



# Antennas

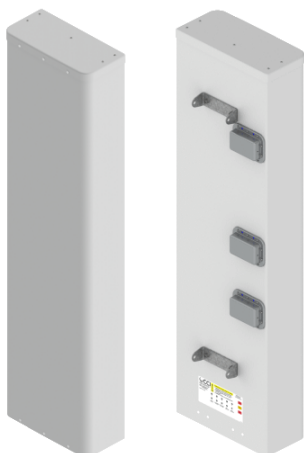
MultiPort

Series

## DATA SHEET

### Multi-Band Ten-Port Antenna

DPA65R-BU6D



- Six foot (1.8 m) internally multiplexed MultiBand, ten port antenna, with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Four wide mid band ports covering 1695-2400 MHz, two wide low band ports covering 698-896 MHz and four frequency specific low band ports covering 717-728 MHz and 758-798 MHz (over distributed diplexing) in a single antenna enclosure
- Innovative Low and Mid Band Array configuration allows for independent 2T2R (2x2 MIMO) on B29 Low Band Array and 4T4R (4x4 MIMO) on B14/B12 Low Band Arrays and 4T4R (4x4 MIMO) Mid Band Array, using full length arrays, all in a 20.7" (525 mm) width enclosure
- Industry leading antenna topology and RET shielding techniques drastically mitigate PIM propagation from B12/B14/B29 operations, allowing for superior Network performance
- Full Spectrum Compliance for 698-896 MHz / 1695-2400 MHz operations
- 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
- Internally Integrated RET Controllers (Type 17)
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector

#### Overview

The CCI internally multiplexed MultiBand array is a ten port antenna, with four wide band ports covering 1695-2400 MHz, two wide low band ports covering 698-896 MHz and four frequency specific low band ports covering 717-728 MHz and 758-798 MHz (over distributed diplexing).

Innovative Low and Mid Band Array configuration allows for independent 2T2R (2x2 MIMO) on B29 Low Band Array and 4T4R (4x4 MIMO) on B14/B12 Low Band Arrays and 4T4R (4x4 MIMO) Mid Band Array, using full length arrays, all in a 20.7" (525 mm) width enclosure.

CCI antennas are designed and produced to ISO 9001:2008 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

#### Applications

- 4x4 MIMO for the Mid band ports and 2x2 MIMO on B29 ports and 4x4 MIMO on B14/B12 ports
- Ready for Network Standardization on 4.3-10 connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs



## SPECIFICATIONS

## Multi-Band Ten-Port Antenna

DPA65R-BU6D

## Electrical

Ports	2 x Low Band Ports for 717-728 MHz	2 x Low Band Ports for 758-798 MHz	2 x Low Band Ports for 698-896 MHz	
Frequency Range	717-728 MHz	758-798 MHz	698-806 MHz	824-896 MHz
Gain <sup>1</sup>	13.6 dBi	13.9 dBi	14.3 dBi	14.9 dBi
Gain (Average)	13.2 dBi	13.4 dBi	13.5 dBi	14.1 dBi
Azimuth Beamwidth (-3dB)	75°	70°	73°	67°
Elevation Beamwidth (-3dB)	13.6°	12.3°	12.8°	11.0°
Electrical Downtilt	2° to 12°	2° to 12°	2° to 12°	2° to 12°
Elevation Sidelobes (1st Upper)	<-18 dB	<-18 dB	<-18 dB	<-18 dB
Front-to-Back Ratio @180°	> 35 dB	> 30 dB	> 35 dB	> 35 dB
Front-to-Back Ratio ±20°	> 30 dB	> 28 dB	> 32 dB	> 30 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination at Sector <sup>2</sup>	9.4 dB	7.6 dB	11.6 dB	5.6 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)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts	500 watts	500 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

<sup>1</sup>Peak gain across sub-bands.<sup>2</sup>Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.

Ports	4 x Mid Band Ports for 1695-2400 MHz			
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz
Gain <sup>1</sup>	17.5 dBi	17.6 dBi	17.9 dBi	18.3 dBi
Gain (Average)	16.7 dBi	16.9 dBi	17.1 dBi	17.3 dBi
Azimuth Beamwidth (-3dB)	70°	71°	72°	53°
Elevation Beamwidth (-3dB)	5.7°	5.2°	4.8°	4.1°
Electrical Downtilt	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	<-16 dB	<-17 dB	<-17 dB	<-17 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio ±20°	> 32 dB	> 32 dB	> 32 dB	> 32 dB
Cross-Polar Discrimination at Peak	> 19 dB	> 18 dB	> 18 dB	> 19 dB
Cross-Polar Discrimination at Sector <sup>2</sup>	7.7 dB	7.7 dB	6.3 dB	5.5 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)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

<sup>1</sup>Peak gain across sub-bands.<sup>2</sup>Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.



