



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, and multiple read and transmit options. Negating the need for the construction and maintenance of proprietary networks (no Data Collection Unit's (DCU) needed), SET X231 Endpoints require no ongoing maintenance and offer excellent signal range in rural areas, or where cellular coverage is limited or obstructed.

Network Providers

The X231 cellular Endpoints operate on existing cellular networks, and standardly include three connection pathways. Two-Way LTE-M cellular, WiFi, and Bluetooth 5.0.

Operation

The X231 Endpoint can be wired to an encoded output water meter, pulse meter, or sensor, capturing any readings and status information available from the meter or sensor. The Endpoint transmits data at various intervals, all of which can be remotely programmed from the SET cloud-based meter data management platform.

Installation and Setup

SET Endpoints are shipped with the cellular radio powered Off and with the installed Bluetooth radio powered On. Once the 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.

Meter Neutral Endpoints

SET Endpoints are compatible with almost every meter brand as part of a new meter installation or a retrofit to existing meters. When combined with the SET Meter Data Management System (MDMS), data from an existing system and the Endpoints can typically be reported in a single view.

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.
- The installer can determine cellular availability using the SET Field Mobile Application.
- SET Endpoints operate on a D cell battery.
- The high-density polycarbonate enclosure construction uses a fully encapsulated epoxy resin to ensure the battery and all internal electronics are protected against moisture and vibration.
- **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

TECHNICAL SPECIFICATIONS

Communication Type	Standard includes Low Power Wide Area Network (LPWAN) two-way LTE-M Cellular, WiFi, and Bluetooth 5.0.		
Compatibility	Meter brand neutral. Transmits data from almost any encoded register.		
Reading Interval	All Endpoints are remotely configurable and can be programmed to report in intervals from 2 minutes to 48 hours. Default configuration is 1 time per 24 hour period.		
Transmit Interval	Endpoints can transmit as frequently as every 5 minutes, up to once monthly. The transmit interval will contain all readings based upon the selected reading interval. Note: Battery warranty can be affected by choosing transmit intervals more than once daily on a regular basis.		
Theft or Cut Wire Detector	If wire is cut an alarm will be sent to the SET Meter Data Management System to notify operations staff.		
Firmware Updates	All Endpoints are updated over the air (OTA) from the SET MDMS. Firmware updates are performed by the SET team and require no action on the part of the utility.		
Leak Detection	Endpoints can detect leaks by setting configurable thresholds directly from the SET Meter Data Management System.		
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 Meter Data Management System.		
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, approximately .6 lbs.		
Operating Temperature	-20° to 60° C / -40° to 140° F, capable of operating in 100% humidity.		
Environmental Tolerance	IP68 compliant (dust-resistant and submersible to 1.5 meters of water for an indefinite amount of time), high-density polycarbonate enclosure construction. Electronics and battery are coated. Potting with epoxy resin and sealing of enclosure.		
Battery	D-Cell lithium thionyl chloride		
LTE Cellular Network Providers	US Territories - AT&T/T-Mobile	Bahamas – Aliv / BTC Providenciales – Digicel	Mexico – Claro UAE - Orange

License Requirements: All SET Endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license is required by the utility to operate the SET Endpoints or management system.

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