DATA SHEET

High-Band Bi-Sector™ Array

BSA33R-U5C

- Five foot (1.5m), Dualband, sixteen port Bi-Sector™ Antenna. Deploying a pair of CCI's Patented Asymmetrical 33° Shaped Beams covering 1710-2400 MHz frequencies
- Sixteen frequency specific high band ports covering 1710-1880 MHz and 2300-2400 MHz (over a distributed diplexer)
- Full Spectrum Compliance for 1710-2400 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, essential for today's LTE Data Networks
- Exceeds minimum PIM performance requirements
- Equipped with 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™ Dualband Array is a sixteen port antenna, with sixteen frequency specific high band ports covering 1710-1880 MHz and 2300-2400 Mhz. The CCI Bi-Sector™ array uses a pair of CCI's Patented Asymmetric 33° Shaped Beams. The CCI Bi-Sector™ Array provides the capability to deploy Dual 4x4 Multiple-input Multiple-output (MIMO) in the high band array. The CCI Bi-Sector™ Array utilizes two Type 17 RET controllers, with a separate RET control for each pair of CCI's Patented Asymmetric Shaped Beams
The CCI Bi-Sector™ Dualband 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

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

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SPECIFICATIONS

High-Band Bi-Sector™ Array

BSA33R-U5C

Electrical

Ports	8 x High Band Ports for 1710-1880 MHz	8 x High Band Ports for 2300-2400 MHz
Frequency Range	1710-1880 MHz	2300-2400 MHz
Gain	18.9 dBi	21.0 dBi
Azimuth Beamwidth (-3dB)	37°	28°
Azimuth Peak Offset	32°	25°
Elevation Beamwidth (-3dB)	6.5°	4.6°
Electrical Downtilt	0° to 10°	0° to 10°
Elevation Sidelobes (1st Upper)	< -18 dB	< -19 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB
Front-to-Back Ratio over ±20°	> 35 dB	> 35 dB
Cross-Polar Discrimination (at Peak)	> 29 dB	> 26 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts
Polarization	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground

BASTA Electrical Specifications*		
Frequency Range	1710-1880 MHz	2300-2400 MHz
Gain over all Tilts (dBi)	18.1	20.2
Gain over all Tilts Tolerance (dB)	0.6	0.6
Gain at Low-tilt (dBi)	17.9	19.8
Gain at Mid-tilt (dBi)	18.1	20.5
Gain at High-tilt (dBi)	18.2	20.4
Azimuth Beamwidth Tolerance (°)	2.2	1.1
Elevation Beamwidth Tolerance (°)	0.3	0.2
Electrical Downtilt Deviation (°)	0.8	0.8
Front-to-Back Ratio over ± 20° (dB)	14.3	15.8
First Upper Sidelobe Suppression (dB)	14.1	15.3
Upper Sidelobe Suppression, peak to 20° (dB)	29.0	34.1

*Electrical specifications follow document "Recommendation on Dase Station Antenna Standards" (BASTA) V9.6
All Specifications are subject to change without notice.

Mechanical

Dimensions (LxWxD)	60.7x25.8x7.6 in (1542x655x192 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	334 lbs (1485 N) @ 100 mph (161 kph)
Side Wind Load	117 lbs (520 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	13.0 ft^2 (1.2 m^2)
Weight *	82.9 lbs (37.6 kg)
Connector	16 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

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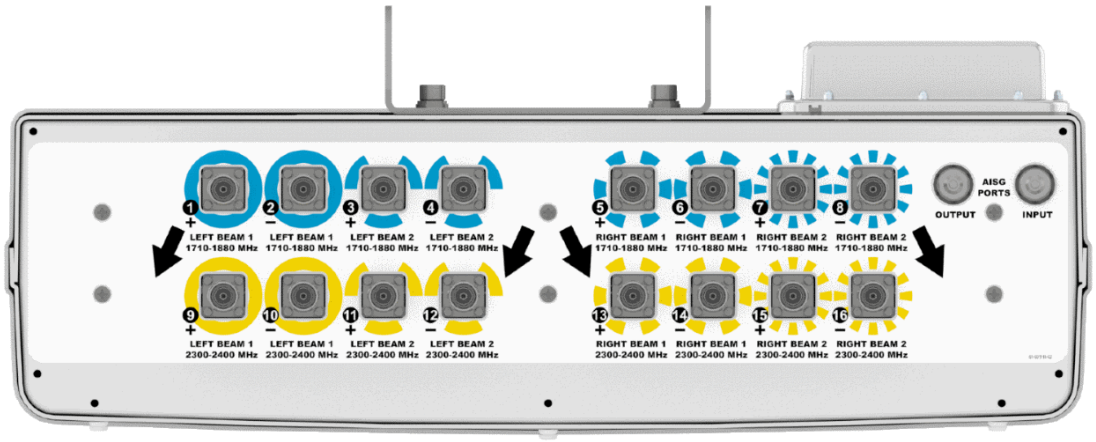
SPECIFICATIONS

