



- Six foot (2.0 m) multiband, twelve port antenna with a 45° azimuth beamwidth covering 698-960 MHz and 1695-2360 MHz frequencies
- Eight wide high band ports covering 1695-2360 MHz and four wide low band ports covering 698-960 MHz in a single antenna enclosure
- New Enclosure, allowing for 15.4" (391mm) width. Narrowest Enclosure in the Industry for a 45° Antenna of this configuration
- Full Spectrum Compliance for WCS and AWS-3 frequencies and upcoming Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Equipped with 3 field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) Controllers
- Ordering options for External RET Controllers (Type 1) or Internally Integrated RET Controllers (Type 17)

Overview

The CCI 12-Port multiband array is a twelve port antenna, with eight wide high band ports covering 1695-2360 MHz and four wide low band ports covering 698-960 MHz. The antenna provides the capability to deploy Dual 4x4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports.

The CCI 12-Port allows independent tilt control between the low band ports and high band ports. With the use of two independent RET controllers in the High Band, the Top and Bottom paired high band ports can be tilted independently, enabling maximum flexibility in network deployment.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Dual 4x4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs



SPECIFICATIONS

Twelve Port Multi-Band Antenna

TPA45R-KU6A

Electrical

Ports	4 x Low Band Ports for 698-960 MHz			
Frequency Range	698-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain ¹	13.9 dBi	14.4 dBi	14.7 dBi	15.4 dBi
Gain (Average) ²	13.3 dBi	13.8 dBi	14.1 dBi	14.5 dBi
Azimuth Beamwidth (-3dB)	51°	50°	47°	44°
Elevation Beamwidth (-3dB)	25.5°	23.1°	22.0°	20.1°
Electrical Downtilt	2° to 16°	2° to 16°	2° to 16°	2° to 16°
Elevation Sidelobes (1st Upper)	< -20 dB	< -20 dB	< -20 dB	< -19 dB
Front-to-Back Ratio @180°	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts	500 watts	500 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

¹Peak gain across sub-bands.

²Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.

Ports	8 x High Band Ports for 1695-2360 MHz			
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2305-2360 MHz
Gain ¹	16.8 dBi	17.3 dBi	17.5 dBi	17.8 dBi
Gain (Average) ²	15.9 dBi	16.5 dBi	16.9 dBi	17.0 dBi
Azimuth Beamwidth (-3dB)	44°	42°	41°	42°
Elevation Beamwidth (-3dB)	9.7°	8.8°	8.5°	7.6°
Electrical Downtilt	3° to 11°	3° to 11°	3° to 11°	3° to 11°
Elevation Sidelobes (1st Upper)	< -17 dB	< -17 dB	< -17 dB	< -20 dB
Front-to-Back Ratio @180°	> 30 dB	> 30 dB	> 33 dB	> 35 dB
Cross-Polar Discrimination (at Peak)	> 18 dB	> 18 dB	> 20 dB	> 22 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

¹Peak gain across sub-bands.

²Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.



