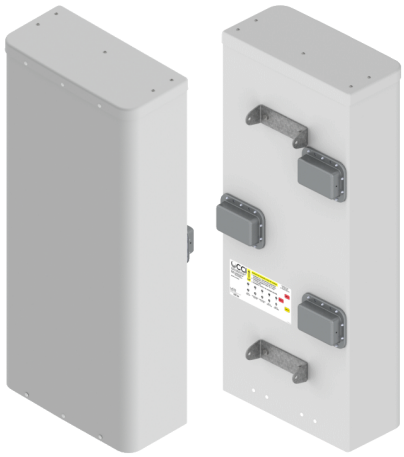
Antennas

MultiPort Series

DATA SHEET

Multi-Band Ten-Port Antenna

DPA65R-BU4D



- Four foot (1.2 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-BU4D

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[1]	11.7 dBi	12.5 dBi	13.1 dBi	13.2 dBi
Gain (Average)	11.4 dBi	11.9 dBi	12.1 dBi	12.7 dBi
Azimuth Beamwidth (-3dB)	78°	75°	73°	68°
Elevation Beamwidth (-3dB)	20.6°	19.5°	20.4°	18.0°
Electrical Downtilt	2° to 16°	2° to 16°	2° to 16°	2° to 16°
Elevation Sidelobes (1st Upper)	<-14 dB	<-15 dB	<-18 dB	<-17 dB
Front-to-Back Ratio @180°	> 31 dB	> 31 dB	> 32 dB	> 32 dB
Front-to-Back Ratio ±20°	> 28 dB	> 29 dB	> 29 dB	> 29 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 30 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination at Sector[2]	10.8 dB	11.8 dB	11.8 dB	10.6 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

[1]Peak gain across sub-bands.
[2]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[1]	16.3 dBi	16.5 dBi	16.7 dBi	17.2 dBi
Gain (Average)	15.4 dBi	15.9 dBi	16.0 dBi	16.3 dBi
Azimuth Beamwidth (-3dB)	70°	70°	71°	56°
Elevation Beamwidth (-3dB)	8.3°	7.3°	6.8°	5.9°
Electrical Downtilt	2° to 10°	2° to 10°	2° to 10°	2° to 10°
Elevation Sidelobes (1st Upper)	<-15 dB	<-15 dB	<-16 dB	<-15 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio ±20°	> 32 dB	> 32 dB	> 31 dB	> 32 dB
Cross-Polar Discrimination at Peak	> 19 dB	> 18 dB	> 18 dB	> 19 dB
Cross-Polar Discrimination at Sector[2]	6.5 dB	5.8 dB	5.0 dB	7.1 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

