

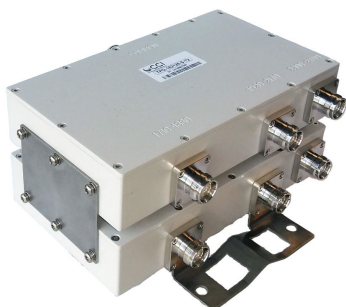


# Filters & Combiners

## DATA SHEET

### Broadband Triplexer

TPO-182126-xxx



- Combines DCS (1710-1880), UMTS 2100 (1920-2170) and 2300/2600 (2300-2700) bands
- High power 200 W per port with low insertion loss
- Low intermodulation with isolation of >35 dB per band
- Optional DC and AISG 2.0 pass through on customer specified band
- Triplexer includes outdoor pole/wall mount bracket
- High reliability of >500K Hours MTBF and multi-strike lightning protection

#### Overview

The CCI Broadband Triplexer combines three bands, DCS (1710-1880), UMTS 2100 (1920-2170) and 2300/2600 band (2300-2700) 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 including LTE 2600 to 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.

The CCI 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. The Triplexer offers the option of full Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) capability by providing multiple options for DC and AISG 2.0 compliant pass-through.

#### Technical Description:

The Triplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the DCS, UMTS 2100, and 2300/2600 bands on a common feeder line. The fully weatherproof tower mount outdoor triplexer is orderable with DC block on all ports or DC and AISG signal pass-through on any of the band specific ports. When configured with pass-through the Triplexer provides power and control for TMA's & RET antennas. DC and AISG signal pass-through is not available on the indoor rack mounted model. 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 can be pole or wall mounted with the included bracket and the unit body is rated for IP67. All RF ports are either DIN 7-16 or optionally 4.3-10 connectors, both of which are IP68 rated. 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 Triplexer

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#### Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	Common	1710 - 1880	18 dB minimum, 20 dB typical
		1920 - 2170	18 dB minimum, 20 dB typical
		2300 - 2700	18 dB minimum, 20 dB typical
	DCS	1710 - 1880	18 dB minimum, 20 dB typical
	UMTS 2100	1920 - 2170	18 dB minimum, 20 dB typical
	LTE Band	2300 - 2700	18 dB minimum, 20 dB typical
Insertion Loss	COM to DCS	1710 - 1880	0.2 dB typical, 0.35 dB maximum
	COM to UMTS 2100	1920 - 2170	0.2 dB typical, 0.35 dB maximum
	COM to LTE Band	2300 - 2700	0.2 dB typical, 0.35 dB maximum
Isolation	COM to DCS	1920 - 2170	35 dB minimum
		2300 - 2700	35 dB minimum
	COM to UMTS 2100	1710 - 1880	35 dB minimum
		2300 - 2700	35 dB minimum
	COM to LTE Band	1710 - 1880	35 dB minimum
		1920 - 2170	35 dB minimum

#### General Characteristics

Impedance	50 ohms
Continuous Average Power	200 W per input port
Peak Envelope Power	2 kW maximum at COMMON
Intermodulation Performance	<-117 dBm (-160 dBc) typical all bands, 2x +43 dBm carriers
DC Pass Current/AISG Pass	3A/AISG signal (2.176 Mhz) per AISG 2.0 on specified port see ordering options

#### Environmental Specification

Operating Temperature	-10 °C to +60 °C
Enclosure	IP67
Connectors	IP68
Relative Humidity	0 - 99%
MTBF	> 500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes each, IEC61000-4-5



