

LoRaWAN[®] Certified Systems
Frequently Asked Questions





Freedom To Choose

What is a Zenner LoRaWAN® Certified System?

A Zenner LoRaWAN® (Long Range Wide Area Network) Certified System is an open network system that connects end devices (such as Zenner sensors and other IoT (Internet of Things) devices) to a private LNS (LoRaWAN® Network Server). LoRaWAN® is an open protocol network technology designed for city and rural wide areas. For Zenner, LoRaWAN® provides an additional ability for long-range communication for water, gas and electric utility devices.

The Zenner LoRaWAN® Certified System provides long-range communication, which means less infrastructure to place and maintain throughout the life of the system. Its hub and spoke methodology allows for redundancy, making sure critical data reaches the utility in times of need.

General Questions

What are the key benefits of a Zenner LoRaWAN® Certified System for a Smart Utility AMI (Advanced Metering Infrastructure)?

- **LONG-RANGE COMMUNICATION:** A single gateway (internet-based data traffic stream) can cover up to 10 - 12 miles in distance based on topology (the structure of a network) and can connect to multiple endpoints. The topology of a Zenner LoRaWAN® Certified System reduces the number of gateways required, which reduces the cost of physical and organizational supplies needed.
- **LOW-POWER, COST EFFECTIVE CONSUMPTION:** Zenner LoRaWAN® Certified Systems use low-power, narrow-band patented technology that enables LoRaWAN® certified devices to operate on battery power for 10 to 20 years without the need for continuous battery replacements, depending on the usage. In addition, Zenner certified devices have replaceable batteries. This reduces the cost and effort required for maintenance and operation.
- **SCALABILITY:** LoRaWAN® is a continuously growing technology that can support millions of devices. This makes it suitable for large-scale Zenner LoRaWAN® certified AMI deployments. Zenner currently supports more than 9 million endpoints and 25,000 gateways using the LoRaWAN® network, and this number grows daily.

- **ROBUST AND SECURE COMMUNICATION:** LoRaWAN® uses advanced security features, such as end-to-end advanced encryption and authentication, to ensure that the communication between Zenner LoRaWAN® certified devices and gateways are secure and tamper-proof. The system uses these security protocols to forward the endpoint data through either a Cellular or Ethernet backhaul, that is dynamically selected by the system. This typically consists of a radio transceiver that sends and receives secure data up to 1.5 million messages a day from a single gateway.
- **INTEGRATION:** LoRaWAN®'s open protocol capability supports multiple vendors and business models. It can be implemented as NaaS (Network as a Service) or PaaS (Platform as a Service) depending on the customer needs. A utility can control thousands of devices within one infrastructure without being locked into one proprietary vendor.

Are there recurring subscription fees involved with the Zenner LoRaWAN® Certified Systems?

Yes. If the gateway is used in a hosted network that is owned and operated by an organization, the organization's fee structure will apply. In a private network, subscription fees are much less than in a public or hosted network.

Equipment Questions

Which locations are suitable for a Zenner LoRaWAN® Certified System?

- COVERAGE AREA: The location selected should provide the desired coverage area for the network. However, the range of the gateway depends on the antenna type, power output, terrain, and other related elements. For example, a typical LoRaWAN® gateway can have a reception range of up to 10 to 12 miles in an open terrain area with clear line of sight between endpoints and collector devices. However, in urban or mountainous areas with rougher terrain obstacles and interference, reception range can be significantly reduced.

- POWER AND NETWORK CONNECTIVITY: The location should have access to a stable power source and reliable backhaul connectivity to ensure continuous operation of the gateway.

- ENVIRONMENTAL CONDITIONS: Considered locations should be able to provide suitable environmental conditions to protect the gateway and device from harsh weather conditions. Zenner devices are IP67 and IP68 compatible.

- PHYSICAL LOCATION PLACEMENT: Suitable on-site locations can include rooftops, towers, streetlights and utility poles. It is important to consult the local government regulations and obtain necessary permits before deploying a Zenner LoRaWAN® Certified System in any location or area.

Are the Zenner LoRaWAN® Certified Systems protected against electrical surges such as lightning?

Yes. All Zenner LoRaWAN® Certified System devices are protected with proper power surge protection.

What type of power is required for a Zenner LoRaWAN® Certified System?

