

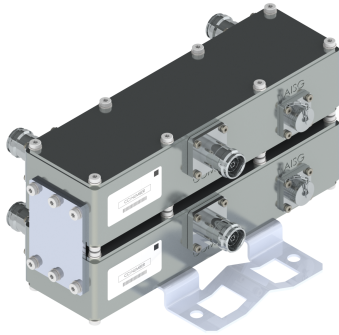


# Filters & Combiners

DATA SHEET

## Broadband Outdoor Diplexer

DPO-3946-xxx



- Combines two frequency ranges 380-960 MHz with 1425-2690 MHz onto a single common port.
- The low band port covers the 600, 700, 850 and 900 bands covering 380-960MHz and the high band port covers 1400, 1800, 2100, AWS, PCS, WCS and BRS bands.
- High power 200 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 600, 700, 850 and 900 bands covering 380-960 MHz on its low band input port and 1400, 1800, 2100, AWS, PCS, WCS and BRS bands covering 1425-2690 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. The CCI Diplexer enables Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) control capability by providing DC/AISG 2.0 compliant pass-through on either input or via optional AISG output. 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 600/700/850/900 with the 1400/1800/2100/AWS/PCS/WCS/BRS bands on to a common feeder line. The fully weatherproof tower mount outdoor Diplexer provides 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. An optional AISG Modem allows AISG signal and DC to be output via an AISG output port. 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 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.



# Filters & Combiners

## SPECIFICATIONS

### Broadband Outdoor Diplexer

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#### Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	COMMON	380-960	20 dB minimum
		1425-2690	20 dB minimum
	Lowband Port 700/850/900	380-960	20 dB minimum
	Highband Port AWS/PCS/WCS/BRS	1425-2690	20 dB minimum
Insertion Loss	COMMON to Lowband Port	380-960	0.1 dB typical, 0.15 dB maximum
	COMMON to Highband Port	1425-2690	0.1 dB typical, 0.15 dB maximum
Isolation	Highband Port to Lowband Port	1425-2690	50 dB minimum
	Lowband Port to Highband Port	380-960	50 dB minimum

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W maximum all ports
Peak Envelope Power	2 kW maximum all ports
Intermodulation Performance	<-117 dBm (-160 dBc) minimum, all bands at 2x +43 dBm tones

#### Environmental

Operating Temperature	-40 °C to +65 °C
Enclosure	Unit Body IP68, Connector IP68
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes per IEC61000-4-5

#### Mechanical

Model	Single	Twin
Connectors	3 x 7-16 DIN female or 3 x 4.3-10 female	6 x 7-16 DIN female or 6 x 4.3-10 female
Dimensions w/Bracket (HxWxD)	6.46 x 9.13 x 2.80 in. (164 x 232 x 71 mm)	6.46 x 9.65 x 5.16 in. (164 x 245 x 131 mm)
Housing Dimensions (HxWxD)	2.64 x 9.13 x 2.32 in. (67 x 232 x 59 mm)	2.64 x 9.65 x 4.65 in. (67 x 245 x 119 mm)
Weight	4.35 lbs (1.97 Kg)	8.65 lbs. (3.93 kg)
Frontal Wind Load @ 150 km/hour	11.9 Lbs. (52.8 N)	
Lateral Wind Load @ 150 km/hour	3.0 Lbs. (13.4 N)	6.1 Lbs. (27.1 N)
Mounting	Pole (3 - 4.65 in) and Wall mounting bracket	