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

SPECIFICATIONS

Multi-Band Ten-Port Antenna

DPA65R-BU4D

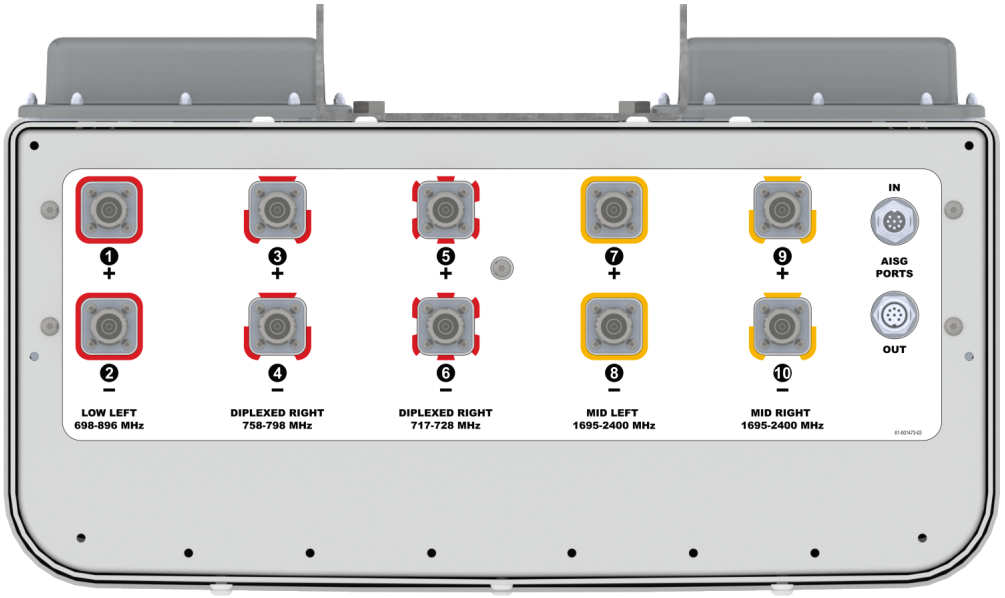
Mechanical

Dimensions (L×W×D)	48.0×20.7×9.7 in (1220×525×247 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load[1]	138 lbf @ 100 mph 613 N @ 161 kph
Side Wind Load[1]	45 lbf @ 100 mph 202 N @ 161 kph
Effective Projective Area (EPA), Front[1]	5.5 ft^2 (0.5 m^2)
Weight*	58.4 lbs (26.5 kg)
Connector	10 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

[1]Windload values calculated using CFD analysis
** Weight excludes mounting kit*

Bottom View

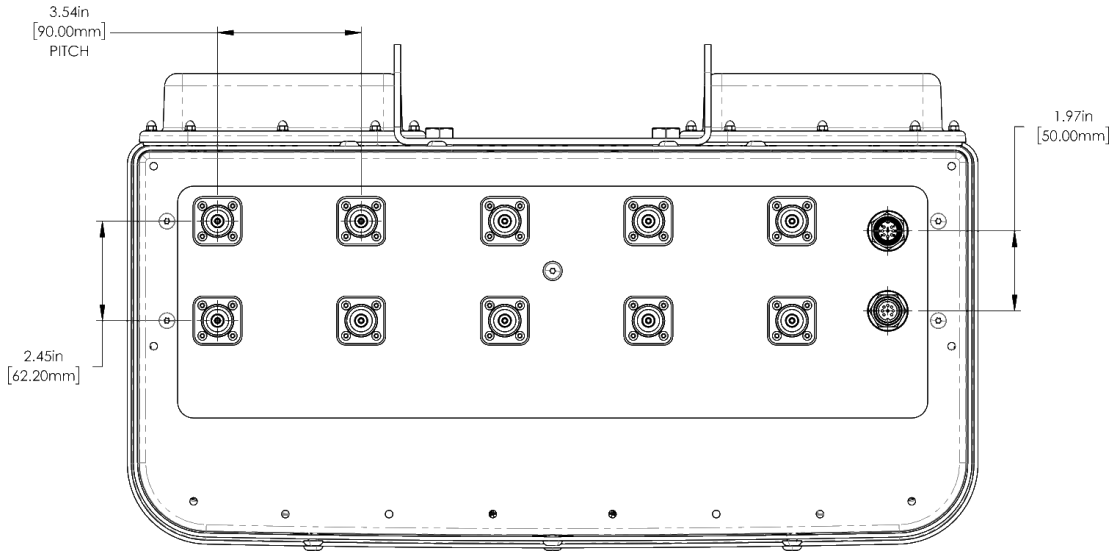
DPA65R-BU4DB



Mechanical

Connector Spacing

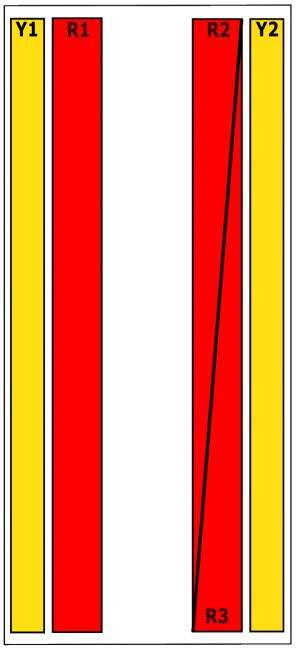
DPA65R-BU4DB (Type 17 Internal RET)



