

3.16

Inductive Proximity Sensors

E51 Limit Switch Style, Factory Sealed 6P+ Sensors

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3

Contents

<i>Description</i>	<i>Page</i>
E51 Limit Switch Style, Factory Sealed 6P+ Sensors	
Product Selection	
Unitized Sensors	V8-T3-93
Compatible Connector Cables	V8-T3-93
Accessories	V8-T3-94
Technical Data and Specifications	V8-T3-94
Wiring Diagrams	V8-T3-95
Dimensions	V8-T3-95

E51 Limit Switch Style, Factory Sealed 6P+ Sensors

Product Description

E51 6P+ Inductive Proximity Sensors from Eaton's Electrical Sector are fully sealed, pre-wired and designed specifically to ensure reliability under the most adverse of environmental conditions. They have been proven to withstand the penetrating properties of dirt, dust, grit, extreme temperatures and humidity. The unitized design eliminates plug-in connections that can lead to reliability problems in rugged environments.

Features

- The one-piece body and sensing head are both epoxy filled to protect internal components from contamination
- The head is hard-wired to the sensor body to ensure trouble-free performance
- Choose from top and side sensing heads
- Side sensing heads can be rotated to any of four positions
- Mounting dimensions allow direct replacement of worn out limit switches
- Rugged zinc die cast construction withstands physical abuse
- Connection options include pre-wired cable, body mounted connector and pigtail connector

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.

For the most current information on this product, visit our Web site: www.eaton.com

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

Unitized Sensors

Assembled Sensor with 8 ft Cable ^①



Sensor Heads ^②

Top Sensing ^②



Side Sensing ^②



Factory Sealed 6P+ Assembled Sensors

Sensing Range	Shielding	Frequency ^③	Two-Wire Sensors		Four-Wire Sensors		
			Operating voltage	Output	120 Vac	10–30 Vdc	
			NO	NC	NO and NC complementary	NO and NC complementary	
			PNP		NPN		
			Assembled Sensor with Head, Sensor Body and Receptacle				
			Catalog Number				
Top Sensing							
0.51 in (13 mm)	Shielded	Standard	E51ALT16PU	E51BLT16PU	E51CLT16PU	E51PLT16PU	E51NLT16PU
		Alternate	E51ALT26PU	E51BLT26PU	E51CLT26PU	E51PLT26PU	E51NLT26PU
0.94 in (24 mm)	Unshielded	Standard	E51ALT56PU	E51BLT56PU	E51CLT56PU	E51PLT56PU	E51NLT56PU
		Alternate	E51ALT66PU	E51BLT66PU	E51CLT66PU	E51PLT66PU	E51NLT66PU
Side Sensing							
0.51 in (13 mm)	Shielded	Standard	E51ALS16PU	E51BLS16PU	E51CLS16PU	E51PLS16PU	E51NLS16PU
		Alternate	E51ALS26PU	E51BLS26PU	E51CLS26PU	E51PLS26PU	E51NLS26PU
0.94 in (24 mm)	Unshielded	Standard	E51ALS56PU	E51BLS56PU	E51CLS56PU	E51PLS56PU	E51NLS56PU
		Alternate	E51ALS66PU	E51BLS66PU	E51CLS66PU	E51PLS66PU	E51NLS66PU

Compatible Connector Cables

Standard Cables ^⑥

Mini-Style Straight Female



Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
Mini-Style, Straight Female						
13A	—	3-pin	16 AWG	6 ft (2m)	1-Green 2-Black 3-White	CSMS3F3CY1602
10A	—	4-pin	16 AWG	6 ft (2m)	1-Black 2-Blue 3-Brown 4-White	CSMS4A4CY1602
8A	AC/DC	5-pin, 5-wire	16 AWG	6 ft (2m)	1-Black 2-Blue 3-Orange 4-Brown 5-White	CSMS5A5CY1602

Notes

^① Switch bases feature 8 ft of SOOW-A cable. Other connection options are available:

Connection Option ^④	Instructions	Example
Mini-connector mounted on 3 ft (0.9m) pigtail cable (3-pin for two-wire sensors; 5-pin for four-wire sensors)	Add the letter T before U	E51ALT16PTU
Mini-connector mounted to switch base (3-pin for two-wire sensors; 5-pin for four-wire sensors)	Add the letter C before U	E51ALT16PCU
Cable longer than 8 ft, add required length in 1 ft increments to listed catalog number—20 ft maximum	Add length in feet to end of catalog number	E51ALT16PU12 ^⑤

^② Sensor head is hard wired to sensor body and cannot be detached. Side sensing head can be unfastened and rotated to any of four positions.

^③ Sensor heads feature color coded target symbols: Yellow for standard frequency; Green for alternate frequency.

^④ See listing of compatible connector cables above.

^⑤ For 12 ft.

^⑥ For a full selection of connector cables, see **Tab 10, section 10.1**.

3.16





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Accessories

3

E51 Limit Switch Style, Factory Sealed 6P+ ^①

Description	Catalog Number
One Hole 	Universal Mounting Bracket Includes mounting hardware, stainless steel E51KH2
Two Holes 	Includes mounting hardware, steel E51KH4
Machine Mounting Bracket 	Machine Mounting Bracket Zinc die cast construction E50KH3
Stand-Off Mounting Bracket 	Stand-Off Mounting Bracket Steel construction E51KH3

Dimensions, see **Page V8-T3-95**.

