

**E51 Limit Switch Style,
 Factory Sealed 6P+
 Inductive Proximity Sensors**

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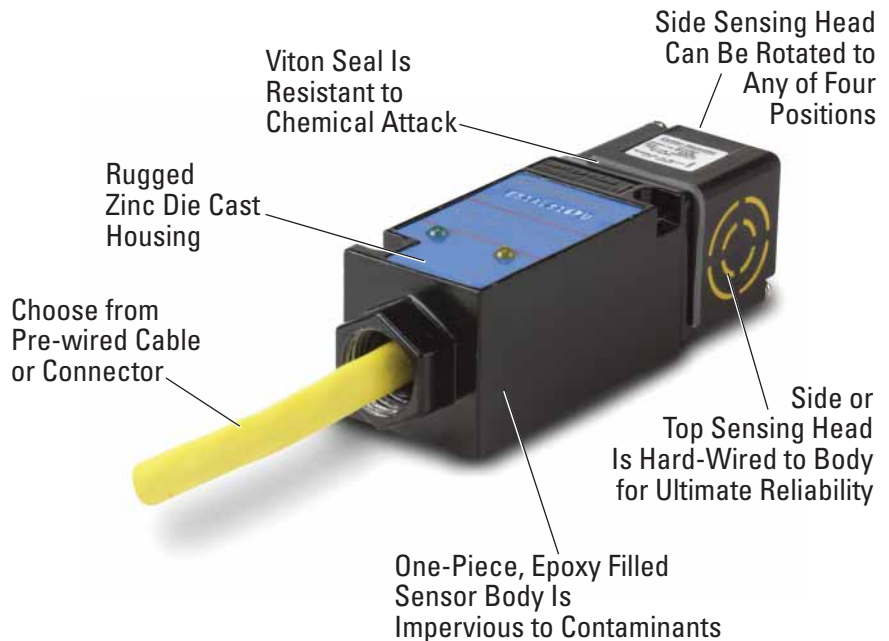
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Cutler-Hammer® E51 6P+ Inductive Proximity Sensors from Eaton's electrical business are fully sealed, pre-wired and designed specifically to ensure reliability under the most adverse of environmental conditions. They have been proven to withstand the 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.



Unless otherwise noted, the products contained in this document are not designed or intended for use in human safety applications.

Unitized 6P+ Sensors Are Built for Reliable Operation and Long Life in Hostile Environments








Product 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

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**.

Model Selection — Unitized Sensors — Factory Sealed 6P+

| Assembled Sensor with 8 Foot Cable ② | | 2-Wire Sensors | | | 4-Wire Sensors | | | |
|---|---------------------|-------------------|-----------------|---|-----------------------------|-----------------------------|-------------------|-------------------|
|  | | Operating Voltage | 20 – 264V AC/DC | | 120V AC | 10 – 30V DC | | |
| | | Output | N.O. | N.C. | N.O. and N.C. Complementary | N.O. and N.C. Complementary | | |
| | | | | | PNP | NPN | | |
| Sensor Heads ① | Sensing Range | Shielding | Frequency ③ | Catalog Number — Assembled Sensors (Head Hard Wired to Sensor Body) | | | | |
|  | 0.51 inches (13 mm) | Shielded | Standard | E51ALT16PU | E51BLT16PU | E51CLT16PU | E51PLT16PU | E51NLT16PU |
| | | | Alternate | E51ALT26PU | E51BLT26PU | E51CLT26PU | E51PLT26PU | E51NLT26PU |
|  | 0.94 inches (24 mm) | Unshielded | Standard | E51ALT56PU | E51BLT56PU | E51CLT56PU | E51PLT56PU | E51NLT56PU |
| | | | Alternate | E51ALT66PU | E51BLT66PU | E51CLT66PU | E51PLT66PU | E51NLT66PU |
|  | 0.51 inches (13 mm) | Shielded | Standard | E51ALS16PU | E51BLS16PU | E51CLS16PU | E51PLS16PU | E51NLS16PU |
| | | | Alternate | E51ALS26PU | E51BLS26PU | E51CLS26PU | E51PLS26PU | E51NLS26PU |
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| | | | Alternate | E51ALS66PU | E51BLS66PU | E51CLS66PU | E51PLS66PU | E51NLS66PU |

① 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.

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




| Connection Option ④ | Instructions | Example |
|---|---|---------------------------------|
| Mini-Connector mounted on 3 foot (900 mm) pigtail cable (3-pin for 2-wire sensors; 5-pin for 4-wire sensors) | Add the letter T before U | E51ALT16PTU |
| Mini-Connector mounted to switch base (3-pin for 2-wire sensors; 5-pin for 4-wire sensors) | Add the letter C before U | E51ALT16PCU |
| Cable longer than 8 feet, add required length in 1 foot increments to listed Catalog Number — 20 foot maximum | Add length in feet to end of Catalog Number | E51ALT16PU12 for 12 feet |

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

④ See listing of compatible connector cables below.

