

20 Series



## 55.1 Photoelectric Sensors—Legacy

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Unless otherwise noted, the products contained in this section should not be used for functional safety applications. These products were not designed or tested to IEC 60947-5-3 or recommended for functional safety.

E65 Miniature Series



E65 Miniature Series



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.

# 55.1

## Legacy Sensor Products

### Photoelectric Sensors—Legacy

#### Photoelectric Sensors—Legacy



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## 55

### Photoelectric Sensors—Legacy

#### Product Overview

The products shown in this section are still offered for sale by Eaton, however, the catalog pages have been moved online. Visit [www.eaton.com/legacysensors](http://www.eaton.com/legacysensors) for electronic product and ordering information.

#### How to Order

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**LEGACY SENSOR PRODUCTS**

Products

- Electrical Products A-Z
- Aftermarket Products
- Automatic Transfer Switches
- Circuit Protection
- Electrical Distribution
- Enclosed Electrical Control
- Fire Pump Controllers
- Lighting Control
- Logic Control
- Marina Power and Lighting® Products
- Motoring Products
- Motor Control
- Power Distribution and Control
- Assemblies Solutions Tracker
- Power Quality & Management
- Residential Products
- Sensing Solutions
  - Photoelectric Sensors
  - Inductive Sensors
  - Capacitive Sensors
  - Power Sensors
  - Limit Switches

**50 Series**  
A modular family of sensors with interchangeable outputs and logic functions.

**55 Series**  
Robust sensing performance with a built-in swivel bracket for easy and precise alignment.

**E64 Series**  
A flexible family of sensors with stability indication, high current relay output and easy terminal wiring setup.

**E85 Series**  
Compact sensors ideal for a wide variety of applications, including reliable detection of clear objects.

**80 Series**  
Extremely long range sensing capabilities with the flexibility of interchangeable heads and logic modules.

**20 Series**  
Heavy-duty sensors engineered for use in harsh environments subject to constant exposure to weather and physical abuse.

**11 Series**  
A highly configurable family of photoelectric sensors with multiple output options including a high current DPDT relay.

**70 Series**  
Powerful sensing performance with your choice of a variety of sensor heads, control units, output devices, logic modules and accessories.

ALL PRODUCTS

1 Select Category

2

3

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 Guide

### E58 18 mm Tubular Series



#### Overview

Industry standard 18 mm tubular sensors offer wide voltage ranges and reliable performance

#### Sensing Types and Ranges

Thru-beam: 80 ft  
 Reflex: 25 ft  
 Diffuse reflective: 8 in

#### Product Features

Industry standard 18 mm tubular housing has flat sides allowing it to be mounted against a flat surface  
 Solid polyurethane housing for high resistance to shock and vibration  
 AC/DC models operate up to 264 Vac  
 Select models have visible beams for quick setup and alignment  
 Gain adjustment ensures peak optical performance  
 LED output status indicator  
 Extra long 3m cable

#### Approvals

#### Notes

For additional product detail, see Technical Data and Specifications on **Page 464**.

① Range varies with fiber.

### E64 Terminal Base Series



#### Overview

This flexible sensor family provides stability indication, high current relay output and easy terminal wiring

#### Sensing Types and Ranges

Thru-beam: 33 ft  
 Reflex: 16.4 ft  
 Polarized reflex: 11.5 ft  
 Diffuse reflective: 35 in

#### Product Features

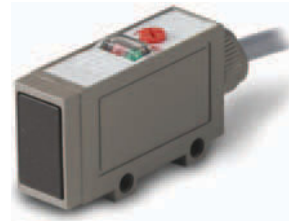
High performance optics  
 Built-in multi-voltage power supply for use in AC or DC applications  
 Terminal connections with 1/2 in NPT conduit entrance  
 Available with optional delay timer, adjustable from 0.6 to 16 seconds and field settable for Normal, ON Delay, OFF Delay, ON-OFF Delay or One Shot Delay

#### Approvals

CE



### E65 Miniature Series



#### Overview

These compact sensors are ideal for a wide variety of applications including reliable detection of clear objects

#### Sensing Types and Ranges

Thru-beam: 16.5 ft  
 Polarized reflex: 5.8 ft  
 Diffuse reflective: 4 and 20 in  
 Fixed focus diffuse: 0.5 in  
 Plastic fiber optic: ①  
 Clear object sensor: 24 in

#### Product Features

Complete line of miniature sensors including clear object detection models  
 Forward or right-angle viewing with identical optical performance  
 Stability indicator  
 Fiber optic models include built-in DIN rail mounting clip

#### Approvals

UL Recognized  
 CE



#### 11 Series



##### Overview

The 11 Series is a highly configurable photoelectric sensor with multiple output options including a high current DPDT relay

##### Sensing Type and Range

Reflex: 20 and 30 ft

##### Product Features

Quick disconnect base for easy installation and maintenance

Optional logic module provides time delay functions for ON, OFF or both ON/OFF

##### Approvals

UL



##### Notes

For additional product detail, see Technical Data and Specifications on [Page 464](#).

