

- Four foot (1.2 m), multi-band, six port antenna with a 33° azimuth beamwidth optimized for covering 817-869 MHz and 1850-1995 MHz / 2496-2690 MHz frequencies
- Four high band ports covering Band 25 and Band 41 and two wide low band ports covering Band 26 in a single antenna
- Narrow Enclosure, 18.2" (463mm) width, compared to industry standard width of 23" (586mm) for similar specified products
- Full Spectrum Compliance for Band 26, Band 25 and Band 41
- 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
- Two field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET)
- Kit Options include DPO-7126Y-0-Q1, CCI's High Performance, Low Loss, 8-4 Diplexer for Band 25 and Band 41
- Ideal solution for difficult Band 41 8T/8R deployments, where structural, leasing and zoning are a concern.

### Overview

The CCI HexPort multiband array is a six port antenna, with four high band ports covering Band 25 and Band 41 and two low band ports covering Band 26. The CCI HexPort provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band and 2x2 Multiple-input Multiple-output in the low band. The CCI HexPort allows separate tilt control between the low band ports and high band ports.

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

### Applications

- 4x4 MIMO for the high band and 2x2 MIMO for the low band
- Supports 8T/8R configurations on Band 41, with CCI's High Performance, Low Loss Diplexer for Band 25 and Band 41
- With CCI's multi-band antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs



HexPort Multi-Band Antenna

HPA33R-CS4A

SPECIFICATIONS

Electrical

Ports	2x Low Band Ports for 817-869 MHz	4 x High Band Ports for 1850-1995 MHz and 2496-2690 MHz	
Frequency Range	817-869 MHz	1850-1995 MHz	2496-2690 MHz
Gain (Peak)	16.2 dBi	18.4 dBi	17.6 dBi
Gain (Average)	15.8 dBi	17.6 dBi	16.5 dBi
Azimuth Beamwidth (-3dB)	46°	37°	33°
Elevation Beamwidth (-3dB)	16.6°	9.1°	7.7°
Electrical Downtilt	0° to 14°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -20 dB	< -16 dB	< -18 dB
Elevation Sidelobes* (1st Upper)	- 20.0 dB	- 15.8 dB	-17.4 dB
Front-to-Back Ratio* over ± 15°	27.7 dB	35.6 dB	34.4 dB
Cross-Polar Discrimination (at Peak)	> 30 dB	> 30 dB	> 19 dB
Cross-Polar Discrimination (at 3 dB)	> 27 dB	> 25 dB	> 18 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	300 watts	300 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground

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

Mechanical

Dimensions (LxWxD)	47.5x18.2x8.5 in (1208x463x216 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	186 lbs (826 N) @ 100 mph (161 kph)
Side Wind Load	96 lbs (427 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	7.3 ft <sup>2</sup> (0.7 m <sup>2</sup> )
Weight *	37.7 lbs (17.1 kg)
RET System Weight	3.3 lbs (1.5 kg)
Connector	6 x 7-16 DIN female long neck
Mounting Pole	2 to 5 in (5 to 12 cm)