## SPECIFICATIONS

### Multi-Band Ten-Port Antenna

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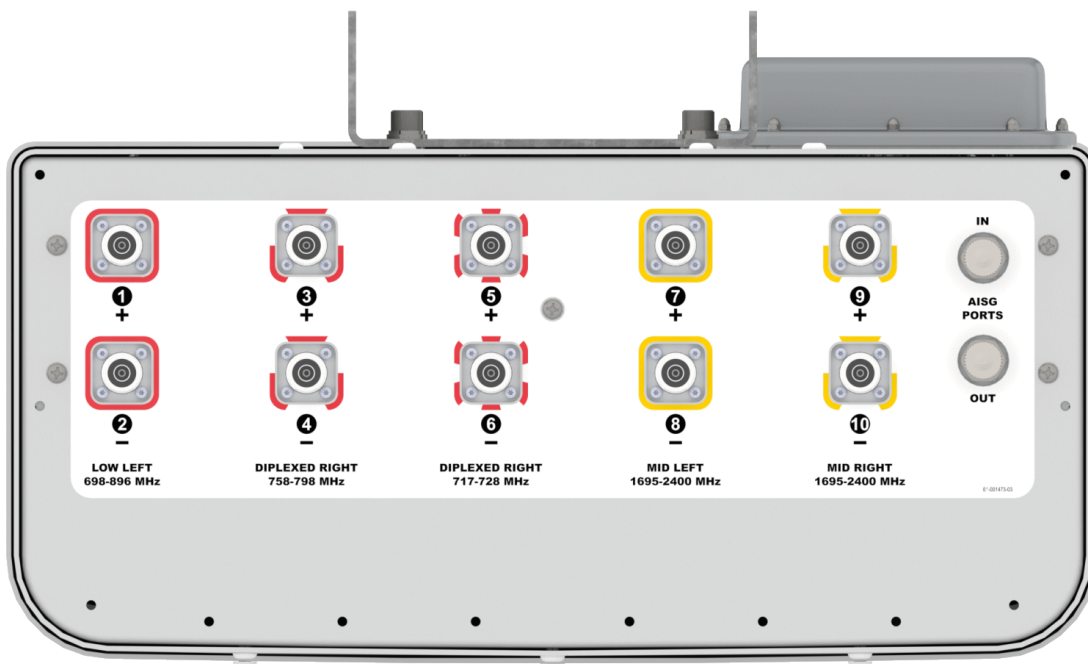
#### Mechanical

Dimensions (LxWxD)	71.2x20.7x9.7 in (1808x525x247 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load <sup>1</sup>	200 lbf @ 100 mph    888 N @ 161 kph
Side Wind Load <sup>1</sup>	71 lbf @ 100 mph    316 N @ 161 kph
Effective Projective Area (EPA), Front <sup>1</sup>	7.9 ft <sup>2</sup> (0.7 m <sup>2</sup> )
Weight*	87.6 lbs (39.7 kg)
Packaging Dimensions (LxWxD)	83.1x25.2x15.7 in (2110x640x400 mm)
Packaged Weight ~	137.0 lbs (62.1 kg)
Connector	10 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

<sup>1</sup>Windload values calculated using CFD analysis  
\* Weight excludes mounting kit

