## Wired Pairing

A wired HANI™ Clamp Temperature Sensor connected directly to an Omega Link Gateway with an IF-001 cable or IF-002 will need to be added to the Gateway Internal User Interface. See the Omega Link Gateway User's Manual for more information.

The Connected Devices tab is the default page shown once the user has signed into the Gateway UI. From here, devices can be added to the Gateway to have them appear in a registered Omega Link Cloud or Omega Enterprise Gateway account.
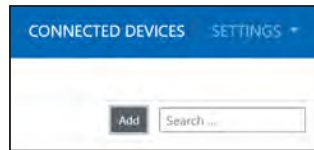
To add a device to a Gateway from the Gateway UI, begin by clicking the **Add** button at the top right of the web page and filling out the **Add Device** menu according to the parameters of the connected HANI™ Clamp Temperature Sensor.

Specifications

INPUT POWER

Voltage: 8 V$_{DC}$ - 28 V$_{DC}$ (loop powered)
Max Loop Resistance: R$_{MAX}$(Ω) = (V$_{SUPPLY}$ - 8V)/0.024 A

ANALOG OUTPUT

Current: 4-20 mA
User scalable analog output, default scaling 0-100°C

PROCESS PARAMETERS

Process Medium: Water, water-based fluids (others upon request)
Pipe Materials: Metal Pipes (others upon request)
Nominal Pipe Size:
Sanitary: 1", 2", 2.5", 3", 4"
Industrial: 1", 2", 2.5", 3", 4" *(others upon request)*
Process Temperature Range: -20 to 100°C liquid

⚠ **Caution:** It's important to know the pipe material's temperature limit. The HANI™ sensor can measure up to 100°C, but some pipe materials have much lower temperature limits.

PERFORMANCE

Accuracy with Fluid Flowing: ±0.5°C from factory and improved accuracy possible with user calibration
Response Time (τ$_{63}$): 5 seconds
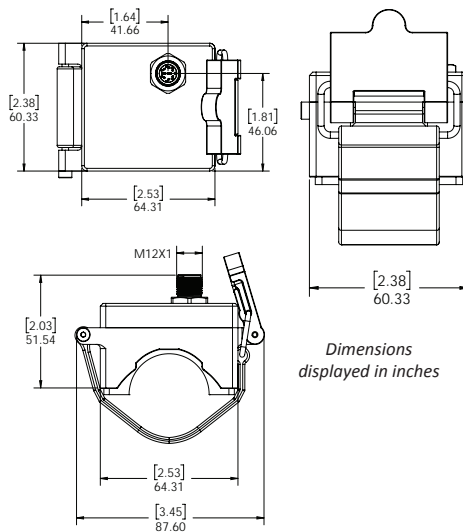**Response Time (τ$_{90}$):** 10 seconds

ENVIRONMENTAL

Ambient Operating Temperature: 0 to 40°C (32 to 104°F)

Rating: IP67 when mated

MECHANICAL

Dimensions: 60.3 W x 64.31 L x 51.54mm H (2.38" W x 2.53" L x 2.03" H)

Materials: PA12, silicone rubber, nickel-plated brass, stainless steel
Agency Approvals: CE

Dimensions displayed in inches

Frequently Asked Question

Q: How can the HANI sensor have faster response times and better accuracy than a surface sensor?
A: Omega's innovative HANI™ Clamp Temperature Sensor includes multiple sensors along with a proprietary algorithm to achieve faster response times and better accuracy compared to a surface sensor.

Q: Will ambient temperature affect the reading of the HANI™ Clamp Temperature Sensor?
A: Ambient temperature will not affect the reading of the HANI™ Clamp Temperature Sensor. Ambient operating temperature for the sensor is 0°C to 40°C (32°F to 104°F).

Q: Is there any special preparation required to properly setup and mount the HANI™ Clamp Sensor?
A: There is no special preparation or tools required to setup and mount the sensor, however, when setting up any sensor ensure the mounting area is clean, dry, and free from any debris.

