

#### E51 Modular Limit Switch Style Sensors

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### E51 Modular Limit Switch Style Sensors

#### Product Description

The E51 Inductive Proximity Sensor family from Eaton's Electrical Sector combines high performance with a familiar limit switch style housing. Modular, plug-in components provide application flexibility, ease of maintenance, less downtime and reduced inventory. Choose from two-wire sensors with AC/DC operation, or four-wire sensors in either AC or DC styles. Connection options include terminal, mini-connector or various lengths of cable.

Choose from standard sensors that detect all types of metallic targets. The next page provides more detail on these sensors.

#### Features

- Rugged construction is ideal for industrial environments
- Viton gaskets ensure a positive seal and high resistance to industry chemicals
- Direct replacement for worn out limit switches
- Sensor heads and bodies feature captive screws to eliminate loss
- All sensor heads include a selector switch to program output function to either NO or NC
- Sensor bodies feature bifurcated engagement prongs for a reliable connection when plugging into receptacle stabs

- Engagement key between sensor body and receptacle prevents improper assembly
- Sensors accommodate both U.S. and DIN mounting dimensions
- Wiring terminals feature captive pressure plate saddles for #18 to #12 AWG wire. A green screw identified ground terminal is also included
- Logic modules are available to provide additional control functions

#### Standards and Certifications

- UL Listed, E166051, E183975
- CSA Certified, 50513
- RoHS Compliant



#### **⚠ 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](http://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

#### Standard Sensors—Assembled with Terminal Wiring

Standard E51 sensors feature long sensing ranges and a choice of top or side sensing heads. Alternate frequency units eliminate interference when mounted close to standard frequency units. Order sensors in component form, as assembled plug-in units, or in a sealed version where the sensor body is factory assembled to an epoxy filled receptacle with tamper-proof screws to ensure a lasting seal.

#### Assembled Sensor



#### Assembled Sensors—Standard (with Terminal Wiring)

##### Sensor Body and Receptacle



Operating voltage	20–264 Vac/dc	<b>Two-Wire Sensors</b>		<b>Four-Wire Sensors</b>		10–30 Vdc	
Output	NO or NC <sup>①</sup>	NO and NC complementary		NO and NC complementary		NO and NC complementary	
Sensor body	<b>E51SAL</b>	<b>E51SCL</b>	<b>E51SCN</b> Accepts logic modules <sup>②</sup>	<b>E51SPL</b> PNP	<b>E51SNL</b> NPN		
Receptacle <sup>③</sup>	<b>E51RA</b>	<b>E51RC</b>	<b>E51RCB</b>	<b>E51RN</b>	<b>E51RN</b>		

#### Sensor Heads <sup>①</sup>

##### Top Sensing



##### Side Sensing



Sensing Range	Shielding	Frequency	Sensor Head Only Catalog Number	Assembled Sensors with Head, Sensor Body and Receptacle Catalog Number					
<b>Top Sensing</b>									
0.51 in (13 mm)	Shielded	Standard	<b>E51DT1</b>	<b>E51ALT1</b>	<b>E51CLT1</b>	<b>E51CNT1</b>	<b>E51PLT1</b>	<b>E51NLT1</b>	
		Alternate	<b>E51DT2</b>	<b>E51ALT2</b>	<b>E51CLT2</b>	<b>E51CNT2</b>	<b>E51PLT2</b>	<b>E51NLT2</b>	
0.94 in (24 mm)	Unshielded	Standard	<b>E51DT5</b>	<b>E51ALT5</b>	<b>E51CLT5</b>	<b>E51CNT5</b>	<b>E51PLT5</b>	<b>E51NLT5</b>	
		Alternate	<b>E51DT6</b>	<b>E51ALT6</b>	<b>E51CLT6</b>	<b>E51CNT6</b>	<b>E51PLT6</b>	<b>E51NLT6</b>	
<b>Side Sensing</b>									
0.51 in (13 mm)	Shielded	Standard	<b>E51DS1</b>	<b>E51ALS1</b>	<b>E51CLS1</b>	<b>E51CNS1</b>	<b>E51PLS1</b>	<b>E51NLS1</b>	
		Alternate	<b>E51DS2</b>	<b>E51ALS2</b>	<b>E51CLS2</b>	<b>E51CNS2</b>	<b>E51PLS2</b>	<b>E51NLS2</b>	
0.94 in (24 mm)	Unshielded	Standard	<b>E51DS5</b>	<b>E51ALS5</b>	<b>E51CLS5</b>	<b>E51CNS5</b>	<b>E51PLS5</b>	<b>E51NLS5</b>	
		Alternate	<b>E51DS6</b>	<b>E51ALS6</b>	<b>E51CLS6</b>	<b>E51CNS6</b>	<b>E51PLS6</b>	<b>E51NLS6</b>	