High-Band Bi-Sector™ Array

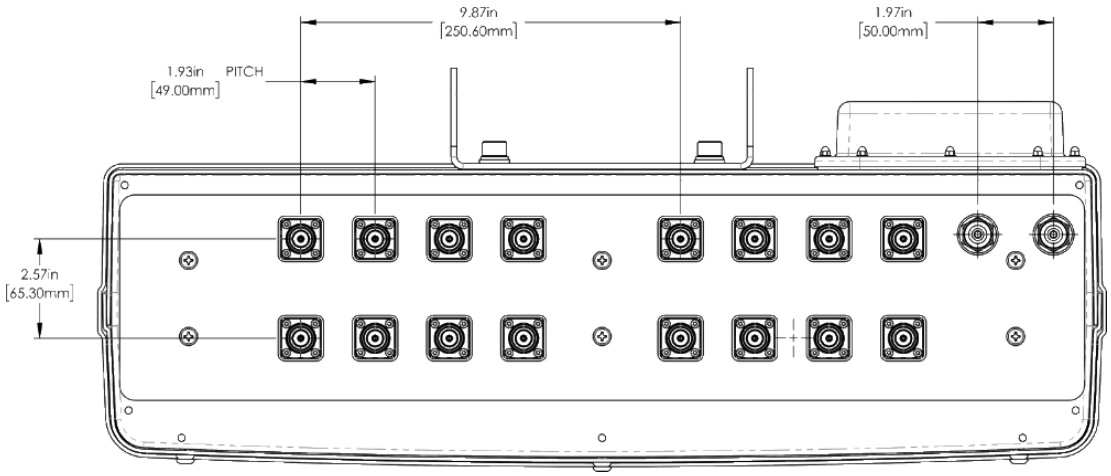
BSA33R-U5C

Mechanical

Bottom View



Connector Spacing



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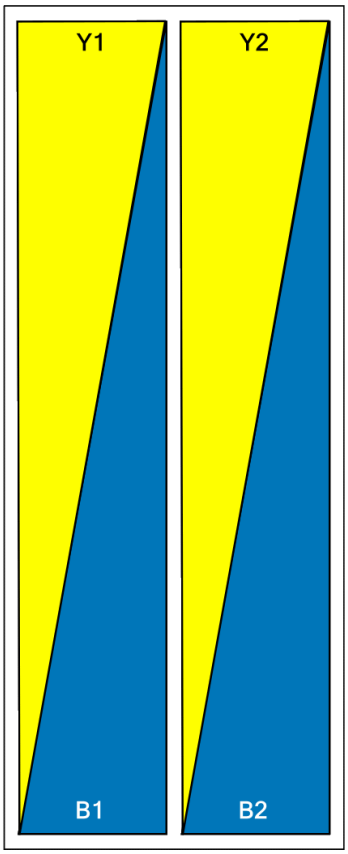
Mechanical

RET to Element Configuration

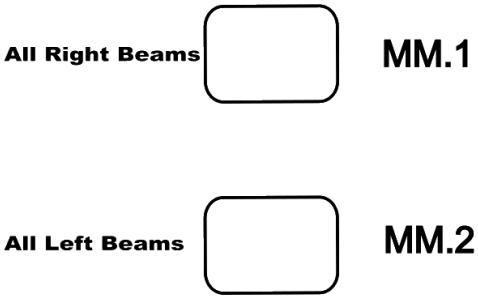
BSA33R-U5CA Element and RET configuration (Type 17 Internal RET)

