

General Purpose Antenna RI-ANT-G04E Installation Instructions

Reference Guide

January 1997

TIRIS *Technology by
Texas Instruments™*

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Read This First

This reference guide contains a description of the IC, its functionality, command set, and operations.

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This reference guide (11-08-22-001) is written for the use by TI partners who are engineers experienced with radio frequency identification devices (RFIDs).

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1 Mounting

The antenna can be mounted in any orientation on a pole, or against a flat wall or ceiling. When used for vehicle parking or access we recommend that the antenna is pole mounted, on the drivers side angled approximately 45° to the traffic flow (see Figure 3). The antenna can be mounted in opposite orientations for left and right-hand drive countries and two access hatch covers have been provided to allow for this.

1.1 Pole Mount

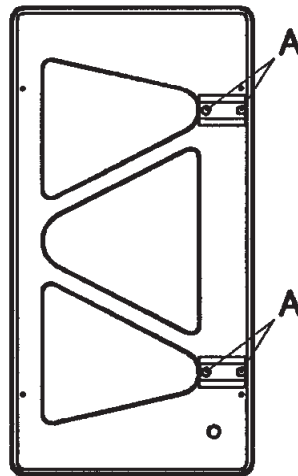


Figure 1. Pole Mount

Use an oversize drill bit or hand countersinking tool to remove the protective plastic layer and expose the 6 mm threaded inserts (A in Figure 1). Use a locally obtained pipe clamp to fix the antenna to the pole, or make U-brackets for metal strip.

1.2 Wall/Ceiling Mount

Drill the holes (B in Figure 2) through with a 6 mm (1/4 inch) drill and attach antenna using counter-sunk screws.

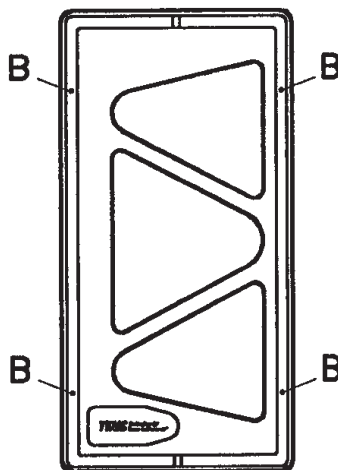


Figure 2. Wall/Ceiling Mount

We recommend that you fit a flat metal strip between antenna and pole to reduce distortion when mounting screws are tightened.

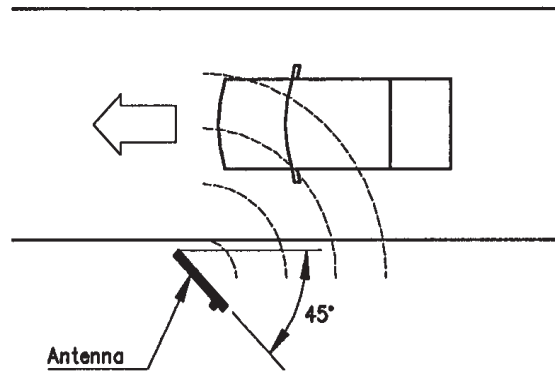


Figure 3. Vehicle Parking or Access Pole Mount

1.3 Ventilation/Drainage

For outdoor use, two 3 mm (1/8 inch) drainage holes should be drilled on the rear underside when the antenna is mounted. Hole positions are marked C in Figure 4.

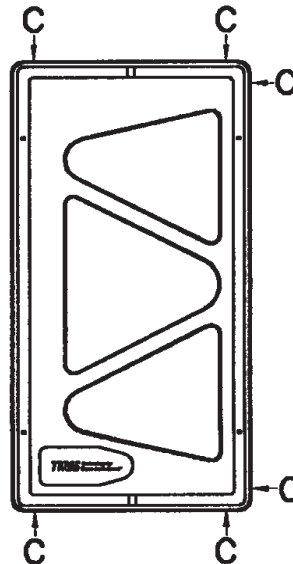


Figure 4. Ventilation/Drainage

Select the hatch cover to suit the mounting orientation so that the TIRIS text is the correct way up. Cover screws are M4 Torx Tamperproof, requiring a Tx20 screwdriver (for Tamperproof screws).

