Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Office fédéral de la protection de la population OFPP
Infrastruttura

Liste de matériel

pour l'utilisation de matériel spécial destiné aux répéteurs Polycom dans les constructions de la protection civile

	Ind	Date	Vis	Modifications		Traité par	
Edition	a	7.7.2011	Su	Première édition		OFPP: Tru-Su	
	b						
	c					**Tél.** 031 322 52 15	
	d						
	e						Index a
	Validation		Date: 7.7.2011		Visa: FB TS, Tru		

Préambule

Le présent document vise à faciliter la planification et la réalisation de l'installation de répéteurs Polycom dans le cadre du projet global "Extension des systèmes télématiques destinés aux emplacements de conduite protégés actifs".

Ce document s'adresse en premer lieu aux entreprises agréées, ainsi qu'aux bureaux d'ingénieurs chargés de la planification générale des systèmes télématiques.

Destinataires:

Supports numériques

Internet, téléchargement disponible www.protpop.ch

Supports imprimés, sur demande

- Entreprises intéressées
- Bureau d'ingénieurs chargé de la planification (1 ou 2 par canton)

Exemplaires d'information

- BAC
- armasuisse

Table des matières

1 Boîtes de raccordement d'antennes
2 Antennes extérieures
3 Antennes intérieures
4 Répartiteurs de fréquences

1 Boîtes de raccordement d'antennes

Pour les installations radio à 2500 MHz, il convient d'utiliser les boîtes de raccordement d'antennes illustrées ci-après. Ces boîtes, peu courantes sur le marché, sont fournies par l'OFPP.

Boîte de raccordement d'antenne à 2500 MHz <u>avec</u> parasurtension,
douille N, orange
Utilisée pour les liaisons vers l'extérieur

Boîte de raccordement d'antenne à 2500 MHz <u>sans</u> parasurtension,
douille N, orange
Utilisée pour les liaisons à l'intérieur de la construction

2 Antennes extérieures

- Kathrein 800 10252
- Kathrein 741 515
- Kathrein 739 504
- CompleTech CA390X 7/16 Swiss Edition
- CompleTech CAXS2
- CompleTech CAX+
- Kathrein 742 290
- Kathrein 800 10046

Multi-band Panel
Vertical Polarization
Half-power Beam Width

380 – 500

V

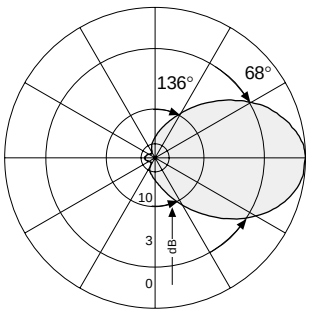
65°

KATHREIN
Antennen · Electronic

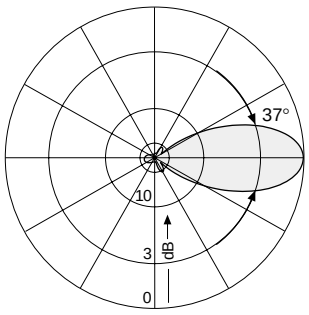
VPol Panel 380–500 65° 12dBi

Type No.	**800 10252**	
Frequency range	**380 – 500**	
	380 – 430 MHz	430 – 500 MHz
Polarization	Vertical	Vertical
Gain	11.5 dBi	12 dBi
Half-power beam width	Horizontal: 68° Vertical: 37°	Horizontal: 63° Vertical: 32°
Front-to-back ratio, copolar	> 18 dB	> 20 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)	

380 – 430 MHz

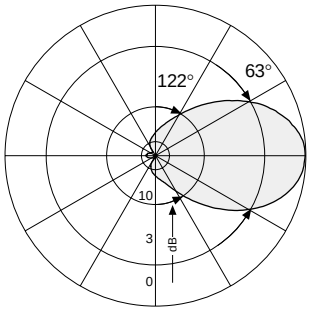


Horizontal Pattern

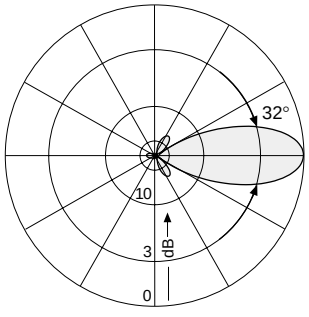


Vertical Pattern

430 – 500 MHz



Horizontal Pattern



Vertical Pattern

936.2469/a Subject to alteration.

Mechanical specifications	
Input	1 x 7-16 female
Connector position	Rearside
Weight	12 kg
Wind load	Frontal: 550 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 715 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1062 x 562 x 274 mm
Height/width/depth	992 / 492 / 190 mm

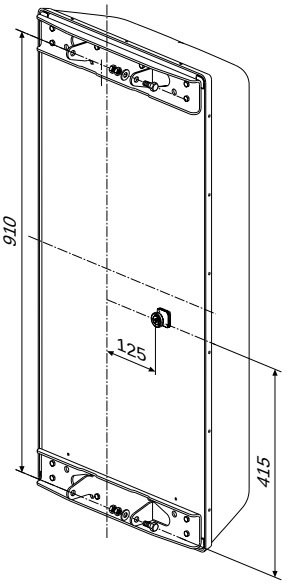
Internet: http://www.kathrein.de

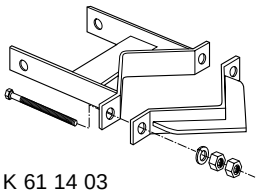
KATHREIN-Werke KG · Anton-Kathrein-Straße 1 – 3 · P.O. Box 10 04 44 · D-83004 Rosenheim · Germany · Telephone +49 8031 184-0 · Fax +49 8031 184-973

Accessories (order separately)

Type No.	Description	Remarks	Weight approx.	Units per antenna
733 736	2 clamps	Mast: 50 – 125 mm diameter	6.2 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
733 695	1 downtilt kit	Downtilt angle: 0° – 25°	3.4 kg	1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.





K 61 14 03

Material:
Reflector screen: Weather-proof aluminum.
Radiator: Tin-plated copper.
Fiberglass radome: Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The colour of the radome is grey.
All screws and nuts: Stainless steel.

Grounding:
The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

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 regard to the following items:
– Low temperature: –55 °C
– High temperature (dry): +60 °C

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.

Environmental tests:
Kathrein antennas have passed environmental tests as recommended in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families use identical modules and materials. Extensive tests have been performed on typical samples and modules.

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 includes 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 installation team must be properly qualified and also be familiar with the relevant national safety regulations.
The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.

936.2469/a Subject to alteration.

Internet: http://www.kathrein.de
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Panel
Dual Polarization
Half-power Beam Width

380 – 500

X

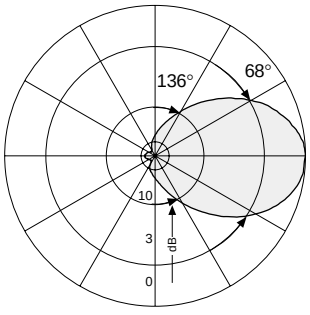
65°

KATHREIN
Antennen · Electronic

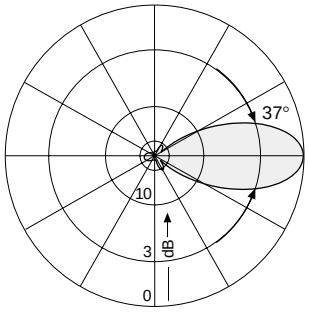
XPol Panel 380–500 65° 12dBi

Type No.	**741 515**	
Frequency range	**380 – 500**	
	380 – 430 MHz	430 – 500 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	11.5 dBi	12 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 37°	Horizontal: 65° Vertical: 32°
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	500 W (at 50 °C ambient temperature)	

380 – 430 MHz

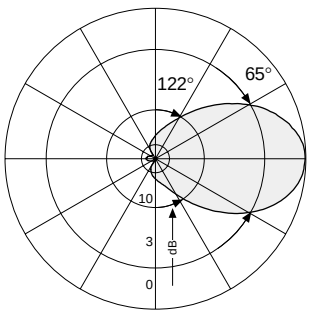


Horizontal Pattern

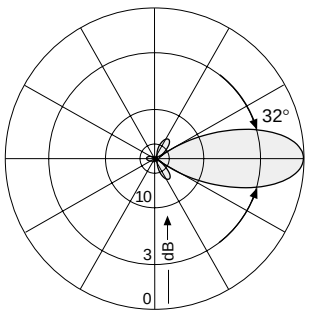


Vertical Pattern

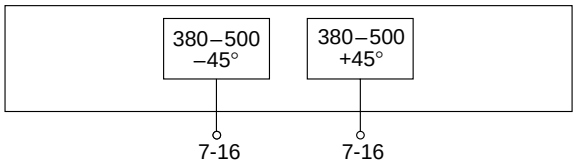
430 – 500 MHz



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	12 kg
Wind load	Frontal: 550 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 715 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1062 x 562 x 274 mm
Height/width/depth	992 / 492 / 190 mm

936.1835/e Subject to alteration.

