



- Eight High Broadband ports covering PCS, AWS / AWS-3 and WCS bands (698-798 MHz, 824-896 MHz, & 1695-2360 MHz.)
- Four Low Band ports covering 700 MHz and 850 MHz bands
- Supports 8x8 MIMO in high band
- Excellent PIM Performance
- A multi-network solution in one radome
- Field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) system with independent tilt control of each freq band set
- Reduces tower loading
- Frees up space for tower mounted Remote Radio Heads
- All Band design simplifies radio assignments
- Single radome with twelve ports
- Sharp elevation beam eases network planning

Overview

The CCI 12-port Multi-Band Antenna Array is a 12-port antenna with eight high band ports that cover the full PCS, AWS / AWS-3 and WCS bands. In addition to the eight high band ports, the antenna includes two 700 MHz ports and two 850 MHz ports. The 12-port antenna is ready for 8x8 MIMO or dual 4x4 MIMO in high bands. Modern networks demand high performance, consequently CCI has incorporated several new and innovative design techniques to provide an antenna with excellent side-lobe performance, sharp elevation beams, and high front to back ratio. Multiple networks can now be connected to a single antenna, reducing tower loading and leasing expense, while decreasing deployment time and installation cost. Full band capability for 700 MHz, Cellular 850 MHz, PCS 1900 MHz, AWS 1695/2180 MHz and WCS 2300 MHz coverage in a single enclosure. CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- 8x8 MIMO and 4x4 MIMO on High bands
- 2x2 MIMO on 700 & 850 bands
- Adding additional capacity without adding additional antennas



Twelve Port Multi-Band Antenna

TPA-65R-LCUUUU-H6

SPECIFICATIONS

Electrical

| Ports | 2 Low Band Ports for 698-798 MHz | | 2 Low Band Ports for 824-896 MHz |
|---------------------------------------|----------------------------------|--------------|----------------------------------|
| Frequency Range | 698-787 MHz | 787-798 MHz | 824-896 MHz |
| Gain Peak | 14.3 dBi | 13.9 dBi | 14.6 dBi |
| Gain Average* | 13.9 dBi | 13.6 dBi | 14.3 dBi |
| Azimuth Beamwidth (-3dB) | 63° | 67° | 64° |
| Elevation Beamwidth (-3dB) | 13.0° | 12.1° | 11.0° |
| Electrical Downtilt | 0° to 10° | 0° to 10° | 0° to 10° |
| Elevation Sidelobes (1st Upper) | < -18 dB | < -19 dB | < -19 dB |
| Front-to-Back Ratio @180° | > 30 dB | > 32 dB | > 35 dB |
| Front-to-Back Ratio over ± 20° | > 30 dB | > 32 dB | > 33 dB |
| Cross-Polar Discrimination (at Peak) | > 25 dB | > 25 dB | > 25 dB |
| Cross-Polar Discrimination (at ± 60°) | > 20 dB | > 20 dB | > 20 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) | ≤ -150 dBc | ≤ -150 dBc | ≤ -150 dBc |
| Input Power Continuous Wave (CW) | 500 watts | 500 watts | 500 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 |

*Per BASTA specification of Gain over all Tilts
All specifications are subject to change without notice.

| Ports | 8 High Band Ports for 1695-2360 MHz | | | |
|---------------------------------------|-------------------------------------|-------------------------|--------------|---------------|
| Frequency Range | 1850-1990 MHz | 1695-1780/2110-2180 MHz | | 2305-2360 MHz |
| Gain Peak | 15.9 dBi | 15.2 dBi | 16.4 dBi | 16.2 dBi |
| Gain Average* | 15.3 dBi | 14.5 dBi | 15.8 dBi | 15.5 dBi |
| Azimuth Beamwidth (-3dB) | 61° | 62° | 61° | 63° |
| Elevation Beamwidth (-3dB) | 10.5° | 11.8° | 9.1° | 8.3° |
| Electrical Downtilt | 2° to 12° | 2° to 12° | 2° to 12° | 2° to 12° |
| Elevation Sidelobes (1st Upper) | < -17 dB | < -15 dB | < -17 dB | < -15 dB |
| Front-to-Back Ratio @180° | > 35 dB | > 35 dB | > 35 dB | > 35 dB |
| Front-to-Back Ratio over ± 20° | > 32 dB | > 33 dB | > 34 dB | > 33 dB |
| Cross-Polar Discrimination (at Peak) | > 17 dB | > 20 dB | > 20 dB | > 25 dB |
| Cross-Polar Discrimination (at ± 60°) | > 17 dB | > 16 dB | > 17 dB | > 17 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 |

*Per BASTA specification of Gain over all Tilts
All specifications are subject to change without notice.



