



Filters & Combiners

DATA SHEET

Broadband Outdoor Diplexer

DPO-6196-xxx



- Combines two frequency ranges 614-1880 MHz with 1920-2690 MHz onto a single common port.
- The low band port covers the 614-1880 MHz frequency range, and the high band port covers 1920-2690 MHz frequency range.
- High power 250 W per port with low insertion loss in a small, lightweight enclosure
- Low intermodulation with isolation of >50 dB port to port
- Available dual unit configuration
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Available outdoor pole or wall mounting options

Overview

The CCI Outdoor Broadband Diplexer passes 614-1880 MHz on its low band input port, and 1920-2690 MHz on its high band input port. The Diplexer combines the low band and high band signals on to a common port and is specifically intended for use in multi-band systems with limited feeder lines. The Diplexer facilitates the addition of new technologies including LTE and new spectrum 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 significantly reduces the total cost to upgrade a site.

The Diplexer provides full band coverage for each band with low insertion loss, low Intermodulation, and high 200 W per port power handling.

Excellent return loss performance delivers the best match to the antennas and base station, saving precious transmit power. Optionally, CCI Diplexer can enable Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) control capability by providing DC/AISG 2.0 compliant pass-through on either input, this option is available by special order only. It is available in single or twin unit configuration.

Technical Description:

The CCI Outdoor Broadband Diplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the 614-1880 MHz band, with the 1920-2690 MHz band on to a common feeder line. The fully weatherproof tower mount outdoor Diplexer can optionally provide DC and AISG signal pass-through on either of the band specific ports, enabling power and control for TMA's & RET antennas. The Smart Bias-T 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 Diplexer 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 Diplexer to minimize any passive intermodulation products from occurring. The Diplexer housing is constructed from die cast aluminum and consists of an IP67 moisture proof enclosure, with IP67 moisture proof connectors suited to long-life masthead mounting. The Diplexer 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	COMMON	614 - 960	18 dB minimum, 20 dB typical
		1710 - 1880	18 dB minimum, 20 dB typical
		1920 - 2690	18 dB minimum, 20 dB typical
	Lowband Port	614 - 960	18 dB minimum, 20 dB typical
		1710 - 1880	18 dB minimum, 20 dB typical
		1920 - 2690	18 dB minimum, 20 dB typical
Insertion Loss	COMMON to Lowband Port	614 - 960	0.2 dB maximum
		1710 - 1785	0.3 dB maximum
		1805 - 1880	0.6 dB maximum
	COMMON to Highband Port	1920 - 1980	0.5 dB maximum
		2110 - 2170	0.3 dB maximum
		2500 - 2690	0.2 dB maximum
Isolation	Highband Port to Lowband Port	1920 - 2690	50 dB minimum
	Lowband Port to Highband Port	614 - 960 1710 - 1880	50 dB minimum 50 dB minimum

General Characteristics

Impedance	50 ohms
Continuous Average Power	250 W maximum all ports
Peak Envelope Power	2.5 kW maximum all ports
DC Pass Current/AISG Pass	3.0A/AISG signal (2.176 MHz) per AISG 2.0
Intermodulation	<-117 dBm (-160 dBc) minimum, all bands at 2x +43 dBm tones

Environmental

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

Mechanical

Model	Single	Twin
Connectors	3 x 4.3-10 female	6 x 4.3-10 female
Dimensions w/Bracket (HxWxD)	6.42 x 8.90 x 2.43 in. (163 x 226 x 61.7 mm)	6.42 x 8.90 x 4.48 in. (163 x 226 x 113.7 mm)
Housing Dimensions (HxWxD)	6.42 x 5.20 x 1.84 in. (163 x 132 x 46.7 mm)	6.42 x 5.20 x 3.89 in. (163 x 132 x 98.7 mm)
Weight	3.75 lbs (1.7 kg)	7.7 lbs. (3.5 kg)
Mounting	Pole/Wall mounting bracket	