#### Notes

<sup>①</sup> All sensor heads feature a programmable output selector switch for NO or NC operation. Operation is as follows:

For This Output Type:	Set Selector Position:	
	"TARGET"	"NO TARGET"
NO	Target present	Target absent
NC	Target absent	Target present

<sup>②</sup> Logic module must be ordered separately, see **Page V8-T3-91**. These sensor bodies are rated NEMA 4, 4X and 13.

<sup>③</sup> Receptacles feature terminal wiring with a 1/2 in NPT thread at the conduit entrance. Other connection options are available:

Connection Option	Catalog Number	Code Suffix	Example
20 mm thread at the conduit entrance	—	<b>20</b>	<b>E51ALT120</b>
Mini-connector termination with epoxy filled receptacle, see <b>Page V8-T3-92</b> for additional receptacle options	Two-wire, 3-pin connector	<b>CSMS3F3CY1602</b>	<b>P3</b> <b>E51ALT1P3</b>
	Four-wire, 5-pin connector	<b>CSMS5D5CY1602</b>	<b>P5</b> <b>E51CLT1P5</b>
Pre-wired cable with epoxy filled receptacle	8 ft long	—	<b>S</b> <b>E51ALT1S</b>
	12 ft long	—	<b>S12</b> <b>E51ALT1S12</b>
	20 ft long	—	<b>S20</b> <b>E51ALT1S20</b>

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## Inductive Proximity Sensors

### E51 Modular Limit Switch Style Sensors

#### Standard Sensors—Assembled with Receptacles

Sensor body is attached to receptacle with tamper-proof screws.

#### Assembled Sensor



#### Assembled Sensors—Standard (with Epoxy Filled Receptacles and Pre-wired Cables)

##### Sensor Base Type with 8 ft Cable ②



Operating voltage	<b>Two-Wire Sensors</b> 20–264 Vac/dc	<b>Four-Wire Sensors</b> 120 Vac		10–30 Vdc	
Output	NO or NC ①	NO and NC complementary	PNP	NO and NC complementary NPN	

#### Sensor Heads ①

##### Top Sensing



Sensing Range	Shielding	Frequency	Sensor Head Only Catalog Number	Assembled Sensors with Head and Sensor Base Catalog Number			
<b>Top Sensing</b>							
0.51 in (13 mm)	Shielded	Standard	<b>E51DT1</b>	<b>E51ALT16P</b>	<b>E51CLT16P</b>	<b>E51PLT16P</b>	<b>E51NLT16P</b>
		Alternate	<b>E51DT2</b>	<b>E51ALT26P</b>	<b>E51CLT26P</b>	<b>E51PLT26P</b>	<b>E51NLT26P</b>
0.94 in (24 mm)	Unshielded	Standard	<b>E51DT5</b>	<b>E51ALT56P</b>	<b>E51CLT56P</b>	<b>E51PLT56P</b>	<b>E51NLT56P</b>
		Alternate	<b>E51DT6</b>	<b>E51ALT66P</b>	<b>E51CLT66P</b>	<b>E51PLT66P</b>	<b>E51NLT66P</b>
<b>Side Sensing</b>							
0.51 in (13 mm)	Shielded	Standard	<b>E51DS1</b>	<b>E51ALS16P</b>	<b>E51CLS16P</b>	<b>E51PLS16P</b>	<b>E51NLS16P</b>
		Alternate	<b>E51DS2</b>	<b>E51ALS26P</b>	<b>E51CLS26P</b>	<b>E51PLS26P</b>	<b>E51NLS26P</b>
0.94 in (24 mm)	Unshielded	Standard	<b>E51DS5</b>	<b>E51ALS56P</b>	<b>E51CLS56P</b>	<b>E51PLS56P</b>	<b>E51NLS56P</b>
		Alternate	<b>E51DS6</b>	<b>E51ALS66P</b>	<b>E51CLS66P</b>	<b>E51PLS66P</b>	<b>E51NLS66P</b>