SPECIFICATIONS

Twelve Port Multi-Band Antenna

TPA-65R-LCUUUU-H6

Mechanical

| | |
|-----------------------------------|---|
| Dimensions (LxWxD) | 71.2x11.8x11.6 in (1808x300x294 mm) |
| Survival Wind Speed | > 150 mph (> 241 kph) |
| Front Wind Load | 203 lbs (901 N) @ 100 mph (161 kph) |
| Side Wind Load | 199 lbs (887 N) @ 100 mph (161 kph) |
| Equivalent Flat Plate Area | 7.9 ft ² (0.7 m ²) |
| Weight | 64.6 lbs (29.3 kg) |
| Connector | 12 x 4.3-10 Female |
| Mounting Pole | 2 to 5 in (5 to 12 cm) |

* Weight excludes mounting and RET

Discontinued



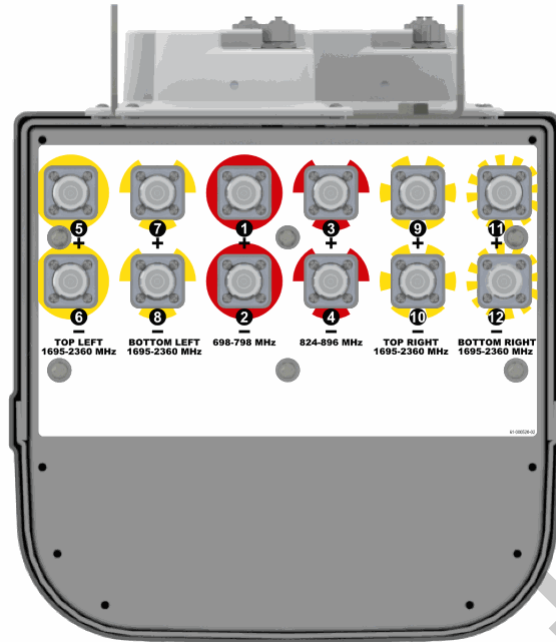
SPECIFICATIONS

Twelve Port Multi-Band Antenna

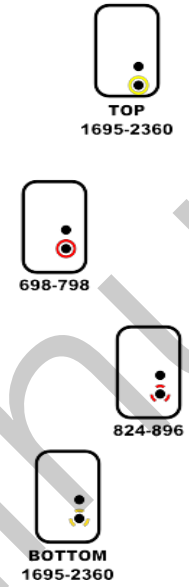
TPA-65R-LCUUUU-H6

Bottom View

RET Connection Diagram



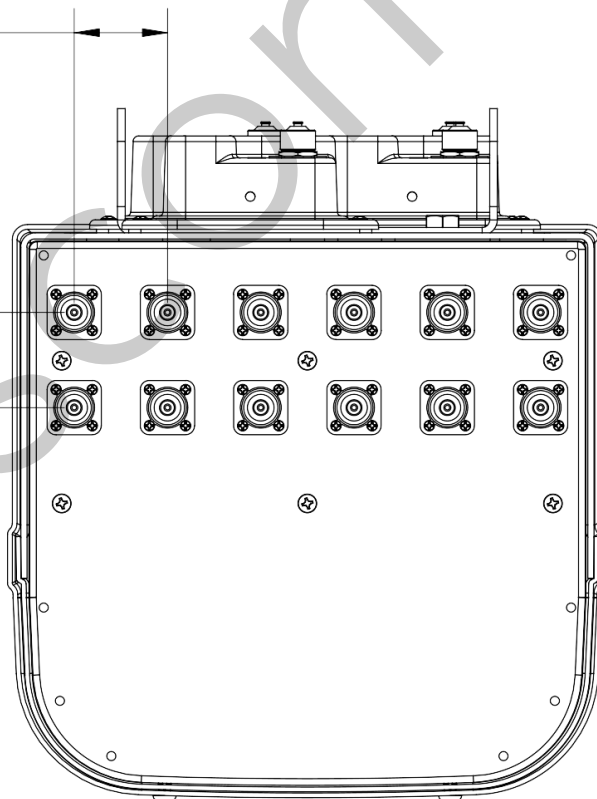
CONNECT RET ACTUATORS AS SHOWN BELOW



Connector Spacing

5X 1.9in [49.0mm]

