

# HANI™ Tank Sensor - High Accuracy Non-Invasive Temperature Sensor for Metal Tank Applications

Hybrid temperature sensing on metal tanks integrated with Omega Link connectivity

- Non-invasive temperature measurement
- Measure the fluid temperature inside of a metal tank
- Accuracy for Metal Tanks:
  - ±0.5°C (±0.9°F) (stainless steel)
  - ±1.0°C (±1.8°F) (other metals)
- Response time<sup>1</sup> = 5 sec ( $\tau_{63}$ ) / 10 sec ( $\tau_{90}$ )
- 4 to 20 mA loop powered analog output
- -20 to 100°C process temperature range
- Available for metal tanks 2 feet in diameter or larger
- Omega Smart Core enabled
  - Data logging
  - Plug and play device detection
- IP67 environmental rating
- Patent pending

### Ease of Installation

**No cutting or drilling required** Unlike invasive sensors, HANI™ Tank Sensors mount to the outside of a metal tank and read the temperature of the process media inside the tank.

- No drilling
- No cutting
- No downtime

### Non-Invasive & Non-Contact Operation

#### No penetration, no risk of contamination

The HANI™ Tank Sensor mounts to the outside of the tank and never comes into contact with the process media inside of the tank. This means there is no risk of contamination to the process during sensor installation or operation.

### High Accuracy & Fast Response Times

#### Outperforms a surface sensor

Omega's patent pending *Hybrid Temperature Sensing* platform uses multiple sensors and a proprietary algorithm to achieve better accuracy and faster response times than a surface sensor.



### Common Applications

#### New and retrofitting existing systems

Lower the total cost of ownership and reduce contamination risk without sacrificing performance by upgrading to a HANI™ Tank Sensor.

### Specifications

#### Input Power

**Voltage:** 8 V DC - 28 V DC (loop powered)

**Max Loop Resistance:**  
 $R_{max} (\Omega) = (V_{supply} - 8V) / 0.24 A$

#### Analog Output

**Current:** 4 to 20 mA  
 User scalable analog output, default scaling 0-100°C (32-212°F)

#### Process Parameters

**Process Medium:** Water, water-based fluids (others upon request)  
**Tank Materials:** SS, CS, GS, CU, BR, AL

**Tank Diameter:** 2 ft or larger  
**Process Temperature Range:** -20 to 100°C liquid (32-212°F)

#### Performance

**Accuracy with fluid filled tank:** ±0.5°C from factory and improved accuracy possible with in-situation 1 or 2-point calibration  
**Response Time ( $\tau_{63}$ ):** 5 seconds  
**Response Time ( $\tau_{90}$ ):** 10 seconds

### Environmental

**Ambient Operating Temperature:** 0 to 40°C (32 to 104°F)  
**Rating:** IP67 when mated

### Mechanical

**Dimensions:** 111.1 W x 65.9 L x 43.8 mm H (4.38 W x 2.60 L x 1.72" H)  
**Materials:** PA12, silicone rubber, nickel-plated brass, stainless steel

### General

**Agency Approvals:** CE, EMC, UKCA, 2014/30/EU, LVD 2014/35/EU class II product, (low voltage 8 to 28 V<sub>DC</sub>)

### Smart Core Enabled

Smart Core is integral to all Omega Link integrated Smart Sensing devices. In addition to allowing for modular integration using any Omega Link Smart Interface, this powerful suite of advanced features enables alarms and notifications, data assurance, data logging, storage, wireless connectivity and SYNC configuration.

## Frequently Asked Questions

### How can a HANI™ temperature sensor have faster response times and better accuracy than a surface sensor?

Omega's innovative HANI™ Tank Sensor includes multiple sensors along with a proprietary algorithm to achieve faster response times and better accuracy than a surface sensor.

### Will ambient temperature affect the reading of the HANI™ Tank Sensor?

Ambient temperature will not affect the reading of the HANI™ Tank Sensor. Operating temperature for the tank sensor is 0 to 40°C (32 to 104°F).

