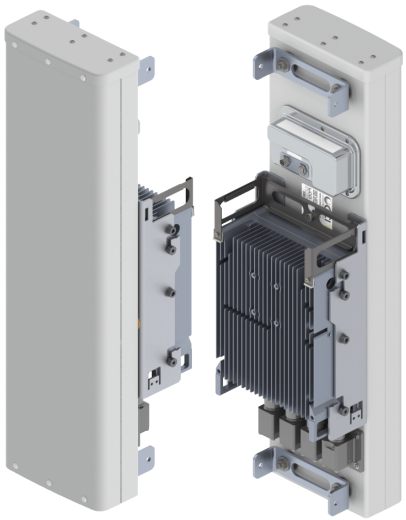
Antennas

MultiPort Series

DATA SHEET

Quad Port High-Band Antenna

QPA65R-H3A



- Three foot (975 mm) tall, 10.1" (256 mm) wide, four port antenna with a 65° azimuth beamwidth covering 3800-3900 MHz frequencies
- Innovative RF Connector design which allows for blind mate connections with an IP67 rating on all connections. Ideal for Integrated Antenna/Radio attachments
- Blind Mate connector design allows for easy RRU field replacements, without taking down the antenna or replacing the whole assembly
- Integrated Blind Mate Connector design is RRU specific
- 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 Blind Mate 4.3-10
- Equipped with one Externally Integrated RET Controller (Type 1)

Overview

The CCI Integrated Radio Series Antenna is a four port antenna, with four high-band ports covering 3800-3900 MHz. The CCI Integrated Radio Series Antenna provides the capability to deploy 4x4 Multiple-Input Multiple-Output (MIMO). The CCI Integrated Radio Series antenna single RET configuration tilts all four ports together, allowing for electrical downtilt uniformity across all four 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
- Integrated Blind Mate 4.3-10 DIN connectors, with IP67 rating
- With CCI's Integrated Radio Series Antenna, wireless providers can reduce tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Quad Port High-Band Antenna

QPA65R-H3A

Electrical Antenna

Ports	4 x High Band Ports for 3800-3900 MHz
Frequency Range	3800-3900 MHz
Gain	18.6 dBi
Azimuth Beamwidth (-3dB)	62°
Elevation Beamwidth (-3dB)	5.0°
Electrical Downtilt	0° to 10°
Elevation Sidelobes (1st Upper)	< -18 dB
Front-to-Back Ratio @180°	> 35 dB
Cross-Polar Discrimination (at Peak)	> 20 dB
Cross-Polar Port-to-Port Isolation	> 25 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc
Input Power Continuous Wave (CW)	100 watts
Polarization	Dual Pol 45°
Input Impedance	50 ohms
Lightning Protection	DC Ground

BASTA Electrical Specifications*	
Frequency Range	3800-3900 MHz
Gain (dBi)	17.8
Gain over all Tilts Tolerance (dB)	0.5
Gain at Low-Tilt (dBi)	18.0
Gain at Mid-Tilt (dBi)	18.2
Gain at High-Tilt (dBi)	17.2
Azimuth Beamwidth Tolerance (°)	6.0
Elevation Beamwidth Tolerance (°)	0.2
Electrical Downtilt Deviation (°)	0.6
First Upper Sidelobes Suppression (dB)	18.5
Upper Sidelobe Suppression Peak to 20° (dB)	18.5
Front-to-Back Ratio over ±20° (dB)	30.8
Cross-polar Discrimination at 3 dB (dB)	7.4

** Electrical specifications follow "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.*
All specifications are subject to change without notice.

SPECIFICATIONS

Quad Port High-Band Antenna

QPA65R-H3A

Mechanical

Dimensions (L×W×D)	38.4×10.1×4.3 in (975×256×108 mm)
Survival Wind Speed	> 201 mph (> 90 m/s)
Front Wind Load[1]	59 lbf @ 100 mph 264 N @ 161 kph
Side Wind Load[1]	40 lbf @ 100 mph 178 N @ 161 kph
Front Wind Load[1]	228 lbf @ 201 mph 1014 N @ 324 kph
Side Wind Load[1]	151 lbf @ 201 mph 671 N @ 324 kph
Effective Projective Area (EPA), Front[1]	2.4 ft^2 (0.2 m^2)
QPA65R-H3AA Weight*	45.0 lbs (20.4 kg)
QPA65R-H3AA Weight**	20.9 lbs (9.5 kg)
Connector	4 x custom blind-mate 4.3-10 connectors
Mounting Pole	3.5 to 5.5 in (8.9 to 14.0 cm)