Bottom View

DPA65R-BU6DB



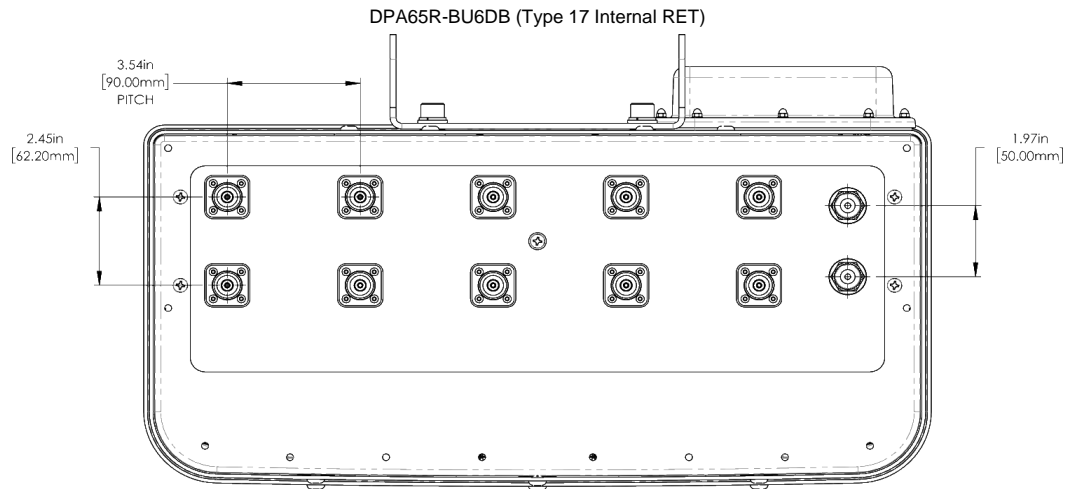
## SPECIFICATIONS

### Multi-Band Ten-Port Antenna

DPA65R-BU6D

#### Mechanical

Connector Spacing

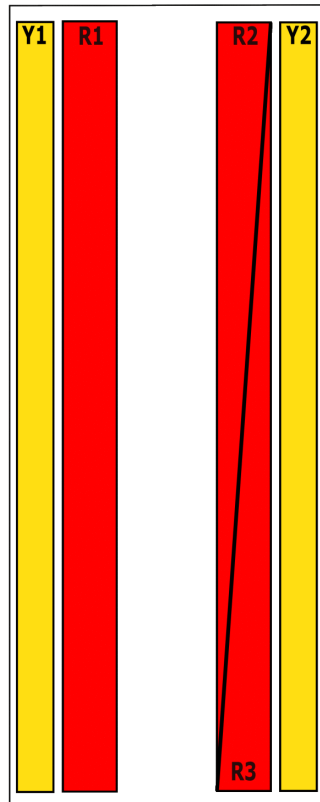


RET to Element Configuration

DPA65R-BU6DB Element and RET configuration (Type 17 Internal RET)

#### RET placement as viewed from rear of antenna

#### Top of antenna Viewed from rear



#### Top of antenna

**MM.1**

698-896 MHz & 758-798 MHz  
Ports 1, 2, 3, 4

**MM.2**

1695-2400 MHz  
Ports 7, 8, 9 & 10

**MM.3**

717-728 MHz (700 RET)  
Ports 5 & 6

Array	Ports	Freq (MHz)	Ports controlled by dedicated RET	AISG RET UID
R1	1, 2	698-896	1, 2, 3, 4	ClxxxxxxMM.1
R2	3, 4	758-798		
R3	5, 6	717-728	5, 6	ClxxxxxxMM.3
Y1	7, 8	1695-2400	7, 8, 9, 10	ClxxxxxxMM.2
Y2	9, 10	1695-2400		