2.0in [50.0mm]



SPECIFICATIONS

Twelve Port Multi-Band Antenna

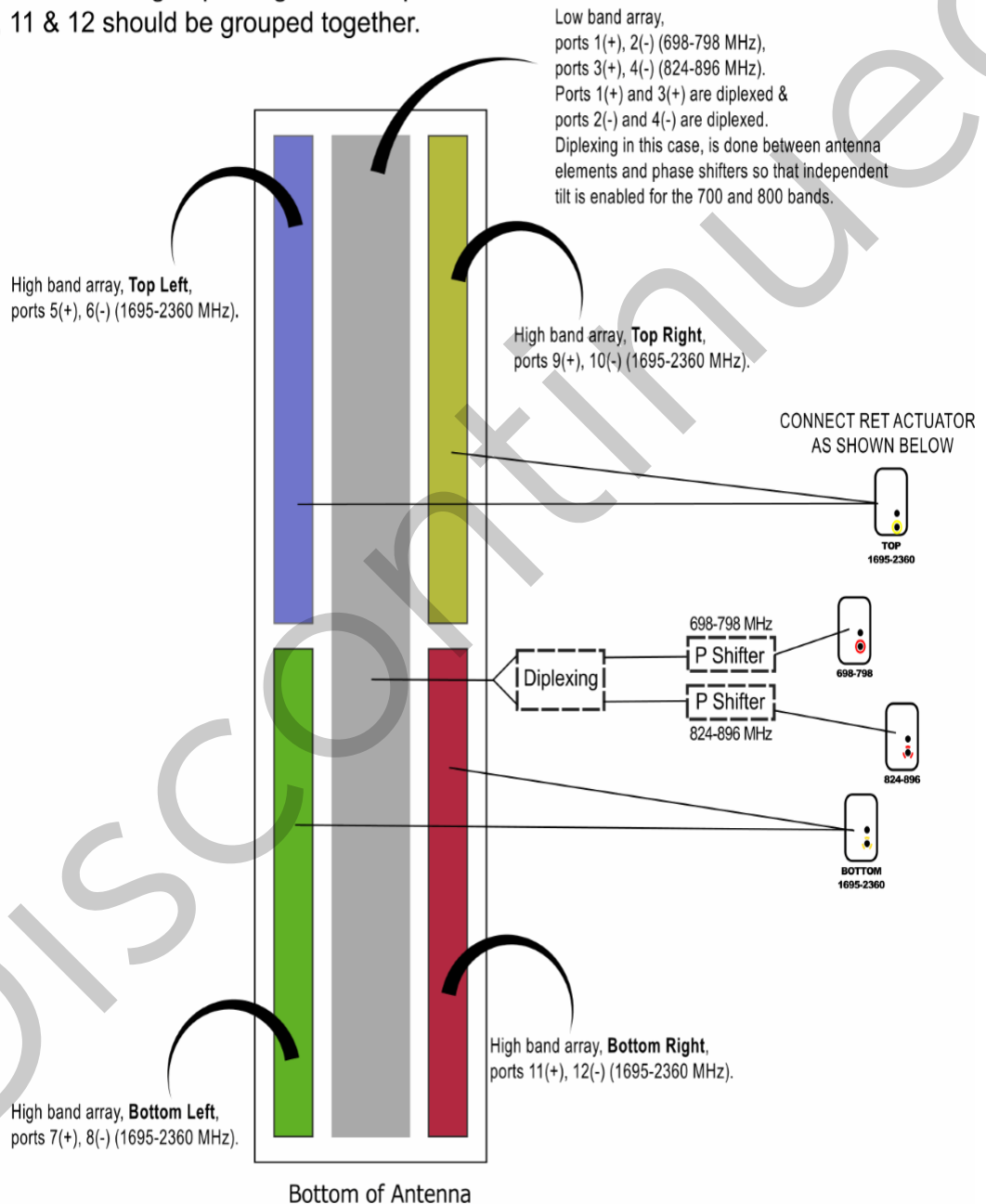
TPA-65R-LCUUUU-H6

Mechanical

Element and RET configuration

As viewed from back of antenna.

