

- Eight foot (2.5 m) multiband, twelve port antenna with a 45° azimuth beamwidth covering 698-960 MHz and 1695-2360 MHz frequencies
- Eight wide high band ports covering 1695-2360 MHz and four wide low band ports covering 698-960 MHz in a single antenna enclosure
- New Enclosure, allowing for 15.4" (391mm) width. Narrowest Enclosure in the Industry for a 45° Antenna of this configuration
- Full Spectrum Compliance for WCS and AWS-3 frequencies and upcoming Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 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
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Equipped with 3 field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) Controllers
- Ordering options for External RET Controllers (Type 1) or Internally Integrated RET Controllers (Type 17)

Overview

The CCI 12-Port multiband array is a twelve port antenna, with eight wide high band ports covering 1695-2360 MHz and four wide low band ports covering 698-960 MHz. The antenna provides the capability to deploy Dual 4x4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports.

The CCI 12-Port allows independent tilt control between the low band ports and high band ports. With the use of two independent RET controllers in the High Band, the Top and Bottom paired high band ports can be tilted independently, enabling maximum flexibility in network deployment.

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 for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN 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

Twelve Port Multi-Band Antenna

TPA45R-KU8A

Electrical

| Ports | 4 x Low Band Ports for 698-960 MHz | | | |
|--------------------------------------|------------------------------------|--------------|--------------|--------------|
| Frequency Range | 698-806 MHz | 790-862 MHz | 824-896 MHz | 880-960 MHz |
| Gain ¹ | 15.2 dBi | 15.8 dBi | 16.3 dBi | 16.4 dBi |
| Gain (Average) ² | 14.7 dBi | 15.1 dBi | 15.5 dBi | 15.8 dBi |
| Azimuth Beamwidth (-3dB) | 51° | 49° | 47° | 44° |
| Elevation Beamwidth (-3dB) | 17.8° | 15.8° | 14.9° | 13.8° |
| Electrical Downtilt | 2° to 16° | 2° to 16° | 2° to 16° | 2° to 16° |
| Elevation Sidelobes (1st Upper) | < -18 dB | < -18 dB | < -18 dB | < -18 dB |
| Front-to-Back Ratio @180° | > 30 dB | > 30 dB | > 30 dB | > 30 dB |
| Cross-Polar Discrimination (at Peak) | > 25 dB | > 25 dB | > 25 dB | > 25 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 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.

| Ports | 8 x High Band Ports for 1695-2360 MHz | | | |
|--------------------------------------|---------------------------------------|---------------|---------------|---------------|
| Frequency Range | 1695-1880 MHz | 1850-1990 MHz | 1920-2180 MHz | 2305-2360 MHz |
| Gain ¹ | 17.0 dBi | 17.6 dBi | 18.0 dBi | 18.2 dBi |
| Gain (Average) ² | 16.2 dBi | 16.8 dBi | 17.2 dBi | 17.3 dBi |
| Azimuth Beamwidth (-3dB) | 45° | 45° | 43° | 41° |
| Elevation Beamwidth (-3dB) | 8.8° | 8.1° | 7.7° | 7.1° |
| Electrical Downtilt | 2° to 10° | 2° to 10° | 2° to 10° | 2° to 10° |
| Elevation Sidelobes (1st Upper) | < -17 dB | < -17 dB | < -17 dB | < -18 dB |
| Front-to-Back Ratio @180° | > 30 dB | > 30 dB | > 33 dB | > 35 dB |
| Cross-Polar Discrimination (at Peak) | > 18 dB | > 18 dB | > 20 dB | > 25 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 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.



