

Mobile Collector Lite Installation Guide

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Copyright

Identification

Mobile Collector Lite Installation Guide
06/16/2010 TDC-0730-005

Copyright

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Compliance

This device complies with Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference that may cause undesirable operation.

This device must be permanently mounted such that it retains a distance of 55 centimeters (21.7 inches) from all persons in order to comply with FCC RF exposure levels.

USA, FCC Class B - Part 15

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

This equipment has been tested and found to comply with the limits, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Operation is subject to the following conditions:

- This device may not cause interference.
- This device must accept any interference that may cause undesired operation of the device.

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CANADA, DOC ICES-003

This digital apparatus does not exceed the class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications, standard ICES-003.

This equipment complies with policies RSS-210 and RSS-GEN of the Industry Canada rules.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Note Modifications to the device or its antenna not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

Avis de conformité aux normes du Ministère des Communications du Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada, NMB-003.

Disclaimer

RF EXPOSURE

To comply with FCC requirements, maintain a separation distance of at least 55.0 centimetres between the antenna and all persons.

ELECTROMAGNETIC COMPATIBILITY

Use only approved accessories with this equipment. In general all cables must be high quality, shielded, correctly terminated, and normally restricted to 2 meters in length. The Mobile Collector Lite employs special provisions to avoid radio interference and should not be altered or substituted.

Unapproved modifications or operation beyond or in conflict with these instructions for use, may void authorization by the authorities to operate the equipment.



Warning Do not visually monitor or physically adjust the Mobile Collector Lite system while driving. While driving, rely on the beeps produced when meter data is collected to indicate proper system operation. Visually monitoring or adjusting the Mobile Collection system while driving will divert your attention from your safe driving responsibilities. *Attention to driving is your primary responsibility, along with following all the applicable driving regulations.*

Contact

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Introduction

This document contains information to help you install your Mobile Collector Lite (MC Lite) RF unit (radio) and handheld meter data collection device (handheld) in a vehicle.

MC Lite is supported by Itron's Field Collection System and Itron's MV-RS meter data collection system. For information on how to run MC Lite from these applications, see the *Field Collection System Handheld User Guide* or the *MV-RS CE Handheld Guide*, or the handheld online help for either application.

The following documentation is included with the MC Lite installation kit, some which is based on the handheld used.

- *MC Lite Quick Start Guide*, which provides at-a-glance information on how to get started with Mobile Collector Lite.
- *FC200 Vehicle Dock User Guide*, which contains instructions for using and maintaining the vehicle dock for the FC200 handheld.
- *FC300 Docks Quick Reference*, which explains how to set up the FC300's desk dock, multi-dock, and vehicle dock.

For further, detailed information, consult the following related documents, which are available from Itron's customer support Web site (<http://support.itron.com>).

- *FC200 Series Getting Started Guide*, which contains instructions for using and maintaining the FC200 handheld meter data collector.
- *FC300 Getting Started Guide*, which contains instructions for using and maintaining the FC300 handheld meter data collector.
- *FC300 Handheld Computer Quick Reference*, which explains how to set up the handheld and prepare it for use with Itron's Field Collection System and MV-RS meter data collection applications. This quick reference is also included in the kit containing the FC300 handheld.
- *FC300 Docks User Guide*, which contains instructions for using and maintaining the FC300 vehicle dock.

For instructions on how to register and download documentation from the customer support Web site, see the *MC Lite Quick Start Guide*.

