

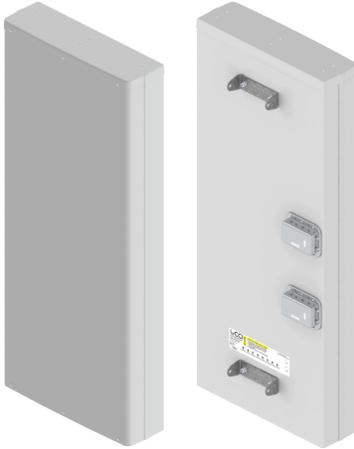


Antennas

DATA SHEET

Dual Band Bi-Sector™ Array

BSA33R-E5B



- Five foot (1.5 m), Ultra wideband, Eight port Bi-Sector™ Antenna. Deploying two high performing pairs of CCI's Patented Asymmetrical 33° Shaped Beams covering 1695-2690 MHz frequencies
- Eight wide high band ports (four ports per beam) covering 1695-2690 MHz in a single antenna
- Full Spectrum Compliance for 1695-2690 MHz
- 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, Type 17 integrated AISG 2.0 compliant Remote Electrical Tilt (RET)

Overview

This version of the CCI Bi-Sector™ Ultra Wideband Array is an eight port antenna, with eight wide High Band ports (four per beam) covering 1695-2690 MHz. The CCI Bi-Sector™ array uses a pair of CCI's High Performing Patented Asymmetric 33° Shaped Beams. 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
- Dual (over split beams) 4x4 MIMO in High Band
- Ready for Network Standardization on 4.3-10 connectors



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SPECIFICATIONS

Dual Band Bi-Sector™ Array

BSA33R-E5B

Electrical

Ports	8 x High Band Ports for 1695-2690 MHz				
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain	19.2 dBi	19.6 dBi	20.3 dBi	21.1 dBi	21.3 dBi
Azimuth Beamwidth (-3dB)	37°	35°	33°	29°	26°
Elevation Beamwidth (-3dB)	6.4°	6.0°	5.4°	4.6°	4.5°
Electrical Downtilt	0° to 10°	0° to 10°	0° to 10°	0° to 10°	0° to 10°
Elevation Sidelobes (1st Upper)	< -18 dB	< -19 dB	< -19 dB	< -18 dB	< -19 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 25 dB	> 25 dB	> 24 dB	> 24 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 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	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts	300 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

All specifications are subject to change without notice.

BASTA Electrical Specifications					
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain over all Tilts (dBi)	18.3	18.9	19.5	20.5	20.6
Gain over all Tilts Tolerance (dB)	0.7	0.3	0.6	0.4	0.7
Gain at Low-Tilt (dBi)	18.3	18.8	19.3	20.2	20.7
Gain at Mid-Tilt (dBi)	18.3	19.0	19.6	20.6	20.8
Gain at High-Tilt (dBi)	18.3	19.0	19.4	20.6	20.2
Azimuth Beamwidth Tolerance (°)	2.6	1.2	2.2	1.1	2.2
Elevation Beamwidth Tolerance (°)	0.3	0.3	0.6	0.2	0.1
Electrical Downtilt Deviation (°)	1.0	1.0	1.0	1.1	1.1
First Upper Sidelobe Suppression (dB)	15.4	16.9	17.6	15.7	16.3
Upper Sidelobe Suppression Peak to 20°(dB)	15.2	16.3	16.4	15.8	16.0
Front-to-Back Ratio over ±20° (dB)	29.4	32.7	33.6	35.0	34.2
Cross-polar Discrimination at 3 dB (dB)	14.1	14.3	12.9	11.1	11.5

* Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.
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SPECIFICATIONS