Notes:

1. If the antenna is to be mounted in a public place, we suggest that you use tamperproof mounting screws.
2. If the antenna is to be mounted outside we recommended that you run a bead of sealant around the cover joint when installation is complete.

2 Connection

Provision for cable entry is via an undrilled gland position on the rear of the antenna, marked with a dimple to indicate drilling centre (D in Figure 5). A suitable hole to accommodate cable gland conduit adapter or flexible strain relief should be drilled (be careful to avoid drilling through the front of the antenna). If the antenna is to be mounted flush on a wall or against a pole, a rubber grommet can be used to provide a pressure seal.

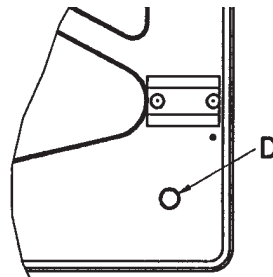


Figure 5. Cable Entry

The antenna connecting cable type is not critical, but we recommend 2.5 mm^{Note 2} (14 AWG) flexible conductor as a minimum. HiFi loudspeaker cable (Monster cable) is particularly suitable. The antenna is optimized for cable lengths between 0.5 and 4.5 meters (1-15 ft). Using a cable outside of this range may result in reduced performance, unless you use the Remote Antenna RFM System (RI-RFM-008A) which allows the antenna to be mounted at a distance of up to 120 m from the reader without loss of performance.

Cable ends should be prepared with insulation size 250 (0.25 inch) push-on lugs for connection to the antenna.

Figure 6 and Figure 7 show more details regarding how to mount the antenna using a pole clamp or U-bracket.

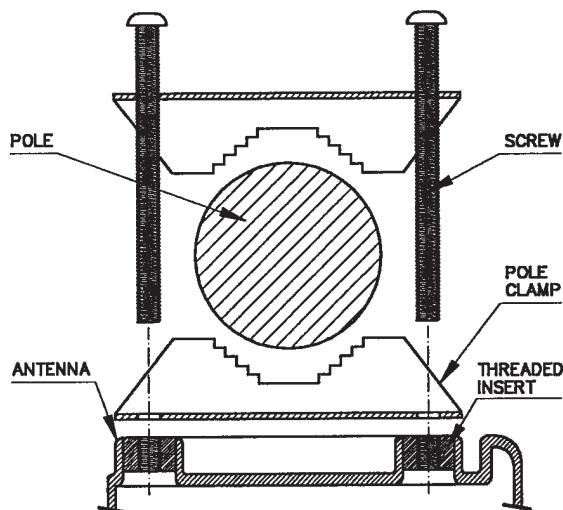


Figure 6. Pole Clamp Mount

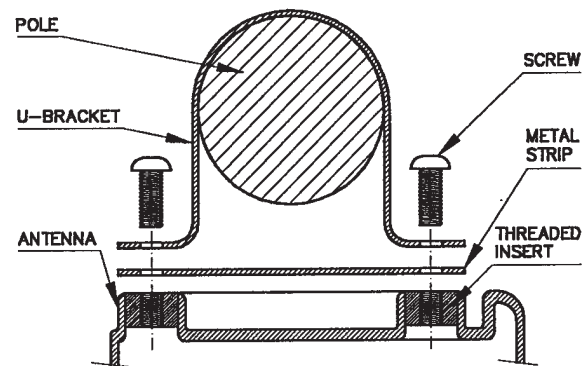


Figure 7. U-bracket Mount

2.1 Optional Remote Tuning Module

For applications where the antenna must be installed some distance from the reader, provision has been made to install the Remote Tuning Model inside the antenna. This model fits to the secondary access cover terminal plate. A short connection must be made from the output connections of the tuning module to the antenna using 2.5 mm^{Note 2} (14 AWG) conductor as described above. Connection to the reader should be made using twin-ax cable as advised in the application reader manual.

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