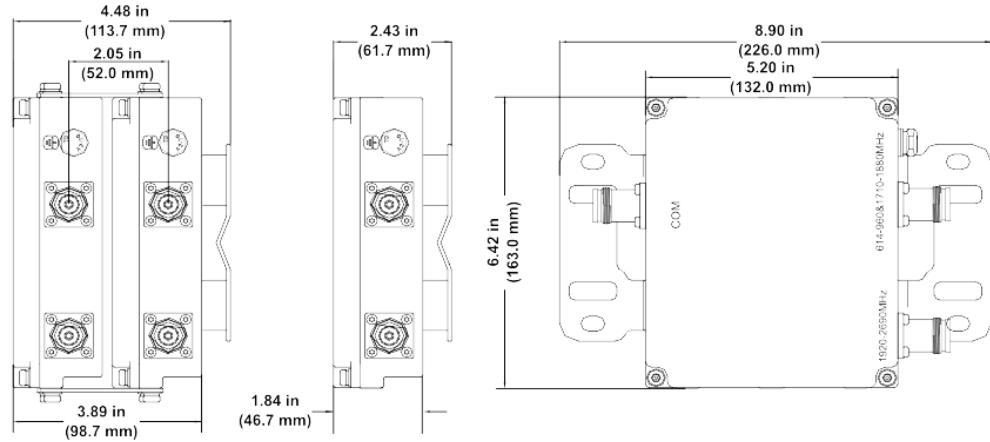


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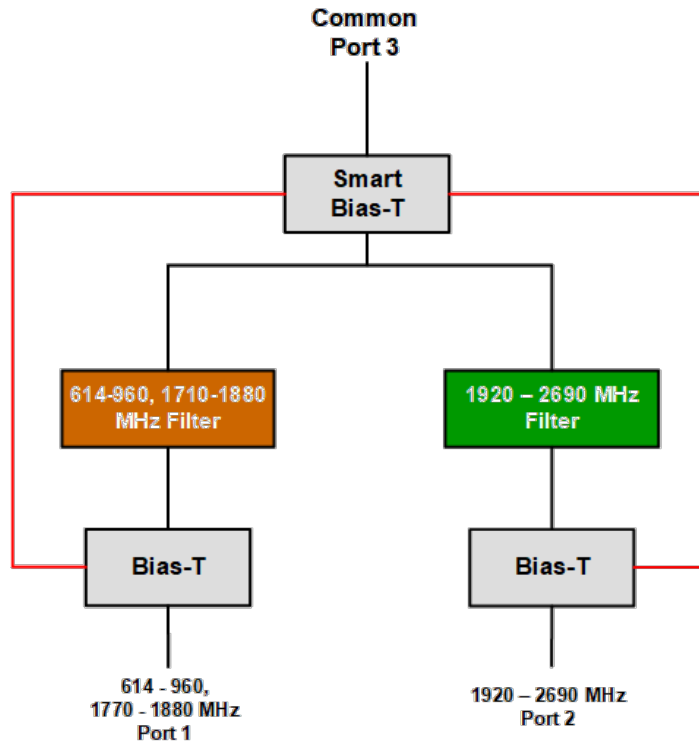
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Outdoor Diplexer Outline Drawing

Block Diagram



Outdoor Broadband Diplexer with Smart Bias-T Block Diagram



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STANDARDS & CERTIFICATIONS

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Parts & Accessories

DPO-6196-0-S2	Outdoor Broadband Diplexer with no DC/AISG pass-through and 4.3-10 connectors
DPO-6196-S-S2	Outdoor Broadband Diplexer with Smart Bias-T and 4.3-10 connectors
DPO-6196-0-T2	Outdoor Twin Broadband Diplexer with no DC/AISG pass-through and 4.3-10 connectors
DPO-6196-S-T2	Outdoor Twin Broadband Diplexer with Smart Bias-T and 4.3-10 connectors

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

