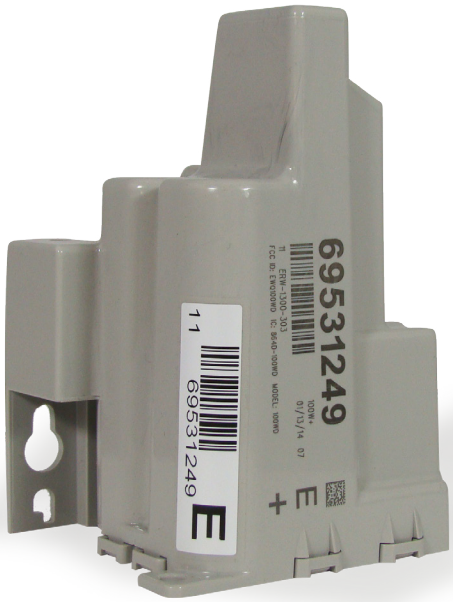


100W+

Water Communication Module

The 100W+ communication module is the latest addition to Itron's portfolio of advanced metering devices for water utilities. Featuring a compact design, industry-leading battery life and technology designed to adapt and grow with your business, the 100W+ module can help you streamline your operations and maximize your resources today and into the future.

The 100W+ communication module represents the fourth evolution in Itron's line of 100 series water communication modules. This latest release includes a new message called SCM+ with more information than previous generation messages. Additionally, the 100W+ offers industry leading capabilities in security, fixed network performance and improved meter consumption resolution to 9 dials (1/100th gallon).

- 100W+ communication modules are available in two housing designs, supporting both water pit and remote installations. They are identified as follows:
- 100W+ is to be utilized with encoder registers in a pit environment
- 100WP+ for pulser registers in a pit environment
- 100W-R+ for encoder registers in remote applications
- 100WP-R+ for with pulser registers in remote applications

These communication modules offer advanced two-way meter data collection designed specifically for Itron collection systems using handheld, mobile, fixed network and hybrid solutions. 100W+ communication modules differentiate themselves from other devices on the market by providing true two-way communications capabilities with walk-by, drive-by and fixed network collection systems. Engineered from the ground up to leverage the benefits of ChoiceConnect™ collection systems, 100W+ communication modules enable easy migration from mobile to fixed network operations as your business needs evolve. With Itron's complementary communications technology, fixed and mobile network systems can be deployed side-by-side in hybrid configurations to ensure maximum efficiency and reliability in both high and low-density meter populations.

SPECIFICATIONS

SCM+

SCM+ is a new message for Itron's electric, gas and water endpoints. This message transmits more information than previous generation messages, including:

- All tampers and alarms (including extended tampers and low battery alarm)
- Up to 1/100th gallon resolution of water meters that support 9 dials

Itron Security Manager

The 100W+ offers optional enhanced security with the addition of authentication and encryption. In parallel to the 100W+ release, Itron released the Itron Security Manager (ISM) solution. ISM represents the initial launch of a new security application that will provide the cryptographic and key management services for Itron's Fixed Network, Field Deployment Manager (FDM) and Field Collection System (FCS) solutions. The ISM application, working in concert with these data collection systems will provide a new application layer of security. This enables authentication of commands and encryption of data communications from the reading applications to new 100 Series communication modules. These enhanced security services will provide added confidentiality, data integrity and availability that utilities require to secure their communications. Every 100W+ will ship with embedded security keys to support utilities current and future requirements for enhanced secure communications. To enable enhanced security, utilities will need Itron Security Manager v1.0, FDM Endpoint Tools Enhanced v3.3 and 100W+ security keys (part number SEC-0000-002).

GeoMode

In order to continually improve our fixed network performance, the 100W+ has added the GeoMode feature. GeoMode is a valuable tool used to read 100W+ communication modules that are installed in RF-unfriendly environment as well as modules installed on the fringe of network coverage. This tool will allow a 100W+ that is not being heard by the fixed network to transmit its NIM (Network Interval Message) via a neighboring 100W+ that has an established link to FN. GeoMode will not impact the 100W+ industry-leading battery performance. Using the GeoMode feature requires Network Software v5.0. Modules in GeoMode may still be read by Itron handheld and mobile systems.

Water Meter Compatibility

The 100W+ communication module is compatible with water meters from all major manufacturers such as Badger, RG3, Kamstrup, Hersey, Master Meter, Neptune and Sensus, enabling water utilities to consolidate all their water meters under a single reading system. Powered by proven, advanced lithium battery technology; the module is designed for 20 years of battery life in both fixed network and mobile modes.

