

# SP-016 Series



## Omega Link Heat Flux Thermopile Smart Probe

- Reads Heat Flux Thermopiles and performs automatic Temperature compensation
- 2x Digital I/O (Input or Output)
- Software configurable through SYNC configuration software
- Modular M12 construction
- 10,000+ Sample data/event logging
- Integrated alarm and control
- Secure authentication and password protection



### SP-016: Introduction

The Omega Link SP-016 Heat Flux Smart Probe provides an easy way to integrate your thermopile-based heat flux sensor to the Omega Link Ecosystem. The SP-016 performs the necessary calculations to provide the heat flux measurement in  $W/m^2$ . The SP-016 accepts heat flux sensors through its M12 4-pin connector and Omega Link Smart Interfaces through its M12 8-pin connector. The optional M12-S-M-FM connector can be utilized to easily connect wire leads typically found on heat flux sensors to your SP-016.

The SP-016 supports any single thermopile sensor input ( $mV/W/m^2$ ) and an additional thermocouple input for temperature compensation.

### Smart Core Enabled

Smart Core is integral to all Omega Link Smart Sensing Devices. In addition to allowing for modular integration to the Omega Link Ecosystem using any Omega Link Smart Interface, this powerful suite of advanced features enable plug-and-play connectivity, alarm and notifications, data logging, SYNC configuration, and storage of 10,000 data points and events.

### Intuitive Configuration

Configure your Omega Link Smart Probe using our free SYNC configuration software. Configurable features include selective data extraction, measurement and device traceability, local alarms, and adaptive transmission rates.

### Modularity

Customize your Omega Link Ecosystem by taking advantage of discrete I/O features accessible through the modular addition of an M12.8-T-SPLIT and M12.8-S-M-FM terminal.

### Edge Control and Built in I/O

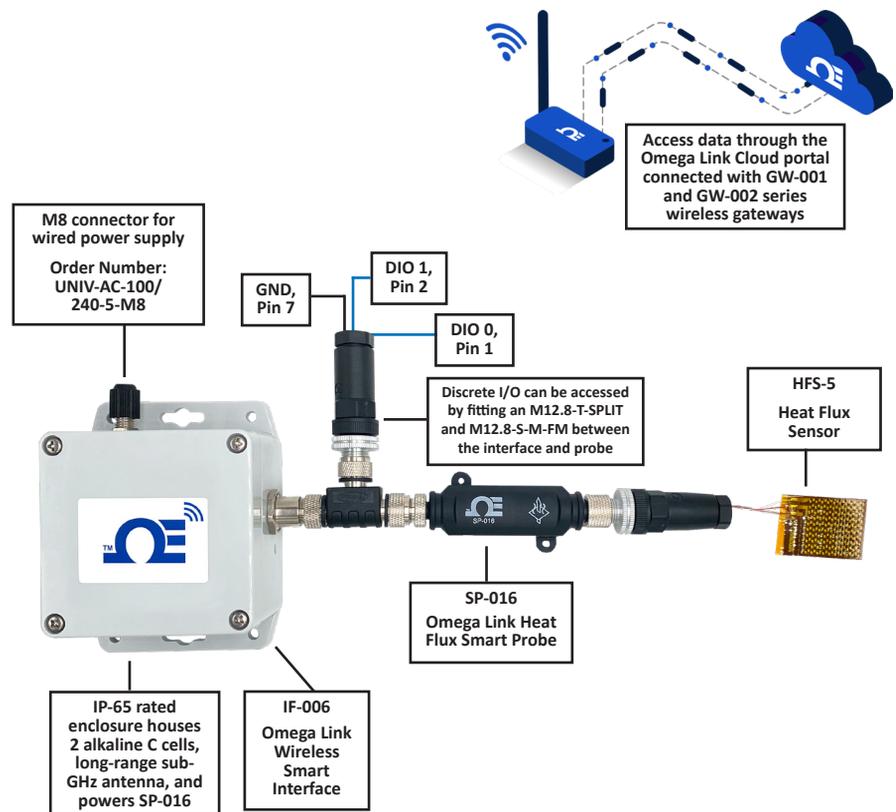
The Omega Link SP-016 features 2 discrete I/O pins. These can be used for a myriad of applications including driving relays, physical alarms, or sensing dry contacts like door switches. The SP-016 can also be utilized as an edge controller, with autonomous independent decision-making capabilities to generate local alarms or provide control outputs based on sensor inputs.

