



Pico Cell Amplifier

# User/ Installation Manual

Model : Item #18-862

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### **SAFETY FIRST**

For your safety and to prevent injury to the installer or the operator, installation must be handled by trained professionals only.

Personal safety:

- 1) This unit is powered by 28V DC power supply. Turn off the electric supply if you have to do any rewiring or if you are making alterations to wall sockets.
- 2) The equipment should only be used with Pico Cell radio devices with RF power output of less than 1 Watt.
- 3) The unit is designed for installation on antenna tower or mast, which must only be done by fully trained personnel.

### **WARNING.**

This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation

### **RF Emissions**

Maximum Power Conducted: 40dBm  
Minimum distance between antenna and human: 72cm



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## 1. General

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This Pico cell Amplifier increases RF signal power for uplink and downlink of any Pico cell radio transceiver. The outdoor watertight unit can recover all cable losses and feeds full signal to the antenna feed for optimum signal.

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## 2. Preparing to install Pico Cell Amplifier

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### 2.1 Overview

Ideally, the amplifier should be installed at the tower or mast near the antenna feed. This way all cable losses are recovered and full signal goes to the antenna.

### 2.2 Check for signal strength

Most of the Pico cell radios allow signal level setting. Typical radio power ranges between 0 thru 20dBm. Check the RF output setting of the unit before connecting to the amplifier.

### 2.3 Cable Requirements

Coaxial cable is needed to connect the Item#18-862 with the antennas and the Pico cell radios. For the best performance, cables must be low loss. Shireen Inc is a leader in the RF cable Industry, please contact us for any custom lengths or specialized cable requirements.

### 2.4 Power Requirements

This amplifier runs on 28V DC. Please use the power supply that was shipped with the unit. Other power supplies may not have enough amp to work with the amplifier

**WARNING**

This Pico Cell amplifier **MUST** only be used with the provided power adaptor. Use of other power adaptors will void the warranty and may damage the repeater.



### 3.0 Installation:

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The amplifier can be installed on a flat surface via thru holes in the chassis with appropriate hardware.

Run two coax cables from the Pico cell radio to the amplifier and connect to the appropriate uplink/downlink connectors. Run one cable from amplifier to the antenna. Connect the power cable to the amplifier.

Follow the antenna installation procedures as suggested by the antenna manufacturer.

#### 3.1 Operating the Amplifier

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The amplifier can be powered up once all cables are connected and pico Cell radio is powered up. Follow the instructions of the Pico Cell radio to set the appropriate output power level. Once all items are properly connected and powered up, no user interface is necessary.. A glowing LED shows unit is powered up and operating.

**Warning**  
Antenna Port of the amplifier must be connected to the antenna before power is turned on..



**WARNING** You MUST operate this device with approved antennas and cables as specified by the manufacturer. Antennas MUST be installed at least 72cm from any human.

### 4. Maintenance and Troubleshooting:

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This Pico Cell amplifier is very robust unit and in most cases will last for years before needing any kind of troubleshooting. Some of the problems that can occur are:

Symptoms	Cause	Solution
No LED	Power failure	Check the power supply with Voltmeter
Enclosure Getting Hot	Signal input to the amplifier very high	Log into the Pico cell radio software and reduce the power setting
Call Quality very poor	Amplifier in saturation due to high input	Log into the Pico cell radio software and reduce the power setting



## Appendix A

### Electrical Specifications:

- Frequency : Uplink: 1850-1910 MHz  
Downlink: 1930-1990 MHz
- Technology : CDMA/GSM, WCDMA, LTE
- Max Output Power : 40dBm (10 watt)
- Nominal Output Power : 26dBm ~ 40dBm
- Downlink Gain : 23dB
- Uplink Gain : 33 dB
- Absolute Max RF Input : 20 dBm
- Impedance : 50 ohms
- Power Consumption : Max 2A @ 28V DC

### General Specifications:

- Power Supply : 28 VDC, 3A
- RF Connections : Type-N Female
- Indicator : LEDs shows power status

Notice: "The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device."

## Appendix B

### Block Diagram

