



# Amplifiers

DATA SHEET

## 850 MHz Antenna Sharing Combiner

ASC850VG12A



- Small, lightweight, outdoor unit
- Dual Technology Combiner (GSM 850 / UMTS 850)
- Can also be used for same technology (e.g. GSM/GSM)
- Can be used close to Antenna
- Can be used in Ground Based Applications while maintaining Diversity Path
- Can operate as a Passive Combiner in non-DC fed system
- Rx path is "Independent" of Tx path
- Can survive incorrect installation as ports are protected
- AISG 2.0 compatible unit
- ASC receives DC Voltage and AISG sampling at the UMTS BTS-1 port
- ASC operates at constant power
- High Linearity
- Lightning protected
- Fail-safe bypass mode
- High reliability

### Overview

CCI's Dual Technology Antenna Sharing Combiner (ASC) allows two Base Stations to share the same antennas and preserves Receive Diversity without any combining losses. In the Downlink direction, the transmit signal from each Base Station is directed to one of the two antenna ports. In the uplink direction, an Amplifier compensates for combining losses normally associated with passive combiners. The Gain of the amplifier can be controlled remotely using AISG 2.0 Protocol, and the gain level to each BTS can be independently controlled.

### Technical Description:

The ASC system consists of a twin outdoor tower mount unit with two antenna inputs. The tower mount unit is dual duplexed to separate the low-power uplink signal from the high-power downlink signal at the antenna port, amplifies the low-level uplink signals using an ultra-low noise amplifier(LNA), and recombines the two paths at the BTS port. In addition, the uplink signal is split out after the LNA and routed to the BTS diversity port. The tower mount units consist of six band-pass filters, four redundant low-noise amplifiers, two splitters, 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. The ASC is powered through the UMTS (BTS-1) port. Additionally the ASC operates at constant power when powered by an AISG 2.0 Compatible Site Control Unit, or BTS. 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. With fully protected input ports, the unit can be installed without the concern of damaging the unit should it be incorrectly installed.



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## Applications

- Functions as a combiner for same band Base Station Equipment, (Can be same technology (e.g. GSM and GSM) or different technology (e.g. GSM and UMTS)) enabling Rx Diversity and overcoming losses normally associated with passive combiners.
- Can be used close to the antenna, enabling Remote Radio Head equipment to be combined with Coaxial fed systems which use a pair of Coaxial Feeder Lines. Gives additional gain for overcoming feeder and combining losses.
- Can be used in ground based applications, as a combiner. Overcomes losses and maintains Rx Diversity path.
- PDU has flexibility to be used in non-DC fed systems, thus giving passive combining of two same band systems into coaxial feeder line pair.



# Amplifiers

## SPECIFICATIONS

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#### Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	ANT	824 - 849	18 dB min. (16 dB bypass mode)
		869 - 894	18 dB min.
Gain	BTS	824 - 849	18 dB min. (16 dB bypass mode)
		869 - 894	18 dB min.
Insertion Loss	ANT - BTS	824 - 849	4 to 12 dB adjustable in 0.25 dB steps via AISG ( $\pm 0.5$ dB)
		869 - 894	4 to 12 dB adjustable in 0.25 dB steps via AISG ( $\pm 0.5$ dB)
Noise Figure	ANT - BTS (RX Bypass mode)	824 - 849	7.0 dB max. $\pm 0.3$ dB passband ripple
		869 - 894	7.0 dB max. $\pm 0.3$ dB passband ripple
Input Third Order Intercept Point	ANT - BTS (TX)	824 - 849	0.4 dB typ. $\pm 0.1$ dB passband ripple
		869 - 894	0.4 dB typ. $\pm 0.1$ dB passband ripple
Power Consumption	ANT - BTS	824 - 849	1.6 dB typ. @ 25°C @ max gain, 1.8 dB typ. @ 65°C @ max gain
		869 - 894	1.6 dB typ. @ 25°C @ max gain, 1.8 dB typ. @ 65°C @ 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	$\leq 4.0$ W		

#### Environmental Specification

Operating Temperature	-40° C to +60° C
Enclosure	IP65 (Unit Body), IP68 (Connector)
MTBF	>500,000 hours
Lightning Protection	8/20us, $\pm 2$ KA max, 10 strikes each, IEC61000-4-5

#### Mechanical Specification

Connectors	DIN 7-16 female x 6 (BTS (x 2), ANT (x 2), RxD (x 2)), AISG x 1
Dimensions (w/o connectors or brackets)(HxWxD)	10.63 x 7.87 x 4.02 in. (270 x 200 x 102 mm)
Dimensions (with brackets)(HxWxD)	14.25 x 8.31 x 4.31 in. (363 x 211 x 109.5 mm)
Weight (w/o Bracket)	15.4 lbs (7.0 kg) approx.
Weight (with Bracket)	16.5 lbs (7.5 kg) approx
Mounting	Pole/Wall Mounting Bracket

