

# PHOTOELECTRIC SENSORS

## THE WORLD'S MOST RUGGED AND BEST SEALED PHOTOELECTRIC SENSORS

*E58 Series Starts at*

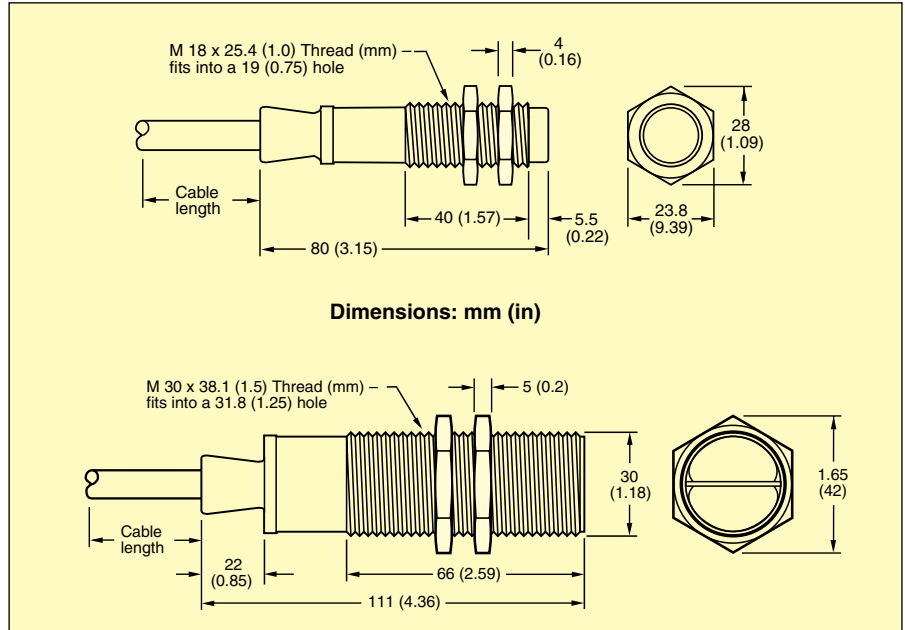


E58-30TD250-GD shown smaller than actual size.



E58-30TS250-GA shown smaller than actual size.

- **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 uA typical

500 uA 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 mS

**DC Operation:** 2 mS

**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 vinly 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 ½ 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

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

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

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

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

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

<sup>1</sup> Sensor will detect 90% reflectance card at this range.

<sup>2</sup> Sensor will ignore 90% reflectance card at this range.

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

**ACCESSORIES**

MODEL NO.	DESCRIPTION
E57KM18	Bracket for 18 mm (0.71") tubular sensors
E58KAM18B	Bracket, adjustable ball swivel for 18 mm (0.71") tubular sensors
E57KM30	Bracket for 30 mm (1.30") tubular sensors
6200A-6504	Reflector, 32 mm (1.25") diameter with adhesive back, 2 to 3 K reflectivity
6200A-6505	Reflector, 55 mm (2.18") diameter with mounting hole, 2 to 3 K reflectivity
E51KR84	Reflector, 76 mm (3") diameter with mounting hole, 10 K reflectivity