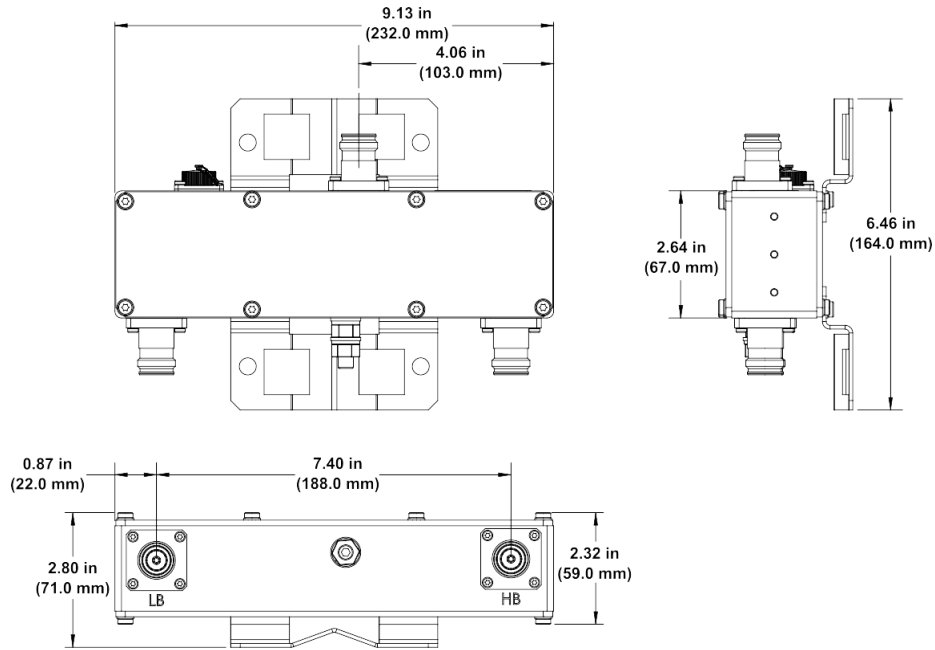


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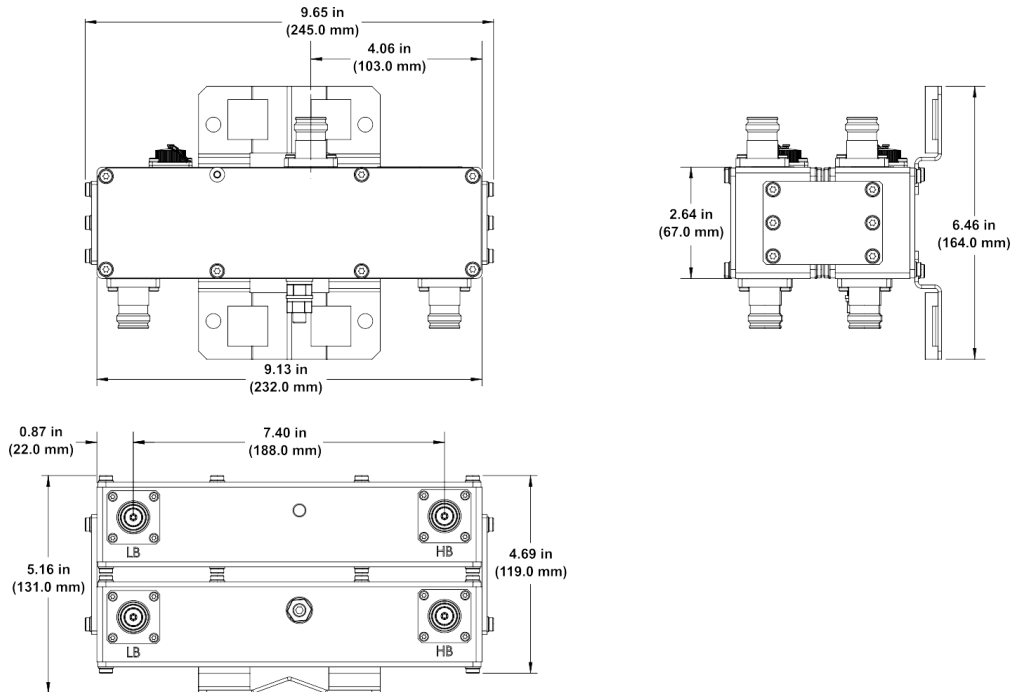
## SPECIFICATIONS

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Outdoor Single Diplexer with Modem Outline Drawing



Outdoor Twin Diplexer with Modem Outline Drawing



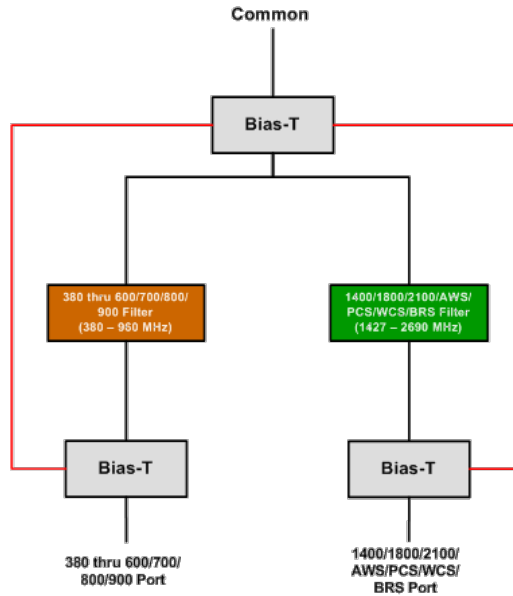
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SPECIFICATIONS

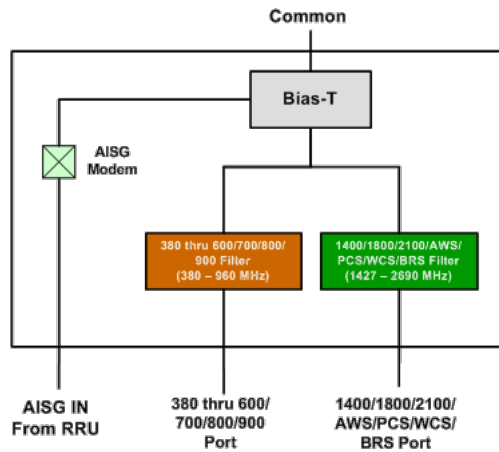
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Block Diagram



Outdoor Broadband Diplexer with Smart Bias-T Block Diagram



Outdoor Broadband Diplexer with AISG Modem Block Diagram



# Filters & Combiners

## STANDARDS & CERTIFICATIONS

### Broadband Outdoor Diplexer

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#### Parts & Accessories

<b>DPO-3946-x-S1</b>	Outdoor Broadband Diplexer with 7-16 DIN connectors
<b>DPO-3946-x-S2</b>	Outdoor Broadband Diplexer with 4.3-10 connectors
<b>DPO-3946-x-T1</b>	Outdoor Twin Broadband Diplexer with 7-16 DIN connectors
<b>DPO-3946-x-T2</b>	Outdoor Twin Broadband Diplexer with 4.3-10 connectors

#### Option (-x) Description

<b>-S</b>	Smart Bias-T, DC/AISG Pass through on either port
<b>-D</b>	Smart DC for DC/ASIG pass through in either direction on any port
<b>-1</b>	DC/AISG Pass through Low Band to COMMON, DC Block on all other input ports
<b>-2</b>	DC/AISG Pass through High Band to COMMON, DC Block on all other input ports
<b>-M</b>	AISG Modem with AISG output port
<b>-MD</b>	For twin or quad unit configurations, one unit with AISG Modem/Port, all other units with Smart DC for DC/ASIG pass through in either direction on any 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

Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001



# CCI

## Communication Components Inc.

EXTENDING WIRELESS PERFORMANCE