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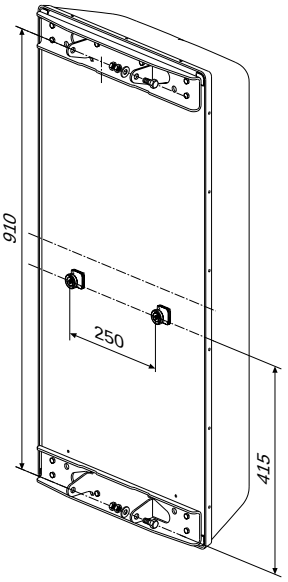
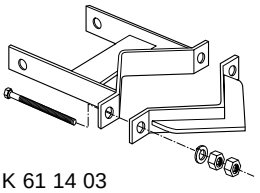
Accessories (order separately)

Type No.	Description	Remarks	Weight approx.	Units per antenna
733 736	2 clamps	Mast: 50 – 125 mm diameter	6.2 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
733 695	1 downtilt kit	Downtilt angle: 0° – 25°	3.4 kg	1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.





K 61 14 03

Material:
Radiator: Tin-plated copper.
Reflector screen: Weather-proof aluminum.
Fiberglass radome: The grey fiberglass radomes of these antennas are very stable and extraordinarily stiff. They are resistant to ultraviolet radiation and can also be painted to match their surroundings.
All screws and nuts: Stainless steel.

Grounding:
The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

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 regard to the following items:
– Low temperature: –55 °C
– High temperature (dry): +60 °C

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.

Environmental tests:
Kathrein antennas have passed environmental tests as recommended in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families use identical modules and materials. Extensive tests have been performed on typical samples and modules.

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 includes 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 installation team must be properly qualified and also be familiar with the relevant national safety regulations.
The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.

936.1835/e Subject to alteration.

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Eurocell Panel
Vertical Polarization
Half-power Beam Width

380–430

V

115°

KATHREIN
Antennen · Electronic

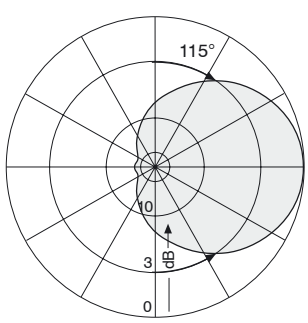
VPol Panel 380–430 115° 8.5dBi

Type No.	739 504
Frequency range	380 – 430 MHz
Polarization	Vertical
Gain	8.5 dBi
Half-power beam width	Horizontal: 115° Vertical: 38°
Front-to-back ratio	> 18 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)

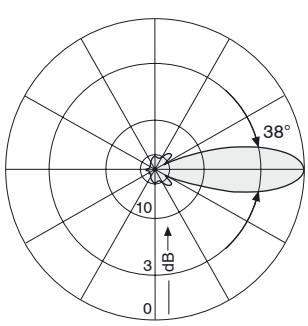
Material: Radiator: Copper, tin-plated.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: Grey.
All screws and nuts: Stainless steel.

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: The metal parts of the antenna including the mounting kit and the inner conductor are DC grounded.



Horizontal Pattern



Vertical Pattern

Mechanical specifications		
Input	7-16 female	
Connector position	Bottom	
Weight	4.5 kg	
Wind load	Frontal: Lateral: Rearside:	160 N (at 150 km/h) 100 N (at 150 km/h) 360 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	1102 mm x 272 mm x 160 mm	
Height/width/depth	974 mm / 258 mm / 103 mm	

936.1492/b Subject to alteration.

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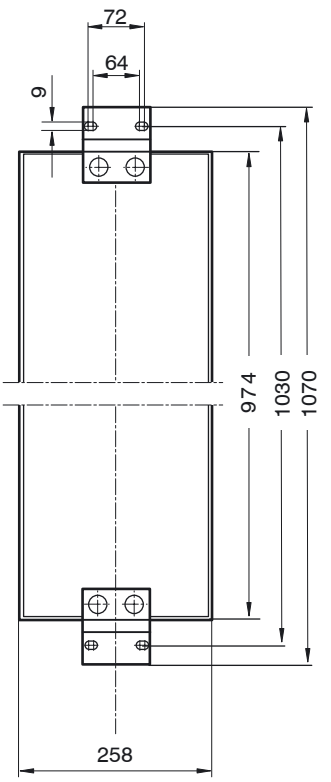
Eurocell Panels
The Approved Antenna Family
For Vertical Polarization

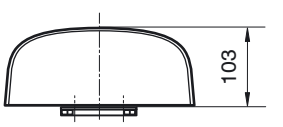
KATHREIN
Antennen · Electronic

Accessories (order separately)

Type No.	Description	Remarks	Weight approx.	Units per antenna
731 651	1 clamp	Mast: 28 – 64 mm diameter	330 g	2
738 546	1 clamp	Mast: 50 – 115 mm diameter	1.0 kg	2
733 677	1 clamp	Mast: 60 – 115 mm diameter	2.0 kg	2
733 678	1 clamp	Mast: 115 – 210 mm diameter	2.6 kg	2
733 679	1 clamp	Mast: 210 – 380 mm diameter	4.0 kg	2
733 680	1 clamp	Mast: 380 – 521 mm diameter	5.3 kg	2
737 973	1 downtilt kit	Downtilt angle: 0° – 21°	2.8 kg	1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.





Radome

Material:
Radiator: Silver plated copper.
Reflector screen: Weather-proof aluminum.
Fiberglass radome: The grey fiberglass radomes of these antennas are very stable and extraordinarily stiff. They are resistant to ultraviolet radiation and can also be painted to match their surroundings.
All screws and nuts: Stainless steel.

Grounding:
The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

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 regard to the following items:
– Low temperature: –55 °C
– High temperature (dry): +60 °C

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.

Environmental tests:
Kathrein antennas have passed environmental tests as recommended in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families use identical modules and materials. Extensive tests have been performed on typical samples and modules.

Please note:

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Any previous datasheet issues have now become invalid.

936.1492/b Subject to alteration.

Internet: http://www.kathrein.de

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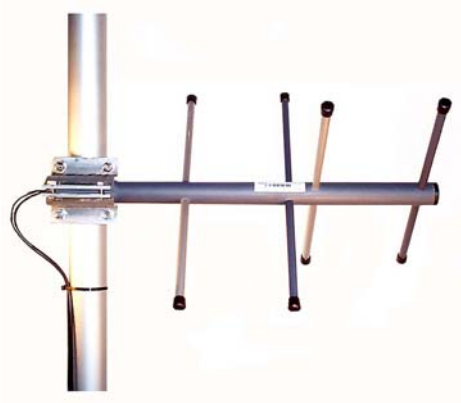
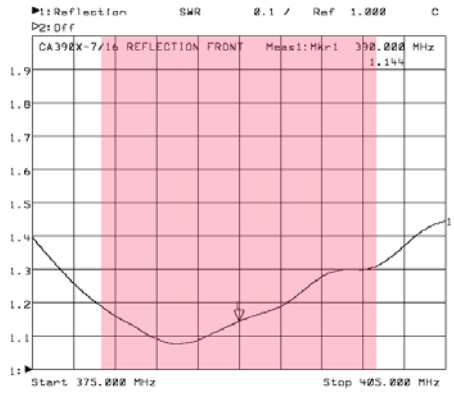
ComAnt® Communications Antennas

