

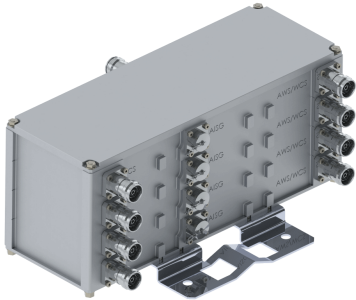


Filters & Combiners

DATA SHEET

Outdoor Diplexer

DPO-1973-xxx



- Combines the frequencies covering PCS (1850-1995 MHz) with AWS/WCS (1695-1780/2110-2360) MHz
- 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
- AISG 2.0 pass-through on either input port with Smart Bias-T or optional AISG Modem and Port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Twin or Single outdoor (IP67) Diplexer with flexible pole or wall mounting options

Overview

The CCI Outdoor Diplexer combines the PCS bands covering 1850-1995 MHz on its low band input port and the full AWS and WCS bands covering 1695-1780 and 2110-2360 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 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 using the Smart Bias-T or via an optional AISG modem and port.

Technical Description:

The CCI Outdoor Diplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the PCS band with the AWS-WCS bands on to a common feeder line. The fully weatherproof tower mount outdoor diplexer has internal multi-strike lightning protection using a multi-stage surge protection circuit.

The diplexer is available with DC/AISG pass options including a smart bias-tee or AISG modem and output port. The Smart Bias-Tee architecture 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 which is available as a single or twin 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 can be pole or wall mounted and the unit body is rated for IP67. All RF ports are terminated with 4.3-10 connectors 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.



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SPECIFICATIONS

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Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	COMMON	1695 - 1780	18 dB minimum, 20 dB typical
		1850 - 1995	18 dB minimum, 20 dB typical
		2110 - 2360	18 dB minimum, 20 dB typical
	PCS	1850 - 1995	18 dB minimum, 20 dB typical
		1695 - 1780	18 dB minimum, 20 dB typical
		2110 - 2360	18 dB minimum, 20 dB typical
Insertion Loss	COMMON to PCS	1850 - 1995	0.3 dB typical, 0.4 dB maximum
	COMMON to AWS/WCS	1695 - 1780	0.3 dB typical, 0.45 dB maximum
		2110 - 2360	0.25 dB typical, 0.35 dB maximum
Isolation	COMMON to PCS	1695 - 1780	50 dB minimum
		2110 - 2360	50 dB minimum
	COMMON to AWS/WCS	1850 - 1995	50 dB minimum

General Characteristics

General Impedance	50 ohms
Continuous Average Power	200 W maximum (input ports), 500 W maximum (Common port)
Peak Envelope Power	1 kW maximum (input ports), 3 kW maximum (Common port)
Intermodulation Performance	<-117 dBm (-160 dBc) at 2 x +43 dBm tones all bands
DC Pass Current/AISG Pass (Any Port to COMMON port)	3A/AISG signal (2.176 MHz) per AISG 2.0
Modem Option	9600 Baud per AISG 2.0/3GPP TS 25.461

Environmental

Operating Temperature	-40 °C to +65 °C
Ingress Protection	IP67
Relative Humidity	0 - 99%
Lightning Protection	8/20us, ±10KA max, 10 strikes per IEC61000-4-5
MTBF	>500,000 hours

Mechanical

Model	DPO-1973-x-S2 (Single)	DPO-1973-x-T2 (Twin)	DPO-1973-x-Q2 (Quad)
Connectors	3 x 4.3-10 female	6 x 4.3-10 female	12 x 4.3-10 female
Dimensions w/Bracket (HxWxD)	8.35 x 12.20 x 2.28 in. (212.0 x 310.0 x 58.0 mm)	8.35 x 12.20 x 3.54 in. (212.0 x 310.0 x 90.0 mm)	8.35 x 12.20 x 6.02 in. (212.0 x 310.0 x 153.0 mm)
Housing Dimensions (HxWxD)	4.41 x 12.20 x 1.89 in. (112.0 x 310.0 x 48.0 mm)	4.41 x 12.20 x 3.15 in. (112.0 x 310.0 x 80.0 mm)	4.41 x 12.20 x 5.63 in. (112.0 x 310.0 x 143.0 mm)
Weight with brackets	5.3 lbs (2.4 kg)	8.9 Lbs. (4.0 kg)	16.0 Lbs. (7.3 kg)
Frontal Wind Load @ 150 km/hour	160.1 N (36.0 Lbs.)	160.1 N (36.0 Lbs.)	160.1 N (36.0 Lbs.)
Lateral Wind Load @ 150 km/hour	18.3 N (4.1 Lbs.)	30.4 N (6.81 Lbs)	54.4 N (12.2 Lbs)
Mounting	Pole/Wall mounting bracket		

