



Antennas

DATA SHEET

Bi-Sector™ Antenna

BSA33R-U6A



- Six foot (1.9m), Singleband, eight port Bi-Sector™ Antenna. Deploying a pair of CCI's Patented Asymmetrical 33° Shaped Beams covering 1695-2400 MHz frequencies
- Eight wide high band ports covering 1695-2400 MHz
- Narrow Enclosure, 12.9" (327 mm) width. Narrowest Enclosure in the Industry for this type of Antenna
- Full Spectrum Compliance for 1695-2400 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
- Options to order with 4.3-10 connector or 7/16 DIN connectors
- Options to order with Variable Electrical Tilt (VET) or with Remote Electrical Tilt (RET)
- Equipped with Two Field Replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) or Two Variable Electrical Tilt knobs (VET)

Overview

This version of the CCI Bi-Sector™ Singleband Array is an eight port antenna, with eight wide high band ports covering 1695-2400 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 RET controllers, with a separate RET control for each pair of CCI's Patented Asymmetric Shaped Beams and is also available with Manual Variable Electrical Tilt option.

The CCI Bi-Sector™ Singleband 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



Antennas

SPECIFICATIONS

Bi-Sector™ Antenna

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Electrical

Ports	8 x High Band Ports for 1695-2400 MHz			
	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz
Gain ¹	17.4 dBi	17.9 dBi	18.6 dBi	19.0 dBi
Gain (Average) ²	16.6 dBi	17.3 dBi	17.7 dBi	18.6 dBi
Azimuth Beamwidth (-3dB)	37°	35°	33°	29°
Elevation Beamwidth (-3dB)	9.9°	9.1°	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	< -18 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio over ± 20°	> 32 dB	> 32 dB	> 32 dB	> 32 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 25 dB	> 25 dB	> 25 dB
InterBeam Co-Pol Isolation (Average)	> 27 dB	> 30 dB	> 29 dB	> 27 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

¹Peak gain across sub-bands.

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

Mechanical

Dimensions (LxWxD)	76.5x12.9x6.2 in (1942x327x158 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	237 lbs (1053 N) @ 100 mph (161 kph)
Side Wind Load	133 lbs (593 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	9.2 ft ² (0.9 m ²)
Weight*	45.0 lbs (20.4 kg)
RET System Weight	3.3 lbs (1.5 kg)
Connector	8 x 7-16 DIN long neck female or 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

**Weight excludes mounting and RET*



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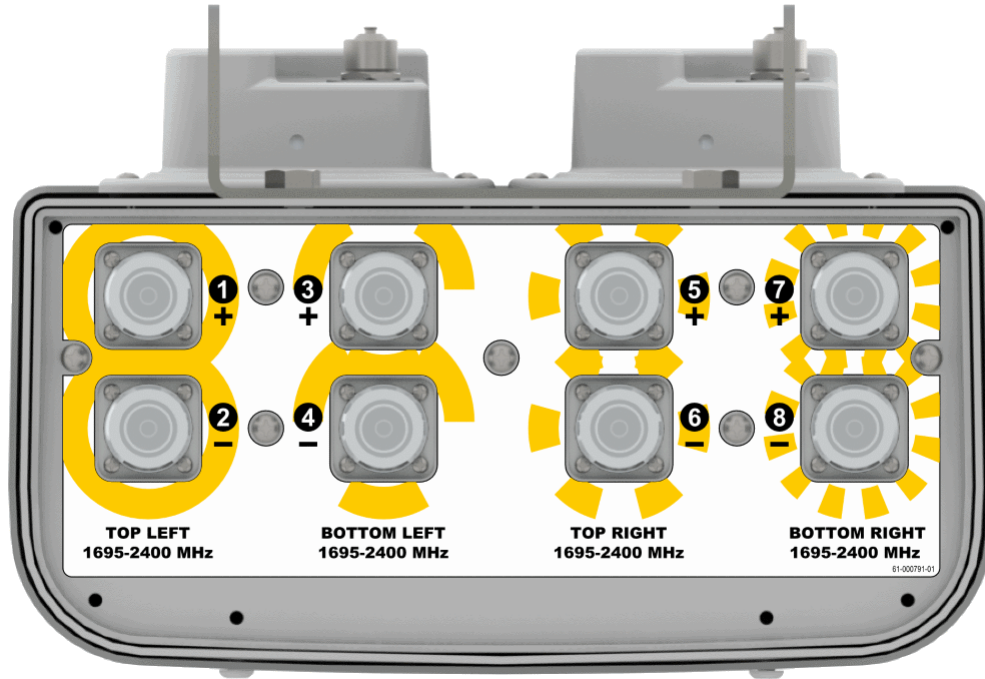
SPECIFICATIONS