Dual Band Bi-Sector™ Array

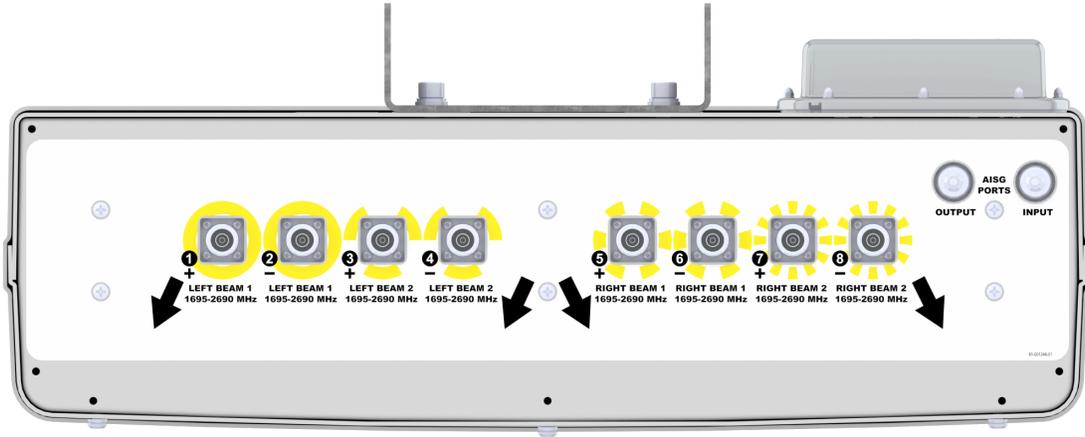
BSA33R-E5B

Mechanical

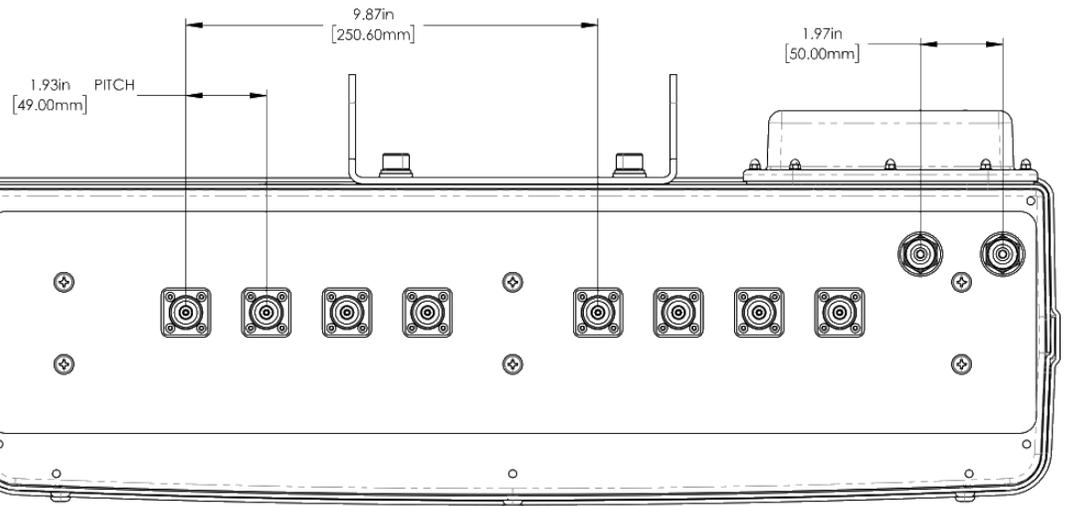
Dimensions (LxWxD)	60.7x26.0x7.6 in (1541x660x192 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	336 lbs (1496 N) @ 100 mph (161 kph)
Side Wind Load	117 lbs (520 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	13.1 ft ² (1.2 m ²)
Weight *	77.6 lbs (35.2 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

* Weight excludes mounting

Bottom View



Connector Spacing





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SPECIFICATIONS

Dual Band Bi-Sector™ Array

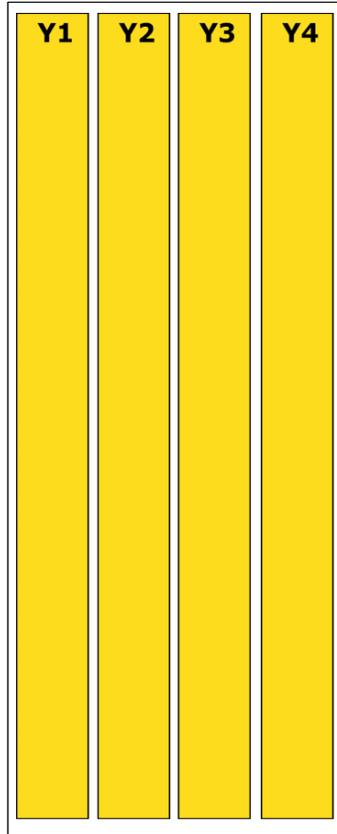
BSA33R-E5B

Mechanical

RET to Array Configuration

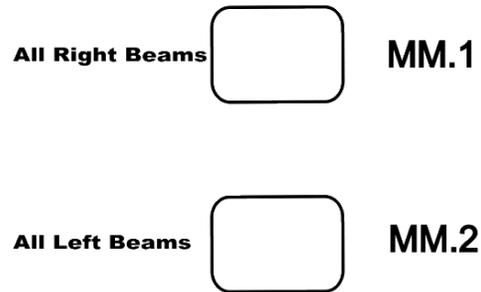
BSA33R-E5BA RET configuration (Type 17 Internal RET)

