



Itron Mobile Radio User Guide

Identification

Itron Mobile Radio User Guide

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Itron Mobile Radio

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For more information about Itron or Itron products, see www.itron.com.

If you have questions or comments about the software or hardware product, contact Itron Technical Support Services.

Contact

- Email: support@itron.com
- Internet: support.itron.com
- Telephone Itron Technical Support North America: 1-877-487-6602

For technical support contact information by region, go to www.itron.com and select your country and language.

Compliance Statement

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.

Class B Part 15 Compliance Statement

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.

Compliance Statement Canada

Under Innovation, Science and Economic Development Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Innovation, Science and Economic Development Canada. 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 necessary for successful communication.

This device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). 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.

Déclaration de Conformité

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

**Caution** ELECTROMAGNETIC COMPATIBILITY

Use only approved accessories with this equipment. In general all cables must be high quality, shielded, and correctly terminated. Unapproved modifications or operation beyond or in conflict with these instructions for use, may void authorization by the authorities to operate the equipment.



Important Changes or 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.

Transportation Classification

The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. When powered, Itron Mobile Radios are considered operating transmitters and receivers and cannot be shipped by air with the battery installed. To ship by air, remove the battery and follow li-ion shipping regulations.

Specific Absorption Rate Data

The FCC ID: EO9IMR and IC: 864A-IMR model of Itron Mobile Radio meets the government's requirements for exposure to radio waves.

Your Itron Mobile Radio has a radio transmitter and receiver. It is designed and manufactured not to exceed limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. government and by the Canadian regulatory authorities. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age or health.

The exposure standard for wireless mobile and/or portable devices employs a unit of measurement known as the specific absorption rate, or SAR. The SAR limit set by the FCC and by the Canadian regulatory authorities is 1.6 W/kg¹. Tests for SAR are conducted using standard operating positions accepted by the FCC and by Innovation, Science and Economic Development Canada with the radio transmitting at its highest certified power level in all test frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the radio while operating can be well below the maximum level. This is because the Radio is designed to operate at multiple power levels, depending on the needs of the customer.

Before an Itron Mobile Radio is available for sale to the public in the U.S. and Canada, it must be tested and certified to the FCC and Innovation, Science and Economic Development Canada that it does not exceed the limit established by each government for safe exposure. The tests are performed in positions and locations (for example, worn on the body) and reported to the FCC and made available for review by Innovation, Science and Economic Development Canada. The highest SAR value for this Itron Mobile Radio, model IMR when tested for use when worn on the body as described in the user's guide is 0.24 W/kg. While there may be differences between the SAR levels of various Itron Mobile Radio models and at various positions, they all meet the government requirements for safe exposure. Please note that improvements to this product model could cause differences in the SAR value for later products; and in all cases, products are designed to be within the guidelines.

¹In the United States and Canada, the SAR limit for wireless mobile and/or portable devices used by the public is 1.6 W per kilogram averaged over 1 g of tissue. The standard incorporates a substantial margin of safety to get additional protection for the public and to account for any variations in measurements.



Warning Use this device only in a manner consistent with the *Itron Mobile Radio User Guide*.

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Introduction

This document details the features and functions of the Itron Mobile Radio and provides information relating to its use and maintenance.

The Itron Mobile Radio is equipped with the following features.

- **Radio button.** For information about the radio button, see [Button Functions](#) on page 9.
- **LED status indicators.** For information about the LED indicators, see [LED Status Indicators](#) on page 9.
- **USB communication port.** For information about the USB communication port, see [USB Communication Port](#) on page 13.

Related Documents

- *Itron Mobile User Guide* The Itron Mobile Radio is designed for use with handheld and laptop computers running Itron Mobile software application.
- *Itron Mobile Radio Quick Reference Guide*
- *Itron Mobile Radio Compliance Statement*

Documentation Conventions

This guide uses the following documentation conventions:

Convention	Example
Hypertext links appear in blue text.	See Copyright for identification information.



Warning This type of note is used to warn of potential physical harm to the user or hardware. It is critical that you pay strict attention to Warning notes, read the information carefully, and heed the advice and/or instructions.



Caution This type of note advises users that failure to take or avoid a specified action could result in a loss of data.



Note Indicates neutral or positive information that stresses or supplements important points of the main text. A note supplies information that may apply only in special cases.

Unpacking Your Itron Mobile Radio

The Itron Mobile Radio comes with the following items.