##### Side Sensing



#### Sensor Heads

##### Sensor Heads ①

##### Top Sensing



Sensing Range	Shielding	Frequency	Target Material	Catalog Number
<b>Top Sensing</b>				
0.51 in (13 mm)	Shielded	Standard	All metals	<b>E51DT1</b>
		Alternate		<b>E51DT2</b>
0.94 in (24 mm)	Unshielded	Standard	All metals	<b>E51DT5</b>
		Alternate		<b>E51DT6</b>
<b>Side Sensing</b>				
0.51 in (13 mm)	Shielded	Standard	All metals	<b>E51DS1</b>
		Alternate		<b>E51DS2</b>
0.94 in (24 mm)	Unshielded	Standard	All metals	<b>E51DS5</b>
		Alternate		<b>E51DS6</b>

##### Side Sensing



#### Notes

① All sensor heads feature a programmable output selector switch for NO or NC operation. Operation is as follows:

For This Output Type:	Set Selector Position:	
	"TARGET"	"NO TARGET"
NO	Target present	Target absent
NC	Target absent	Target present

② Switch bases feature 8 ft of SOOW-A cable. Other connection options are available:

Connection Option ③	Suffix	Example
Mini-connector mounted on 3 ft (0.9m) pigtail cable	<b>T</b>	<b>E51ALT16PT</b>
Mini-connector mounted to switch base	<b>C</b>	<b>E51ALT16PC</b>
Cable longer than 8 feet, add required length in 1 ft increments to listed catalog number—20 ft maximum	<b>Length in ft</b>	<b>E51ALT16P12 for 12 ft</b>

③ See listing of compatible connector cables on **Page V8-T3-93**.

### Sensor Bodies

#### Two-Wire Sensors

Operating Voltage	Output	Protection	Output Rating Continuous	Type	Catalog Number
<b>AC/DC</b>	<b>AC/DC</b>				
20–264 Vac/dc, 50/60 Hz	1 output, load powered, NO or NC, programmable from head; off state leakage current: <1.7 mA at 120 Vac/dc, <2.0 mA at 240 Vac	Latching short circuit and overload	0.5 A	—	<b>E51SAL</b> ①



#### Four-Wire Sensors

Operating Voltage	Output	Protection	Output Rating Continuous	Type	Catalog Number
<b>AC (E51SCN Shown)</b>	<b>AC</b>				
120 Vac, 50/60 Hz	2 complementary outputs, line powered, NO and NC	—	1.0 A to 158 °F (70 °C), linearly derated to 0.6 A at 176 °F (80 °C)	—	<b>E51SCL</b> ①
			1.0 A to 113 °F (45 °C), linearly derated to 0.3 A at 176 °F (80 °C)	—	<b>E51SCN</b> ②③
<b>DC</b>	<b>DC</b>				
10–30 Vdc	2 complementary outputs, line powered, NO and NC	Reverse polarity	0.6 A to 104 °F (40 °C), linearly derated to 0.36A at 176 °F (80 °C)	NPN	<b>E51SNL</b> ①
				PNP	<b>E51SPL</b> ①