Unpacking the MC Lite Hardware

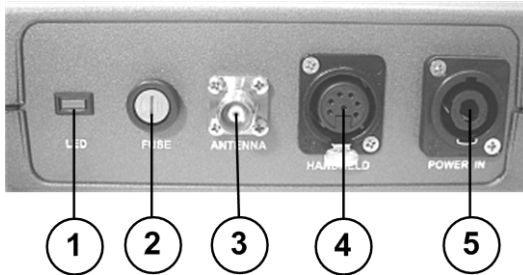
Your MC Lite installation package should include these items:

- 1 MC Lite RF unit with safety harness
- 1 RF unit vehicle mount
- 2 bench seat straps
- 1 handheld interface cable
- For permanent wiring
 - 1 power cable with fuse block connected power cable
 - 1 antenna and permanent mount base with attached antenna cable
 - 1 power extension cable for connecting to MC Lite RF unit, 8 feet
- For portable wiring
 - 1 12 volt DC power supply cable
 - 1 antenna and magnetic mount base with attached antenna cable
- 1 handheld vehicle dock
- 1 Ram Mount double-socket connector, including one circular mounting plate with 1.5 inch ball cam and one rectangular mounting plate with 1.5 inch ball cam
- 1 *Mobile Collector Lite Installation Guide*
- 1 *MC Lite Quick Start Guide*
- Handheld documentation
 - FC200: *FC200 Vehicle Dock User Guide*
 - FC300: *FC300 Docks Quick Reference Guide*
- 1 shipping case

If you purchased a handheld data collector, it is shipped separately.

RF Unit Features

The following illustration identifies the connectors and other features on the back of the MC Lite RF unit.



1. Radio status LED
2. Fuse
3. Coaxial antenna connector
4. Handheld communication/power port
5. Power supply socket

The LED Status Indicator

The MC Lite RF unit has a light-emitting diode (LED) radio status indicator that shows when the unit is in stand-by mode and when its radio is turned on.

LED indication	Explanation
Blinking	Stand-by mode. The RF unit has power, but the radio is not turned on.
Steady	The radio is turned on: <ul style="list-style-type: none"> • The RF unit retrieves meter data from all endpoints within its range. • If the route contains at least one wake-up endpoint, the RF unit's wake-up transmitter is also functioning.
Off	The RF unit is not receiving power. Check power connections and fuse.

Installing the MC Lite Hardware Components

Before you can use the MC Lite to collect meter data in the field, you must:

- Install the MC Lite hardware.
- Set up the handheld data collector. See the handheld’s getting started guide for details.
- Install the desired meter data collection software on the handheld. See “Setting Up the Handheld” in the *Field Collection System Handheld User Guide* or “Installing the MVR Handheld Software” in the *MV-RS Installation Guide*.

The following section explains how to install the hardware components included in the MC Lite installation package in a vehicle. It includes procedures to:

√	Task	Description
1		Mount the handheld vehicle dock in the vehicle, using the +- Ram Mount double-socket connector. Note A variety of bases (not included in the Mobile Collector Lite installation package) are available for use with the connector to address specific characteristics of different vehicle makes and models. For details, contact Gamber-Johnson at www.gamberjohnson.com or Ram Mounting Systems at www.ram-mount.com . Itron shall have no liability or obligation due to installation or programming of the equipment or licensed software that was not performed by Itron.
2		Mount the MC Lite RF unit on the passenger-side seat back. See To mount the MC Lite RF unit (radio) on the seat back on page 5.

√	Task	Description
3		<p>Connect the RF unit to the vehicle power supply. You can do this in either of two ways.</p> <ul style="list-style-type: none">For a permanent installation, connect the unit to the vehicle's fuse block. See To install the fuse block power supply cable on page 8.Alternatively, if you purchased the optional 12-volt DC power supply adapter (formerly called the "cigarette lighter adapter"), you can use it to connect the RF unit to the vehicle's 12-volt DC power supply.
4		<p>Connect the handheld to the RF unit, using the interface cable provided. See To connect the handheld to the RF unit on page 10.</p> <p>This cable provides power to the handheld as well as communications with the RF unit.</p>
5		<p>Install the antenna mount and connect the antenna cable to the RF unit. Attach the antenna to the antenna mount. See Installing the Antenna Mount and Antenna on page 12.</p>
6		<p>Insert the handheld data collector into the vehicle dock.</p>

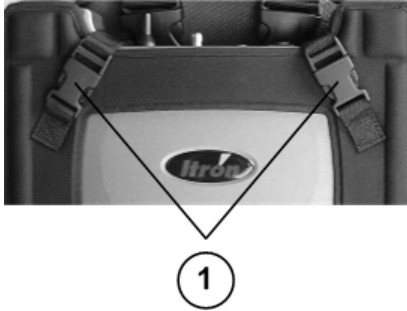


Warning When installing the MC Lite hardware components, take care to arrange all cables and wires so they will not be accidentally snagged, disconnected, or damaged by users during day-to-day operations.