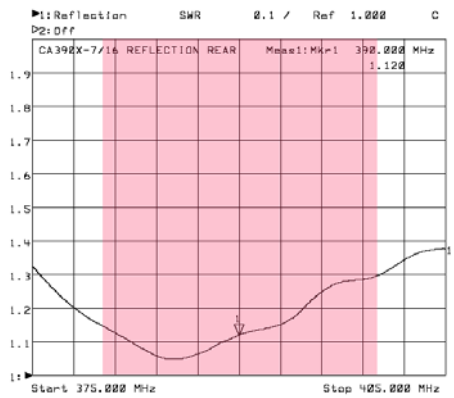
CA390X 7/16 SWISS EDITION CROSS-POLARIZED YAGI



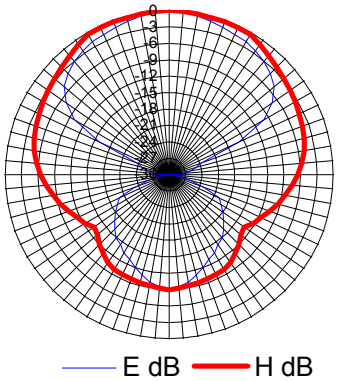
FREQUECY INDEPENDENT DATA

Description:	cross-polarized yagi, dual feed, physically quarter wavelength along the boom phased,
Frequency:	375-405 MHz
Impedance:	50 ohm
Gain:	6 dBi
Polarization:	dual/circular
Isolation:	30 dB
Connector:	2 x 7/16 male
VSWR:	< 1.5
Radome:	UV resistant ABS, RAL 7012, PU foam filling
Radiator:	copper
Passive elements:	coated aluminium
Attachment:	Ø 35-60 mm, aluminium alloy bracket, stainless steel V-bolts and self-locking nuts
Lightning protection:	DC-short circuited
Temperature:	-35° - +80° C
IP:	67



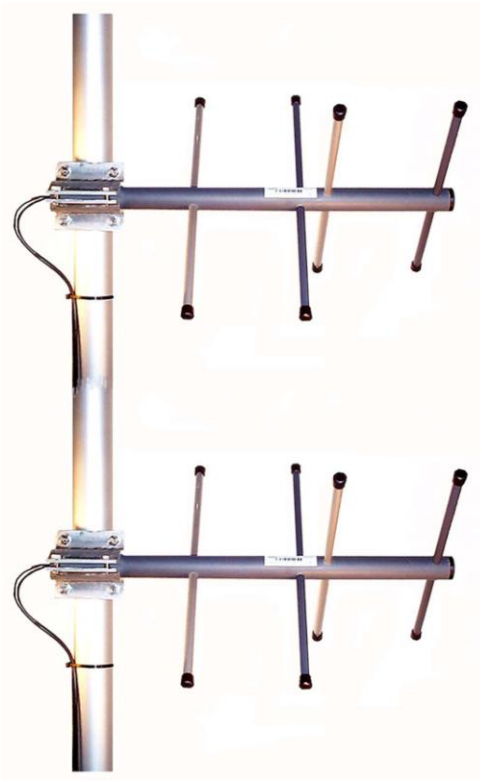


RADIATION PATTERN



CompleTech
ComAnt®-antennas by CompleTech, Finland

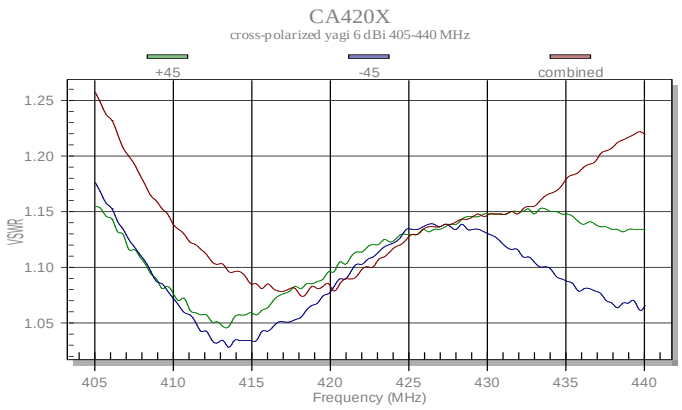
ComAnt® Communications Antennas

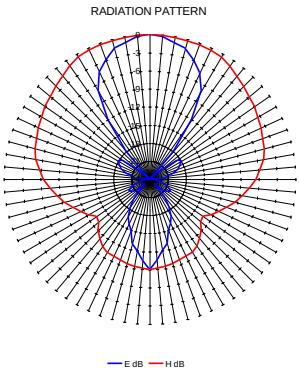


L

FREQUECY INDEPENDENT DATA

Description:	cross-polarized stacked yagi array, dual feed, physically quarter wavelength along the boom phased
Frequency:	380-410 MHz, 405-440 MHz, 440-475 MHz, 830-890 MHz, 890-960 MHz
Impedance:	50 ohm
Gain:	9 dBi
Polarization:	dual/circular
Isolation:	30 dB
Connector:	2*N-female/2*TNC-female
VSWR:	< 1.5
Radome:	UV resistant fiberglass/ABS, RAL 7012, PU foam filling
Radiator:	copper
Passive elements:	coated aluminium
Attachment:	Ø 35-60 mm, aluminium alloy bracket, stainless steel V-bolts and self-locking nuts
Lightning protection:	DC-short circuited
Temperature:	-35° - +80° C
IP:	67

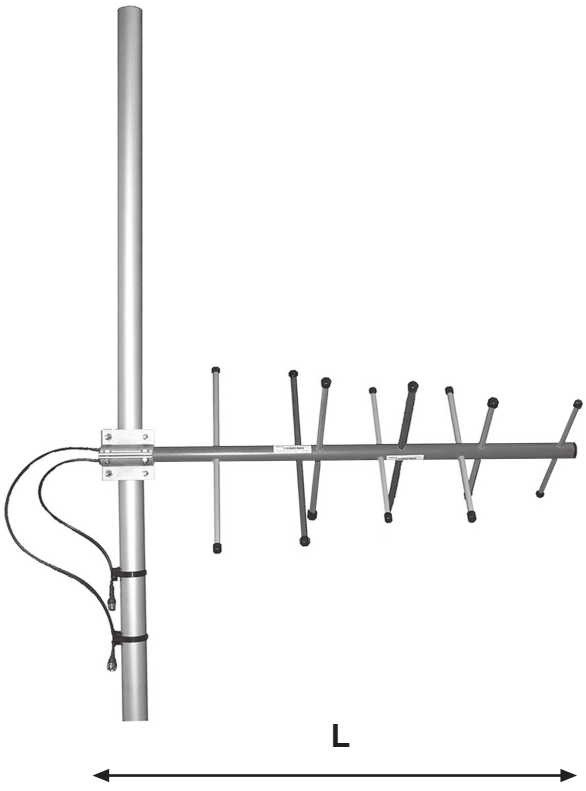




CAXS2 CROSS-POLARIZED STACKED YAGI ARRAY

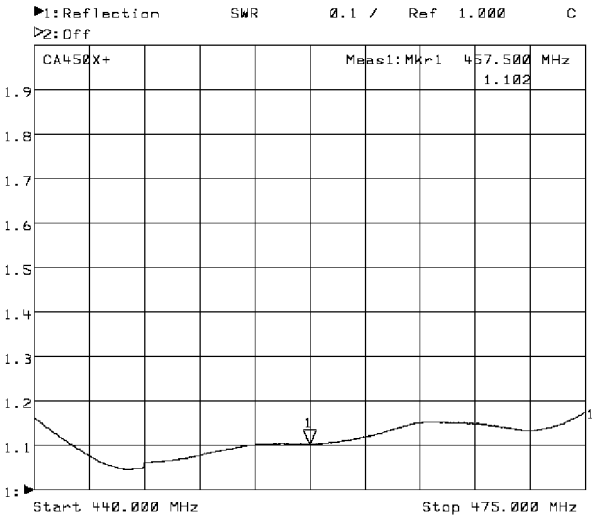
CompleTech
ComAnt®-antennas by CompleTech, Finland