Q: How should the sensor be oriented on the pipe?
A: The sensor can be mounted on any straight pipe at least 2.5" long. It is suggested to mount the sensing surface on the bottom half of the pipe for best results.

Q: Are other pipe diameters / sizes available? Other than water-based process mediums, can other liquid viscosities be measured?
A: Yes, please contact us to discuss your specific application.

Q: How can I improve the accuracy of ±1.5°C with my industrial pipe application?
A: Industrial pipes have a wide variety of tolerances, surface finishes, and coatings which can affect the accuracy. An in situation user calibration can be done to improve the accuracy for your specific application. Use the free Omega SYNC software to do a 1 or 2-point calibration with the HANI™ Clamp Sensor and an in place immersion sensor. See the user manual for additional details.

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 limited to contact points, fuses, and triacs.

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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 charges. Have the following information available BEFORE contacting OMEGA:
1. Purchase Order number to cover the COST of the repair or calibration,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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.

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CE UKCA

HANI™ Clamp Sensor
High Accuracy Non-Invasive Clamp Temperature Sensor

OMEGA™

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For Other Locations Visit omega.com/worldwide

The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

Introduction

Use this Quick Start Guide to set up your HANI™ Clamp Temperature Sensor. For additional information regarding your HANI™ Clamp Temperature Sensor, refer to the User Manual available on the Omega website.

Materials

Included with your HANI™ Clamp Temperature Sensor
• HANI™ Clamp Temperature Sensor Unit
• Quick Start Guide

Additional Materials Needed
For a 4-20 mA Output Connection:
• 4-20 mA wire connection with 8-pin M12 connector *or* OMEGA M12.8-S-F-FM Field Mountable 8-pin M12 connector (Sold Separately on the OMEGA website)

For Omega Link Ecosystem Connection:

⚠ **Important:** An Omega Link Smart Interface is required to connect your HANI™ Clamp Temperature Sensor to SYNC configuration software.

• A Windows OS PC
• SYNC configuration software
   -Downloadable on the Omega website
• Omega Link Smart M12 to USB Cable (*IF-001*) or another Omega Link Smart Interface
• Omega Link Gateway
• A registered user account with **cloud.omega.com** or a qualifying **Omega Enterprise Gateway** license

For Ad-Hoc Temperature Measurement:
• Computer/Laptop with Windows OS
• SYNC configuration software
• Omega Link Smart M12 to USB Cable (*IF-001*)

Optional Material:
• USB Isolator
• IF-001 M12 to USB Serial cable to change device configuration setting (*i.e. temperature range scaling, pipe material, pipe diameter, analog output error settings, etc.*)

⚠ **Important:** If the HANI™ Clamp Temperature Sensor is being powered with a 4-20 mA connection and will be connected to SYNC simultaneously, a USB Isolator **must** be used between the user PC and the HANI™ Clamp Temperature Sensor to avoid false readings and potential damage to the unit.
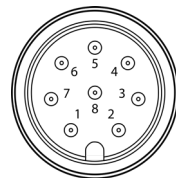
HANI™ Clamp Temperature Sensor Setup

Setting up a HANI™ Clamp Temperature Sensor in the field is quick and easy. Follow the instructions below:

Step 1: Mount the HANI™ Clamp Temperature Sensor on the underside of the pipe.

Step 2: Insert and hook the clasp into the cam mechanism.

Step 3: Pull the cam mechanism to tighten the HANI™ Clamp Temperature Sensor securely on the pipe.

4-20 mA Output Plug and Play

The HANI™ Clamp Temperature Sensor can easily be integrated to an existing analog system in a few steps.

Step 1: Attach an 8-pin female M12 connector to your 4-20 mA analog cable (see wiring diagram - only pins 1 & 6 are needed for loop power setups), then connect to the male 8-pin M12 connector on the HANI™ Clamp Temperature Sensor.

The HANI™ Clamp Temperature Sensor will immediately begin reporting temperature readings.

Omega Link Smart Interface Connection

⚠ **Important:** SYNC configuration is only necessary if you will be changing the following: Pipe diameter, pipe material type, pipe conductivity, or to scale output readings. Ensure Omega's SYNC configuration software is downloaded, setup, and running before continuing. Ensure you have an Omega Link Smart Interface compatible with your sensor.