Item	Description
Itron Mobile Radio with built-in antenna	
AC power adapter	AC wall plug with USB type A port.
Communication cable	USB cable.
Battery kit	Battery, battery compartment cover, screws, gasket
Documentation	<i>Itron Mobile Radio Quick Reference Guide</i> <i>Itron Mobile Radio Compliance Statement</i>

An optional Radio Carrying Kit is available for order separately. The Radio Carrying Kit contains a belt clip and a shoulder harness.

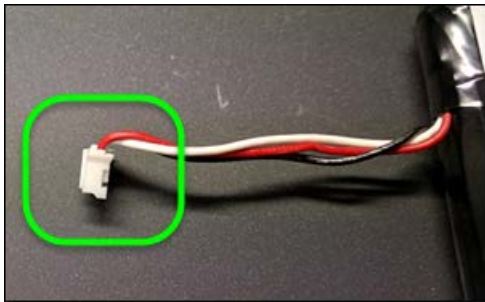
When you unpack your radio, make sure you have all of the components listed here. If any are missing, contact Itron Support Services immediately.

After you install the battery, charge the radio to 100 percent capacity before using it. Complete charging takes about six hours.

For more information about the battery, see [Battery Basics](#).

To install and charge the battery

1. Plug the connector into the socket in the battery compartment.
You will have to bend the wires at the connector at a 90 degree angle.



2. Insert the battery into the compartment.
- Make sure the battery label is facing the ridges on the radio case.
 - Make sure the wires are along the same side as the connector.
 - Make sure the removal tab is facing out.



Caution Do not pinch the battery wires when replacing the battery compartment cover.

3. Replace the battery compartment cover making sure the gasket is properly aligned for water tightness.
4. Fasten the battery compartment cover in place with the provided screws.
Tighten the screws to ensure water tightness.
5. Plug the USB cable into the Itron Mobile Radio.
6. Plug the USB cable into a PC, an AC wall adapter, or a 12V AC car adapter.
7. Allow the Itron Mobile Radio to charge for at least six hours.

Daily Operation

- Inspect the radio for broken, loose, or missing parts and fasteners, taking corrective action as required.
- Make sure the radio is operated and stored within the recommended temperature range.
Operating temperature: -4° F to 140° F (-20° C to 60° C)
Storage temperature: -40° F to 158° F (-40° C to 70° C)
 - Cold temperature extremes may result in reduced available energy from the battery pack. This energy is recoverable as the battery pack warms to 68° F (20° C).
 - Do not subject the radio to extreme temperatures, such as leaving it in a vehicle in bright sunlight. Extended exposure to warm temperature extremes can result in permanent reduction in available energy from the battery pack.
- Exit all external applications at the end of each work day. This ensures that all applications communicating with the radio have terminated their Bluetooth links.
- Charge the battery nightly.

Turning the Radio On or Off

To turn the radio on (battery power)

- Press and hold the button for three seconds (until the Power LED turns green) to turn the radio on.

To turn the radio off (battery power)

- Press and hold the button for three seconds (until the Power LED turns white) to turn the radio off.

To turn the radio on (AC adapter)

- The radio is always on when using the AC adapter.
When the radio is using external power (connected to an energy source with the USB cable) pressing the button turns the power LED green until the button is released, but it does not turn the radio off.

LED Status Indicators

Two multi-color LED status indicators are located on the top of the radio. These indicators are labeled with a power icon  and a communication icon . The color and illumination of the LED lights provide feedback about the Itron Mobile Radio's status.

The LED lights have two patterns for displaying different states.

- **Solid.** Continuous without interruption or alteration
- **Flash.** Alternating periods of colored illumination followed by periods of non-illumination of the indicator. The color remains consistent during all illumination periods.

The following tables describes the LED colors and patterns for the most common radio conditions.

 Power indicator			
Solid		Flash	
	- Error: Battery - Turning on		Error: General
	- Initializing - Button pressed - Charged		Battery more than 50%
	N/A		Battery more than 20%
	Charging		Battery less than 20%



Comm indicator

Solid

Flash



USB connected



Error



Bluetooth® connected



Bluetooth low energy connected

Note The application connected to the radio may assign a display pattern to the LEDs that is not described in these tables.

USB Communication Port

The Itron Mobile Radio has one USB communication port under a protective rubber flap on the side of the radio near the top.

In addition, the radio is equipped with an internal port for wireless Bluetooth® communications. If communication is in place through Bluetooth, attaching the USB cable only provides power. Communication may occur through Bluetooth while charging with the USB.



Note When you connect the Itron Mobile Radio to a PC using Windows 7 or Windows 8, you may see a prompt to install an updated Texas Instruments driver for the device. Install the necessary driver.