Arrays as viewed from rear of antenna



RET placement as view from rear of antenna

Top of antenna



Array	Ports	Freq (MHz)	Ports controlled by common RET	AISG RET UID
Y1	1, 2	1695-2690	1, 2, 3, 4	C1xxxxxxMM.2
Y3	3, 4	1695-2690	(Left Beams)	
Y2	5, 6	1695-2690	5, 6, 7, 8	C1xxxxxxMM.1
Y4	7, 8	1695-2690	(Right Beams)	



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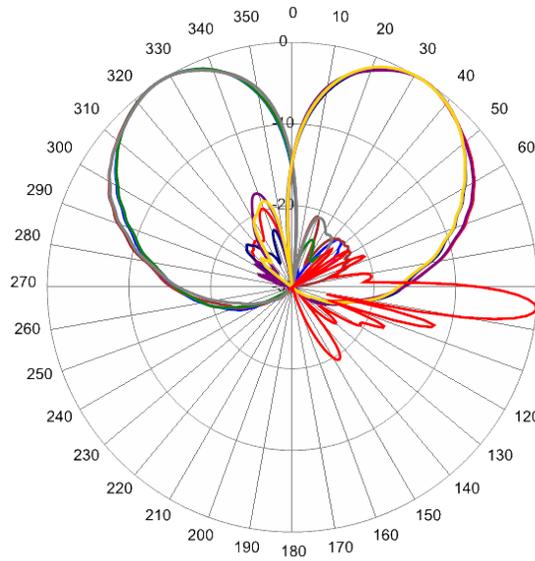
SPECIFICATIONS