\* Weight excludes mounting and RET

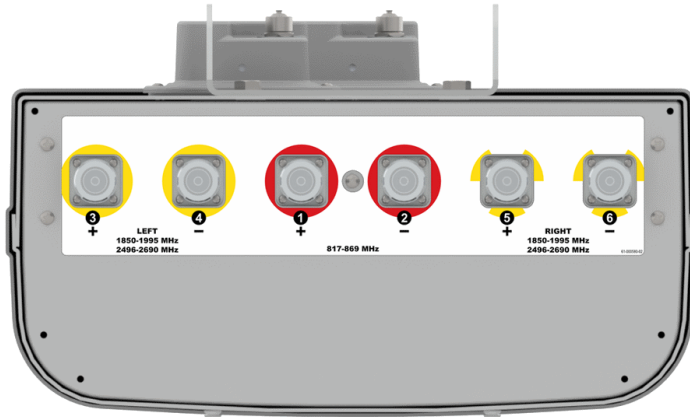


HexPort Multi-Band Antenna

HPA33R-CS4A

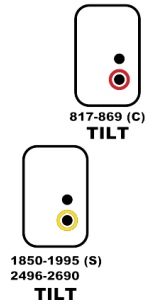
SPECIFICATIONS

Bottom View



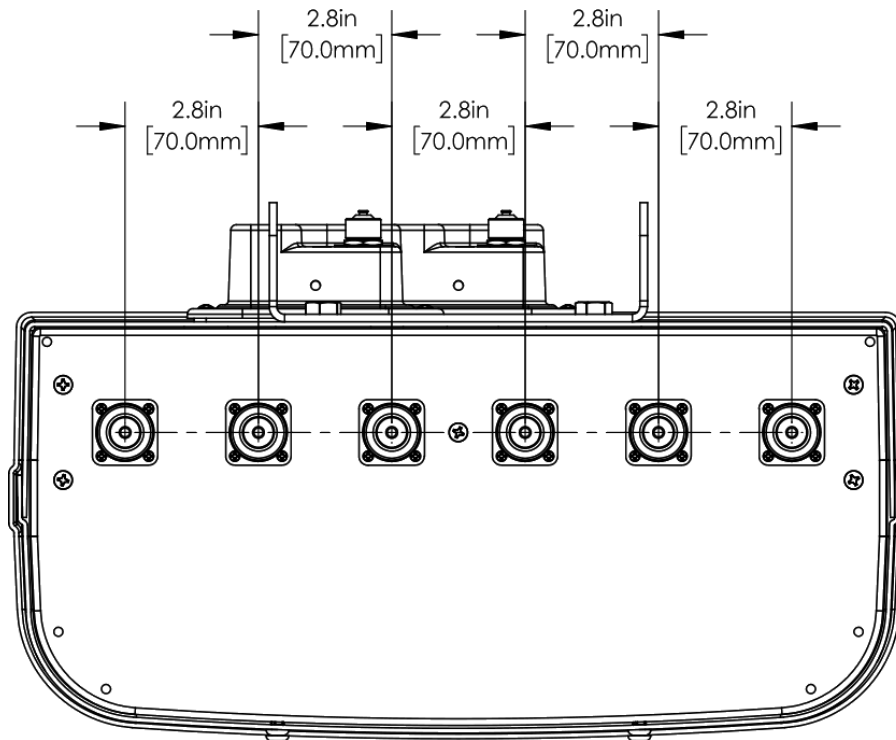
