OMEGA SS-002-NA Layer N Wireless TC and RTD Smart Sensor with Cloud Connectivity User Guide

OMEGA™

QUICK START

SS-002-NA
Layer N Wireless TC and RTD Smart Sensor with Cloud Connectivity

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Introduction

 **Important:** Do not power on the Gateway or Smart Sensor before Gateway registration is complete.
Use this Quick Start Guide to set up your Layer N SS-002 Smart Sensor.

Materials

Included with your Layer N SS-002

- Layer N SS-002 Unit
- Quick Start Guide
- 2x AA Alkaline Batteries
- Antenna

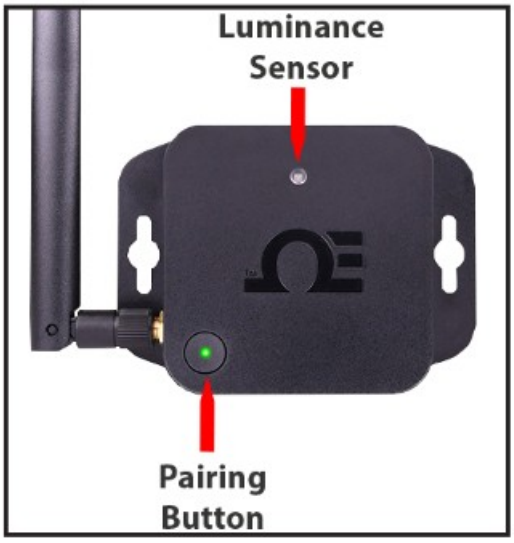
Additional Materials Needed

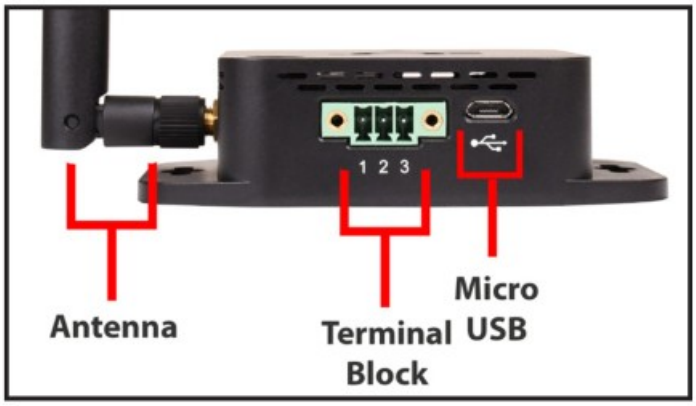
- Layer N Gateway
- Any device with web browser access
- A registered user account with cloud.omega.com
- Micro USB 2.0 cable
- SYNC Configuration software
  -Downloadable on the OMEGA website
- PC or Laptop with an open USB port running SYNC

Optional Materials

- External TC, RTD, or Contact Closure

Components of the Layer N SS-002





Note: The battery compartment is located on the underside of the sensor unit.

Before you Begin

Before you begin setting up your SS-002, ensure the following prerequisites are met:

- Navigate to cloud.omega.com on any device with a web browser and sign in to your account.
- Ensure your Layer N Gateway is powered on and connected to your registered Layer N Cloud user account.

Layer N Smart Sensor Setup

Step 1: Install the antenna to the side of the connector on the Smart Sensor.
Step 2: Connect your external thermocouple, RTD, or dry contact sensor if applicable.

External Sensor		**Pin 1**	**Pin 2**	**Pin 3**
Thermocouple		TC1 +	TC1 –	Not Used
RTD	2-Wire	Color 1	Color 2	Short Pin 1 & Pin 3
	3-Wire	Color 1	Color 2	Color 1
	4-Wire	Color 1	Color 2	Color 1
Dry Contact		Switch	Not Used	Common

Note: For RTD connections, Pin 3 is the excitation constant current source.
For 2-Wire RTD connections, a short copper wire is needed form Pin 1 to Pin 3.
For 4-Wire RTD connection, only connect one “Color 2” at Pin 2. The second Color 2 needs to be cut.

Step 3: Insert 2x AA batteries into the battery compartment.