The HANI™ Clamp Temperature Sensor can easily be configured using an Omega Link Smart Interface and SYNC configuration software.

Step 1: Connect the HANI™ Clamp Temperature Sensor to an Omega Link Smart Interface or connector cable.

Step 2: Connect the Smart Interface to a Windows PC running SYNC.

M12 8-Pin Connector Wiring Diagram

	Name	Function	Wiring
Pin 1	Loop -	4-20 mA Return	4-20mA
Pin 2	INTR	Interrupt Signal	Omega Link
Pin 3	SCL	I2C Clock Signal	Omega Link
Pin 4	SDA	I2C Data Signal	Omega Link
Pin 5	Shield	Shield Ground	Omega Link
Pin 6	Loop +	4-20mA Source	4-20mA
Pin 7	GND	Power Ground	Omega Link
Pin 8	3.3VDD	Power Supply	Omega Link

Pin 5 (Shield Ground) and Pin 7 (Power ground) must be isolated.

SYNC Configuration

Once the HANI™ Clamp Temperature Sensor is connected to the PC running SYNC, the software will automatically detect the sensor and begin displaying temperature readings.

If SYNC does not automatically detect your device, follow these steps:

Step 1: Click on the ➕ icon located on the top left of the SYNC interface.

Step 2: Select End Device / Probe and click **Next.**

Ω SENSING
End Device/ Probe

Step 3: Select your **Communication Interface** type from the dropdown and set your preferred Command Timeout, Device Address, and Device ID / Port.

Step 4: Click **Finish.**

To customize the pipe diameter, pipe material type, or pipe conductivity navigate to the *Inputs* tab in SYNC to adjust the settings. A list of Pipe Materials that are currently supported is provided in the following section. See the User's Manual for detailed instructions.

⚠ **Important:** HANI™ Clamp Temperature Sensors come preconfigured for *STAINLESS STEEL* pipe materials with standard wall thickness. If your pipe material is something other than stainless steel and/or has a non-standard pipe thickness, please connect to SYNC to configure appropriately. Sanitary device pipe thickness should not need to be changed. Industrial pipe devices come preconfigured for Schedule 40 (standard) thicknesses.

Type	Material
SS	Stainless Steel
CS	Carobn Steel (1% C)
GS	Galvanized Steel
CU	Copper
BR	Yellow Brass (70% CU / 30% Zn)
AL	Aluminum
User Specified	Custom - User scalable thermal conductivity value for custom pipe type

To scale output readings or set analog output error defaults, navigate to the *Outputs* tab in SYNC to adjust the settings. See the Product User's Manual for detailed instructions.

Pairing to an Omega Link Gateway

Refer to either the Wireless Pairing or Wired Pairing instructions to pair a HANI™ Clamp Temperature Sensor to an Omega Link Gateway. Before continuing to the pairing instructions, ensure the following prerequisites are met:

• Ensure that the Omega Link Gateway has been properly setup, powered on, and is in close proximity.
• (For Wired pairing) Ensure the user has access to a PC and the internal Gateway UI (refer to the Omega Link Gateway manual for instructions on how to access the Gateway UI)

Wireless Pairing
Pairing a wireless Smart Interface (IF-006) and attached HANI™ Clamp Temperature Sensor is made easy with a one-button pairing system between the IF-006 and the Omega Link Gateway.

Step 1: When the HANI™ Clamp Temperature Sensor and relevant accessories have been securely connected to the IF-006, push the pairing button once on the IF-006. The LED Status Indicator will blink green indicating it is in Pairing Mode.

Step 2: Quickly push the pairing button on the Omega Link Gateway. The LED on the Gateway will blink green indicating the Gateway is in Pairing Mode.

When the IF-006 has been successfully paired to the Omega Link Gateway, the LEDs will stop blinking on both devices. Readings for the newly added sensor will then appear on the Omega Link Cloud or Omega Enterprise Gateway interface associated with the registered Gateway.