SPECIFICATIONS

Twelve Port Multi-Band Antenna

TPA45R-KU8A

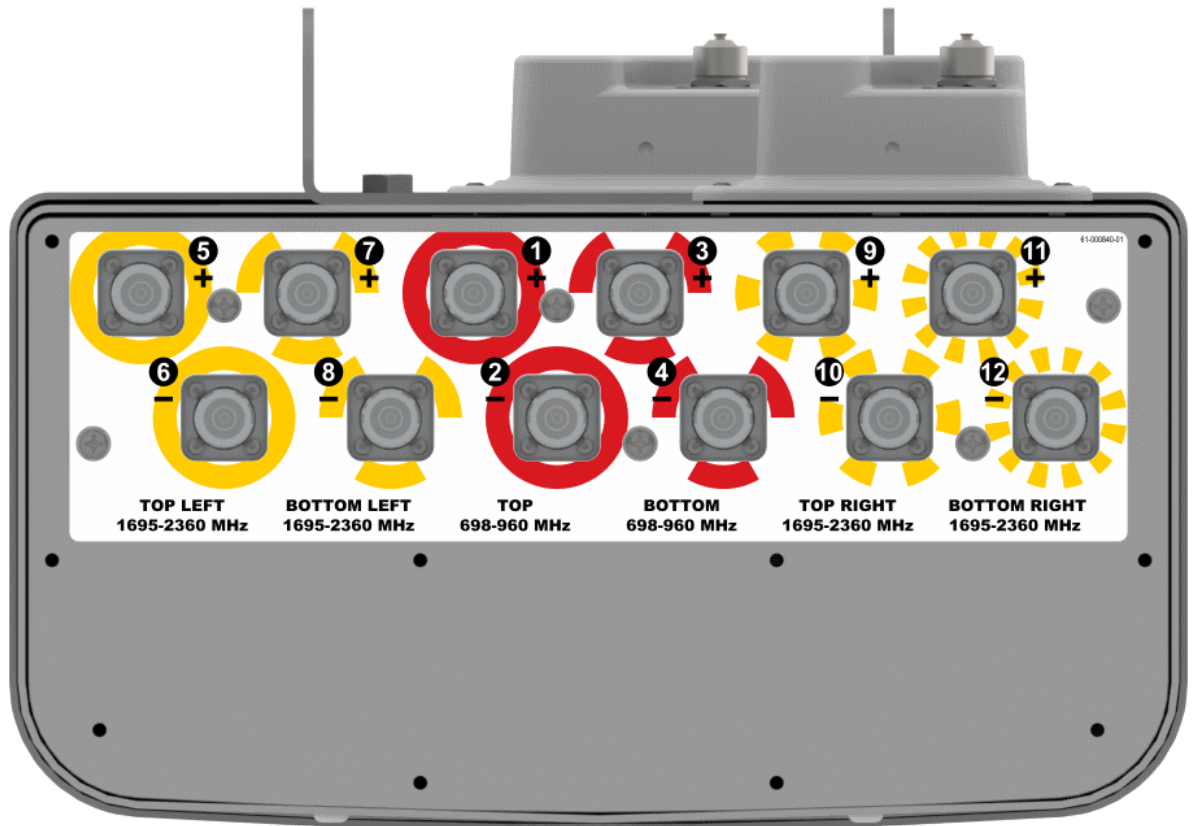
Mechanical

| | |
|----------------------------|--|
| Dimensions (LxWxD) | 98.7x15.4x8.2 in (2507x391x208 mm) |
| Survival Wind Speed | > 150 mph (> 241 kph) |
| Front Wind Load | 371 lbs (1650 N) @ 100 mph (161 kph) |
| Side Wind Load | 225 lbs (1002 N) @ 100 mph (161 kph) |
| Equivalent Flat Plate Area | 14.5 ft ² (1.3 m ²) |
| Weight * | 67.6 lbs (30.7 kg) |
| Package Dimensions (LxWxD) | 106.3x19.8x14.4 in (2701x503x365 mm) |
| Package Weight~ | 103.6 lbs (47.0 kg) |
| Connector | 12 x 4.3-10 female |
| Mounting Pole | 2 to 5 in (5 to 12 cm) |

