

# 3.2

## Inductive Proximity Sensors

### E57P Performance Series Sensors

3

E57P Performance Series Sensors



### Contents

<i>Description</i>	<i>Page</i>
E57P Performance Series Sensors	
Product Selection	
E57P Performance Sensors	<b>V8-T3-19</b>
Compatible Connector Cables	<b>V8-T3-20</b>
Accessories	<b>V8-T3-20</b>
Technical Data and Specifications	<b>V8-T3-21</b>
Wiring Diagrams	<b>V8-T3-22</b>
Dimensions	<b>V8-T3-23</b>

### E57P Performance Series Sensors

#### Product Description

For sensing applications requiring more demanding specifications, the new E57P Performance series incorporates premium features without the premium price. With its stainless steel tubular body, IP69K rating, wide temperature range (down to -40 °C), fast switching speed and laser-etched markings, the E57P series provides value at a low price point.

#### Features

- 360° LED indicator
- Stainless steel tube
- 10–48 Vdc operating voltage
- Short-circuit protection
- -40 to 70 °C temperature range
- IP69K environmental rating
- Durable laser-engraved label
- Available in cable and micro-connector styles

#### Standards and Certifications

- cULus Listed
- CE



#### DANGER

**THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.**



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For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

### Product Selection

#### E57P Performance Sensors

#### Three-Wire Sensors

	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type <sup>①</sup>	NO Output Catalog Number	NC Output Catalog Number
	10–48 Vdc	<b>12 mm Diameter End Sensing</b>				
		2 mm (standard range)	Shielded (PNP)	2-meter cable	<b>E57P-12SPN2-C2</b>	<b>E57P-12SPC2-C2</b>
				4-pin micro DC connector	<b>E57P-12SPN2-Q</b>	<b>E57P-12SPC2-Q</b>
			Shielded (NPN)	2-meter cable	<b>E57P-12SNN2-C2</b>	<b>E57P-12SNC2-C2</b>
				4-pin micro DC connector	<b>E57P-12SNN2-Q</b>	<b>E57P-12SNC2-Q</b>
		4 mm (standard range)	Unshielded (PNP)	2-meter cable	<b>E57P-12UPN4-C2</b>	<b>E57P-12UPC4-C2</b>
				4-pin micro DC connector	<b>E57P-12UPN4-Q</b>	<b>E57P-12UPC4-Q</b>