Important: The battery polarity is marked inside the compartment. Promptly remove dead batteries to prevent loss of data and potential damage due to leaking batteries.

The **Pairing Button** of the Smart Sensor will power up to a solid orange LED light in the center of the pairing button indicating that the device has been successfully powered on.

Connecting to your Layer N Gateway

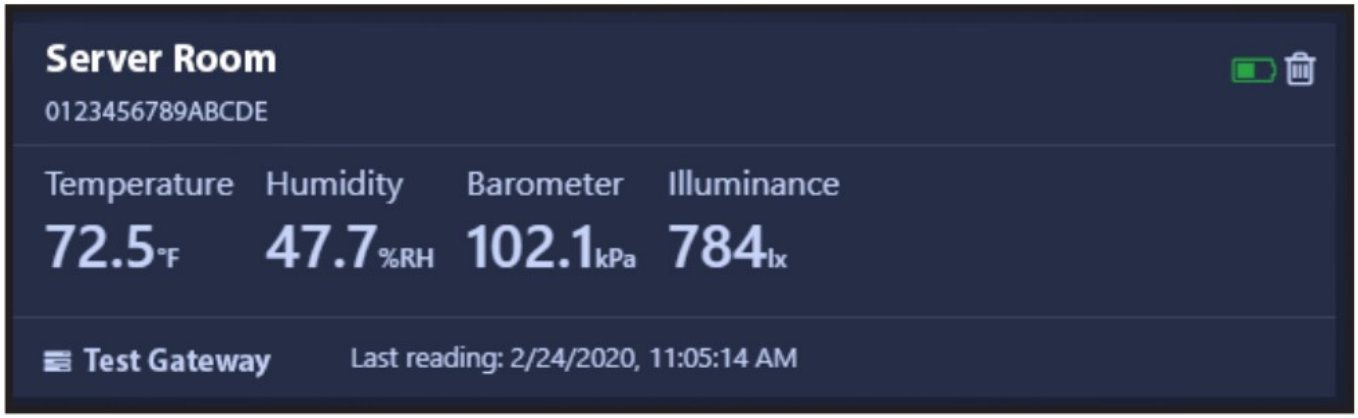
Once the **Pairing Button** displays a solid orange LED light in the center of the pairing button, your Smart Sensor is ready to be connected to a Layer N Gateway.
Step 1: Push the pairing button once and the LED will begin to flash green (for up to 2 minutes).
Step 2: Quickly push the pairing button on the Gateway once and its LED will also flash green.

When the Smart Sensor has been successfully paired to your Layer N Gateway, the green LEDs on both devices will stop flashing within 2 minutes. The Smart Sensor LED will flash green each time data is sent to the gateway. As measurements are transmitted, you will begin to see data appearing on the Layer N Cloud interface. The transmission interval can be adjusted from the Layer N Cloud interface.

Note: The number of measurements displayed depends on the type of sensor purchased and the frequency of measurement updates depends on your Layer N Cloud subscription level.

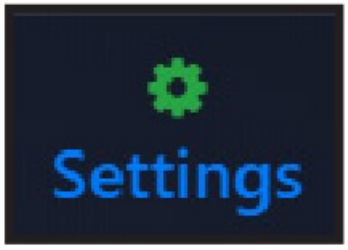
Layer N Cloud Interface

Once your smart sensor has successfully paired your gateway and smart sensor, your smart sensor will appear on the Layer N Cloud interface and begin transmitting data.