ComAnt® Communications Antennas

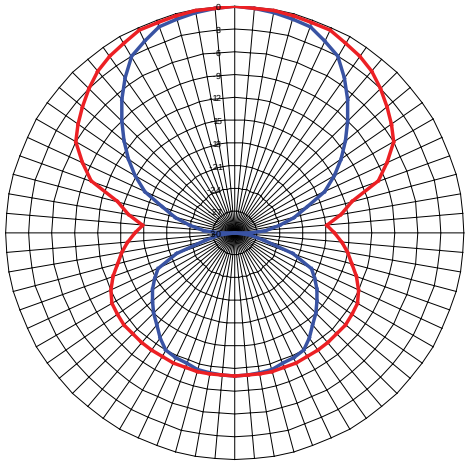


FREQUENCY INDEPENDENT DATA

Description:	cross-polarized yagi, dual feed, physically quarter wavelenght along the boom phased,
Frequency:	380-410 MHz, 405-440 MHz, 440-475 MHz, 830-890 MHz, 890-960 MHz
Impedance:	50 ohm
Gain:	8 dBi
Polarization:	dual/circular
Isolation:	30 dB
Connector:	2*N-female/2*TNC-female
VSWR:	< 1.5
Radome:	UV resistant ABS, RAL 7012, PU foam filling
Radiator:	copper
Passive elements:	coated aluminium
Attachment:	Ø 35-60 mm, aluminium alloy bracket, stainless steel V-bolts and self locking nuts
Lightning protection:	DC-short circuited
Temperature:	-40° - +80° C
IP:	67



RADIATION PATTERN



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ComAnt®-antennas by CompleTech, Finland

CAX+ CROSS-POLARIZED YAGI

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

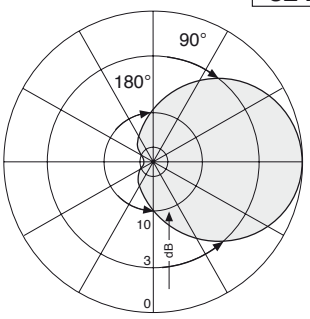
824–960	1710–2170
V	V
90°	82°
C	

KATHREIN
Antennen · Electronic

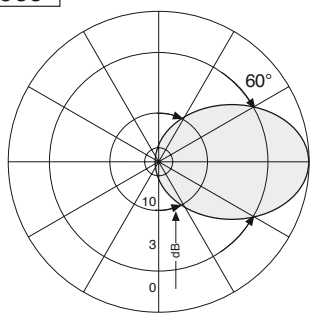
VVPol Panel 824–960/1710–2170 C 90°/82° 7/7dBi

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

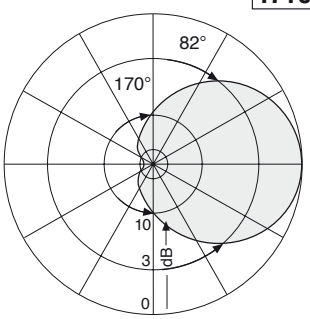


Horizontal Pattern

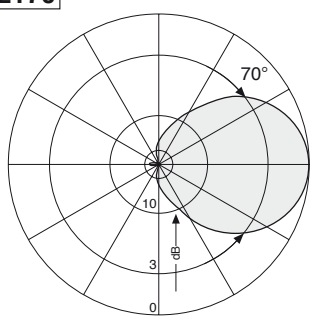


Vertical Pattern

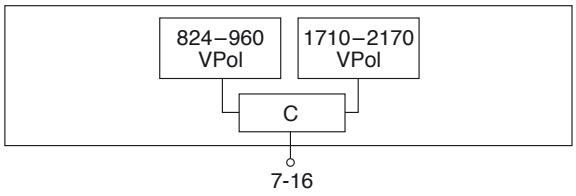
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	1 x 7-16 female
Connector position*	Bottom or top
Weight	2.8 kg
Wind load	Frontal: 90 N (at 150 km/h) Lateral: 23 N (at 150 km/h) Rearside: 100 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.

936.2424/c Subject to alteration.

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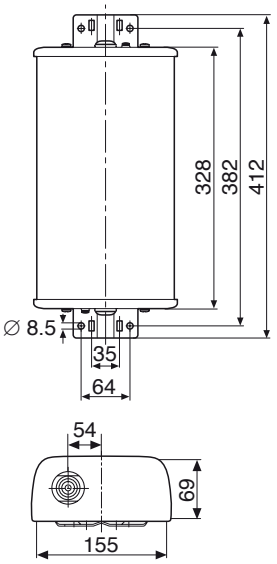
Accessories (order separately)

Type No.	Description	Remarks	Material	Weight approx.	Units per antenna
734 360	2 clamps	Mast: 34 – 60 mm dia.	Stainless steel	60 g	1
734 361	2 clamps	Mast: 60 – 80 mm dia.	Stainless steel	70 g	1
734 362	2 clamps	Mast: 80 – 100 mm dia.	Stainless steel	80 g	1
734 363	2 clamps	Mast: 100 – 120 mm dia.	Stainless steel	90 g	1
734 364	2 clamps	Mast: 120 – 140 mm dia.	Stainless steel	110 g	1
734 365	2 clamps	Mast: 45 – 125 mm dia.	Stainless steel	80 g	1
738 546	1 clamp	Mast: 50 – 115 mm dia.	Hot-dip galvanized steel	1.0 kg	2
850 10002	1 clamp	Mast: 110 – 220 mm dia.	Hot-dip galvanized steel	2.7 kg	2
850 10003	1 clamp	Mast: 210 – 380 mm dia.	Hot-dip galvanized steel	4.8 kg	2
732 327	1 downtilt kit	Downtilt angle: 0° – 40°	Stainless steel	1.0 kg	1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.



Bottom view

Material: **Reflector screen and radiator:** Tin-plated copper.
Flat fiberglass radome: The max. radome depth is only 69 mm. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The colour of the radome is grey.
All screws and nuts: Stainless steel.

Grounding: The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

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 regard to the following items:
– Low temperature: –55 °C
– High temperature (dry): +60 °C

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.

Environmental tests: Kathrein antennas have passed environmental tests as recommended in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families use identical modules and materials. Extensive tests have been performed on typical samples and modules.

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 includes the static mechanical load imposed on an antenna by wind at maximum velocity. Wind loads are calculated according to DIN 1055-4. 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 installation team must be properly qualified and also be familiar with the relevant national safety regulations.
The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.

936.2424/c Subject to alteration.

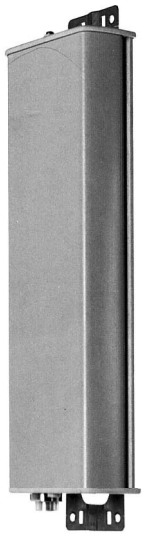
Dual-band Panel
Vertical Polarization
Half-power Beam Width
Integrated Combiner

824–960	1710–2170
V	V
90°	82°
C	

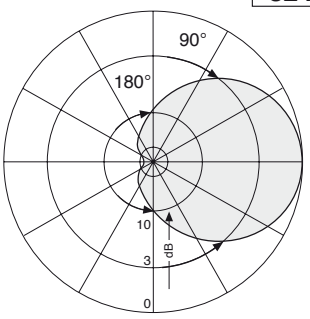
KATHREIN
Antennen · Electronic

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

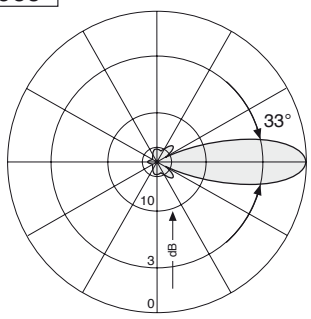
Type No.	800 10046	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	10 dBi	11 dBi
Half-power beam width	Horizontal: 90° Vertical: 33°	Horizontal: 82° Vertical: 19°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)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



824–960

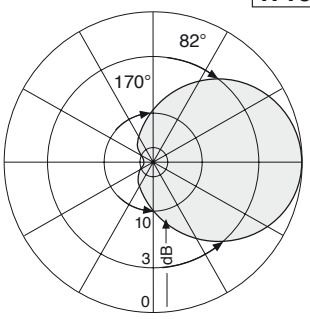


Horizontal Pattern

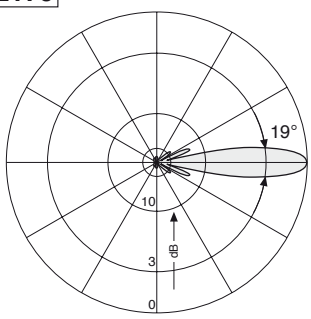


Vertical Pattern

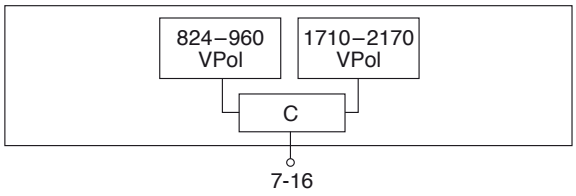
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	1 x 7-16 female
Connector position*	Bottom or top
Weight	5 kg
Wind load	Frontal: 175 N (at 150 km/h) Lateral: 47 N (at 150 km/h) Rearside: 200 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.

