

Dual Band Mobile Phone Repeater

INSTALLATION AND OPERATION MANUAL



P/N: RPDBUS-01



INSTALLATION AND OPERATION MANUAL

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-----IMPORTANT-----
Read instructions completely before installation!

1. Package Contents

Part Number	Description
RPDBUS-01	Dual Band Mobile Phone Repeater
ANTDBUS-01	Inside omni-directional dual band stick antenna
ANTDBXTUS-01	Outside omni-directional 5dB gain dual band cell antenna
ADREPUS-01	110-240 VAC to 5 VDC power supply
CBLREP-01	30' RG-6 satellite TV low loss cable

2. Important Safety Information

The RPDBUS-01 system complies with all FCC, IC, UL rules, regulations and codes. Follow all guidelines in the installation and instruction manual and read completely before beginning the installation procedure. Do not deviate or disregard any of the safety features included in the manual or with the equipment, nor operate the system in an unintended application.

WARNING!

Only Think Wireless, Inc. authorized products may be used with the RPDBUS-01 system. Using unauthorized equipment with the RPDBUS-01 system will harm the system, voids the warranty and can be detected in the event of a failure.

WARNING!

Do not install antenna near power lines. Contact with any high voltage power lines could result in shock or loss of life.

WARNING!

Handle all electronic parts with care. Dropping or mishandling the RPDBUS-01 amplifier/repeater, antennas or power supplies can damage sensitive RF and electronic components.

a. LIMITED WARRANTY

Think Wireless, Inc. warrants mobile phone repeaters for one (1) year that its Products sold hereunder will at the time of shipment be free from defects in material and workmanship and will conform to Think Wireless's applicable specifications or, if appropriate, to Customer's specifications previously accepted by Think Wireless in writing.

If products sold hereunder are not as warranted, Think Wireless shall, at its option either refund the purchase price, or repair or replace the product, provided proof of purchase and written notice of nonconformance are received by Think Wireless, Inc. within one (1) year of date of purchase and provided said nonconforming Products are, with Think Wireless's written authorization, returned in protected shipping containers. Think Wireless will pay for transporting the repaired or exchanged product to Customer.

This warranty shall not apply to any Products Think Wireless determined to have been, by Customer otherwise, subjected to mishandling, misuse, neglect, improper testing, repair alteration, damage, assembly or processing that alters physical or electrical properties.

b. LIMITATION ON LIABILITY

In no event shall Think Wireless, Inc. be liable for any direct, indirect, special, punitive, incidental, exemplary or consequential damages, or any damages whatsoever, even if Think Wireless, Inc. has been previously advised of the possibility of such damages, whether in an action under contract, negligence, or any other theory, arising out of or in connection with the use, inability to use, or performance of the information, services, products, and materials available from this manual. These limitations shall apply notwithstanding any failure of essential purpose of any limited remedy. Because some jurisdictions do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of liability for consequential or incidental damages, the above limitations may not apply to you.

c. FCC REGULATIONS

FCC ID: TWDBCPREP-01A

This equipment has been tested and found to comply with the limits for a class B device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with this instruction manual, 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 other electronic reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect to isolated power with a ground cable going directly to the battery, DC source or house ground
- Repositioning of the coaxial cable may also eliminate interference
- Consult the dealer or an experienced electronics technician for help.

Warning: Changes or modifications not expressly approved by Think Wireless, Inc. could void the user's authority to operate the equipment.

3. Pre-Installation Guidelines

a. INSTALLATION TOOLS

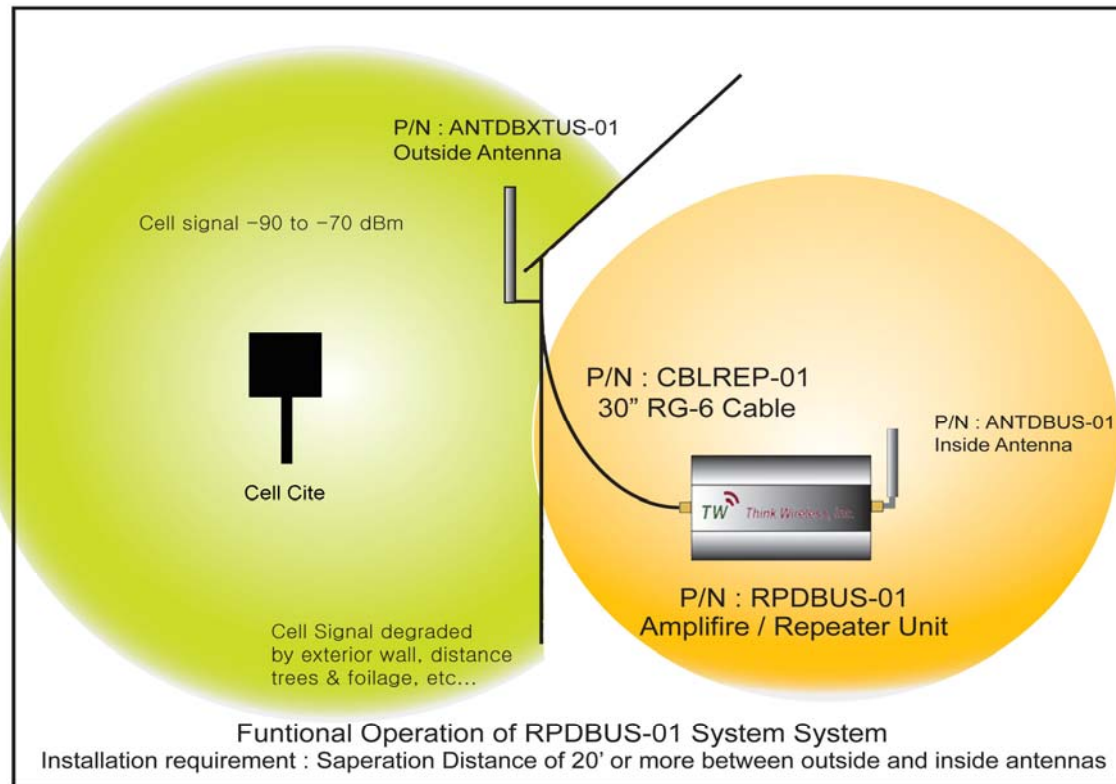
The following tools are required for installation:

