



Amplifiers

DATA SHEET

Dual Band (Cellular/PCS) TMA

TMADB0819VG12A



- Small, lightweight, twin unit
- Dual-Band Dual Duplexed (Cellular (GSM850) / PCS (GSM1900))
- AISG 2.0 and AISG 1.1¹ compatible
- High Linearity
- Lightning protected
- Fail-safe bypass mode
- High reliability

¹ Fully functional within the inherent limitations of AISG 1.1

Overview

CCI's Dual Band (Cellular/PCS) TMA contains two TMA's (i.e. one TMA for each band) in a dual housing. The TMA is full band and fully duplexed. High linearity improves the uplink sensitivity and the receive performance of base stations. The TMA is fully compliant with the latest AISG 2.0 specification. The TMA supports all 2G, 3G and 4G (Cellular/PCS) systems. It provides a convenient package for sites upgraded to dual band or quad antenna configurations. The dual housing package reduces tower loading, leasing, and installation costs. Unit count on the tower is cut in half. An excellent match for two branch receive diversity applications using dual polarization antennas. The input and output connectors are located inline for ease of installation in space constrained areas such as uni-pole structures and stealth antennas.

Technical Description:

The TMA system consists of an outdoor dual band tower mount unit which combines separate PCS and Cellular antennas onto a single BTS port. Both the Cellular and PCS paths are dual duplexed to separate the low-power uplink signals from the high-power downlink signals at the antenna port, amplify the low-level uplink signals using ultra-low noise amplifiers(LNA's), and recombines all four paths at the BTS port. The tower mount units consist of six band-pass filters, two redundant low-noise amplifiers, bypass failure circuitry, and bias tee's which are all housed in an IP65 moisture proof enclosure, with IP68 Immersion proof connectors suited to long-life masthead mounting. The unit provides protection against lightning strikes via a multi-stage surge protection circuit. AISG 2.0 DC power and control is provided via the feeder cable from the BTS using the AISG 2.0 and 3GPP standard. Additionally the AISG TMA operates at constant power when powered by an AISG 2.0 Compatible Site Control Unit, but may be powered by a "Standard Power distribution Unit. A separate AISG connector is also provided to allow direct AISG connection or "Daisy Chaining" to multiple AISG products at the top of the tower.

An optional indoor site control unit(SCU) is available to power up to 32 AISG modules per sector and to provide all the monitoring and alarm functions for the system. The SCU is housed in a single (1U) 1.75" x 19" rack and contains dual redundant power supplies capable of being "hot swapped" that provide a regulated DC supply voltage on the RF coax for the tower mount amplifiers.



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SPECIFICATIONS

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Electrical

RF Parameters	Ports	Frequency(MHz)	Specification	
Return Loss	850 ANT	824 - 849	18 dB min. (15 dB bypass mode)	
		869 - 894	18 dB min.	
	PCS ANT	1850 - 1910	18 dB min. (15 dB bypass mode)	
		1930 - 1990	18 dB min.	
	BTS	824 - 849	18 dB min. (15 dB bypass mode)	
		869 - 894	18 dB min.	
		1850 - 1910	18 dB min. (15 dB bypass mode)	
		1930 - 1990	18 dB min.	
	Gain	850 ANT - BTS	824 - 849	6 to 12 dB adjustable in 0.25 dB steps via AISG (± 1.0 dB)
		PCS ANT - BTS	1850 - 1910	6 to 12 dB adjustable in 0.25 dB steps via AISG (± 1.0 dB)
	Insertion Loss	850 ANT - BTS (RX Bypass mode)	824 - 849	1.5 dB @25°C, 1.7 dB @65°C ± 1.0 dB; 2.75 dB @25°C, 3.25 dB @65°C @ 849 MHz (band edge) ± 1.0 dB
			1850 - 1910	1.6 dB @25°C, 1.8 dB @65°C ± 1.0 dB; 2.3 dB @25°C, 2.5 dB @65°C @ 1910 MHz (band edge) ± 1.0 dB
850 ANT - BTS (TX)		869 - 894	0.4 dB typ.	
PCS ANT - BTS (TX)		1930 - 1990	0.4 dB typ.	
Rejection		850 ANT - BTS (TX)	1850 - 1990	70 dB
	PCS ANT - BTS (TX)	824 - 894	80 dB	
Noise Figure	850 ANT - BTS	824 - 849	1.7 dB @ 25°C, 2.0 dB @ 65°C; 3.0 dB @ 25°C, 3.3 dB @ 65°C @ 849 MHz (band edge)	
	PCS ANT - BTS	1850 - 1910	1.4 dB @ 25°C, 1.6 dB @ 65°C; 1.7 dB @ 25°C, 1.9 dB @ 65°C @ 1910 MHz (band edge)	
Input Third Order Intercept Point	850 ANT - BTS	824 - 849	+12 dBm min. at max. gain	
	PCS ANT - BTS	1850 - 1910	+12 dBm min. at max. gain	

General Characteristics

Impedance	50 ohms
Continuous Average Power	200 W max.
Peak Envelope Power	2 kW max.
Intermodulation Performance(all ports)	<-110 dBm (-153 dBc) typical (2 x +43 dBm tones) all bands
Operating Voltage	+10V to +30V DC provided via coax or AISG
Power Consumption	< 2.1 W
AISG Compatibility	AISG 2.0, AISG 1.1 (Functions within the limitations of AISG 1.1)
Interface to AISG Equipment	RS 485

Environmental

Operating Temperature	-40°C to +65°C
Enclosure	IP65 (Unit Body), IP68 (Connector)
MTBF	>500,000 hours
Lightning Protection	8/20us, ± 2 KA max, 10 strikes each per IEC61000-4-5