Bi-Sector™ Antenna

BSA33R-U6A

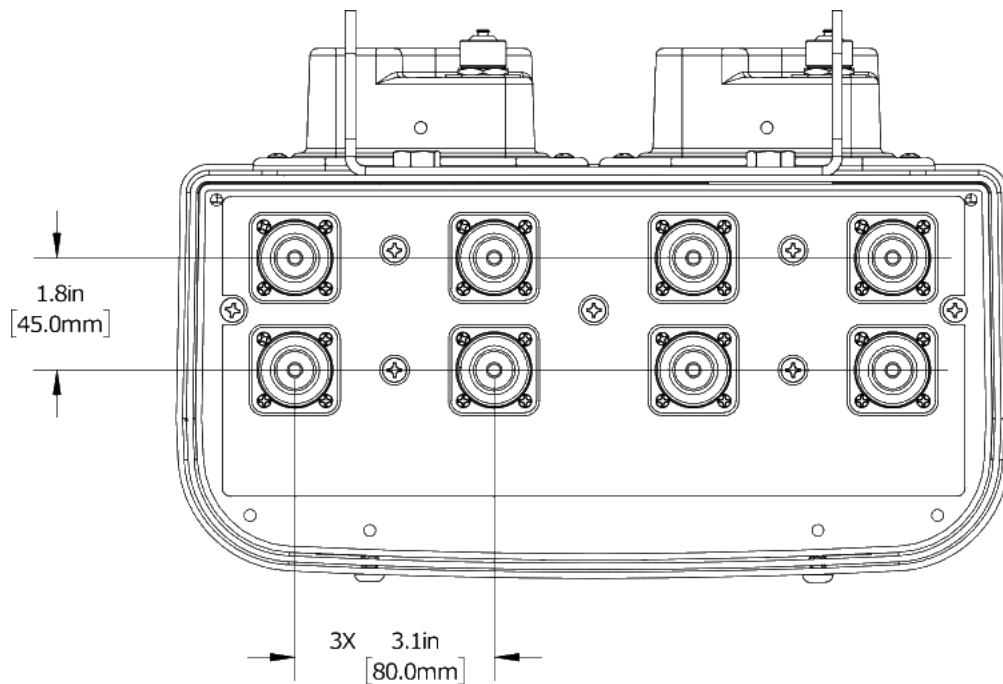
Bottom View

BSA33R-U6AA model shown



Connector Spacing

BSA33R-U6AA model shown





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Bi-Sector™ Antenna

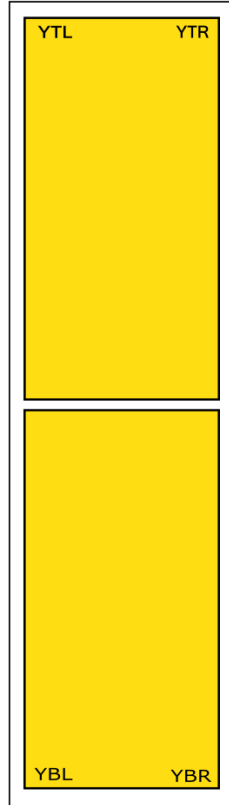
BSA33R-U6A

SPECIFICATIONS

Mechanical

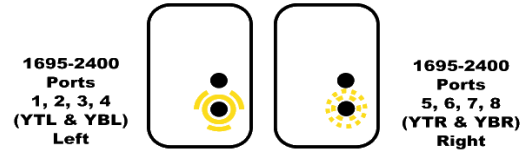
BSA33R-U6A Element and RET configuration (Type 1 External RET)

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
YTL	1, 2	1695-2400	1, 2, 3, 4
YBL	3, 4	1695-2400	
YTR	5, 6	1695-2400	5, 6, 7, 8
YBR	7, 8	1695-2400	



