

Communication Components Inc.



**Cell Extender for
CDMA/TDMA
Base Stations**

**Communication
Components Inc.**

89 Leuning Street, S.Hackensack, NJ 07606

TEL: 201-342-3338

FAX: 201-342-3339

General Information:

Communication Component Inc.'s Cell Extender products are designed to extend the range and coverage area of CDMA/TDMA type base stations in PCS wireless communications. Up-Link loading equation shows that the number of subscribers is directly proportional to E_b/I_0 ratio and also depends on the receiver noise to interference ratio. The Cell Extender boosts the output power of the base station and, by increasing its ERP, increases the first parameter. It also minimizes receiver noise level to decrease the second parameter. As a result of these improvements, the number of subscribers in each sector where the cell extender is used, is increased allowing for cost efficient implementation of high capacity radio networks. It also provides low-noise amplification of the receive signal to improve system sensitivity and to maintain a balanced link between the transmit and receive signals.

The Cell Extender is especially helpful on sites at the fringe of the covered territory, highway sites, or any site with tall tower, and can be cost efficient and much more reliable alternative to the repeater or TMA implementation.

The Cell Extender is easy to install, requires no maintenance, and is fully compatible with any CDMA Base Station equipment. The Cell Extender offers maximum installation flexibility by allowing to be installed at the bottom of the tower or on the top of the tower.

Cell Extender provides additional failure protection by including the by-pass circuitry which is activated in case of the HPA or LNA failure. In this case the base station can continue to operate with slightly degraded parameters.

- **Configuration 1** - The Cell Extender is mounted on the tower structure, in close proximity to the antenna. This configuration is ideal for environments where AC lines are not easily available on the mounting structure. For this configuration, the Cell Extender should be ordered with the *Remote Power Option* which includes a Bias-T and Remote Power Supply module to provide DC power to the Cell Extender over the coaxial cable.

- **Configuration 2**- The Cell Extender is installed at the BTS level. This is intended for applications where it is impractical to install any equipment other than the antenna on the mounting structure.

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Description:

The Cell Extender is specifically designed for compatibility with any CDMA Base Station Equipment and is ensured to maintain the integrity of the signal upon amplification. This is achieved by utilizing state-of-the-art LDMOS technology for power amplification, monolithic Gallium-Arsenide technology for low noise receive amplification, and with particular emphasis on low system group delay and linearity to minimize Bit-Error-Rate (BER) of digital transmissions. The Cell Extender design is based on the building block approach and can be easily configured for different type of base stations. It can contain equipment for two channels or for single channel. Two channel operation allows to preserve diversity feature in a single box.. For different base stations the half-duplex or full duplex approach can be utilized. CE-1819 consists of a single compact unit with RF connectors and a single AC line for power or without it, if bias-T option is included.. It is housed in a moisture proof NEMA 4X aluminum die-cast enclosure with integrated heat sinks and is suitable for either outdoor or indoor installations. The Cell Extender is designed to improve the performance of the whole transceiver unit that is provided with EBTS. It contains redundant low noise amplifiers to boost the receive signals, redundant LDMOS-based high power amplifiers to boost the transmit signal, duplexers, an integrated power supply and alarm/control circuitry to monitor the operation of the unit and the by-pass circuitry. The Cell Extender is powered by a conventional 110/220 VAC source or be optionally DC-powered via the coax cable using the *Remote Power Option*.

Ordering Information:

Options:

Model CE-1819

- 01: Single Channel Only
- 02: Monitoring Interface
- 03: Remote Power Option (with internal Bias-T)
- D: A & D Band Operation
- B: B Band Operation
- C: C Band Operation

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<u>Electrical Specification :</u>	<u>Up-Link</u>	<u>Down-Link</u>
• Model CE-1819-AD A&D Block:	1850-1870 MHz	1930-1950MHz
• Model CE-1819-B B Block:	1870-1885 MHz	1950-1965MHz
• Model CE-1819-C C Block:	1895-1910 MHz	1975-1990MHz
• Downlink:		
System Gain	3 to 8 dB	
Gain Flatness	± 0.5 dB Max	
Operating Output Power/Single Carrier (meeting ACPL CDMA requirements)	20 Watts Max	
Output Third Order Intercept Point:	+50 dBm Typ	
Input/Output VSWR	1.5:1 Max	
•Uplink:		
System Gain	4 to 12 dB	
Gain Flatness	± 0.5 dB Max	
Noise Figure:	2.5 dB Max.	
Output Third Order Intercept Point:	+30 dBm Min.	
Input/Output VSWR	1.5:1 Max	
•Up-link/Down-link Isolation	80 dB Min	
•By-Pass Insertion Loss	0.5 dB	
• Operating Voltage:	115/220VAC or 28VDC	
• Current Consumption:	3 A @ 120VAC	