936.2500/c Subject to alteration.

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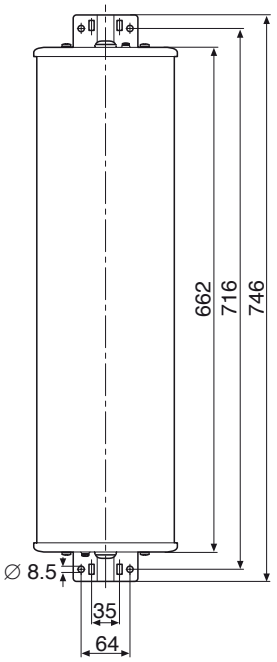
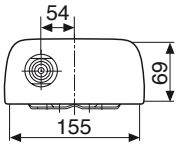
Accessories (order separately)

Type No.	Description	Remarks	Material	Weight approx.	Units per antenna
734 360	2 clamps	Mast: 34 – 60 mm dia.	Stainless steel	60 g	1
734 361	2 clamps	Mast: 60 – 80 mm dia.	Stainless steel	70 g	1
734 362	2 clamps	Mast: 80 – 100 mm dia.	Stainless steel	80 g	1
734 363	2 clamps	Mast: 100 – 120 mm dia.	Stainless steel	90 g	1
734 364	2 clamps	Mast: 120 – 140 mm dia.	Stainless steel	110 g	1
734 365	2 clamps	Mast: 45 – 125 mm dia.	Stainless steel	80 g	1
738 546	1 clamp	Mast: 50 – 115 mm dia.	Hot-dip galvanized steel	1.0 kg	2
850 10002	1 clamp	Mast: 110 – 220 mm dia.	Hot-dip galvanized steel	2.7 kg	2
850 10003	1 clamp	Mast: 210 – 380 mm dia.	Hot-dip galvanized steel	4.8 kg	2
732 321	1 downtilt kit	Downtilt angle: 0° – 20°	Stainless steel	1.0 kg	1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.





Bottom view

Material: **Reflector screen and radiator:** Tin-plated copper.
Flat fiberglass radome: The max. radome depth is only 69 mm. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The colour of the radome is grey.
All screws and nuts: Stainless steel.

Grounding: The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

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 regard to the following items:
– Low temperature: –55 °C
– High temperature (dry): +60 °C

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.

Environmental tests: Kathrein antennas have passed environmental tests as recommended in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families use identical modules and materials. Extensive tests have been performed on typical samples and modules.

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 includes the static mechanical load imposed on an antenna by wind at maximum velocity. Wind loads are calculated according to DIN 1055-4. 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 installation team must be properly qualified and also be familiar with the relevant national safety regulations.
The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.

936.2500/c Subject to alteration.

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3 Antennes intérieures

- Kathrein 800 10277
- Kathrein 800 10465
- Kathrein 732 997
- Kathrein 800 10137

Indoor Omnidirectional Antennas
Vertical Polarization

380...470

V

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- The antennas need no additional groundplane.

800 10277: VPol Indoor 380–405 360° 2dBi
800 10339: VPol Indoor 405–430 360° 2dBi
800 10632: VPol Indoor 450–470 360° 2dBi

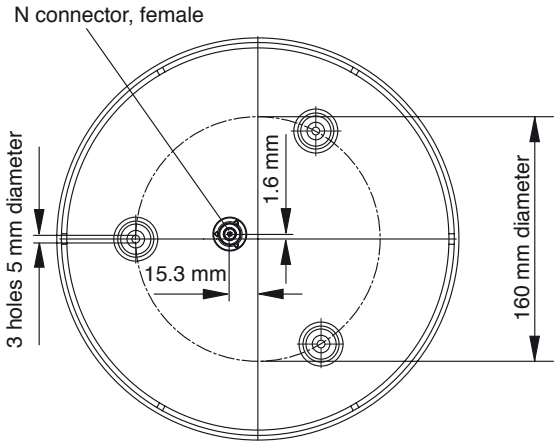
Type No.	800 10277	800 10339	800 10632
Frequency range	380 – 405 MHz	405 – 430 MHz	450 – 470 MHz
Polarization	Vertical	Vertical	Vertical
Gain	Approx. 2 dBi	Approx. 2 dBi	Approx. 2 dBi
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 2.0	< 2.0	< 2.0
Max. power	50 W (at 50 °C ambient temperature)		
Input	1 x N female		
Protection class	IP 30		
Weight	429 g		
Packing size	267 x 267 x 114 mm		
Diameter	258 mm		
Height	77 mm (without connector)		

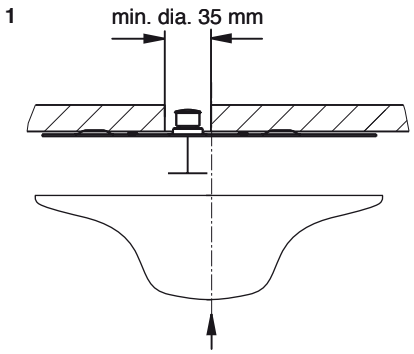
Material: Reflector: Aluminium.
Radome: High impact polystyrol, colour: White.
Additional painting is possible.

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.

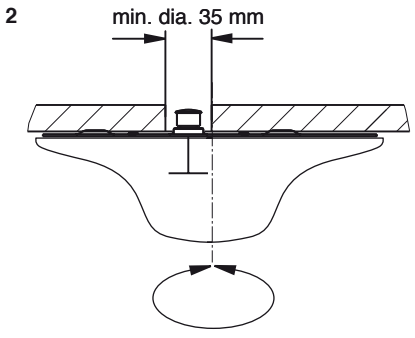
Grounding: All metal parts including the inner conductor are DC grounded.

Available accessories: Power splitters (380 – 512 MHz)

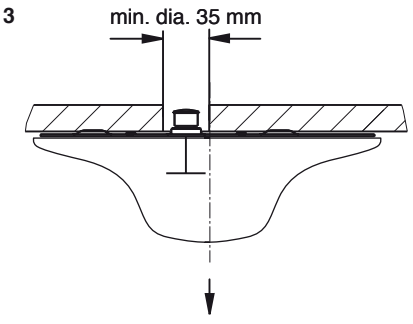




Press radome against installed reflector.



Rotate radome until it locks in place.



Pull downwards to remove radome.

936.2817/b Subject to alteration.

