

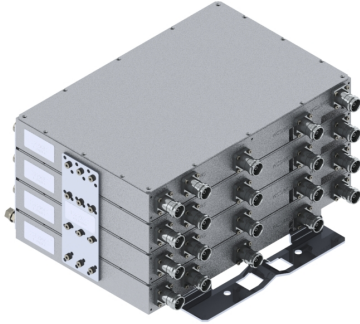


# Filters & Combiners

DATA SHEET

## Broadband Quadplexer Combiner

QPO-19203636-XXX



- The Quadplexer combines the frequency ranges 1850-1995 MHz, 1695-1780/2110-2200 MHz and 2 x 2305-2690 MHz onto a common port
- Supports the AWS band on one port, PCS band on a second port, and has two WCS/2600 band input ports
- High power 60 W per port with low insertion loss in a small, lightweight enclosure
- Low intermodulation with isolation of  $\geq 50$  dB between the frequency ranges and  $\geq 25$  dB between the twin WCS/2600 band inputs ports
- Available configurations include a pole/wall mount for outdoor
- High reliability of >500K Hours MTBF

### Overview

The CCI Broadband Quadplexer combines the Tx/Rx signals PCS, AWS and two sets of WCS/BRS band inputs onto a common port. Specifically intended for use in multiband systems with limited feeder lines, this CCI Quadplexer facilitates the addition of new technologies including LTE and new spectrum including AWS-3 to existing sites. The Quadplexer provides a minimum of 50 dB of isolation between each of the individual frequency ranges and a minimum of 25 dB of isolation between the two 2305-2690 band ports. By reducing the number of feeder lines, the cost to upgrade a site (tower loading, leasing and installation costs) is reduced.

The CCI Quadplexer Combiner provides full band performance for each band with low insertion loss, low Intermodulation, and high power handling. Excellent return loss delivers the best match to the antennas and base station, saving precious transmit power. The Quadplexer is fully outdoor rated and can be pole or wall mounted with an optional outdoor configuration.

### Technical Description:

The Outdoor Broadband Quadplexer Combiner consists of multiple filters to combine (or divide) full band PCS, AWS and 2 x WCS/BRS signals. This tower mount unit can be used as either a splitter or combiner to aggregate multiple bands on a common feeder line. All RF ports are terminated in 4.3-10 connectors.

The filters have been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Broadband Quadplexer to minimize any passive intermodulation products from occurring. The Quadplexer is IP67 rated.

CCI filter and combiner products are designed and produced to ISO 9001 certification standards for reliability and quality at our state-of-the-art engineering and manufacturing facilities.



# Filters & Combiners

## SPECIFICATIONS

### Broadband Quadplexer Combiner

QPO-19203636-XXX

#### Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification	
Return Loss	COM	1850 - 1995	18 dB minimum, 20 dB typical	
		1695 - 1780	18 dB minimum, 20 dB typical	
		2110 - 2200	18 dB minimum, 20 dB typical	
		2305 - 2690	18 dB minimum, 20 dB typical	
	PCS	1850 - 1995	18 dB minimum, 20 dB typical	
		1695 - 1780	18 dB minimum, 20 dB typical	
	AWS	2110 - 2200	18 dB minimum, 20 dB typical	
		2305 - 2690	18 dB minimum, 20 dB typical	
	WCS/BRS1	2305 - 2690	18 dB minimum, 20 dB typical	
		2305 - 2690	18 dB minimum, 20 dB typical	
Insertion Loss	COM to PCS	1850 - 1995	0.3 dB typical, 0.4 dB maximum	
		1695 - 1780	0.3 dB typical, 0.35 dB maximum	
	COM to AWS	2110 - 2200	0.3 dB typical, 0.35 dB maximum	
		2305 - 2690	3.55 dB typical, 3.7 dB maximum	
	COM to WCS/BRS1	2305 - 2690	3.55 dB typical, 3.7 dB maximum	
		2305 - 2690	3.55 dB typical, 3.7 dB maximum	
	Rejection	COM to PCS	1695 - 1780	50 dB minimum
			2110 - 2200	50 dB minimum
2305 - 2690 (1)			50 dB minimum	
2305 - 2690 (2)			50 dB minimum	
COM to AWS		1850 - 1995	50 dB minimum	
		2305 - 2690 (1)	50 dB minimum	
		2305 - 2690 (2)	50 dB minimum	
COM to WCS/BRS1		1850 - 1995	53 dB minimum	
		1695 - 1780	53 dB minimum	
		2110 - 2180	53 dB minimum	
	2180 - 2200	48 dB minimum		
COM to WCS/BRS2	2305 - 2690 (2)	25 dB minimum		
	1850 - 1995	53 dB minimum		
	1695 - 1780	53 dB minimum		
	2110 - 2180	53 dB minimum		
	2180 - 2200	48 dB minimum		
2305 - 2690 (1)	25 dB minimum			