Data Logging

The 100W+ stores 40 days of hourly consumption information, which can be collected by the fixed network system to leverage real time data collection or can be read by mobile or handheld systems. This data is presented in four basic use cases:

- A reading from any hour within the last 40 days
- A set of 24 consecutive hourly readings
- A set of 40 daily readings
- A set of 40 days of hourly interval data are available even in mobile mode

Superior Performance

The 100W+ communication module utilizes 120 radio channels in fixed network and 50 radio channels in mobile and handheld modes, randomly selecting one channel for each data message. Itron's unique multi-channel solutions maximize the use of all available bandwidth, allowing more data to flow through the network and enabling faster drive-by speeds. The 100W+ will transmit the fixed network consumption message at peak radiated power greater than 1 Watt.

Reliability

100W+ communication modules feature a circuit assembly and battery pack that are fully encapsulated within a specially-formulated potting material to completely protect internal components from water, contaminants, corrosion, rough handling and temperature cycling. With their straight forward, rugged design, 100W+ communication modules use substantially fewer components than most competing products, resulting in greater reliability. The advanced, integrated antenna operates effectively in a wide range of meter box installations. The 100W+ offers peace of mind with a 20 year limited warranty.

Lower Cost of Ownership

100W+ communication modules feature industry-leading battery life , ensuring your meter data collection investment achieves substantially better financial returns than competing products with batteries that typically last only ten or twelve years. When one considers the advancements in leak, reverse flow (absolute encoder version only) and tamper detection, 100W+ communication modules necessitate fewer field investigations and substantially lower expenditures for installation, meter reading, customer service and field service. And with a low battery alarm, these modules help utilities better plan and manage the replacement of units in the field.



100W+



100W-R+

Leak Management

Water loss management is critical to any water utility's success. 100 Series modules can be paired with Itron's advanced acoustic Leak Sensor. The Leak Sensor collects and analyzes changes in pipe acoustics that indicate probable leaks in the distribution system environment to detect both new and pre-existing leaks automatically. Leak Sensor technology, coupled with the module's internal customer-side leak detection algorithm and the option to use data from groups of 100W+ communication modules (District Metering) provide the utility with a highly accurate picture of the overall health of the water distribution system.

Leak Data

The 100 Series collects and stores the data from the Leak Sensor. The Leak Sensor samples the pipe conditions every 22.5 minutes or 64 times daily. The 100 Series stores the 8 quietest analyses daily and will hold 20 days worth of data. This data is picked up during normal meter reading operations and seamlessly transfers the data to our hosted web based solution (mlogonline).

100W+ COMMUNICATION MODULE SPECIFICATIONS

The 100W+ is identified by its part number (ERW-1300-3XX or -4XX) and a + signifier.

Functional

- Power Source: Two "A" cell lithium batteries warranted for 20 years
- Operating temperature: -
  - -40°C to +70°C for remote applications
  - -20°C to +60°C for pit applications
- Storage temperature: -40°C to + 75°C for maximum of 1,000 hours
- Humidity limits: 0 to 100% (Meets IP68 standards.)
- Maximum register cable dimension: 300 feet with Itron-approved cable and splice connectors
- Meter compatibility: See Water Module Meter Compatibility Guide (PUB-0063-002)

Transmission Parameters

- Data message: Multiple RF channel transmissions of meter register value, cut cable and or communication error tamper(s), reverse flow (encoder version only) and system leak status messages, as well as low battery indicator is transmitted every ten seconds in mobile mode. All this information and last 7 time synchronized consumption intervals is transmitted every six minutes along with a contingency SCM+ (Standard Consumption Message) every 60 seconds in fixed network mode.
- Transmitter frequencies:
  - 908 - 924MHz (Standard Power) in mobile mode
  - 923 – 926.8MHz (High Power) in fixed network mode
- Operates in bubble-up mode and does not require a license from the Federal Communications Commission (FCC) or Industry Canada (IC)
  - FCC Part 15.247
  - Industry Canada RSS-210

Approved Network Reading Systems

- Network system: Itron Fixed Network 100 Collectors and Repeaters (CCU 100 and Repeater 100) which offer full two-way communication capability.
- ChoiceConnect Fixed Network software v4.1 or higher
- If using enhanced security, Itron Security Manager (ISM) v1.0 or higher, is also required

Approved Mobile Reading Systems for SCM+ alone

- Mobile data collection hardware when used with software listed below:
  - Any MC3 radio with Mobile Collection Software 3.4 or higher
  - Any MC Lite radio
  - Any FC200 handheld computer with SRead radio
  - Any FC300 handheld computer with SRead radio
- Mobile data collection software:
  - Multi-Vendor Reading System (MV-RS) v8.3 or higher
  - Field Collection System (FCS) v2.4 or higher