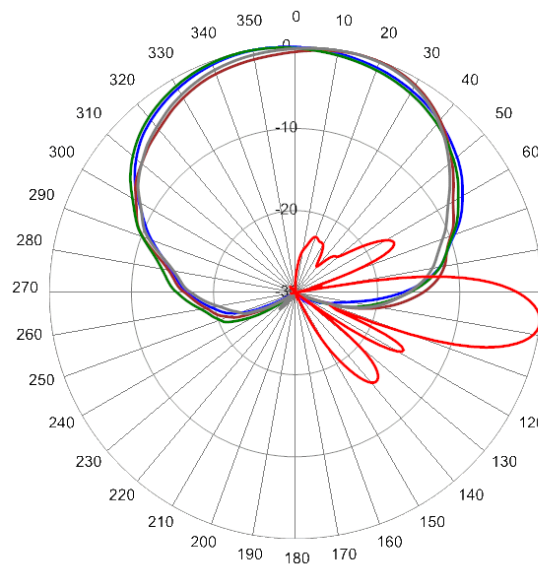
SPECIFICATIONS

Multi-Band Ten-Port Antenna

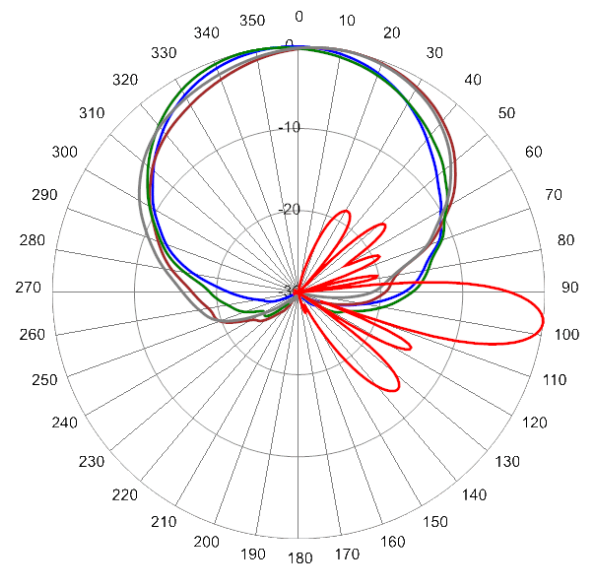
DPA65R-BU6D

Typical Antenna Patterns

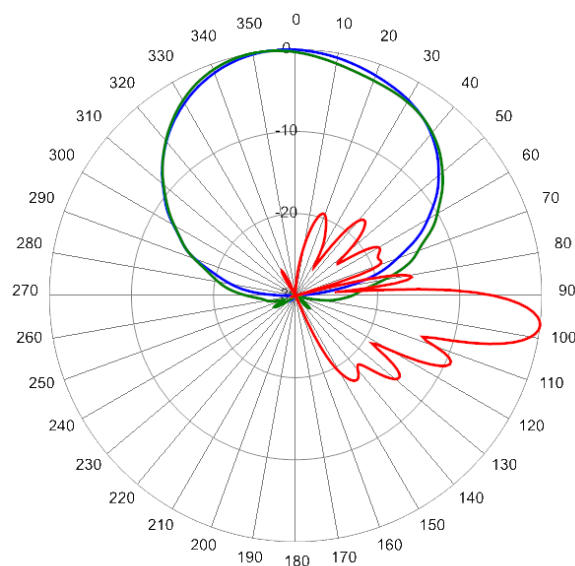
For detailed information on additional antenna patterns, contact customer support at [support@cciprducts.com](mailto:support@cciprducts.com)