* Weight excludes mounting kit

Bottom View

TPA45R-KU8AA Shown





SPECIFICATIONS

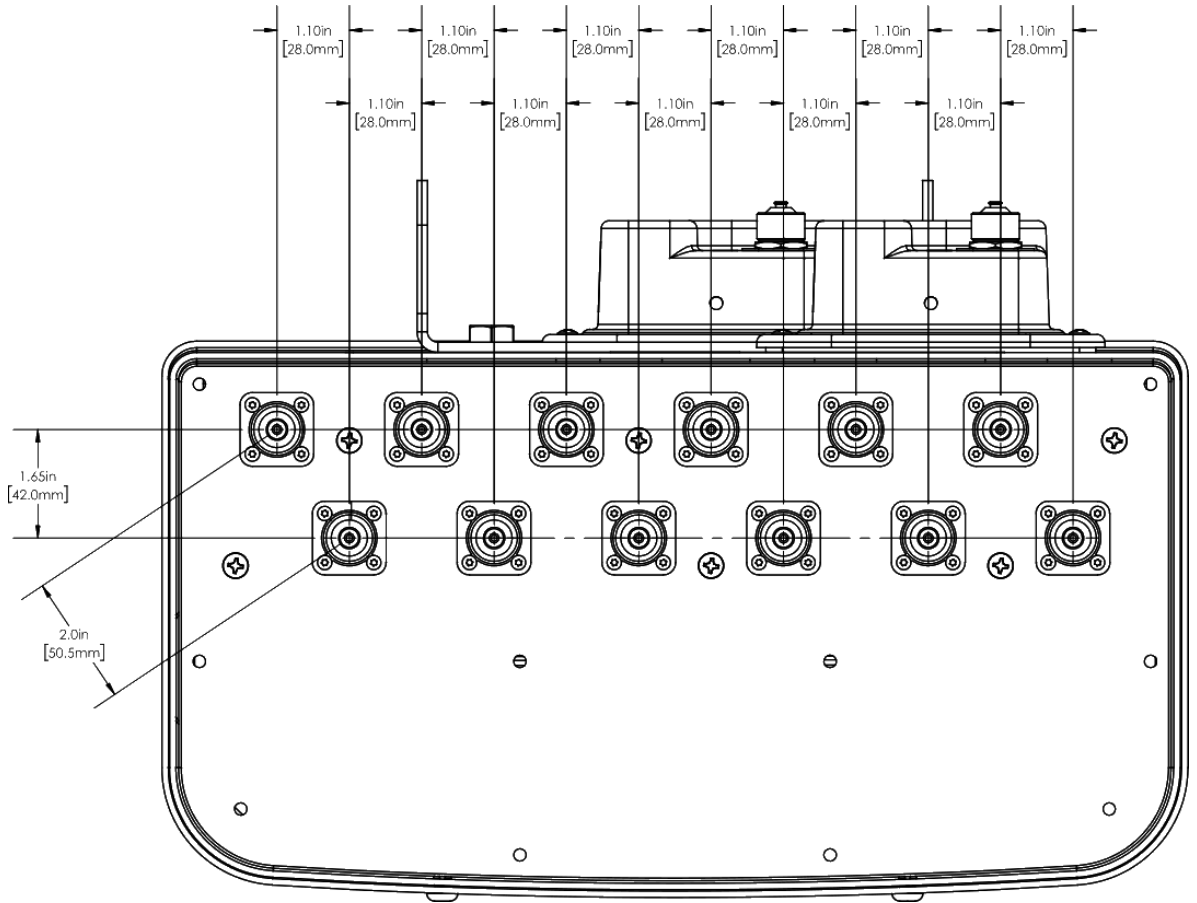
Twelve Port Multi-Band Antenna

TPA45R-KU8A

Mechanical

Connector Spacing

TPA65R-KU8AA Shown





Twelve Port Multi-Band Antenna

TPA45R-KU8A

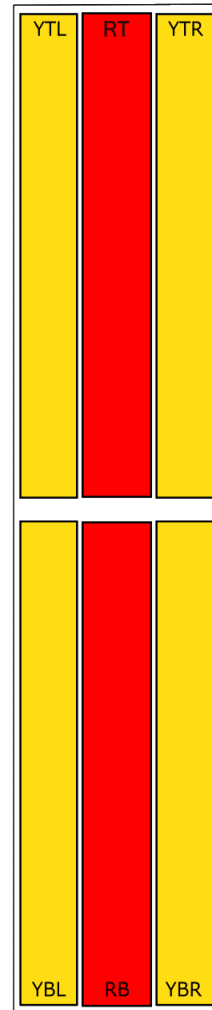
SPECIFICATIONS

Mechanical

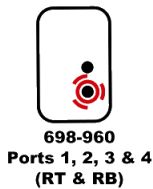
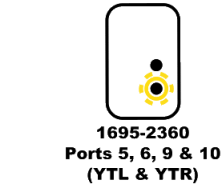
RET to Array Configuration

Element arrays as viewed from rear of antenna

| Array | Ports | Freq (MHz) | Ports controlled by common RET |
|-------|--------|------------|--------------------------------|
| RT | 1, 2 | 698-960 | 1, 2, 3, 4 |
| RB | 3, 4 | 698-960 | |
| YTL | 5,6 | 1695-2360 | 5, 6, 9, 10 |
| YTR | 9,10 | 1695-2360 | |
| YBL | 7, 8 | 1695-2360 | 7, 8, 11, 12 |
| YBR | 11, 12 | 1695-2360 | |



