



Ericsson Antenna Technology Germany GmbH • Klepperstraße 26 • 83026 Rosenheim • Germany

Kathrein Mobile Communication — now part of Ericsson

Zum 1. Oktober 2019 ist die Kathrein Mobile Communication die Ericsson Antenna Technology Germany GmbH (im Folgenden auch „EAG“), eine mit Gesellschaftsvertrag vom 16. Januar 2019 neu gegründete Gesellschaft mit beschränkter Haftung (GmbH) nach deutschem Recht mit Sitz in Rosenheim (Geschäftsanschrift: Prinzenallee 21, 40549 Düsseldorf). EAG ist im Handelsregister B des Amtsgerichts Traunstein unter der Nr. HRB 27988 eingetragen und hat ein Stammkapital von derzeit EUR 2.000.000,00. EAG wird vertreten durch den Geschäftsführer Markus Feld. Alleinige Gesellschafterin von EAG ist die Telefonaktiebolaget LM Ericsson (publ), eine börsennotierte Aktiengesellschaft nach schwedischem Recht.

Die neuen Firmendaten lauten seither wie folgt:
Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim, Germany
UST-Ident-Nr: DE 324 954 029
Steuer-Nr.: 103/5725/3930

As of 1 October 2019, Kathrein Mobile Communication is Ericsson Antenna Technology Germany GmbH (hereinafter also referred to as "EAG"), a limited liability company under German law, newly established by articles of association dated 16 January 2019, with its head office in Rosenheim (business address: Prinzenallee 21, 40549 Düsseldorf, Germany). EAG is registered in the commercial register, section B, of Amtsgericht Traunstein (district court Traunstein) under the number HRB 27988 and has a share capital of currently EUR 2,000,000. EAG is represented by managing director Markus Feld. The sole shareholder of EAG is Telefonaktiebolaget LM Ericsson (publ), a listed stock corporation under Swedish law.

The new company data are as follows:
Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim, Germany
VAT Reg. No.: DE 324 954 029
Tax ID No.: 103/5725/3930

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Company Responsible:
Markus Feld

VAT Reg. No.: DE 324 954 029
Tax ID No.: 103/5725/3930

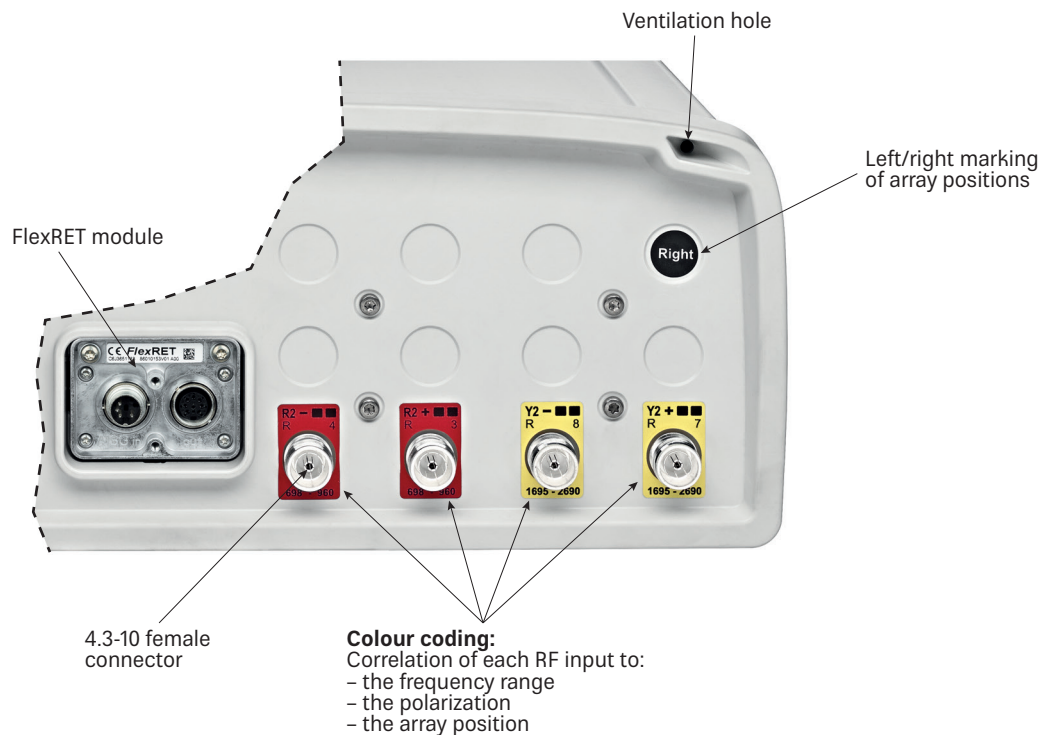
BNP Paribas
IBAN: NL05 BNPA 0227 7141 56
BIC: BNPANL2AXXX

