

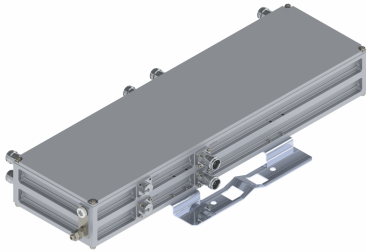


# Filters & Combiners

DATA SHEET

## Broadband Quadplexer Combiner

QPO-67891973-xxx



- Combines the 600/700 bands (617-798 MHz), 850/900 bands (824-960 MHz), PCS band (1850-1995 MHz) and AWS/WCS Bands (1695-1780/2110-2360 MHz) onto a common port
- High power 200 W per port with low insertion loss in a small, lightweight enclosure
- AISG 2.0 pass-through on either input port with Smart Bias-T or optional AISG Modem and Port
- Low intermodulation with isolation of >50 dB port to port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Twin or Single outdoor (IP67) Quadplexer with flexible pole or wall mounting options

### Overview

The CCI Outdoor Broadband Quadplexer combines 600/700 band (617-798), 850/900 (824-960), PCS band (1850-1995), and AWS/WCS (1695-2360) bands onto a common port. Specifically intended for use in multi-band systems with limited feeder lines, this CCI Quadplexer facilitates the addition of new technologies including LTE and new spectrum onto existing sites, while providing a high degree of isolation between systems. Decreasing the number of feeder lines lowers tower loading, leasing and installation expenditures and the total cost to upgrade a site is significantly reduced. An optional twin unit with two Quadplexers mounted on a single bracket is also available.

The CCI Outdoor Quadplexer 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 enables full Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) capability by providing DC and AISG 2.0 compliant pass-through.

### Technical Description:

The Outdoor Broadband Quadplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the 600/700, Cellular, PCS and AWS/WCS bands on a common feeder line. The fully weatherproof tower mount outdoor Quadplexer provides DC and AISG signal pass-through, enabling power and control for TMA's & RET antennas. The Quadplexer is available with DC/AISG pass options including a smart bias-tee or AISG modem and output port. The Smart Bias-Tee architecture passes the DC and AISG carrier frequency from any one of the input ports to the common port while blocking the DC and AISG signals from being re-injected into the other input ports. The Quadplexer has internal multi-strike lightning protection using a multi-stage surge protection circuit.

The unit has been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Quadplexer to minimize any passive intermodulation products from occurring. The Quadplexer housing is constructed from die cast aluminum and consists of an IP67 moisture proof enclosure, with IP68 immersion proof connectors suited to long-life masthead mounting. The Quadplexer can be pole or wall mounted with the included bracket. The RF ports are configured with 4.3-10 connectors.

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

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#### Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification	
Return Loss	COMMON	617 - 798	18 dB minimum, 20 dB typical	
		824 - 960	18 dB minimum, 20 dB typical	
		1695 - 1780	18 dB minimum, 20 dB typical	
		1850 - 1995	18 dB minimum, 20 dB typical	
		2110 - 2360	18 dB minimum, 20 dB typical	
	600/700	617 - 798	18 dB minimum, 20 dB typical	
	850/900	824 - 960	18 dB minimum, 20 dB typical	
	PCS	1850 - 1995	18 dB minimum, 20 dB typical	
	AWS/WCS	1695 - 1780	18 dB minimum, 20 dB typical	
		2110 - 2360	18 dB minimum, 20 dB typical	
	Insertion Loss	COM to 600/700	617 - 798	0.3 dB typical, 0.60 dB maximum
		COM to 850/900	824 - 960	0.3 dB typical, 0.65 dB maximum
		COM to PCS	1850 - 1995	0.3 dB typical, 0.50 dB maximum
		COM to AWS/WCS	1695 - 1780	0.3 dB typical, 0.45 dB maximum
			2110 - 2360	0.3 dB typical, 0.40 dB maximum
Isolation	COM to 600/700	824 - 960	50 dB minimum	
		1695 - 1780	50 dB minimum	
		1850 - 1995	50 dB minimum	
		2110 - 2360	50 dB minimum	
	COM to 850/900	617 - 798	50 dB minimum	
		1695 - 1780	50 dB minimum	
		1850 - 1995	50 dB minimum	
		2110 - 2360	50 dB minimum	
	COM to PCS	617 - 798	50 dB minimum	
		824 - 960	50 dB minimum	
		1695 - 1780	50 dB minimum	
		2110 - 2360	50 dB minimum	
	COM to AWS/WCS	617 - 798	50 dB minimum	
		824 - 960	50 dB minimum	
		1850 - 1995	50 dB minimum	

