



Filters & Combiners

DATA SHEET

Outdoor Broadband Triplexer

TPO-391822-xxx



- The Outdoor triplexer combines the frequency ranges 380-960 MHz, 1710-1880 MHz, and 1920-2170 MHz onto a common port.
- Supports the 380-960 band on port 1, 1710-1880 band on port 2, and the 1920-2170 band on port 3
- 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
- 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 (IP68) Triplexer with flexible pole or wall mounting options

Overview

The CCI Outdoor Broadband Triplexer combines the frequency ranges 380-960 MHz, 1710-1880 MHz, and 1920-2170 MHz onto a common port. Specifically intended for use in multi-band systems with limited feeder lines, this CCI Triplexer 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 Triplexers mounted on a single bracket is also available.

The CCI Outdoor Triplexer 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 Triplexer enables full Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) control capability by providing DC and AISG 2.0 compliant pass-through on either input port using the Smart Bias-T.

Technical Description:

The Outdoor Broadband Triplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the 380-960 band on port 1, the 1710-1880 band on port 2, and the 1920-2170 band on port 3 onto a common feeder line. The fully weatherproof tower mount outdoor Triplexer provides DC and AISG signal pass-through, enabling power and control for TMA's & RET antennas. The Triplexer 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 Triplexer 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 Triplexer to minimize any passive intermodulation products from occurring. The Triplexer 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 Triplexer 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.



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SPECIFICATIONS

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Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	4 (Common)	380 - 960	20 dB minimum
		1710 - 1880	20 dB minimum
		1920 - 2170	20 dB minimum
Insertion Loss	1 (380-600 /700/800/900)	380 - 960	20 dB minimum
	2 (1710-1880)	1710 - 1880	20 dB minimum
	3 (DCS/IMT 2100)	1920 - 2170	20 dB minimum
	4 to 1 (COMMON to 380-600 /700/800/900)	380 - 960	0.3 dB maximum
	4 to 2 (COMMON to 1710-1880)	1710 - 1880	0.3 dB maximum
	4 to 3 (COMMON to 1920-2170)	1920 - 2170	0.3 dB maximum
Isolation	4 to 1 (COMMON to 380-600 /700/800/900)	1710 - 1880	50 dB minimum
		1920 - 2170	50 dB minimum
	4 to 2 (COMMON to 1710-1880)	380 - 960	50 dB minimum
		1920 - 2170	50 dB minimum
4 to 3 (COMMON to 1920-2170)	380 - 960	50 dB minimum	
	1710 - 1880	50 dB minimum	

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W maximum
Peak Envelope Power	2 kW maximum
IM Performance(all ports)	<-117 dBm (-160 dBc) typical (2x +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	-20 °C to +65 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection	IP68
Relative Humidity	5 - 95%
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes each, IEC61000-4-5

Mechanical Specification

Model	Single	Twin
Connectors	4 x 4.3-10 female or 7-16 female	8 x 4.3-10 female or 7-16 female
Dimensions w/Bracket	11.42 x 7.80 x 2.64 in. (290.0 x 198.0 x 67 mm)	11.42 x 7.80 x 4.76 in. (290.0 x 198.0 x 121.0 mm)
Housing Dimensions	7.95 x 7.80 x 2.05 in. (202.0 x 198.0 x 52.0 mm) - per Triplexer	
Weight	7.95 lbs (3.6 kg)	15.85 lbs (7.2 kg)

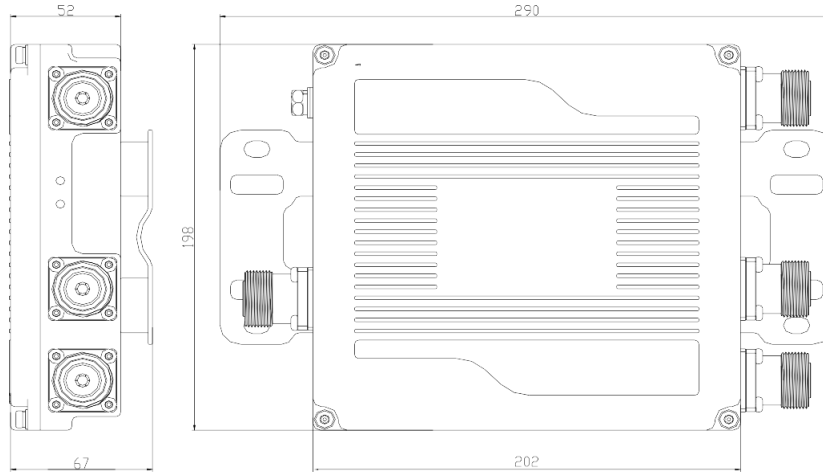


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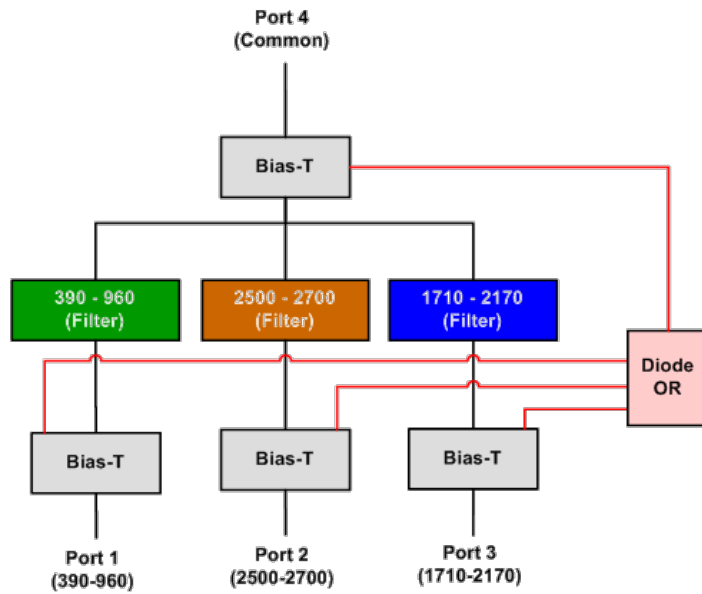
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Outdoor Broadband Triplexer Outline Drawing

Block Diagram



Outdoor Broadband Triplexer with Smart Bias-T Block Diagram



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STANDARDS & CERTIFICATIONS

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Parts & Accessories

- TPO-391822-S-S1** Single Broadband Triplexer with 7-16 connectors and Smart Bias-T for DC/AISG pass through
- TPO-391822-S-S2** Single Broadband Triplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
- TPO-391822-S-T1** Twin Broadband Triplexer with 7-16 connectors and Smart Bias-T for DC/AISG pass through
- TPO-391822-S-T2** Twin Broadband Triplexer 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