To mount the MC Lite radio on the seat back

1. The RF unit is normally shipped in its vehicle mount. If it has been removed:
 - Slide the RF unit into the vehicle mount.

- Secure the RF unit in the mount by buckling the two diagonal corner straps (1).



2. Strap the mount to either the front or the back of the passenger-side seat back. Position the unit within the mount so that when it is strapped to the seat back, the unit's connectors face toward the passenger-side door.

Warning Positioning the unit properly is critical for ensuring the RF unit's cooling vents will not be blocked.

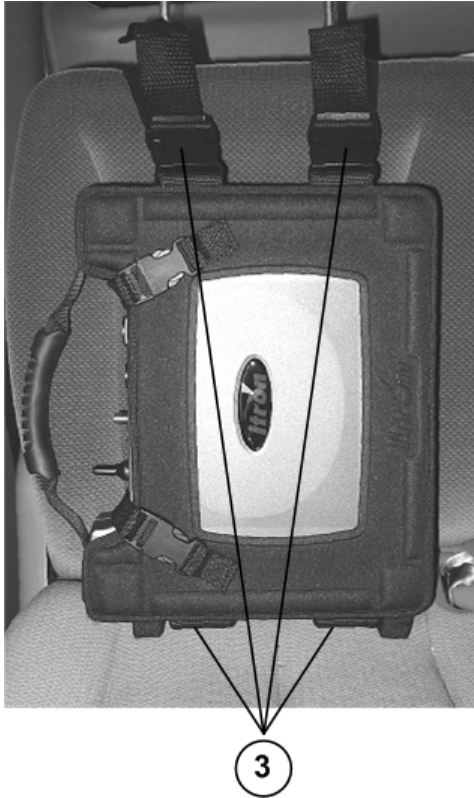
Depending on whether the vehicle has a separate passenger-side bucket seat or a bench seat, do one of the following:

- **Bucket seat.** Extending the mounting straps (2) from the side of the vehicle mount, wrap them around the seat back and buckle them to the opposite side of the vehicle mount.



- **Bench seat.** Connect the optional bench-seat straps (3) to the buckles on the bottom of the vehicle mount.

Push the free ends of the straps between the seat cushion and the seat back, and then extend them up and over the top of the seat back and connect them to the buckles on the top of the vehicle mount.



3. Tighten the straps until the RF unit is snug against the seat back.

To install the fuse block power supply cable

The unterminated end of the power extension cable connects to the vehicle's electrical system and remains in the vehicle so that you can easily disconnect and connect the other end to the RF unit.

1. Select a location in the vehicle for the connector end of the cable so that it reaches the cable that connects to the RF unit. An extension cable is available from Itron if needed.

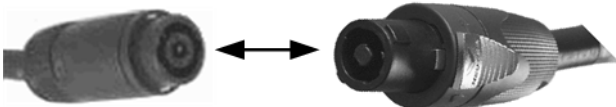
2. Route the unterminated end of the cable to the voltage and grounding sites in the vehicle.

Warning Do not route the cable where it can become abraded or damaged, such as under a carpet in high-traffic areas, over sharp edges, near hot engine components, near brake or clutch linkages, or where it might be exposed to oil or other corrosive liquids.