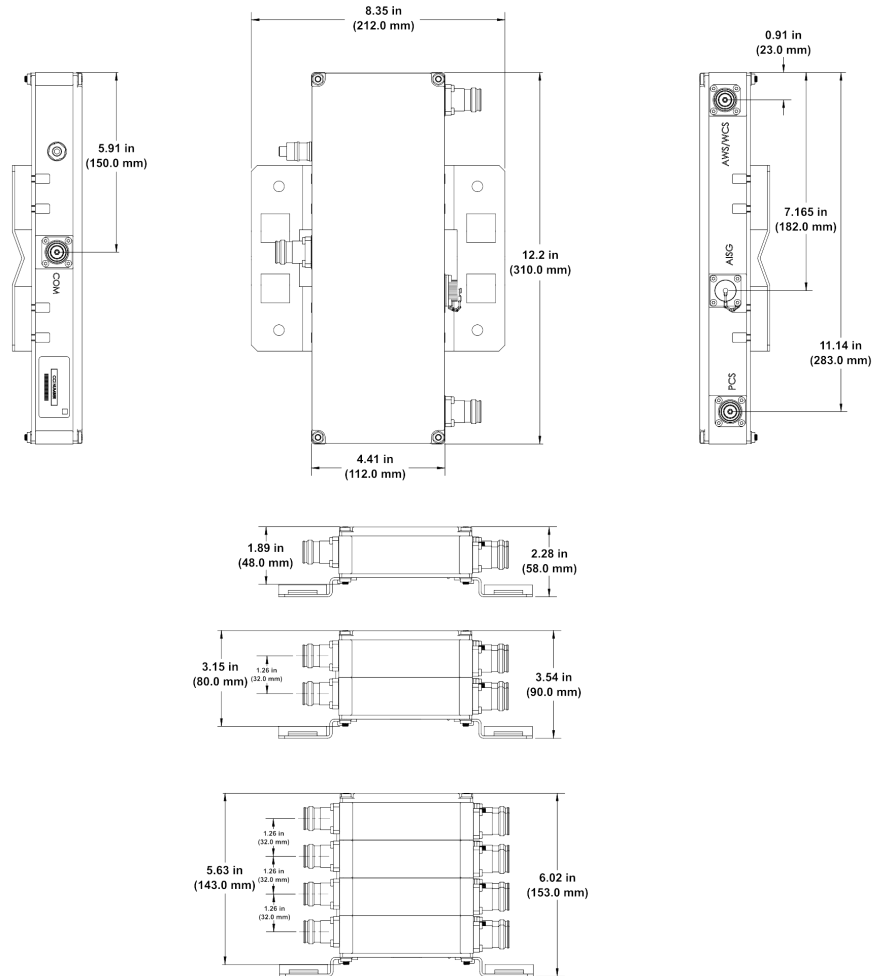


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Outdoor Diplexer

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Outdoor Diplexer (DPO-1973-xxx) Outline Drawing



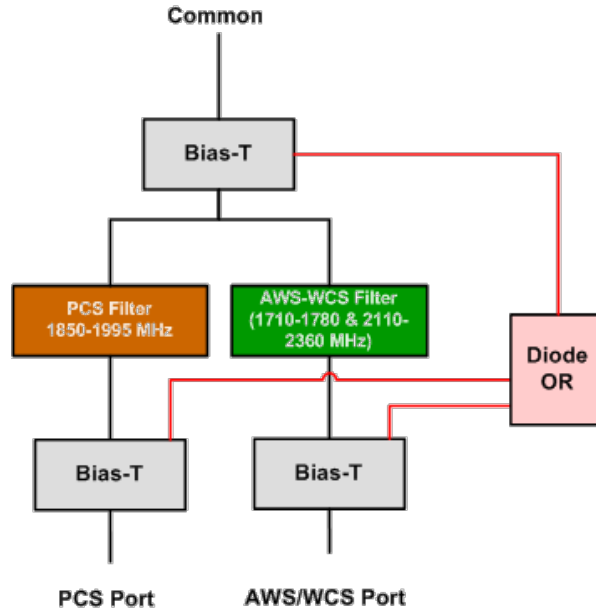
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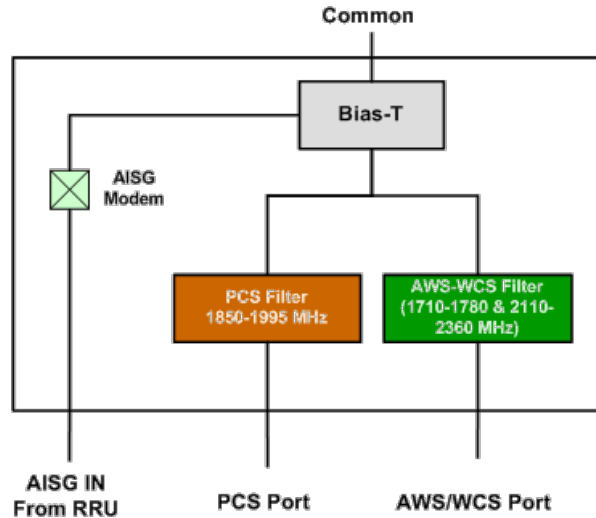
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Block Diagram



Outdoor Diplexer with Smart Bias-T Block Diagram



Outdoor Diplexer with AISG Modem Block Diagram



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STANDARDS & CERTIFICATIONS

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Parts & Accessories

DPO-1973-S-S2	Single PCS - AWS/WCS Diplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
DPO-1973-S-T2	Twin PCS - AWS/WCS Diplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
DPO-1973-S-Q2	Quad PCS - AWS/WCS Diplexer with 4.3-10 connectors and Smart Bias-T for DC/AISG pass through
DPO-1973-M-S2	Single PCS - AWS/WCS Diplexer with 4.3-10 connectors and AISG Modem and Output Port
DPO-1973-M-T2	Twin PCS - AWS/WCS Diplexer with 4.3-10 connectors and AISG Modem and Output Port
DPO-1973-M-Q2	Quad PCS - AWS/WCS Diplexer with 4.3-10 connectors and AISG Modem and Output Port

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