When deploying 4T4R, ports 5, 6, 9 & 10 should be grouped together and ports 7, 8, 11 & 12 should be grouped together.





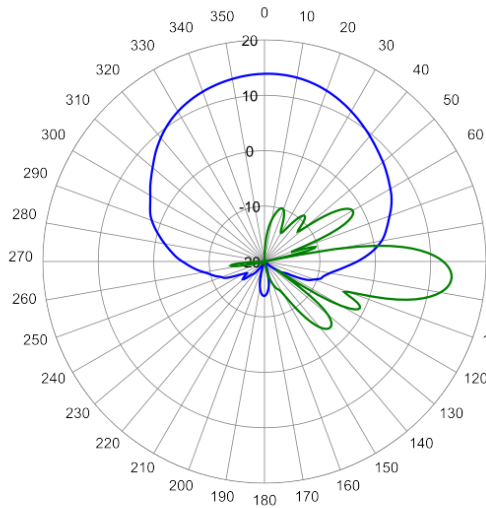
SPECIFICATIONS

Twelve Port Multi-Band Antenna

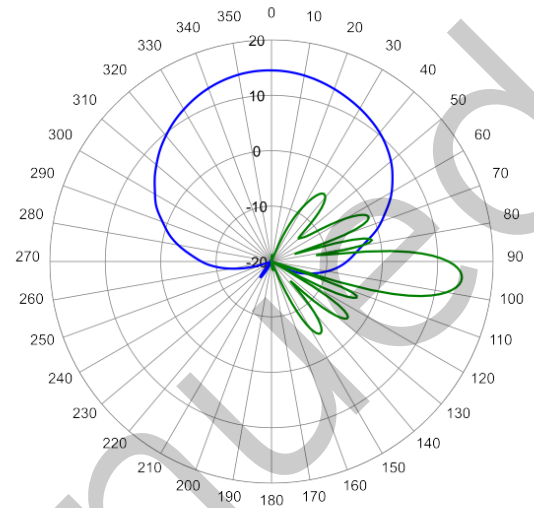
TPA-65R-LCUUUU-H6

Typical Antenna Patterns

— Azimuth
— Elevation

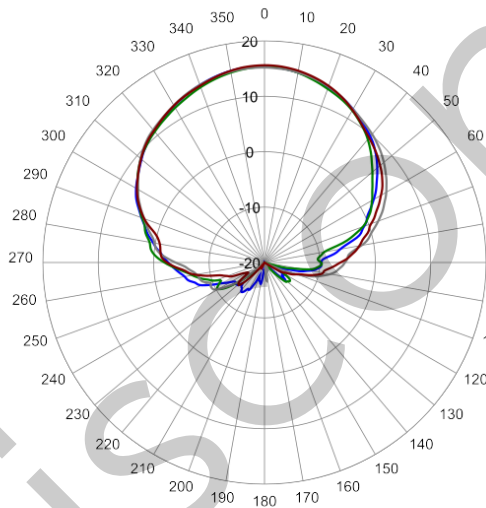


713 MHz Azimuth with Elevation 5°

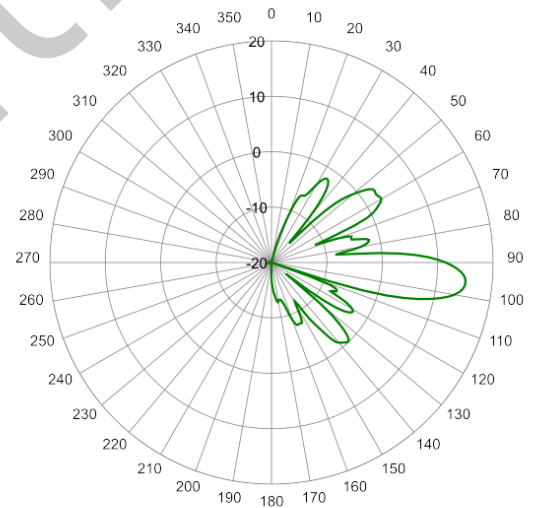


862 MHz Azimuth with Elevation 5°

Legend
— L+
— L-
— R+
— R-



1920 MHz Azimuth



1920 MHz Elevation 6°

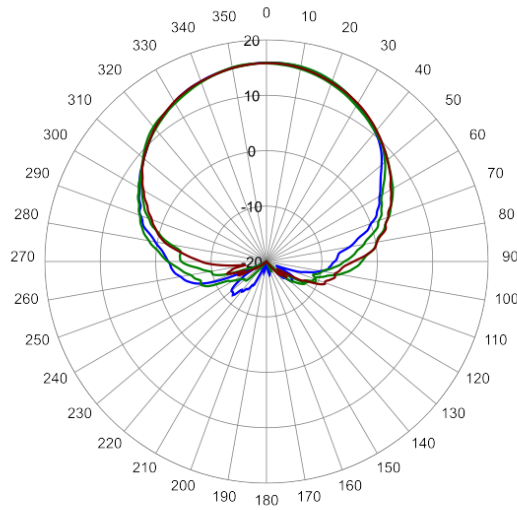


Twelve Port Multi-Band Antenna

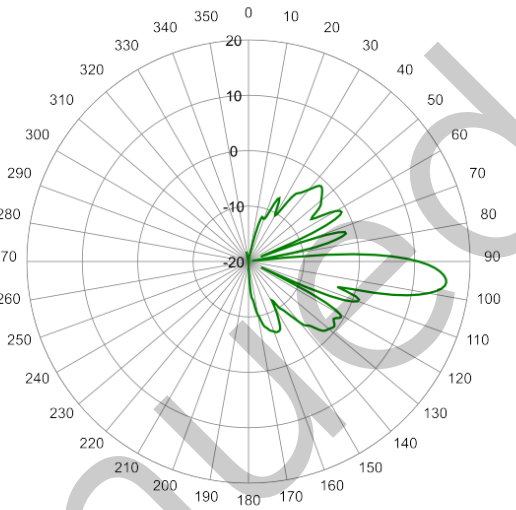
TPA-65R-LCUUUU-H6

Legend

- L+
- L-
- R+
- R-



2133 MHz Azimuth



2133 MHz Elevation 6°



ORDERING

Twelve Port Multi-Band Antenna

TPA-65R-LCUUUU-H6

Parts & Accessories

| | |
|----------------------------|--|