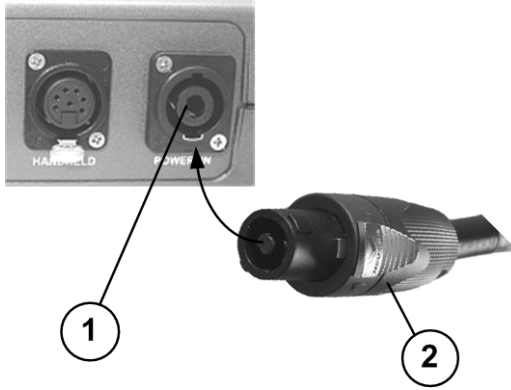
3. Trim the cable to a suitable length, if necessary.



4. Connect the cable's white wire (pin 1) to a spare 15-ampere fuse in the vehicle's fuse panel that is not turned on and off by the vehicle's ignition (unswitched).
5. Connect the black wire (pin 2) directly to the vehicle's chassis ground.
6. Connect the green wire (pin 3) to a spare fuse in the vehicle's fuse panel that has a rating of at least 1 ampere and receives power that is turned on with the vehicle's ignition set to accessories (switched).
7. Plug the RF unit's power supply extension cable into the unit's power connector.



8. Plug the RF unit's power supply extension cable (2) into the unit's power connector (1).



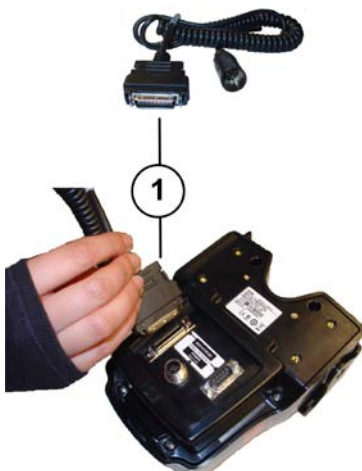
Note If you purchased the portable kit, use the 12-volt DC power supply adapter to connect the RF unit to the 12-volt DC power supply outlet.

To connect the handheld to the RF unit

1. Using the MC Lite - handheld vehicle dock cable, make the following connection to the vehicle dock.

Plug the cable's I/O (input/output) connector (1) into the vehicle dock's I/O (input/output) port.

Note This example shows the FC300 vehicle dock and appropriate cable. If you have an FC200, use the FC200 vehicle dock cable to plug into the Power port on the back of the FC200 vehicle dock.



2. Plug the interface connector of the cable (2) into the handheld connector (labeled HANDHELD) on the back of the MC Lite RF unit.



Installing the Antenna Mount and Antenna

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.



Caution This Device has been designed to operate with the antennas listed below, and having a maximum gain of 5 dBi. Antennas not included in this list or having a gain greater than 5 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

Use only Itron-approved and supplied antennas.

The following procedures summarize the RF antenna manufacturer's instructions, which ship with the antenna components. Itron recommends consulting the manufacturer's instructions in addition to this installation guide.

When deciding where to mount the antenna:

- Choose a flat area on the vehicle's roof, where the metal of the roof is .02-.04 inches thick.
- Install the antenna at least 12 inches from any other antennas or metal structures on the vehicle's roof that could disrupt communication with endpoints.
- To meet RF exposure safety requirements, the antenna must be installed 21.7 inches (55 cm.) from where any bystanders might be.

To install the antenna mount

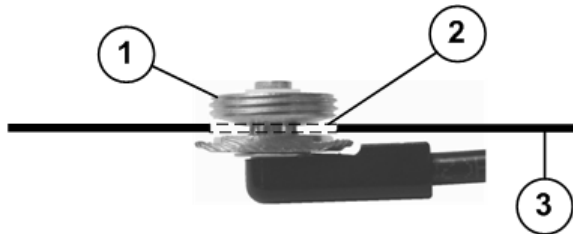
These procedures refer to the permanent antenna mount. If you purchased the Portability Kit, place the magnetic antenna base on the roof in an appropriate spot and follow steps 7 through 10, to attach it to the RF unit.

1. If the vehicle has a headliner, remove it and the adjacent trim pieces and/or dome light if necessary to gain access to the antenna mounting location from inside the vehicle.

