



Filters & Combiners

DATA SHEET

Broadband Quadplexer Combiner

QPO-39182236-S-x2



- Combines the 380-960 MHz, 1710-1880 MHz, 1920-2170 MHz and 2300-2700 MHz bands 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 any input port with Smart Bias-T
- 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 (IP66) Quadplexer with flexible pole or wall mounting options

Overview

The CCI Outdoor Broadband Quadplexer combines 380-960, 1710-1880, 1920-2170, and 2300-2700 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 700/800/900, 1800, 2100 and 2600 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. 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 IP66 moisture proof enclosure, with IP66 moisture proof connectors suited to long-life masthead mounting. The Quadplexer can be pole or wall mounted with the included bracket. The RF ports is 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.



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SPECIFICATIONS

Broadband Quadplexer Combiner

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Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	5 (COMMON)	380 - 960	18 dB minimum, 20 dB typical
		1710 - 1880	18 dB minimum, 20 dB typical
		1920 - 2170	18 dB minimum, 20 dB typical
		2300 - 2700	18 dB minimum, 20 dB typical
	1 (390-960)	380 - 960	18 dB minimum, 20 dB typical
		1710 - 1880	18 dB minimum, 20 dB typical
		1920 - 2170	18 dB minimum, 20 dB typical
		2300 - 2700	18 dB minimum, 20 dB typical
	2 (1710-1880)	1710 - 1880	18 dB minimum, 20 dB typical
		1920 - 2170	18 dB minimum, 20 dB typical
		2300 - 2700	18 dB minimum, 20 dB typical
		380 - 960	18 dB minimum, 20 dB typical
	3 (1920-2170)	1920 - 2170	18 dB minimum, 20 dB typical
		2300 - 2700	18 dB minimum, 20 dB typical
		380 - 960	18 dB minimum, 20 dB typical
		1710 - 1880	18 dB minimum, 20 dB typical
4 (2300-2700)	2300 - 2700	18 dB minimum, 20 dB typical	
	380 - 960	18 dB minimum, 20 dB typical	
	1710 - 1880	18 dB minimum, 20 dB typical	
	1920 - 2170	18 dB minimum, 20 dB typical	
Insertion Loss	5 to 1 (COM to 390-960)	380 - 960	0.35 dB maximum, 0.25 dB typical
	5 to 2 (COM to 1710-1880)	1710 - 1880	0.40 dB maximum, 0.25 dB typical
	5 to 3 (COM to 1920-2170)	1920 - 2170	0.40 dB maximum, 0.25 dB typical
	5 to 4 (COM to 2300-2700)	2300 - 2700	0.35 dB maximum, 0.25 dB typical
Isolation	5 to 1 (COM to 390-960)	1710 - 1880	50 dB minimum, 55 dB typical
		1920 - 2170	50 dB minimum, 55 dB typical
		2300 - 2700	50 dB minimum, 55 dB typical
	5 to 2 (COM to 1710-1880)	380 - 960	50 dB minimum, 55 dB typical
		1920 - 2170	50 dB minimum, 55 dB typical
		2300 - 2700	50 dB minimum, 55 dB typical
	5 to 3 (COM to 1920-2170)	380 - 960	50 dB minimum, 55 dB typical
		1710 - 2170	50 dB minimum, 55 dB typical
		2300 - 2700	50 dB minimum, 55 dB typical
	5 to 4 (COM to 2300-2700)	380 - 960	50 dB minimum, 55 dB typical
		1710 - 1880	50 dB minimum, 55 dB typical
		1920 - 2170	50 dB minimum, 55 dB typical

General Characteristics

Impedance	50 ohms
Continuous Average Power	200 W max. per input port simultaneous
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

Environmental Specification

Operating Temperature	-40 °C to +65 °C
Ingress Protection	IP68
Relative Humidity	5 - 95%
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes each, IEC61000-4-5