RET Connection Diagram

CONNECT RET ACTUATORS AS SHOWN BELOW



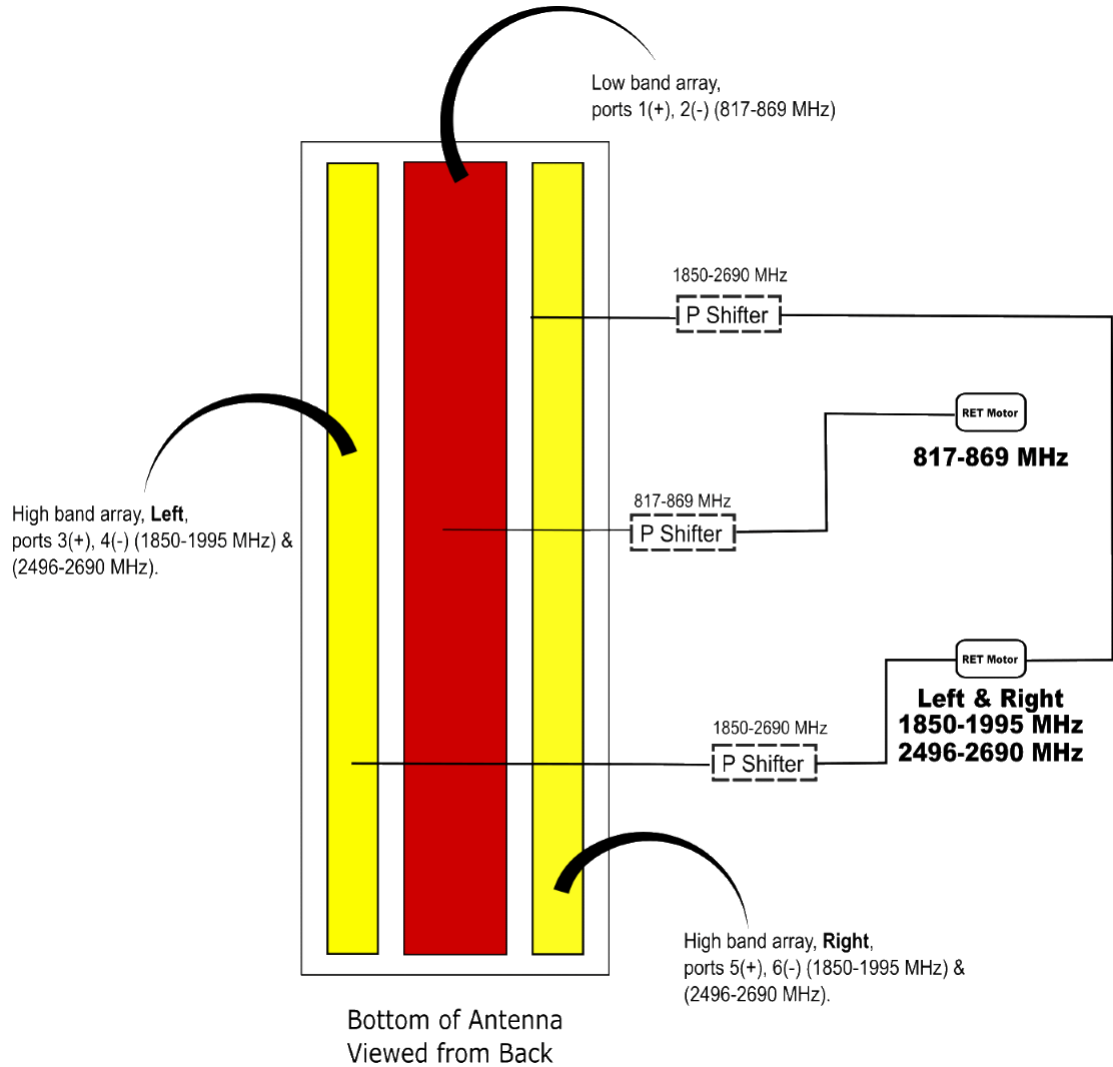
Mechanical

Connector Spacing



Mechanical

HPA33R-CS6AA Element and RET configuration





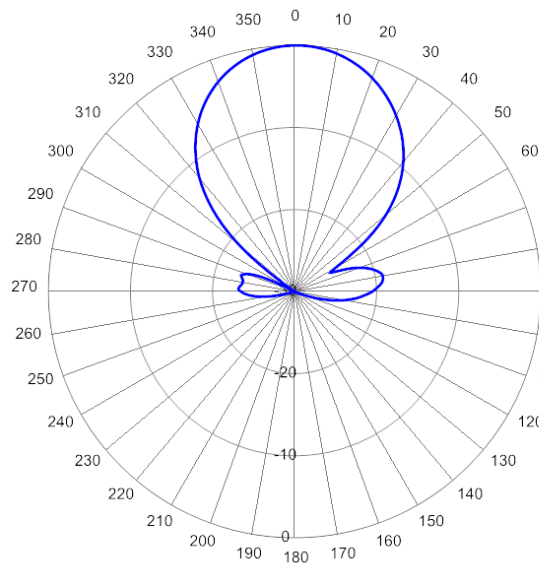