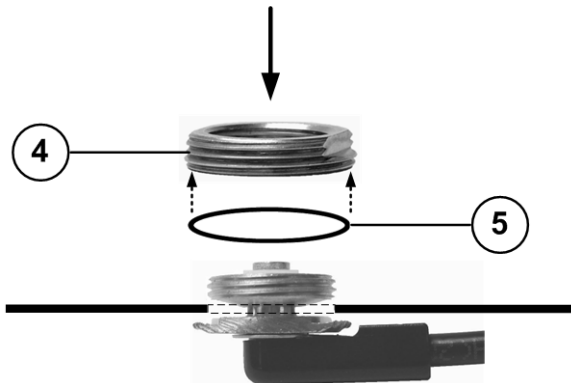
Note Do not shorten or secure any cabling until you are sure how you want to route it to the RF unit and whether it will reach.

2. Cut a 3/4-inch diameter hole in the roof at the selected location.
3. Unscrew and remove the lock nut and O-ring from the bushing assembly.
4. Feed the antenna cable through the hole from the top of the vehicle, until the bushing assembly is in position to drop into the hole.
5. Tilt the bushing (1) at a slight angle, and feed it into the hole (2) in the roof (3).

(The threaded top of the bushing is too large to fall through the hole.)



6. Making sure the O-ring (5) is in the groove on the bottom of the lock nut (4), screw the lock nut onto the bushing.

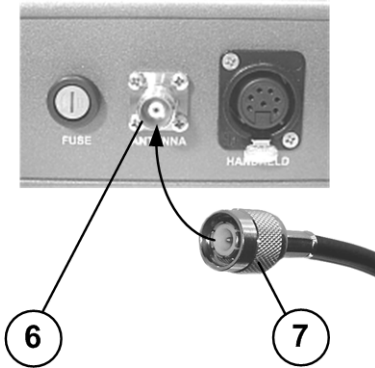


Tighten the lock nut until it secures the assembly in place on the roof and the O-ring is fully compressed.

7. Route the cable along the inside of the vehicle to the point where the RF unit is mounted.

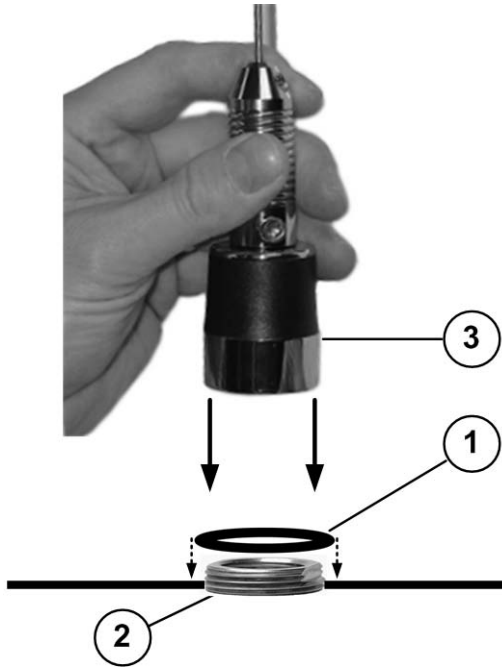
If desired, tape it in place or otherwise attach it to the inside surfaces.

8. Make sure it reaches the RF unit with sufficient slack to connect to the coaxial antenna connector.
9. Replace the headliner, trim, and/or dome light you removed earlier.
10. Connect the antenna cable (7) to the RF unit's coaxial antenna connector (6).



To attach the antenna

1. Clean the bottom of the antenna and the mounting surface around the lock nut.
2. Apply a bead of silicone sealant to the roof surface around the lock nut.
3. Place the gasket (1) provided with the antenna-mount kit over the lock nut (2).
4. The antenna base comes with a washer inside. Making sure the washer remains in place, screw the antenna base (3) onto the lock nut. This should squeeze the gasket between the antenna base and the roof, creating a moisture seal.



5. Tighten the antenna base until the antenna is firmly attached.