722 MHz Azimuth with Elevation 7° (Ports 1, 2, 5 & 6)



788 MHz Azimuth with Elevation 7° (Ports 1, 2, 3 & 4)



896 MHz Azimuth with Elevation 7° (Ports 1 & 2)

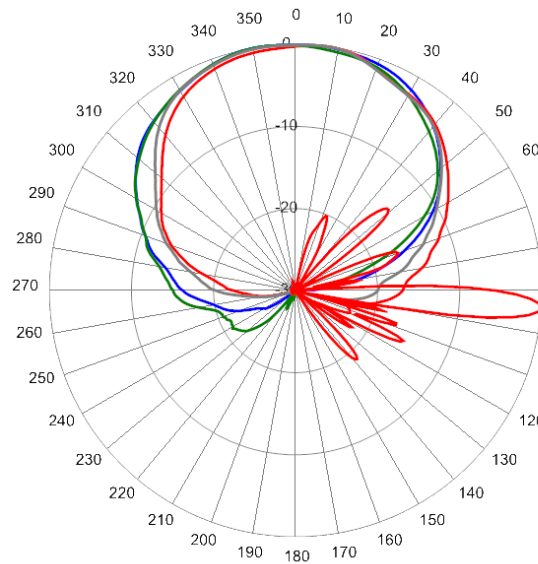


SPECIFICATIONS

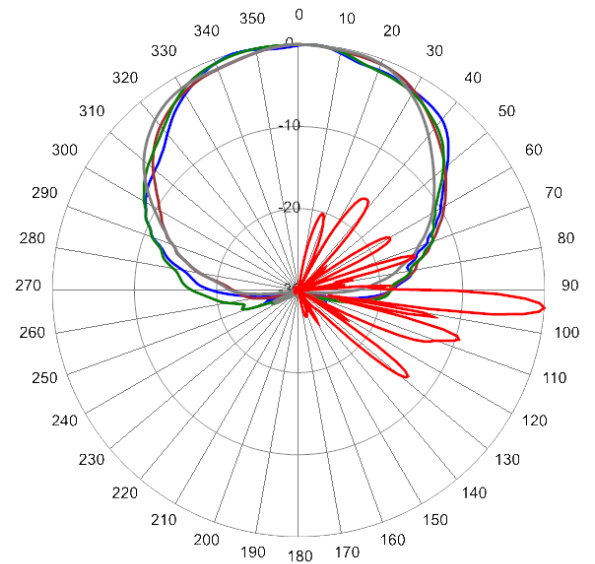
Multi-Band Ten-Port Antenna

DPA65R-BU6D

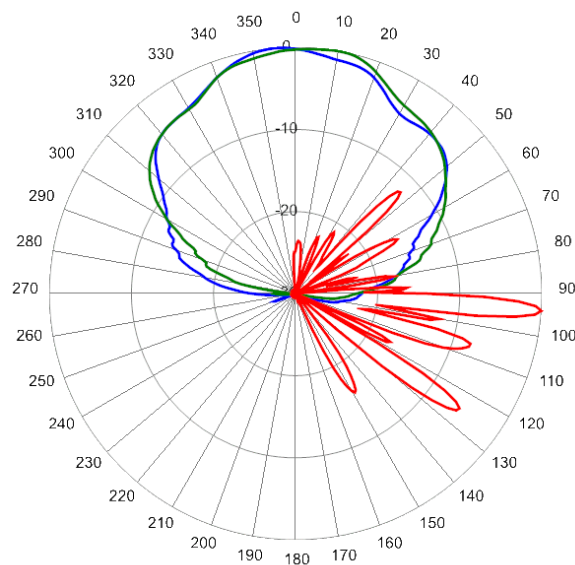
Typical Antenna Patterns



1755 MHz Azimuth with Elevation 4° (Ports 7, 8, 9 & 10)



2155 MHz Azimuth with Elevation 5° (Ports 7, 8, 9 & 10)



2360 MHz Azimuth with Elevation 4° (Ports 7, 8, 9 & 10)



ORDERING

Multi-Band Ten-Port Antenna

DPA65R-BU6D

Parts & Accessories

<b>DPA65R-BU6DB-K</b>	Six foot (1.8 m) antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 3 factory installed BSA-RET400 RET actuators (Type 17 internal) and MBK-16 mounting bracket
<b>MBK-01</b>	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
<b>MBK-16</b>	Mounting Kit with fixed 0° mechanical tilt
<b>BSA-RET400</b>	Type 17 Internal Remote Electrical Tilt System (RET)
<b>AISGC-M-F-10FT</b>	10 Ft (3 m) Male/Female RRU to Antenna AISG cable



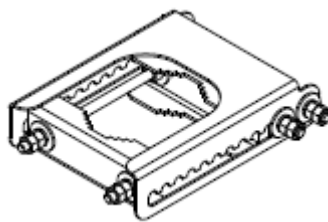
ACCESSORIES

Mounting Bracket Kit

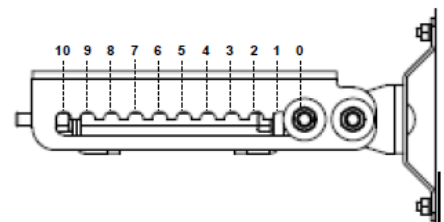
MBK-01

Mechanical

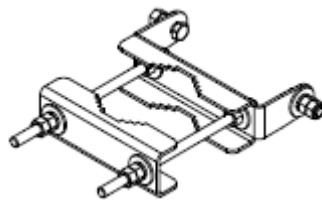
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket





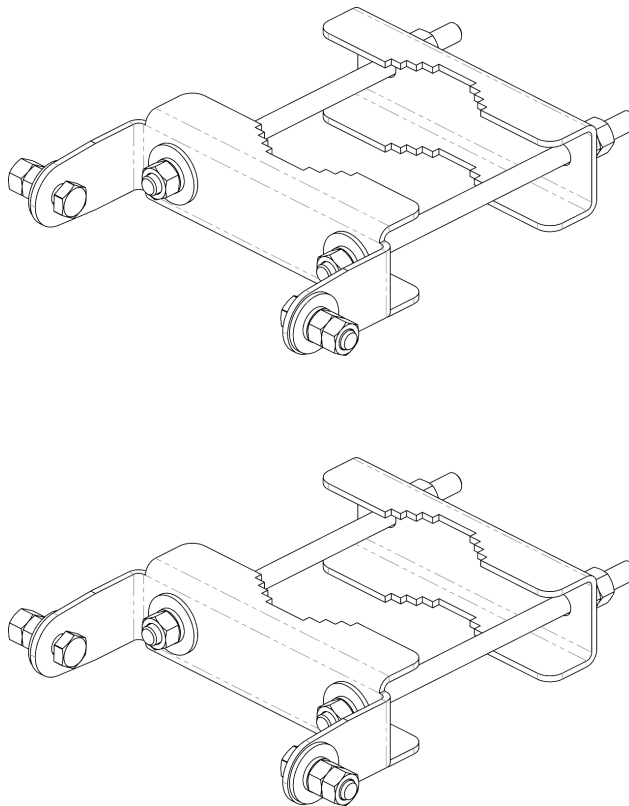
ACCESSORIES

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



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	$\pm 0.1^\circ$
Temperature Range	-40° C to 70° C