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W max.
Peak Envelope Power	2 kW max.
Intermodulation Performance(all ports)	<-117 dBm (-160 dBc) typical (2 x +43 dBm tones) all bands
DC Pass Current/AISG Pass (Any Port to COMMON port)	3A/AISG signal (2.176 Mhz) per AISG 2.0
Modem Option	9600 Baud per AISG 2.0/3GPP TS 25.461



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#### Environmental Specification

<b>Operating Temperature</b>	-40 °C to +65 °C
<b>Ingress Protection</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

Model	Single	Twin
<b>Connectors</b>	5 × 4.3-10 female	10 × 4.3-10 female
<b>Dimensions w/Bracket</b>	21.89 × 10.24 × 2.40 in. (556.0 × 260.0 × 61.0 mm)	21.89 × 10.24 × 3.78 in. (556.0 × 260.0 × 96.0 mm)
<b>Housing Dimensions</b>	21.89 × 6.34 × 1.97 in. (556.0 × 161.0 × 50.0 mm)	21.89 × 6.34 × 3.35 in. (556.0 × 161.0 × 85.0 mm)
<b>Weight</b>	11.7 lbs (5.3 kg)	19.8 lbs (9.0 kg)
<b>Frontal Wind Load</b>	370.0 N @150km/hour	370.0 N @150km/hour
<b>Lateral Wind Load</b>	27.3 N @150km/hour	46.5 N @150km/hour

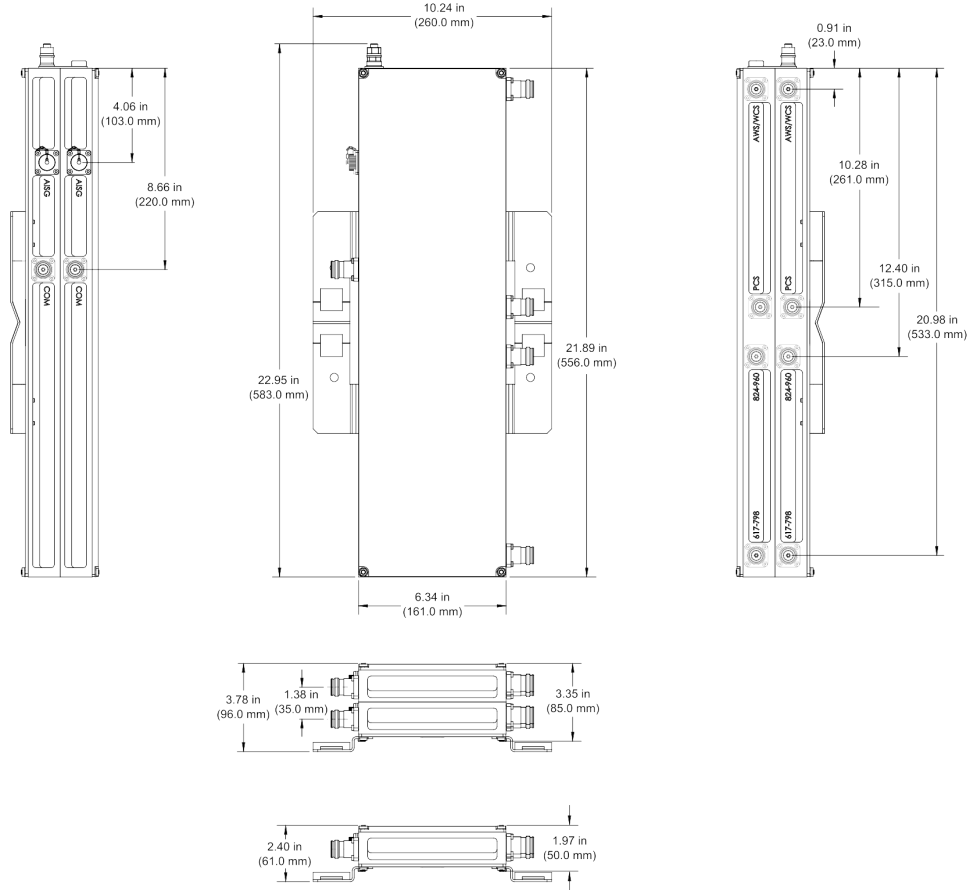


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Outdoor Broadband Quadplexer Outline Drawing