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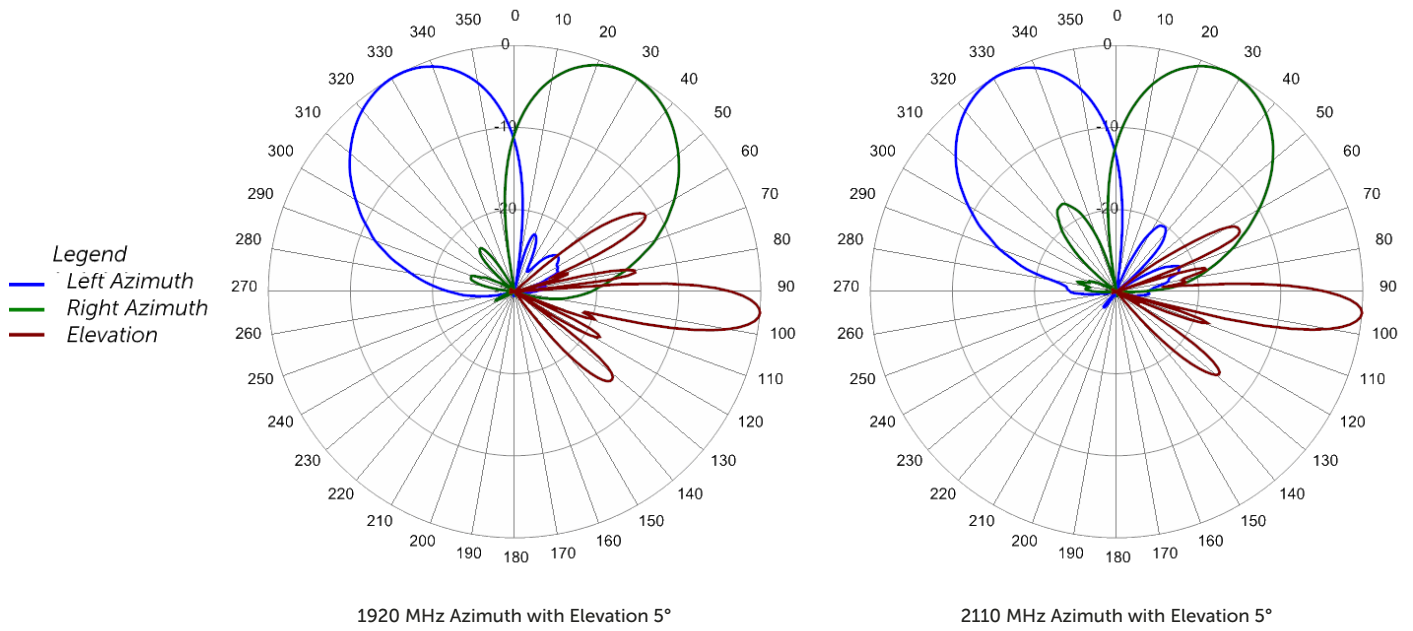
SPECIFICATIONS

Bi-Sector™ Antenna

BSA33R-U6A

Typical Antenna Patterns

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





Antennas

ORDERING

Bi-Sector™ Antenna

BSA33R-U6A

Parts & Accessories

BSA33R-U6AA-K	Six foot (1.9 m) Bi-Sector™ Antenna Array with 7-16 DIN long neck female connectors, 2 factory installed external BSA-RET200 RET actuators (Type 1 External) and MBK-01 mounting brackets
BSA33R-U6AB-K	Six foot (1.9 m) Bi-Sector™ Antenna Array with 4.3-10 female connectors, 2 factory installed external BSA-RET200 RET actuators (Type 1 External) and MBK-01 mounting brackets
BSA33V-U6AA-K	Six foot (1.9 m) Bi-Sector™ Antenna Array with 7-16 DIN long neck female connectors, 2 factory installed external manual electrical tilt control knobs and MBK-01 mounting brackets
BSA33V-U6AB-K	Six foot (1.9 m) Bi-Sector™ Antenna Array with 4.3-10 female connectors, 2 factory installed external manual electrical tilt control knobs and MBK-01 mounting brackets
MBK-01	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
BSA-RET200	Type 1 remote electrical tilt actuator
QPA-CBK-AG-RRU	Two RET Bi-Sector antenna to RRU AISG cable kit
QPA-CBK-RA-AG-RRU	Two RET Bi-Sector antenna to RRU AISG right angle cable kit



Antennas

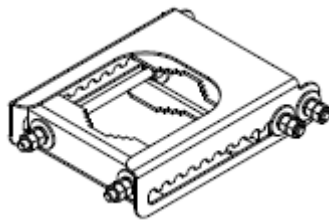
ACCESSORIES

Mounting Bracket Kit

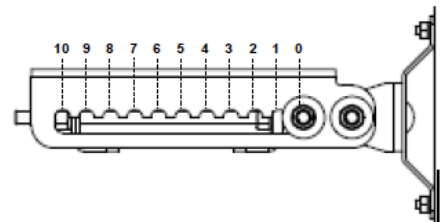
MBK-01

Mechanical

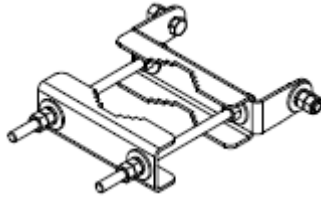
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket



