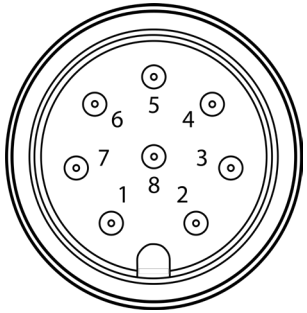
Specifications



	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

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 85ºC (-40 to 185ºF)
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
Configuration: Configurable via IF-001 USB Adaptor and SYNC configuration software
Software: Compatible with OEG and SYNC configuration software

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use if its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair or calibration,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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MQS5819/0320

QUICK START

CE

layer N

SP-014

Layer N Process Monitoring Smart Probe

OMEGA™

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Toll-Free: 1-800-826-6342 (USA & Canada only)
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Engineering Service: 1-800-872-9436 (USA & Canada only)
Tel: (203) 359-1660 Fax: (203) 359-7700
e-mail: info@omega.com

For Other Locations Visit omega.com/worldwide

START HERE

Introduction

Use this Quick Start Guide to set up your Layer N SP-014 Process Monitoring Smart Probe. For additional information regarding your SP-014, refer to the User Manual available on the Omega website.

Materials

Included with your SP-014

- SP-014 Unit
- Quick Start Guide

Additional Materials Needed

- Layer N Smart Interface
- Computer/Laptop with Windows OS
- SYNC configuration software
  - -Downloadable on the OMEGA website
- M12.5-S-M-FM connector
  - -Sold separately on the OMEGA website
- Wire Leads

Before you Begin

Important: If you would like to take advantage of the SP-014's plug-and-play feature, simply connect the **Smart Probe** to your **Gateway** with your preferred **Smart Interface** or **wireless transmitter** to begin displaying sensor readings. To configure the software adjustable features, continue with this quick start guide.

To fully setup the SP-014, ensure the following prerequisites are met:

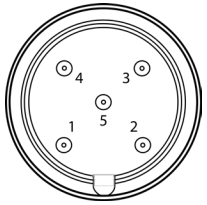
- Ensure SYNC is downloaded, setup, and running before continuing.
- Ensure you have a Smart Interface compatible with your Smart Probe and your computer running SYNC.

Connecting Wire Leads

Important: An M12.5-S-M-FM connector is required to connect wire leads to your SP-014.

Step 1: Connect your M12.5-S-M-FM connector to your SP-014.

Step 2: Use the wiring diagram below to connect your wire leads to the M12.5-S-M-FM connector.



	mA mV
Pin 1	3.3V Power
Pin 2	Input 0
Pin 3	GND
Pin 4	Input 1
Pin 5	Input 2

2

Connecting your Smart Probe & Interface

Step 1: Connect the SP-014 to your Smart Interface or wireless transmitter.

Note: Locate the position of the keyway as a guide on the SP-014 prior to making the connection.

Step 2: Connect the Smart Interface or Wireless Transmitter to your computer.

SYNC Auto-Detect

Once the SP-014 is connected to your computer, SYNC will automatically detect it and begin displaying temperature readings.

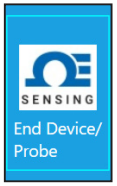
Note: If you have successfully connected your SP-014 to SYNC, skip ahead to section **Configuring Digital Inputs**.

SYNC Manual Connection

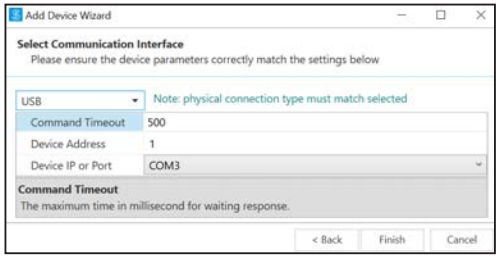
If SYNC does not automatically detect your device, follow these steps:

Step 1: Click on the + icon located on the top left of the SYNC interface.

Step 2: Select End Device / Probe and click **Next.**



Step 3: Select your **Communication Interface** type from the dropdown and set your preferred Command Timeout, Device Address, and Device ID / Port.

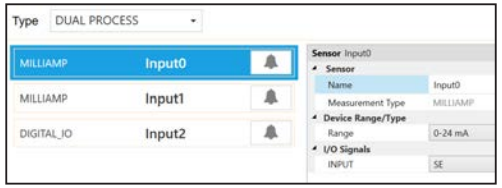


Step 4: Click **Finish.**

3

Configuring Digital Inputs

The SP-014 can accept up to two 0-24 mA or 0-1.0 VDC, Single, Dual, or Triple process inputs. To customize your process inputs, follow these steps:

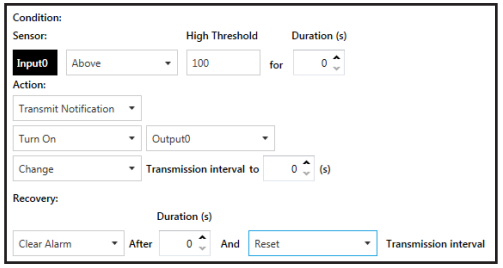


Step 1: Click the **Inputs Configuration Tab** on SYNC and choose an input type that lists **Process** from the **Type** drop down.

Choose between mA and mV from the **Device Range/Type** drop down.

Setting Alarms

Alarms are set by clicking the icon on the desired input signal found in the **Inputs** configuration tab. Setup the threshold and alarm type in the **Condition** section and then select which output to turn on in the **Action** section. The alarm can be set to be latching or non-latching in the **Recovery** section.



4

ON/OFF Control

To configure ON/OFF Control on a device, navigate to the **Output Configuration Tab** in SYNC and click on the icon located to the right of the available outputs. Clicking the icon will open the **Define ON/OFF Control** dialog box as seen below. Choose the input with the active alarm that you would like to control and set your preferred parameters.

The **Setpoint** establishes the target process value and the **Deadband** establishes the range from the Setpoint that the process value can accept before the output is activated. When **Reverse** control is selected, the output is on when the process value is below the **Setpoint**. When **Direct** control is selected, the output is on when the process value is above the **Setpoint**. Once the ON/OFF Control parameters have been set, click save to finalize the settings.