INSTALLATION GUIDE

TX Repeater System

Please read this guide before installing the Coiler TX Repeater System

Warning

For your safety, please beware of power lines at all times during the installation. Please make sure to take appropriate safety measures for protection. Contact with high-voltage power lines can cause death and/or serious injury.

Warning

Please handle the equipment with care. Mechanical shock due to drop or mishandling can permanently damage sensitive RF components.

FCC Regulations

This equipment complies with part 24 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced RF (radio frequency) technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

FCC RF Exposure Requirements:

CAUTION:

The antenna (s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Mobile Devices:

-The Donor antennas used for this transmitter must not exceed an antenna gain of 9 dBi.

-A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located are considered mobile devices if they meet the 20 centimeter separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR 2.1091.

Failure to observe these restrictions will result in exceeding the FCC RF exposure limits.

1. Product Description

The Coiler TX Repeater System is designed to improve cell phone signal coverage and enhance reception in the indoor areas where mobile signal is limited or compromised due to construction structures or natural obstacles. The TX Repeater System has been optimized to provide cellular signal coverage and improve voice quality and service range in areas up to 250 square meters of empty space. It is perfect for the installation in homes, small offices, conference rooms and small shops. **Coiler TX Repeater System with Panel Antenna** is designed for use in areas where adequate mobile signal is available on the roof or side of the building.

2. Package Contents. Please contact the dealer if any part is missing.

Donor Panel Antenna, Main Repeater Unit with Integrated Indoor Antenna, Coaxial Cable (10m), Power Supply Adaptor and Mains Cable, User Manual, Mounting Kit

3. Repeater Parts Identification

Power LED
Downlink (DL) Alarm LED
Uplink (UL) Alarm LED
DL Gain Display
UL Gain Display
DL Gain Adjustment Buttons
UL Gain Adjustment Buttons
DC12V Plug
SMA Cable Connector

4. Site Inspection and Installation Planning

Please inspect outdoor and indoor environments in order to identify the best locations for the installation of the donor antenna and the repeater unit. Do not physically mount any equipment at this time.

1. The donor antenna should be located in the strongest signal reception area (where the mobile phone shows the highest number of bars) and away from any barriers, such as hills and mountains, high buildings or signboards. That may be on the rooftop or the side of the building, or inside the building close to the window. If the donor antenna is to be installed inside the building, please keep the maximum distance between the donor antenna and the main repeater unit. Back-to-back positioning will guarantee the best performance.
2. The main repeater unit will be located inside the building near to the weakest signal area (where the mobile phone shows the lowest number of bars or does not work). Please see Repeater Unit Installation to determine the best location for the unit.
3. Please temporarily connect the antenna to the repeater and verify that the antenna is receiving signal in its installed position. You may need to adjust the antenna’s location or direction (see Donor Antenna Installation).

5. Donor Antenna Installation

Mount the antenna in the previously selected location. Use mounting kit to fasten the donor antenna bracket first. You may need to reposition or rotate the donor antenna to find the direction providing the strongest signal strength. Ideally the donor antenna should face the nearest Base Station. A perfect location should have outdoor signal strength greater than -80 dBm (full signal bar on a mobile phone).

6. Repeater Unit Installation

1. When selecting a location for a repeater's installation, please follow the instructions:
    a. A repeater should be installed in a constant – temperature, ventilated room. Humidity and temperature changes may affect the repeater's reliability.
    b. For the best performance the repeater should be installed on the wall at least 2 meters from the floor.
    c. The repeater should be ideally placed centrally to the area requiring coverage. Please refer to the picture for signal propagation reference.
    d. Make sure that AC power plug is available near to the repeater unit.
    e. Make sure that the distance between the repeater unit and the donor antenna is at least 5 meters. Remember that the length of the cable is 10 meters, so make sure you have reserved enough cable to connect the donor antenna and the repeater unit.
2. Use mounting kit to fasten the main unit bracket first. Place the main unit on the bracket.

7. Cabling Installation

Route the cable between the donor antenna and the repeater unit. Connect the cable to the connector marked SMA on the repeater. Connect the other end to the donor antenna. Make sure that all the connections are tightly fastened.

8. Power On

i. Connect the power cable of the adaptor to the main unit where marked DC12V and plug the adaptor into the power plug.
ii. The power indicator LED should be green and the LED displays will initially show the model number and after 2 seconds it will display the current uplink and downlink gain of the repeater. Default gain of the repeater is set for maximum values. In case of restarting the units, gain will be set for the last configured value. Make sure that no other LED is illuminated. If any other LED is lit, see Troubleshooting.
iii. The TX Repeater System is now ready to work.

Troubleshooting

Automatic Isolation Detection AID

The TX Repeater System features Automatic Isolation Detection function AID, designed to ensure that there is a sufficient isolation between the main repeater unit and the donor antenna or a mobile phone. Insufficient isolation will be indicated by DL or UL LED illumination.

The DL Red LED Illuminated

The DL Red LED will be illuminated in a situation when the distance between the main TX unit and a donor antenna is not sufficient. Coiler recommends that the distance between the two is no less than 5 meters. If the situation occurs, please increase the distance between the donor antenna and the main TX unit or reduce the DL gain by pushing the down button of the DL gain until the LED stops blinking. In a typical situation, DL alarm may only occur during the initial installation, but not during the regular use. In case that the isolation has not been increased for an extended period of time, the TX Repeater System will auto shut down (please see Auto Shut Down below).

The UL Red LED Illuminated

The UL Red LED will be illuminated in a situation when the distance between the main TX unit and a mobile phone is not sufficient. Coiler recommends that the distance between the two is no less than 1 meter. If the situation occurs, please increase the distance between your mobile phone and the main TX unit or reduce the UL gain by pushing the down button of the UL gain until the LED stops blinking. In a situation when UL isolation is not sufficient, the repeater will be functional; however the call quality may decrease.

Auto Shut Down ASD and Auto Turn On ATO

The TX Repeater System features DL Auto Shut Down (ASD) function to protect equipment and mobile network from damage in case the input power signal level exceeds a prescribed limit. This may happen if the signal from a nearby base station is too strong or if the operator has changed configuration of the mobile network (e.g. by setting up a mobile base station in a nearby area). The situation is usually temporary. ASD will temporarily disable the amplifier and trigger the DL alarm LED. Auto Turn On function will automatically determine, every 15 seconds, if the signal level has dropped to the normal level and reactivate the functions of the repeater. The ATO will repeat the process 3 times (after then it will require manual restart). ASD may be also triggered if isolation between the donor antenna and the repeater unit has been insufficient for an extended period of time (please see Automatic Isolation Detection above).

There is No Signal

If the TX Repeater System does not operate properly after the installation, please make sure that the installation procedures have been followed correctly. Following, please check:
(1) AC Power: Please check if the power cable is plugged.
(2) Cable connection: Please make sure that the connections between the donor antenna, repeater unit and the cable are

securely fastened.

(2) Donor antenna: Please check if the signal level of the donor antenna is strong enough (please see donor antenna installation).