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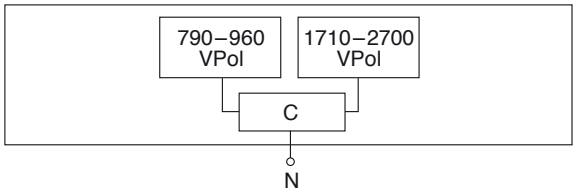
Indoor Multi-band Direct. Antenna
Vertical Polarization
Half-power Beam Width
Integrated Combiner

790–960	1710–2700
V	V
90°	90°
C	

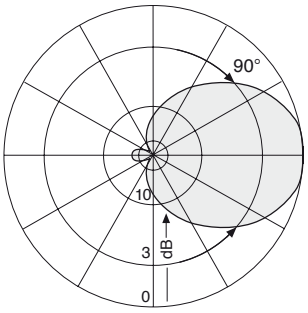
KATHREIN
Antennen · Electronic

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

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

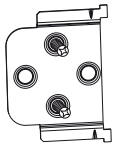


Material:	Reflector: Aluminum. Radome: High impact polystyrol, colour: White. Additional painting is possible. Mounting plates: Stainless steel.
Mounting:	Two holes of 6 mm diameter in the mounting plate. Screws are not supplied. Avoid to stress the cable.
Grounding:	All metal parts inclusive the inner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

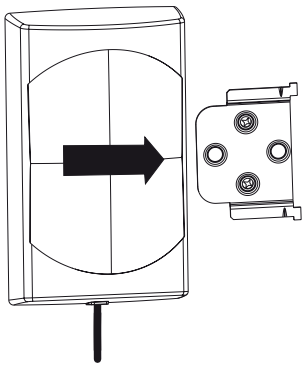


Horizontal Pattern

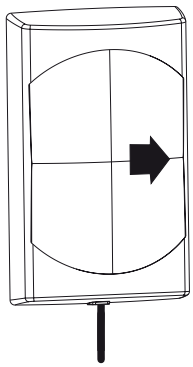
Mounting:



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.

936.3036/a Subject to alteration.

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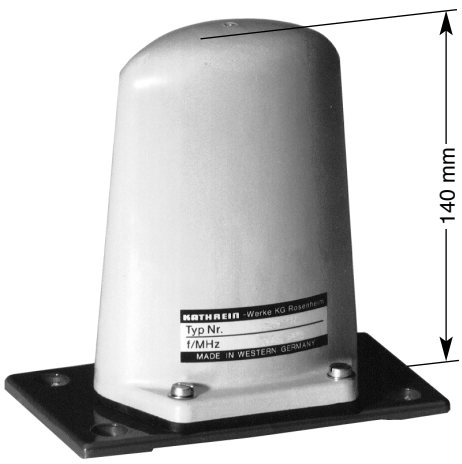
Lok-Antenne
380 – 412 MHz
732 997

KATHREIN
Antennen · Electronic

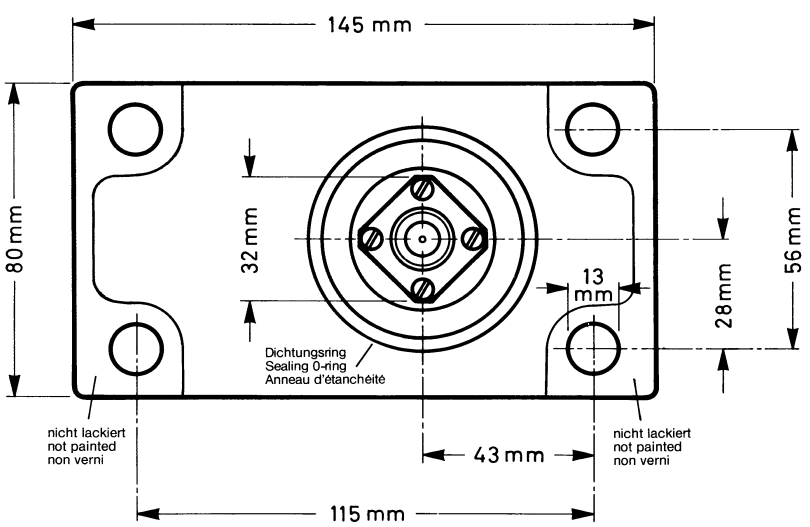
• Besonders kurze Breitband-Antenne in Fiberglas-Schutzhaube.

Typ Nr.	732 997
Eingang	N-Buchse
Frequenzbereich	380 – 412 MHz
VSWR	< 1,5
Gewinn	0 dB (bezogen auf den λ/4-Strahler)
Impedanz	50 Ω
Polarisation	Vertikal
Max. Belastung	200 W (bei 50 °C Umgebungstemperatur)
Gewicht	0,5 kg
Verpackungsaußenmaße	151 mm x 87 mm x 210 mm



Material:	Strahler und Flansch: Aluminium. Schutzhaube: Fiberglas, Farbe: Hellgrau. Alle Schrauben und Muttern: Rostfreier Stahl.
Befestigung:	Auf einer leitenden Fläche mit einer Mindestgröße von 100 cm x 100 cm mit 4 Stehbolzen M10.
Erdung und Hochspannungsschutz:	Die Antenne ist blitzgeschützt und gesichert bei Berührung mit Hochspannungsleitungen, da alle Metallteile an Masse liegen.

Montageflansch:



Montagebohrung für den Anschlussstecker: Ø 33 mm (max. Ø 35 mm).

Hinweis: Montagefläche lackfrei halten für Massekontakt!

936.2905 Änderungen vorbehalten.

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Train Antenna
380 – 412 MHz
732 997

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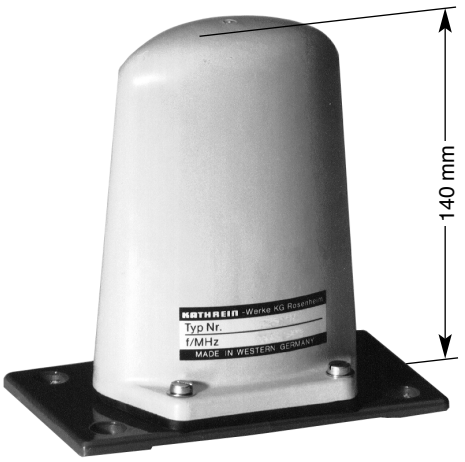
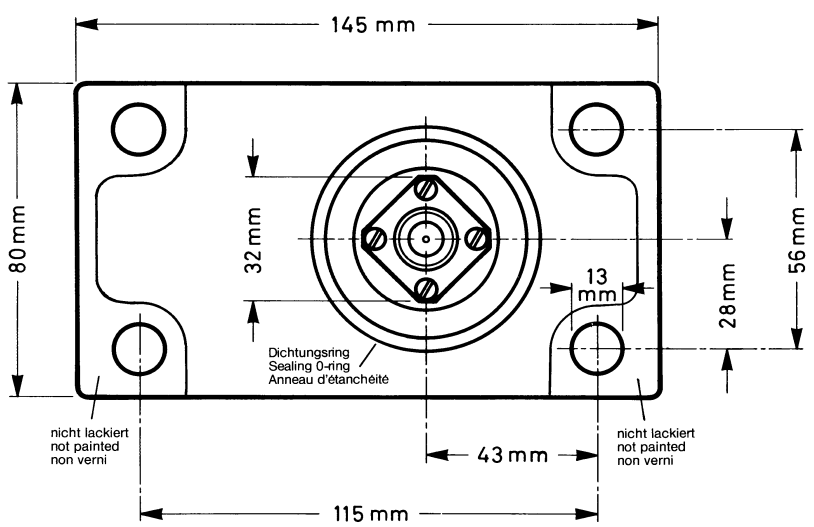
• Low profile broadband antenna in fiberglass radome.

Type No.	732 997
Input	N female
Frequency range	380 – 412 MHz
VSWR	< 1.5
Gain	0 dB (ref. to the quarter-wave antenna)
Impedance	50 Ω
Polarization	Vertical
Max. power	200 W (at 50 °C ambient temperature)
Weight	0.5 kg
Packing size (outside)	151 mm x 87 mm x 210 mm



Material:	Radiator and flange: Aluminum. Radome: Fiberglass; Colour: Light grey. All screws and nuts: Stainless steel.
Mounting:	On a conductive surface with a minimum size of 100 cm x 100 cm with 4 studs M10.
Grounding and high voltage protection:	This antenna is D.C. grounded to protect against lightning and high-tension lines.

Mounting flange:



Mounting hole for the connector: 33 mm (max. 35 mm) diameter.

Note: Keep mounting surface clear of paint for electrical contact.

936.2905 Subject to alteration.

Internet: http://www.kathrein.de

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Indoor Multi-band Omni Antenna
Vertical Polarization

876 – 960 | 1710 – 2500

V

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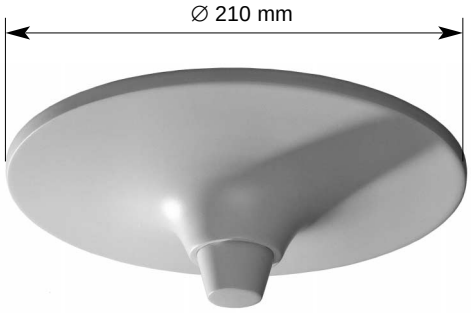
- The antennas need no additional groundplane.