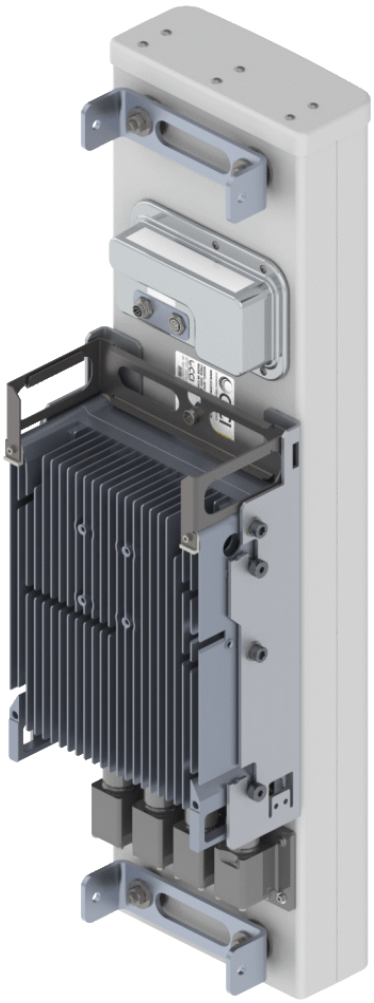
[1]Windload values calculated using CFD analysis

** Weight excludes mounting kit and calculated with a weight of 20.9 lbs (9.9 kg) for the Zillnk Radio*

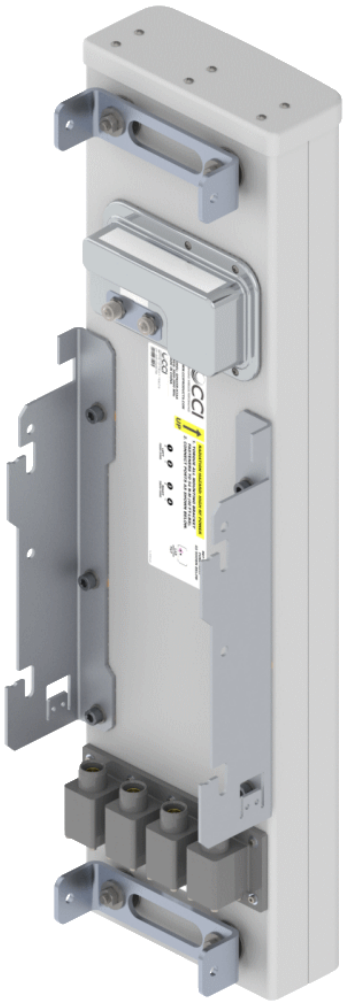
*** Weight excludes mounting, radio interconnect parts and radio*