SPECIFICATIONS

HexPort Multi-Band Antenna

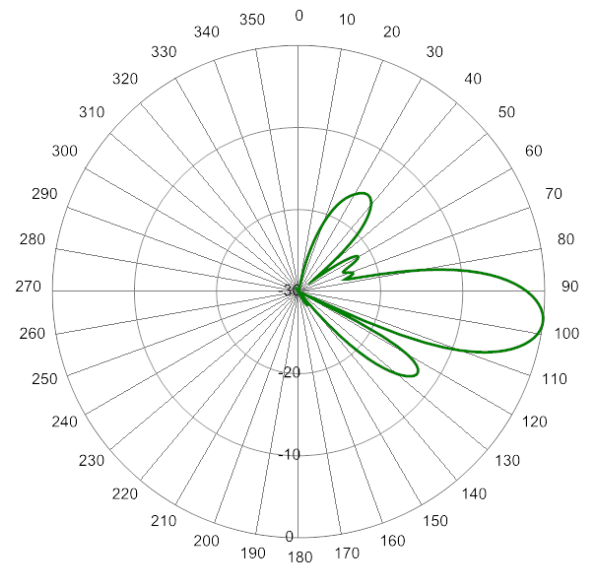
HPA33R-CS4A

Typical Antenna Patterns

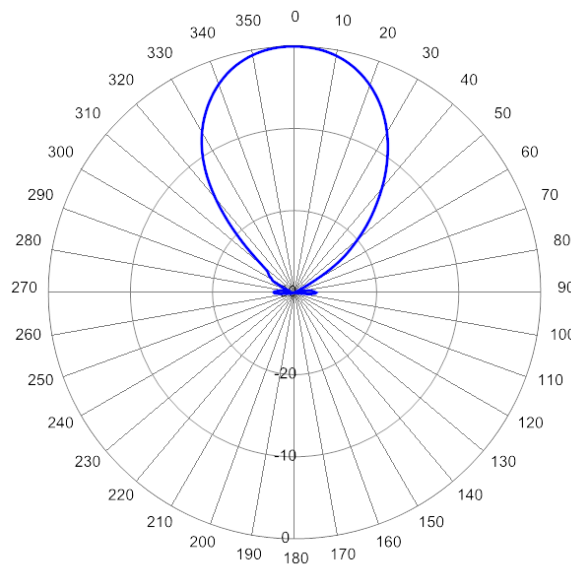
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