#### General Characteristics

Impedance	50 ohms
Continuous Average Power	60 W maximum per input port
Peak Envelope Power	1.2 kW maximum per input port, excluding WCS/BRS port which is 650 W
Intermodulation Performance(all ports)	<-117 dBm (-160 dBc) typical (2 x +43 dBm tones) all bands
DC Pass Current/AISG Pass	Not applicable



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### Broadband Quadplexer Combiner

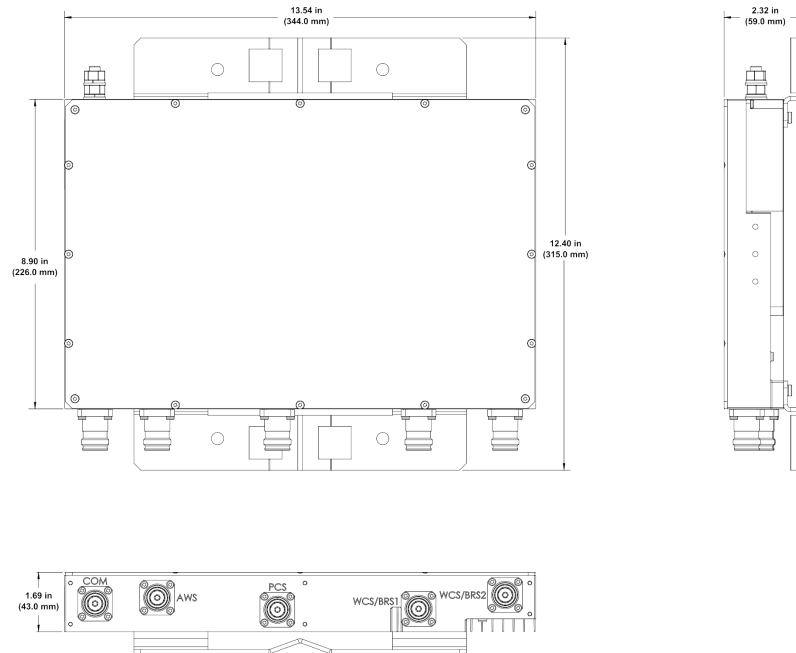
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#### Environmental Specification

<b>Operating Temperature</b>	-40 °C to +65 °C
<b>Enclosure &amp; Connectors</b>	IP67
<b>Relative Humidity</b>	0 - 99%
<b>MTBF</b>	>500,000 hours
<b>Lightning Protection</b>	8/20us, ±10KA max, 10 strikes each, IEC61000-4-5

#### Mechanical Specification

Configuration	Single	Twin	Quad
<b>Connectors</b>	5 x 4.3-10 female	10 x 4.3-10 female	20 x 4.3-10 female
<b>Dimensions w/o Bracket</b>	1.69 x 13.54 x 8.9 in. (43 x 344 x 226 mm)	3.46 x 13.54 x 8.9 in. (178 x 344 x 226 mm)	7.01 x 13.54 x 8.9 in. (178 x 344 x 226 mm)
<b>Dimensions w/bracket</b>	2.32 x 13.54 x 12.4 in. (59 x 344 x 315 mm)	4.09 x 14.02 x 12.4 in. (104 x 356 x 315 mm)	7.94 x 14.02 x 12.4 in. (194 x 356 x 315 mm)
<b>Weight</b>	12.4 lbs (5.62 kg)	29.4 lbs (13.35 kg)	49.8 lbs (22.64 kg)
<b>Frontal Wind Load</b>	329.6 N@150km/hour	329.6 N@150km/hour	329.6 N@150km/hour
<b>Lateral Wind Load</b>	33 N@150km/hour	67.6 N@150km/hour	136.7 N@150km/hour
<b>Mounting</b>	Pole or wall mount		



Broadband Quadplexer (QPO-19203636-x-S2) Outline Drawing

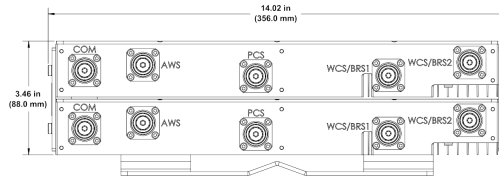
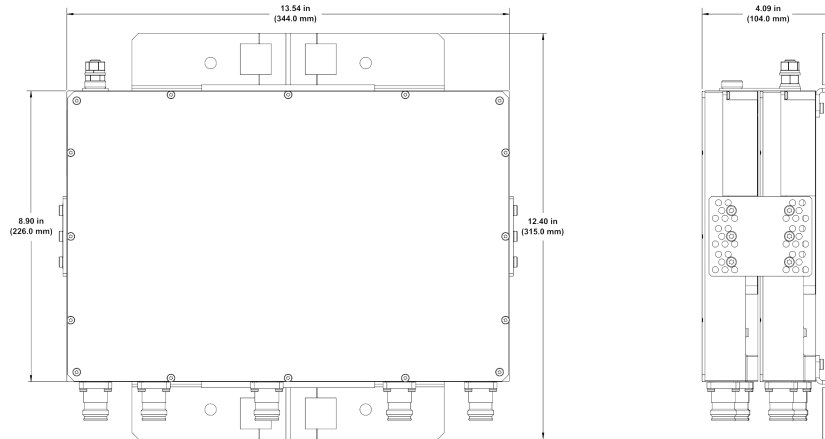


