

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, EMC 2014/30/EU, LVD 2014/35/EU

Compatibility: Compatible with OEG, SYNC configuration software, Layer N 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 µV

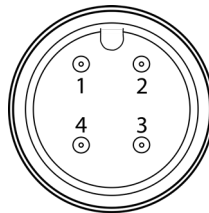
Stability over Temperature: ±1 µV/C

Thermocouple Types

Type	Range	Accuracy
J	-210°C to 1200°C	± 0.5°C
K	-160°C to 1372°C	± 0.5°C
T	-190°C to 400°C	± 0.5°C
E	-200°C to 1000°C	± 0.5°C
N	-100°C to 1300°C	± 0.5°C
R	40°C to 1788°C	± 0.5°C
S	100°C to 1768°C	± 0.5°C
B	640°C to 1820°C	± 0.5°C
C	0°C to 2320°C	± 0.8°C

Temperature Stability @ 25°C: 0.04 C/C

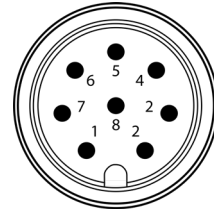
M12 4-Pin Wiring



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



M12 8-Pin Wiring



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

Layer N SP-016

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

Layer N Smart Interface

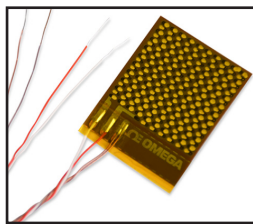
Layer N Smart Probes require a Layer N Smart Interface to operate and connect to your Layer N Ecosystem. Wired and Wireless options are available.

Model Number	Description
IF-001	USB Smart Interface
IF-002	RS485/Modbus Smart Interface
XW-ED	2.4 GHz Wireless Transmitter, Smart Probes - requires ZW-REC
XW-ED-PRO	2.4 GHz Wireless Transmitter and Edge Controller, Smart Probes - requires ZW-REC

Accessories

An optional M12 4-pin screw terminal adapter is available for users who wish to connect wire leads directly to the SP-016.

Model Number	Description
HFS-5	Economical heat flux sensor
M12-S-M-FM	M12 4-pin screw terminal adapter
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



HFS-5



M12-S-M-FM



SP-016-1



IF-001