Alarms

One common alarm is standard

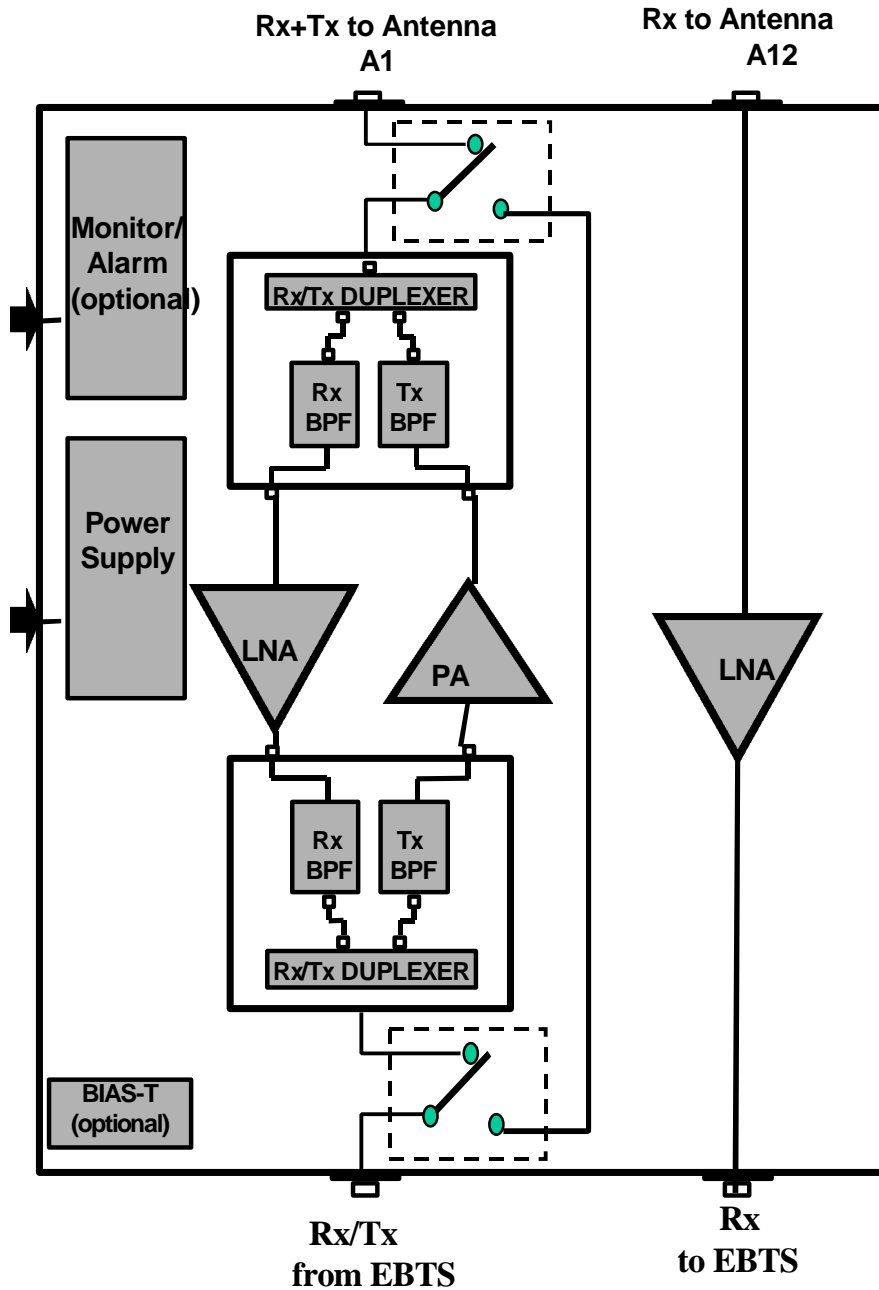
Mechanical Specifications :

