Filters & Combiners

Outdoor Broadband Triplexer

TPX-070821

- Full 700, 850 MHz, and PCS/AWS bands, including AWS-3
- High power 200 W per port with low insertion loss
- AISG 2.0 compliant with smart Bias-T for any port DC/AISG pass through
- Low intermodulation with isolation of >50 dB port to port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Lightweight outdoor enclosure with pole or wall mounting options

Overview

Communication Components, Inc. Outdoor Broadband Triplexer features full AWS-3 support and combines 700 MHz, 850 MHz, and PCS/AWS band Basestation Tx/Rx signals onto a common port. Specifically intended for use in multi-band systems with limited feeder lines, the CCI Triplexer model TPX-070821 facilitates the addition of new technologies including LTE to existing sites while providing a high degree of isolation between systems. By reducing the number of feeder lines, the cost to upgrade a site (tower loading, leasing and installation costs) is reduced.

The CCI Outdoor Broadband 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. DC and AISG pass-through retains full RET and TMA capability utilizing CCI's AISG suite of products.

Technical Description:

The Outdoor Broadband Triplexer consists of multiple filters to combine (or divide) full band 700 MHz, 850 MHz and PCS/AWS 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 DIN 7-16 connectors. The fully weatherproof tower mount unit incorporates a unique smart Bias-T architecture which passes the DC and AISG carrier frequency from any 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 unit has internal lightning strike protection using a multi-stage surge protection circuit.

The filters have been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Broadband Diplexer to minimize any passive intermodulation products from occurring. All DIN Connectors are fully IP68 rated and the unit body is rated for IP66.

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Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	Common	694 - 798	18 dB minimum, 20 dB typical
		824 - 894	18 dB minimum, 20 dB typical
		1710 - 2170	18 dB minimum, 20 dB typical
	700	694 - 798	18 dB minimum, 20 dB typical
	850	824 - 894	18 dB minimum, 20 dB typical
	PCS/AWS	1710 - 2170	18 dB minimum, 20 dB typical
Insertion Loss	COM to 700	694 - 798	0.2 dB typical, 0.3 dB maximum, 0.4 dB maximum @ +60°C
	COM to 850	824 - 894	0.2 dB typical, 0.3 dB maximum, 0.4 dB maximum @ +60°C
	COM to PCS/AWS	1710 - 2170	0.2 dB typical, 0.3 dB maximum
Rejection	COM to 700	824 - 894	50 dB min.
		1710 - 2170	50 dB min.
	COM to 850	694 - 798	50 dB min.
		1710 - 2170	50 dB min.
	COM to PCS/AWS	694 - 798	50 dB min.
		824 - 894	50 dB min.

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W max.
Peak Envelope Power	5 kW max.
Intermodulation Performance	<-110 dBm (-153 dBc) typical (2 x +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 +60˚C
Enclosure	IP66 (Unit Body), IP68 (Connector)
MTBF	>500,000 hours
Lightning Protection	8/20us, ±20KA max, 10 strikes per IEC61000-4-5

Mechanical

Connectors	4 x 7-16 DIN female long neck
Enclosure Dimensions	5.83 x 9.65 x 2.05 in. (148 x 245 x 52 mm)
Weight	7.5 lbs (3.45 kg)
Mounting	Pole/Wall mounting bracket

DS-TPX070821-V1.3-161024

2.05 in.
(52 mm)

9.65 in.
(245 mm)

COMMON

5.83 in.
(148 mm)

694-794   824-894   1695-2180

2.45 in.   4.57 in.
(62 mm)   (116 mm)
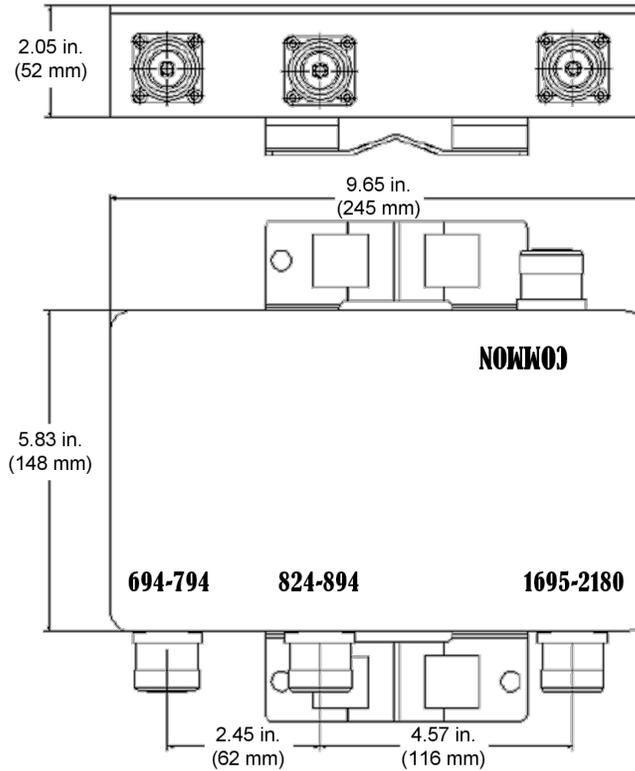
Outdoor Broadband Triplexer Outline Drawing

Block Diagram

Common

Bias-T

| 700 MHz (Filter) | 850 MHz (Filter) | PCS/AWS (Filter) |

Diode OR

Bias-T   Bias-T   Bias-T

700 MHZ Port   850 MHz Port   PCS/AWS Port
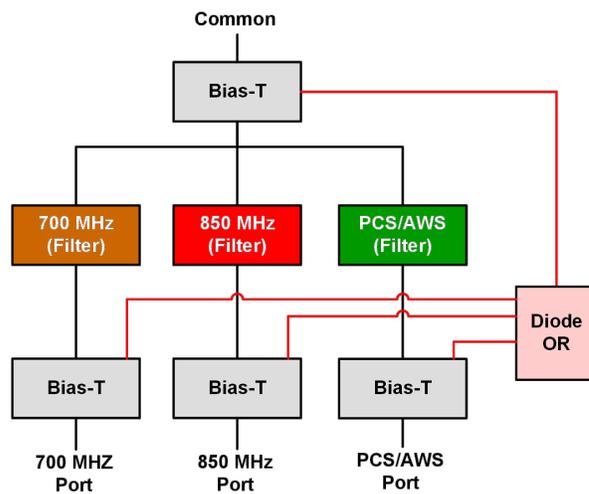
Outdoor Broadband Triplexer Block Diagram

Outdoor Broadband Triplexer

TPX-070821

Parts & Accessories

TPX-070821	Outdoor Triplexer with smart Bias-T, 7-16 DIN connectors and pole/wall bracket

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 IP66, 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

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Revision 1.3

DS-TPX070821-V1.3-161024