

GW-001 (-NA) Series



Long Range Gateway with Cloud Connectivity

- Free Layer N Standard Cloud service accessible from any connected device¹
- Enterprise Mode for non-Internet local-area network environments
- Easy one-button pairing with Smart Sensor
- Transmits up to 3.2 km²
- AES-256 Encrypted wireless link keeps your data secure
- Wireless Gateways can connect up to 100 Smart Sensors³ per unit.

GW-001: Introduction

GW-001 Series gateways are designed for long range performance and ease of use. They aggregate data from all connected sensors and transmit it to the Layer N Cloud or Omega Enterprise Gateway where it can be securely accessed from your PC, tablet or phone.

Long Range

The Wireless Gateways utilize Sub GHz Frequency Hopping Spread Spectrum (FHSS) technology to ensure robust, long range communications to Layer N Smart Sensors. Transmission ranges of up to 1.2 km can be achieved when the sensor is powered with the standard AA batteries, and transmission ranges of up to 3.2 km can be achieved with a Smart Sensor in range boost mode powered by an external 12 V DC power supply.²

One-Button Pairing

The Layer N Gateway is easily paired to Layer N Smart Sensors with the press of a button and will automatically show up on your Layer N Cloud account. Local data logging for your Smart Sensor devices keeps your data secure in the event of a power or network outage. Reports, History, and E-mail alerts from the Layer N Cloud keep you informed on the status of all your vital processes.

Security

Layer N wireless products are designed with state of the art security features to protect your data with robust AES-256 encryption and advanced PKA-EC521bit (NIST) elliptic-curve cryptography to protect your data. The gateway features a Trusted Platform Module secure hardware element which protects the safety of all encryption keys and uses X.509 device certificates for secure communication between the gateway and the Layer N Cloud.

Wireless Standard: GW-001-2

This high performance wireless gateway seamlessly connects to up to 100 long range Layer N Smart Sensor devices.

Ethernet connectivity ensures fast, easy connection to the Layer N Cloud. Local access is also available through the built-in web server.

Wireless Pro: GW-001-3

The Wireless Pro adds both Modbus TCP and RTU RS232/RS485 device support and two USB ports to enable local smart probe connections. It also features power over Ethernet (POE) which enables the gateway to be remotely powered.



Interfaces available vary with model

Wired Standard: GW-001-0

This version is designed specifically for wired applications. It features standard Ethernet connectivity to the Cloud, plus both Modbus RTU RS232/RS485 and Modbus TCP connectivity suitable for a wide range of wired applications.

Specifications

Wireless Communication

Frequency*: 915 MHz

Range:** Up to 3.2 km

**Wireless communication is only available on qualifying variants*

***Maximum range possible when Smart Sensor is powered by USB and without obstruction*

Power

AC Adapter: DC 12 V @ 2A

Power over Ethernet*: IEEE 802.3at compatible Type 1 Class 3

**PoE only available on Wireless Pro variant*

Interface*

RJ45: 2x ports

USB: 2x USB 2.0

DC Jack: DC 12 V power input

Serial Port: RS232/RS485

Alarm: SSR 36 V DC 100 mA

Antenna: One Antenna for Sub-1G

**Interfaces available vary according to model purchased*

1. Visit <https://omega.com/en-us/layer-n-cloud> for subscription options. Total number of sensors that can connect to Layer N Cloud varies with subscription tier.
2. Clear line of sight. Actual range may vary depending on environment and sensor type.
3. 100 sensors are supported at typical update intervals, on the order of 60 minutes, higher data rates or adverse environmental conditions may diminish the number of sensors supported.

Mechanical

Dimensions: 170 mm L x 100 mm W x 42 mm H (6.69" x 3.93" x 1.65")

General

Max number of Smart Sensors: Up to 100
Smart Sensors can connect to a wireless gateway unit

Environmental

Rating: IP-40

Operating Temperature: -20°C to 65°C, non-condensing

Certifications

Safety:

EN 62368-1:2014 +A11:2017 (Second Edition)

EMC:

EN 301 489-1 V2.2.3 (2019-11)

Radio:

EN 300 220-2 V3.1.1 (2017-02)

Variants

Model Number	Description
GW-001-0	Wired IIoT Gateway Standard, Ethernet connectivity, Modbus RTU RS232/RS485 and Modbus TCP
GW-001-2-NA	Wireless IIoT Gateway Standard, Ethernet connectivity, connects up to 100 Layer N Smart Sensors- 915 MHz
GW-001-3-NA	Wireless IIoT Gateway Pro, Ethernet connectivity, power over Ethernet, connects up to 100 Layer N Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 2x USB ports- 915 MHz

Smart Sensors

The Layer N ecosystem supports a variety of Smart Sensors. Up to 100 Smart Sensors can connect to a GW-001 unit. We currently offer the following options.

Model Number	Description
SS-001-1-NA	Temperature and Humidity Smart Sensor - 915 MHz
SS-001-3-NA	Temperature, Humidity, Barometric Pressure, Light Smart Sensor - 915 MHz
SS-002-0-NA	External Thermocouple, RTD, or DIN (Contact Closure) Smart Sensor - 915 MHz
SS-002-1-NA	Configurable mix of 3 of the 4 internal sensors: Temperature, Humidity, Barometric Pressure, Ambient Light AND one external sensor: Thermocouple, RTD, or DIN (Contact Closure) Smart Sensor - 915 MHz
SS-015-NA	Wireless Sub-GHz Process and Digital Pulse Smart Sensor

Layer N Smart Interface

Layer N Smart Probe devices require a Layer N Smart Interface to operate and connect to your Layer N Ecosystem. There are both wired and wireless options.

Model Number	Description
IF-001	USB Smart Interface
IF-002	RS485/Modbus Smart Interface
IF-006-1-NA	Sub GHz Wireless Interface

Layer N Smart Probes

Compatible Layer N Smart Probes are integrated with an advanced suite of IIoT Smart Core features. These features enable plug and play connectivity, alarms and notifications, data assurance, data logging, and storage.

Model Number	Description
SP-001 Series	Smart Probe IR, 6:1 field of view, with discrete I/O
SP-002 Series	Smart Probe IR, 10:1 field of view with discrete I/O
SP-003 Series	Temperature, Humidity, Barometric Pressure, Dewpoint, Humidex, and Heat Index Smart Probe with discrete I/O - Tube Housing
SP-004 Series	Temperature, Humidity, Dewpoint, Humidex, and Heat Index with discrete I/O - Tube housing or Bulkhead housing, 5" variant also available
SP-005 Series	Temperature and RTD Smart Probe with discrete I/O
SP-006 Series	Pressure Monitoring and Control Smart Probe with discrete I/O
SP-010 Series	Load Cell Smart Probe with discrete I/O
SP-013 Series	Digital Interface Smart Probe with discrete I/O
SP-014 Series	Process Monitoring Smart Probe with discrete I/O
SP-016 Series	Heat Flux Smart Probe with discrete I/O

Your Data at a Glance with the Layer N Cloud

The Layer N Cloud consolidates and brings your data to you when you need it, wherever you are. The intuitive cloud interface allows you to monitor and store your data, set alarms and alerts, and provides insights on device activity. Visit the OMEGA website for more details.