			Unshielded (NPN)	2-meter cable	<b>E57P-12UNN4-C2</b>	<b>E57P-12UNC4-C2</b>
				4-pin micro DC connector	<b>E57P-12UNN4-Q</b>	<b>E57P-12UNC4-Q</b>
		4 mm (extended range)	Shielded (PNP)	2-meter cable	<b>E57P-12SPN4-C2</b>	<b>E57P-12SPC4-C2</b>
				4-pin micro DC connector	<b>E57P-12SPN4-Q</b>	<b>E57P-12SPC4-Q</b>
			Shielded (NPN)	2-meter cable	<b>E57P-12SNN4-C2</b>	<b>E57P-12SNC4-C2</b>
				4-pin micro DC connector	<b>E57P-12SNN4-Q</b>	<b>E57P-12SNC4-Q</b>
		8 mm (extended range)	Unshielded (PNP)	2-meter cable	<b>E57P-12UPN8-C2</b>	<b>E57P-12UPC8-C2</b>
				4-pin micro DC connector	<b>E57P-12UPN8-Q</b>	<b>E57P-12UPC8-Q</b>
			Unshielded (NPN)	2-meter cable	<b>E57P-12UNN8-C2</b>	<b>E57P-12UNC8-C2</b>
				4-pin micro DC connector	<b>E57P-12UNN8-Q</b>	<b>E57P-12UNC8-Q</b>
			10–48 Vdc	<b>18 mm Diameter End Sensing</b>		
5 mm (standard range)	Shielded (PNP)			2-meter cable	<b>E57P-18SPN5-C2</b>	<b>E57P-18SPC5-C2</b>
				4-pin micro DC connector	<b>E57P-18SPN5-Q</b>	<b>E57P-18SPC5-Q</b>
	Shielded (NPN)			2-meter cable	<b>E57P-18SNN5-C2</b>	<b>E57P-18SNC5-C2</b>
				4-pin micro DC connector	<b>E57P-18SNN5-Q</b>	<b>E57P-18SNC5-Q</b>
8 mm (standard range)	Unshielded (PNP)			2-meter cable	<b>E57P-18UPN8-C2</b>	<b>E57P-18UPC8-C2</b>
				4-pin micro DC connector	<b>E57P-18UPN8-Q</b>	<b>E57P-18UPC8-Q</b>
	Unshielded (NPN)			2-meter cable	<b>E57P-18UNN8-C2</b>	<b>E57P-18UNC8-C2</b>
				4-pin micro DC connector	<b>E57P-18UNN8-Q</b>	<b>E57P-18UNC8-Q</b>
8 mm (extended range)	Shielded (PNP)			2-meter cable	<b>E57P-18SPN8-C2</b>	<b>E57P-18SPC8-C2</b>
				4-pin micro DC connector	<b>E57P-18SPN8-Q</b>	<b>E57P-18SPC8-Q</b>
	Shielded (NPN)			2-meter cable	<b>E57P-18SNN8-C2</b>	<b>E57P-18SNC8-C2</b>
				4-pin micro DC connector	<b>E57P-18SNN8-Q</b>	<b>E57P-18SNC8-Q</b>
12 mm (extended range)	Unshielded (PNP)			2-meter cable	<b>E57P-18UPN12-C2</b>	<b>E57P-18UPC12-C2</b>
				4-pin micro DC connector	<b>E57P-18UPN12-Q</b>	<b>E57P-18UPC12-Q</b>
	Unshielded (NPN)			2-meter cable	<b>E57P-18UNN12-C2</b>	<b>E57P-18UNC12-C2</b>
				4-pin micro DC connector	<b>E57P-18UNN12-Q</b>	<b>E57P-18UNC12-Q</b>