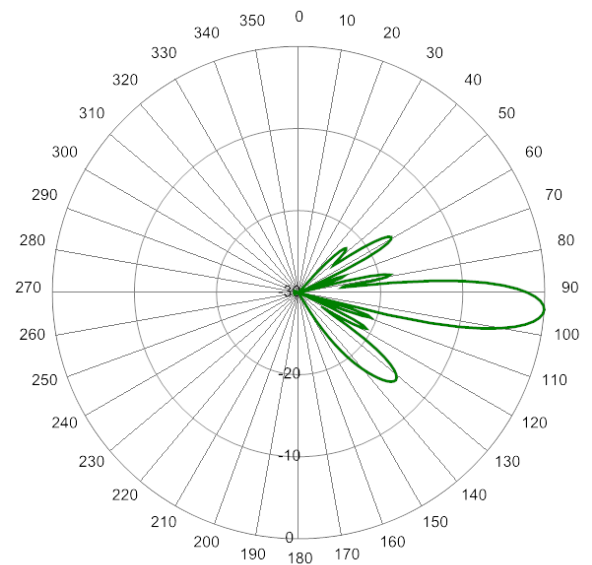
860 MHz Azimuth



860 MHz Elevation 7°



1920 MHz Azimuth

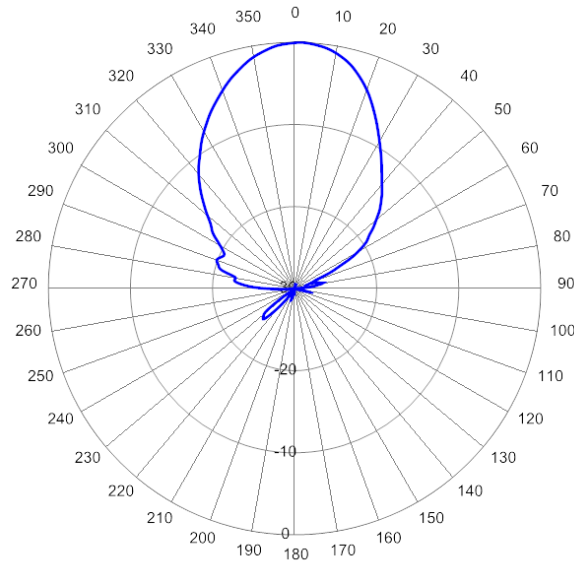


1920 MHz Elevation 4°

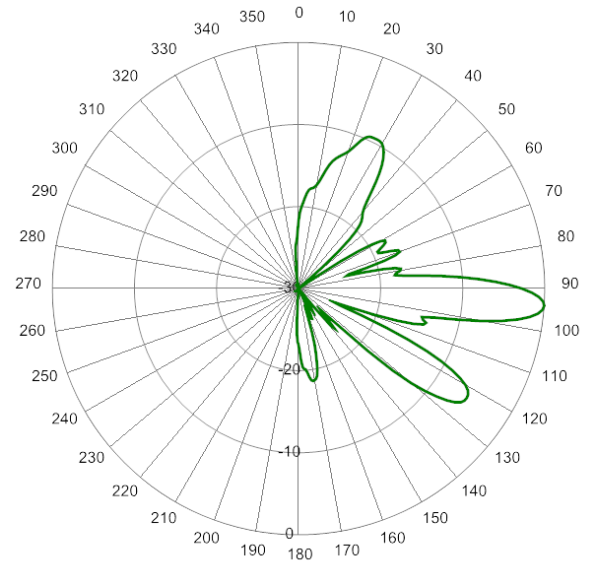


HexPort Multi-Band Antenna

HPA33R-CS4A



2560 MHz Azimuth



2560 MHz Elevation 4°



## HexPort Multi-Band Antenna

HPA33R-CS4A

### Parts & Accessories

<b>HPA33R-CS4AA</b>	Four foot (1.2 m) antenna with 33° azimuth beamwidth, 7-16 DIN connectors and 2 factory installed BSA-RET200 RET actuators
<b>HPA33R-CS4AA-K</b>	Four foot (1.2 m) antenna with 33° azimuth beamwidth, 7-16 DIN connectors, 2 factory installed BSA-RET200 RET actuators and MBK-02 mounting kit.
<b>HPA33R-CS4AA-K1</b>	Four foot (1.2 m) antenna with 33° azimuth beamwidth, 7-16 DIN connectors, 2 factory installed BSA-RET200 RET actuators and MBK-02 mounting kit. Supplied with Diplexer DPO-7126Y-0-Q1 (8-4 Diplexer)
<b>MBK-02</b>	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
<b>BSA-RET200</b>	Remote electrical tilt actuator
<b>DPO-7126Y-0x1</b>	DPO-7126Y-0-Q1 (8-4 Diplexer)
<b>QPA-CBK-AG-RRU</b>	Hexport antenna with 2 RET's to RRU AISG cable kit
<b>QPA-CBK-RA-AG-RRU</b>	Hexport antenna with 2 RET's to RRU AISG right angle cable kit

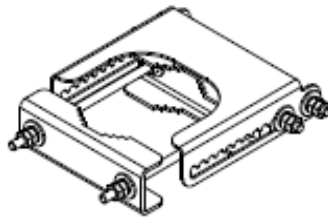


Mounting Bracket Kit

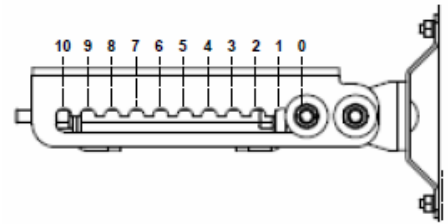
MBK-02

Mechanical

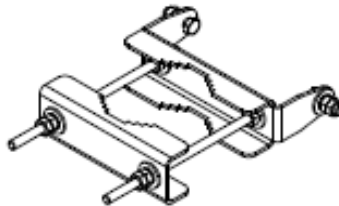
<b>Weight</b>	9.8 lbs (4.4 kg)
<b>Hinge Pitch</b>	31.5 in (800 mm)
<b>Mounting Pole Dimension</b>	2 to 5 in (5 to 12 cm)
<b>Fastener Size</b>	M10
<b>Installation Torque</b>	15 ft-lbs (20 N·m)
<b>Mechanical Tilt Adjustment</b>	0° - 10°