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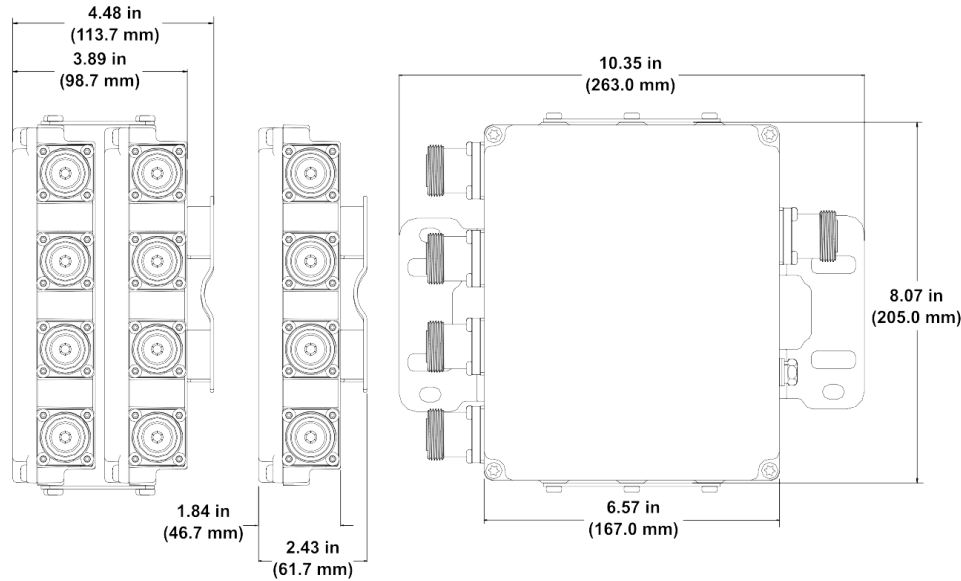
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Mechanical Specification

Model	Single	Twin
Connectors	5 × 4.3-10 female	10 × 4.3-10 female
Dimensions w/Bracket	10.35 × 8.07 × 2.43 in. (263.0 × 205.0 × 61.7 mm)	10.35 × 8.03 × 4.48 in. (263.0 × 204.0 × 113.7 mm)
Housing Dimensions	6.57 × 7.95 × 1.84 in. 167.0 × 202.0 × 46.7 mm) - per Quadplexer	
Weight	6.6 lbs (3.0 kg)	13.2 lbs (6.0 kg)



Outdoor Broadband Quadplexer Outline Drawing



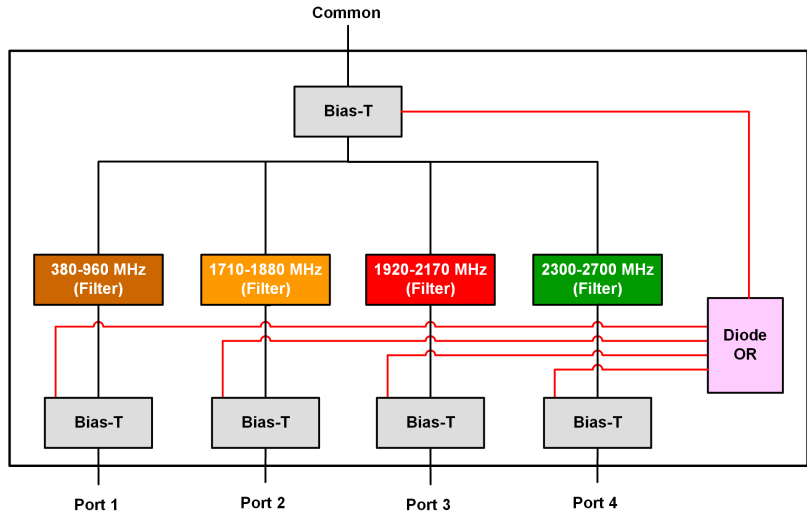
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Block Diagram



Outdoor Broadband Quadplexer with Smart Bias-T Block Diagram



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STANDARDS & CERTIFICATIONS

Broadband Quadplexer Combiner

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Parts & Accessories

- QPO-39182236-S-S2** Single 390-960/1710-1880/1920-2170/2400-2700 Quadplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
- QPO-39182236-S-T2** Twin 390-960/1710-1880/1920-2170/2400-2700 Quadplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through

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, 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