Rear View

QPA65R-H3AA

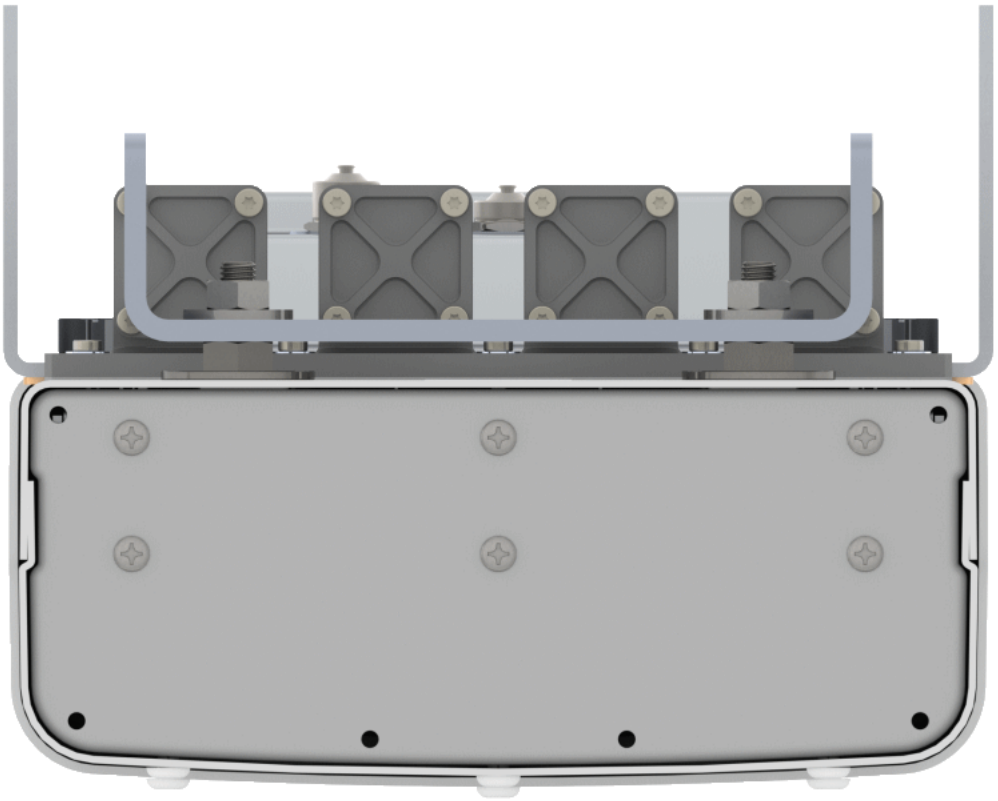


QPA65R-H3AA w/o RRU



Mechanical

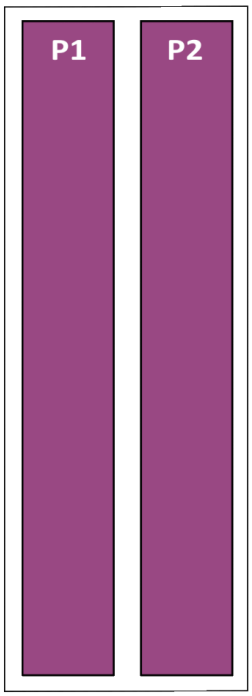
Bottom View *QPA65R-H3AA w/o RRU*



Mechanical

RET/Element Configuration *QPA65R-H3AA*

Element arrays as viewed from rear of antenna



RET placement as viewed from rear of antenna

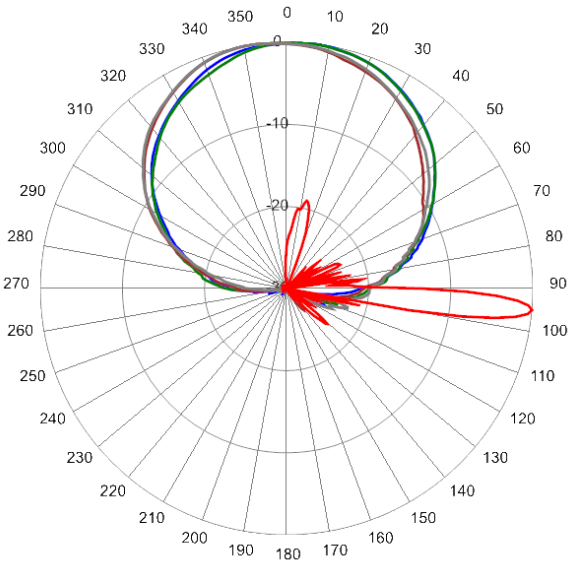
Top of antenna

MM.1

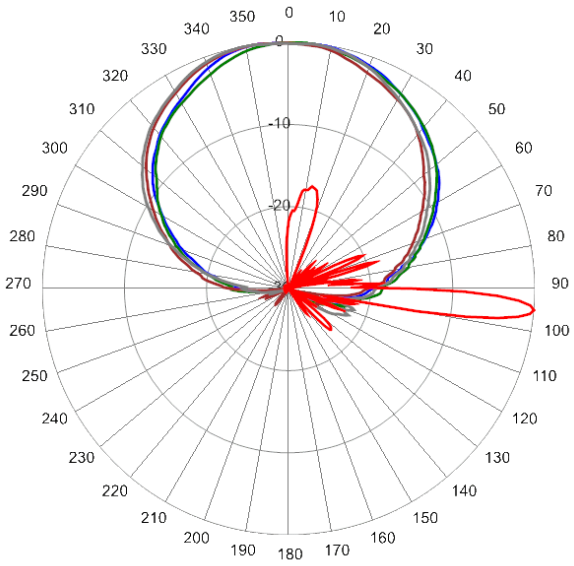
Array	Ports	Freq (MHz)	Ports controlled by common RET	AISG RET UID
P1	1, 2	3800-3900	1, 2, 3, 4	CIxxxxxxMM.1
P2	3, 4	3800-3900		

Typical Antenna Patterns

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



3820 MHz Azimuth & Elevation 5°



3880 MHz Azimuth & Elevation 5°

ORDERING

Quad Port High-Band Antenna

QPA65R-H3A

Parts & Accessories

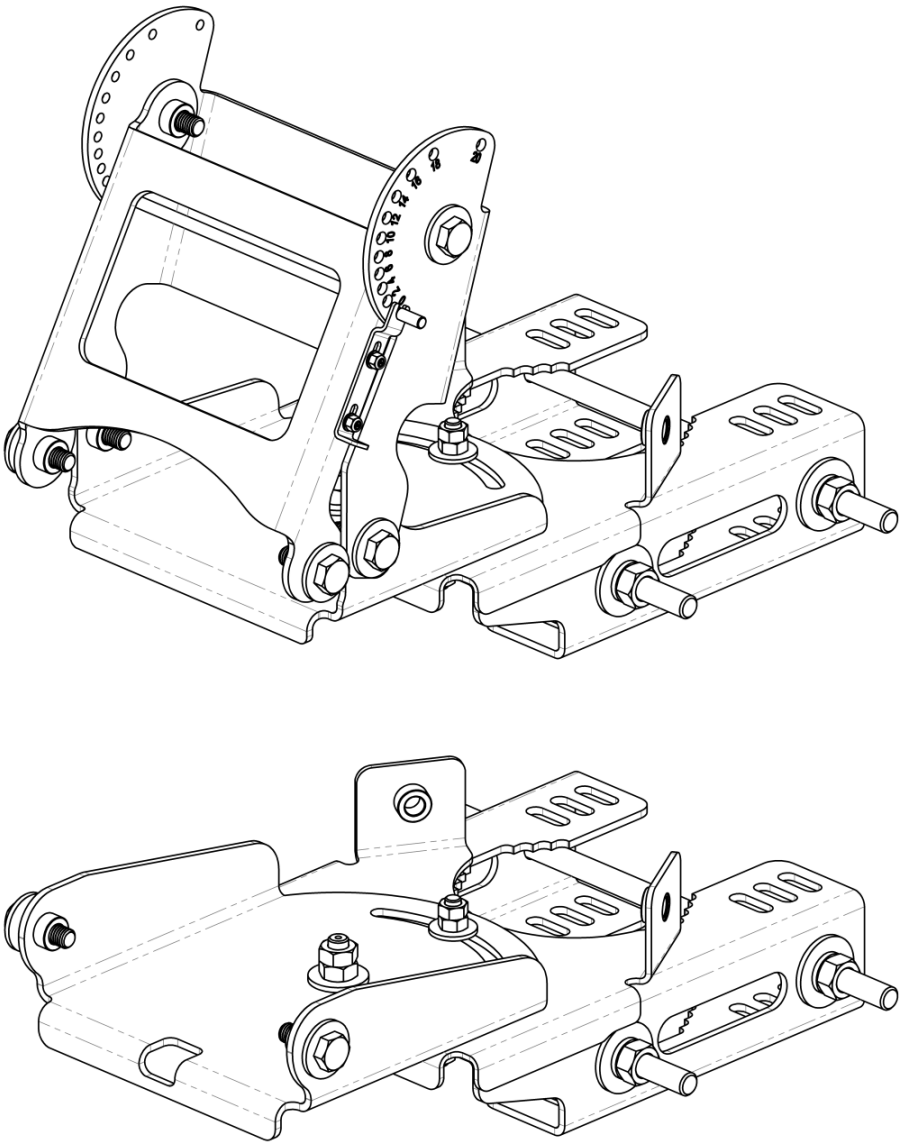
QPA65R-H3AA	Three foot (0.9 m) QuadPort antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 1 factory installed BSA-RET200 RET actuator (Type 1 External) one AISGC-M-FRA-39 cable
MBK-30	Single antenna mounting bracket kit (top and bottom) with 0° to 20° mechanical downtilt adjustment and ±30° of azimuth swing adjustment
MBK-31	Tri antenna mounting bracket kit (top and bottom) with 0° to 20° mechanical downtilt adjustment and ±30° of azimuth swing adjustment
RM-04	Zillnk Radio Interconnect and Mounting components
BSA-RET200	Type 1 External Remote Electrical Tilt System (RET)
TL-02	Tool for installation and removal of RRU on antenna
TL-03	3 way lifting handle for Zillnk radio
AISGC-M-FRA-39	59 in (1.5 m) Male/Right Angle Female RRU to Antenna AISG cable

