

External Antenna Kit

Installation & Parts



LIQUID CONTROLS®

An IDEX Energy & Fuels Business

092019

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External Antenna Kit

The External Antenna Kit extends the operational range of the wireless features of the E6000-series LCRIQ Electronic Register. The kit contains a 2.4 GHz antenna, suitable for outdoor installation, mounting bracket, and coaxial cable with mating connectors.

Resources in this Guide

For convenience, you can easily download the [PDF edition of this guide](#). Liquid Controls recommends that you read through the introductory and safety information, and then proceed to both the Installation & Operation and the Maintenance chapters.

NOTICE

This manual provides warnings and procedures that are intended to inform the owner and/or operator of the hazards present when using the Liquid Controls Meter on LP gas and other products. The reading of these warnings and the avoidance of such hazards is strictly in the hands of the owner-operators of the equipment. Neglect of that responsibility is not within the control of the manufacturer.

Publication Updates

The most current versions of all Liquid Controls publications are available on our web site, www.LCmeter.com/resources/technical/manuals. If there are questions about the language or interpretation of any LC manuals, instructions, or specification sheets, please first contact your local distributor for help with your inquiry.

For service related issues that require further support from the Liquid Controls Service Team, please call the number below.

Liquid Controls Corporate Office:

Phone: +1 847 295-1050

Toll-free: 800 458 5262

Address: Liquid Controls LLC, 105 Albrecht Drive, Lake Bluff, IL 60044 USA

Website: www.LCmeter.com

Parts List

The external antenna kit contains these parts:

- 84373 – Antenna, 2.4 GHz, Mobile, N-female connector
- 84374 – Antenna Mount, Mobile, trunk groove/fender bracket, 5/8" hole
- 84375 – Coaxial Cable, RG-58, N-male to SMA-male connectors
- 71560 – Cord Grip, 1/2" NP



Safety Procedures



BE PREPARED

- Before using this product, read and understand the instructions.
- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of equipment and/or systems in accordance with all applicable codes and ordinances.
- When handling electronic components/boards, always use proper Electrostatic Discharge (ESD) equipment and follow proper procedures.
- Make sure that all necessary safety precautions have been taken.
- Provide for proper ventilation, temperature control, fire prevention, evacuation, and fire management.
- Provide easy access to appropriate fire extinguishers for your product.
- Consult with your local fire department, state, and local codes to ensure adequate preparation.
- Read this manual and all the literature provided in your owner's packet.
- Save these instructions for future reference.
- Failure to follow the instructions in this publication could result in, personal injury, or death from fire and/or explosion, property damage, or other hazards that may be associated with this type of equipment.



SAFELY EVACUATE PIPING SYSTEM

Before disassembly of any meter or accessory component: **ALL INTERNAL PRESSURES MUST BE RELIEVED AND ALL LIQUID DRAINED FROM THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE PROCEDURES.**

- Pressure must be 0 (zero) psi.
- Close all liquid and vapor lines between the meter and liquid source.

Failure to follow this warning could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.



OBSERVE NATIONAL & LOCAL CODES

Power, input, and output (I/O) wiring must be in accordance with the area classification for which it is used (Class I, Div 2). For North America, installations must be per the U. S. National Electrical Code, NFPA 70, or the Canadian Electrical Code in order to maintain Class I, Division 2 ratings. This may require using connections or other adaptations in accordance with the requirements of the authority having jurisdiction.

Peripheral equipment must be suitable for the hazardous location where it is installed. (L'équipement périphérique doit être adapté à la zone dangereux où il est installé.)

WARNING: Explosion Hazard

When in hazardous locations, turn power OFF before replacing or wiring modules. (Lorsque dans des endroits dangereux, coupler le courant avant de remplacer ou de câbler des modules.)

DO NOT disconnect equipment unless power has been switched OFF or the area is known to be Non-Hazardous. (NE PAS déconnecter l'équipement sans coupler l'alimentation ou sans s'assurer que la zone est non dangereuse.)

WARNING: Use 3.5 in • lb (0.4 N • m) torque when tightening terminal block screws.