### Logic Module

#### Logic Module (for E51SCN Sensor Body Only)

Type	Description	Timing Range ④	Catalog Number
<b>Logic Module</b> ⑤	ON and OFF delay Adjustable delay between time object is sensed and time switch function occurs  Adjustable delay between time object leaves sensing field and time switch transfers back to non-sensing state	0.15 to 15.0 seconds	<b>E51MTB</b>



#### Notes

- ① This sensor body is available in a factory-sealed, non plug-in configuration (with 8-ft cable), add **6P** to listed catalog number. Example: E51SAL**6P**.
- ② Sensor body is black. E51SCN sensor bodies are rated NEMA 4, 4X and 13.
- ③ This sensor accepts logic modules, as seen in chart above.
- ④ Repeatability of the timing cycle is ±1% at constant voltage, ambient temperature and reset time.
- ⑤ Reset time is 25 ms minimum. Rated NEMA 4, 4X and 13.

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## Inductive Proximity Sensors

### E51 Modular Limit Switch Style Sensors

#### Receptacles

#### Receptacles

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	Description	Style	Details	Cable Length	Conduit Entrance 1/2 in NPT Catalog Number	20 mm Catalog Number
<b>Surface Mount</b> 	<b>Surface Mount</b>					
	Conduit entrance, front or rear mounting	Two-wire, AC/DC	—	—	<b>E51RA</b>	<b>E51RA20</b>
		Four-wire, AC	Gray	—	<b>E51RC</b>	<b>E51RC20</b>
			Black ①	—	<b>E51RCB</b>	<b>E51RCB20</b>
Four-wire, DC	—	—	<b>E51RN</b>	<b>E51RN20</b>		
<b>Mini-Connector</b> 	<b>Mini-Connector</b>					
	Epoxy filled receptacle with pre-wired mini-connector	Two-wire, AC/DC	3-pin	—	<b>E51RAP3</b> ☺	—
		Four-wire, AC	5-pin	—	<b>E51RCP5</b> ☺	—
Four-wire, DC		5-pin	—	<b>E51RNP5</b> ☺	—	
<b>Pigtail with Mini-Connector</b> 	<b>Pigtail with Mini-Connector</b>					
	Epoxy filled receptacle with mini-connector mounted on 3 ft (0.9m) cable	Two-wire, AC/DC	3-pin	3 ft (0.9m)	<b>E51RAPT3</b> ☺	—
		Four-wire, AC	5-pin	3 ft (0.9m)	<b>E51RCP5T</b> ☺	—
Four-wire, DC		5-pin	3 ft (0.9m)	<b>E51RNPT5</b> ☺	—	
<b>Pre-Wired Cable</b> 	<b>Pre-Wired Cable</b>					
	Epoxy filled receptacle with pre-wired 16 gauge, yellow jacketed, type SOOW-A cable. Cable enters through hole threaded for conduit	Two-wire, AC/DC	3-conductor	8 ft (2.4m)	<b>E51RAS</b>	<b>E51RA20S</b>
				12 ft (3.6m)	<b>E51RAS12</b>	—
				20 ft (6m)	<b>E51RAS20</b>	—
		Four-wire, AC	5-conductor	8 ft (2.4m)	<b>E51RCS</b>	<b>E51RC20S</b>
				12 ft (3.6m)	<b>E51RCS12</b>	—
				20 ft (6m)	<b>E51RCS20</b>	—
		Four-wire, DC	5-conductor	8 ft (2.4m)	<b>E51RNS</b>	<b>E51RN20S</b>
				12 ft (3.6m)	<b>E51RNS12</b>	—
20 ft (6m)				<b>E51RNS20</b>	—	





#### Notes

☺☺ See listing of compatible connector cables on [Page V8-T3-93](#).

① Black receptacle is for color compatibility with E51SCN sensor body.