SPECIFICATIONS

Twelve Port Multi-Band Antenna

TPA45R-KU6A

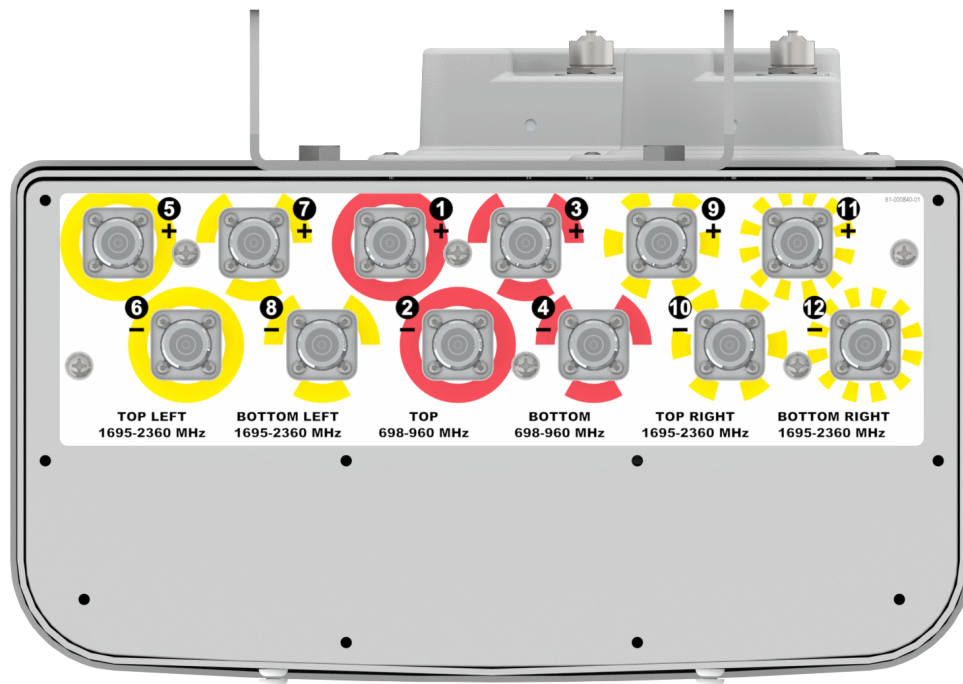
Mechanical

Dimensions (LxWxD)	78.3x15.4x8.2 in (1990x391x208 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	282 lbs (1254 N) @ 100 mph (161 kph)
Side Wind Load	169 lbs (754 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	11.0 ft ² (1.0 m ²)
Weight *	56.2 lbs (25.5 kg)
Packaging Dimensions (LxWxD)	85.9x19.8x14.4 in (2183x503x365 mm)
Packaged Weight ~	93.7 lbs (42.5 kg)
Connector	12 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

* Weight excludes mounting kit

Bottom View

TPA45R-KU6AA Shown





SPECIFICATIONS

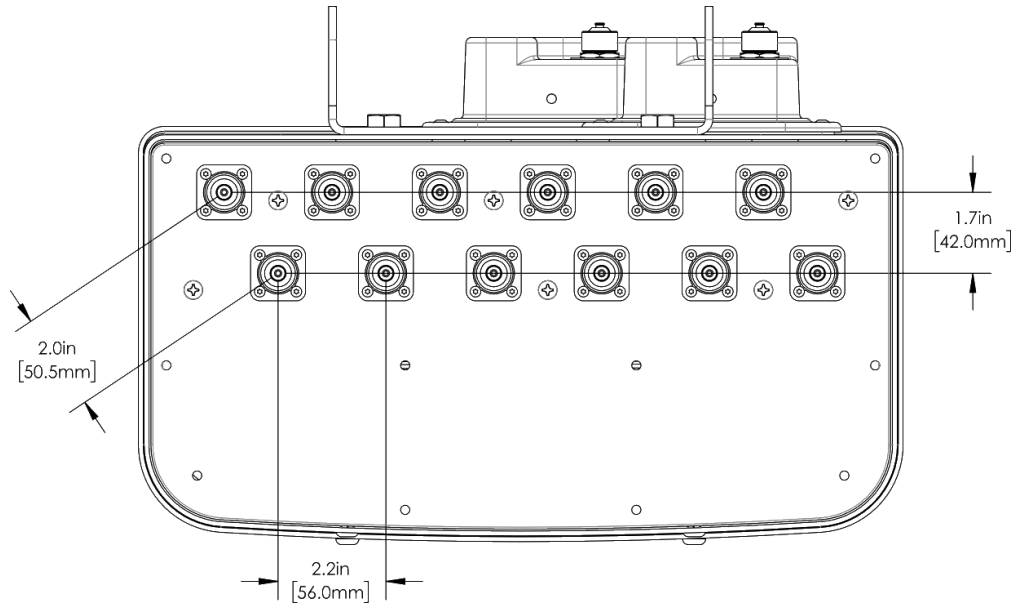
Twelve Port Multi-Band Antenna

TPA45R-KU6A

Mechanical

Connector Spacing

TPA45R-KU6AA Shown



Twelve Port Multi-Band Antenna

TPA45R-KU6A

SPECIFICATIONS

Mechanical

RET to Array Configuration

TPA45R-KU6AA Element and RET configuration (Type 1 External)

