



X231 LTE-M CELLULAR AMI ENDPOINT

The SET LTE-M X231 endpoint is an innovative two-way radio that operates over existing cellular networks, providing water utilities with remote meter reading, sensor data, multiple read and transmit configuration options, and access to valuable data system analytics.

Meter Neutral Endpoints

SET endpoints are the only AMI solution compatible with multiple meter brands, and can be wired to any encoded output register. With the SET solution, utilities can have multiple meter brands reporting in a single system as SET fully accommodates retrofit and new installation.

Advanced Software

SET software can host data from most existing systems during a system changeover so a utility can have a single view of data. This feature is especially helpful during a multi-year project. SET software also features advanced functionality, user configurable alarms, alerts, and the ability to change setting remotely.

Installation and Setup

Once a SET endpoint is connected to your water meter, valve, or sensor, the installer will utilize the included SET Field Mobile Application (accessible from any smart device with internet and Bluetooth capability - no proprietary handheld device necessary.) Via the mobile app, the installer can activate the cellular, log photos of the final installation, enter notes, assign utility premise/location ID, enter initial meter reading, final meter reading if replacing an existing meter, the old and new meter IDs, and immediately confirm cellular signal strength before leaving the site. In addition to the included SET Field Mobile Application, a Field Installation Guide is also provided with best practices for field installation and configuration.

Cellular Benefits

The X231 cellular endpoint operates on existing cellular networks to provide two-way LTE-M connectivity. Negating the need for the construction and maintenance of proprietary networks (no DCU's needed), the SET solution requires no ongoing maintenance by the utility. The telecoms' multi-billion dollar investment into maintenance and disaster recovery resources are automatically leveraged and become an extension of the utility's resources.

ENDPOINT FEATURES

-  **Location Versatility:** The X231 endpoint can be installed in meter pits, through meter lids, attached to walls, or any environment where cellular signal is available.
-  **Meter Connection:** Three-wire connector (i.e. standard Nicor or Itron) or open wire leads for gel-cap or other preferred connection options.
-  **Installer can confirm cellular connectivity** via the included SET Field Mobile App.
-  **Durability:** The X231 is engineered to withstand traffic, extreme weather conditions and to continue operation even if submerged in water for extended periods during flood events.
-  **Locking nut:** Included
-  **Bluetooth 5.0 connectivity** also included in endpoints

TECHNICAL SPECIFICATIONS

Communication Type	Two-way LTE-M Cellular and Bluetooth 5.0 included standard on every endpoint.
Reading Interval	All endpoints are remotely configurable from the SET software and can be programmed to secure reads from the meter in intervals ranging from 1 - 60 minute(s). Default configuration is 1 read at the top of each hour.
Transmit Interval	Endpoint transmission frequency can be programmed in ranges from every 2 minutes (for testing purposes) to once every 48 hours. The transmit interval will contain all meter readings based upon the selected reading interval. Default configuration is 1 daily transmission.
Theft or Cut Wire Detector	If wire is cut an alarm will be sent to the SET software to notify operations staff.
Firmware Updates	Firmware updates are performed over the air (OTA) by the SET team and require no action on the part of the utility. Firmware updates are included with the standard purchase of endpoints with no additional fees.
Leak Detection	Endpoints can detect leaks via configurable thresholds in the SET software.
Reverse / Zero Flow Detection	Reverse and zero flow is detected on all endpoints connected to an encoded output meter. Where register values reverse or are zero, flags are transmitted via status output from the meter.
Synchronized Readings	All endpoints include synchronized meter reading at the top of each hour
Battery Monitor	Remaining battery life is expressed as a percentage of total remaining battery life within the SET software.
Data Logging	Endpoints store 30 days of hourly meter reads with a first in/first out data management strategy.
Data Security	Endpoint data is encrypted during transmission using AES 256.
Dimensions	4.3 in. (H), 4.5 in. top diameter, 1.6 in. bottom diameter
Construction	Constructed with high-density polycarbonate enclosure and a fully encapsulated epoxy resin to ensure the battery and all internal electronics are protected against moisture and vibration. Withstands extreme weather conditions, including water submersion.
Battery	Non-replaceable D-Cell lithium thionyl chloride
Operating Temperature	-20° to 60° C / -40° to 140° F

All SET Endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license required by the utility to operate SET devices.

Smart Earth Technologies - The Future of Water Utility Management
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