SP-003 / SP-004
Environmental Monitoring Smart Probe

- Measured Temperature Range from: -40 to 85°C (-40 to 185°F)
- Humidity: 0 to 100% RH
- Barometric Pressure: 10 to 1200 mbar
- 2x Digital I/O
- Modular M12 construction
- OMEGA Smart Core enabled
  - Data Logging
  - Integrated Alarm and Control
  - Plug and Play Device Detection
  - Sensor health monitoring

The Layer N SP-003 / SP-004 Environmental Monitoring Smart Probe provides temperature, relative humidity, and barometric pressure readings. The SP-003/SP-004 accepts Layer N Smart Interfaces through its M12 8-pin connector.

Intuitive Configuration
Configure your Layer N Smart Probe using SYNC’s intuitive configuration interface. Additionally, an integrated command line interface allows for quick serial setup of your Smart Probe and Smart Interface using standard terminal emulators.

Smart Core Enabled
Smart Core is integral to all Layer N Smart Probes. This powerful suite of advanced features enable plug and play connectivity, alarms and notifications, data assurance, data logging, and storage.

Edge Control and Built in I/O
The Layer N SP-003/SP-004 features 2 configurable digital 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-003/SP-004 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.

Smart Interface Modularity
Customize your Layer N Ecosystem with modular Smart Interfaces that connect and transmit data from your Smart Probe to the Layer N Cloud.

Your Data at a Glance with Layer N Cloud
Layer N 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.
Specifications

TEMPERATURE
- **Range:** -40 to 85°C (-40 to 185°F)
- **Accuracy:** ±0.3°C (±0.6°F)
- **Response Time:** Less than 1 second

RELATIVE HUMIDITY
- **Accuracy:** ±2.5% (0 to 80%), ±3.5% (80 to 100%)
- **Hysteresis:** ±0.8%
- **Response Time:** 8 seconds

BAROMETRIC PRESSURE
- **Accuracy Over Full Range:** ±6 mbar from 300 to 1100 mbar
- **Accuracy @ 25°C:** ±4 mbar from 700 to 1100 mbar

INPUT POWER
- **Voltage:** 2.8 V DC - 3.3 V DC

DIO DIGITAL INPUTS
- \[ V_{\text{inHighThreshold}} = 2.2 \times V_{\text{MAX}} \]
- \[ V_{\text{inLowThreshold}} = 0.3 \times V_{\text{MIN}} \]
- \[ V_{\text{inMAX}} = 30 \times V_{\text{DC}} \]

DIO DIGITAL INPUTS
- 2x Open Drain 100 mA max
- \[ V_{\text{MAX}} = 30 \times V_{\text{DC}} \]

ENVIRONMENTAL
- **Operating Temperature:** -40 to 85°C (-40 to 185°F)
- **Rating:** IP67 when mated

MECHANICAL

Tube Housing
- **Construction:** Stainless Steel
- **Dimensions:** 72 mm L x 15.9 mm OD (2.83” x 0.62”)

Bulkhead Housing
- **Construction:** Aluminium
- **Dimensions:** 73 mm L x 15.9 mm OD x 18.5 mm Panel Opening (2.83” x 0.62” x 0.72”)

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

Layer N SP-003 / SP-004 Variants

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-003-1</td>
<td>Temperature, Humidity, Barometric Pressure Smart Probe with discrete I/O - Tube Housing</td>
</tr>
<tr>
<td>SP-004-1</td>
<td>Temperature and Humidity Smart Probe with discrete I/O - Tube Housing</td>
</tr>
<tr>
<td>SP-004-4</td>
<td>Temperature and Humidity Smart Probe with discrete I/O - Bulkhead Housing</td>
</tr>
</tbody>
</table>

Layer N Smart Interface
Layer N Smart Probes require a Layer N Smart Interface to operate and connect to your Layer N Ecosystem. There are both wired and wireless options.

<table>
<thead>
<tr>
<th>Model Number</th>
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<tbody>
<tr>
<td>IF-001</td>
<td>USB Smart Interface</td>
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<tr>
<td>IF-002</td>
<td>RS485/Modbus Smart Interface</td>
</tr>
<tr>
<td>XW-ED</td>
<td>2.4 GHz Wireless Transmitter, Smart Probes - <strong>requires ZW-REC</strong></td>
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<tr>
<td>XW-ED-PRO</td>
<td>2.4 GHz Wireless Transmitter and Edge Controller, Smart Probes - <strong>requires ZW-REC</strong></td>
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</tbody>
</table>
## Accessories

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>M12.8-T-SPLIT</td>
<td>Smart Probe M12-8 pin shielded T-Splitter - enables access to I/O pins</td>
</tr>
<tr>
<td>M12.8-S-M-FM</td>
<td>M12-8 pin Straight Plug Field install connector with screw terminals</td>
</tr>
<tr>
<td>DM12CAB-8-1-RA</td>
<td>1m (3.3’) cable dual M12-8 connector, right angle terminator</td>
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<tr>
<td>DM12CAB-8-3-RA</td>
<td>3m (9.8’) cable dual M12-8 connector, right angle terminator</td>
</tr>
<tr>
<td>DM12CAB-8-5-RA</td>
<td>5m (16.4’) cable dual M12-8 connector, right angle terminator</td>
</tr>
<tr>
<td>DM12CAB-8-1</td>
<td>1m (3.3’) cable dual M12-8 straight connector</td>
</tr>
<tr>
<td>DM12CAB-8-3</td>
<td>3m (9.8’) cable dual M12-8 straight connector</td>
</tr>
<tr>
<td>DM12CAB-8-5</td>
<td>5m (16.4’) cable dual M12-8 straight connector</td>
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