

## 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

#### Two-Wire Sensors

20–264 Vac/dc

#### Four-Wire Sensors

120 Vac

10–30 Vdc

Output

NO or NC <sup>①</sup>

NO and NC complementary

NO and NC complementary

Sensor body

**E51SAL**

**E51SCL**

**E51SCN**  
Accepts logic  
modules <sup>②</sup>

**E51SPL**  
PNP

**E51SNL**  
NPN

Receptacle <sup>③</sup>

**E51RA**

**E51RC**

**E51RCB**

**E51RN**

**E51RN**

#### 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**

#### Top Sensing

0.51 in  
(13 mm)

Shielded

Standard

**E51DT1**

**E51ALT1**

**E51CLT1**

**E51CNT1**

**E51PLT1**

**E51NLT1**

Alternate

**E51DT2**

**E51ALT2**

**E51CLT2**

**E51CNT2**

**E51PLT2**

**E51NLT2**

0.94 in  
(24 mm)

Unshielded

Standard

**E51DT5**

**E51ALT5**

**E51CLT5**

**E51CNT5**

**E51PLT5**

**E51NLT5**

Alternate

**E51DT6**

**E51ALT6**

**E51CLT6**

**E51CNT6**

**E51PLT6**

**E51NLT6**

#### Side Sensing

0.51 in  
(13 mm)

Shielded

Standard

**E51DS1**

**E51ALS1**

**E51CLS1**

**E51CNS1**

**E51PLS1**

**E51NLS1**

Alternate

**E51DS2**

**E51ALS2**

**E51CLS2**

**E51CNS2**

**E51PLS2**

**E51NLS2**

0.94 in  
(24 mm)

Unshielded

Standard

**E51DS5**

**E51ALS5**

**E51CLS5**

**E51CNS5**

**E51PLS5**

**E51NLS5**

Alternate

**E51DS6**

**E51ALS6**

**E51CLS6**

**E51CNS6**

**E51PLS6**

**E51NLS6**

#### 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>

## Receptacles

## Receptacles

3

## Surface Mount



## Description

## Style

## Details

## Cable Length

Conduit Entrance  
1/2 in NPT  
Catalog Number20 mm  
Catalog Number

## Surface Mount

Conduit entrance, front or rear mounting

Two-wire, AC/DC

—

—

E51RA

E51RA20

Four-wire, AC

Gray

—

E51RC

E51RC20

Black ①

—

E51RCB

E51RCB20

Four-wire, DC

—

—

E51RN

E51RN20

## Mini-Connector



## Mini-Connector

Epoxy filled receptacle with pre-wired mini-connector

Two-wire, AC/DC

3-pin

—

E51RAP3 ☼

—

Four-wire, AC

5-pin

—

E51RCP5 ☼

—

Four-wire, DC

5-pin

—

E51RNP5 ☼

—

## Pigtail with Mini-Connector



## Pigtail with Mini-Connector

Epoxy filled receptacle with mini-connector mounted on 3 ft (0.9m) cable

Two-wire, AC/DC

3-pin

3 ft (0.9m)

E51RAPT3 ☼

—

Four-wire, AC

5-pin

3 ft (0.9m)

E51RCPT5 ☼

—

Four-wire, DC

5-pin

3 ft (0.9m)

E51RNPT5 ☼

—

## Pre-Wired Cable



## Pre-Wired Cable

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)

E51RAS

E51RA20S

12 ft (3.6m)

E51RAS12

—

20 ft (6m)

E51RAS20

—

Four-wire, AC

5-conductor

8 ft (2.4m)

E51RCS

E51RC20S

12 ft (3.6m)

E51RCS12

—

20 ft (6m)

E51RCS20

—

Four-wire, DC

5-conductor

8 ft (2.4m)

E51RNS

E51RN20S

12 ft (3.6m)

E51RNS12

—

20 ft (6m)

E51RNS20

—

## Notes

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

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