Carrying the Itron Mobile Radio

The Itron Mobile Radio's shoulder harness and belt clip provide convenient, hands-free ways to carry the radio while installing, reading, and maintaining meters and endpoints. The shoulder harness and belt clip let you wear the radio comfortably while walking or driving.

As a safety feature, the clips are designed to break away if the radio snags or becomes caught, releasing the wearer and reducing the likelihood of injury.

The radio may also be carried in a pocket, backpack, or bag.

The radio is water resistant.



Note If you are carrying the radio, make sure the side with the ridges is facing away from your body, conductive materials, or anything else which may shield the radio signal.

Maintaining Your Itron Mobile Radio

Your Itron Mobile Radio is rugged and water-resistant. However, you should take the following precautions to ensure that it gives you many years of reliable service.

- Do not subject the radio to extreme temperatures, such as leaving it in a vehicle in bright sunlight. For more information, see [Battery Best Practices](#).
- Do not leave it in damp or dusty places.
- Do not drop your radio or subject it to severe impacts.
- Do not use products containing DEET near the Itron Mobile Radio. DEET will degrade the radio's casing.
- When installing or replacing the battery, make sure to follow the provided instructions to maintain water tightness.
- Use the rubber flap to protect the radio's USB port in dusty conditions.

To clean the Itron Mobile Radio case

1. Wipe the radio's case with a damp cloth.
2. Use a soft-bristle brush to remove stubborn deposits.
3. Blow any water out of the connector and then leave the radio to drain and air-dry.



Warning Never use solvents of any kind on the case. Do not expose it to temperatures above 140° F (60° C).

Storing Your Itron Mobile Radio

Your Itron Mobile Radio can be safely stored for two weeks or less with simple preparation. Follow the steps below to prepare your radio for short-term storage.

To store your Itron Mobile Radio

- Connect the Itron Mobile Radio to external power and allow the battery pack to fully charge. For information about charging status, see [LED Status Indicators](#) on page 9.

If you are storing the Itron Mobile Radio for an extended period of time, you should let it remain charging or remove its battery.



Note Remove the Itron Mobile Radio's battery before storing the device for periods longer than two weeks.

Battery Basics

The Itron Mobile Radio uses a rechargeable lithium-ion (Li-Ion) battery pack as its main power source whenever it is not receiving power through its USB cable.



Caution Do not use any power source other than the Itron-recommended battery. Using another power source could damage the radio.



Warning Risk of Explosion! There is a risk of explosion if the battery is replaced by an incorrect battery type. Dispose of used batteries in accordance with local regulatory guidelines.

Attention Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Charge the radio's battery to 100 percent capacity before using it. Complete charging takes about six hours. Charge the battery pack through the USB cable, which can draw power from a computer, an AC wall outlet, or a 12V DC car adapter.

Battery Best Practices

Itron recommends the following practices to ensure long battery life.

- Charge the radio at the end of each work day.
- Check the charge status at the beginning of each work day.
- Charge the radio at room temperature (68° F/20° C).
- Charging is disabled below 32° F (0° C) and above 104° F (40° C) to protect the lithium-ion batteries.
 - In cold weather, keep the radio inside your outer clothing. A cold battery will not last all day even with full charge. Metalized fabrics should not be worn over the radio as they may severely reduce reading success.
 - In hot weather, keep the radio out of direct sunlight. A hot battery's capacity is degraded over time and eventually the battery will not last all day even with a full charge.

- Shallow or partial discharge and charge cycles are preferred, rather than allowing the battery pack to drain completely before recharging it.
- Charging after a shallow or partial discharge does not degrade battery pack life or performance.

Safety

Your Itron Mobile Radio is ergonomically designed for safe, comfortable use. However, as with all equipment, you should follow good working practices while using it.

Minimize risk by following these guidelines.

- Maintain good posture while using the radio. Keep your fingers and body relaxed whenever possible.
- Avoid keeping your muscles tense for long periods. Change tasks often to avoid prolonged muscle strain. Support the radio while using it.
- Take frequent short breaks. Use these breaks to exercise the muscles in your hands, arms, shoulders, neck, and back.

AC Power Adapter

Follow these instructions to help ensure your safety and extend the life of the adapter.

- Use the adapter indoors only.
- Avoid spilling liquid on the adapter.

Do not connect it if it is damp.

- Make sure ventilation around the adapter is not restricted while it is in use.
- Use only the AC adapter supplied with your Itron Mobile Radio.