Mounting Bracket Kit

MBK-30

Mechanical

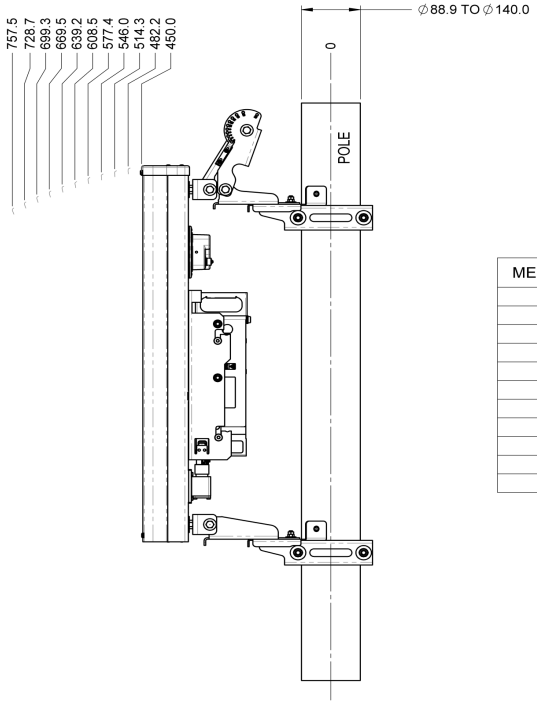
Weight	25.8 lbs (11.7 kg)
Hinge Pitch	34.25 in (870 mm)
Mounting Pole Dimension	3.5 to 5.5 in (89 to 140 mm)
Fastener Size	M10 HHC Screw, DIN 933, ISO 4017 M12 Hex Nut, DIN 934, ISO 4032
Installation Torque	M10-18 ft·lbs (25 N·m), M12-40 ft·lbs (54 N·m)
Mechanical Tilt	0° to 20°



MBK-30

Mechanical

QPA65R-H3A ANTENNA DISTANCE FROM POLE BASED ON THE MECHANICAL TILT SETTING



MECHANICAL TILT (°)	DISTANCE FROM POLE ℄
0	450.0
2	482.2
4	514.3
6	546.0
8	577.4
10	608.5
12	639.2
14	669.5
16	699.3
18	728.7
20	757.5

NOTE: ALL MEASUREMENTS BASED ON MM (MILLIMETER)