Fast turn product with typical one business day lead-time to shipment.

Model Selection — Compatible Connector Cables ⑤

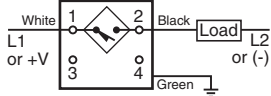
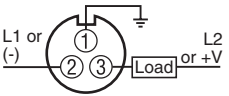
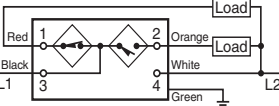
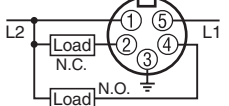
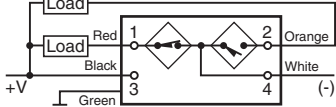
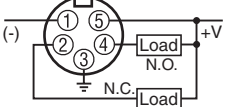
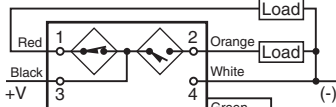
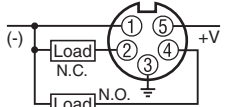
| | Voltage Style | Number of Pins | Gauge | Length | Catalog Number | Pin Configuration/Wire Colors (Face View Female Shown) |
|--|---------------|----------------|--------|-------------|----------------------|---|
| Standard Cables — Mini Style | | | | | | |
| Mini Style Straight Female Current Rating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

⑤ For a full selection of connector cables, see **PG.05.05.T.E.**

Stocked product, typical order quantities guaranteed in stock.

August 2007

Wiring Diagrams (Pin numbers are for reference, rely on pin location when wiring)

| Operating Voltage | Output | Cable Models | Mini-Connector Models (Face View Male Shown) |
|--------------------------------|---------------------------|--|---|
| 2-Wire Sensors | | | |
| 20 – 264V AC or DC 50/60 Hz | N.O. or N.C. (N.O. shown) |  |  |
| 4-Wire Sensors | | | |
| 120V AC 50/60 Hz | N.O. and N.C. |  |  |
| 10 – 30V DC | N.O. and N.C. NPN |  |  |
| | N.O. and N.C. PNP |  |  |

Model Selection — Accessories

| | Description | Catalog Number | Approximate Dimensions in Inches [mm] Except Where Noted |
|------------------|---|-------------------------|--|
| | 1 hole, includes mounting hardware, stainless steel | E51KH2 | |
| | 2 hole, includes mounting hardware, steel | E51KH4 | |
| | Zinc die cast construction | E50KH3 | <p>NOTE: Dimensions in mm [Inches]</p> |
| | Steel construction | E51KH3 | <p>NOTE: Dimensions in mm [Inches]</p> |
| Connector Cables | A variety of cables, connector blocks and accessories | See PG.05.05.T.E | |

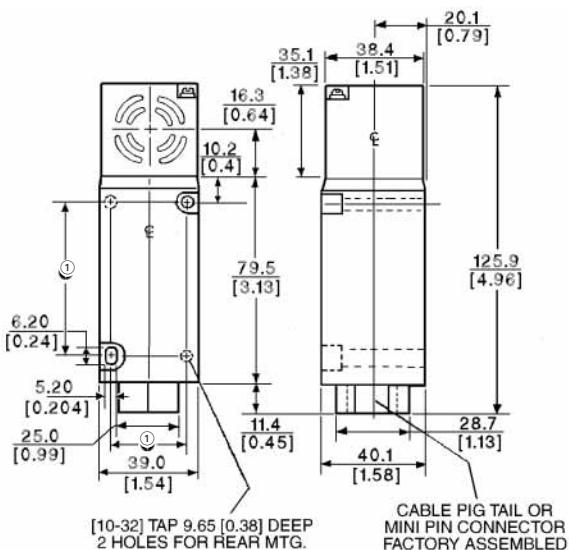
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Specifications

| Description | Specification |
|---|--|
| Output Rating (NEMA D150) AC/DC Models AC Models DC Models | 0.5A continuous 1A continuous 0.6A continuous |
| Protection | Latching short circuit protection on 2-wire AC/DC and 3-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-lb; Sensing Head Screws: 14 – 18 in-lb |
| OFF-State Leakage | DC Version: 120 µA; 2-wire AC: 1.9 mA maximum; 3-wire AC: 1.1 mA |
| ON-State Leakage | <2.5V DC |

Approximate Dimensions in mm [Inches]



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.