

Advanced Metering Infrastructure – Open Communication Protocol

Product Specification

A. GENERAL

The manufacturer will supply the endpoint, collector/gateway, all software including the Meter Data Management, Consumer Portal, Installation Software and provide customer and technical support. The endpoint is separate from the meter and can be installed through the standard touch read pit hole in meter lids.

The AMI System must be available from a local authorized distributor trained by the manufacturer, able to provide warranty service and product support. The local distributor must inventory product to meet the current and future needs of the utility.

The AMI System must be based on the LoRa Alliance (LoRaWAN®) Public Network (<https://loralliance.org/>). No part of the AMI/WAN can be proprietary, private or an enterprise solution. The AMI LoRaWAN solution must be able to advance to Smart City and IoT without additional equipment or 3rd party agreements. No secondary proprietary radio or communication is allowed. The system must be able to operate in either drive-by radio mode and/or fixed network with the same endpoint. Drive-by mode must be able to be used for disaster recovery in case the network is interrupted or fails for whatever reason.

The entire AMI/WAN LoRa system including the endpoint and gateway/collector system is LoRaWAN Public Network. The network must work with any LoRaWAN Alliance compliant component, which can be added to, or replace any part of the system.

B. ENDPOINT

The LoRa endpoint must have the following:

1. LoRaWAN Alliance compliant
2. Ability to work with any LoRaWAN Alliance public network.
3. The endpoint must be separate from the meter and have the ability to be mounted through a meter pit lid or mounted inside a vault.
4. The endpoint must operate in both Drive-by or Fixed Network mode.
5. The endpoint must be shipped in off mode. Wake-up is by magnet swipe at installation.
6. Report hourly reads and data every hour to the Meter Data Management software (MDMA)
7. Two-way communication from endpoint to MDM.
8. The endpoint stores a minimum of 90 days of hourly data
9. Alarms and/or alerts based on 15-minute intervals
10. Ability to accept and report all data (extended protocol) from meter
11. Supports alert protocols from the meter
12. Immediate alarm notification, selectable by the utility
13. The endpoint must allow "Over the Air" updates from the LoRaWAN Server initiated from the MDM software to configure reading intervals, alarms, firmware updates, etc.
14. Nicor Connector or wired end

15. The endpoint must be IP68 rated
16. 20-year battery life

C. DATA COLLECTOR/GATEWAY

1. LoRaWAN Alliance public network
2. Must accept LoRaWAN Alliance public network third party sensors and meters
3. In-door or out-door installation
4. LoRa WAN must allow "Over the Air" updates to configure endpoints or sensors
5. Solar compatible
6. Cellular Cat M backhaul communication option
7. Ethernet connection backhaul option

D. DISASTER RECOVERY

In the event the LoRa WAN network becomes unavailable for an extended amount of time the system must revert to drive-by

1. After a specific time of not communicating with a collector/gateway, the endpoint automatically begins broadcasting in drive-by mode
2. When available the endpoint reconnects with the network without prompting

E. METER DATA MANAGEMENT SOFTWARE (MDM)

The Meter Data Management Software, at a minimum, must have the following

1. Cloud based application running on either Amazon Web Services, Microsoft AZURE or Google Cloud Platform.
2. Accessed via desktop, laptop, and mobile device
3. AES 128-bit encryption
4. ID and password protected
5. Operator defined dashboard
6. Provide multiple levels of permissions from administrator level to view only, definable by utility
7. Mapping that includes entire utility service area, device location, alarms, etc.
8. Provide advanced data analytics, comparisons, graphing and reports
9. Must be able to accept meter extended protocols
10. Grouping of devices for billing or reporting.
11. Utility defined tagging of individual or group of meters
12. Errors, alarms, and overall system health
13. Manage Schedule management
14. Flat file integration to utility billing system

F. CONSUMER PORTAL

The Consumer Portal shall:

1. Cloud based application running on either Amazon Web Services, Microsoft AZURE or Google Cloud Platform.
2. Accessed via desktop, laptop, and mobile device.
3. ID and password protected.
4. Must have the ability for the utility customer to pay from the site or directed to another site for payment
5. The portal must be able to show hourly, daily, weekly, monthly, and annual usage.

6. The portal must show average monthly consumption.
7. The utility must have the ability to choose alarms/alerts to send to consumers such as consumer leak, freeze warning, vacation usage alarm, etc.
8. Alert management and subscription via Email & SMS.

G. INSTALLATION SOFTWARE

The installation software may be provided by the AMI manufacturer and include the following

1. The installation application must operate on both Windows and Android platforms
2. All pertinent account information such as account number, address, must be capable of pre-loaded in the installation application.
3. Record old meter reading for billing confirmation.
4. Capture and record GPS location and associated with the account on the MDM.

H. UTILITY BILLING SOFTWARE

Manufacturer must provide flat file integration from the MDM to the utilities billing software