MBK-02 Top Adjustable Bracket



MBK-02 Top Adjustable Bracket Side View



MBK-02 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

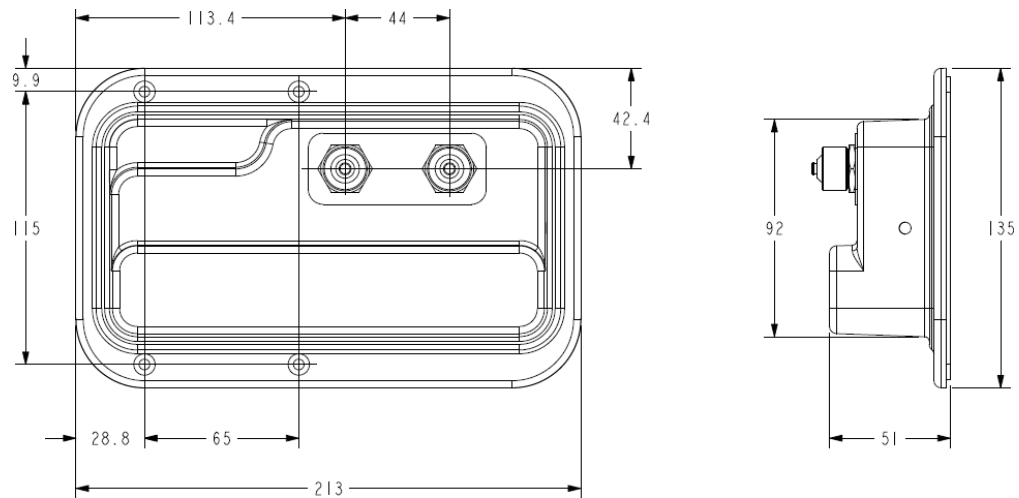
#### Electrical

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 × 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





Outdoor Diplexer

DPO-7126Y-0x1

Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	COMMON	1695 - 2200	18 dB minimum, 20 dB typical
		2496 - 2690	18 dB minimum, 20 dB typical
	PCS/AWS	1695 - 2200	18 dB minimum, 20 dB typical
	BRS	2496 - 2690	18 dB minimum, 20 dB typical
Insertion Loss	COMMON to PCS/AWS	1695 - 2180	0.2 dB typical, 0.25 dB maximum
		2180 - 2200	0.3 dB maximum
	COMMON to BRS	2496 - 2690	0.2 dB typical, 0.25 dB maximum
Rejection	COMMON to PCS/AWS	2496 - 2690	50 dB minimum
	COMMON to BRS	1695 - 2200	50 dB minimum
Isolation	PCS/AWS to BRS	1695 - 2200	50 dB minimum
	BRS to PCS/AWS	2496 - 2690	50 dB minimum

General Characteristics	
General Impedance	50 ohms
Continuous Average Power	250 W maximum (input ports), 500 W maximum (Common port)
Peak Envelope Power	1 kW maximum (input ports), 3 kW maximum (Common port)
Intermodulation Performance	<-117 dBm (-160 dBc) at 2 x +43 dBm tones all bands

Environmental

Operating Temperature	-40 °C to +65 °C
Enclosure	Enclosure IP67, Connectors IP68
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA maximum, 10 strikes per IEC61000-4-5