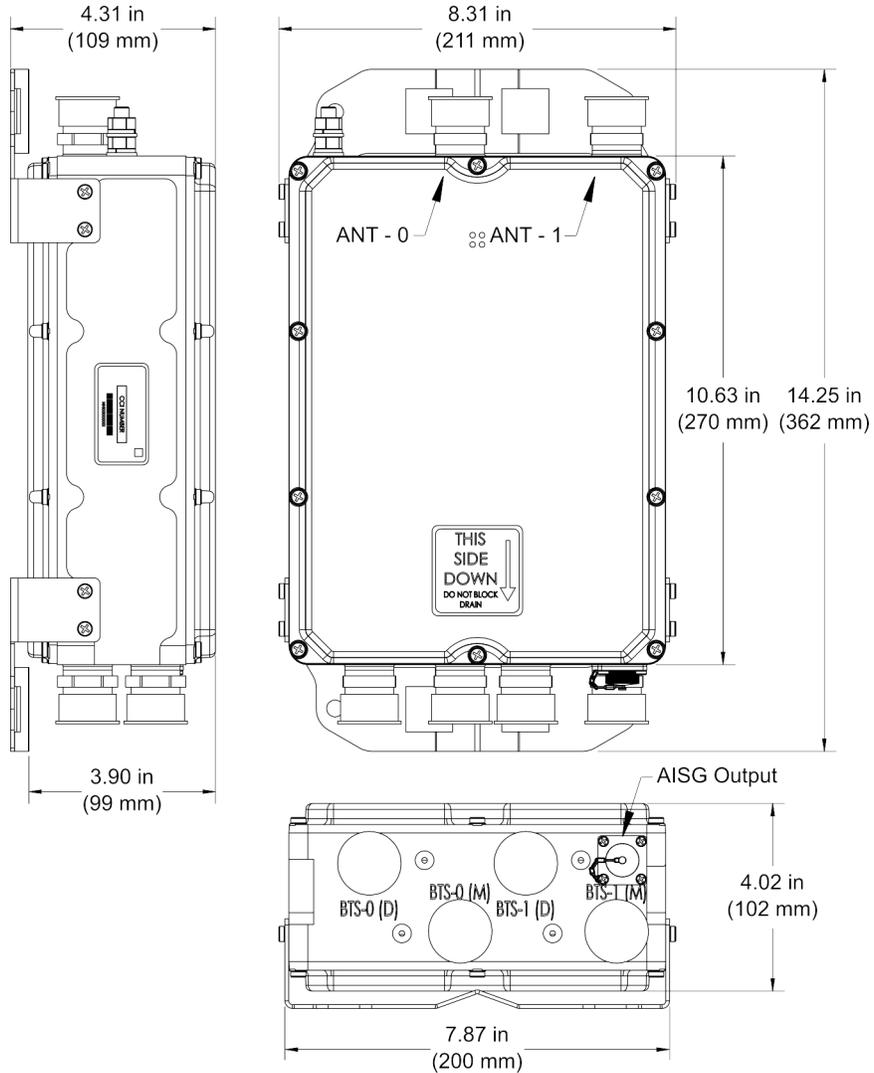


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ASC850VG12A Outline Drawing



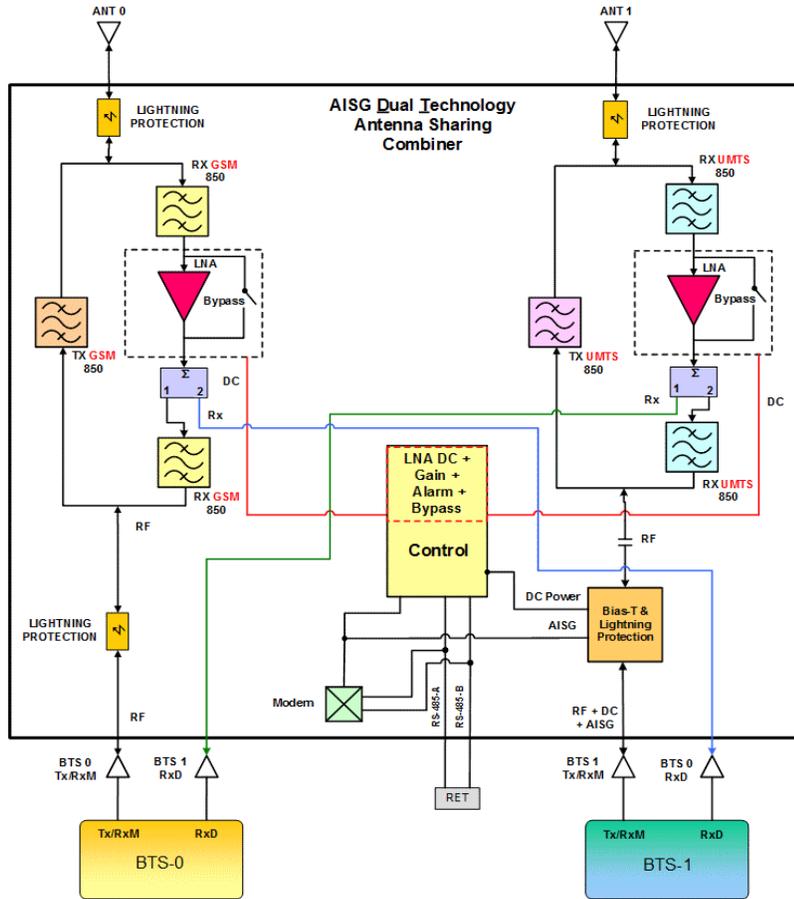
# Amplifiers

SPECIFICATIONS

## 850 MHz Antenna Sharing Combiner

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Block Diagram



ASC850VG12A Block Diagram



# Amplifiers

ORDERING

850 MHz Antenna Sharing Combiner

ASC850VG12A

Parts & Accessories

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**ASC850VG12A** 850 MHz Dual Technology Outdoor Antenna  
Sharing Combiner

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# Amplifiers

STANDARDS &  
CERTIFICATIONS

850 MHz Antenna Sharing Combiner

ASC850VG12A

Certifications

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