The type of power required for a Zenner LoRaWAN® Certified System can vary depending on the specific device used. Generally, it requires an AC (Alternating Current) power, DC (Direct Current) power, PoE (Power over Ethernet), or solar source that can provide a stable and reliable supply of electricity.

Prior to installation of a Zenner LoRaWAN® Certified AMI, what activities are required of the utility?

It is recommended that Zenner start with a propagation study (or electromagnetic wave analysis) of your area to better understand your topology (physical arrangement of devices) and specific mechanical and environmental needs. Prior to analysis, Zenner would require the list of customer addresses, utility assets (power connections, poles, etc.) on an Excel spreadsheet.

System Questions

Could Zenner LoRaWAN® Certified Systems be combined with other AMI technologies already in place by utilities?

Yes. All Zenner LoRaWAN® Certified Systems can operate in conjunction with all Zenner Cellular and Mesh systems and endpoints. This makes combining information into one utility facing portal much easier.

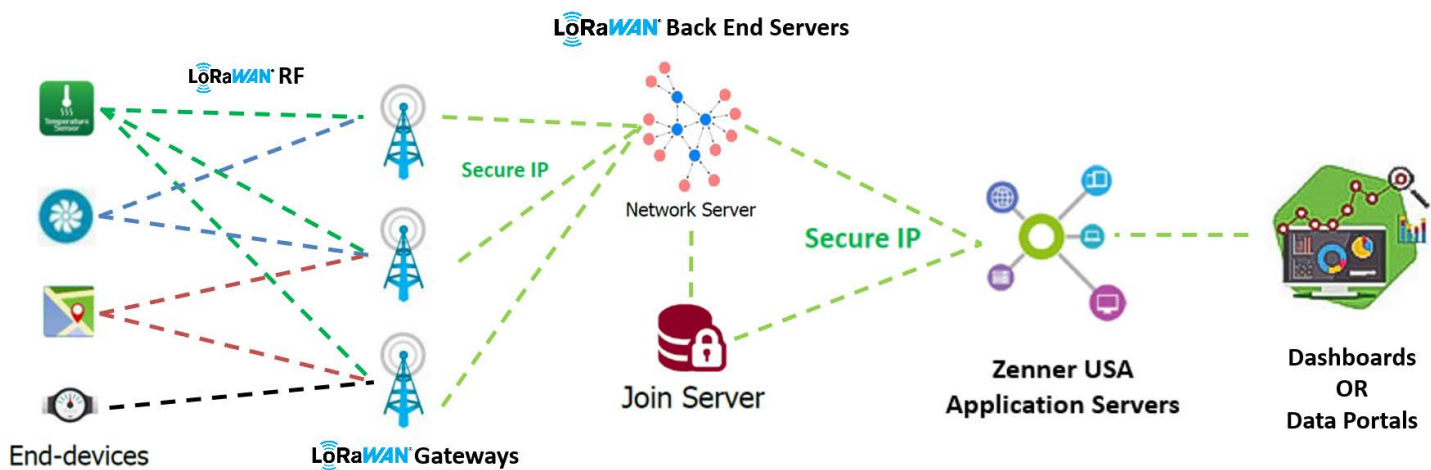
What are the backhaul options that are available for a Zenner LoRaWAN® Certified System?

Backhaul options include Cellular and Ethernet (a standard communications protocol). A Zenner LoRaWAN® Certified System gateway will automatically select the appropriate backhaul option, or both for redundancy if Cellular and Ethernet collectively are installed.

Does the LoRaWAN® Network comply with current FCC (Federal Communications Commission) and IC (Industry Canada) requirements, which include proper labeling of any system components?

Yes. All Zenner devices and LoRaWAN® Network standards comply with FCC and IC requirements. All devices are labeled as per regulatory requirements.

LoRaWAN® Network Architecture





ZENNER

Future-Ready Metering, Connectivity, Smart Data and Systems

**Choose the Best
Metering Technology**
water, gas, electric

**Choose Your Proven
Connectivity Option**

**Choose the Best
Secure Network:
Open or Closed**



**Residential
Ultrasonic**
Field Replaceable Battery
1/2" - 2"

LoRaWAN®

**Ground-Based
Mesh**

Cellular

**Combine or Use Stand-Alone
with All Three Technologies**



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