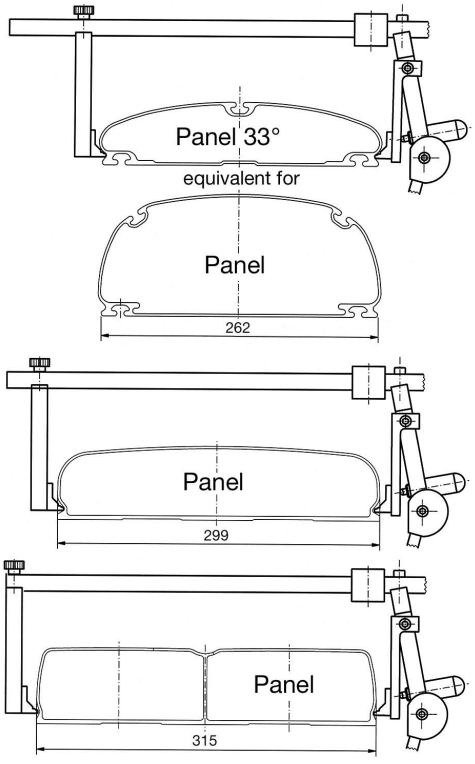
Type No. 738 440

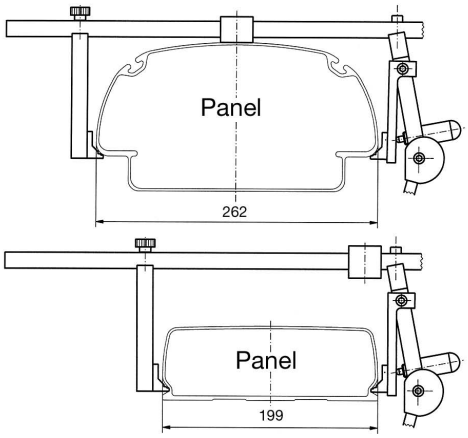
Precise azimuth adjustment for mast mounted antennas can easily be achieved by using the azimuth adjustment tool.

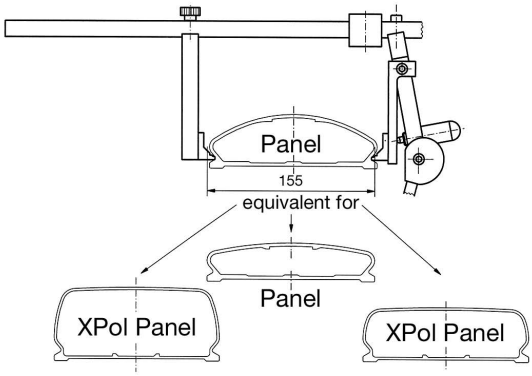
This tool is suitable to all types of Panels and Tri-Sector Pipe Antennas











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.

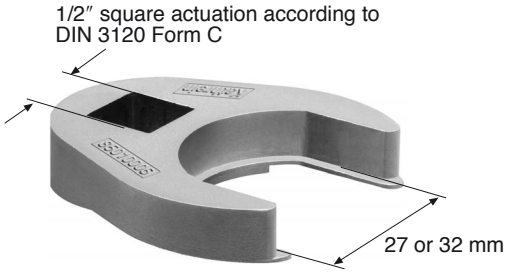
* Observe the position of the stopper when fitting the azimuth adjustment tool.

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

KATHREIN
Antennen · Electronic

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.

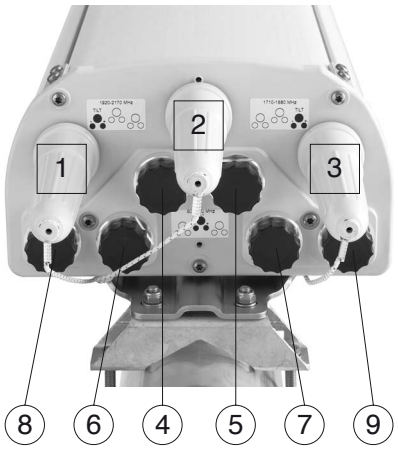
Kathrein installation set: Type No. 850 10005
Set has to be ordered separately!
Set consists of two spanners of 27 and 32 mm width.



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:



Adjustment mechanisms (1 – 3)

Feederline connectors (4 – 9)

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 refer to page 183.

Subsidiaries/Affiliates

A current list of Kathrein's International Representatives can be found on our homepage: www.kathrein.de

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9981.0844/0108/8/ZW/MM Subject to alteration.

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