Element 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
B1	1, 2	1710-1880	1, 2, 3, 4, 9,10,11,12 (Left Beams)	CIxxxxxxMM.2
B1	3, 4	1710-1880		
Y1	9, 10	2300-2400		
Y1	11, 12	2300-2400		
B2	5, 6	1710-1880	5, 6, 7, 8, 13,14,15,16 (Right Beams)	CIxxxxxxMM.1
B2	7, 8	1710-1880		
Y2	13, 14	2300-2400		
Y2	15, 16	2300-2400		

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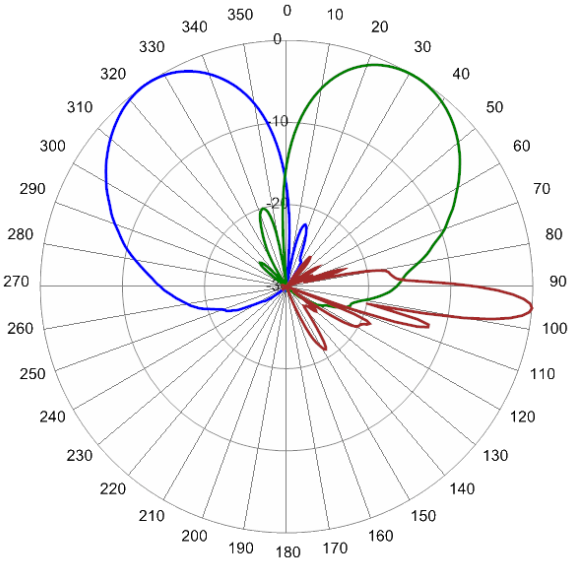
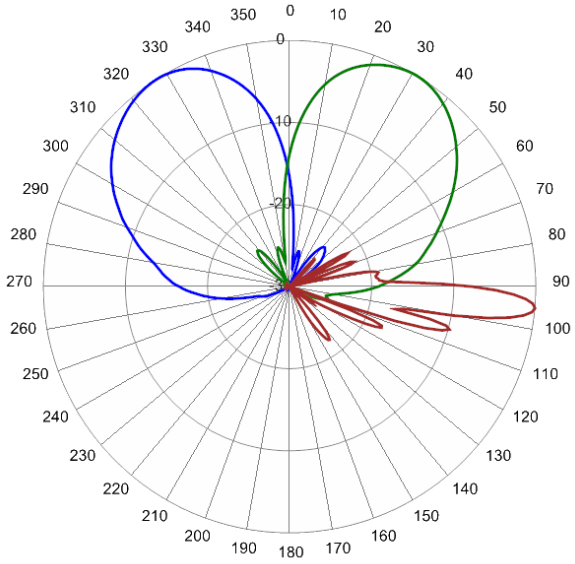
Typical Antenna Patterns

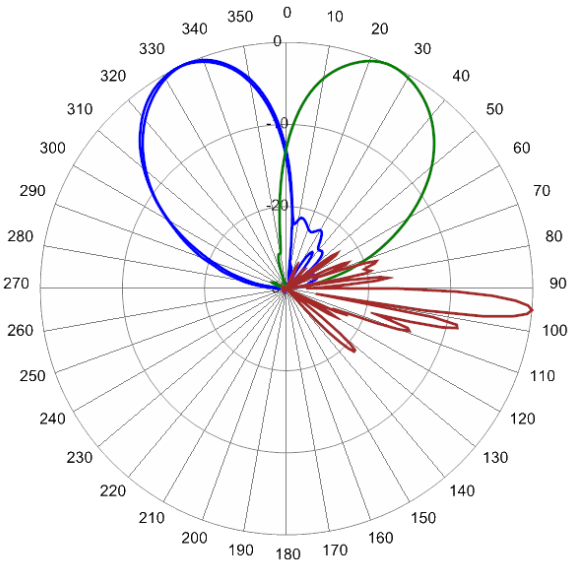
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



