Filters & Combiners
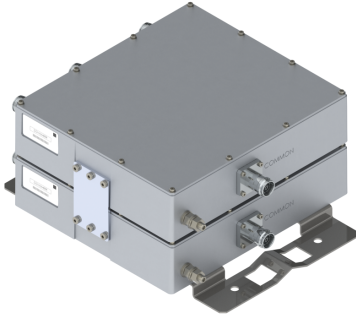
Outdoor Broadband Triplexer

TPO-7C1408-xxx

- Combines the 700 Low Band (698-746 MHz), FirstNet (758-798 MHz), and Cellular (824-894 MHz) Bands onto a common port.
- High power 200 W per port with low insertion loss
- AISG 2.0 compliant with multiple options for DC/AISG pass through
- Low intermodulation with isolation of >50 dB port to port
- Available twin unit configuration
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Lightweight outdoor enclosure with pole or wall mounting options

Overview

The CCI Outdoor Broadband Triplexer combines 700 Low band (698-746), the FirstNet band (758-798 MHz) and Cellular band (824-894) 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) capability by providing DC and AISG 2.0 compliant pass-through.

Technical Description:

The Outdoor Broadband Triplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the 700 Low, FirstNet and Cellular bands on a common feeder line. The fully weatherproof tower mount outdoor Triplexer provides DC and AISG signal pass-through on any of the band specific ports, enabling power and control for TMA's & RET antennas. 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 IP67 moisture proof enclosure, with IP67 immersion proof connectors suited to long-life masthead mounting. The Triplexer can be pole or wall mounted with the included bracket. The RF ports can be configured with either DIN 7-16 or 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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Filters & Combiners

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Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	Common	698 - 746	18 dB minimum, 20 dB typical
		758 - 798	18 dB minimum, 20 dB typical
		824 - 894	18 dB minimum, 20 dB typical
	700 Low	698 - 746	18 dB minimum, 20 dB typical
	FirstNet	758 - 798	18 dB minimum, 20 dB typical
	850	824 - 894	18 dB minimum, 20 dB typical
Insertion Loss	COM to 700 Low	698 - 746	0.25 dB typical, 0.7 dB maximum
	COM to FirstNet	758 - 798	0.35 dB typical, 0.7 dB maximum
	COM to 850	824 - 894	0.2 dB typical, 0.4 dB maximum
Isolation	COM to 700 Low	758 - 798	50 dB minimum
		824 - 894	50 dB minimum
	COM to FirstNet	698 - 746	50 dB minimum
		824 - 894	50 dB minimum
	COM to 850	698 - 746	50 dB minimum
		758 - 798	50 dB minimum

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W max. per input port simultaneously
Peak Envelope Power	2 kW max. per input port simultaneously
IM Performance (all ports)	<-117 dBm (-160 dBc) typical (2 × +43 dBm tones) all bands
DC Pass Current/AISG Pass	3A/AISG signal (2.176 Mhz) per AISG 2.0

Environmental

Operating Temperature	-40˚C to +65˚C
Ingress Protection	IP67
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes per IEC61000-4-5

Mechanical

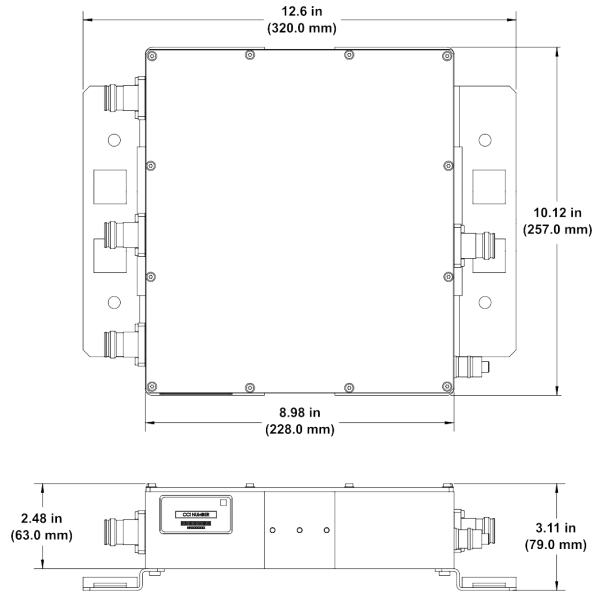|	
Connectors - Single	4 × 7-16 DIN female or 4 × 4.3-10 female
Dimensions w/bracket - Single (HxWxD)	12.6 x 10.12 x 3.11 in. (320 x 257 x 73 mm)
Housing Dimensions - Single (HxWxD)	8.98 x 10.12 x 2.48 in. (228 x 257 x 63 mm)
Weight - Single	16.5 Lbs. (7.5 kg)
Connectors - Twin	8 × 7-16 DIN female or 8 × 4.3-10 female
Dimensions w/bracket - Twin (HxWxD)	12.6 x 10.51 x 5.67 in. (320 x 267 x 144 mm)
Housing Dimensions - Twin (HxWxD)	8.98 x 10.12 x 5.04 in. (228 x 257 x 128 mm)
Weight- Twin	33 Lbs. (15.0 kg)
Mounting	Pole/Wall mounting bracket