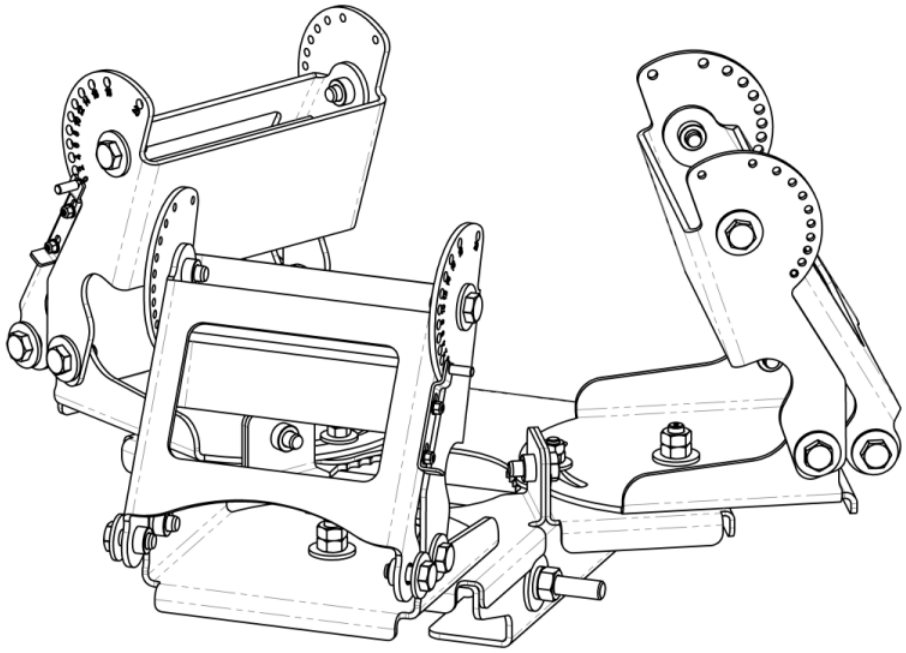
Mechanical Tilt Setting Chart For QPA65R-H3A

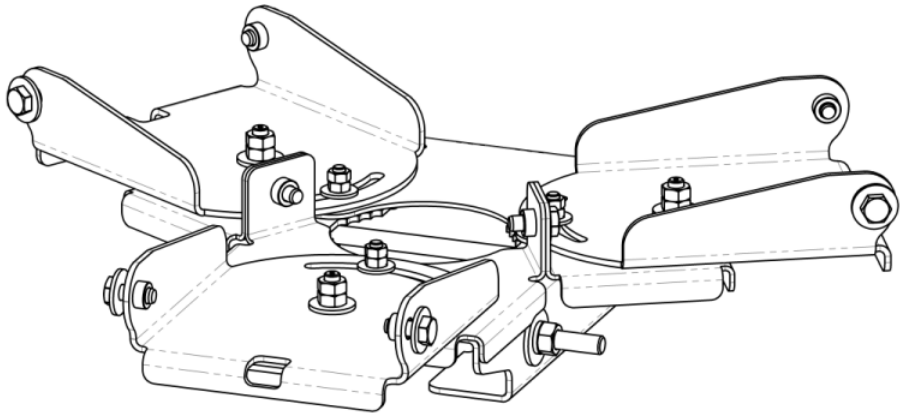
Mounting Bracket Kit

MBK-31

Mechanical

Weight	52.7 lbs (23.9 kg)
Hinge Pitch	34.25 in 870 mm)
Mounting Pole Dimension	3.5 to 5.5 in (89 to 140 mm)
Fastener Size	M10 HHC Screw, DIN 933, ISO 4017 M12 Hex Nut, DIN 934, ISO 4032
Installation Torque	M10-18 ft·lbs (25 Nm), M12-40 ft·lbs (54 Nm)
Mechanical Tilt	0° to 20°

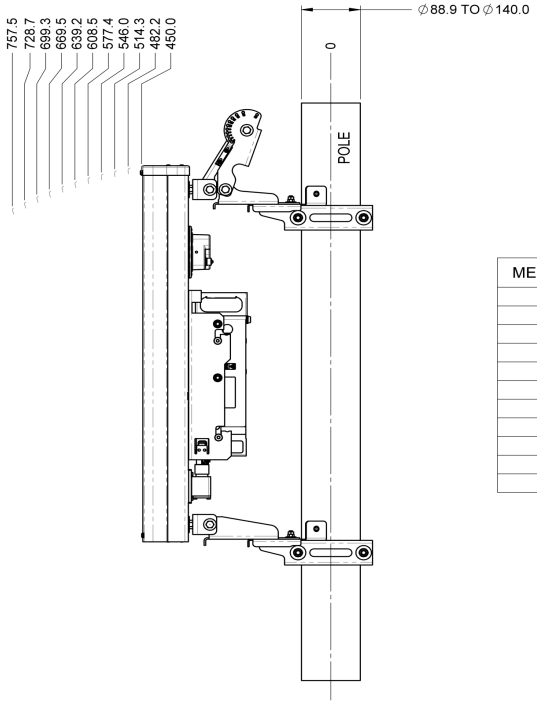




MBK-31

Mechanical

QPA65R-H3A ANTENNA DISTANCE FROM POLE BASED ON THE MECHANICAL TILT SETTING



MECHANICAL TILT (°)	DISTANCE FROM POLE ℄
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14	669.5
16	699.3
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20	757.5

NOTE: ALL MEASUREMENTS BASED ON MM (MILLIMETER)