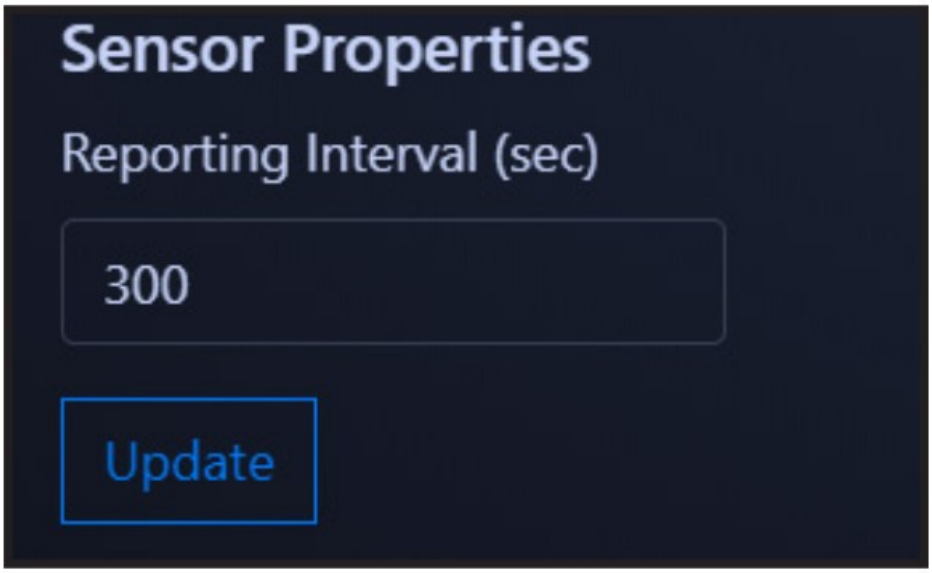


The transmission interval can also be adjusted from the Layer N Cloud interface.
Step 1: From your Layer N Cloud homepage, click on the Smart Sensor whose transmission interval you wish to adjust.

Step 2: Click the Settings icon.



Step 3: Adjust the Sensor Properties to fit your configuration needs.



Congratulations! You have successfully connected your Layer N Smart Sensor to your Layer N Ecosystem.
For additional information on the customizable features made available through the micro USB connector, continue to the sections titled Smart Sensor USB Connector and Advanced Configuration with SYNC.

Smart Sensor USB Connector

The SS-002 Series of Layer N Smart Sensors come standard with a micro USB 2.0 connector. The USB connector can be used to power the device to activate Range Boost mode and can be used to configure the device using SYNC configuration software.

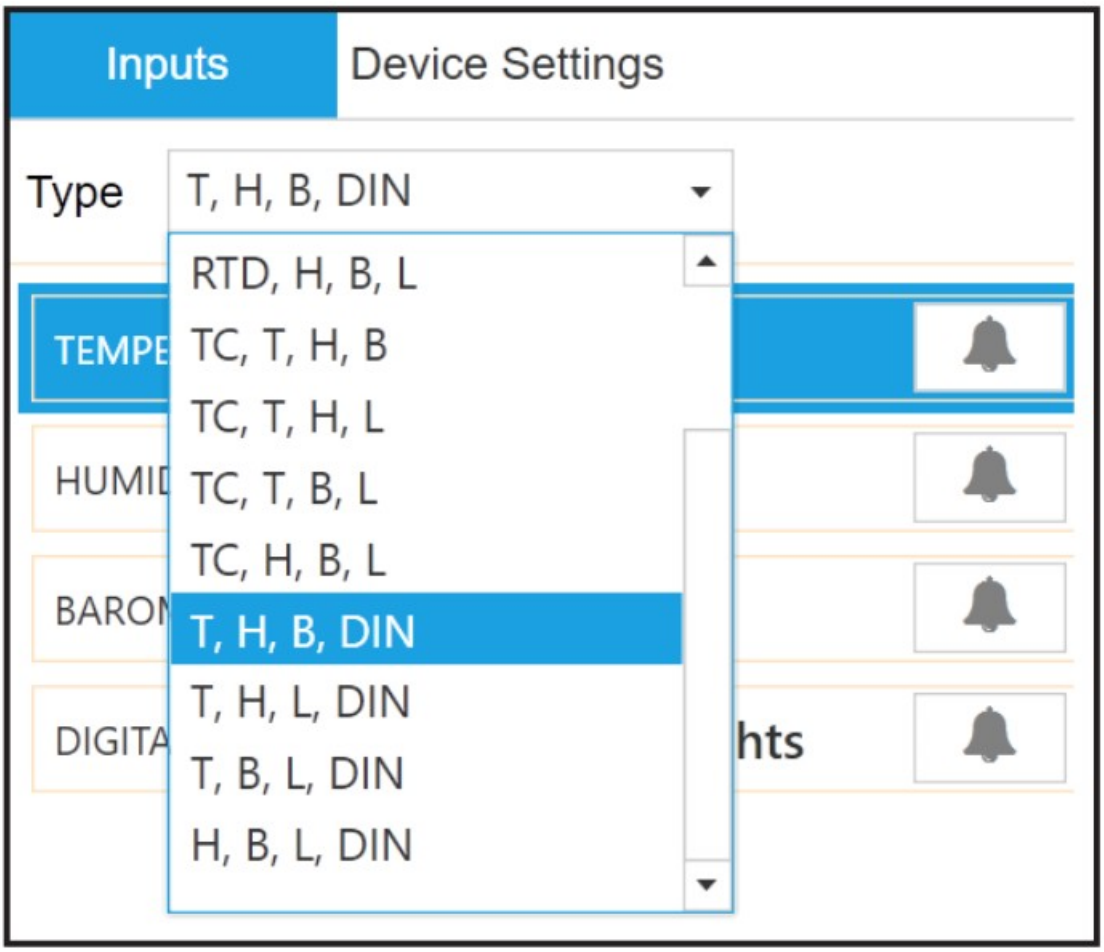
Range Boost Mode
When powering the device by USB for North American models, the Smart Sensor will also enter a Range Boost mode which will enhance the wireless range or coverage of the Smart Sensor up to 3.2 km*.