#### Notes

⊕ See listing of compatible connector cables on [Page V8-T3-20](#).

① For cable lengths longer than 2 meters, add the number of the desired length in meters to the end of the listed catalog number (for catalog numbers ending with a number, add an **S** and then the length). Examples for a 5-meter cable: E57-18LE12-A becomes E57-18LE12-A5; E57LAL12A2 becomes E57LAL12A2S5.

# 3.2

## Inductive Proximity Sensors

### E57P Performance Series Sensors

3



#### Three-Wire Sensors, continued

Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	NO Output Catalog Number	NC Output Catalog Number	
<b>30 mm Diameter End Sensing</b>						
10–48 Vdc	10 mm (standard range)	Shielded (PNP)	2-meter cable	<b>E57P-30SPN10-C2</b>	<b>E57P-30SPC10-C2</b>	
			4-pin micro DC connector	<b>E57P-30SPN10-Q</b>	<b>E57P-30SPC10-Q</b>	
		Shielded (NPN)	2-meter cable	<b>E57P-30SNN10-C2</b>	<b>E57P-30SNC10-C2</b>	
			4-pin micro DC connector	<b>E57P-30SNN10-Q</b>	<b>E57P-30SNC10-Q</b>	
		15 mm (standard range)	Unshielded (PNP)	2-meter cable	<b>E57P-30UPN15-C2</b>	<b>E57P-30UPC15-C2</b>
				4-pin micro DC connector	<b>E57P-30UPN15-Q</b>	<b>E57P-30UPC15-Q</b>
	Unshielded (NPN)		2-meter cable	<b>E57P-30UNN15-C2</b>	<b>E57P-30UNC15-C2</b>	
			4-pin micro DC connector	<b>E57P-30UNN15-Q</b>	<b>E57P-30UNC15-Q</b>	
	15 mm (extended range)	Shielded (PNP)	2-meter cable	<b>E57P-30SPN15-C2</b>	<b>E57P-30SPC15-C2</b>	
			4-pin micro DC connector	<b>E57P-30SPN15-Q</b>	<b>E57P-30SPC15-Q</b>	
		Shielded (NPN)	2-meter cable	<b>E57P-30SNN15-C2</b>	<b>E57P-30SNC15-C2</b>	
			4-pin micro DC connector	<b>E57P-30SNN15-Q</b>	<b>E57P-30SNC15-Q</b>	
22 mm (extended range)		Unshielded (PNP)	2-meter cable	<b>E57P-30UPN22-C2</b>	<b>E57P-30UPC22-C2</b>	
			4-pin micro DC connector	<b>E57P-30UPN22-Q</b>	<b>E57P-30UPC22-Q</b>	
Unshielded (NPN)	2-meter cable	<b>E57P-30UNN22-C2</b>	<b>E57P-30UNC22-C2</b>			
	4-pin micro DC connector	<b>E57P-30UNN22-Q</b>	<b>E57P-30UNC22-Q</b>			

#### Compatible Connector Cables

##### Standard Cables ①

Current Rating at 600 V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number
<b>Micro-Style, Straight Female</b>							
—	DC	4-pin, 4-wire	22 AWG	6.0 ft (2m)		<b>CSDS4A4CY2202</b>	<b>CSDS4A4RY2202</b>

#### Accessories

##### E57P Performance Sensors

Description	Reference
Mounting brackets	See <b>Tab 8, section 8.2</b>
Replacement mounting nuts and other accessories	See <b>Tab 8, section 8.3</b>
Connector cables	See <b>Tab 10, section 10.1</b>

##### Notes

② See listing of compatible connector cables on **Page V8-T3-20**.

① For cable lengths longer than 2 meters, add the number of the desired length in meters to the end of the listed catalog number (for catalog numbers ending with a number, add an **S** and then the length). Examples for a 5-meter cable: E57-18LE12-A becomes E57-18LE12-A**5**; E57LAL12A2 becomes E57LAL12A2**S5**.

② For a full selection of connector cables, see **Tab 10, section 10.1**.

### Technical Data and Specifications

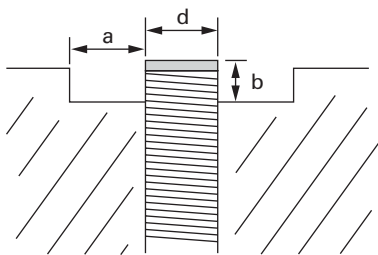
#### E57P Performance Sensors

Description	Performance Three-Wire DC Sensors
Operating voltage	10–48 Vdc
Output current (continuous)	300 mA
Switching frequency [Hz]	Standard range: 12 mm—Shielded: 2000; Unshielded: 2000 18 mm—Shielded: 1200; Unshielded: 1200 30 mm—Shielded: 600; Unshielded: 500 Extended range: 12 mm—Shielded: 1200; Unshielded: 500 18 mm—Shielded: 300; Unshielded: 300 30 mm—Shielded: 400; Unshielded: 200
Leakage current	<100 $\mu$ A
Output voltage drop [Vsat]	<2.5 V
Current consumption	<10 mA
Short-circuit protection	Yes (Auto Reset)
Hysteresis [% of Sr]	2–20%
Repeat accuracy	1% shielded, 3% unshielded
Time delay before availability	<200 ms
Output indicator LED	360° amber LED
Operating temperature range	–40 to 70 °C
Ingress protection	IEC IP67, IP69K, UL Type 1, NEMA Type 6P, NEMA Type 4X
Shock	30 g, 11 ms per IEC 68-2-76
Vibration	10 to 55 Hz, 1 mm amplitude
Housing materials	Front face: Ryton Tube: Stainless steel End bells: M12 body: Polycarbonate Cable end bell: Polycarbonate Nuts: Stainless steel
Cable	AWM style 20387 (PVC)

#### Recommended Mounting Clearances

For unshielded standard range sensors and extended range sensors, clearance must be provided around the sensor when mounting for reliable performance. (“Sn” is the sensing range of the sensor, “d” is the sensor diameter.)