### Compatible Connector Cables

#### Standard Cables <sup>①</sup>

	Current Rating at 600 V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
<b>Micro-Style Straight Female</b> 	<b>Micro-Style, Straight Female</b>						
	13 A	—	3-pin	16 AWG	6 ft (2m)	 1-Green 2-Black 3-White	CSMS3F3CY1602
	10 A	AC/DC	4-pin, four-wire	16 AWG	6 ft (2m)	 1-Black 2-Blue 3-Brown 4-White	CSMS4A4CY1602
	8 A	—	5-pin	16 AWG	6 ft (2m)	 1-White 2-Red 3-Green 4-Orange 5-Black	CSMS5D5CY1602

### Accessories

#### E51 Modular Limit Switch Style Sensors

	Description	Catalog Number
<b>One Hole</b> 	<b>Universal Mounting Bracket</b> One hole, includes mounting hardware, stainless steel	E51KH2
<b>Two Holes</b> 	<b>Universal Mounting Bracket</b> Two holes, includes mounting hardware, steel	E51KH4
<b>Machine Mounting Bracket</b> 	<b>Machine Mounting Bracket</b> Zinc die cast construction	E50KH3
<b>Stand-Off Mounting Bracket</b> 	<b>Stand-Off Mounting Bracket</b> Steel construction	E51KH3
<b>Remote Sensor Head Assembly</b> 	<b>Remote Sensor Head Assembly</b> Permits mounting sensor head up to 3 ft (0.9m) from sensor body	E51KRM

Dimensions, see Page V8-T3-95.

#### Note

<sup>①</sup> For a full selection of connector cables, see Tab 10, section 10.1.

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## Inductive Proximity Sensors

### E51 Modular Limit Switch Style Sensors

#### Technical Data and Specifications

##### E51 Modular Limit Switch Style Sensors

Description	Specification
Output rating (NEMA D150)	
AC/DC models	0.5 A continuous
AC models	1 A continuous
DC models	0.6 A continuous
Protection	Latching short-circuit protection on two-wire AC/DC models; DC models: resettable short-circuit protection
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	Zinc die cast
Gasket material	Viton
Enclosure ratings	NEMA 3, 3S, 4, 4X, 6, 6P, 12 and 13 (IP67); E51SCN sensor body only: NEMA 4, 4X and 13
Hazardous locations ratings	
Class I	Division II—GRPS ABCD
Class II	Division II—GRPS F and G
Class III	Division 2
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
Vibration	10-55 Hz, 1 mm amplitude
Shock	30 g, 11 ms, 1/2 sine wave
Humidity	95% non-condensing
Burden current	<25 mA
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
Power-up delay	<150 ms

#### Wiring Diagrams

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

##### E51 Modular Limit Switch Style Sensors

Operating Voltage	Output	Terminal and Cable Models	Mini-Connector Models (Face View Male Shown)
<b>Two-Wire Sensors</b>			
20-264 Vac or Vdc 50/60 Hz	NO or NC (NO shown, can be changed to NC using switch on sensor head)		
<b>Four-Wire Sensors</b>			
120 Vac 50/60 Hz	NO and NC ①		
10-30 Vdc	NO and NC NPN ①		
	NO and NC PNP ①		

#### Note

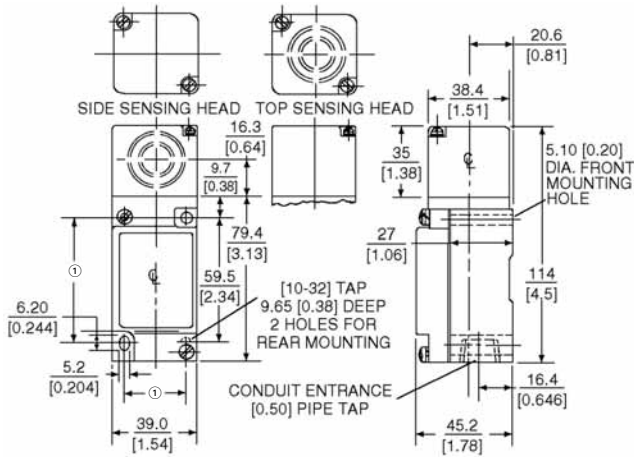
① Changing output switch on sensor head will reverse output function (NO becomes NC, and NC becomes NO).