### Long-Range Wireless Solution\*

Pairing the SP-016 with the IF-006 Series interface produces a self-contained, long-range, wireless solution. This setup can also be externally powered by adding the UNIV-AC100/240-M8 power adaptor.

*\*Note: IF-006 must be paired with an Omega Link wireless gateway*

### Wireless Configuration for Smart Probe with Optional DIO



## Specifications

### INPUT POWER

**Voltage:**  $2.8 V_{DC} - 3.3 V_{DC}$

### DIO DIGITAL INPUTS

$V_{inHighThreshold} = 2.2 V_{MAX}$

$V_{inLowThreshold} = 0.3 V_{MIN}$

$V_{inMAX} = 30 V_{DC}$

### DIO DIGITAL OUTPUTS

2x Open Drain 100 mA max

$V_{MAX} = 30 V_{DC}$

### ENVIRONMENTAL

**Operating Temperature:** -40 to 85°C (-40 to 185°F)

**Rating:** IP67 when mated

### MECHANICAL

**Dimensions:** 22.1 mm W x 96.7 mm L (0.87" x 3.80") not including mounting tabs

### GENERAL

**Agency Approvals:** CE, UKCA

**Compatibility:** Compatible with OEG, SYNC configuration software, Omega Link Cloud, and Modbus Networks

### HEAT FLUX SENSOR VALUES

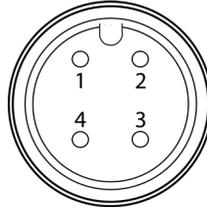
Refer to the User's Documentation of your heat flux sensor for Sensitivity, Gain, and Offset values. Values are configurable on SYNC configuration software.

### ACCURACY FOR mV INPUT

| Range  | Accuracy        |
|--------|-----------------|
| ±60 mV | ±0.02% or ±4 uV |

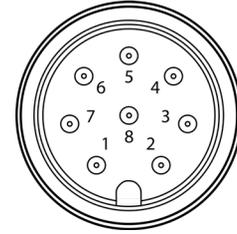
**Stability over Temperature:** ±1 uV/C

## M12 4-Pin Female Connector



| Pin   | TC TempCO    |
|-------|--------------|
| Pin 1 | TC -         |
| Pin 2 | Thermopile + |
| Pin 3 | Thermopile - |
| Pin 4 | TC +         |

## M12 8-Pin Male Connector



| Pin   | Name   | Function              |
|-------|--------|-----------------------|
| Pin 1 | DIO 0  | Discrete I/O Signal 0 |
| Pin 2 | INTR   | Interrupt Signal      |
| Pin 3 | SCL    | I2C Clock Signal      |
| Pin 4 | SDA    | I2C Data Signal       |
| Pin 5 | Shield | Shield Ground         |
| Pin 6 | DIO 1  | Discrete I/O Signal 1 |
| Pin 7 | GND    | Power Ground          |
| Pin 8 | 3.3VDD | Power Supply          |

## Omega Link SP-016 Ordering Guide

| Model Number | Description  |
|--------------|--|
| SP-016-1     | Heat Flux Smart Probe with Compensated Thermocouple interface, with discrete I/O |

## 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.

| Model Number | Description                                  |
|--------------|--|
| IF-001       | Wired USB Smart Interface                    |
| IF-002       | Wired RS485/Modbus Smart Interface           |
| IF-006-1-NA  | Wireless Sub GHz Wireless Interface -915 MHz |
| IF-006-1-EU  | Wireless Sub GHz Wireless Interface -868 MHz |

## Omega Link Gateways

An Omega Link Gateway is **required** to connect your Smart Probe to the Omega Link Cloud or Omega Enterprise Gateway.

| 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 Pro, Ethernet connectivity, power over Ethernet, connects up to 100 Omega Link Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 2x USB ports- 915 MHz |
| GW-001-3-EU  | Wireless IIoT Gateway Pro, Ethernet connectivity, power over Ethernet, connects up to 100 Omega Link Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 2x USB ports- 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  |
|----------------|--|
| HFS-5          | Heat Flux Sensor   |
| M12-S-M-FM     | M12 4-pin field mountable screw terminal                               |
| M12.8-T-SPLIT  | Smart Probe M12-8 pin shielded T-Splitter - enables access to I/O pins |
| M12.8-S-M-FM   | M12-8 pin 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                         |

### Your Data at a Glance with the Omega Link Cloud

The Omega Link 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.