Approved Mobile Reading Systems for Data Logging Reads

- Mobile data collection hardware when used with software listed below:
  - Datalogging capable MC3 radios with Mobile Collection Software 3.4 or higher
  - Datalogging capable MC Lite radios
  - FC200 handheld computers with Datalogging capable SRead radio
  - Any FC300 handheld computer with SRead radio
- Mobile data collection software:
  - Multi-Vendor Reading System (MV-RS) v8.4 or higher
  - Field Collection System (FCS) v2.5 or higher

Approved Mobile Reading Systems for Enhanced Security Reads

- Mobile data collection hardware when used with software listed below:
  - Datalogging capable MC3 radios with Mobile Collection Software 3.5 or higher
  - Datalogging capable MC Lite radios
  - FC200 handheld computers with Datalogging capable SRead radio
  - Any FC300 handheld computer with SRead radio
- Mobile data collection software:
  - Field Collection System (FCS) v2.5 or higher
  - Itron Security Manager (ISM) v1.0 or higher

Approved Programming Systems

- FC200SR handheld computers
- FC300SR handheld computers
- 900 MHz Belt Clip Radio coupled with a laptop computer running FDM v3.3 or higher.
- Field Deployment Manager (FDM) v3.3 or higher
- If using enhanced security, Itron Security Manager (ISM) v1.0 or higher, is also required

The 100W+ encoder version does not require any programming—it automatically detects the register type within one hour of being connected.

Note: Neptune E-Coder registers require programming.

Programmable Mode Options

- Mobile/Handheld Mode
  - This is the standard mode in which all 100W+ communication modules will be shipped. This mode should be utilized when mobile or handheld meter reading will be the primary method of collecting the SCM+ or datalogging reads
  - The SCM+ will bubble-up in this mode every 10 seconds at standard power optimized for mobile read rate performance
  - The battery life for this mode is 20 years
- Fixed Network (FN) Mode
  - This mode is to be utilized when fixed network will be the method of meter data collection
  - A high power Network Interval Message (NIM) will be transmitted every 6 minutes with a contingency SCM+ message transmitted every minute at standard power
  - FN mode can be programmed at the factory, during installation with an approved handheld device or through mobile application after initial installation and programming
  - The battery life for this mode is 20 years

Programmable Mode Options (cont.)

- Hard-to-Read Mobile/Handheld Mode
  - This mode should only be used when communication modules are installed in difficult to read locations where standard mobile mode is not sufficient for satisfactory reading performance
  - This mode will bubble-up an SCM+ at 30 seconds with high power output to optimize performance of these unique applications
  - The battery life of this mode is greater than 10 years
- High Power Mobile Mode
  - This mode should be used when communication modules are installed in difficult to read environments and where standard mobile mode is not sufficient for satisfactory reading performance
  - This mode will bubble-up and SCM at 60 seconds with a higher power output to optimize performance of these unique applications
  - Battery life for this mode is 20 years

100W+ & 100WP+ Pit Dimensions

- Height: 4.5 inches
- Maximum diameter:
  - Lower: 3.90 inches
  - Upper: Approx. 1.70 inches
- Weight: Approx. 9.6 oz.
- In-line connector register cables: 5 feet and 25 feet (ordered separately)
- Pit models can be installed up to 300 feet from meter

100W-R+ & 100WP-R+ Remote Dimensions

- Height: 4.5 inches
- Width: 5.05 inches
- Depth: 1.47 inches
- Weight: Approx. 9.6 oz.
- Module cable length 10 inches
- Remote models can be installed up to 300 ft from meter

Mounting Options

The 100W+ and 100WP+ models have a compact housing and features specifically designed for water pit mounting options

- Direct-mount for for Badger or Mueller meters
- Rod-mount on a ½ inch diameter fiberglass or other non-metallic rods
- Shelf-mount for pit lid manufactures that contain recessed cavity on the underside of the pit lid
- Through-the-lid mounting with a pre-drilled 1.75 inch hole and up to 2.5-inch maximum lid thickness
- Direct-mount to any flat surface with screw kit

The 100W-R+ and 100WP-R+ models are designed for remote mounting applications

- Wall-mount for installation to the side of residence or building using screw kit
- Pipe-mount for installation on pipe sizes from ¾ inch up to 4 inch
- Direct-mount for Badger meters

Itron

Itron is a global technology company. We build solutions that help utilities measure, monitor and manage energy and water. Our broad product portfolio includes electricity, gas, water and thermal energy measurement and control technology; communications systems; software; and professional services. With thousands of employees supporting nearly 8,000 utilities in more than 100 countries, Itron empowers utilities to responsibly and efficiently manage energy and water resources.

Join us in creating a more resourceful world; start here: **www.itron.com**

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