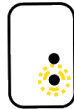
**RET placement
as viewed from rear
of antenna**
Top of antenna



1695-2360
Ports 5, 6, 9 & 10
(YTL & YTR)

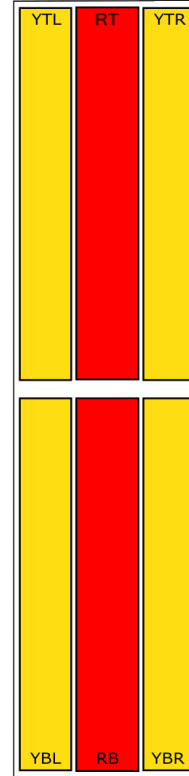


698-960
Ports 1, 2, 3 & 4
(RT & RB)



1695-2360
Ports 7, 8, 11 & 12
(YBL & YBR)

**Element arrays as viewed
from rear of antenna**



Array	Ports	Freq (MHz)	Ports controlled by common RET
RT	1, 2	698-960	1, 2, 3, 4
RB	3, 4	698-960	
YTL	5,6	1695-2360	5, 6, 9, 10
YTR	9,10	1695-2360	
YBL	7, 8	1695-2360	7, 8, 11, 12
YBR	11, 12	1695-2360	



SPECIFICATIONS

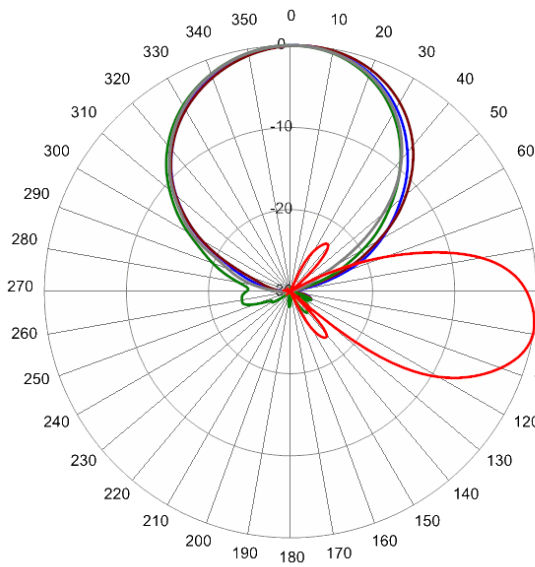
Twelve Port Multi-Band Antenna

TPA45R-KU6A

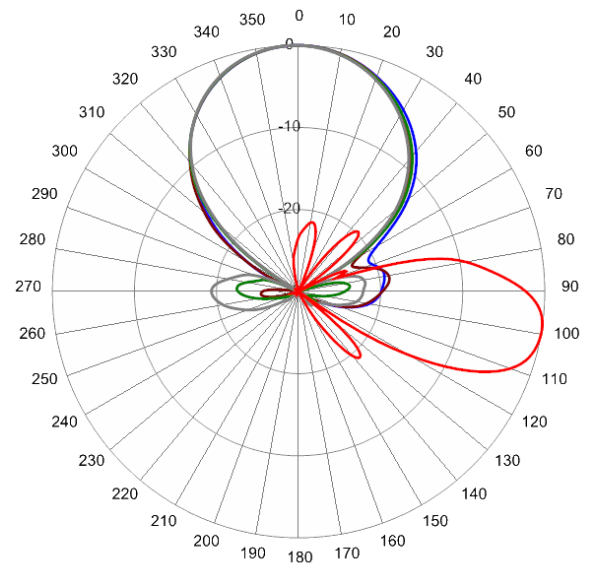
Typical Antenna Patterns

For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com

All Ports shown in Azimuth

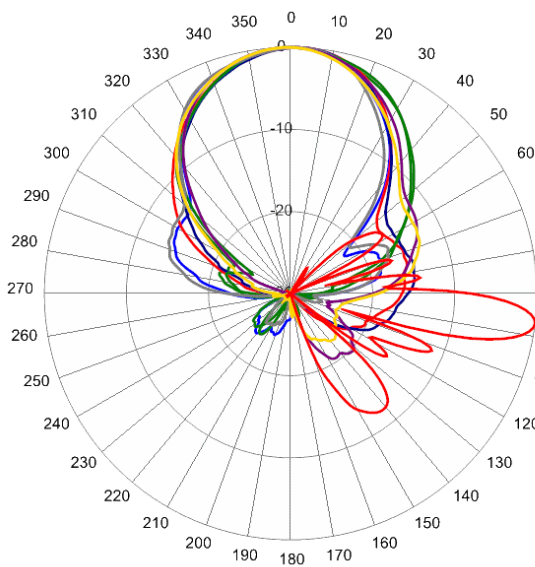


734 MHz Azimuth / Elevation 9°

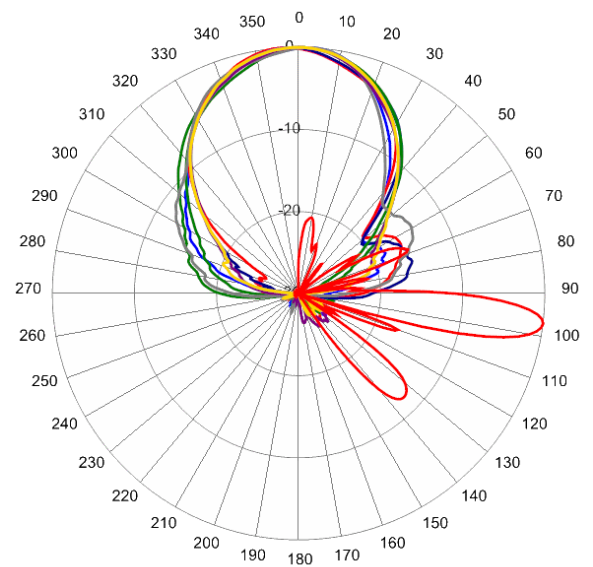


860 MHz Azimuth / Elevation 9°

All Ports shown in Azimuth



1780 MHz Azimuth / Elevation 7°



2155 MHz Azimuth / Elevation 7°



Twelve Port Multi-Band Antenna

TPA45R-KU6A

Parts & Accessories

TPA45R-KU6AA-K	6 foot (2.0 m) Twelve Port antenna with 45° azimuth beamwidth, 4.3-10 female connectors, three factory installed BSA-RET200 RET actuators (Type 1 External) and MBK-16 mounting bracket
TPA45R-KU6AB-K	6 foot (2.0 m) Twelve Port antenna with 45° azimuth beamwidth, 4.3-10 female connectors, three factory installed BSA-RET400 RET actuators (Type 17 Internal) and MBK-16 mounting bracket
MBK-01	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
MBK-16	Mounting Kit with fixed 0° mechanical tilt
BSA-RET200	Type 1 External Remote Electrical Tilt System (RET)
BSA-RET400	Type 17 Internal Remote Electrical Tilt System (RET)
TPA-CBK-AG-RRU	Three RET antenna to RRU AISG cable kit for Type 1
TPA-CBK-RA-AG-RRU	Three RET antenna to RRU AISG right angle cable kit for Type 1
AISGC-M-F-10FT	10 Ft (3 m) Male/Female RRU to Antenna AISG cable