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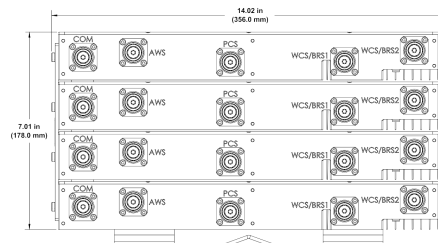
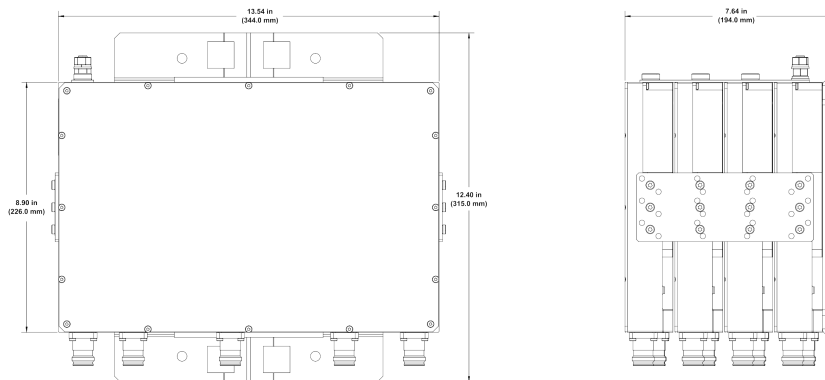
## SPECIFICATIONS

### Broadband Quadplexer Combiner

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Twin Broadband Quadplexer (QPO-19203636-x-T2) Outline Drawing



Quad Broadband Quadplexer (QPO-19203636-x-Q2) Outline Drawing



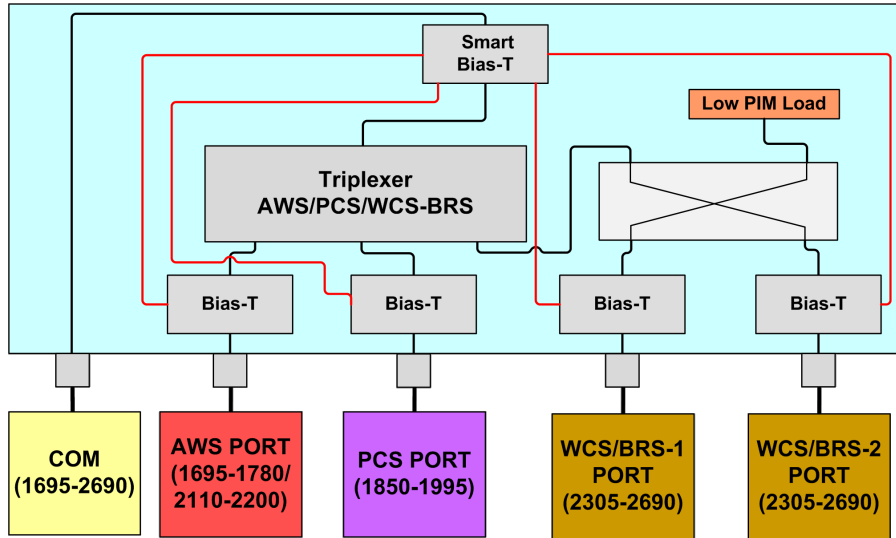
# Filters & Combiners

SPECIFICATIONS

Broadband Quadplexer Combiner

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Block Diagram



Broadband Quadplexer Block Diagram



# Filters & Combiners

## STANDARDS & CERTIFICATIONS

### Broadband Quadplexer Combiner

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#### Parts & Accessories

- QPO-19203636-x-S2** Single Broadband Quadplexer with 4.3-10 connectors (see options for DC or AISG Pass through)
- QPO-19203636-x-T2** Twin Broadband Quadplexer with 4.3-10 connectors (see options for DC or AISG Pass through)
- QPO-19203636-x-Q2** Quad Broadband Quadplexer with 4.3-10 connectors (see options for DC or AISG Pass through)

Option (-x)	Description
-S	Smart Bias-T, DC/AISG Pass through on either port
-0	No DC/AISG Pass through and No DC Block
-1	DC/AISG Pass through PCS Band to COMMON, DC Block on all other input ports
-2	DC/AISG Pass through AWS Band to COMMON, DC Block on all other input ports
-3	DC/AISG Pass through WCS/BRS1 to COMMON, DC Block on all other input ports
-4	DC/AISG Pass through WCS/BRS2 to COMMON, DC Block on all other input ports

#### 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, IEC61000-4-5, GR-63-CORE 4.3.1, EN 60529 IP67, IP68

#### Certifications

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



**CCI** Communication Components Inc.  
EXTENDING WIRELESS PERFORMANCE