Mechanical Tilt Setting Chart For QPA65R-H3A

Radio Interconnect

RM-04

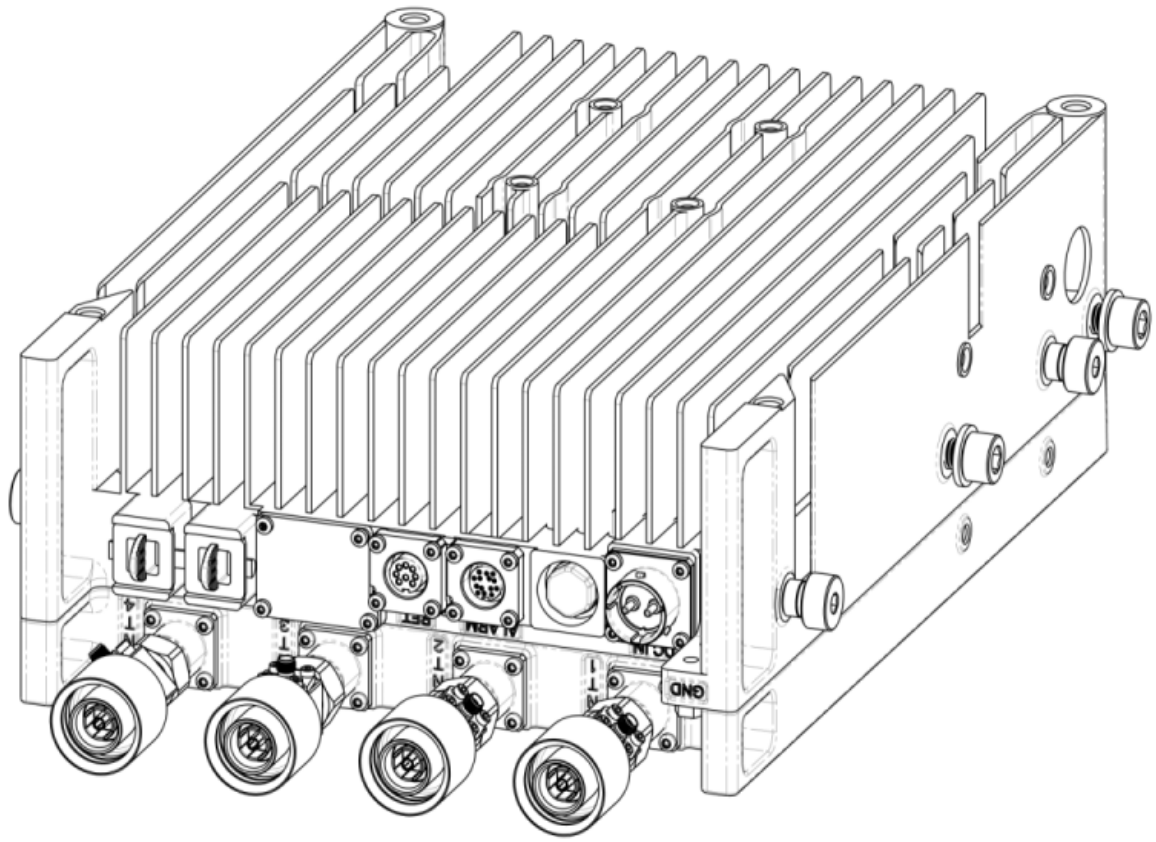
Electrical

Parameter	Ports	Frequency	Value
Return Loss	INPUT FROM RADIO / OUTPUT TO ANTENNA	3700-4000 MHz	> 25 dB*
	SMA MONITOR PORT	3700-4000 MHz	> 10 dB
Insertion Loss	INPUT FROM RADIO / OUTPUT TO ANTENNA	3700-4000 MHz	< 0.20 dB
Coupling	INPUT FROM RADIO / SMA MONITOR PORT	3700-4000 MHz	38.0-42.0 dB

**Requirements above must use a 50 Ohm load that has a Return Loss >35 dB from 3700-4000 MHz.*

Mechanical

Model Number	RM-04
Fits Radio	Zillnk Radio
For Antenna Models	QPA65R-H3A
Overall Weight	1.2 lbs. (0.53 kg) not including radio



RM-04 installed onto Radio

Environmental Specifications

Model Number	RM-04
Temperature Range	-45° to 70° C

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

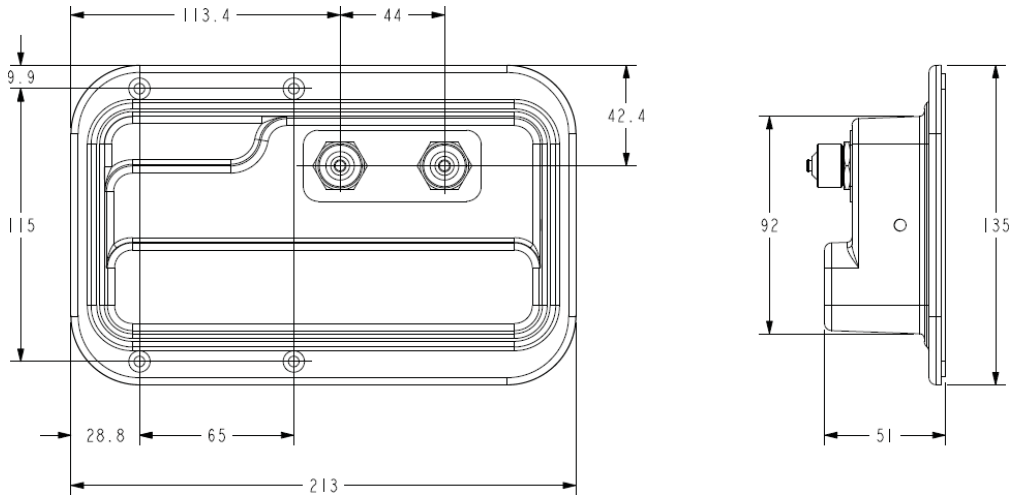
Electrical

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 x 8 pin Daisy Chain
Output Connector	Female 1 x 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