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

Type No.	800 10137
Frequency range	876 – 960 MHz 1710 – 2500 MHz
Polarization	Vertical
Gain	2 dBi
Impedance	50 Ω
VSWR	876 – 890 MHz: < 1.9 890 – 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	300 g
Diameter	210 mm
Height	78 mm (without connector)

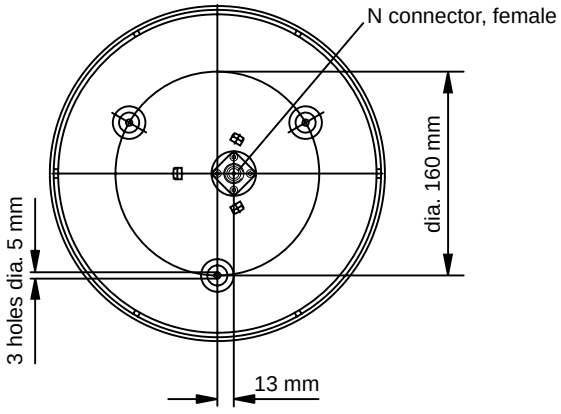


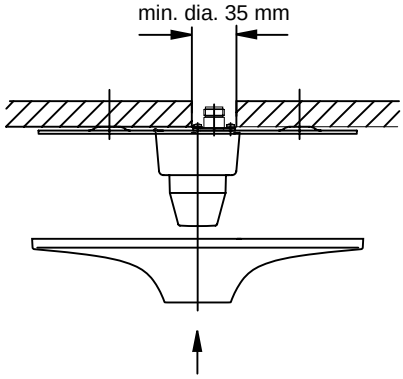
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

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

Grounding: All metal parts including the inner conductor are DC grounded.

Available accessories: Broadband power splitters and tappers (800 – 2500 MHz).





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

936.2254/a Subject to alteration.

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4 Répartiteurs de fréquences

- Kathrein 860 10130
- Kathrein 782 10460
- Kathrein 860 10017

Low-loss Power Splitters Multi-band

380–3800

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For indoor and outdoor use.

2-way Splitter 380–3800

Type No.	860 10130	860 10131
Connector (female)	N	7-16
Max. power (at 50 °C ambient temperature)	200 W	700 W
For connecting ... antennas	2	
Frequency range	380 – 3800 MHz	
VSWR	< 1.5	
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)	
Impedance	50 Ω	
Insertion loss	< 0.05 dB	
Weight	750 g	870 g
Packing size	300 x 75 x 75 mm	

860 10130

860 10131

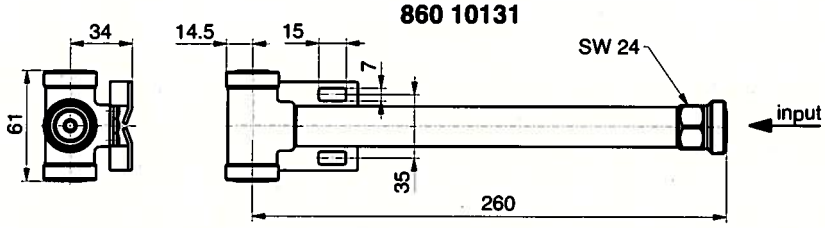
Material: Brass. Surface treatment: CuSnZn3

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

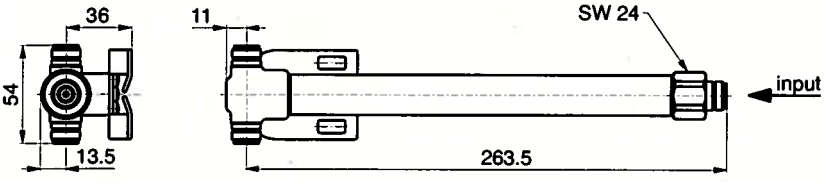
DC capability: DC transmission between all terminations (suitable for remote power supply systems).

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

860 10131

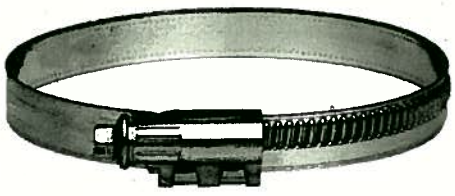


860 10130



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

936.3441/a Subject to alteration.

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Dual-Band Combiner

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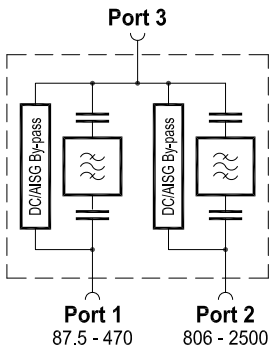
Antennen · Electronic

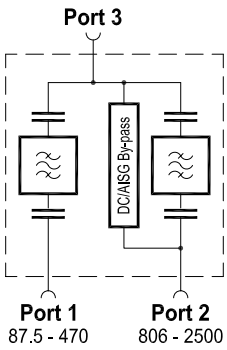
50 – 470 MHz
PMR / TETRA / TETRAPOL

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

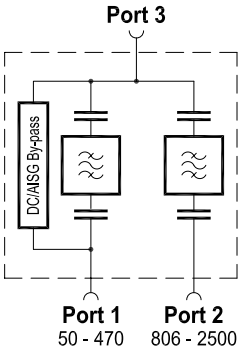
- Designed for co-siting purposes
- Enables feeder sharing
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna
- Suitable for indoor or outdoor applications
- Wall or mast mounting
- External DC stop available as an accessory
- **Very low insertion loss**
- **High input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



782 10457



782 10458



782 10460

Technical Data

Type No.	782 10457	782 10458	782 10460
Pass band Band 1 Band 2	87.5 – 470 MHz 806 – 2500 MHz		50 – 470 MHz 806 – 2500 MHz
Insertion loss Port 1 ↔ Port 3 Port 2 ↔ Port 3	< 0.15 dB (87.5 – 470 MHz) < 0.15 dB (806 – 2500 MHz)		< 0.15 dB (50 – 470 MHz) < 0.15 dB (806 – 2500 MHz)
Isolation Port 1 ↔ Port 2	> 50 dB (250 – 470 / 806 – 2500 MHz) > 40 dB (87.5 – 250 MHz)		> 50 dB (50 – 470 / 806 – 2500 MHz)
VSWR	< 1.25 (87.5 – 470 / 806 – 960 / 1710 – 2500 MHz)		< 1.25 (50 – 470 / 806 – 960 / 1710 – 2500 MHz)
Impedance	50 Ω		
Input power Band 1 Band 2	< 500 W < 500 W		
Intermodulation products	< –160 dBc (3rd order; with 2 x 20 W)		
Temperature range	–55 ... +60 °C		
Connectors	7-16 female, long neck		
Application	Indoor or outdoor (IP 66)		
DC/AISG transparency Port 1 ↔ Port 3 Port 2 ↔ Port 3	**By-pass** (max. 2500 mA) **By-pass** (max. 2500 mA)	**Stop** **By-pass** (max. 2500 mA)	**By-pass** (max. 2500 mA) **Stop**
Mounting	Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set		
Weight	4 kg		
Dimensions (w x h x d)	122 x 64 x 364.3 mm (including mounting brackets)		

936.2967/b Subject to alteration.