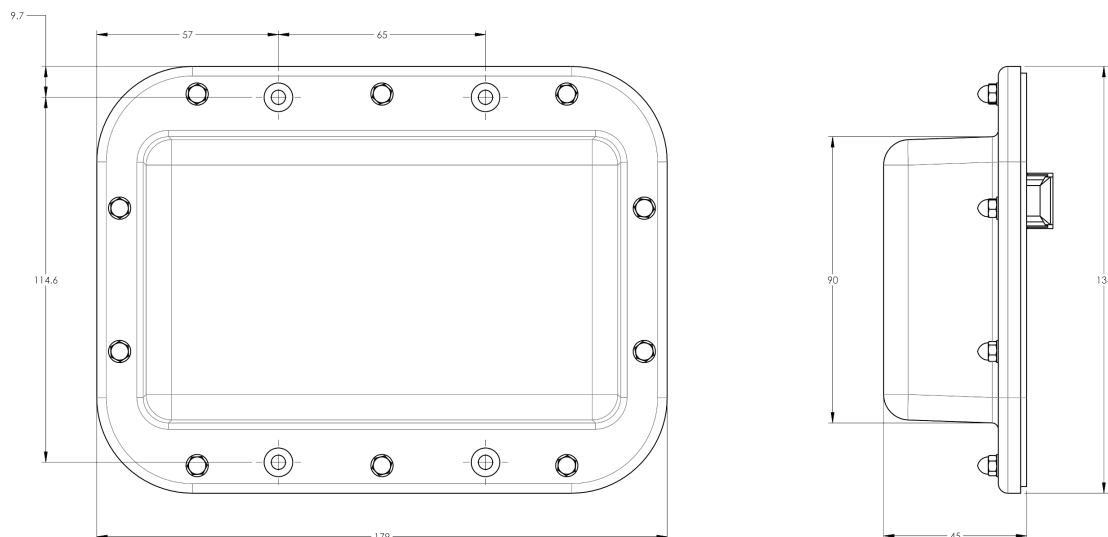
Electrical

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





ACCESSORIES

AISG Cable

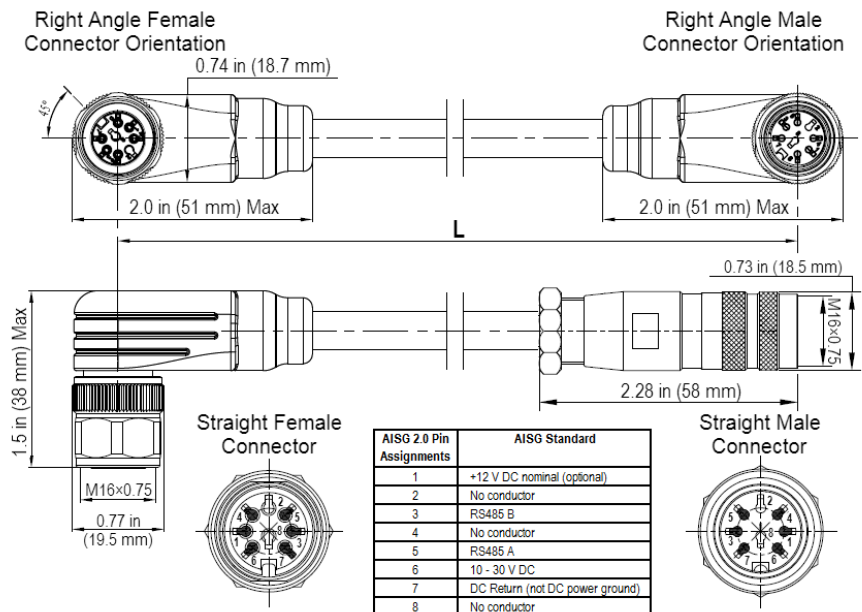
AISGC-M-F-xFT

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



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



STANDARDS &  
CERTIFICATIONS

Multi-Band Ten-Port Antenna

DPA65R-BU6D

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

