SS-002 (-NA) Series

OMEGA™

Wireless TC and RTD Smart Sensor with Cloud Connectivity

- **SS-002: Configurable sensor mix of Temperature, Humidity, Barometric Pressure, Light sensor, Thermocouple, RTD, or Contact Closure**
- **Free Layer N Standard Cloud service accessible from any connected device[1]**
- **Easy setup with one-button pairing**
- **Transmits up to 1.2 km with standard AA batteries[2]**
- **Transmits up to 3.2 km when powered with USB[2]**
- **AES-256 Encrypted wireless link keeps your data secure**
- **Local data logging up to 10,649 data points[3]**

Probe sold separately

Introduction: SS-002

Layer N SS-002 Smart Sensors provide an external 3-wire RTD, thermocouple, or contact closure solution in addition to the built in suite of precision internal sensing elements that come standard with the SS-002 to accurately measure environmental conditions for a wide range of applications.

The SS-002-0 offers a configurable choice of an external thermocouple, RTD, or DIN (contact closure).

The SS-002-1 offers a configurable mix of any three of the four internal sensors: Temperature, Humidity, Barometric Pressure, Ambient Light, **AND** one external sensor option: Thermocouple, RTD, or DIN (contact closure).

Intuitive Configuration

Configure your Layer N Smart Sensor using our free SYNC configuration software. Configurable features include selective data extraction, measurement and device traceability, local alarms, and adaptive transmission rates to reduce data congestion and extend battery life.

Long Range

The SS-002 utilizes Sub GHz Frequency Hopping Spread Spectrum (FHSS) technology to ensure robust, long range communications. Transmission ranges of up to 1.2 km can be achieved with the standard AA batteries and transmission ranges of up to 3.2 km can be achieved when powered by a standard 5 V USB[2].
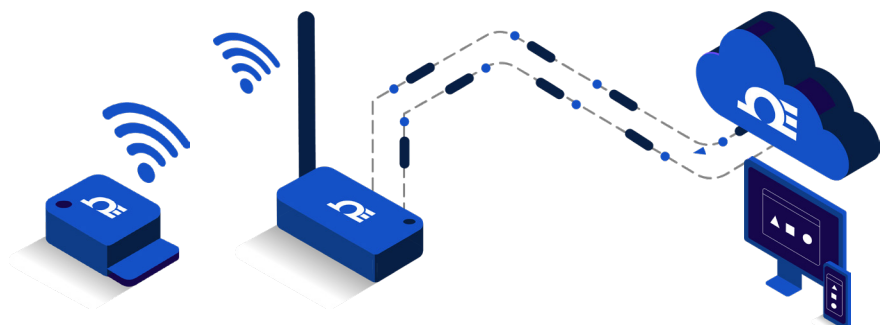
Security and Access Control

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. Password protection ensures that access to device data is restricted and only accessible by authorized users. Device Authentication ensures that Layer N Smart probes connect to validated Omega devices.

One-Button Pairing

The SS-002 is easily paired to the Layer N Gateway with the press of a button and will automatically show up on your Layer N Cloud account. The Layer N Gateway can connect up to 100 Smart Sensors[4] per unit. Local data logging 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.

How Do Layer N Smart Sensors Work?

Smart Sensor
Sense, store, and process real-time data with superior wireless connectivity to the Gateway.

Gateway
Collect and securely transport data from the sensor layer to the Cloud.

Cloud & Mobile Access
Continuously collects and processes sensor data providing real-time reporting and analytics anytime, anywhere with an Internet Connection.

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Specifications

Wireless Communication
Frequency: 915 MHz
Range: Up to 3.2 km*
When powered by USB, without obstruction

Power
Alkaline Battery: 2x AA batteries (included)
Lifetime: Up to 1.5 years with frequency of 1 reading per hour
USB Power*: 500mA @ 5V
Micro USB cable not included

Environmental
Operating Conditions for Base Unit
Battery Powered: -15ºC to 55ºC, non-condesning
USB Power: -20ºC to 65ºC, non-condensing
Rating: IP40

General
Software: Compatible with SYNC configuration software and Layer N Cloud

Certifications
Contains IC ID: 8205A-SS001XNA
Contains FCC ID: WR3SS001XNA

Thermocouple Types

Type	Range	Accuracy
J	-210ºC to 1200ºC	±1.0ºC
K	-160ºC to 1372ºC	±2.0ºC
T	-190ºC to 400ºC	±1.5ºC
E	-200ºC to 1000ºC	±1.0ºC
N	-100ºC to 1300ºC	±2.0ºC
R	140ºC to 1788ºC	±5.0ºC
S	200ºC to 1768ºC	±5.0ºC
B	640ºC to 1820ºC	±5.0ºC
C	0ºC to 2000ºC	±5.0ºC

RTD Types

Type	Ohm	Range	Accuracy
385, 3 Wire	100, 500, 1000	-200ºC to 850ºC	1.5ºC
392, 3 Wire	100	-200ºC to 660ºC	1.5ºC
3916, 3 Wire	100	-200ºC to 660ºC	1.5ºC

Smart Sensor Device

Measurement	Range	Accuracy
Temperature	-20ºC to 70ºC	±0.3ºC
Humidity @ 25ºC	0% to 80%	±2.5%
	80% to 100%	±3.5%
Barometric Pressure @ 25ºC	700mbar to 1100mbar	±4mbar
Barometric Pressure @ Full Range	300mbar to 1100mbar	±6mbar
Light	0-43691 illuminance	Relative level only

Wireless Sub GHz Smart Sensor

Model Number	Description
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

Layer N Wireless Gateways

A Layer N Wireless Gateway is *required* to connect your Smart Sensor to the Layer N Cloud.

Model Number	Description
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
GW-002-1-LTE	Wireless LTE IIoT Gateway Pro connects up to 40 Layer N Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 1x RJ45 port, 1x USB port - 915 MHz

1. Visit https://omega.com/en-us/cloud for subscription options. Total number of sensors that can connect to Layer N Cloud varies with subscription tier.
2. Actual range may vary depending on environment.
3. The number of data points available are on a per sensor basis. Local Data can be downloaded using downloadable SYNC configuration software.
4. 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.

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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.

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