*Clear line of sight. Actual range may vary depending on environment.

Advanced Configuration with SYNC

Note: SYNC configuration software is downloadable on the OMEGA website. A micro USB 2.0 cable is required to configure the SS-002 through SYNC.

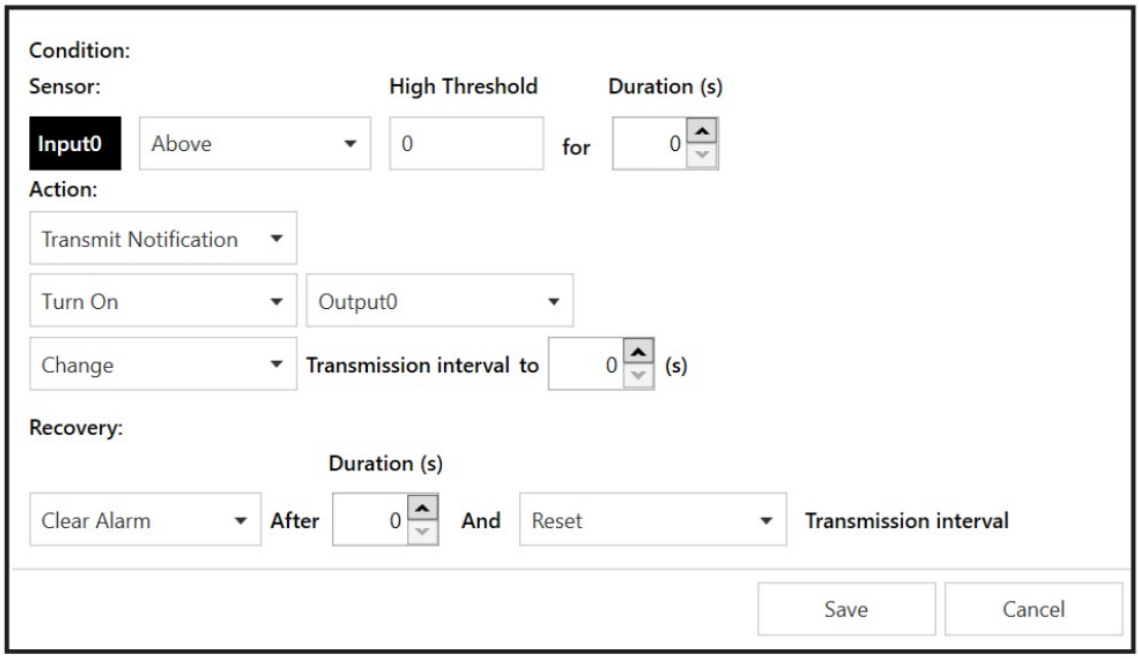
Sensor Mix Configuration
To configure the sensor mix in your SS-002, connect a micro USB 2.0 cable from your Smart Sensor device to your PC or laptop running SYNC configuration software.
Step 1: Once your device has been auto-detected by SYNC, click the Type dropdown in the Inputs interface.