Preventing ESD Damage

To prevent electrostatic discharge (ESD) damage, truck installations must properly ground the truck seat cushion and the Epson printer chassis. Prolonged exposure to ESD over weeks, months, or years can corrupt register memory and damage the electronic components in Register registers (as well as other electrical components in the truck electrical system).

Adjustable, shock-absorbing seats, if not grounded correctly, generate significant amounts of ESD. The pivots and hinges of these seats isolate the seat cushion from an electrical ground. Without proper bonding, static electric charge builds between the seat cushion and the operator. This electric charge can enter the Register from any point in the truck electrical system, including register power and printer cabling.

Installation

Break the calibration seal

This procedure requires breaking the calibration seal and opening the register.

Placement of the antenna

Placement affects performance

Proper antenna placement is critical for successful wireless operation.

Step 1 – Decide on a mounting location for the antenna, which must be within 10 feet of the register.

Wireless performance can vary from vehicle to vehicle, depending on antenna height and placement. Follow these guidelines to achieve the best performance:

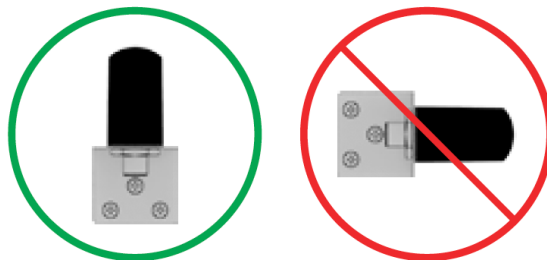
- The remote device must be able to receive the antenna signal — wi-fi signals follow line-of sight.
- Install the antenna as high as possible.
- Attach the mounting bracket to the metal structure of the truck, using suitable metal hardware. This antenna uses the metal on the truck as a ground plane for proper operation.



- Avoid installing the antenna on one side of the truck, unless this is desired operation. The metal will block the signal from the opposite side.
- Do not attempt to extend the length of the antenna cable. Longer cable length will attenuate the radio signal, which severely reduces wireless performance.
- Do not install outboard power amplifiers between the antenna and register — this may violate applicable radio regulations and damage register components.
- Avoid bending the antenna cable in a radius sharper than 3 inches.
- Do not attempt to repair or splice damaged antenna cable. Replace damaged cable with LC part 84375.
- Replace damaged antenna with LC part 84373.
- Use the included cable gland to protect LCRIQ from moisture entry when installing the coaxial cable.
- If in-cab connectivity of wi-fi / Bluetooth is desired, mount the antenna as close as possible to the vehicle cab. Consider mounting the register closer to the cab and installing a POD pulser on the meter.



Step 2 – Attach the mounting bracket to the vehicle. Use metal fasteners and hardware to ensure good bonding to the metal of the vehicle. Orient the mounting bracket so the antenna is vertical. Install the antenna in a vertical orientation only. Mounting the antenna horizontally severely reduces wireless performance.



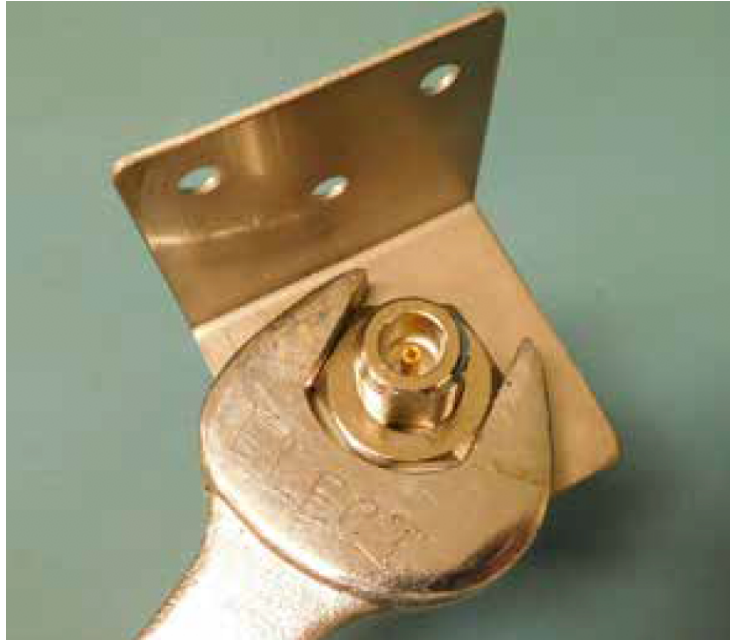
Step 3 – Begin to assemble the antenna to the mounting bracket by unscrewing the nut and removing the lockwasher.