RET placement as viewed from rear of antenna





SPECIFICATIONS

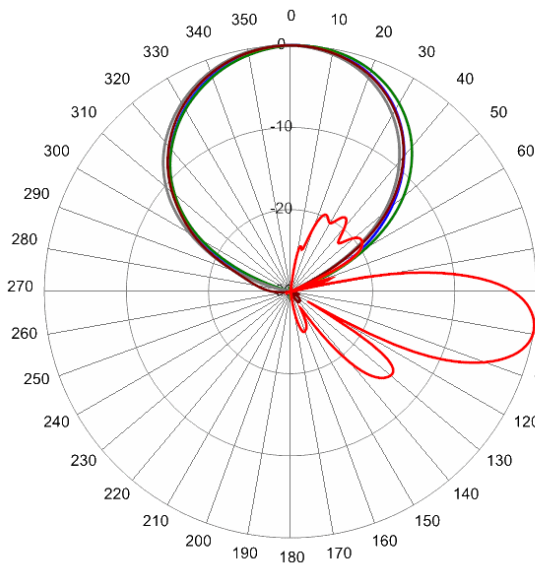
Twelve Port Multi-Band Antenna

TPA45R-KU8A

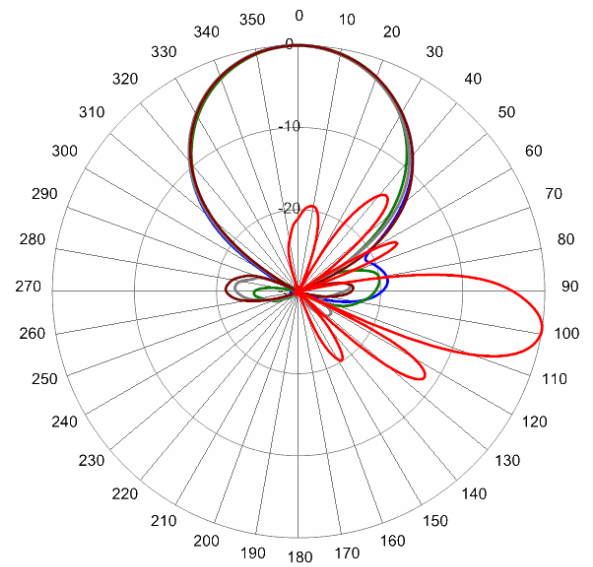
Typical Antenna Patterns

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

All Ports shown in Azimuth

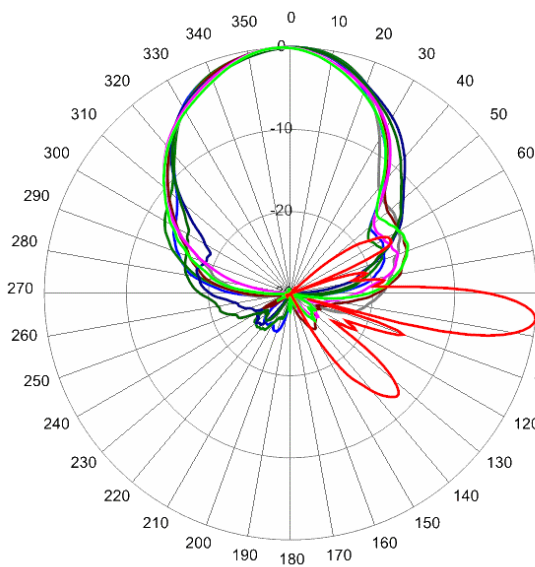


734 MHz Azimuth / Elevation 9°

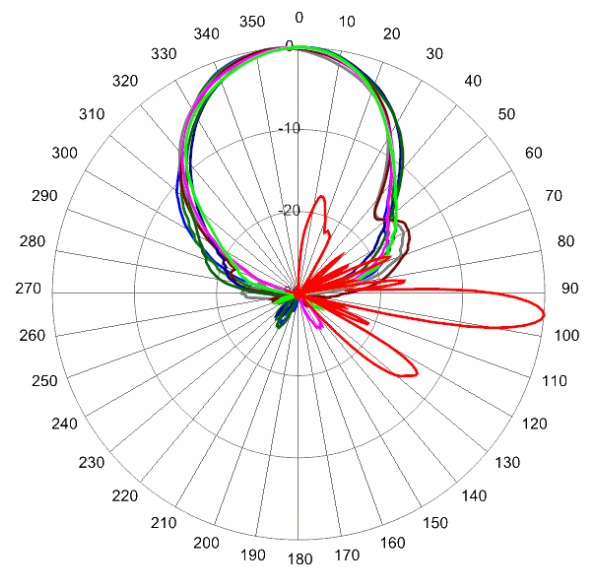


860 MHz Azimuth / Elevation 9°

All Ports shown in Azimuth



1780 MHz Azimuth / Elevation 6°



2155 MHz Azimuth / Elevation 6°



ORDERING

Twelve Port Multi-Band Antenna

TPA45R-KU8A

Parts & Accessories

| | |
|--------------------------|--|
| TPA45R-KU8AA-K | 8 foot (2.5 m) Twelve Port antenna with 45° azimuth beamwidth, 4.3-10 female connectors, three factory installed BSA-RET200 RET actuators (Type 1 external) and MBK-16 mounting bracket |
| TPA45R-KU8AB-K | 8 foot (2.5 m) Twelve Port antenna with 45° azimuth beamwidth, 4.3-10 female connectors, three factory installed BSA-RET400 RET actuators (Type 17 internal) and MBK-16 mounting bracket |
| MBK-01 | Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment |
| MBK-16 | Mounting bracket kit (top and bottom) with fixed 0° mechanical tilt |
| BSA-RET200 | Type 1 remote electrical tilt actuator |
| BSA-RET400 | Type 17 remote electrical tilt actuator |
| TPA-CBK-AG-RRU | Three RET antenna to RRU AISG cable kit |
| TPA-CBK-RA-AG-RRU | Three RET antenna to RRU AISG right angle cable kit |
| AISGC-M-F-10FT | 10 Ft (3 m) Male/Female RRU to Antenna AISG cable |