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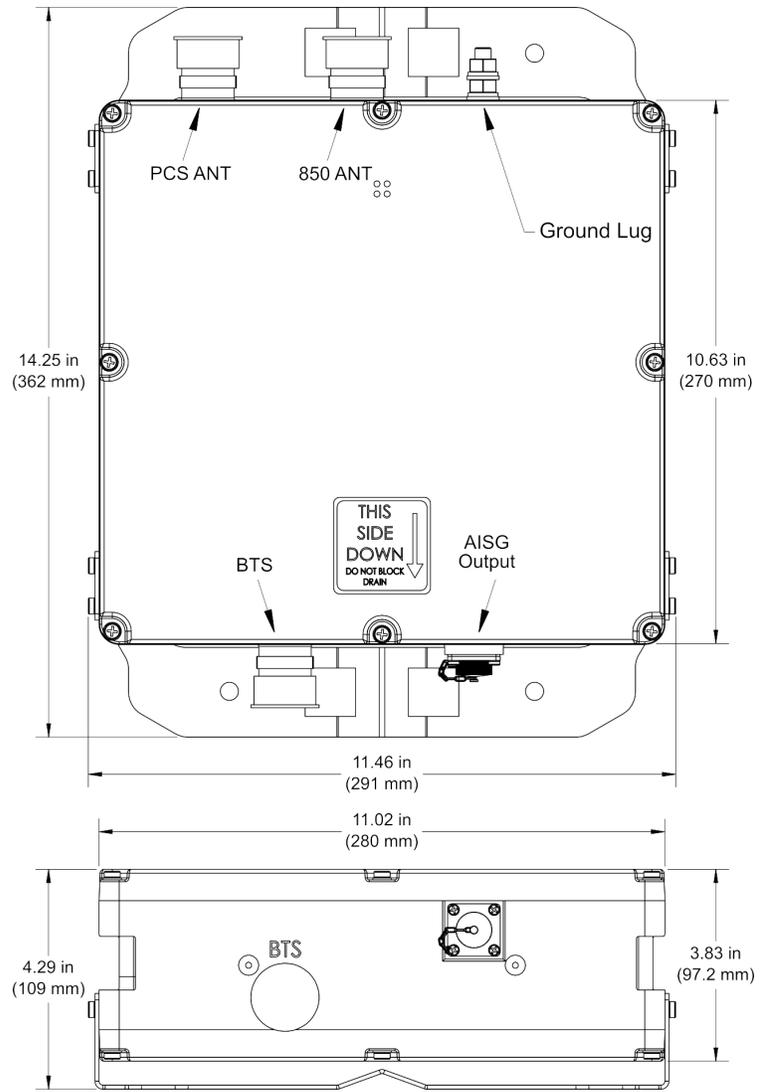
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Mechanical

Connectors	3 x 7-16 DIN female 1 x AISG
Dimensions (w/o connectors or brackets)(HxWxD)	10.63 x 11.02 x 3.83 in. (270 x 280 x 97.2 mm)
Dimensions (with brackets)(HxWxD)	14.25 x 11.46 x 4.29 in. (362 x 291 x 109 mm)
Weight	19.18 lbs (8.7 kg)-with bracket
Mounting	Pole/Wall mounting bracket



TMADB0819VG12A Outline Drawing



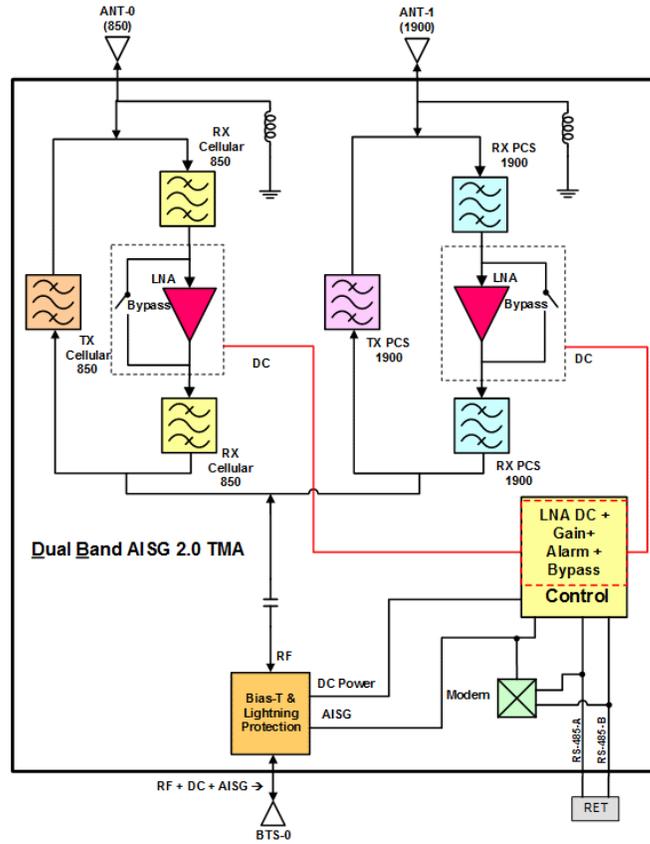
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Block Diagram



TMADB0819VG12A Block Diagram



Amplifiers

ORDERING

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Parts & Accessories

TMADB0819VG12A Dual Band (Cellular/PCS) TMA



Amplifiers

STANDARDS &
CERTIFICATIONS

Dual Band (Cellular/PCS) TMA

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Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US