RET to Element Configuration

DPA65R-BU4DB Element and RET configuration (Type 17 Internal RET)

Top of antenna
Viewed from rear



RET placement as viewed from rear of antenna

Top of antenna

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

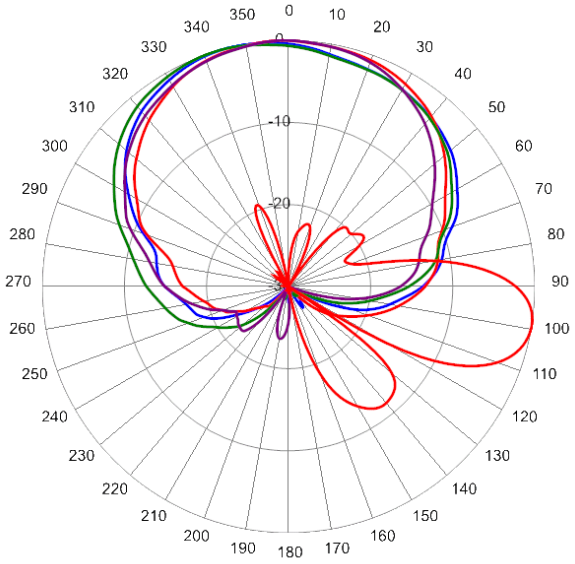
MM.2
717-728 MHz (700 RET)
Ports 5 & 6

MM.3
1695-2400 MHz
Ports 7, 8, 9 & 10

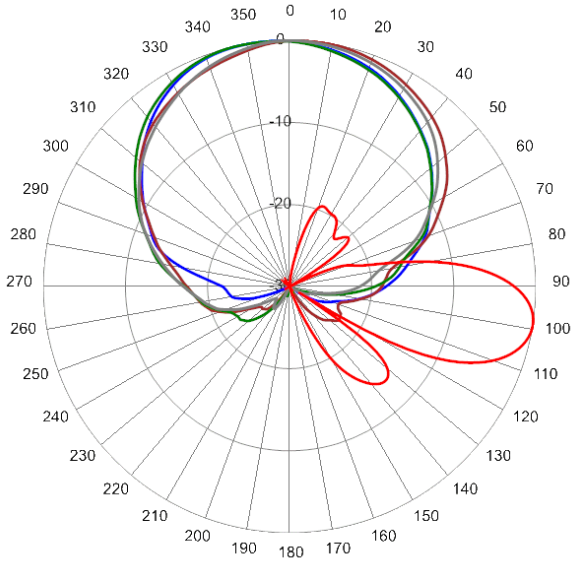
Array	Ports	Freq (MHz)	Ports controlled by dedicated RET	AISG RET UID
R1	1, 2	698-896	1, 2, 3, 4	CIxxxxxxMM.1
R2	3, 4	758-798		
R3	5, 6	717-728	5, 6	CIxxxxxxMM.2
Y1	7, 8	1695-2400	7, 8, 9, 10	CIxxxxxxMM.3
Y2	9, 10	1695-2400		

Typical Antenna Patterns

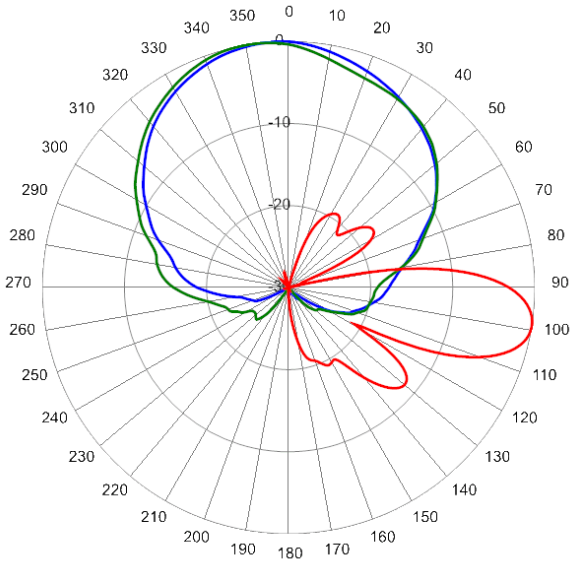
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