#### E57P Performance Sensors, Mounting



Type	Shielding	a	b
Standard range	Shielded	0	0
	Unshielded	Cap height	2 x 5n
Extended range	Shielded	0	0
	Unshielded	Cap height	2 x Sn

#### Note

Ryton® is a registered trademark of Phillips Chemical (division of Phillips Petroleum).

① 40–240 Vac at <–4 °F (<–20 °C).

# 3.2

## Inductive Proximity Sensors

### E57P Performance Series Sensors

#### Wiring Diagrams

Pin numbers are for reference, rely on pin location when wiring.

#### E57P Performance Sensors

3

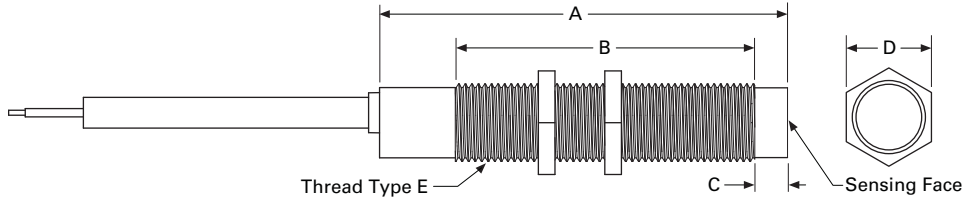
Operating Voltage	Output	Cable Models	Connector Models (Face View Male Shown) Micro
<b>Three-Wire Sensors</b>			
10–48 Vdc	NO (NPN)		
	NO (PNP)		
	NC (NPN)		
	NC (PNP)		

### Dimensions

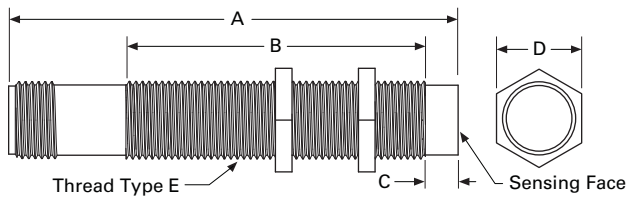
Approximate Dimensions in Inches (mm)

#### E57P Performance Series Sensors, End Sensing<sup>①</sup>

##### Cable Models



##### Connector Models



Size	Shielding	Overall Length A	Threaded Length B	Cap Height C	Nut Width D	Thread Size E
<b>Three-Wire DC Sensors—Cable Models</b>						
12 mm	Shielded	2.52 (64.1)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
	Unshielded	2.52 (64.1)	1.80 (45.8)	0.20 (5.0)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.59 (65.9)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
	Unshielded	2.59 (65.9)	1.75 (44.4)	0.28 (7.0)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.67 (67.7)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
	Unshielded	2.67 (67.7)	1.49 (37.8)	0.51 (13.0)	1.41 (35.9)	M30 x 1.5
<b>Three-Wire DC Sensors—Micro-Connector Models</b>						
12 mm	Shielded	2.70 (68.7)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
	Unshielded	2.70 (68.7)	1.80 (45.8)	0.20 (5.0)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.72 (69.2)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
	Unshielded	2.72 (69.2)	1.75 (44.4)	0.28 (7.0)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.79 (70.9)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
	Unshielded	2.79 (70.9)	1.49 (37.8)	0.51 (13.0)	1.41 (35.9)	M30 x 1.5

#### Note

<sup>①</sup> These dimensions apply to the Performance Series models in this section.

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