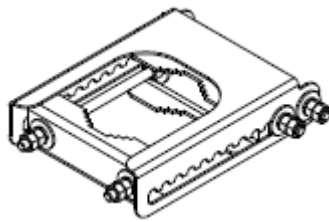


Mounting Bracket Kit

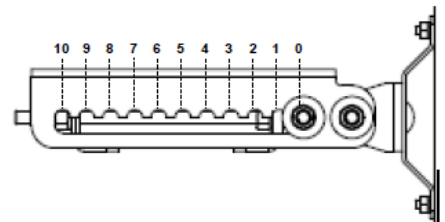
MBK-01

Mechanical

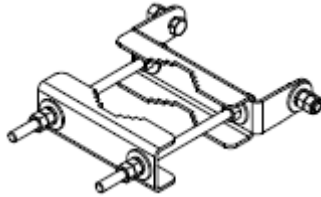
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

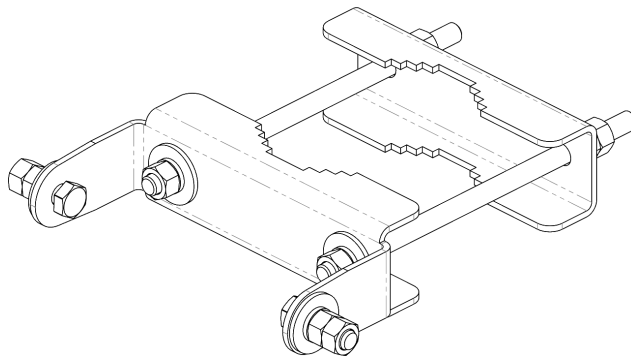
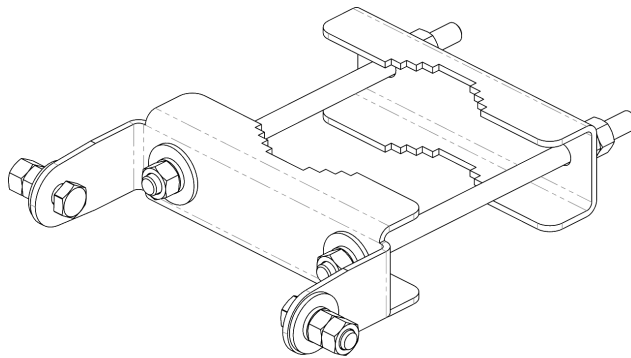


Mounting Bracket Kit

MBK-16

Mechanical

Weight	9.9 lbs (4.5 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lbs (54 N·m)
Mechanical Tilt	0°



MBK-16 Top and Bottom Bracket



Remote Electrical Tilt Actuator (RET)

BSA-RET200

General Specifications

Part Number	BSA-RET200
Protocols	AISG 2.0
RET Type	Type 1
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

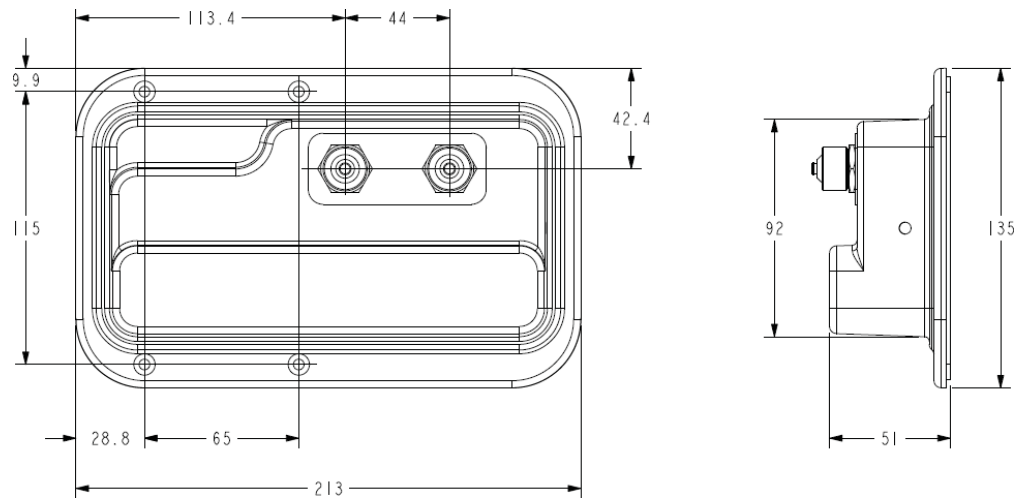
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	120 mA at $V_{in}=24$
Current Consumption Idle	55 mA at $V_{in}=24$
Hardware Interface	AISG-RS 485 A/B
Input Connector	Male 1 × 8 pin Daisy Chain
Output Connector	Female 1 × 8 pin Daisy Chain