- Standard wrench and philips head screwdriver
- Standard drill (optional)
- Mobile phone operating on 800 or 1900 MHz bands (any USA or Canadian mobile phone except Nextel)
- Wire fasteners (optional)

b. INSTALLATION PROCEDURE

Description of RPDBUS-01 System

The RPDBUS-01 Dual Band Wireless Amplifier/Repeater system provides cellular signal coverage to areas that have low signal strength to adequately operate a mobile phone. In these poor coverage areas it becomes difficult to place or receive calls and usually results in a dropped call. The RPDBUS-01 dual band amplifier/repeater system provides increased reception indoors by filtering, re-directing and amplifying the available signal. This translates into fewer dropped calls, safe, clear connections and stronger signals. The RPDBUS-01 dual band system operates with all carriers in the USA and Canada except Nextel.



The RPDBUS-01 system contains a dual band low power indoor antenna, amplifier/repeater unit and high gain omni-directional outdoor antenna. The outdoor omni-directional antenna must be installed and operate in a vertical position. The outdoor omni-directional antenna, P/N ANTDBXTUS-01, is installed outside of the building in a location with the strongest cellular signal as indicated by the bars on the mobile phone.

The inside antenna must be mounted in a central location in the building that is 20' or greater from the outside antenna. The inside and outside antenna also must be separated by an exterior wall.

Typical In-Building Coverage

The RPDBUS-01 system is designed to provide optimal coverage for a up to 3,000 square feet. Interior coverage varies based upon the building construction and materials. Typically the RPDBUS-01 system will penetrate 1-2 interior walls and 1 floor depending on construction material.

Pre-installation Considerations

Establish a site installation plan based upon desired central coverage area

- The inside and outside antenna must have a separation distance of 20 feet or greater, the outside antenna must be outside and separated from the inside antenna by an exterior wall. This avoids feedback/oscillation problems.
- Identify the outside antenna location. If the outdoor coverage area is very poor, the outside antenna should be placed on the side of the building where the signal is the strongest. If the signal is equally strong outdoors, the outside antenna should be placed in a secure, unobstructed area.
- Based upon the desired coverage area, choose a central location, and position the RPDBUS-01 unit as high as possible for better coverage.
- For maximum coverage the location of the indoor antenna should have a direct line-of-sight to as much of the coverage area as possible.
The location of the RPDBUS-01 unit must be accessible within reach of the supplied 30' cable and within 6' of a power receptacle (or an extension cord can be used). The RPDBUS-01 unit is not waterproof and must be kept in a dry location.

c. ELECTRICAL POWER

The RPDBUS-01 system includes an AC adapter 110 VAC to 5 VDC power supply that plugs into a standard 110 VAC receptacle use P/N ADREPUS-01, a 110 VAC to 5VDC power supply.

WARNING!

Only the provided AC adapter is to be used with the RPDBUS-01 system. Using any other AC adapter will harm the RPDBUS-01 amplifier/repeater unit, it can be detected and voids the warranty.

d. AMPLIFIER/REPEATER STATUS

Power LED ON– shows normal Status and RPDBUS-01 is operating normally.

Cell (800 MHz-band) LED ON– the RPDBUS-01 unit is receiving the lower (800-MHz) frequency band.

PCS (1900 MHz band) LED ON - the RPDBUS-01 unit is receiving the upper (1900-MHz) frequency band.

e. IN-BUILDING COVERAGE PROBLEMS

If the RPDBUS-01 unit one or both frequency band LED's are ON and the coverage area appears to be smaller than anticipated, one or more of the following may limit the signal strength to the area.

