

This document will aid field personnel in activating and installing the RFTrax[™] ACU (Asset Command Unit).

Some Important Notes

- The ACU is shipped with the battery backup disconnected to preserve battery life. For correct operation, it is necessary to connect the battery just before installing the ACU on the locomotive.
- For the ACU to operate correctly, it must be mounted on the roof of the locomotive in clear view of the sky
- Make sure the mounting location is no closer than 24 inches to any radio, antenna or other electrical device.
- The ACU unit enclosure provides electrical isolation from locomotive ground.
- Power and Sensor data connect to the ACU via a single high reliability connector.

The ACU is activated by connecting the internal battery. It is important to do this prior to mounting the ACU to the locomotive. If a unit is installed without connecting the battery, it will only operate when the external 74VDC power is applied and there will be no backup battery operation when the 74VDC power source is removed.

Required Installation Materials

RFTraxTM provides the following equipment

- ACU with single MIL-SPEC connector.
- ACU battery pack
- ACU mounting plate
- 14 foot cable terminated to MIL-SPEC connector.
- 16 position Barrier Strip with mounting plate (optional).

Customer supplied equipment

- Grommets.
- High Quality Silicon RTV sealant (or equivalent).
- Ring Connectors for terminating to 74VDC in LV panel.
- Mounting hardware (bolts, clips, etc.)
- Various tools as required.

Installing the Battery

How to Connect Battery Power

- 1. Remove the 2 screws securing the battery assembly to the plastic ACU case bottom.
- 2. Remove the battery assembly to the extent necessary to connect the battery assembly connector to the unit electrical harness. It is important to keep the mating surface the battery assembly free from oil, water, or else the seal could become compromised.
- 3. Verify that the mechanical retention of the mating connectors is secure by pulling lightly on the wires exiting the connectors.
- 4. Insert the battery assembly into the unit case bottom keeping the cable clear so the assembly seats properly and is flush with the case bottom.
- 5. Secure the battery assembly with the two screws previously removed. Tighten the screws snugly using a manual screwdriver. **Do not over-tighten. Never use power tools to tighten the screws.**

Shortly after the backup battery is connected, the ACU will attempt to transmit its current location and configuration with the RFTraxTM AMP Service. Since the ACU utilizes GPS and GSM (cellular) technology, it is advised to power up the device outdoors in unobstructed view of the open sky. The first transmission may take as long as 10 minutes to complete. Communication should be verified through the RFTraxTM website by your designated RFTraxTM contact. Verification will require the ACU serial number located on the ACU enclosure.



RFTrax[™] ACU Locomotive Monitoring System Installation Guide

Physical and Electrical Preparation

Drill holes for mounting ACU mounting plate (refer to mounting plate diagram at the end of this document). Make sure the mounting location is no closer than 24 inches to any radio, antenna or other electrical device."



Plan for cable routing as required.

In some installations, conduit (not provided) could be a preferred method for routing cabling across the locomotive ceiling as shown here.

In any event, run the cable through the grommet into the LV panel.

Route the RFTraxTM cable

In this example installation, the power cables pass through the bulkhead grommets as shown here.





Because the RFTraxTM Locomotive Edition ACU must have 74 VDC at all times, the 74 VDC is provided from the un-switched side of the radio breaker and run into the LV panel.







Terminating the RFTraxTM cable.

For most applications it is appropriate to terminate the 15 wire RFTraxTM cable into the RFTraxTM 16 pin Barrier Strip shown. A wiring diagram for an installation involving a full complement of sensors is shown in the diagram. Note that the SHIELD/DRAIN wire is attached to the 16 GA. black GND wire at the RFTraxTM Barrier Strip.

For "location tracking only" installations that will never involve sensor wiring, it might be preferred to connect the two power wires using an alternate method and not use the Barrier Strip.



A qualified electrician should route the sensor wiring through grommets into the LV panel and terminate into the RFTraxTM Barrier Strip.



Installation Verification



Once installation is complete, verify that:

- The ACU is securely mounted on the roof of the locomotive with an unobstructed view of the open sky.
- All cable is securely fastened, passing through holes with grommets installed and sealed with high quality

IMPORTANT:

Record the locomotive number and ACU number so that this information can be updated into the RFTraxTM AMP service.



RFTrax[™] ACU Locomotive Monitoring System Installation Guide



ACU Mounting Plate Diagram



RFTrax[™] ACU Locomotive Monitoring System Installation Guide

This device complies with Part 15 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.

Changes or modifications not expressly approved by RFTrax Inc. for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limit for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.