| TPA-65R-LCUUUU-H6 | 6 foot (1.8 m) Twelve Port antenna with 65° azimuth beamwidth and 4 factory installed BSA-RET200 RET actuators |
| TPA-65R-LCUUUU-H6-K | Antenna kit with 4 factory installed RET actuators and MBK-01 mounting bracket |
| MBK-01 | Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment |
| BSA-RET200 | Remote electrical tilt actuator |
| OPA-CBK-AG-RRU | OctoPort antenna to RRU AISG cable kit |
| OPA-CBK-RA-AG-RRU | OctoPort antenna to RRU AISG right angle cable kit |

Discontinued

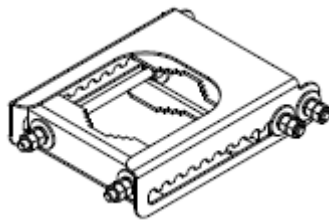


Mounting Bracket Kit

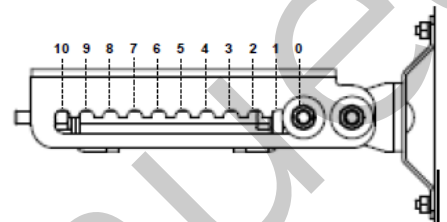
MBK-01

Mechanical

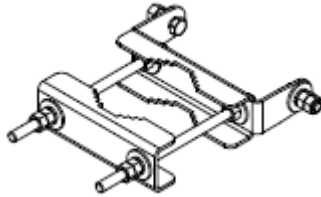
| | |
|-----------------------------------|------------------------|
| Weight | 12.6 lbs (5.7 kg) |
| Hinge Pitch | 47.25 in (1200 mm) |
| Mounting Pole Dimension | 2 to 5 in (5 to 12 cm) |
| Fastener Size | M12 |
| Installation Torque | 40 ft·lb (54 N·m) |
| Mechanical Tilt Adjustment | 0° - 10° |