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Dual-Band Combiner

50 – 470 MHz
PMR / TETRA / TETRAPOL

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

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Typical Attenuation Curves

782 10457

Diagram I

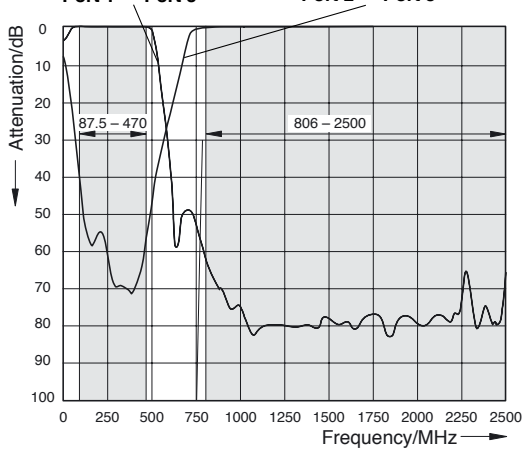
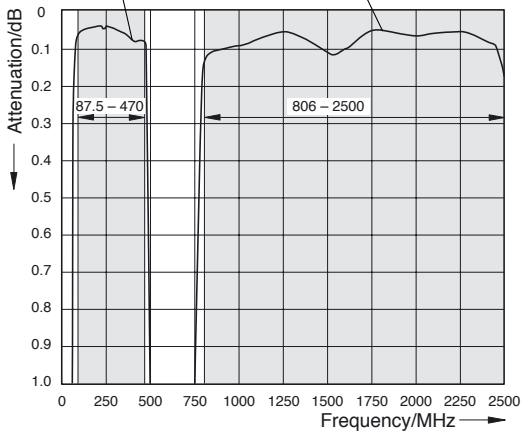


Diagram II



782 10458

Diagram I

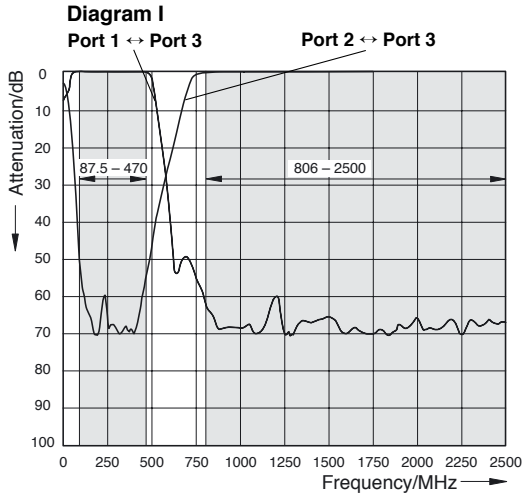
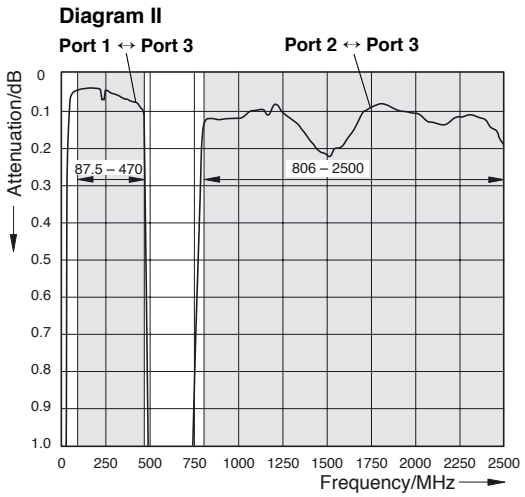


Diagram II



782 10460

Diagram I

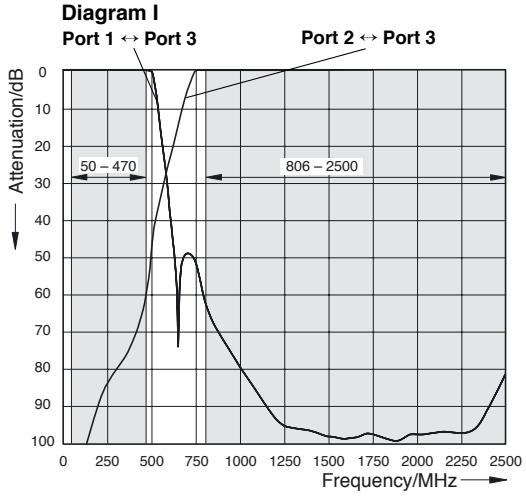
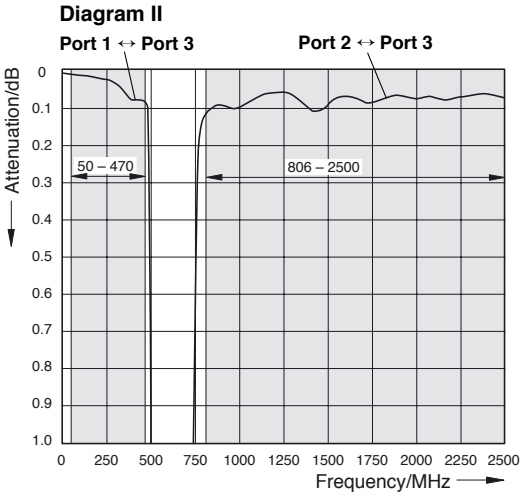


Diagram II



936.2967/b Subject to alteration.

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Dual-Band Combiner

50 – 470 MHz
PMR / TETRA / TETRAPOL

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

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Accessories (order separately)

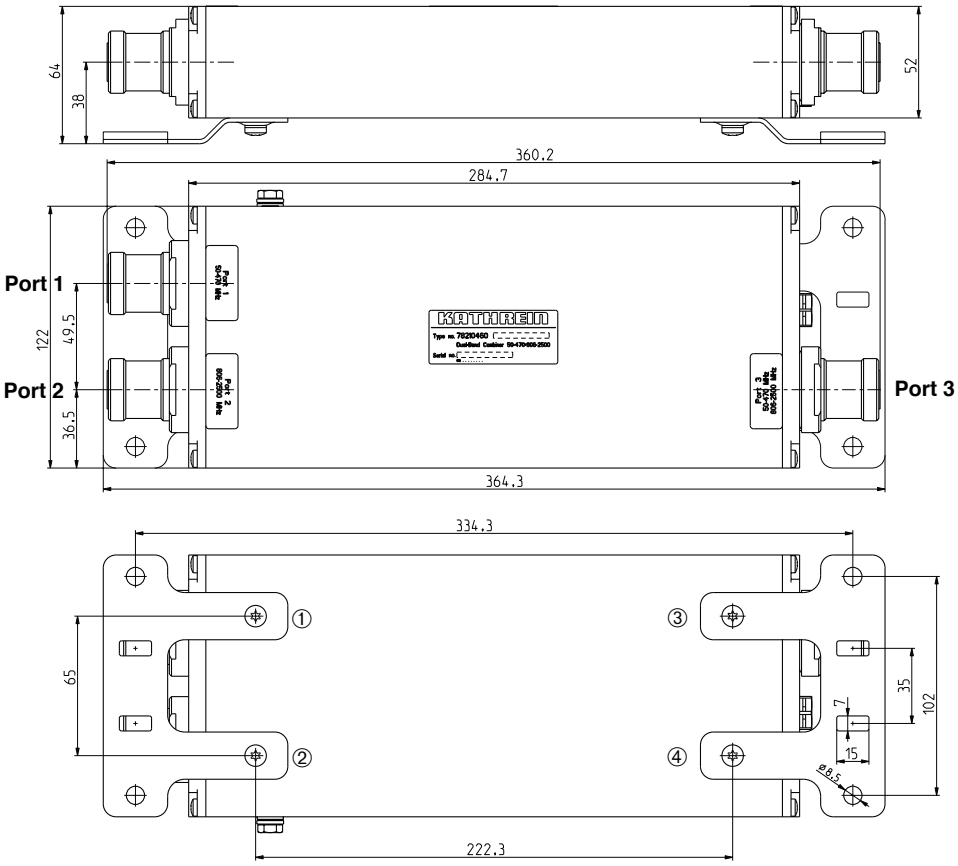
Type No.	Clamp set suitable for mast diameter of
734 360	34 – 60 mm
734 361	60 – 80 mm
734 362	80 – 100 mm
734 363	100 – 120 mm
734 364	120 – 140 mm
734 365	45 – 125 mm

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

Clamp Set

DC stop

50-Ω load



Please note:

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

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.

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 a mast mounted device or even cause it to fall to the ground.

These facts must be considered during the site planning process.

The Dual-band Combiners are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E and have passed environmental tests as recommended in ETS 300 019-2-4.

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

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

The limits for the coupling torque of RF connectors, recommended by the connector manufacturers must be obeyed.

Terminate unused inputs with a suitable 50 Ohm load, e.g. 784 10367.

Any previous datasheet issues have now become invalid.

936.2967/b Subject to alteration.

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Multi-band Low-loss Power Splitters 800–2500

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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

936.2248 Subject to alteration.

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