General Instructions for Feeder Line Installation for Antennas with 4.3-10 Connectors

KATHREIN

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 bottom end cap (exemplary picture):



Installation of feeder line cables:

Tighten the 4.3-10 cable connectors within a torque range of max. 15 Nm depending on connector manufacturers' specifications. The recommended tightening torque of 4.3-10 connectors is 5–8 Nm. For the FlexRET installation, please follow the FlexRET installation instruction on the data sheet.

Installation of Smart Bias Tees:

If directly mounted on the antenna, the weight of one Smart Bias Tee must not exceed 440 g | 0.96 lb per antenna connector. It is recommended to only use Kathrein Smart Bias Tees with 4.3-10 connector (type no. 78211590, ..., -597).

Hold the Smart Bias Tee housing securely while mounting and tightening the cables. No lateral pressure shall be applied on the Smart Bias Tee when mounting it directly on an antenna neither during the mounting process nor in operational mode.

12-Port Antenna	R1	R2	Y1	Y2	Y3	Y4
Frequency Range	698-960	698-960	1695-2690	1427-2690	1695-2690	1427-2690
Dual Polarization	X	X	X	X	X	X
HPBW	65°	65°	65°	65°	65°	65°
Gain	15dBi	15dBi	16dBi	16dBi	16dBi	16dBi
Adjust. Electr. DT set by FlexRET	2.5°-11.5°	2.5°-11.5°	2°-12°	2°-12°	2°-12°	2°-12°



■ Ultra compact width

12-Port Antenna 2LB/4HB 2.0m 65° | 2x698-960 15dBi | 2x1695-2690 16dBi |
2x1427-2690 16dBi

Type No.		800372991			
Left side, lowband		R1, connector 1-2			
		698-960			
Frequency Range	MHz	698 – 806	791 – 862	824 – 894	880 – 960
Gain at mid Tilt	dBi	14.0	14.7	15.0	15.4
Gain over all Tilts	dBi	14.0 ± 0.5	14.7 ± 0.4	15.0 ± 0.4	15.4 ± 0.4
Horizontal Pattern:					
Azimuth Beamwidth	°	62 ± 6.6	59 ± 4.5	57 ± 3.9	55 ± 5.7
Front-to-Back Ratio, Total Power, ± 30°	dB	> 20	> 22	> 23	> 21
Vertical Pattern:					
Elevation Beamwidth	°	11.8 ± 1.1	10.9 ± 0.7	10.7 ± 0.6	10.1 ± 0.8
Electrical Downtilt continuously adjustable	°	2.5 – 11.5			
Tilt Accuracy	°	< 0.5	< 0.4	< 0.5	< 0.5
First Upper Side Lobe Suppression	dB	> 17	> 20	> 19	> 18
Cross Polar Isolation	dB	> 25			
Port to Port Isolation	dB	> 25 (R1 // R2, Y1, Y2, Y3, Y4)			
Max. Effective Power per Port	W	400 (at 50 °C ambient temperature)			

Values based on NGMN-P-BASTA (version 10.0) requirements.



Right side, lowband		R2, connector 3-4			
		698-960			
Frequency Range	MHz	698 – 806	791 – 862	824 – 894	880 – 960
Gain at mid Tilt	dBi	14.0	14.8	15.0	15.5
Gain over all Tilts	dBi	14.0 ± 0.5	14.7 ± 0.4	15.0 ± 0.4	15.4 ± 0.4
Horizontal Pattern:					
Azimuth Beamwidth	°	62 ± 6.8	59 ± 4.3	57 ± 3.9	55 ± 5.9
Front-to-Back Ratio, Total Power, ± 30°	dB	> 20	> 22	> 23	> 22
Vertical Pattern:					
Elevation Beamwidth	°	11.9 ± 1.4	10.9 ± 0.6	10.7 ± 0.6	10.1 ± 0.7
Electrical Downtilt continuously adjustable	°	2.5 – 11.5			
Tilt Accuracy	°	< 0.5	< 0.5	< 0.5	< 0.5
First Upper Side Lobe Suppression	dB	> 19	> 21	> 20	> 19
Cross Polar Isolation	dB	> 25			
Port to Port Isolation	dB	> 25 (R2 // R1, Y1, Y2, Y3, Y4)			
Max. Effective Power per Port	W	400 (at 50 °C ambient temperature)			