Mechanical

Dimensions (LxWxD)	8.0x5.0x2.0 in. (213x135x51 mm)
Housing	ASA/ABS/Aluminum
Weight	1.7 lbs (0.75 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS=Acrylonitrile Butadiene Styrene





Internal Remote Electrical Tilt (iRET)

BSA-RET400

General Specifications

Part Number	BSA-RET400
Protocols	AISG 2.0
RET Type	Type 17
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

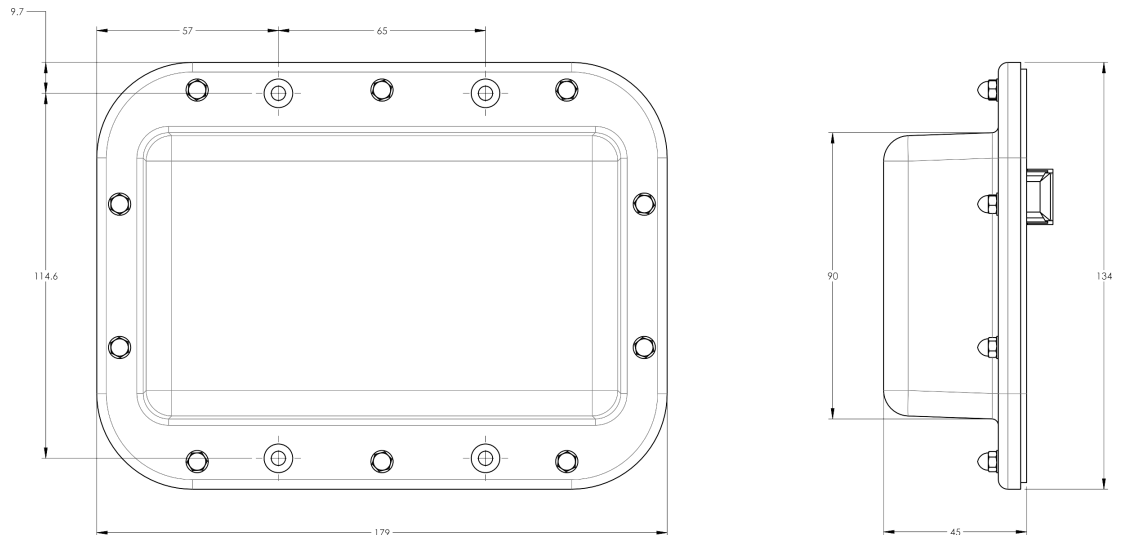
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	100 mA at $V_{in}=24$ (500 mA MAX)
Current Consumption Idle	10 mA at $V_{in}=24$

Mechanical

Dimensions (LxWxD)	7.0x5.3x1.8 in. (179x134x45 mm)
Housing	ASA/ABS/Aluminum
Weight	1.3 lbs (0.6 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS=Acrylonitrile Butadiene Styrene