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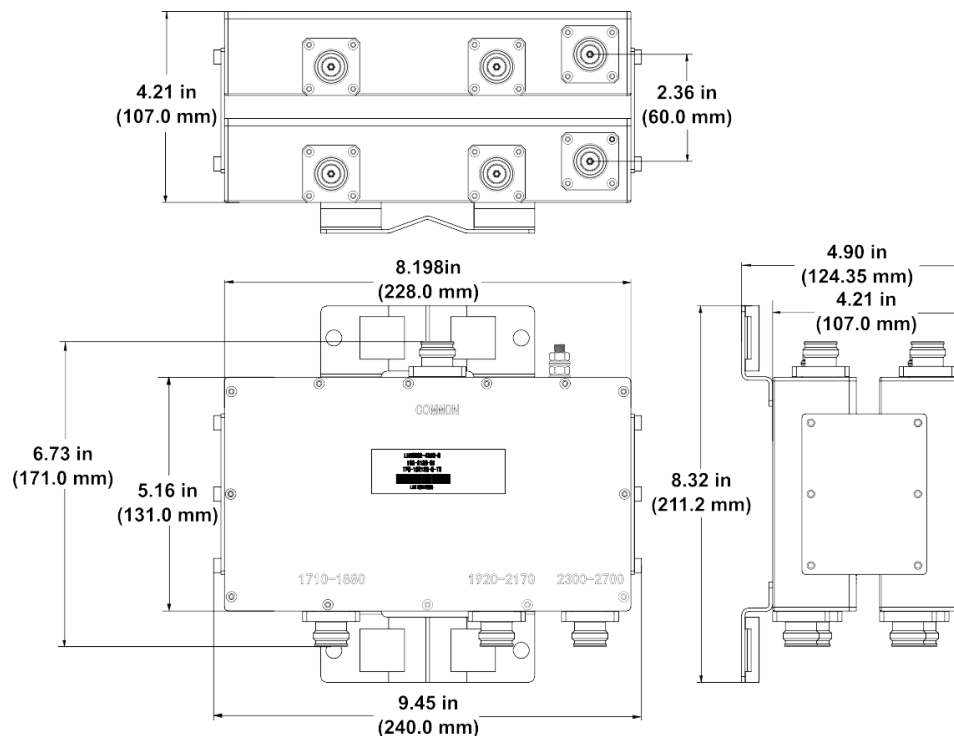
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#### Mechanical Specification

Connectors - Single	4 x 7-16 DIN or 4 x 4.3-10
Dimensions w/Bracket - Single (HxWxD)	8.32 x 8.98 x 1.87 in. (211.2 x 228.0 x 47.5 mm)
Housing Dimensions - Single (HxWxD)	5.16 x 8.98 x 2.56 in. (131.0 x 228.0 x 65.0 mm)
Weight - Single	5.75 lbs (2.6 kg)
Connectors - Single	8 x 7-16 DIN or 8 x 4.3-10
Dimensions w/Bracket - Twin (HxWxD)	8.32 x 9.50 x 4.9 in. (211.2 x 240.0 x 124.35 mm)
Housing Dimensions - Twin (HxWxD)	5.16 x 8.98 x 4.21 in. (131.0 x 228.0 x 107.0 mm)
Weight - Twin	11.4 Lbs. (5.2 kg)
Mounting	Pole/Wall Mount



Outdoor Broadband Twin Triplexer Outline Drawing



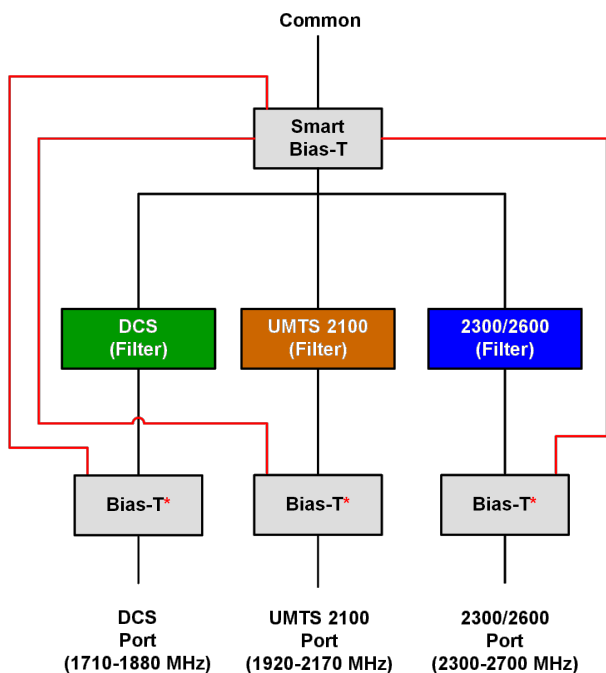
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#### Block Diagram



Outdoor Broadband Triplexer Block Diagram



# Filters & Combiners

## STANDARDS & CERTIFICATIONS

### Broadband Triplexer

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#### Parts & Accessories

<b>TPO-182126-x-S1</b>	Outdoor Triplexer with 7/16 DIN connectors
<b>TPO-182126-x-S2</b>	Outdoor Triplexer with 4.3-10 connectors
<b>TPO-182126-x-T1</b>	Outdoor Twin Triplexer with 7/16 DIN connectors
<b>TPO-182126-x-T2</b>	Outdoor Twin Triplexer with 4.3-10 connectors

Option (-x)	Description
-0	No DC/AISG pass through
-1	DC/AISG pass through DCS to COMMON, DC Block on all other input ports
-2	DC/AISG pass through UMTS 2100 to COMMON, DC Block on all other input ports
-3	DC/AISG pass through LTE 2600 to COMMON, DC Block on all other input ports
-S	Smart Bias-T, DC/AISG pass through on any single 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

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