PHOTOELECTRIC SENSORS
THE WORLD’S MOST RUGGED AND BEST SEALED PHOTOELECTRIC SENSORS

E58 Series
Starts at

- Tempered Glass Lens Cover Protects Against Abrasion
- Output Indicator is Visible for Full 360°
- All Models Have Visible Red Beam
- Sensors are Available in 18 and 30 mm (0.71 and 1.30”) Diameters
- Highly Refined Optics for Long Sensing Ranges and to See Through High Levels of Contamination—Unmatched Optical Performance
- Perfect Prox® Technology Provides Exceptional Background Rejection and Extremely High Excess Gain
- Resistant to the Wide Range of Chemicals Used in the Automotive, Manufacturing and Forest Products Industries
- Suitable for High Temperature, High Pressure Washdown 83 bar (1200 psi)
- Mechanical FKM Seals Hold up to Extreme Temperature Variations
- Visible Sensing Beam On All Models Lets You See Where the Beam is Aimed for Quick Setup and Alignment
- Output Status Indicator is the Brightest Available and is Visible from Any Angle and in Any Lighting Condition
- The Industry’s Only Background Rejection Sensors with 2-Wire Circuit Design
- Models Available with Both AC and DC Operation in a Single Unit

The Cutler-Hammer® E58 Harsh Duty Series by Eaton’s electrical business was designed to withstand your harshest physical, chemical and optical environments.

Extensive research dictated the choice of materials used in this sensor. Stainless steel, PVDF and tempered glass components are mechanically assembled using FKM seals to ensure complete sealing and resistance to industry chemicals. All adhesives and potting subject to failure from chemical attack have been eliminated from the design. The result is a sensor highly resistant to chemical attack and moisture intrusion, that can withstand heavy shock and vibration in almost any application.

E58 harsh duty sensors feature unparalleled optical performance. They are ideal for automotive applications where exposure to lubricants, cutting fluids, coolants and glycols is common.

SPECIFICATIONS
4-WIRE MODELS
Input Voltage: See “To Order” table
Power Dissipation: 3 W maximum
Output Type 4-Wire:
AC Operation: VMOS (bi-directional)
DC Operation: NPN (sink)
Current Switching 4-Wire:
300 mA max
Voltage Switching 4-Wire:
186V peak maximum
Off-State Leakage: 250 µA typical
500 µA maximum
Surge Current: 2 A maximum
On-State Voltage Drop:
DC Operation (only): 1.8V @ 10 mA;
4.0V @ 300 mA
Response Time:
AC Operation: 10 μS
DC Operation: 2 μS
Short Circuit Protection: Sensor will turn off immediately when a short of overload is detected (indicator LED will flash); turn power OFF and back ON to reset; sensor will reset when short is removed
**Operation/Storage Temperature:**
-40 to 55°C (-40 to 131°F)

**2-WIRE MODELS**

**Input Voltage:** See “To Order” table

**Power Dissipation:** 3 W maximum

**Output Type 2-Wire:**
- 18 mm: DMOS/bipolar
- 30 mm: DMOS

**Current Switching 2-Wire:**
- 18 mm: 100 mA
- 30 mm: 300 mA

**Voltage Switching 2-Wire:**
- AC Operation: 186V peak maximum
- DC Operation: 50 Vdc maximum

**Off-State Leakage:**
- AC Operation: 1.7 mA maximum
- DC Operation: 18 mm: 1.7 mA maximum
- 30 mm: 1.5 mA maximum

**Surge Current:**
- AC Operation: 1 A AC
- DC Operation: 1 A DC

**On-State Voltage Drop:**
- AC Operation: 10 Vac rms
- DC Operation: 18 mm: 10 Vdc
- 30 mm: 8 Vdc

**Response Time:** 35 mS

**Short Circuit Protection:** Auto reset

**Operation/Storage Temperature:**
- 18 mm: -40 to 70°C (-40 to 158°F)
- 30 mm: -25 to 55°C (-10 to 131°F)

**COMMON SPECIFICATIONS**

**ENCLOSURE MATERIALS**
- Cable Jacket: PVC (poly vinyl chloride)
- Indicator Ring: PVDF (high density fluorinated polymer)
- Seals: FKM (registered trademark of Dupont)

**Lens Cover:**
- Thru-Beam and Perfect Prox Models: Tempered glass
- Polarized Reflex Models: Glass
- Body: 303 SS

**Vibration:**
- 30 g over 20 Hz to 2 kHz

**Shock:**
- 100 g for 3 mS 1⁄2 sinewave pulse

**Indicator LED:**
- Thru-Beam Source: Lights when power is ON
- All Other Models: Lights steady when output is ON, flashes when short circuit protection is in latched condition (except 2-wire models)