722 MHz Azimuth with Elevation 9° (Ports 1, 2, 5 & 6)

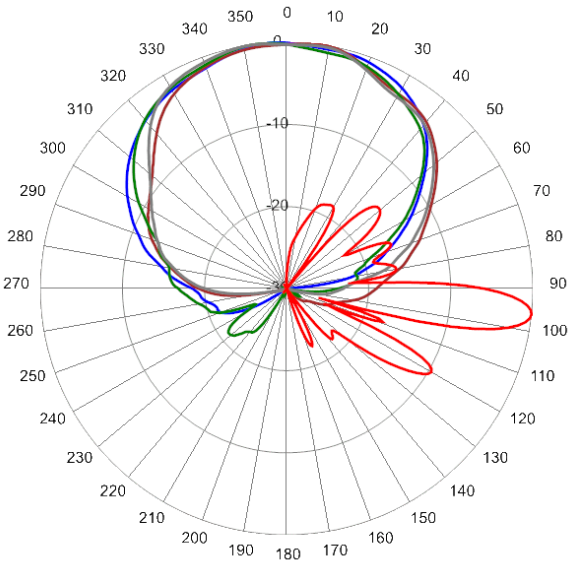


788 MHz Azimuth with Elevation 9° (Ports 1, 2, 3 & 4)

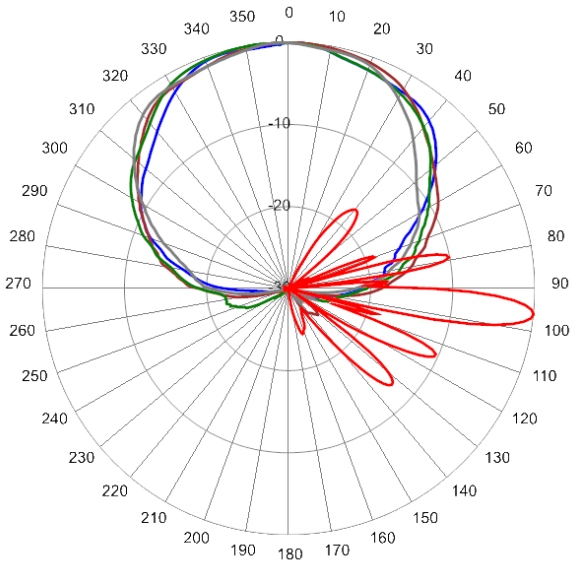


896 MHz Azimuth with Elevation 9° (Ports 1 & 2)

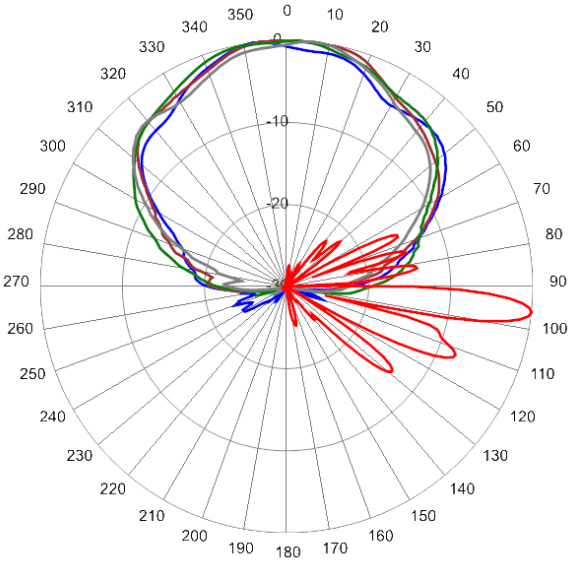
Typical Antenna Patterns



1755 MHz Azimuth with Elevation 6° (Ports 7, 8, 9 & 10)



2155 MHz Azimuth with Elevation 6° (Ports 7, 8, 9 & 10)



2360 MHz Azimuth with Elevation 6° (Ports 7, 8, 9 & 10)

Parts & Accessories

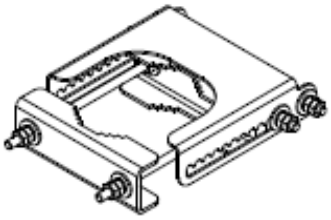
DPA65R-BU4DB-K	Four foot (1.2 m) antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 3 factory installed BSA-RET400 RET actuators (Type 17 internal) and MBK-15 mounting bracket