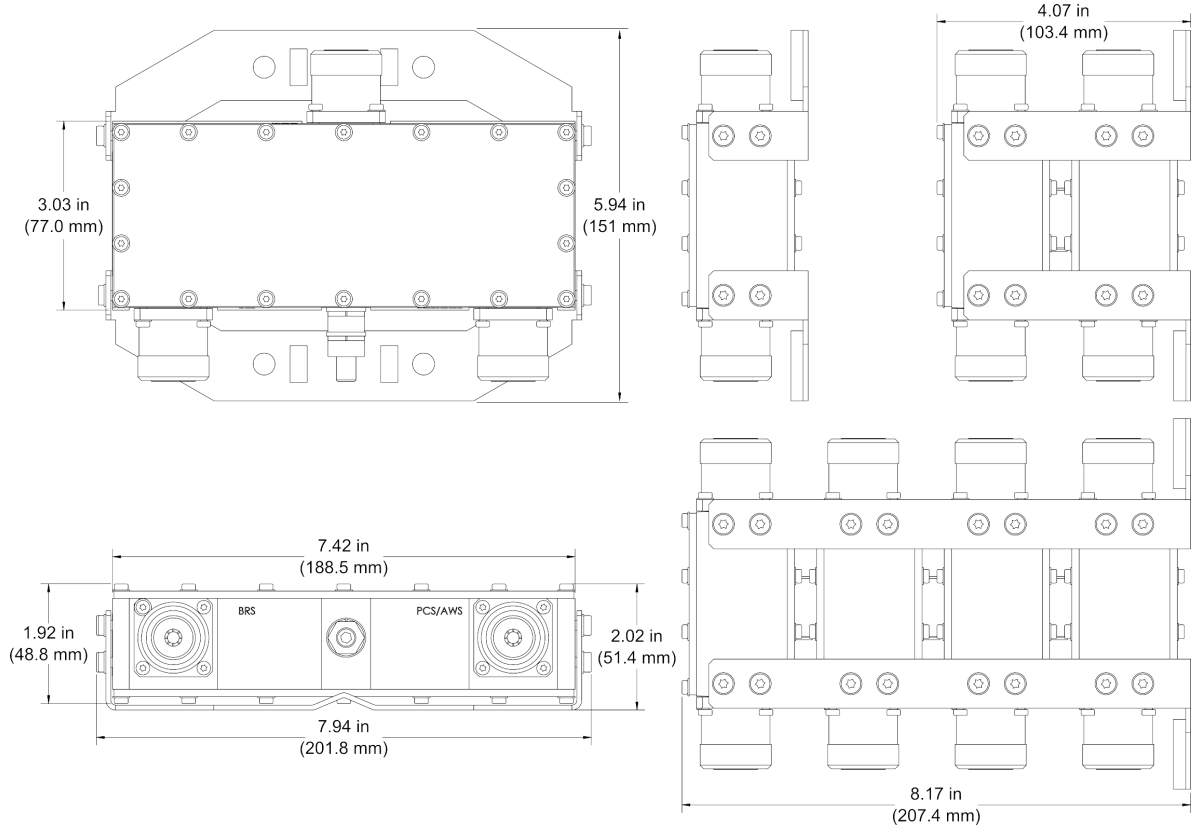
Mechanical

Model	DPO-7126Y-0-S1	DPO-7126Y-0-T1	DPO-7126Y-0-Q1
Modularity	Single	Twin	Quad
Weight with brackets	3.7 lbs (1.6 Kg)	7.3 lbs (3.3 Kg)	14.4 lbs (6.6 Kg)
Dimensions with brackets	5.94 x 7.94 x 2.02 in. (151 x 201.8 x 51.4 mm)	5.94 x 7.94 x 4.07 in. (151 x 201.8 x 103.4 mm)	5.94 x 7.94 x 8.17 in. (151 x 201.8 x 207.4 mm)
Dimensions enclosure only	3.03 x 7.42 x 1.92 in. (77.0 x 188.5 x 48.8 mm)		
Connectors	3 x 7-16 DIN female or 4.3-10 female (per diplexer)		
Mounting	Pole/Wall mounting bracket		