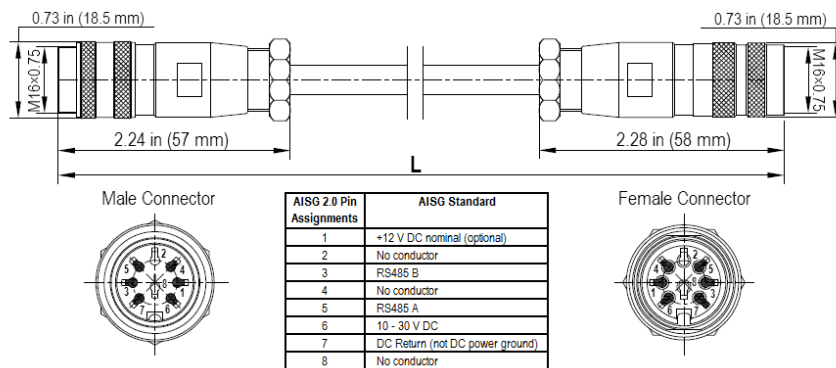


AISG Cable Kit

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables		RRU to Antenna Cables
Individual Cable Part Number	AISGC-M-F-60	AISGC-M-F-27	AISGC-M-F-10FT
Cable style	UL2464		
Protocol	AISG 1.1 and AISG 2.0		
Maximum voltage	300 V		
Rated current	5 A at 104° F (40° C)		
Temperature Range	-40° to 80° C		
Flammability	UL 1581 VW-1		
Ingress Protection	IEC 60529:2001, IP67		
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 N·m)		
Construction	Shielded (Tinned Copper Braid)		
Braid coverage	85%		
Jacket Material	Matte Polyurethane (Black)		
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464		
Cable Diameter	0.307 in (7.8 mm)		
Minimum bend radius	3.9 in (100 mm)		
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female		
Length	60 in (1525 mm)	27 in (686 mm)	120 in (3048 mm)
Weight	0.44 lbs (0.20 kg)	0.33 lbs (0.15 kg)	0.69 lbs (0.31 kg)
Cables per kit	1	1	2