**Sunlight Immunity:**
- Perfect Prox: 5000 foot-candles
- Others: 10,000 foot-candles

**Enclosure Ratings:** NEMA 1, 2, 3, 3R, 4, 4X, 6, 6P, 12, 12K, and 13 (IP65)

**Washdown:** This product is suitable for high temperature, high pressure washdown 83 bar (1200 psi)

**Chemical Resistance:** This product was designed to withstand chemicals commonly used in automotive, machine tool, food processing, and forest industries

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**THRU-BEAM AND REFLEX SENSORS, 3- AND 4-WIRE SENSORS**

<table>
<thead>
<tr>
<th>SIZE/TYP</th>
<th>MODEL NO.</th>
<th>OPERATING VOLTAGE</th>
<th>SENSING RANGE</th>
<th>OPTIMUM RANGE</th>
<th>FIELD OF VIEW</th>
<th>THRU-BEAM COMPONENT</th>
<th>CONN. TYPE</th>
<th>LIGHT OPERATE</th>
<th>DARK OPERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 mm Thru-Beam</td>
<td>E58-30TS250-GA</td>
<td>20 to 132 Vac 50/60 Hz or 15 to 30 Vdc</td>
<td>250 m (800')</td>
<td>0.03 to 90 m (0.1 to 300')</td>
<td>830 mm (33&quot;) Dia. @ 7.6 m (25&quot;)</td>
<td>Source</td>
<td>2 m Cable</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>30 mm Thru-Beam</td>
<td>E58-30TD250-GD</td>
<td>20 to 132 Vac 50/60 Hz or 15 to 30 Vdc</td>
<td>250 m (800')</td>
<td>0.03 to 90 m (0.1 to 300')</td>
<td>830 mm (33&quot;) Dia. @ 7.6 m (25&quot;)</td>
<td>Detector</td>
<td>2 m Cable</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>30 mm Polarized Reflex</td>
<td>E58-30RP10-GD</td>
<td>20 to 132 Vac 50/60 Hz or 15 to 30 Vdc</td>
<td>10 m (34&quot;)</td>
<td>0.03 to 6 m (0.1 to 20&quot;)</td>
<td>150 mm (6&quot;) Dia. @ 6 m (20&quot;)</td>
<td>—</td>
<td>2 m Cable</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Ordering Example:** E58-30RP10-GD, 30 mm polarized reflex sensor with 2 m cable.

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**PERFECT PROX® BACKGROUND REJECTION SENSORS, 2-WIRE SENSORS**

<table>
<thead>
<tr>
<th>SIZE/TYP</th>
<th>MODEL NO.</th>
<th>OPERATING VOLTAGE</th>
<th>NOMINAL RANGE1</th>
<th>OPTIMUM RANGE2</th>
<th>CUT OFF RANGE</th>
<th>FIELD OF VIEW</th>
<th>CONN. TYPE</th>
<th>LIGHT OPERATE</th>
<th>DARK OPERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 mm Perfect Prox</td>
<td>E58-18DP100-EL</td>
<td>90 to 132 Vac 50/60 Hz or 18 to 50 Vdc</td>
<td>100 mm (4&quot;)</td>
<td>13 to 76 mm (0.5 to 3&quot;)</td>
<td>127 mm (5&quot;) and beyond</td>
<td>10 mm (0.38&quot;) Dia. @ 100 mm (4&quot;)</td>
<td>2 m Cable</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>30 mm Perfect Prox</td>
<td>E58-30DPS280-EL</td>
<td>90 to 132 Vac 50/60 Hz or 18 to 50 Vdc</td>
<td>280 mm (11&quot;)</td>
<td>28 to 228 mm (1 to 9&quot;)</td>
<td>318 mm (12.5&quot;)</td>
<td>26 mm (1&quot;) Dia. @ 280 mm (11&quot;)</td>
<td>2 m Cable</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

1 Sensor will detect 90% reflectance card at this range.
2 Sensor will ignore 90% reflectance card at this range.

**Ordering Example:** E58-18DP100-EL, 18 mm diameter perfect prox reflex with 2 m cable.

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**ACCESSORIES**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>E57KM18</td>
<td>Bracket for 18 mm (0.71&quot;) tubular sensors</td>
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<tr>
<td>E58KAM18B</td>
<td>Bracket, adjustable ball swivel for 18 mm (0.71&quot;) tubular sensors</td>
</tr>
<tr>
<td>E57KM30</td>
<td>Bracket for 30 mm (1.30&quot;) tubular sensors</td>
</tr>
<tr>
<td>6200A-6504</td>
<td>Reflector, 32 mm (1.25&quot;) diameter with adhesive back, 2 to 3 K reflectivity</td>
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<tr>
<td>6200A-6505</td>
<td>Reflector, 55 mm (2.18&quot;) diameter with mounting hole, 2 to 3 K reflectivity</td>
</tr>
<tr>
<td>E51KR84</td>
<td>Reflector, 76 mm (3&quot;) diameter with mounting hole, 10 K reflectivity</td>
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</tbody>
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