MBK-02	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
MBK-15	Mounting Kit with fixed 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

Mounting Bracket Kit

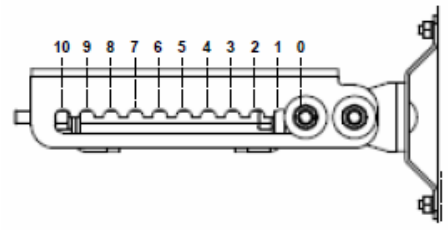
MBK-02

Mechanical

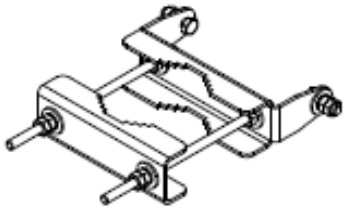
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	31.5 in (800 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft·lbs (20 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-02 Top Adjustable Bracket



MBK-02 Top Adjustable Bracket Side View



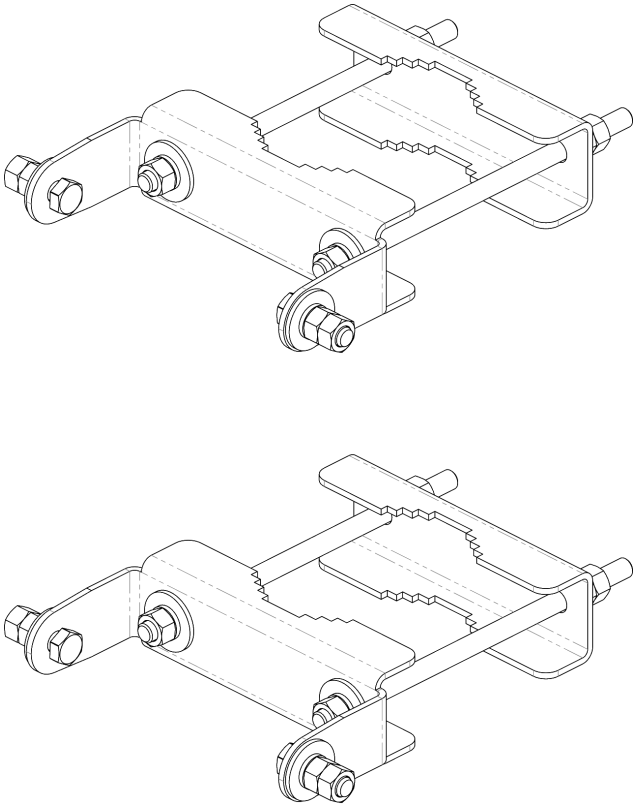
MBK-02 Bottom Fixed Bracket

Mounting Bracket Kit

MBK-15

Mechanical

Weight	8.6 lbs (3.9 kg)
Hinge Pitch	31.5 in (800 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft·lbs (20 N·m)
Mechanical Tilt	0°