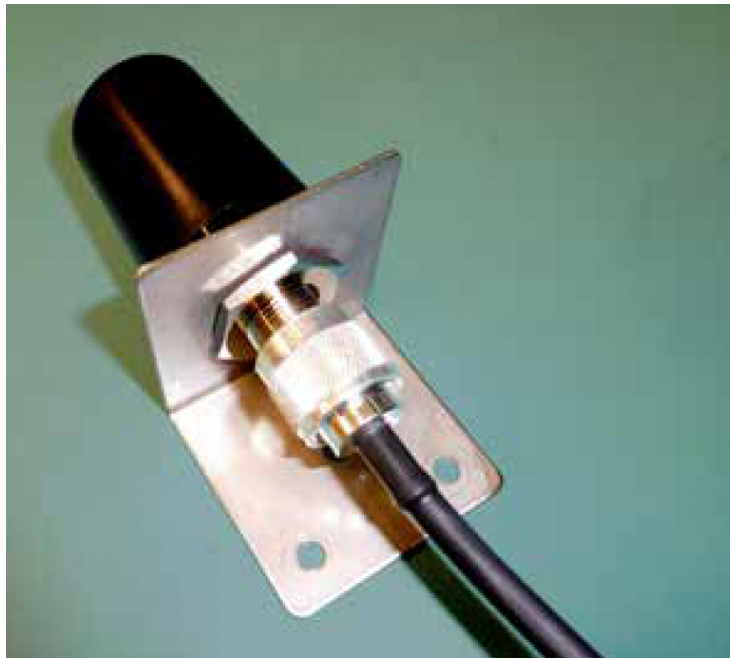
Insert the antenna into the bracket and install the lockwasher, as shown.



Install the nut and tighten securely with a 1-inch wrench.



Step 4 – Connect the coaxial cable to the antenna with the N-connector.



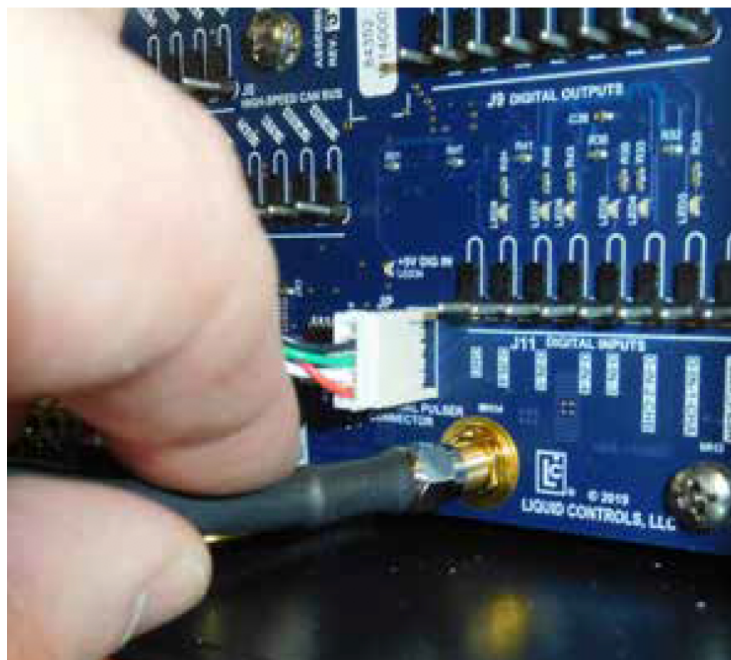
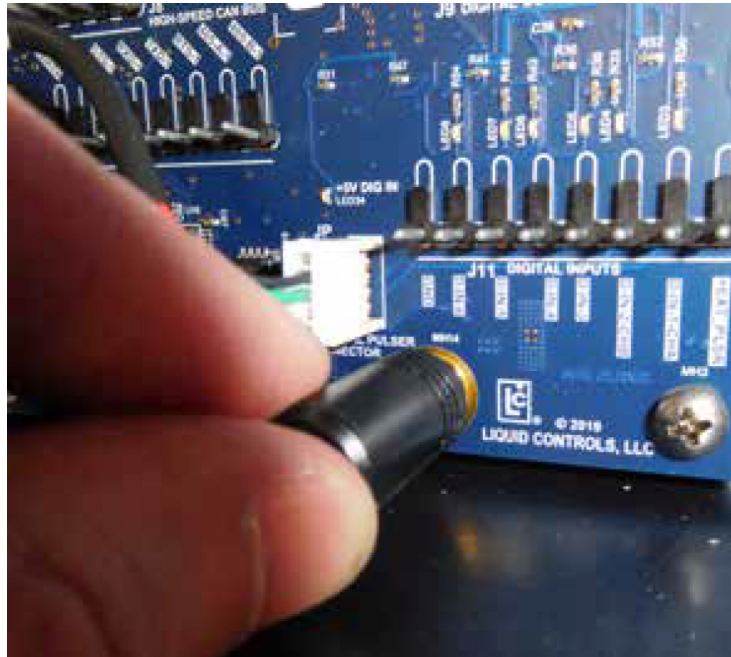
Step 5 – Insert the cable gland on the SMA end of the cable.