The SS-002-0 offers a configurable choice of one 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).

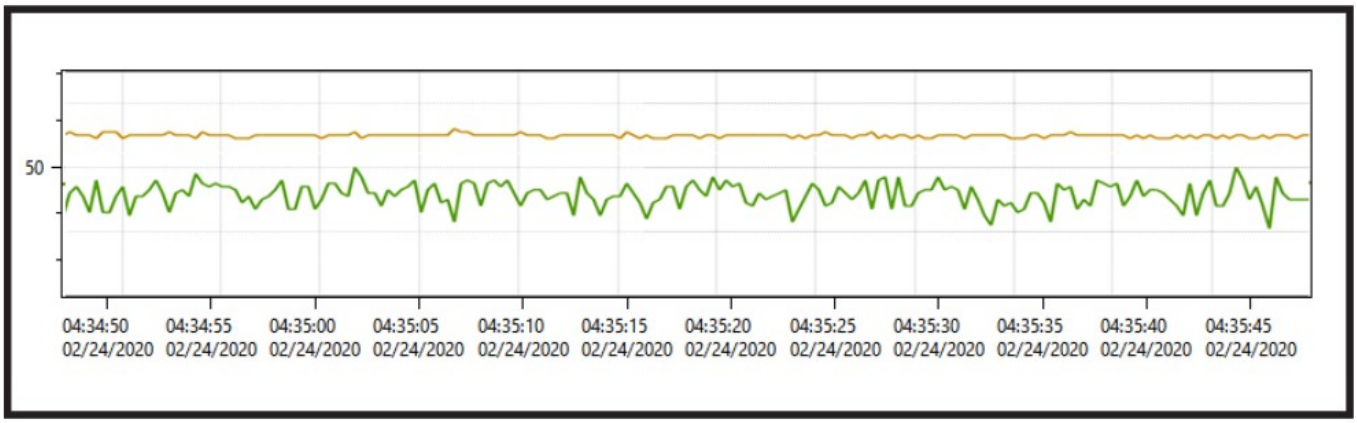
Setting Alarms
To configure the alarms in your SS-002, connect a micro USB 2.0 cable from your Smart Sensor to your PC or laptop running SYNC configuration software.

Step 1: Click the  icon next to the input you wish to set an alarm for.
Step 1: Set the parameters for your alarm and click Save.



Data Logging through SYNC
To access the local data log of your Smart Sensor using SYNC, connect a micro USB 2.0 cable from your Smart Sensor to your PC or laptop running SYNC configuration software.
Step 1: Click Capture Data to access SYNC's local data logging feature.

Once you are on the Capture Data interface of SYNC, SYNC will begin logging your sensor data.



 Clicking this icon will allow you to extract the data your sensor has accumulated and will present it to you in SYNC.

 Clicking this icon will allow you to save the real-time and logged data that SYNC is displaying for your

smart sensor and exports it as a .csv file.

For more information on the features available on SYNC, refer to the SYNC User's Manual on the OMEGA website.

FCC Statement

Contains FCC ID: WR3SS001XNA
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FOR MOBILE DEVICE USAGE (>20cm/low power)
Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Industry Canada Statement

Contains IC ID: 8205A-SS001XNA

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may
not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having

been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture, or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not imited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO THER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR URPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability, or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental, or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA: 1. Purchase Order number under which the product was PURCHASED, 2. Model and serial number of the product under warranty, and 3. Repair instructions and/or specific problems relative to the product.	FOR **NON-WARRANTY** REPAIRS consult OMEGA for current repair information available BEFORE cor 1. Purchase Order number to cove calibration, 2. Model and serial number of the 3. Repair instructions and/or speci

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering. OMEGA is a trademark of OMEGA ENGINEERING, INC.

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Documents / Resources

	**OMEGA SS-002-NA Layer N Wireless TC and RTD Smart Sensor with Cloud Connectivity** [pdf] User Guide SS-002-NA, Layer N Wireless TC and RTD Smart Sensor with Cloud Connectivity

References

- Omega Sensing
- Omega Engineering | Sensing, Monitoring and Control Solutions
- Global Presence | Omega Engineering