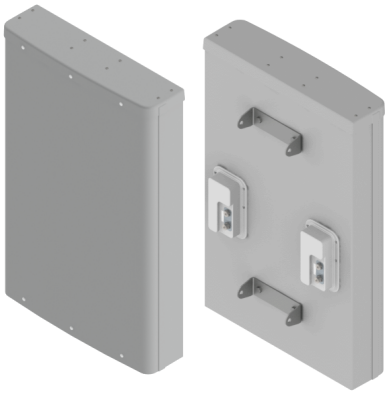
DATA SHEET

Wideband Bi-Sector™ Antenna

BSA33R-U3A



- Three foot (0.9 m), Wideband, eight port Bi-Sector™ Antenna. Deploying a high performing two pairs of CCI's Patented Asymmetrical 33° Shaped Beams covering 1695-2400 MHz frequencies
- Eight wide High Band ports (4 ports per beam) covering 1695-2400 MHz and in a single antenna
- Full Spectrum Compliance for 1695-2400 MHz Operations
- LTE Optimized Asymmetric Shaped Beams for improved LTE data throughput by minimizing beam crossover, providing for an efficient use of valuable radio capacity and frequency spectrum
- LTE Optimized FBR, SPR and Boresight/Sector XPD Performance, essential for today's LTE Data Networks
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Equipped with Two Field Replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET)

Overview

This version of the CCI Bi-Sector™ Wideband Array is an eight port antenna, with eight wide High Band ports (four per beam) covering 1695-2400 MHz. The CCI Bi-Sector™ array uses a two pairs of CCI's High Performing Patented Asymmetric 33° Shaped Beams in the High Band frequencies. The CCI Bi-Sector™ Array thus provides the capability to deploy Dual (over split beams) 4x4 Multiple-input Multiple-output (MIMO) in the High Band. The CCI Bi-Sector™ Array utilizes two RET controllers, with a separate RET controller for each of CCI's Patented Asymmetric 33° Shaped Beams.

The CCI Bi-Sector™ Wideband Array, allow operators to reduce antenna count and replace existing 65° networks, while increasing cell site capacity and LTE data throughput by minimizing overlap between CCI's Patented Asymmetric 33° Shaped Beams. This design approach lowers interference between sectors. All of this is achieved through a single panel array, producing significant CAPEX and OPEX cost savings for the operator.

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

Applications

- With CCI's Bi-Sector™ Wideband Antenna, wireless operators can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation cost
- Ideal Antenna Solution for structurally constrained sites, where data throughput, capacity and limited spectrum is a concern
- Quad (over split beams) 4x4 MIMO in High Band
- Ready for Network Standardization on 4.3-10 connectors

SPECIFICATIONS

Wideband Bi-Sector™ Antenna

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Electrical

Ports	8 × High Band Ports for 1695-2400 MHz			
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz
Gain[1]	17.2 dBi	17.8 dBi	18.5 dBi	19.0 dBi
Gain (Average)[2]	16.5 dBi	17.2 dBi	17.6 dBi	18.4 dBi
Azimuth Beamwidth (-3 dB)	39°	36°	34°	30°
Azimuth Peak Offset	31°	30°	29°	26°
Elevation Beamwidth (-3 dB)	9.9°	9.0°	8.6°	7.7°
Electrical Downtilt	0° to 10°	0° to 10°	0° to 10°	0° to 10°
Elevation Sidelobes (1st Upper)	< -17 dB	< -17 dB	< -17 dB	< -20 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio over ± 20°	> 33 dB	> 33 dB	> 33 dB	> 30 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 24 dB	> 23 dB	> 23 dB
Cross-Polar Discrimination (at 3 dB)[2]	15.7 dB	14.6 dB	13.1 dB	13.1 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)	≤ -150 dBc	≤ -150 dBc	≤ -150 dBc	≤ -150 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

[1]Peak gain across sub-bands.
[2]Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.