### Dimensions

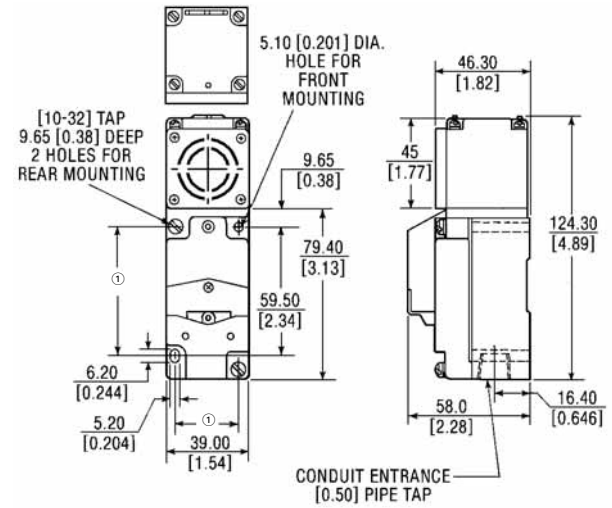
Approximate Dimensions in mm [in]

#### E51 Modular Limit Switch Style Sensors

##### Standard Sensors



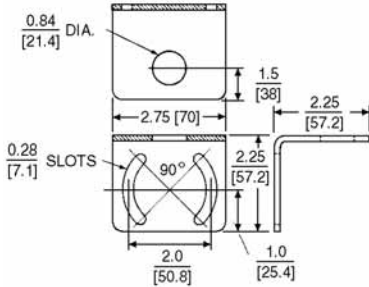
##### Sensor with Logic Module



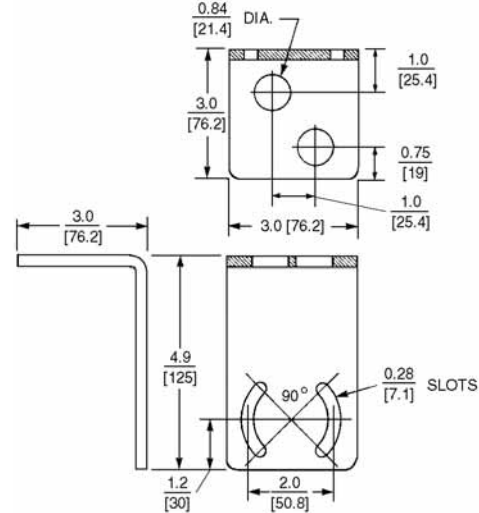
### Accessories

Approximate Dimensions in Inches [mm]

#### Universal Mounting Bracket—One Hole



#### Universal Mounting Bracket—Two Holes



### 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 are in mm [in].

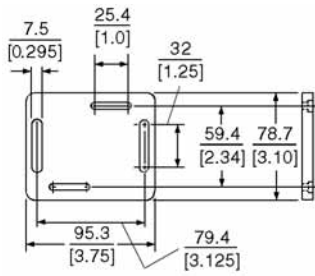
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## E51 Modular Limit Switch Style Sensors

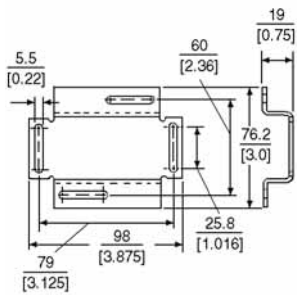
Approximate Dimensions in mm [in]

### Machine Mounting Bracket

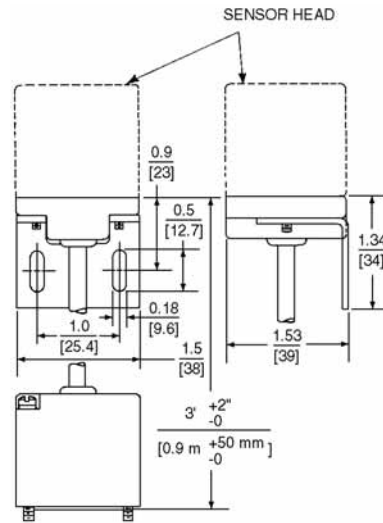
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### Stand-Off Mounting Bracket



### Remote Sensor Head Assembly



### E51 Limit Switch Style, Factory Sealed 6P+ Sensors



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### 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

#### Standards and Certifications

- UL Listed, E166051
- CSA Certified, 50513
- RoHS Compliant



#### 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](http://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.