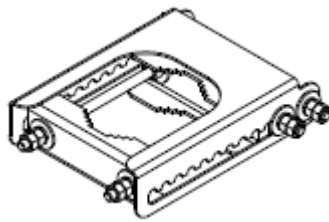


Mounting Bracket Kit

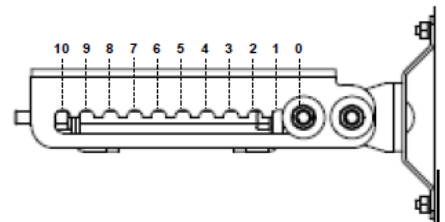
MBK-01

Mechanical

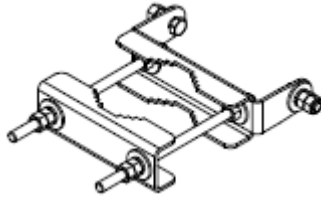
| | |
|-----------------------------------|------------------------|
| Weight | 12.6 lbs (5.7 kg) |
| Hinge Pitch | 47.25 in (1200 mm) |
| Mounting Pole Dimension | 2 to 5 in (5 to 12 cm) |
| Fastener Size | M12 |
| Installation Torque | 40 ft·lb (54 N·m) |
| Mechanical Tilt Adjustment | 0° - 10° |



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

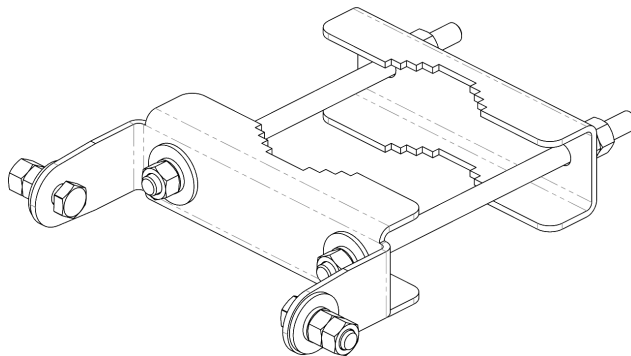
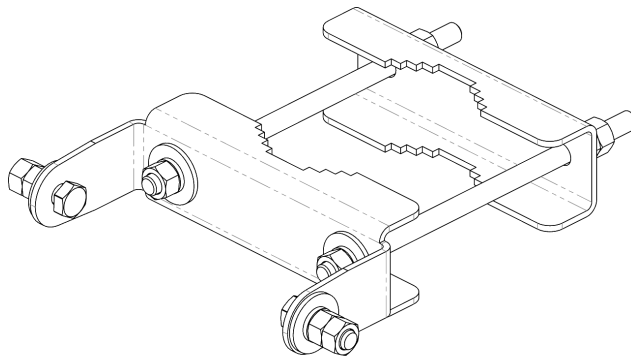