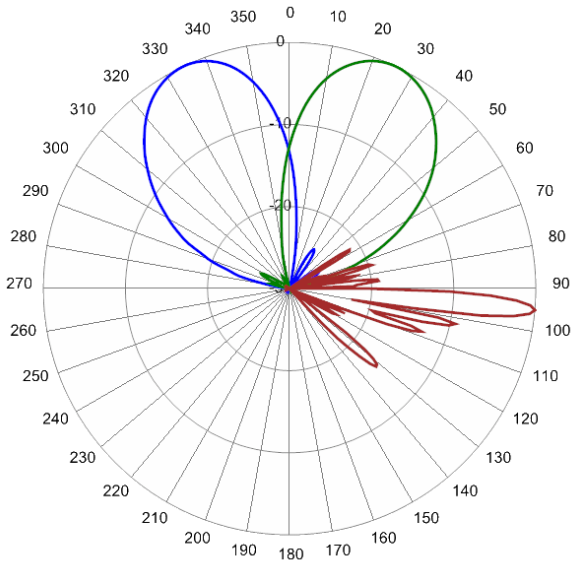
1755 MHz Azimuth / Elevation 5°



1850 MHz Azimuth / Elevation 5°



2310 MHz Azimuth / Elevation 5°



2380 MHz Azimuth / Elevation 5°

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ORDERING

High-Band Bi-Sector™ Array

BSA33R-U5C

Parts & Accessories

BSA33R-U5CA-K	Five foot (1.5 m) Bi-Sector™ Antenna Array with 4.3-10 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 adjustment
MBK-16	Mounting bracket kit (top and bottom) with fixed 0° mechanical tilt
BSA-RET400	Remote electrical tilt actuator Type 17 Internal
AISGC-M-F-10FT	10 Ft (3 m) Male/Female RRU to Antenna AISG cable

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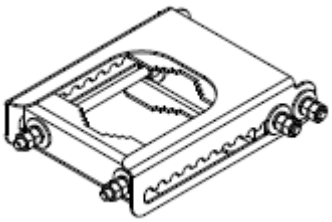
ACCESSORIES

Mounting Bracket Kit

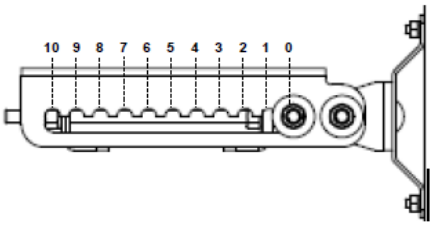
MBK-01

Mechanical

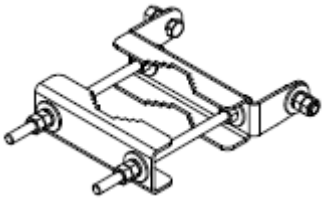
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

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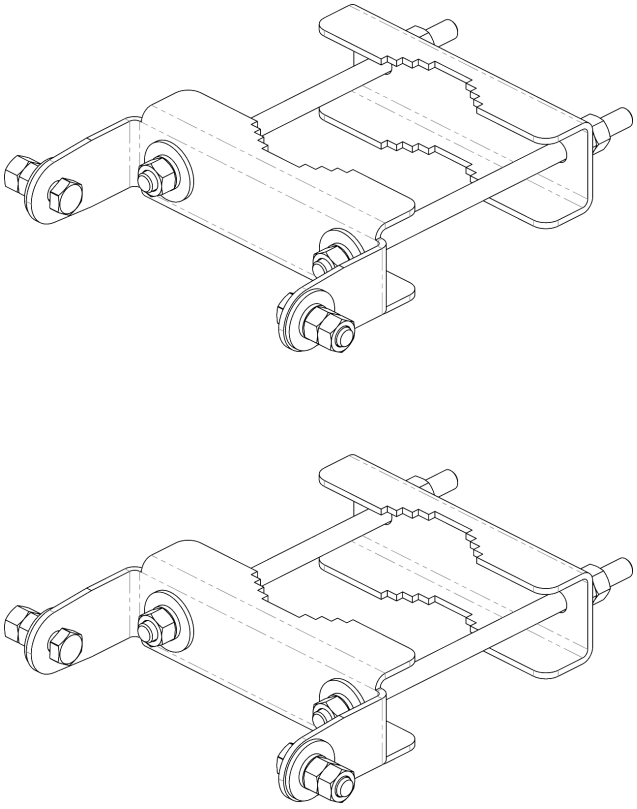
ACCESSORIES