MBK-15 Top and Bottom Bracket

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

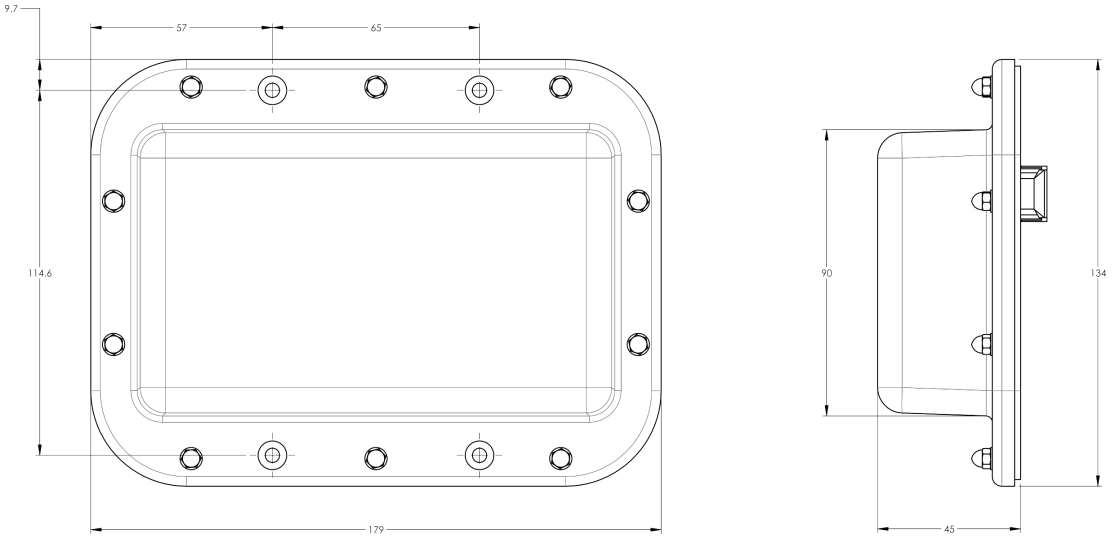
Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	100 mA at V_{in}=24 (500 mA MAX)
Current Consumption Idle	10 mA at V_{in}=24

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=Acrylanitrile Butadiene Styrene



AISG Cable

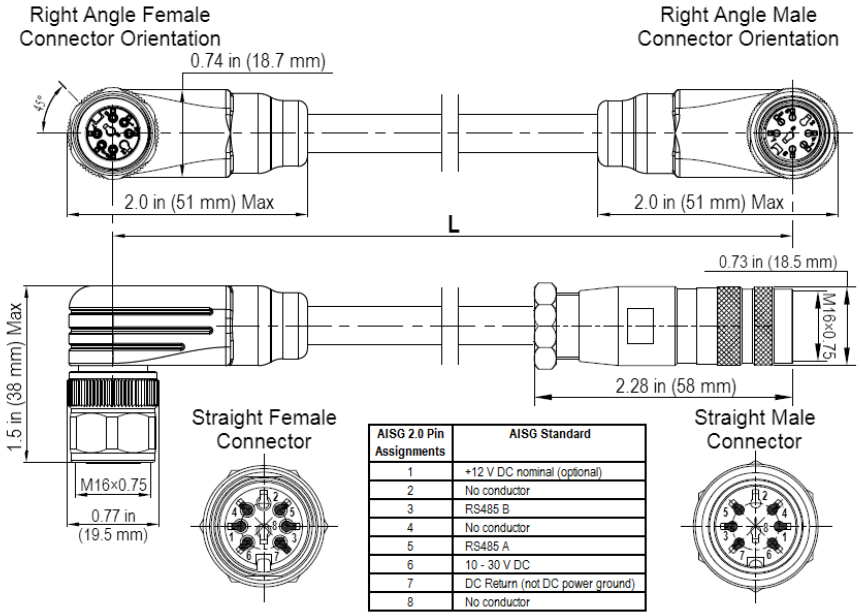
AISGC-M-F-xFT

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

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

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