Mounting Bracket Kit

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



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 |

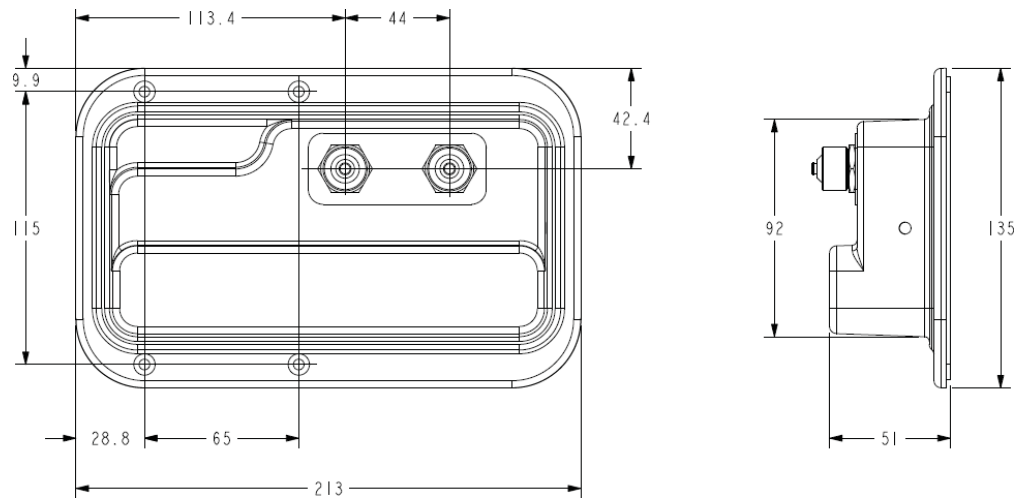
Electrical

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





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 |

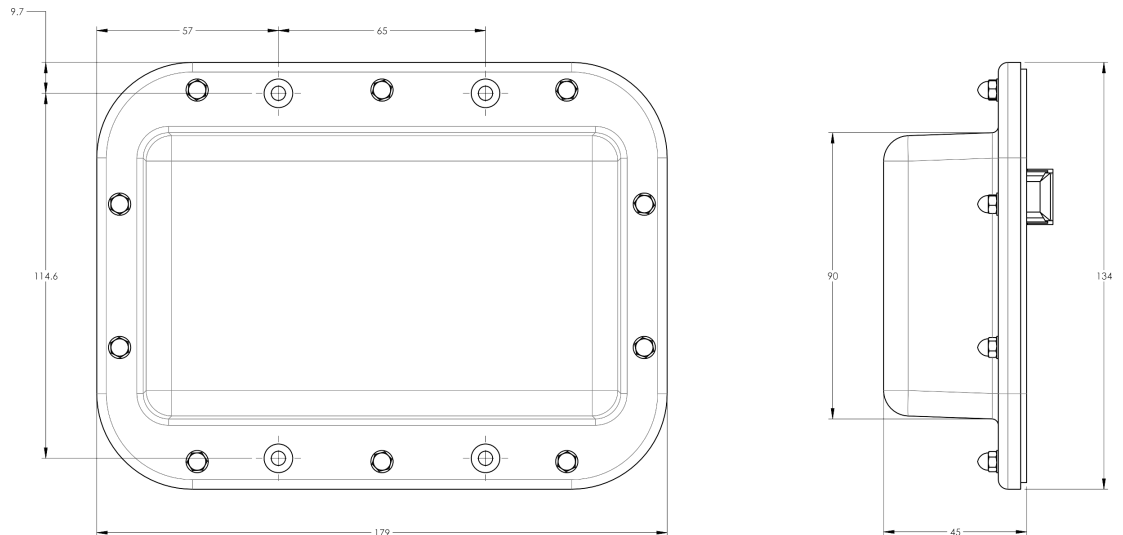
Electrical

| | |
|--------------------------|------------------------------------|
| 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=Acrylonitrile Butadiene Styrene

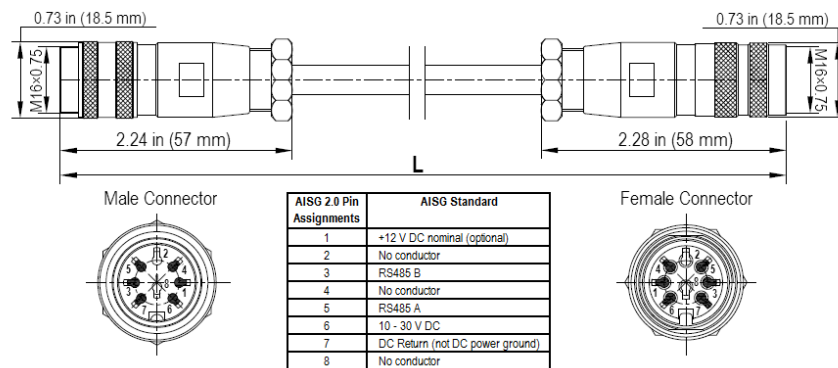




Electrical/Mechanical/Environmental Specifications

| | RET to RET Cables | | RRU to Antenna Cables |
|------------------------------|--|--------------------|-----------------------|
| Individual Cable Part Number | AISGC-M-F-60 | AISGC-M-F-27 | 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 | 60 in (1525 mm) | 27 in (686 mm) | 120 in (3048 mm) |
| Weight | 0.44 lbs (0.20 kg) | 0.33 lbs (0.15 kg) | 0.69 lbs (0.31 kg) |
| Cables per kit | 1 | 1 | 2 |