Technical Data and Specifications

E51 Limit Switch Style, Factory Sealed 6P+

Description	Specification
Output rating (NEMA D150)	
AC/DC models	0.5A continuous
AC models	1A continuous
DC models	0.6A continuous
Protection	Latching short circuit protection on two-wire AC/DC and three-wire DC models
Switching rate	AC models: 15 Hz; DC models: 50 Hz
Indicator LEDs	Lights when output is ON. One LED for each output
Alternate frequency	Standard and alternate frequencies allow side-by-side operation without interference
Enclosure material	Cast metal
Gasket material	Zinc die cast
Enclosure ratings	NEMA 3, 3S, 4, 4X, 6, 6P, 12 and 13 (IP68)
Temperature range	-13° to 158°F (-25° to 70°C)
Torque requirements	Switch body screws: 25–30 in-lbs; sensing head screws: 14–18 in-lbs
OFF-state leakage	DC version: 120 µA; two-wire AC: 1.9 mA maximum; three-wire AC: 1.1 mA
ON-state leakage	<2.5 Vdc

Note

^① For a full selection of connector cables, see **Tab 10, section 10.1**.

Wiring Diagrams

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

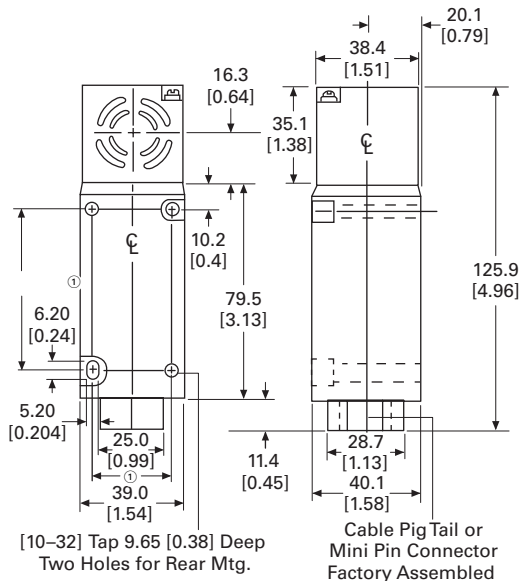
E51 Limit Switch Style, Factory Sealed 6P+

Operating Voltage	Output	Cable Models	Mini-Connector Models (Face View Male Shown)
Two-Wire Sensors			
20–264 Vac or Vdc 50/60 Hz	NO or NC (NO shown)		
Four-Wire Sensors			
120 Vac 50/60 Hz	NO and NC		
10–30 Vdc	NO and NC NPN		
	NO and NC PNP		

Dimensions

Approximate Dimensions in mm [in]

E51 Limit Switch Style, Factory Sealed 6P+



Note

① Can accommodate both U.S., 29.4 [1.16] x 59.5 [2.34] and DIN, 30 [1.18] x 60 [2.36], mounting dimensions.

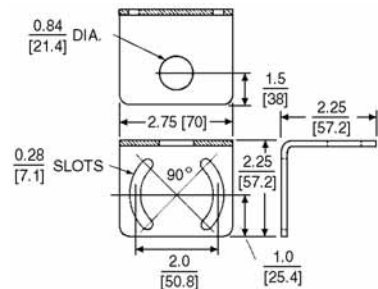
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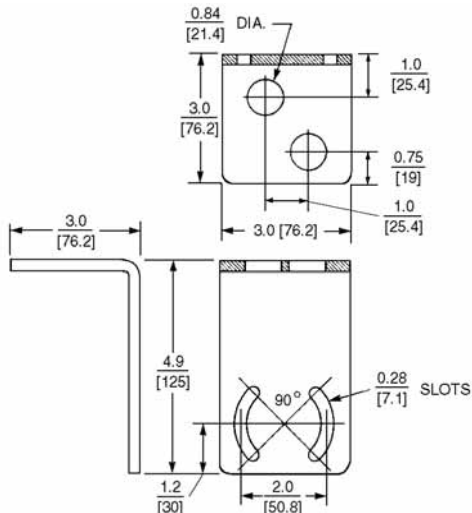
Approximate Dimensions in Inches [mm]

Accessories

Universal Mounting Bracket—One Hole

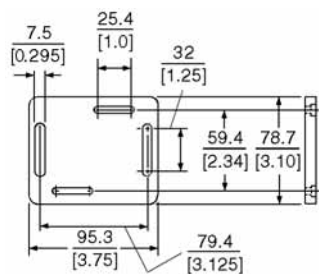


Universal Mounting Bracket—Two Holes

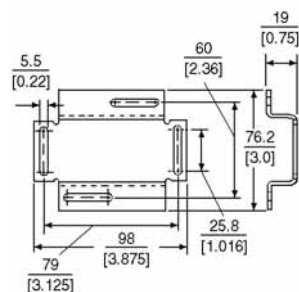


Approximate Dimensions in mm [in]

Machine Mounting Bracket



Stand-Off Mounting Bracket



Note

① Can accommodate both U.S., 29.4 [1.16] x 59.5 [2.34] and DIN, 30 [1.18] x 60 [2.36], mounting dimensions.