Mechanical

Dimensions (LxWxD)	37.4x24.0x6.2 in (949x610x158 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	191 lbs (851 N) @ 100 mph (161 kph)
Side Wind Load	56 lbs (249 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	7.5 ft^2 (0.7 m^2)
Weight*	45.2 lbs (20.5 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

SPECIFICATIONS

Wideband Bi-Sector™ Antenna

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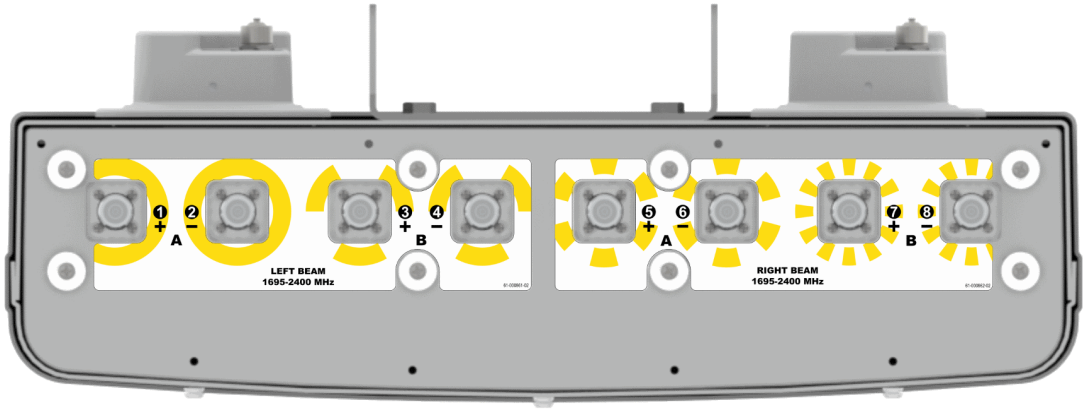
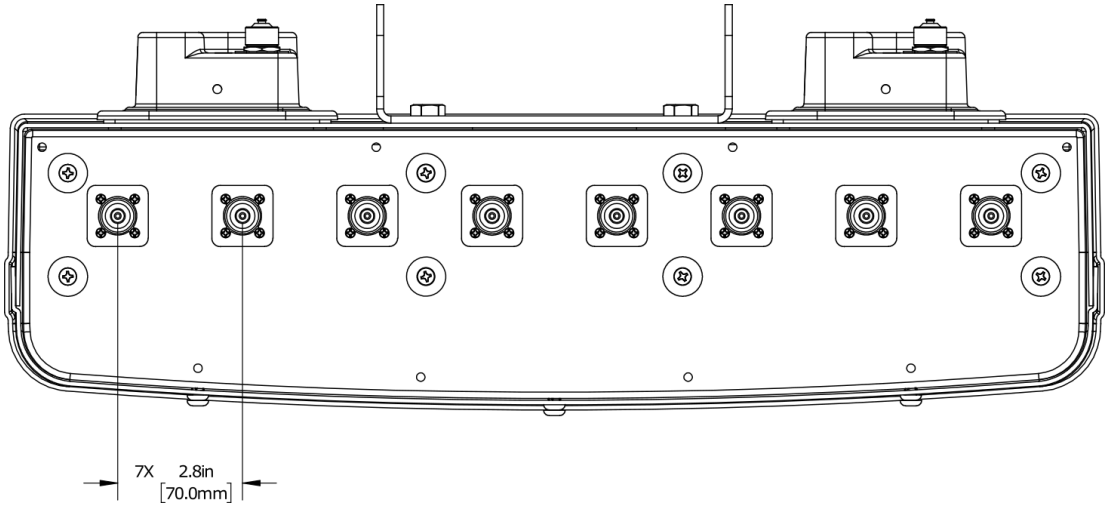
Mechanical

Bottom View



Connector Spacing

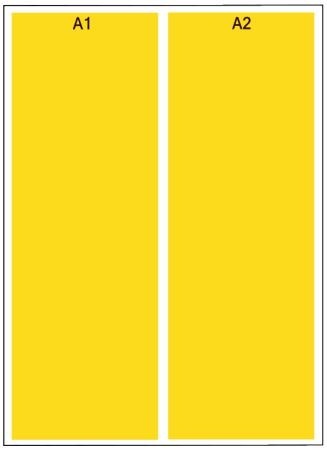


Mechanical

Element and RET Configuration

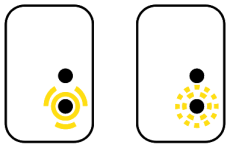
Array	Ports	Freq (MHz)	Beam	Ports controlled by common RET
A1	1, 2	1695-2400	Left A	1, 2, 3 & 4
A2	3, 4	1695-2400	Left B	
A1	5, 6	1695-2400	Right A	5, 6, 7 & 8
A2	7, 8	1695-2400	Right B	