• Dimensions:	14"x 8"x 7"
• Enclosure:	NEMA 4X Aluminum Die-cast
• Connectors:	" N" or 7/16 DIN
• Weight:	20 Lbs. Max.
• Mounting:	Mounting Studs

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CDMA Cell Extender

BLOCK DIAGRAM



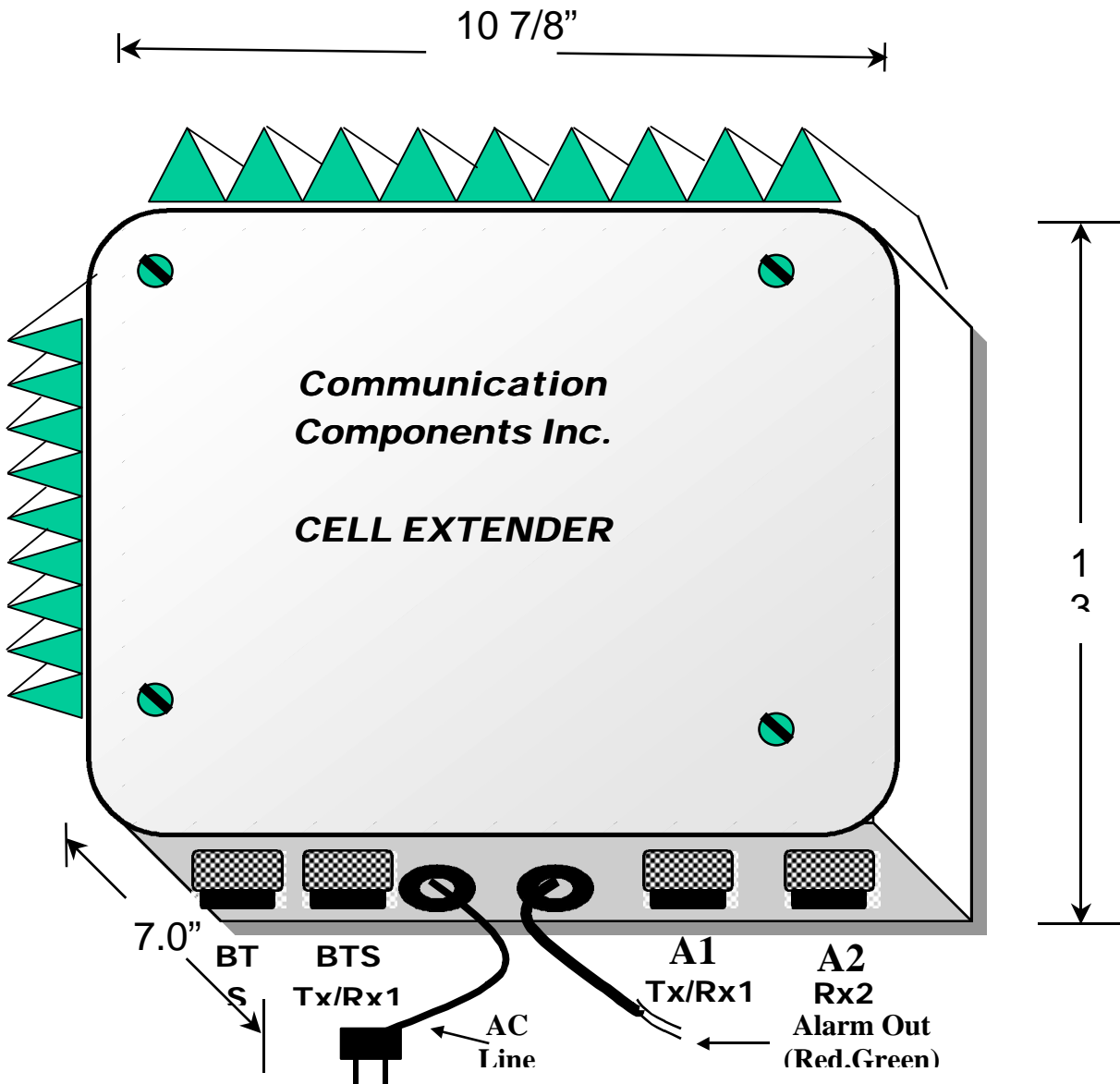