### How should the sensor be oriented on the tank?

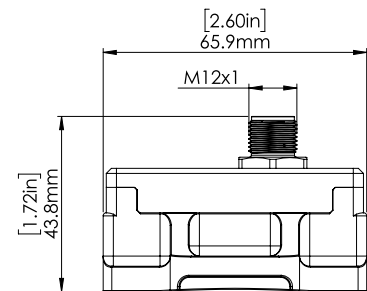
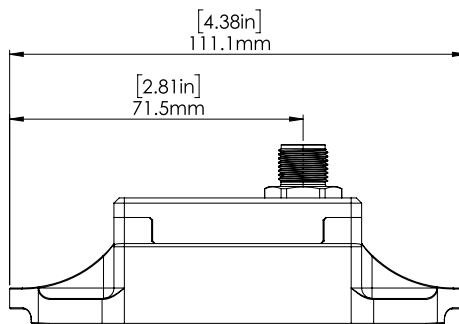
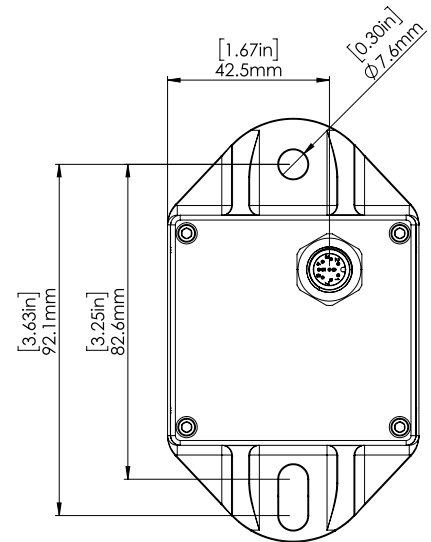
The sensor can be mounted on any tank with a diameter of 2 feet or larger. It is suggested to mount the tank sensor with the studs oriented vertically. The HANI Tank Sensor can only be mounted on single wall tanks.

### How can I improve the accuracy of the tank sensor in my tank application?

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™ Tank Sensor and an in place immersion sensor. See the user manual for additional details.

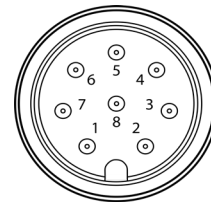
### Other than water-based process mediums, can other liquids and viscosities be measured?

Yes, please contact us to discuss your specific application.



## M12 8-Pin Wiring

| Pin   | Name   | Function          | Wiring     |
|-------|--------|-------------------|------------|
| Pin 1 | Loop - | 4 to 20 mA Return | 4 to 20 mA |
| 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 to 20 mA Source | 4 to 20 mA |
| Pin 7 | GND    | Power Ground      | Omega Link |
| Pin 8 | 3.3VDD | Power Supply      | Omega Link |



## HANI™ Bolt-On Temperature Sensor for Metal Tank

| Model Number     | Process Temp Range           | Tank Diameter |
|------------------|------------------------------|---------------|
| HANI-B-TANK-M-MA | -20° (-4°F) to 100°C (212°F) | ≥ 2 ft        |

## Omega Link Smart Interface

Omega Link Smart Sensing devices require an Omega Link Smart Interface to operate and connect to your Omega Link Ecosystem. There are both wired and wireless options. Omega Sync software is free and enables you to read the fluid temperature digitally in just a few seconds.

| Model Number | Description                                    |
|--------------|--|
| IF-001       | USB Smart Interface                            |
| IF-002       | RS485/Modbus Smart Interface                   |
| IF-006-1-NA  | Wireless Interface 915 MHZ (for North America) |
| IF-006-1-EU  | Wireless Interface 868 MHZ (for Europe)        |

## Omega Link Gateway

An Omega Link Gateway is required to connect the Smart Interface and sensing device to the Omega Link ecosystem.

| 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 Omega Link Smart Sensors- 915 MHz  |
| GW-001-2-EU  | Wireless IIoT Gateway Standard, Ethernet connectivity, connects up to 100 Omega Link Smart Sensors- 868 MHz  |
| GW-001-3-NA  | Wireless IIoT Gateway Standard, Ethernet connectivity, connects up to 100 Omega Link Smart Sensors- 915 MHz  |
| GW-001-3-EU  | Wireless IIoT Gateway Standard, Ethernet connectivity, connects up to 100 Omega Link Smart Sensors- 868 MHz  |
| GW-002-1-LTE | Wireless LTE IIoT Gateway Pro connects up to 40 Omega Link Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 1x RJ45 port, 1x USB port - 915 MHz |

## Accessories

| Model Number   | Description   |
|----------------|---|
| M12.8-T-SPLIT  | Smart Probe M12-8 pin shielded T-splitter — enables access to I/O pins      |
| M12.8-S-F-FM   | M12-8 pin female straight plug field install connector with screw terminals |
| DM12CAB-8-1-RA | 1m (3.3') cable dual M12-8 connector, right angle terminator                |
| DM12CAB-8-3-RA | 3m (9.8') cable dual M12-8 connector, right angle terminator                |
| DM12CAB-8-5-RA | 5m (16.4') cable dual M12-8 connector, right angle terminator               |
| DM12CAB-8-1    | 1m (3.3') cable dual M12-8 straight connector                               |
| DM12CAB-8-3    | 3m (9.8') cable dual M12-8 straight connector                               |
| DM12CAB-8-5    | 5m (16.4') cable dual M12-8 straight connector                              |