Top of antenna
Viewed from rear



RET placement as view from rear of antenna

Top of antenna



1695-2400 TILT LA & LB

1695-2400 TILT RA & RB

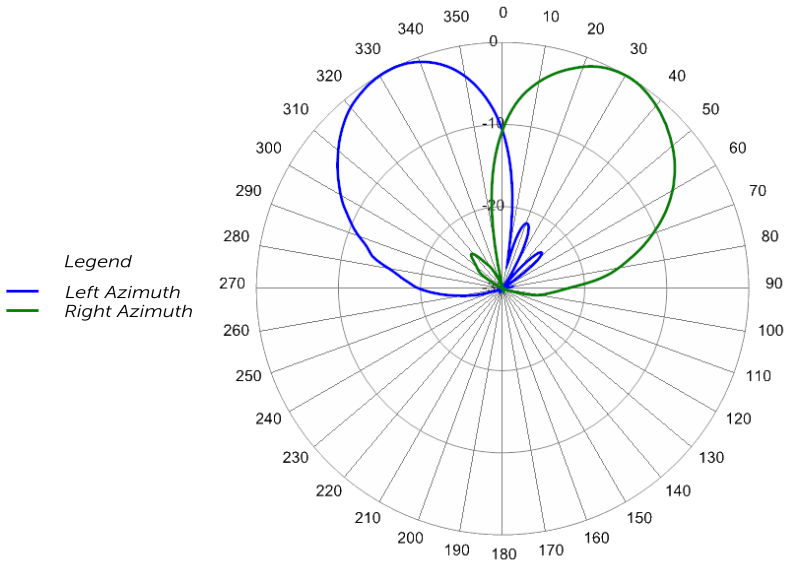
SPECIFICATIONS

Wideband Bi-Sector™ Antenna

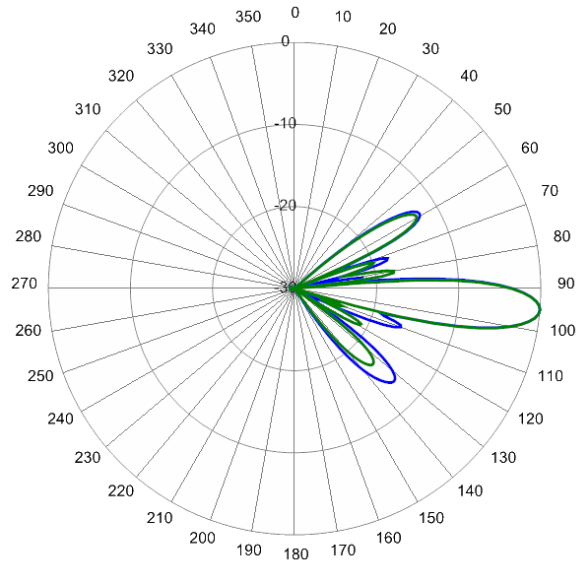
BSA33R-U3A

Typical Antenna Patterns

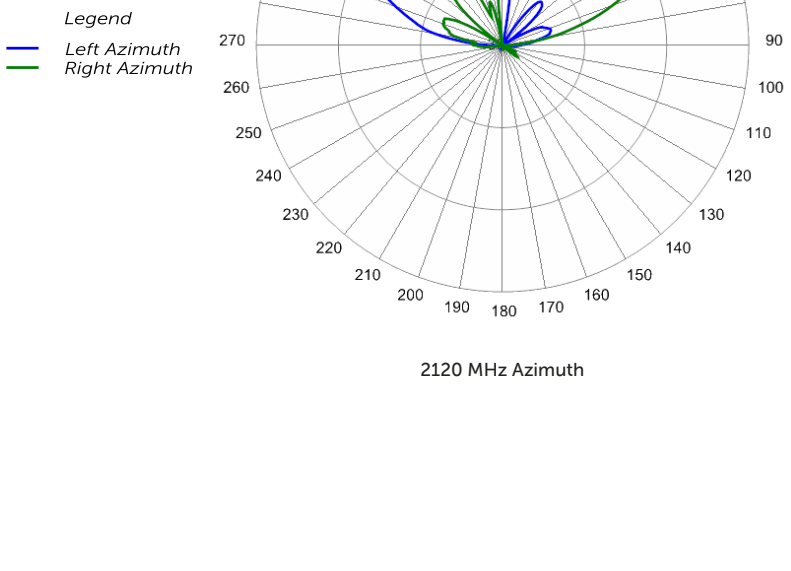
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