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12.6 in
(320.0 mm)

10.12 in
(257.0 mm)

8.98 in
(228.0 mm)

2.48 in
(63.0 mm)

3.11 in
(79.0 mm)

Outdoor TPO-7C14-x-S2 Broadband Triplexer Outline Drawing (Single with 4.3-10 Connectors)

12.6 in
(320.0 mm)

10.12 in
(257.0 mm)

8.98 in
(228.0 mm)

5.04 in
(128.0 mm)

5.67 in
(144.0 mm)
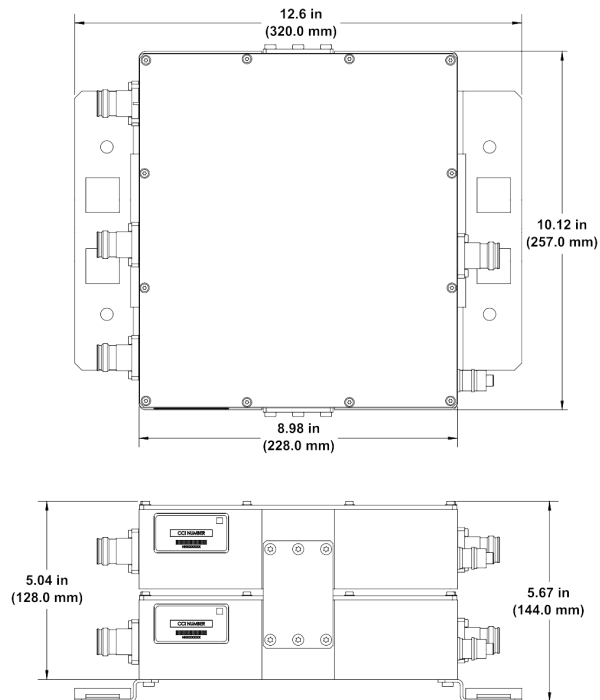
Outdoor TPO-7C14-x-T2 Broadband Triplexer Outline Drawing (Twin with 4.3-10 Connectors)

Filters & Combiners
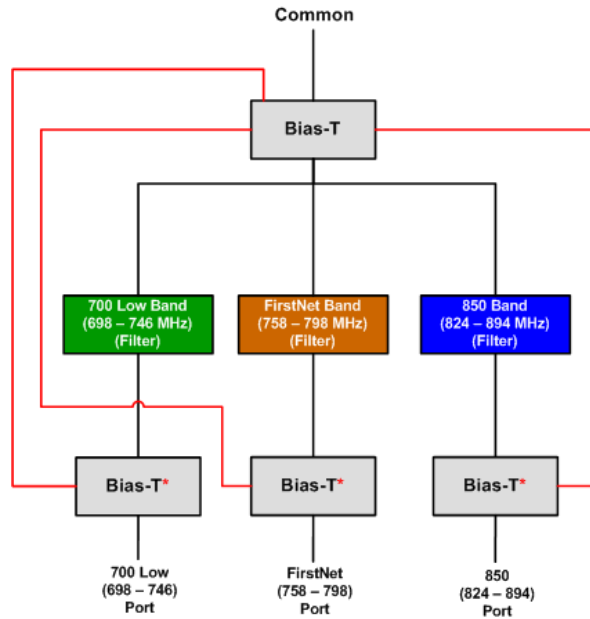
Block Diagram

Outdoor Broadband Triplexer Block Diagram

Outdoor Broadband Triplexer

TPO-7C1408-xxx

Parts & Accessories

TPO-7C1408-x-S2	Outdoor Triplexer with 4.3-10 connectors
TPO-7C1408-x-T2	Outdoor Twin Triplexer with 4.3-10 connectors

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 700 Low Band to COMMON, DC Block on all other input ports
-2	DC/AISG Pass through FirstNet Band to COMMON, DC Block on all other input ports
-3	DC/AISG Pass through 850 to COMMON, DC Block on all other input ports

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

Communication Components Inc.
EXTENDING WIRELESS PERFORMANCE

02/08/2019

Revision 1.0

DS-TPO7C1408XXX-V1.0-190208