- **Physical obstructions attenuate the cell signal** – the path of the cell signal is weakened by objects. Large metal objects block or reflect the signal. Inspect the coverage area, rearrange any metal objects in the path of the cell signal and/or relocate the indoor antenna. You can also position the indoor antenna as high as possible.
- **Distance between inside and outside antenna** –Verify that inside and outside antennas are located at least 20' apart and separated by an exterior wall.
- **Cabling** – examine coaxial cable run and verify that the cable is not kinked, coiled or damaged. Re-locate cable to avoid kinks or coils. If supplied 30' cable is

damaged contact your dealer.

f. COAXIAL CABLE RECOMMENDATIONS

The RPDBUS-01 system includes 30' of RG-6 (satellite TV) cable and connectors for easy installation. If the installed application requires more than the supplied cable, 50' and 75' lengths are available.

4. Home/Office Installation

Review pre-installation considerations and determine site installation plan.

1. Install supplied outside antenna (P/N ANTDBXTUS-01) with supplied hardware. Mount the outside antenna in a vertical position clear of metal objects and obstructions.

WARNING!

Only Think Wireless authorized antenna products may be used with the RPDBUS-01 system. Using unauthorized equipment may harm the RPDBUS-01 system and voids the warranty.

2. Connect one end of the 30' cable (P/N CBLREP-01) to the outside antenna. Secure cable to the side of the building with appropriate fasteners (not supplied). Route cable according to site installation plan to the RPDBUS-01 unit.
3. Attach the other end of the cable to the RPDBUS-01 unit on the port labeled outside antenna.
4. Connect the inside antenna (P/N ANTDBUS-01) to RPDBUS-01 connector labeled "Inside antenna."
5. Plug 110 VAC power supply to the RPDBUS-01 unit. Plug the other end into a standard household 110VAC receptacle.
6. If the power light on the RPDBUS-01 unit is green and at least one of the other two LEDs are on, then the RPDBUS-01 system is operating. Test the repeater by making a cell call.

5. Specifications

Amplifier/Repeater Unit P/N RPDBUS-01

- Frequency:
 - Uplink: 824-849 MHz and 1850-1910 MHz
 - Downlink: 869-895 MHz and 1930-1990 MHz
- Modulations: AMPS/GPRS/TDMA/PCS/CDMA/GSM850/GSM1900
- Max Output Power does not exceed legal limit of: 3W (824-849 MHz), 2W (1850-1910 MHz)
- Dynamic Variable Gain: 60dB Max
- Impedance: 75 ohms (outside antenna connector)
- Noise Figure: < 10dB
- Power Consumption: Standby 5 vdc/0.5A, Uplink 5 vdc/2.5A Max.
- FCC approved, FCC ID: TWDBCPREP-01A
- Dimensions: 4.5" l x 4.0" w x 1.25" h (114mm x 102mm x 32mm)
- Weight: 10 oz
- RF Connections:
 - Outside Antenna Port: F-female connector
 - Inside Antenna Port: SMA Female
- DC Power: Coaxial ID = 2.5mm, OD = 5.5mm (center positive)
- Indicator: Green LED status indicator

Outside Antenna P/N ANTDBXTUS-01

- Radiation pattern: Omni-directional
- Gain: 4 dBi
- VSWR: < 1.5:1 @ 850 MHz; < 1.5:1 @ 1900 MHz
- Bandwidth VSWR: < 1.5:1 = 810-950 and 1800-1980 MHz
- Max input power: 5 watts
- Dimensions: 18" l x .75" OD (45.7 cm x .2 cm)
- Weight:
- RF connector: F female
- Wind rating: 150 mph
- Installation: supplied L-bracket and hardware wall or pole

Inside Antenna P/N ANTDBUS-01

- Radiation pattern: Omni-directional
- Gain: Unity
- VSWR: < 1.5:1 @ 850 MHz; < 1.5:1 @ 1900 MHz
- Bandwidth VSWR: < 1.5:1 = 810-950 and 1800-1980 MHz
- Max input power: 50 watts
- Dimensions: 7"x 0.75" OD (45.7 cm x .2 cm)
- Weight:
- RF connector: SMA male

Cable P/N CBLREP-01

- Length: 30' (9.14m)
- Impedance: 75 Ohm
- RF connectors: F male
- Attenuation at 800 MHz: 1.5 dB per 30'
- Attenuation at 1900 MHz: 3 dB per 30'

Power Supply P/N ADREPUS-01

- Input: 110VAC 50/60 Hz
- Output: 5VDC 2.5A
- Mounting: Wall type
- Cord Length: 8 feet
- Output plug: 5.5 x 2.5 x 11mm

6. Antenna & Accessory Options

For complete antenna specs and accessory options visit www.thinkwireless.com.

7. Technical Support

Locate the Think Wireless Inc. serial number on the RPDBUS-01 unit before calling. The serial number is located on the bottom of the RPDBUS-01 unit. The RPDBUS-01 serial number must be available to authorize technical support and/or establish a return authorization. For installation technical support, contact your dealer. For system warranty issues contact Think Wireless Technical Support between the hours of 9:00 AM and 5:00 PM EST, at 954-977-4470 or e-mail support@thinkwireless.com. The RPDBUS-01 system must be used with Think Wireless authorized equipment.