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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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

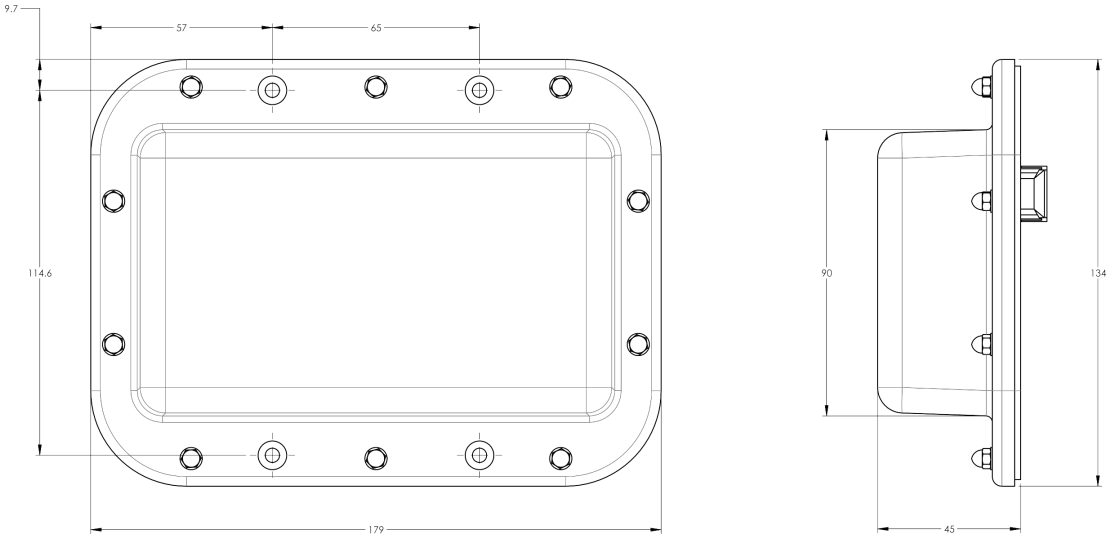
Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	100 mA at V_{in}=24 (500 mA MAX)
Current Consumption Idle	10 mA at V_{in}=24

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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AISG Cable

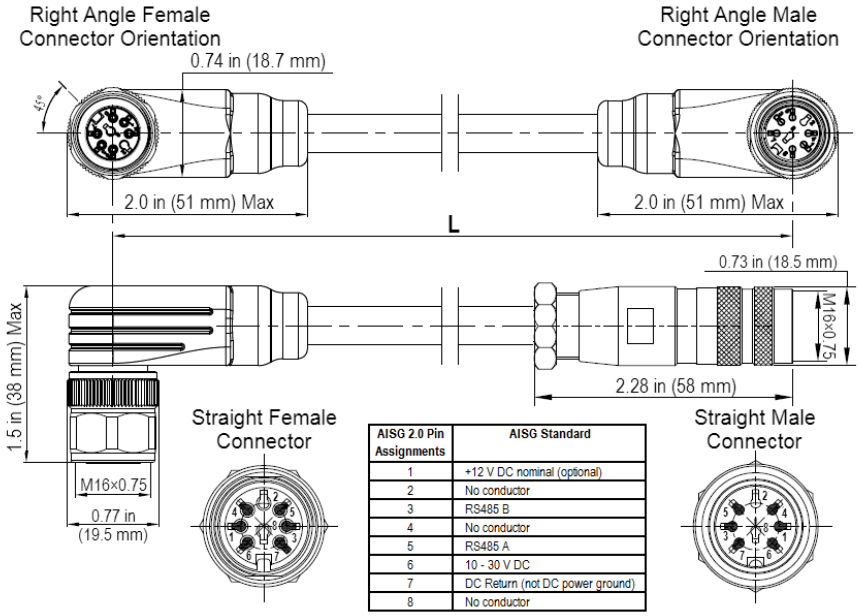
AISGC-M-F-xFT

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 ≈ 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 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

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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

High-Band Bi-Sector™ Array

BSA33R-U5C

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

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