Values based on NGMN-P-BASTA (version 10.0) requirements.

Left side, lower highband		Y1, connector 5-6				
		1695-2690				
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2170	2300 – 2400	2500 – 2690
Gain at mid Tilt	dBi	15.5	15.7	15.9	15.6	15.8
Gain over all Tilts	dBi	15.5 ± 0.4	15.7 ± 0.6	15.9 ± 0.6	15.6 ± 0.5	15.8 ± 0.5
Horizontal Pattern:						
Azimuth Beamwidth	°	65 ± 3.5	65 ± 4.5	65 ± 5.0	63 ± 5.1	57 ± 5.3
Front-to-Back Ratio, Total Power, ± 30°	dB	> 25	> 26	> 26	> 26	> 28
Vertical Pattern:						
Elevation Beamwidth	°	10.7 ± 0.6	10.2 ± 0.6	9.8 ± 0.5	8.9 ± 0.4	8.2 ± 0.5
Electrical Downtilt continuously adjustable	°	2.0 – 12.0				
Tilt Accuracy	°	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
First Upper Side Lobe Suppression	dB	> 16	> 16	> 17	> 22	> 18
Cross Polar Isolation	dB	> 25				
Port to Port Isolation	dB	> 28 (Y1 // R1, R2, Y2, Y3, Y4)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 10.0) requirements.

Left side, upper highband		Y2, connector 7-8					
		1427-2690					
Frequency Range	MHz	1427 – 1518	1695 – 1880	1850 – 1990	1920 – 2170	2300 – 2400	2500 – 2690
Gain at mid Tilt	dBi	15.1	15.8	16.1	16.3	16.1	15.9
Gain over all Tilts	dBi	15.0 ± 0.4	15.7 ± 0.5	16.0 ± 0.6	16.3 ± 0.6	16.0 ± 0.9	15.8 ± 0.8
Horizontal Pattern:							
Azimuth Beamwidth	°	63 ± 3.3	65 ± 4.1	66 ± 4.6	67 ± 4.4	67 ± 5.0	61 ± 6.1
Front-to-Back Ratio, Total Power, ± 30°	dB	> 26	> 27	> 25	> 28	> 26	> 28
Vertical Pattern:							
Elevation Beamwidth	°	11.6 ± 0.9	9.7 ± 0.6	9.1 ± 0.4	8.6 ± 0.6	7.8 ± 0.4	7.4 ± 0.4
Electrical Downtilt continuously adjustable	°	2.0 – 12.0					
Tilt Accuracy	°	< 0.5	< 0.4	< 0.4	< 0.3	< 0.3	< 0.4
First Upper Side Lobe Suppression	dB	> 15	> 19	> 18	> 18	> 18	> 19
Cross Polar Isolation	dB	> 25					
Port to Port Isolation	dB	> 28 (Y2 // R1, R2, Y1, Y3, Y4)					
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)					

Values based on NGMN-P-BASTA (version 10.0) requirements.

Right side, lower highband		Y3, connector 9-10				
		1695-2690				
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2170	2300 – 2400	2500 – 2690
Gain at mid Tilt	dBi	15.5	15.9	15.9	15.6	15.8
Gain over all Tilts	dBi	15.5 ± 0.4	15.7 ± 0.6	15.9 ± 0.5	15.6 ± 0.5	15.8 ± 0.6
Horizontal Pattern:						
Azimuth Beamwidth	°	67 ± 4.5	65 ± 5.2	64 ± 4.9	64 ± 8.4	58 ± 5.4
Front-to-Back Ratio, Total Power, ± 30°	dB	> 24	> 24	> 25	> 24	> 26
Vertical Pattern:						
Elevation Beamwidth	°	10.8 ± 0.7	10.2 ± 0.7	9.7 ± 0.7	8.8 ± 0.5	8.2 ± 0.5
Electrical Downtilt continuously adjustable	°	2.0 – 12.0				
Tilt Accuracy	°	< 0.5	< 0.5	< 0.5	< 0.5	< 0.4
First Upper Side Lobe Suppression	dB	> 17	> 18	> 18	> 20	> 18
Cross Polar Isolation	dB	> 25				
Port to Port Isolation	dB	> 28 (Y3 // R1, R2, Y1, Y2, Y4)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 10.0) requirements.