Do not substitute an alternative or unapproved adapter; this may damage the Itron Mobile Radio and void the warranty.

- Inspect the AC adapter before use.

Do not use it if there are any signs of damage or deterioration.

- Make sure the connector is firmly connected.
- Avoid mechanical strain to cables and connectors.
- In the event of overloading, the AC adapter is designed to be fail-safe and may stop functioning.
- Do not try to use the AC adapter to power any other equipment.
- Avoid use in dusty, damp, or contaminated environments.

Usage in Hazardous Locations

This device is suitable for use in Class 1, Division 2, Groups A, B, C, D locations. It should only be used with computer systems approved for use in hazardous locations.



Warning—Explosion Hazard Do not replace the battery unless power has been switched off or the area is known to be non-hazardous.

Avertissement—Risque d'Explosion Couper le courant ou s'assurer que l'emplacement est designe non dangereux avant de replacer le composants.



Warning—Explosion Hazard Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Avertissement—Risque d'Explosion Avant de deconnecter l'equipement, couper le courant ou s'assurer qu l'emplacement is designe non dangereux.



Warning—Explosion Hazard Substitution of components may impair suitability for Class 1, Division 2 locations.

Avertissement—Risque d'Explosion La substitution de composants peut rendre ce materiel inacceptable pour les emplacements de classe 1, division 2.

Troubleshooting

If you have a problem with your Itron Mobile Radio, review the appropriate troubleshooting steps listed below. If the problem remains unresolved, contact an Itron customer service representative (e-mail: support@itron.com; phone: 1.877.487.6602).

Problem	Possible Solutions
Battery does not charge	• If charging from a PC through the USB cable, try a different USB port on the PC. The port may be bad or incapable of providing sufficient current for charging. • Try a different AC outlet. • Make sure the USB port is clean and free of dirt or other contaminants. • If the previous troubleshooting suggestions do not solve the issue, replace the battery.

Problem	Possible Solutions
Battery power drains quickly	• Make sure the battery indicates a full charge following an overnight charge (see LED Status Indicators on page 9). • If the previous troubleshooting suggestions do not solve the issue, replace the battery.
USB connection problems	• Install Texas Instruments drivers. • Inspect the USB port for damage, dirt, or other contaminants.
Bluetooth connection problems	• See your application's user guide for setup information.
Radio will not turn off Radio will not turn on	Disconnect the radio from external power sources and press the button firmly for six seconds. This will force the radio to reset its firmware.

Optimizing Bluetooth® Performance

Bluetooth communication works best when the communicating devices have an unobstructed view from one device to the other. When possible, remove or reduce obstacles between the Itron Mobile Radio and the mobile device during Bluetooth communication.

Tips for Radio Readings

The Itron Mobile Radio is used to receive the radio signals from ERT-equipped meters. To maximize the radio capabilities, consider the following factors when collecting data.

- **Absorption.** Conductive material such as steel, metallic pipe and siding, and tree leaves and branches absorb more of a radio signal than concrete, bricks, sheetrock, plastic, and wood. Due to absorption, you may have shorter readability distances in industrial or business areas than in residential areas.

- **Shielding.** When conductive materials are close together, as in metal partitions or narrow-mesh fencing, they act as a shield and absorb the entire radio signal. Move a short distance away from conductive material so the ERT signal is not shielded. Keep moving to assist in receiving signals that may be shielded. Metalized fabrics should not be worn over the radio as they may severely reduce reading success.
- **Reflection.** Radio signals can be reflected by some of the same types of conductive material that absorb them. Move a short distance away from the reflective material to find the direct ERT signal or a strong reflected signal. Keep moving to assist in receiving signals that may be reflected.

Itron Mobile Radio Capabilities and Limitations

Equipment Description

Itron Mobile Radio

Model: IMR

FCC ID: EO9IMR

IC: 864A-IMR

Itron Mobile Radio

Transmitter Information

Transmit frequency MAS, FCC: 952 MHz–960 MHz

Transmit frequency MAS, ISSED: 952 MHz–953 MHz

Transmit frequency ISM: 908 MHz–923.8 MHz

Antenna type: Directional antenna with maximum gain perpendicular to the front face of the IMR unit.

Receiver Information

Frequency ISM: 908–923.8 MHz

Bluetooth

Manufacturer: Panasonic

Model: PAN1326B

FCC ID: T7V1316

IC: 216Q-1316

Transmitter class: Class 1

Transmit/receive frequency: 2402 MHz–2480 MHz

Maximum transmitter power: 10.5 dBm

Antenna type: integral, chip