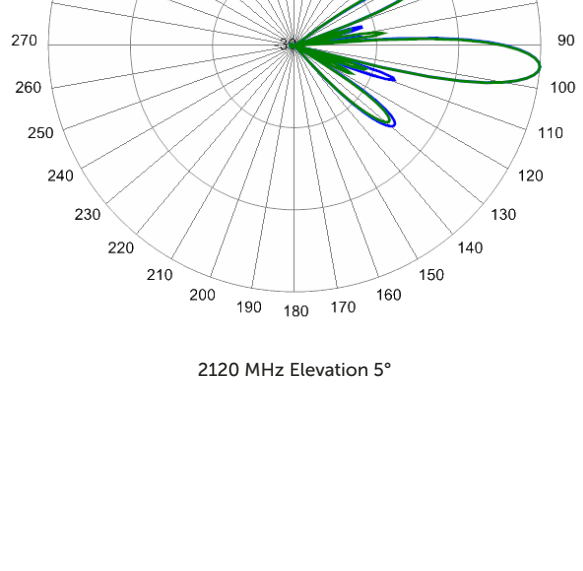
1900 MHz Azimuth



1900 MHz Elevation 5°



2120 MHz Azimuth

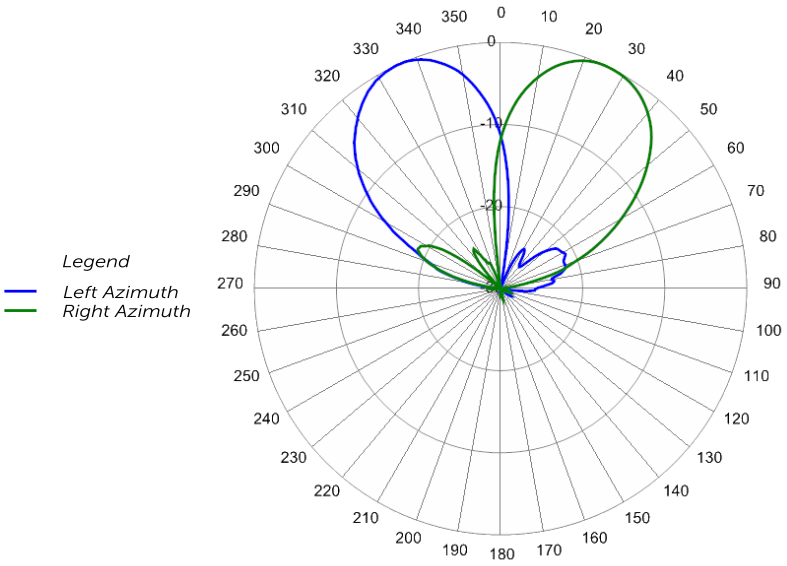


2120 MHz Elevation 5°

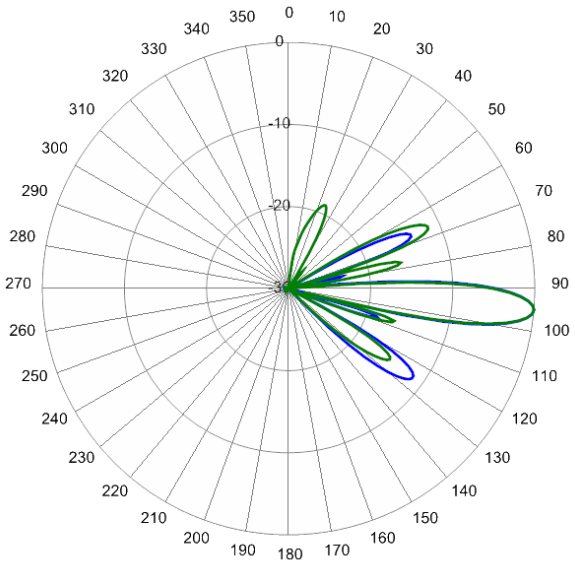
SPECIFICATIONS

Wideband Bi-Sector™ Antenna

BSA33R-U3A



2310 MHz Azimuth



2310 MHz Elevation 5°

ORDERING

Wideband Bi-Sector™ Antenna

BSA33R-U3A

Parts & Accessories

BSA33R-U3AA-K	Three foot (0.9 m), eight port, Bi-Sector™ antenna with left and right azimuth beams covering 1695-2400 MHz. with 4.3-10 female connectors, 2 factory installed RET actuators and MBK-10 mounting bracket
MBK-10	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
BSA-RET200	Remote electrical tilt actuator
CBK-AG-RRU-001	Two RET antenna to RRU AISG cable kit