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Right side, upper highband		Y4, connector 11-12					
		1427-2690					
Frequency Range	MHz	1427 – 1518	1695 – 1880	1850 – 1990	1920 – 2170	2300 – 2400	2500 – 2690
Gain at mid Tilt	dBi	15.0	15.8	16.1	16.4	16.0	15.9
Gain over all Tilts	dBi	15.0 ± 0.4	15.7 ± 0.5	16.0 ± 0.6	16.3 ± 0.6	16.0 ± 0.9	15.8 ± 0.8
Horizontal Pattern:							
Azimuth Beamwidth	°	63 ± 3.3	67 ± 4.4	65 ± 3.3	66 ± 3.5	68 ± 6.2	61 ± 5.7
Front-to-Back Ratio, Total Power, ± 30°	dB	> 24	> 26	> 25	> 26	> 26	> 27
Vertical Pattern:							
Elevation Beamwidth	°	11.8 ± 0.7	9.8 ± 0.6	9.1 ± 0.4	8.6 ± 0.6	7.8 ± 0.4	7.4 ± 0.4
Electrical Downtilt continuously adjustable	°	2.0 – 12.0					
Tilt Accuracy	°	< 0.4	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
First Upper Side Lobe Suppression	dB	> 15	> 18	> 18	> 17	> 16	> 18
Cross Polar Isolation	dB	> 25					
Port to Port Isolation	dB	> 28 (Y4 // R1, R2, Y1, Y2, Y3)					
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)					

Values based on NGMN-P-BASTA (version 10.0) requirements.

Electrical specifications, all ports			Mechanical specifications		
Impedance	Ω	50	Input	12 x 4.3-10 female	
VSWR		< 1.5	Connector Position	bottom	
Return Loss	dB	> 14	Adjustment Mechanism	FlexRET, continuously adjustable	
Interband Isolation	dB	> 25	Wind load (at Rated Wind Speed: 150 km/h)	N lbf	Frontal: 465 105 Maximal: 815 183
Passive Intermodulation	dBc	< -153 (2 x 43 dBm carrier)*	Max. Wind Velocity	km/h mph	241 150
Polarization	°	-45, +45	Height / Width / Depth	mm inches	1978 / 378 / 164 77.9 / 14.9 / 6.5
Max. Effective Power for the Antenna	W	1200 (at 50 °C ambient temperature)	Category of Mounting Hardware	XM (X-Medium)	
Values based on NGMN-P-BASTA (version 10.0) requirements. * not applicable for L-band			Weight	kg lb	37.0 / 41.5 (clamps incl.) 81.6 / 91.5 (clamps incl.)
			Packing Size	mm inches	2125 / 440 / 293 83.7 / 17.3 / 11.5
			Scope of Supply	Panel, FlexRET and clamps for 55–115 mm 2.2–4.5 inches diameter	

Accessories (order separately if required)

Type No.	Description	Remarks mm inches	Weight approx. kg lb	Units per antenna
85010097	2 clamps	Mast diameter: 110–220 4.3–8.7	9.4 20.7	1
85010110	1 downtilt kit	Downtilt angle: 0°–10°	8.5 18.7	1
86010154	Site Sharing Adapter	3-way (see figure below)	0.7 1.5	
86010155	Site Sharing Adapter	6-way (see figure below)	1.4 3.1	
86010162	Gender Adapter	To be used in combination with the FlexRET module	0.045 0.099	1
86010163	Port Extender		0.16 0.35	1

Accessories (included in the scope of supply)