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

Discontinued



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 |

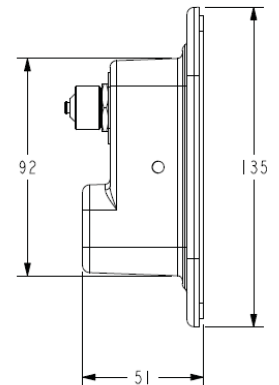
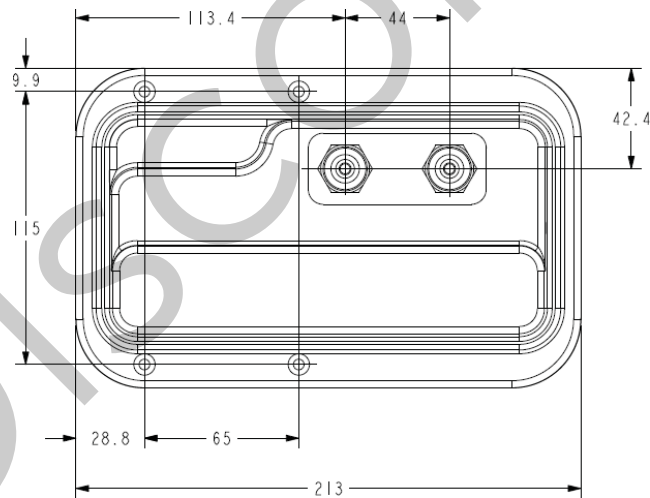
Electrical

| | |
|--------------------------|------------------------------|
| 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



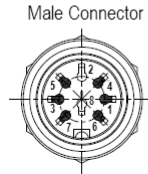
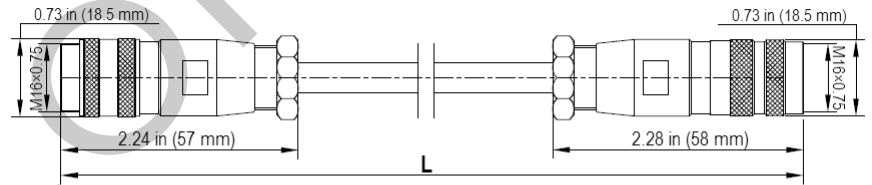


Electrical Specifications

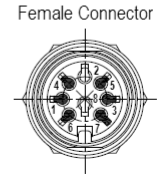
| | | |
|-------------------------------------|-----------------------|-----------------------|
| Individual Cable Part Number | AISGC-M-F-18 | AISGC-M-F-10FT |
| Cable style | UL2464 | UL2464 |
| Protocol | AISG 1.1 and AISG 2.0 | AISG 1.1 and AISG 2.0 |
| Maximum voltage | 300 V | 300 V |
| Rated current | 5 A at 104° F (40° C) | 5 A at 104° F (40° C) |

Mechanical Specifications

| | | |
|-------------------------------------|--|--|
| Individual Cable Part Number | AISGC-M-F-18 | AISGC-M-F-10FT |
| Cables per kit | 3 | 2 |
| Connectors | 2 x 8 pin IEC 60130-9 Straight male/straight female | 2 x 8 pin IEC 60130-9 Straight male/straight female |
| Tightening torque | Hand tighten only ≈ 1.84 ft-lbs (2.5 N-m) | Hand tighten only ≈ 1.84 ft-lbs (2.5 N-m) |
| Construction | Shielded (Tinned Copper Braid) | Shielded (Tinned Copper Braid) |
| Braid coverage | 85% | 85% |
| Jacket Material | Matte Polyurethane (Black) | Matte Polyurethane (Black) |
| Conductors | 1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464 | 1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464 |
| Cable Diameter | 0.307 in (7.8 mm) | 0.307 in (7.8 mm) |
| Length | 18 - 20 in (457 - 508 mm) | 120 in (3048 mm) |
| Weight | 0.27 lbs (0.12 kg) | 0.69 lbs (.31 kg) |
| Minimum bend radius | 3.9 in (100 mm) | 3.9 in (100 mm) |



| AISG 2.0 Pin Assignments | AISG Standard |
|--------------------------|---------------------------------|
| 1 | +12 V DC nominal (optional) |
| 2 | No conductor |
| 3 | RS485 B |
| 4 | RS 485 Ground |
| 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-18 | AISGC-M-F-10FT |
| Temperature Range | -40° to 80° C | -40° to 80° C |
| Flammability | UL 1581 VW-1 | UL 1581 VW-1 |
| Ingress Protection | IEC 60529:2001, IP67 | IEC 60529:2001, IP67 |

