



Filters & Combiners

DATA SHEET

1800/2100 MHz Outdoor Diplexer

DPO-1822-xxx



- Combines the frequencies covering the 1800 MHz band (1710-1880 MHz) with the 2100 MHz band (1920-2170 MHz)
- High power 300 W per port with low insertion loss in a small, lightweight enclosure
- Low intermodulation with isolation of >50 dB port to port
- Smart Bias-T enables DC and AISG 2.0 pass-through on either input port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Available outdoor pole or wall mounting options

Overview

The CCI Outdoor Diplexer passes the 1800 MHz band covering 1710-1880 MHz on its low band input port and with the 2100 MHz band which covers 1920-2170 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 CCI Outdoor Diplexer provides full band performance 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 full Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) control capability by providing DC and AISG 2.0 compliant pass-through on either input port. The diplexer is available in a single or twin unit configuration.

Technical Description:

The CCI Outdoor Diplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the 1800 MHz with the 2100 MHz bands onto 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-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 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 IP68 moisture proof enclosure, with IP68 immersion 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.



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SPECIFICATIONS

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Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	COMMON	1710-1880	20 dB minimum
		1920-2170	20 dB minimum
	1800 MHz	1710-1880	20 dB minimum
	2100 MHz	1920-2170	20 dB minimum
Insertion Loss	COMMON to 1800 MHz	1710-1880	0.3 dB maximum
	COMMON to 2100 MHz	1920-2170	0.3 dB maximum
Isolation	COMMON to 1800 MHz	1920-2170	50 dB minimum
	COMMON to 2100 MHz	1710-1880	50 dB minimum

General Characteristics	
Impedance	50 ohms
Continuous Average Power	300 W maximum
Peak Envelope Power	1.5 kW maximum
Intermodulation Performance	<-117 dBm (-160 dBc) at 2 x +43 dBm tones all bands
DC Pass Current/AISG Pass	3A/AISG signal (2.176 Mhz) per AISG 2.0 on either input port

Environmental

Operating Temperature	-40 °C to +65 °C
Enclosure	Enclosure IP68, Connectors IP68
Relative Humidity	5% - 95%
MTBF	>500,000 hours
Lightning Protection	8/20us, ±20KA max, 10 strikes per IEC61000-4-5

Mechanical

Model	DPO-1822-x-Sx	DPO-1822-x-Tx
Modularity	Single	Twin
Weight with brackets	2.2 Kg	4.5 Kg
Dimensions with brackets	11.34 x 6.46 x 2.64 in. (288.0 x 164.0 x 67.0 mm)	11.34 x 6.46 x 4.76 in. (288.0 x 164.0 x 121.0 mm)
Dimensions enclosure only	7.91 x 6.46 x 2.05 in. (201.0 x 164.0 x 52.0 mm) per Diplexer	
Connectors	4.3-10 or 7-16 female x 3 per Diplexer	
Mounting	Pole/Wall mounting bracket	

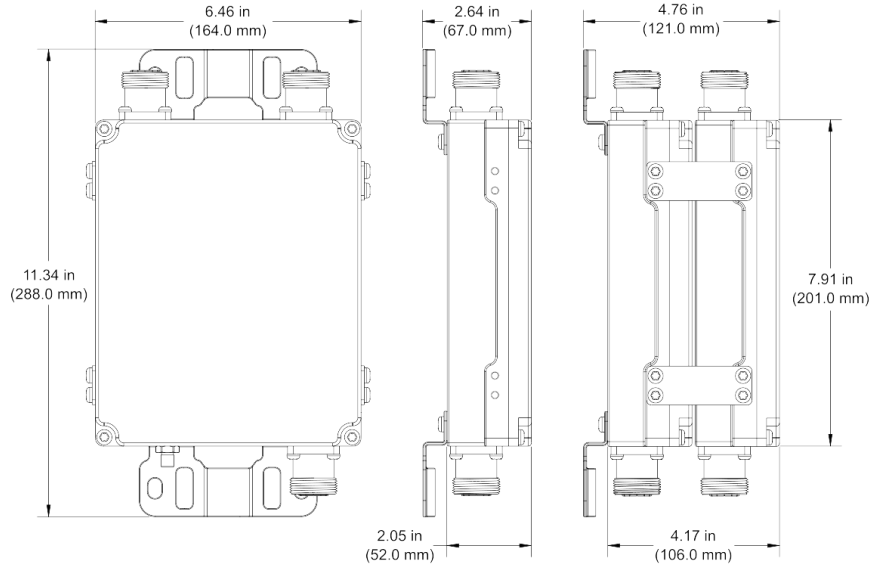


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SPECIFICATIONS

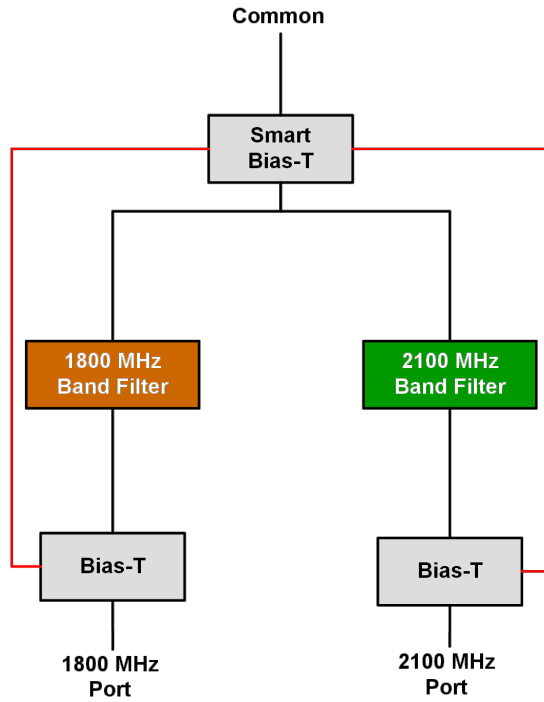
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Outdoor Diplexer Outline Drawing

Block Diagram



Outdoor Diplexer Block Diagram



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STANDARDS & CERTIFICATIONS

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Parts & Accessories

DPO-1822-x-S1	Single Diplexer with mounting bracket and 7-16 DIN connectors
DPO-1822-x-S2	Single Diplexer with mounting bracket and 4.3-10 connectors
DPO-1822-x-T1	Twin Diplexer with mounting bracket and 7/16 DIN connectors
DPO-1822-x-T2	Twin Diplexer with mounting bracket and 4.3-10 connectors
Option (-x)	Description
-S	Smart Bias-T, DC/AISG Pass through on either port
-0	No DC/AISG Pass through
-1	DC/AISG Pass through Low Band to COMMON, DC Block on all other input ports
-2	DC/AISG Pass through High Band 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