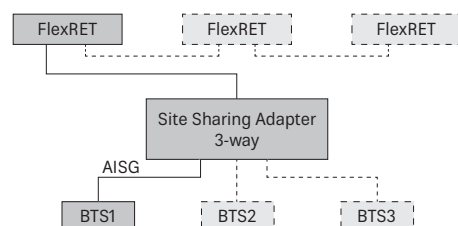
85010111	2 clamps	Mast diameter: 55–115 2.2–4.5	4.5 9.9	1
86010165	FlexRET	Compliant to 3GPP / AISG 2.0 – AISG 3 ready		1

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

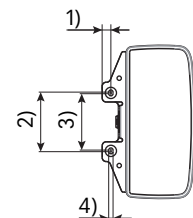
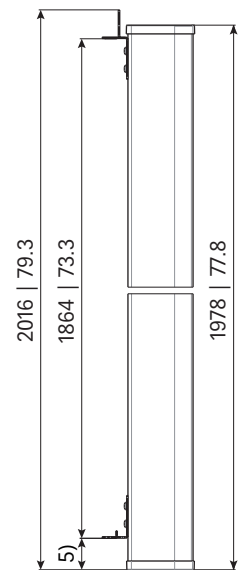
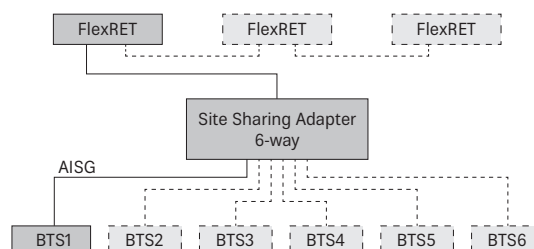
Material: **Reflector screen:** Aluminum.
Fiberglass housing: It covers totally the internal antenna components. The special design reduces the sealing areas to a minimum and guarantees the best weather protection. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The color of the radome is light grey.
All nuts and bolts: Stainless steel or hot-dip galvanized steel.