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## Inductive Proximity Sensors

E51 Limit Switch Style, Factory Sealed 6P+ Sensors

### Product Selection

#### Unitized Sensors

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#### 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 and NC complementary
			Assembled Sensor with Head, Sensor Body and Receptacle				
			Catalog Number				
<b>Top Sensing</b>							
0.51 in (13 mm)	Shielded	Standard	<b>E51ALT16PU</b>	<b>E51BLT16PU</b>	<b>E51CLT16PU</b>	<b>E51PLT16PU</b>	<b>E51NLT16PU</b>
		Alternate	<b>E51ALT26PU</b>	<b>E51BLT26PU</b>	<b>E51CLT26PU</b>	<b>E51PLT26PU</b>	<b>E51NLT26PU</b>
0.94 in (24 mm)	Unshielded	Standard	<b>E51ALT56PU</b>	<b>E51BLT56PU</b>	<b>E51CLT56PU</b>	<b>E51PLT56PU</b>	<b>E51NLT56PU</b>
		Alternate	<b>E51ALT66PU</b>	<b>E51BLT66PU</b>	<b>E51CLT66PU</b>	<b>E51PLT66PU</b>	<b>E51NLT66PU</b>
<b>Side Sensing</b>							
0.51 in (13 mm)	Shielded	Standard	<b>E51ALS16PU</b>	<b>E51BLS16PU</b>	<b>E51CLS16PU</b>	<b>E51PLS16PU</b>	<b>E51NLS16PU</b>
		Alternate	<b>E51ALS26PU</b>	<b>E51BLS26PU</b>	<b>E51CLS26PU</b>	<b>E51PLS26PU</b>	<b>E51NLS26PU</b>
0.94 in (24 mm)	Unshielded	Standard	<b>E51ALS56PU</b>	<b>E51BLS56PU</b>	<b>E51CLS56PU</b>	<b>E51PLS56PU</b>	<b>E51NLS56PU</b>
		Alternate	<b>E51ALS66PU</b>	<b>E51BLS66PU</b>	<b>E51CLS66PU</b>	<b>E51PLS66PU</b>	<b>E51NLS66PU</b>

### Compatible Connector Cables

#### Standard Cables ⑥

#### Mini-Style Straight Female



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

#### Notes

① Switch bases feature 8 ft of S00W-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 <b>T</b> before <b>U</b>	<b>E51ALT16PTU</b>
Mini-connector mounted to switch base (3-pin for two-wire sensors; 5-pin for four-wire sensors)	Add the letter <b>C</b> before <b>U</b>	<b>E51ALT16PCU</b>
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	<b>E51ALT16PU12 ⑤</b>

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**.

### Accessories

#### E51 Limit Switch Style, Factory Sealed 6P+ <sup>①</sup>

	Description	Catalog Number
<b>One Hole</b> 	<b>Universal Mounting Bracket</b> Includes mounting hardware, stainless steel	<b>E51KH2</b>
<b>Two Holes</b> 	Includes mounting hardware, steel	<b>E51KH4</b>
<b>Machine Mounting Bracket</b> 	<b>Machine Mounting Bracket</b> Zinc die cast construction	<b>E50KH3</b>
<b>Stand-Off Mounting Bracket</b> 	<b>Stand-Off Mounting Bracket</b> Steel construction	<b>E51KH3</b>
<b>Dimensions</b> , see <b>Page V8-T3-100</b> .		