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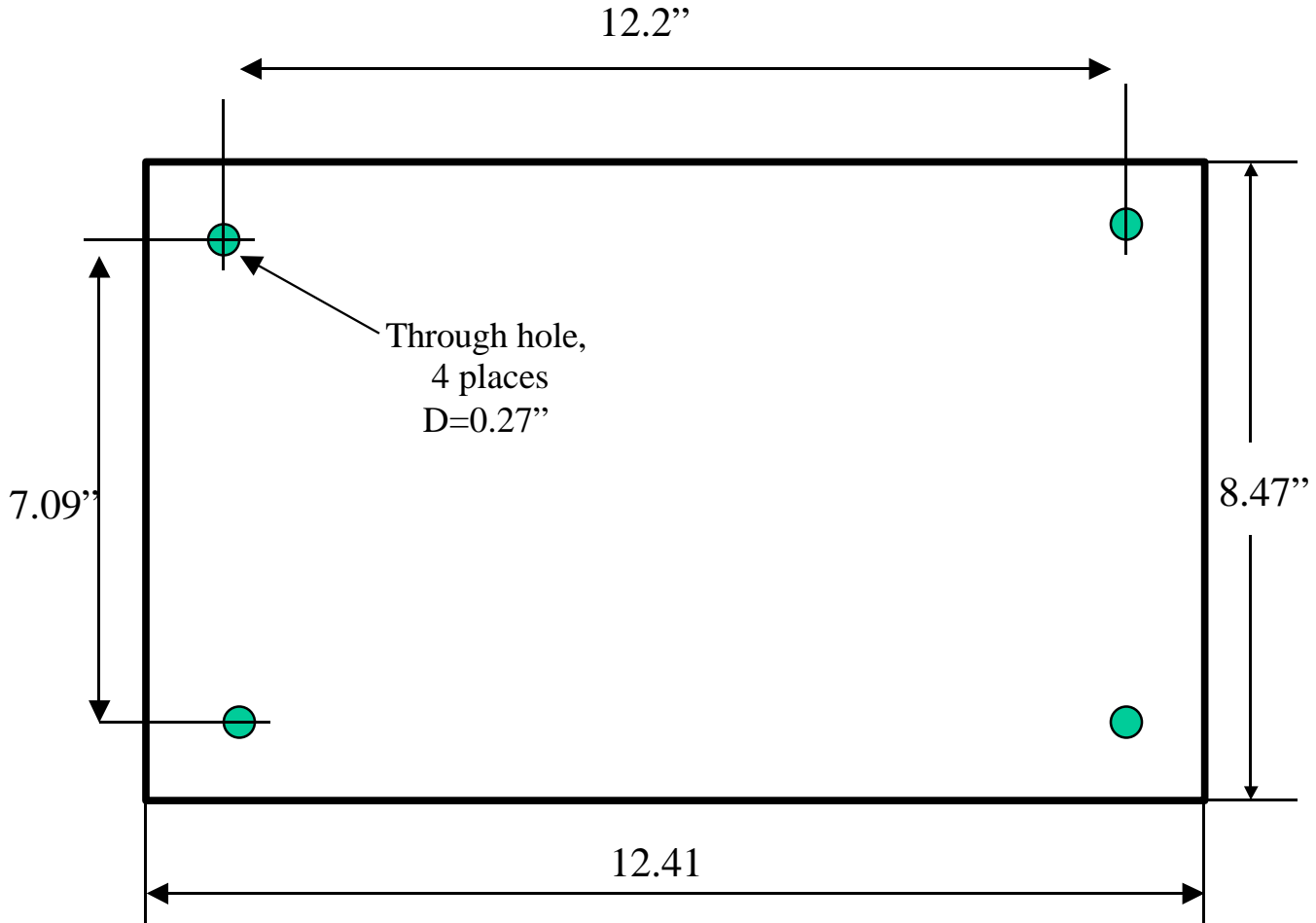
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Cell Extender Model CE-1819
Mounting Holes Pattern



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