CBK-RA-AG-RRU-001	Two RET antenna to RRU AISG right angle cable kit

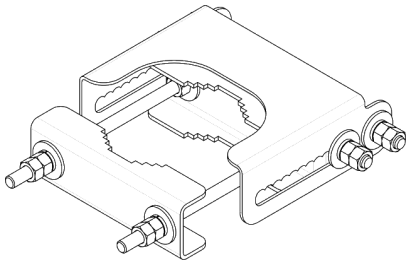
ACCESSORIES

Mounting Bracket Kit

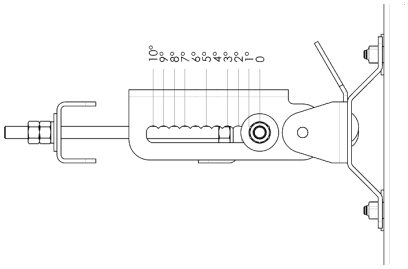
MBK-10

Mechanical

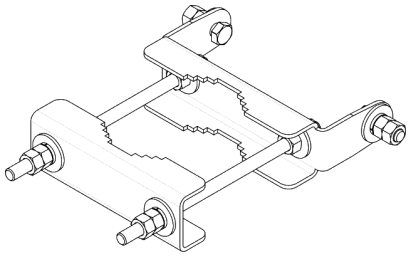
Weight	14.0 lbs (6.4 kg)
Hinge Pitch	23.6 in (600 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-10 Top Adjustable Bracket



MBK-10 Top Adjustable Bracket Side View



MBK-10 Bottom Fixed 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

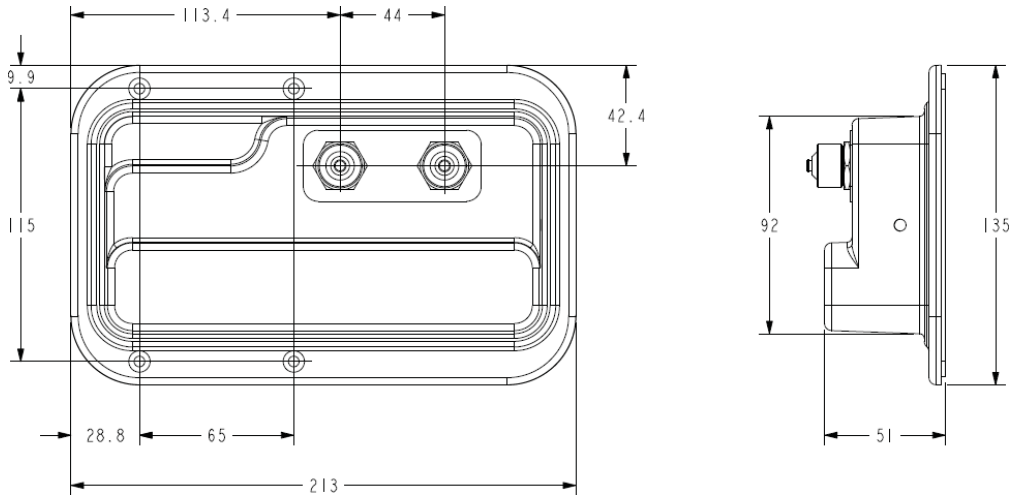
Electrical

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 x 8 pin Daisy Chain
Output Connector	Female 1 x 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=Acrylanitrile Butadiene Styrene