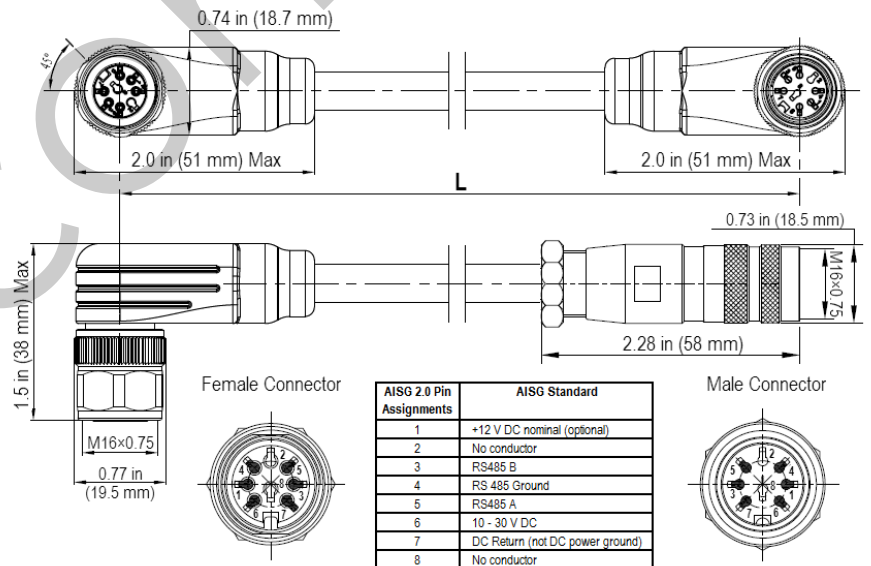


Electrical Specifications

| | | |
|-------------------------------------|-----------------------|-----------------------|
| Individual Cable Part Number | AISGC-MRA-FRA-20 | AISGC-M-FRA-10FT |
| Cable style | UL2464 | UL2464 |
| Protocol | AISG 1.1 and AISG 2.0 | AISG 1.1 and AISG 2.0 |
| Maximum voltage | 300 V | 300 V |
| Rated current | 5 A at 104° F (40° C) | 5 A at 104° F (40° C) |

Mechanical Specifications

| | | |
|-------------------------------------|--|--|
| Individual Cable Part Number | AISGC-MRA-FRA-20 | AISGC-M-FRA-10FT |
| Cables per kit | 3 | 2 |
| 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 |
| Tightening torque | Hand tighten only \approx 1.84 ft-lbs (2.5 N-m) | Hand tighten only \approx 1.84 ft-lbs (2.5 N-m) |
| Construction | Shielded (Tinned Copper Braid) | Shielded (Tinned Copper Braid) |
| Braid coverage | 85% | 85% |
| Jacket Material | Matte Polyurethane (Black) | Matte Polyurethane (Black) |
| Conductors | 1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464 | 1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464 |
| Cable Diameter | 0.307 in (7.8 mm) | 0.307 in (7.8 mm) |
| Length | 20 in (508 mm) | 120 in (3048 mm) |
| Weight | 0.23 lbs (0.10 kg) | 0.77 lbs (0.35 kg) |
| Minimum bend radius | 3.9 in (100 mm) | 3.9 in (100 mm) |



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



Environmental Specifications

| | | |
|-------------------------------------|----------------------|----------------------|
| Individual Cable Part Number | AISGC-MRA-FRA-20 | AISGC-M-FRA-10FT |
| Temperature Range | -40° to 80° C | -40° to 80° C |
| Flammability | UL 1581 VW-1 | UL 1581 VW-1 |
| Ingress Protection | IEC 60529:2001, IP67 | IEC 60529:2001, IP67 |

Discontinued



STANDARDS & CERTIFICATIONS

Twelve Port Multi-Band Antenna

TPA-65R-LCUUUU-H6

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



DISCONTINUED