Dual Band Bi-Sector™ Array

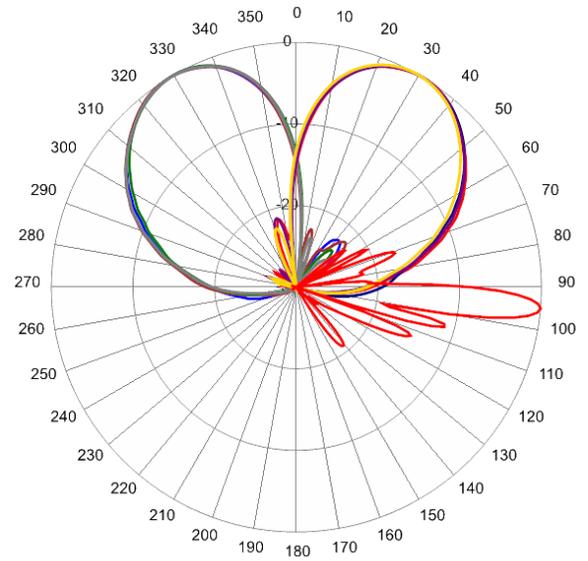
BSA33R-E5B

Typical Antenna Patterns

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

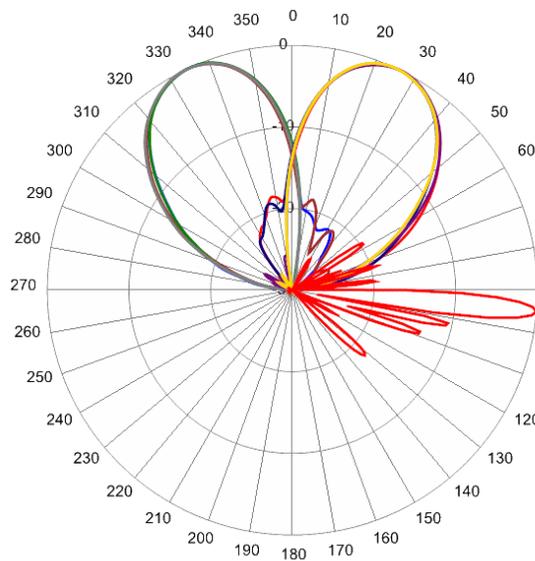


1770 MHz Azimuth with Elevation 5°

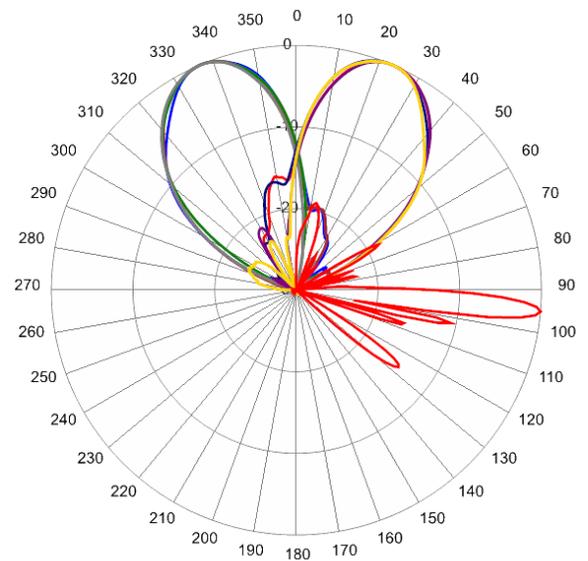


1920 MHz Azimuth with Elevation 5°

Typical Antenna Patterns



2355 MHz Azimuth with Elevation 5°



2650 MHz Azimuth with Elevation 5°



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ORDERING

Dual Band Bi-Sector™ Array

BSA33R-E5B

Parts & Accessories

- BSA33R-E5BA-K** Five foot (1.5 m) Bi-Sector™ Antenna Array with 4.3-10 female connectors, 2 factory installed BSA-RET400 RET actuators (Type 17 internal) and MBK-01 mounting brackets
- MBK-01** Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt
- MBK-16** Mounting bracket kit (top and bottom) with fixed 0° mechanical tilt
- BSA-RET400** Type 17 Internal Remote Electrical Tilt System (RET)
- AISGC-M-F-10FT** 10 Ft (3 m) Male/Female RRU to Antenna AISG cable



Antennas

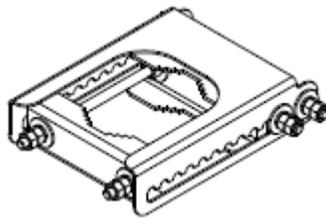
ACCESSORIES

Mounting Bracket Kit

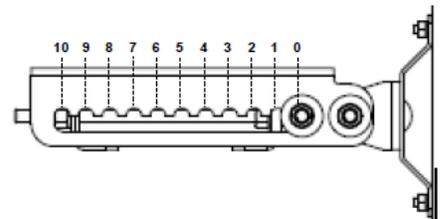
MBK-01

Mechanical

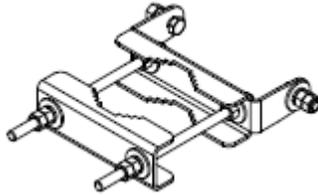
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket



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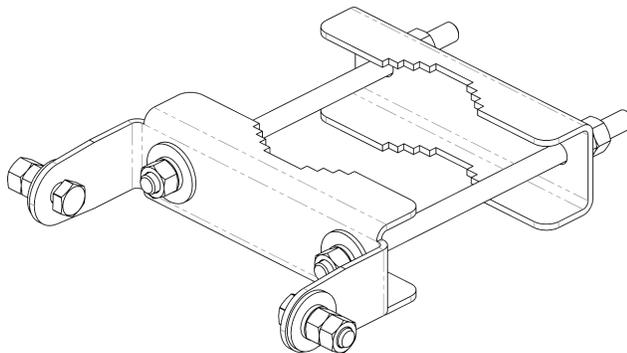
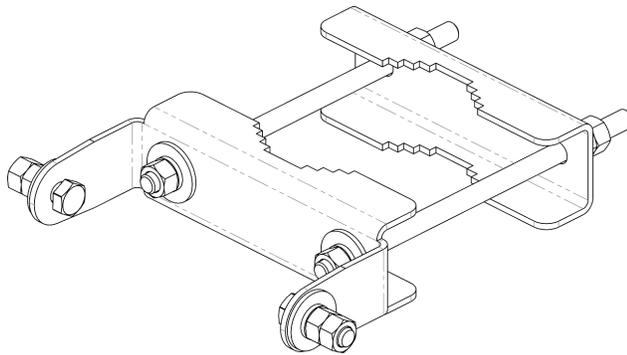
ACCESSORIES

