

# GSM900 125W GSM-EDGE Booster/Combiner

## General Information



CCI's 900MHz GSM-EDGE Cell Booster provides the means to add capacity to existing GSM sites by combining multiple channels onto a common antenna port without suffering any combining losses. Consequently, capacity of existing sites can be expanded with the existing cabling

and antenna infrastructure. The Cell Booster/Combiner allows the cost efficient implementation of multi-channel high capacity radio networks. The Cell Booster can also be deployed as a booster amplifier without combining, thus increasing the downlink power of the Base Transceiver Station (BTS). When used in conjunction with a Tower Mount Amplifier (TMA), the Cell Booster can significantly increase the footprint of rural sites and improve in-building penetration in urban locations.

- ▶ Model DAB-900
- ▶ Model DAC-900
- ▶ Model PDU-1819
- ▶ Model PSU-1819
- ▶ Model TRA-1819

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## Technical Description

The GSM900 Cell Booster was specifically designed to integrate with GSM base stations without any need for retrofitting the original equipment. Operational frequency selectable across E-GSM and P-GSM. The system consists of 19" rack mount trays that can accommodate multiple modules. The core modules include a Dual Amplifier-Booster Module and a Dual Amplifier-Combiner Module. The Cell Booster system is further complemented with a range of Duplexer Modules, Power Supply Modules, and Splitter/VSWR modules. The Cell Booster system can be configured with any combination of the above modules to seamlessly integrate with the carriers BTS equipment and achieve the desired performance results.

The Dual Amplifier-Booster Module (DAB) consists of two linear power amplifiers with intermodulation level control circuitry, each capable of generating a 125 Watt GSM/GPRS or EDGE signal. The Dual Amplifier-Combiner Module (DAC) is identical to the DAB Module with the exception of a power hybrid combiner at the output which combines both signals to provide two 60 Watt GSM/GPRS or EDGE signals on a common output. The Duplexer Modules consist of high power duplexers which combine the transmit (TX) and receive (Rx) signals on a common antenna (ANT) port. A Splitter-Bias-Tee and Low Noise Amplifier (LNA) option is available to provide DC pass-thru and receive diversity for specific BTS equipment that require this feature. The Power Supply Modules are available with either 28VDC, -48VDC, or AC inputs. A built-in battery backup circuit is available that can tap into the existing battery bank during the loss of AC power. Both modules incorporate CCI's proprietary *GSM/EDGE failure-detect* circuitry that tracks the amplified signal by timeslot and actively controls and monitors the performance of both amplifiers, providing dry relay contact closures that can be tied into the BTS alarm circuit.

## Dual Amplifier-Booster (DAB-900) Module Electrical Specification

Operating Frequency:	30MHz selected from 925-960 MHz
Rated GSM/EDGE Output Power:	125 Watts (Per Channel)
1 dB Compression Point:	52.5 dBm Min.
Pass Band Ripple:	+/-0.5 dB Max.
Power Supply Voltage:	28 VDC Nominal
Current Consumption:	12 AMPS Typical per Channel
Dimensions:	220L x 88W x 300mmD
Number of Inputs/ Outputs:	2 Inputs / 2 Outputs
Connectors	N female
Weight	6kg Max.
Operating Temperature:	-25° to +65° C Ambient

## Dual Amplifier-Combiner (DAC-900) Module Electrical Specification

Operating Frequency:	30MHz selected from 925-960 MHz
Rated GSM/EDGE Output Power:	60 Watts (Per Channel), 120 Watts Composite
1 dB Compression Point:	52.5 dBm Min. (Per Channel)
Pass Band Ripple:	+/-0.5 dB Max.
Power Supply Voltage:	28 VDC Nominal
Current Consumption:	12 AMPS Typical per Channel
Dimensions:	220L x 88W x 300D
Number of Inputs/ Outputs:	2 Inputs / 1 Outputs
Connectors	N female
Weight	6kg Max.
Operating Temperature:	-25° to +65° C Ambient

## AC Power Supply (PSU-1819-AC) Module Electrical Specification

Input Voltage	208-230 VAC, Single Phase
Maximum Input Current:	10 AMPS
Output Voltage:	28 VDC
Output Current:	64 AMPS
Dimensions:	220L x 88W x 300mmD
Number of Inputs/ Outputs:	1 In/4 Out (each output protected by 20A circuit breaker)
Connectors	JST
Weight	6kg Max.
Operating Temperature:	-25° to +65° C Ambient

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## 48V Power Supply (PSU-1819-48) Module Electrical Specification

Input Voltage	36-72 VDC
Maximum Input Current:	35 AMPS
Output Voltage:	28 VDC
Output Current:	54 AMPS Total
Dimensions:	220L x 88W x 300mmD
Number of Inputs/ Outputs:	1 In/4 Out (each output protected by 20A circuit breaker)
Connectors	JST
Weight	6kg Max.
Operating Temperature:	-25° to +65° C Ambient

## Triple Duplexer (TDM-900) Module Electrical Specification

Operating Frequency:	GSM Band Specific
Insertion Loss:	< 1 dB
Pass Band Ripple:	+/-0.5 dB Max.
Input /Output VSWR:	1.5:1 Max.
Number of Antenna Outputs:	3
Dimensions:	220L x 88W x 300mmD
Connectors:	N or SMA female
Weight:	6kg Max.
Operating Temperature:	-25° to +65° C Ambient

## Dual Duplexer/LNA (DDM-900) Module Electrical Specification

Operating Frequency:	GSM Band Specific
Transmit Insertion Loss:	< 1 dB
Receive Gain:	15 dB or 28 dB +/- 0.5 dB
Receive Noise Figure:	2 dB Max
Tx Rejection in Rx Band:	>85 dB
Pass Band Ripple:	+/-0.5 dB Max.
Input /Output VSWR:	1.5:1 Max.
Number of Antenna Outputs:	2
Dimensions:	220L x 88W x 300mmD
Connectors:	N Female (Tx and Ant) ; SMA female (Rx)
Weight:	6kg Max.
Operating Temperature:	-25° to +65° C Ambient

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## CCI's Cell Booster/Combiner for GSM900 Mechanical Drawing



**Cell Booster 19" Rack Mountable Chassis**

### Ordering Information

**Dual Amplifier-Booster Module:  
CCI Model DAB-900**

**Dual Amplifier-Combiner Module:  
CCI Model DAC-900**

**Power Supply Modules:  
CCI Model PSU-1819-AC  
CCI Model PSU-1819-48  
CCI Model PDU-1819**

**Duplexer Modules:  
CCI Model TDM-900 (Triple)  
CCI Model DDM-900 (Dual)**

**Options:**

- ◆ 01: Low Noise Rx Amplifier
- ◆ 02: 2-Way Rx Power Splitter
- ◆ 03: 3-Way Rx Power Splitter
- ◆ 04: VSWR Monitoring

**19" Rack Mount Trays:  
CCI Model TRA-1819-5U  
CCI Model TRA-1819-2U  
CCI Model TRA-1819-2M**



**Cell Booster / Amplifier Plug-in Module**