### Technical Data and Specifications

#### E51 Limit Switch Style, Factory Sealed 6P+

Description	Specification
Output rating (NEMA D150)	
AC/DC models	0.5 A continuous
AC models	1 A continuous
DC models	0.6 A 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**

<sup>①</sup> For a full selection of connector cables, see **Tab 10, section 10.1**.

# 3.17

## Inductive Proximity Sensors

### E51 Limit Switch Style, Factory Sealed 6P+ Sensors

#### Wiring Diagrams

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

#### E51 Limit Switch Style, Factory Sealed 6P+

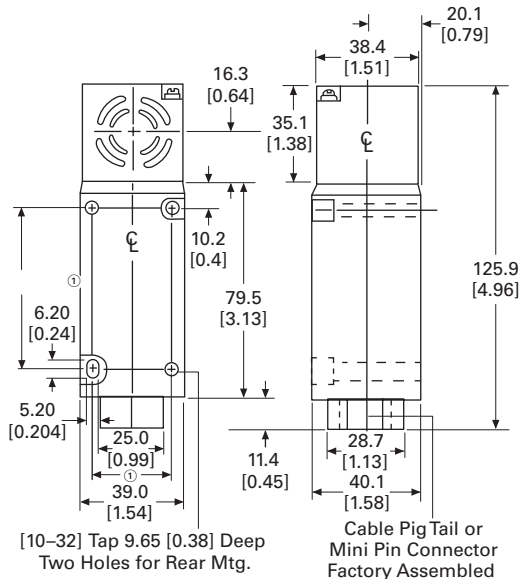
3

Operating Voltage	Output	Cable Models	Mini-Connector Models (Face View Male Shown)
<b>Two-Wire Sensors</b>			
20–264 Vac or Vdc 50/60 Hz	NO or NC (NO shown)		
<b>Four-Wire Sensors</b>			
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+



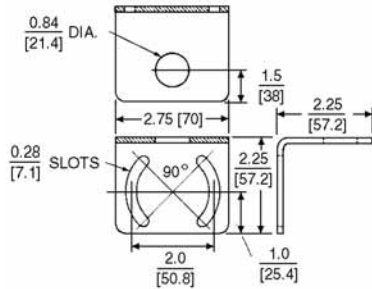
#### Note

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.

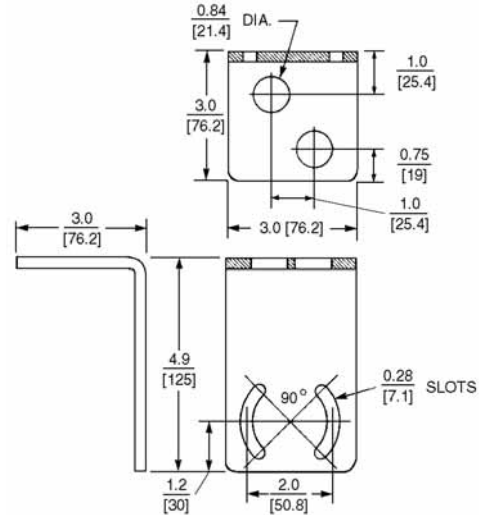
Approximate Dimensions in Inches [mm]

### Accessories

#### Universal Mounting Bracket—One Hole

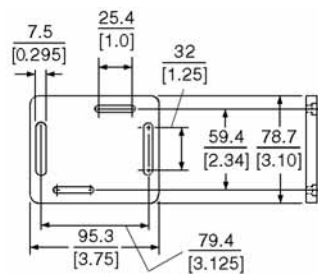


#### Universal Mounting Bracket—Two Holes

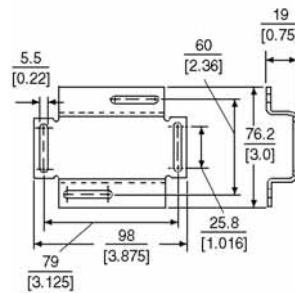


Approximate Dimensions in mm [in]

#### 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.