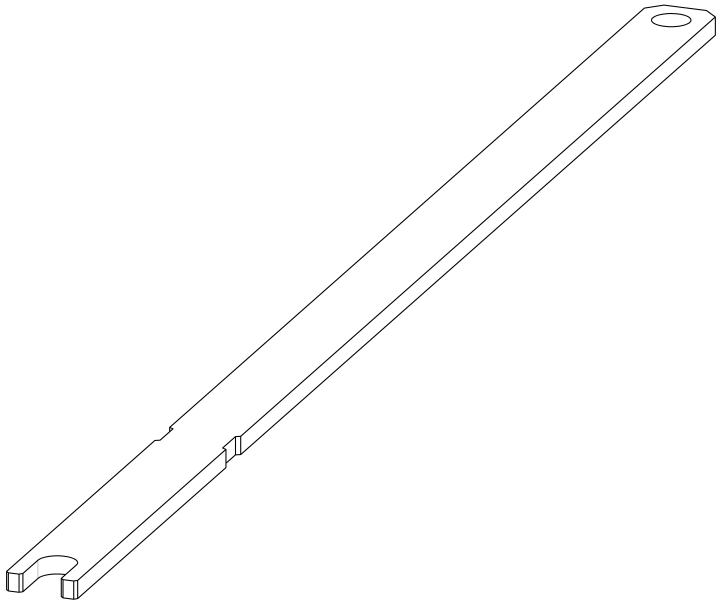


Radio Interconnect Tool

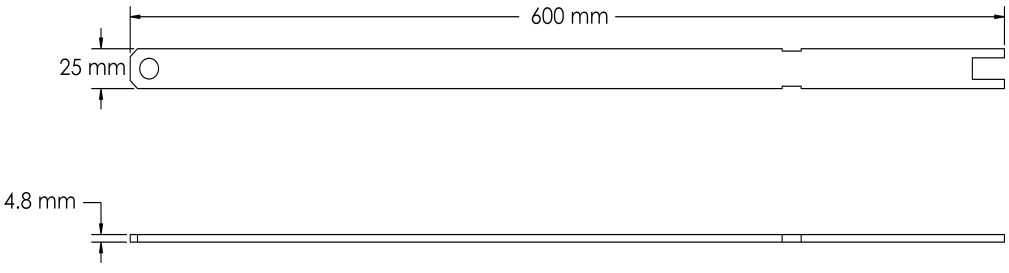
TL-02

Mechanical

Model Number	TL-02
For Antenna Models	QPA65R-H3A
Dimensions (L×W×D)	23.6×1.0×0.2 in (600×25×4.8 mm)
Overall Weight	1.6 lbs. (0.73 kg) not including radio