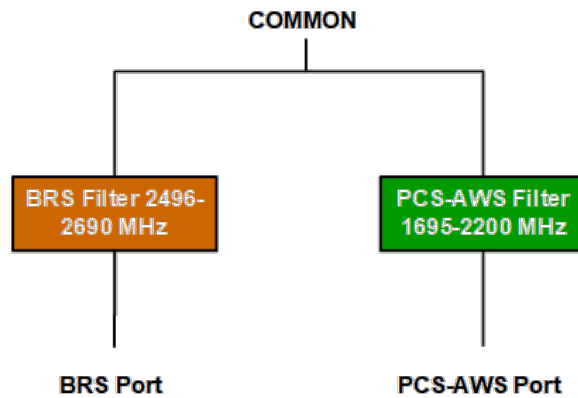
Outdoor Diplexer

DPO-7126Y-0x1



Outdoor Diplexer Outline Drawing

Block Diagram



Outdoor Diplexer Block Diagram



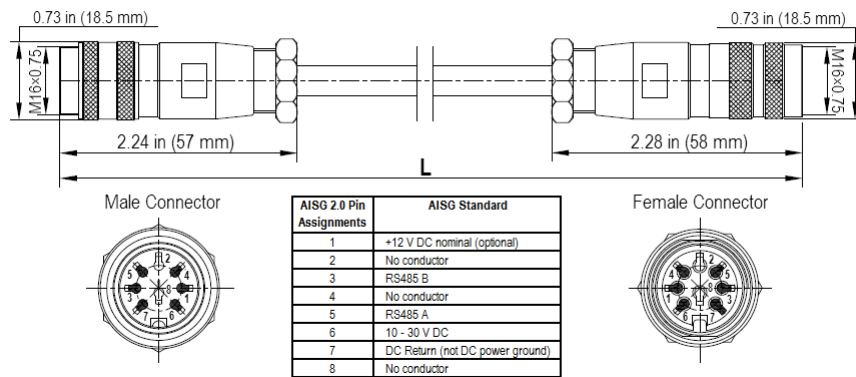
Quad Port AISG Cable Kit

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



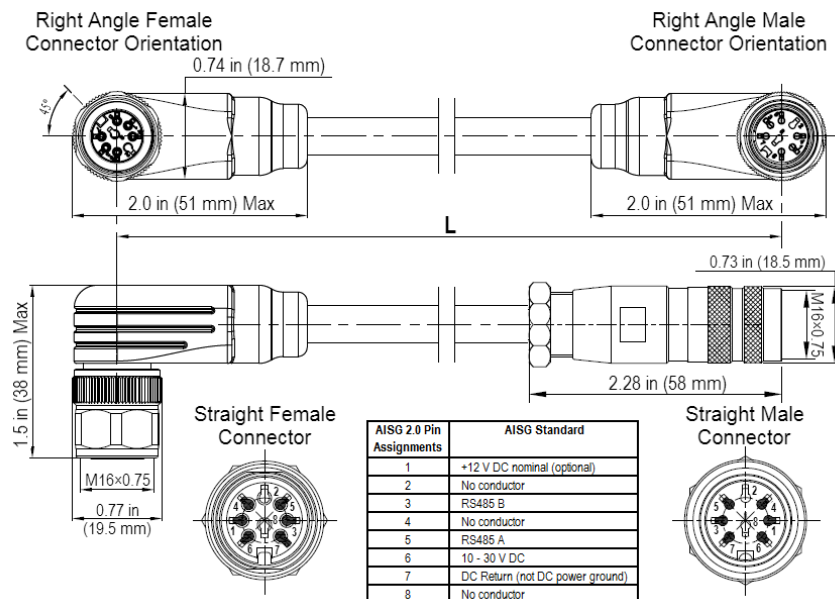
Quad Port AISG Cable Kit

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



STANDARDS & CERTIFICATIONS

HexPort Multi-Band Antenna

HPA33R-CS4A

Standards & Compliance

<b>Safety</b>	EN 60950-1, UL 60950-1
<b>Emission</b>	EN 55022
<b>Immunity</b>	EN 55024
<b>Environmental</b>	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