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

Configuration example with Site Sharing Adapter 86010154



Configuration example with Site Sharing Adapter 86010155

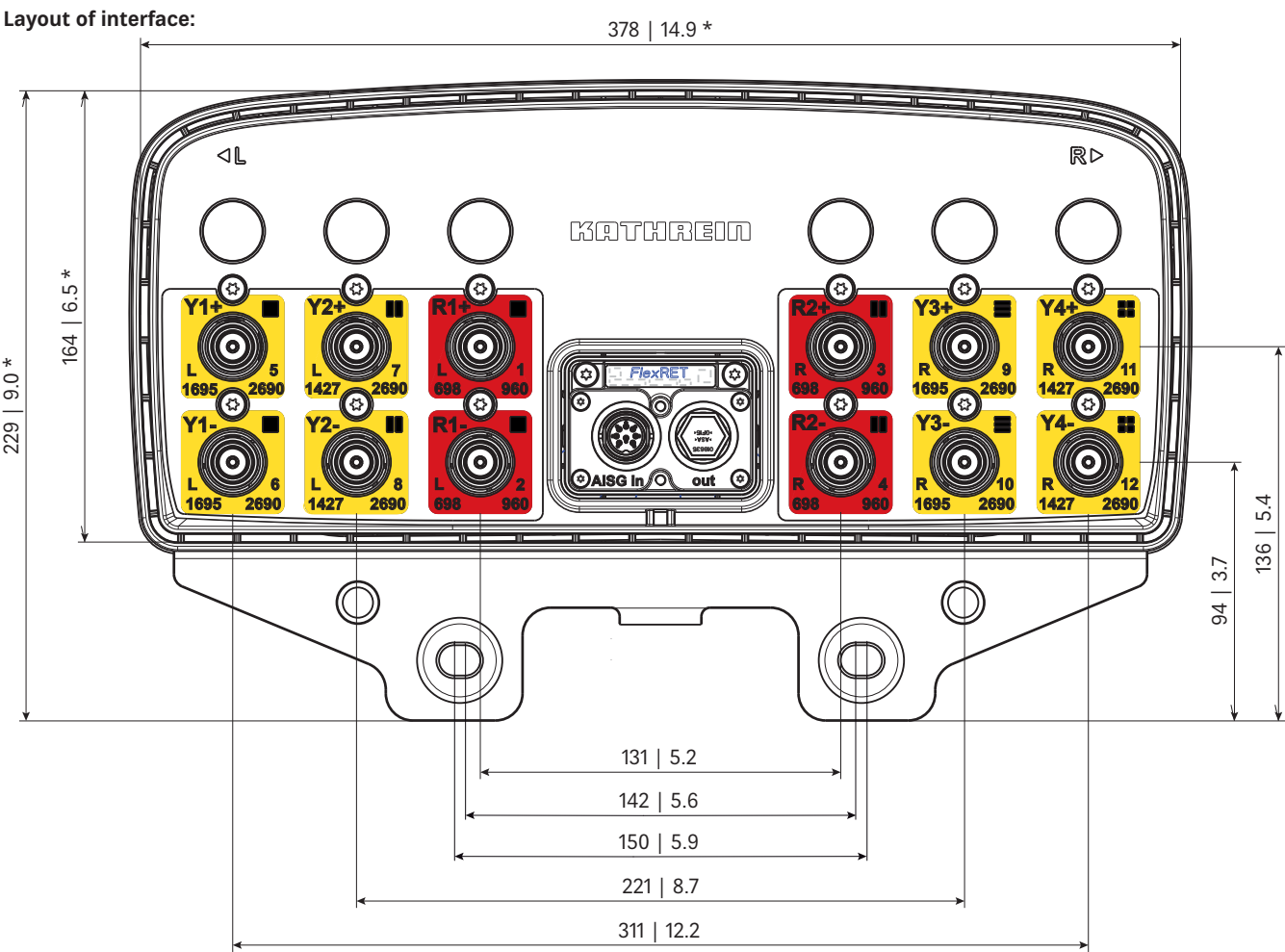


- 1) 22 | 0.9
- 2) 150 | 5.9
- 3) 142 | 5.6
- 4) 11 | 0.4
- 5) 79 | 3.1

All dimensions in mm | inches

For more information please refer to the respective data sheets.

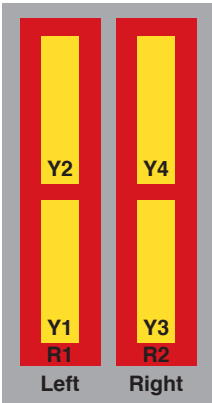
Layout of interface:



Bottom view
* Dimensions refer to radome
All dimensions in mm | inches

Correlation Table

Frequency range	Array	Connector / Ports
698-960 MHz	R1	1-2
698-960 MHz	R2	3-4
1695-2690 MHz	Y1	5-6
1427-2690 MHz	Y2	7-8
1695-2690 MHz	Y3	9-10
1427-2690 MHz	Y4	11-12



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A flexible, integrated solution for adjusting the electrical downtilt of Kathrein FlexRET antennas.

- Compliant to 3GPP / AISG 2.0 – AISG 3 ready
- Single RETs or Multi RET displayed
- Individual user-specific configuration possible:
 - Antenna sharing-assignment of certain RET-subunits to RET-ports
 - Antenna tilt consolidations for RET control of several arrays by one RET-subunit
- Daisy Chain feasibility
- Pre-configured



Type No.	86010165	
Protocols	compliant to 3GPP / AISG 2.0 – AISG 3 ready	
Logical interface ex factory	3GPP / AISG 2.0	
Operates as	Single RETs or Multi RET	
Ex factory	Single RETs	
Input voltage range	V	10 ... 30 (pin 6)
Power consumption	W	Typically < 1; < 10 (motor activated)
Connectors	2 x 8 pin connector according to IEC 60130-9; according to AISG-C 485 Daisy chain in: male; Daisy chain out: female	
Hardware interfaces	RS 485A/B (pin 5, pin 3); power supply (pin 6); DC return (pin 7); according to AISG / 3GPP	
Adjustment time (full range)	sec	40 (typically, depending on antenna type)
Adjustment cycles	> 50,000	
Temperature range	°C	-40 ... +60
Protection class	IP 24 (installed)	
Lightning protection	AISG interface (each pin) 2.5 kA (10/350 µs) 8 kA (8/20 µs) according to IEC 61000-4-5	
Housing material	Profile: Aluminum anodized; cover: Aluminum die cast coated	
Weight	g lb	350 0.77
Packing size (H x W x D)	mm inches	245 x 93 x 102 9.6 x 3.6 x 4
Dimensions (H x W x D)	mm inches	142 x 71 x 51 5.6 x 2.8 x 2



This device is not compatible to antennas with FlexRET 86010153 or 86010153v01. These FlexRET devices can not be replaced by 86010165.