Antennas

ACCESSORIES

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

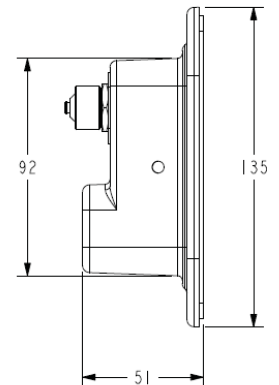
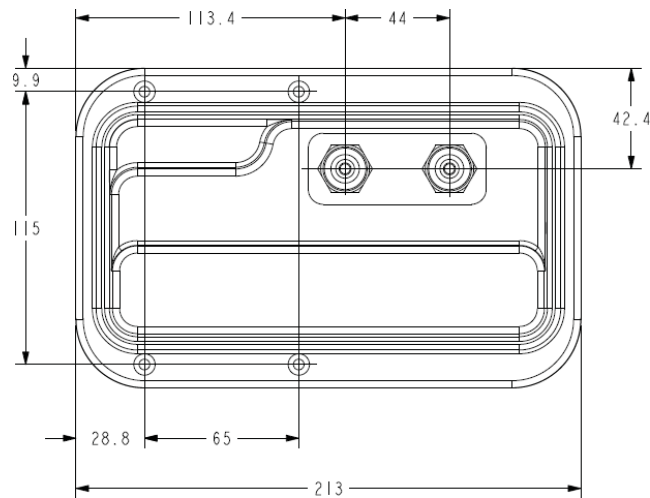
Electrical

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





Antennas

ACCESSORIES

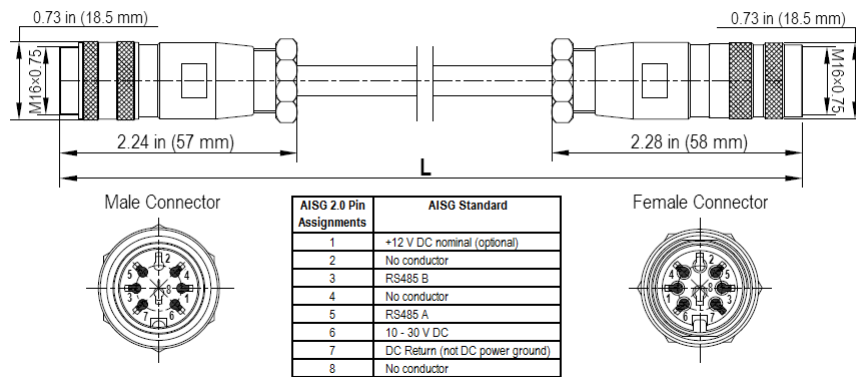
Quad Port AISG Cable Kit

QPA-CBK-AG-RRU

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-M-F-18	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	18-20 in (457-508)	120 in (3048 mm)
Weight	0.27 lbs (0.12 kg)	0.69 lbs (0.31 kg)
Cables per kit	1	2

Mechanical Specifications



AISG-Male to AISG-Female Jumper Cable



Antennas

ACCESSORIES

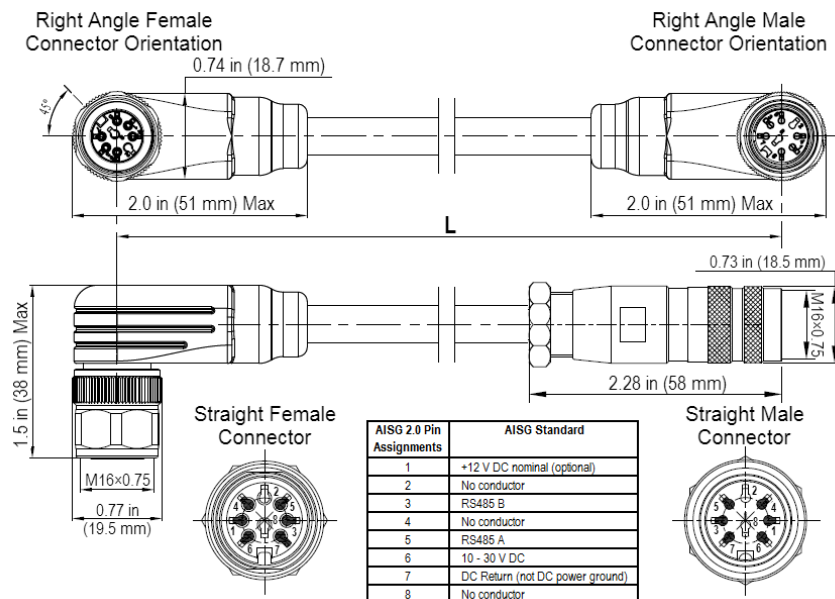
Quad Port AISG Cable Kit

QPA-CBK-RA-AG-RRU

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-20	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	20 in (508 mm)	120 in (3048 mm)
Weight	0.23 lbs (0.10 kg)	0.77 lbs (0.35 kg)
Cables per kit	1	2

Mechanical Specifications



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



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STANDARDS & CERTIFICATIONS

Bi-Sector™ Antenna

BSA33R-U6A

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

