

Stoneridge GNSS Repeater Manual



Stoneridge Electronics Ltd

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1. Outdoor Antenna Installation



- 1.1 Feed the cable up through the cable guide and screw on to the antenna.
- 1.2 Screw the antenna on to the top of the cable guide, being careful not to twist the cable.
- 1.3 Screw the antenna mount onto the bottom of the cable guide.
- 1.4 Fix the antenna mount securely to the roof or similar location that has an uninterrupted 360° view of the sky.

The antenna mount is adjustable, so it can be fixed to a horizontal, vertical or sloping surface, as long as the antenna is above the highest point of the roof/building.
- 1.5 Unreel the cable and run it to the interior of the building where the repeater is located.

Notes:

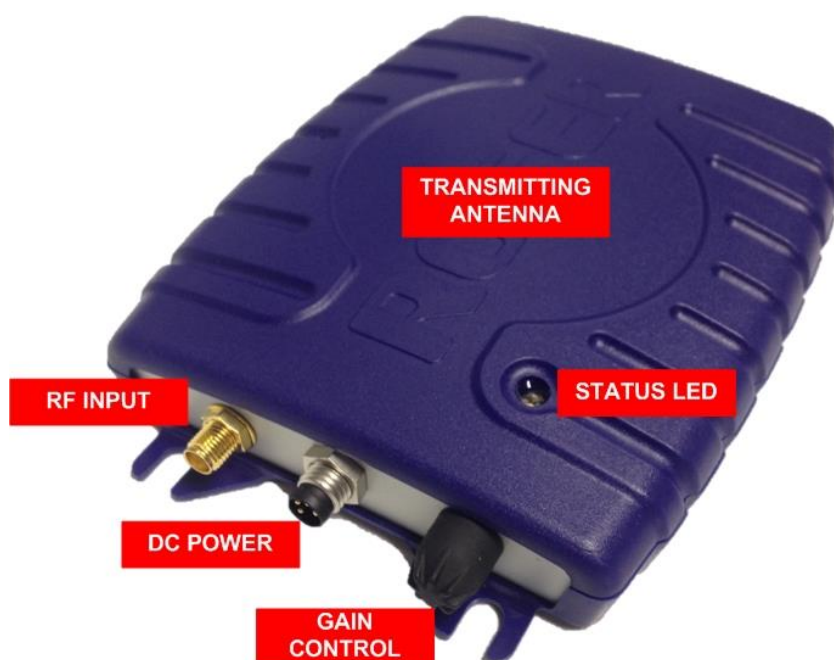
- a. The outdoor antenna should be located as far as possible from any RF interference sources, like any transmitting antennas that may be present.
- b. Do not place the antenna near steel cladding as this will cause reflections; this will affect signal strength, stability and indoor coverage range.
- c. Placing the antenna at the highest point, with clear sky-view, will provide ensure a large indoor coverage area.
- d. Before permanently fixing the antenna, check that the cable is long enough to run from the antenna to the required indoor location.

2. Indoor Antenna Installation

- 2.1 Install the repeater unit by fixing it to a solid surface, within 2 metres of a mains socket. The surface can be a ceiling or a wall; the repeater can be mounted vertically or horizontally.

Connect the antenna cable to the antenna socket on the repeater unit and connect the AC/DC power adapter.

- 2.2 When all connections are secure, switch on the mains power.



3. Adjustment/set up

- 3.1 After power up, the LED should flash for a few seconds during the start-up phase.
- 3.2 Turn the gain control down to its lowest setting (anticlockwise)
- 3.3 The LED will flash green, indicating too little input signal.
- 3.4 Slowly turn the gain control up (clockwise) and note that the LED changes to solid green.
- 3.5 Keep turning the gain up until the LED changes to red.
- 3.6 Slowly turn the gain control down until the LED just changes back to green.
- 3.7 This is the optimum position for the gain control.

Description of the red/green status LED are:

- **FLASHING GREEN:** Input signal from the antenna too low.
- **CONSTANT GREEN:** Repeater operating normally.
- **CONSTANT RED/GREEN:** Repeater operating normally; output power limited to maximum allowed value.
- **RED:** Transmitter has detected an error or interfering signal. Typical reason is that the outdoor antenna is located too close to the indoor repeater which causes feedback/oscillation to occur.

Make sure that there is maximum isolation distance between the outdoor antenna and the indoor repeater to prevent this feedback loop from occurring.

Another common reason is that there is an interference source close to the receiving antenna.

4. Troubleshooting

4.1 **GPS receiver equipment cannot receive signals when positioned next to the repeater.**

- Check that +5VDC is present on the cable where it connects to the antenna. The repeater is emitting 5V DC to power the low-noise amplifier (LNA) in the antenna. (Centre pin +ve; connector shell -ve)
- Check integrity of the cable?
- Check that repeater power is on and LED is on.

4.2 **No LED indication on the repeater.**

- Check that +12VDC is present in the DC power cable connector
- Check that AC power is available at the power cord where the AC/DC adapter is connected.

4.3 **LED turns RED and indoor GPS coverage is lost.**

- Check that outdoor receiving antenna is in a location where it cannot receive signals from the repeater (feedback loop).
- Try turning down the gain setting
- Check that there are no interference signals close to the receiving antenna.

4.4 **Indoor coverage area too small**

- Check that outside antenna is correctly positioned. This is one of the most important parts of the installation; incorrect antenna location can cause many issues.
- Check that there are no interference sources close to the receiving antenna
- Check gain setting
- Check the repeater positioning; the transmitting antenna is directly underneath the letter G of the word ROGER. This part of the repeater should be facing towards the GPS receivers.
- Are there obstacles that could limit signal coverage?