TL-02 Part

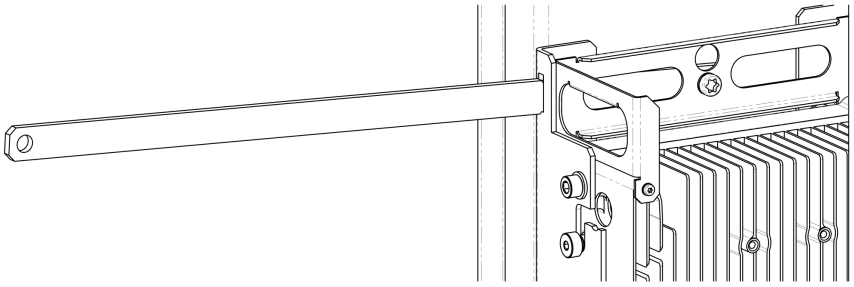


TL-02 Size

Radio Interconnect Tool

TL-02

Mechanical



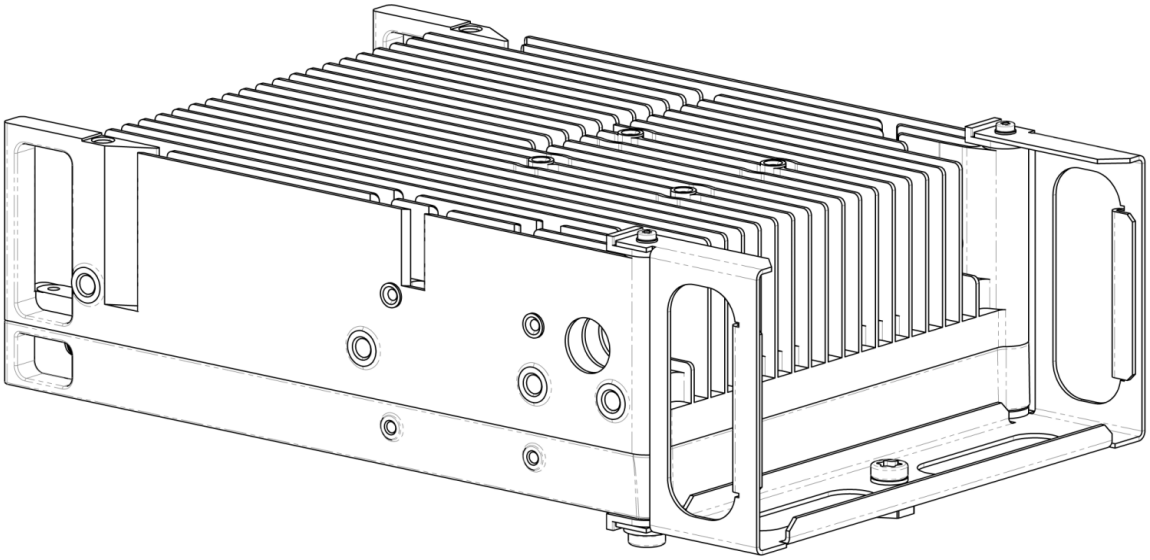
TL-02 inserted into Three way handle

Environmental Specifications

Model Number	TL-02
Temperature Range	-45° to 70° C

Mechanical

Model Number	TL-03
Fits Radio	Zillnk Radio
For Antenna Models	QPA65R-H3A
Overall Weight	1.14 lbs. (0.52 kg) not including radio



TL-03 installed onto Radio

Environmental Specifications

Model Number	TL-03
Temperature Range	-45° to 70° C

AISG Cable

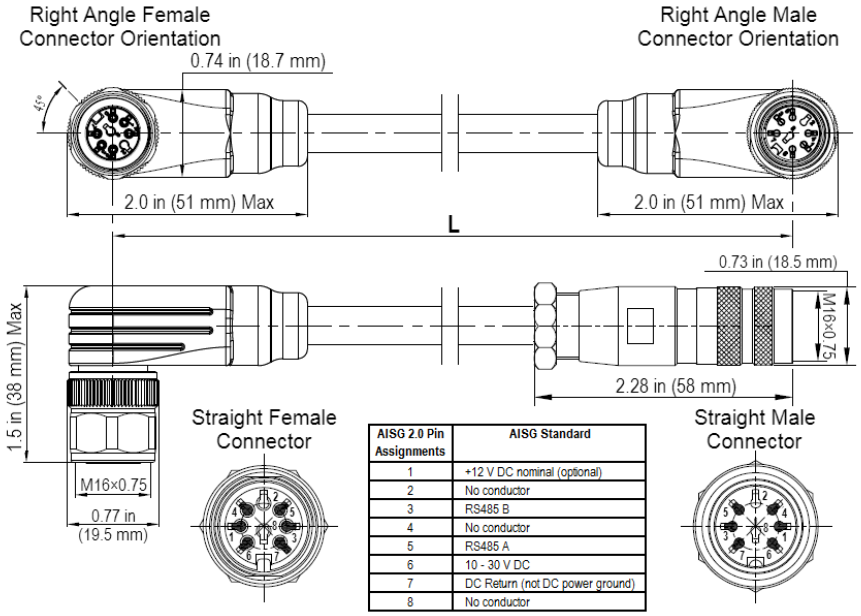
AISGC-M-F-xFT

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

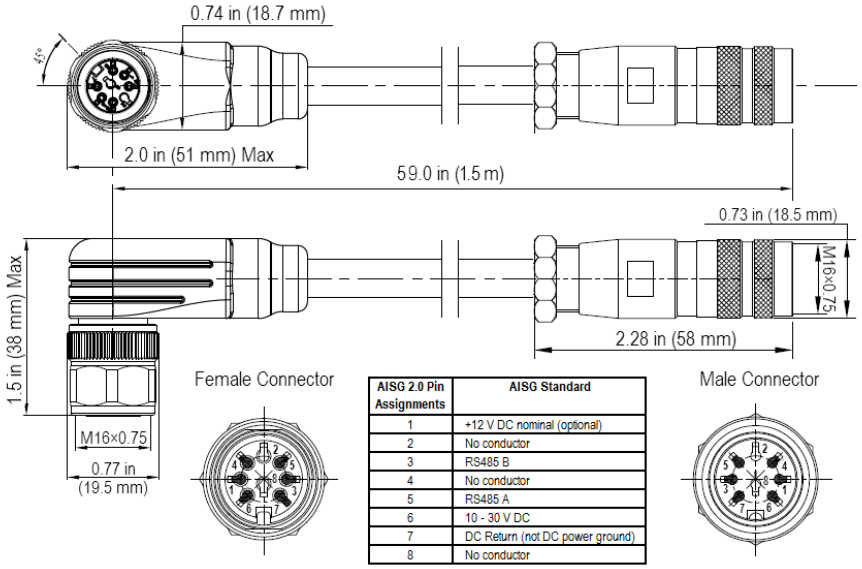
1.5 Meter AISG Cable

Electrical Specifications

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

Cables per kit	1
Connectors	2 x 8 pin IEC 60130-9 Straight male/right angle 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 (L in diagram)	1.5 meters (59 inches)
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 Right Ahgle Jumper Cable

Environmental Specifications

Fire Retardent	UL 1581 VW-1
Temperature Range	-40° to 80° C
Flammability	UL 1581 VW-1
Ingress Protection	IEC 60529:2001, IP67

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

Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001