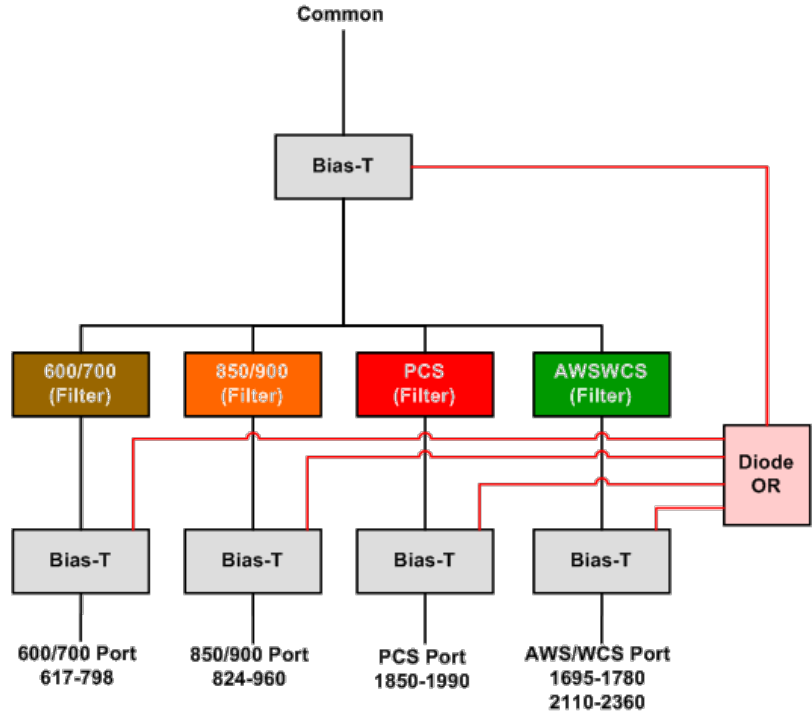
# Filters & Combiners

SPECIFICATIONS

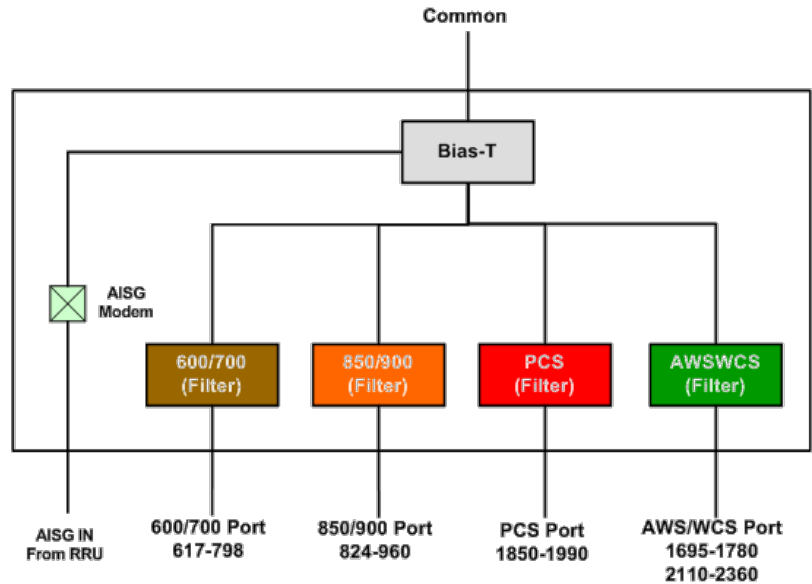
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Block Diagram



Outdoor Broadband Quadplexer with Smart Bias-T Block Diagram



Outdoor Broadband Quadplexer with AISG Modem Block Diagram



# Filters & Combiners

## STANDARDS & CERTIFICATIONS

### Broadband Quadplexer Combiner

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#### Parts & Accessories

- QPO-67891973-S-S2** Single 600-700/850-900/PCS/AWS-WCS Quadplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
- QPO-67891973-S-T2** Twin 600-700/850-900/PCS/AWS-WCS Quadplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
- QPO-67891973-M-S2** Single 600-700/850-900/PCS/AWS-WCS Quadplexer with 4.3-10 connectors and AISG Modem and Output Port
- QPO-67891973-M-T2** Twin 600-700/850-900/PCS/AWS-WCS Quadplexer with 4.3-10 connectors and AISG Modem and Output Port

#### 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

Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001