Mechanical Specifications



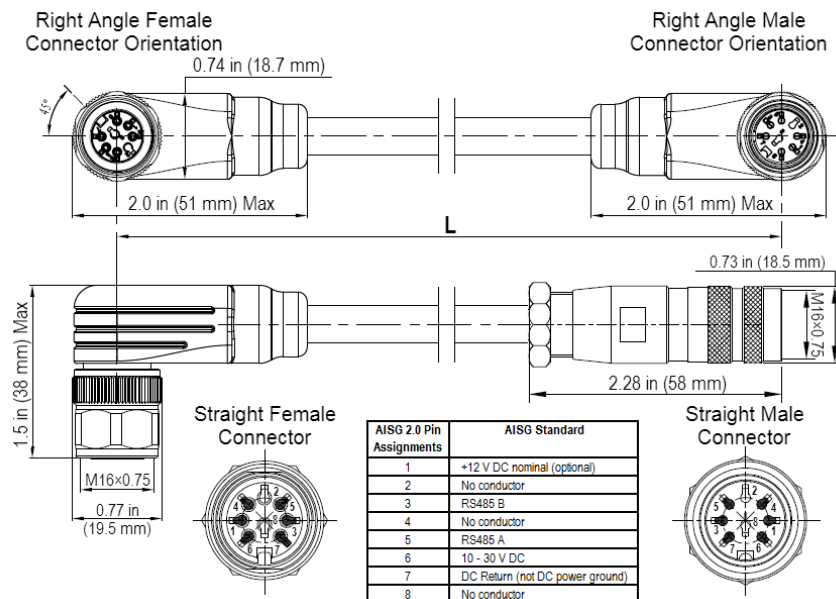
AISG-Male to AISG-Female Jumper Cable



Electrical/Mechanical/Environmental Specifications

	RET to RET Cables		RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-66	AISGC-MRA-FRA-36	AISGC-M-FRA-10FT
Cable style	UL2464		
Protocol	AISG 1.1 and AISG 2.0		
Maximum voltage	300 V		
Rated current	5 A at 104° F (40° C)		
Temperature Range	-40° to 80° C		
Flammability	UL 1581 VW-1		
Ingress Protection	IEC 60529:2001, IP67		
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 N·m)		
Construction	Shielded (Tinned Copper Braid)		
Braid coverage	85%		
Jacket Material	Matte Polyurethane (Black)		
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464		
Cable Diameter	0.307 in (7.8 mm)		
Minimum bend radius	3.9 in (100 mm)		
Connectors	2 x 8 pin IEC 60130-9 Right angle male/right angle female		2 x 8 pin IEC 60130-9 Straight male/right angle female
Length	66 in (1675 mm)	36 in (914 mm)	120 in (3048 mm)
Weight	0.44 lbs (0.20 kg)	0.23 lbs (0.10 kg)	0.77 lbs (0.35 kg)
Cables per kit	1	1	2

Mechanical Specifications



Right Angle to Right Angle and Right Angle to Straight Jumper Cable



AISG Cable

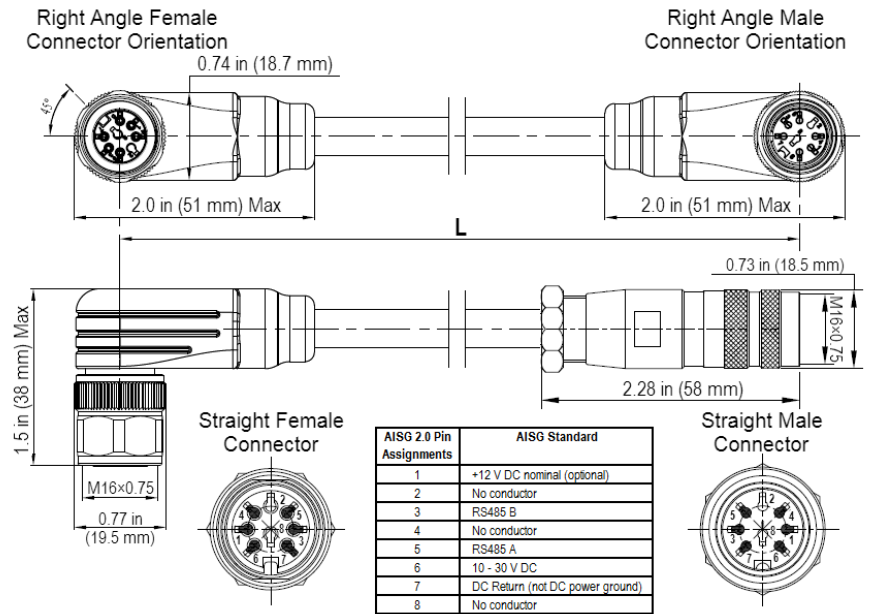
AISGC-M-F-xFT

Electrical Specifications

Individual Cable Part Number	AISGC-M-F-x(FT)
Cable style	UL2464
Protocol	AISG 1.1 and AISG 2.0
Maximum voltage	300 V
Rated current	5 A at 104° F (40° C)

Mechanical Specifications

Individual Cable Part Number	AISGC-M-F-x(FT)
Cables per kit	1
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female
Tightening torque	Hand tighten only \approx 1.84 ft-lbs (2.5 Nm)
Construction	Shielded (Tinned Copper Braid)
Braid coverage	85%
Jacket Material	Matte Polyurethane (Black)
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464
Cable Diameter	0.307 in (7.8 mm)
Length	See order details
Minimum bend radius	3.15 in (80 mm)



AISG-Male to AISG-Female Jumper Cable



Environmental Specifications

Individual Cable Part Number	AISGC-M-F-xFT
Temperature Range	-40° to 80° C
Flammability	UL 1581 VW-1
Ingress Protection	IEC 60529:2001, IP67



STANDARDS & CERTIFICATIONS

Twelve Port Multi-Band Antenna

TPA45R-KU6A

Standards & Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN 60529, IP 24

Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001