ACCESSORIES

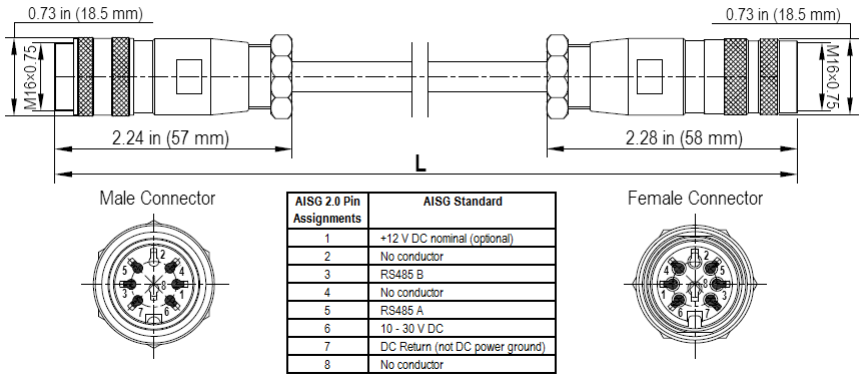
AISG Cable Kit

CBK-AG-RRU-001

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	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	27 in (686 mm)	120 in (3048 mm)
Weight	0.33 lbs (0.15 kg)	0.69 lbs (0.31 kg)
Cables per kit	1	2

Mechanical Specifications



AISG 2.0 Pin Assignments	AISG Standard
1	+12 V DC nominal (optional)
2	No conductor
3	RS485 B
4	No conductor
5	RS485 A
6	10 - 30 V DC
7	DC Return (not DC power ground)
8	No conductor

AISG-Male to AISG-Female Jumper Cable

ACCESSORIES

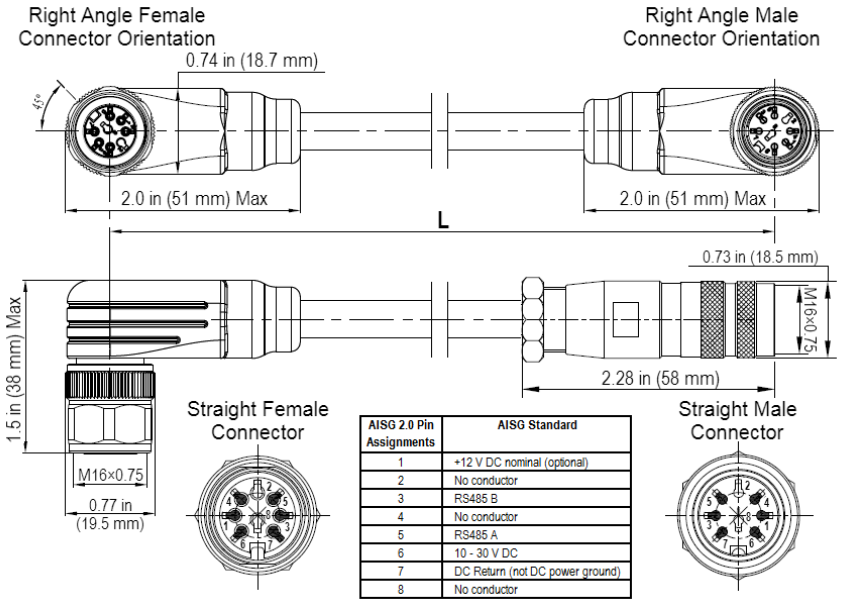
AISG Cable Kit

CBK-RA-AG-RRU-001

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-27	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	27 in (686 mm)	120 in (3048 mm)
Weight	0.20 lbs (0.09 kg)	0.77 lbs (0.35 kg)
Cables per kit	1	2

Mechanical Specifications



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1	+12 V DC nominal (optional)
2	No conductor
3	RS485 B
4	No conductor
5	RS485 A
6	10 - 30 V DC
7	DC Return (not DC power ground)
8	No conductor

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

STANDARDS & CERTIFICATIONS

Wideband Bi-Sector™ Antenna

BSA33R-U3A

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