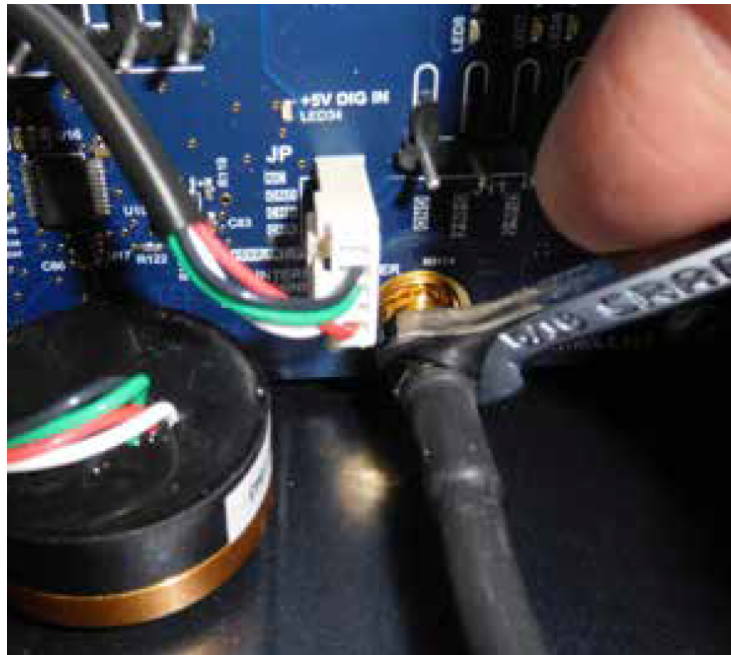
Step 6 – Install the cable gland on the register.

Step 7 – Unscrew the internal antenna and connect the coaxial cable to the SMA connector. Gently tighten the SMA connector with a 5/16-inch wrench.



Step 7b – Alternate method for bottom-mounted SMA connector. Unscrew the internal antenna and connect the coaxial cable to the SMA connector. Gently tighten the SMA connector with a 5/16-inch wrench.





Step 8 – Close the register.

Step 9 – Tighten the cable gland until it securely anchors the antenna cable.

Step 10 – Make a small loop facing downward as the cable leaves the register. This allows water to drip down away from the register.



Step 11 – Attach the cable securely to the vehicle using wire ties or insulated wire clamps. The cable requires no special standoffs.

Step 12 – Close and seal the register.

Step 13 – Installation is complete. The register requires no changes to any settings.



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LC_IOM_ONTHEGOWIFIADAPTER V1: 05/17