SP-014
Layer N Process Monitoring Smart Probe

- Up to 3x Current Loop (0-24mA)
  or
- Up to 3x mV (0-1.0 V<sub>DC</sub>)
- 2x Digital I/O
- Software configurable through SYNC configuration software
- 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-014 Process Monitoring Smart Probe provides an easy way to integrate process signals to your Layer N Ecosystem. The SP-014 accepts standard process signals through its M12 5-pin connector and Layer N Smart Interfaces through its M12 8-pin connector. The optional M12.5-S-M-FM connector can be utilized to easily connect wire leads to your SP-014.

Each of the 3 process inputs may be independently configured as 0-24 mA or 0-1.0 V<sub>DC</sub> inputs.

Intuitive Configuration
Configure your Layer N Smart Probe using SYNC’s intuitive configuration interface.

Edge Control and Built in I/O
The Layer N SP-014 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-014 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 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.

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**

**INPUT POWER**
*Voltage*: 2.8 V<sub>DC</sub> - 3.3 V<sub>DC</sub>

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Accuracy</th>
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<tbody>
<tr>
<td>Current</td>
<td>0-24 mA</td>
<td>±0.1 mA</td>
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<tr>
<td>Voltage</td>
<td>0-1 V</td>
<td>±5.0 mV</td>
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**Stability over Temperature**: ±0.02% FS/C

**ANALOG INPUTS**

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**DIO DIGITAL INPUTS**

- \( V_{inHighThreshold} = 2.2 \times V_{MAX} \)
- \( V_{inLowThreshold} = 0.3 \times V_{MIN} \)
- \( V_{inMAX} = 30 \times V_{DC} \)

**DIO DIGITAL OUTPUTS**

- 2x Open Drain 100 mA max
- \( V_{MAX} = 30 \times V_{DC} \)

**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

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**Layer N SP-014**

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<th>Model Number</th>
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<td>SP-014-1</td>
<td>Process Monitoring Smart Probe with discrete I/O</td>
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**Layer N Smart Interface**

Layer N Smart Probes require a Layer N Smart Interface to operate and connect to your Layer N Ecosystem.

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**Input Power Specifications**

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**Dio Digital Outputs**

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**Mechanical**

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## Accessories

An optional M12 5-pin screw terminal adapter is available for users who wish to connect wire leads directly to the SP-014.

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<td>M12.5-S-M-FM</td>
<td>M12 5-pin screw terminal adapter</td>
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<tr>
<td>M12.8-T-SPLIT</td>
<td>Smart Probe M12-8 pin shielded T-Splitter - enables access to I/O pins</td>
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<tr>
<td>M12.8-S-M-FM</td>
<td>M12-8 pin Straight Plug Field install connector with screw terminals</td>
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<tr>
<td>DM12CAB-8-1-RA</td>
<td>1m (3.3’) cable dual M12-8 connector, right angle terminator</td>
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<td>DM12CAB-8-3-RA</td>
<td>3m (9.8’) cable dual M12-8 connector, right angle terminator</td>
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<td>DM12CAB-8-5-RA</td>
<td>5m (16.4’) cable dual M12-8 connector, right angle terminator</td>
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<td>DM12CAB-8-1</td>
<td>1m (3.3’) cable dual M12-8 straight connector</td>
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**How Do Layer N Products Work?**

**Smart Sensors**
Sense, store, and process real-time data with superior connectivity.

**Gateway**
Collect and securely transport data from the sensor layer to the cloud.

**Cloud**
Continuously collects and processes sensor data providing real-time reporting and analytics.

**Modbus Support**
Integrate your existing devices with Modbus for intelligent data transport to the cloud.

**Wireless Smart Interface**
Provides wireless integration of Smart Probes to the Layer N Gateway to create a fully customized wireless solution that fits your application.

**Mobile Access**
Access your data anytime anywhere with an Internet connection.