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



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ACCESSORIES

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

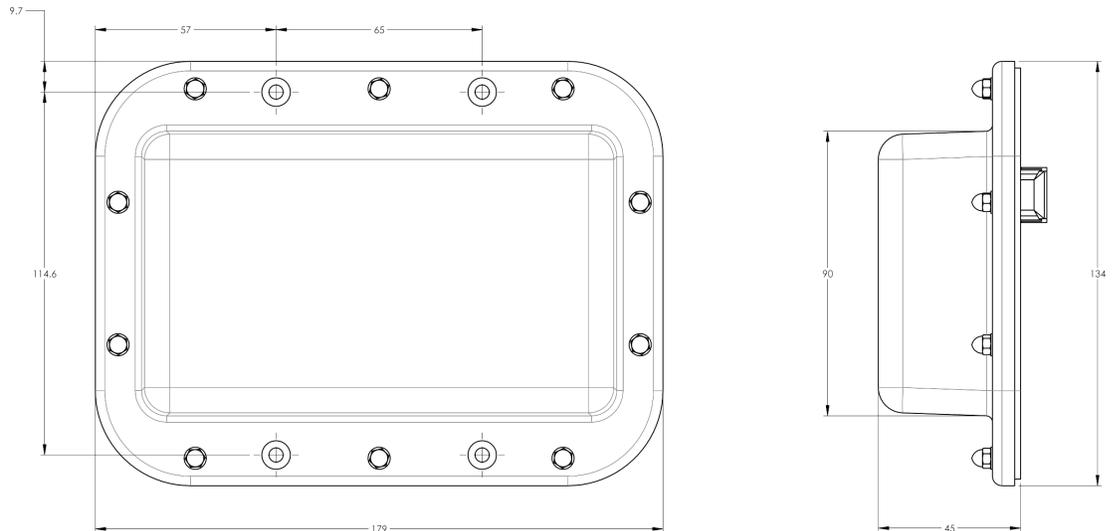
Electrical

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





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ACCESSORIES

AISG Cable

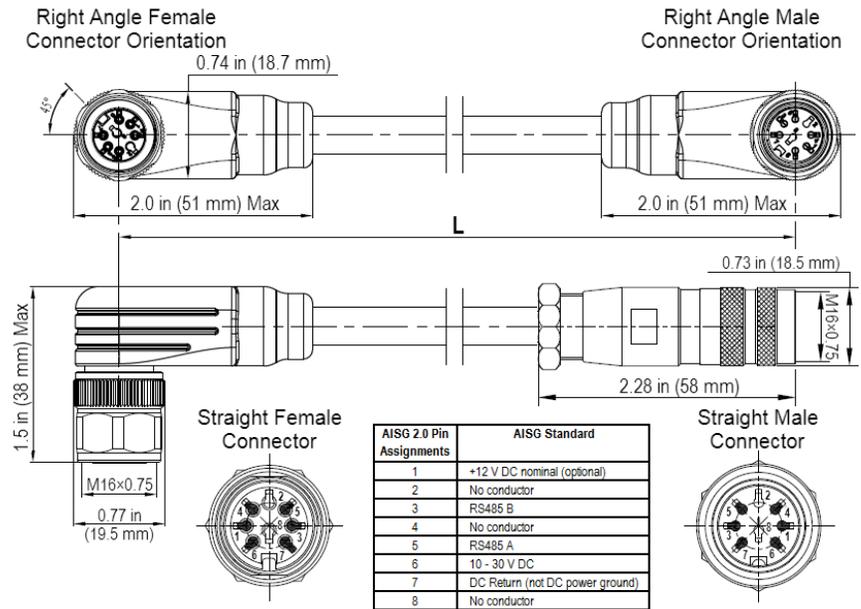
AISGC-M-F-xFT

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



Antennas

ACCESSORIES

AISG Cable

AISGC-M-F-xFT

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



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STANDARDS & CERTIFICATIONS

Dual Band Bi-Sector™ Array

BSA33R-E5B

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



CCI Communication Components Inc.
EXTENDING WIRELESS PERFORMANCE