Mechanical Specifications



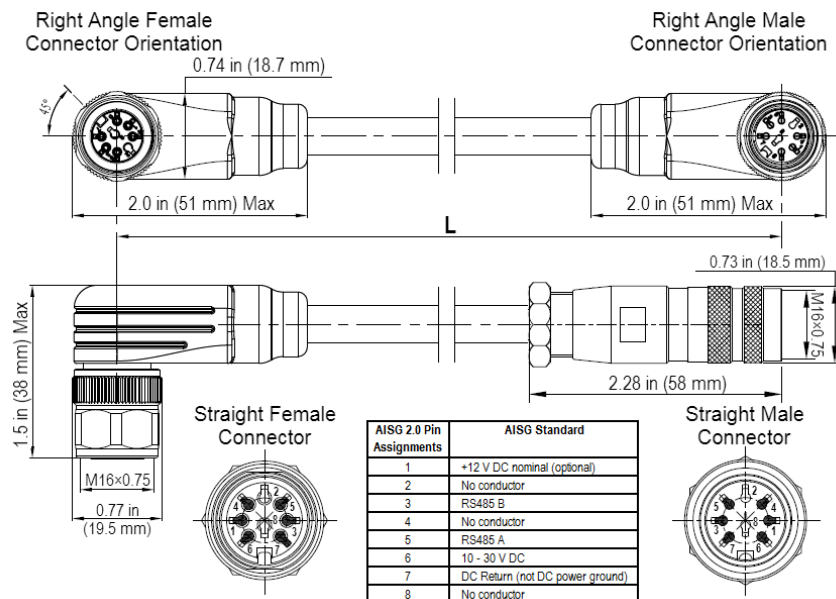
AISG-Male to AISG-Female Jumper Cable



Electrical/Mechanical/Environmental Specifications

| | RET to RET Cables | | RRU to Antenna Cables |
|------------------------------|--|--------------------|---|
| Individual Cable Part Number | AISGC-MRA-FRA-66 | AISGC-MRA-FRA-36 | 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 | 66 in (1675 mm) | 36 in (914 mm) | 120 in (3048 mm) |
| Weight | 0.44 lbs (0.20 kg) | 0.23 lbs (0.10 kg) | 0.77 lbs (0.35 kg) |
| Cables per kit | 1 | 1 | 2 |

Mechanical Specifications



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



AISG Cable

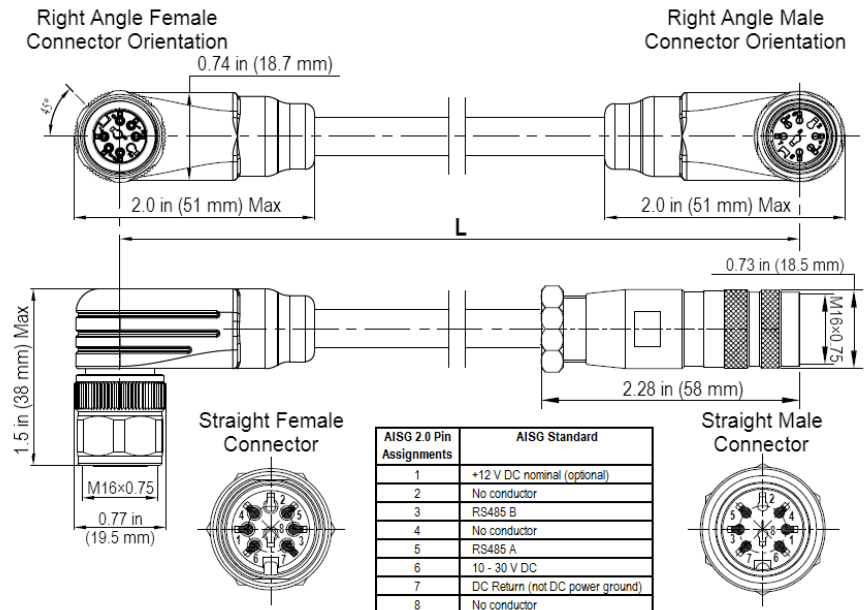
AISGC-M-F-xFT

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

Twelve Port Multi-Band Antenna

TPA45R-KU8A

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