Non-observance can damage the antenna and the RET device.

Please note:

If the Primary which controls the FlexRET system does not support the default ex-factory interface setting, then the FlexRET must be switched to the appropriate standard of the Primary before installation. Please contact Kathrein for further information.

The FlexRET needs to be powered by a LPS (Limited Power Source, Class: P2) according to IEC/EN 62368-1.

If the FlexRET of an antenna has to be replaced, the FlexRET gets the information stored in the antenna after power on automatically. It is not necessary to configure the FlexRET manually.

Standards:

- EN 62368-1 (Safety)
- EN 60950-22 (Safety – Equipment installed outdoor)
- ETSI EN 301489-1 (EMI)
- ETSI EN 301489-3 (EMI)
- ETS 300019-1-4 (Environmental)
- ETSI EN 300330 (Radio equipment)
- EN 50364 (Health)

EU-RED: Hereby, KATHREIN SE declares that the radio equipment type 86010165 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <http://www.kathrein.com>

Certification: CE, FCC

Scope of supply: FlexRET

Optional: **Site Sharing Adapter** (86010154 or 86010155) to create independent logical interfaces at one antenna or site. Makes it possible to operate with more than one independent Node B. Operation in AISG 2.0 mode only.

Gender Adapter (86010162) to convert the AISG out (female) to an AISG in (male) port in order to operate one FlexRet with exactly 2 BTS.
Detailed information is given in the data sheet of the Gender Adapter.

Port Extender (86010163) to convert the existing AISG input and output in order to operate FlexRet with exactly 2 BTS while maintaining the daisy chain capability.
Detailed information is given in the data sheet of the Port Extender.

Please note:

In general, the addressing of the FlexRET is automatically performed. Only in case the FlexRET is manually addressed, the serial number has to be extended by the corresponding colour coding extension (e.g. CSG351234-**R1**). The respective information can be found on the site documentation which is included in the scope of supply.

Any previous data sheet issues have now become invalid.

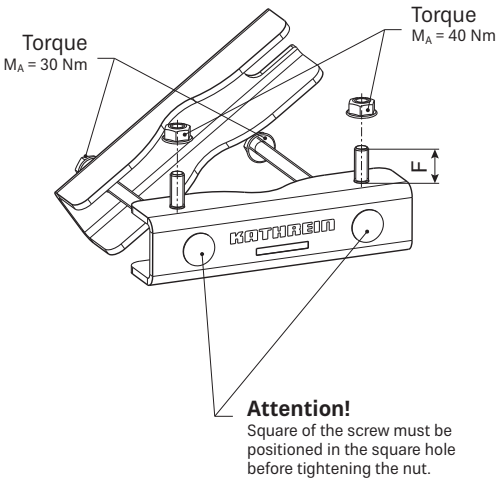
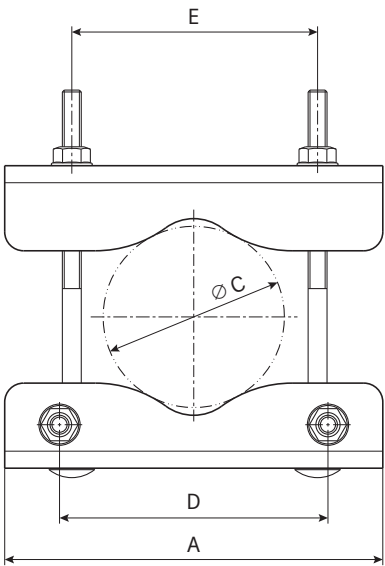
Mounting Hardware

Clamps

(Wind Load Category “XM”)

Clamps 55–115mm XM

Type No.		85010111
Suitable for mast diameter	mm inches	55 – 115 2.2 – 4.5
Scope of supply		2 x clamps
Material – Clamp – Screws – Nuts		Hot-dip galvanized steel Hot-dip galvanized steel Stainless steel
Weight	kg lb	4.5 9.9



	A	B	C	D	E	F
mm	200	75	55 – 115	142	130	(25)
inches	7.9	2.9	2.2 – 4.5	5.6	5.1	(1)

Please note: Kathrein does not recommend to use counter nuts.