① Range varies with fiber.

#### 20 Series



##### Overview

These heavy-duty sensors are designed for use in harsh environments with constant exposure to weather and physical abuse

##### Sensing Types and Ranges

Thru-beam: 700 ft  
 Reflex: 35 and 75 ft  
 Diffuse reflective: 8 ft  
 Defined range diffuse reflective: 15 in

##### Product Features

Sets the industry standard for rugged construction and long range performance

Interchangeable logic modules and output devices are contained inside the sealed housing

Ideal for outdoor use

##### Approvals

UL Listed  
 CSA Certified



Listed

#### 50 Series



##### Overview

These high performance sensors feature interchangeable outputs and logic functions in a fully sealed, self-contained package

##### Sensing Types and Ranges

Thru-beam: 100 ft  
 Reflex: 30 ft  
 Polarized reflex: 15 ft  
 Diffuse reflective: 10, 24 and 72 in  
 Glass fiber optic: ①

##### Product Features

Interchangeable, plug-in output devices and logic modules

Built-in 360° rotation, 10° tilt ball-swivel base

Fully potted construction for use in areas subject to wash-down, high shock and/or vibration

Four output options including a 2A SPDT relay

##### Approvals

UL Listed  
 CSA Certified



Listed

#### 55 Series



##### Overview

These durable sensors offer high optical performance and a built-in swivel bracket for easy and precise alignment

##### Sensing Types and Ranges

Thru-Beam: 100 ft  
 Reflex: 30 ft  
 Polarized Reflex: 15 ft  
 Diffuse Reflective: 10, 24 and 72 in  
 Glass fiber optic: ①

##### Product Features

Identical to 50 Series except without provision for interchangeable output or logic functions.

Ideal for direct connection to programmable controllers

Available in universal voltage AC/DC versions as well as DC only models

Built-in, 360° rotation, 10° tilt ball-swivel base

Fully potted construction for use in areas subject to wash-down, high shock and/or vibration

##### Approvals

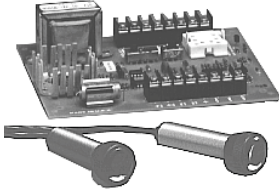
UL Listed  
 CSA Certified



Listed

**60 Series**

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**Overview**

Separate control units and sensor heads. Control units available in modular plastic units or self-contained with metal case

**Sensing Type and Range**

Thru-beam: 206 ft

**Product Features**

High performance thru-beam optics  
Control unit can be mounted up to 1000 ft from sensor heads  
High temperature sensor heads operate to 212°F (100°C)

**Approvals**

CSA

**Notes**

For additional product detail, see Technical Data and Specifications on **Page 464**.

① Range varies with fiber.

**70 Series****Overview**

This high performance family offers a wide choice of sensor heads, control units, output devices, logic modules and accessories to solve virtually any sensing problem

**Sensing Types and Ranges**

Thru-beam: 15, 32, 369 and 743 ft  
Reflex: 23 ft  
Curtain-of-light reflex: 6 ft  
Diffuse reflective: 36 in  
Focused diffuse reflective: 2.5 in  
Glass fiber optic: ①

**Product Features**

Ultra-versatile photoelectric control family  
Wide choice of sensor heads, control units, output devices, logic modules, and accessories to solve virtually any sensing problem  
Sensor heads may be mounted up to 1000 ft from the control unit  
Multiple sensor heads can be connected to a single control unit for special sensing applications  
Analog control unit provides a voltage level output proportional to the amount of light received by the sensor detector

**Approvals**

CSA

**80 Series****Overview**

These sensors provide extremely long sensing ranges and the flexibility of interchangeable sensor heads and logic modules

**Sensing Types and Ranges**

Reflex: 50 ft  
Diffuse reflective: 12 ft  
Focused diffuse reflective: 6 in  
Glass fiber optic: ①

**Product Features**

Combines the advantages of self-contained packaging with the flexibility of interchangeable sensor heads  
Nine sensor heads, seven control base units, and three logic modules are available to customize the sensor for your application

**Approvals**

UL



## Technical Data and Specifications

### Photoelectric Sensors—Legacy

Description	E58 18 mm Tubular Series	E64 Terminal Base Series	E65 Miniature Series	11 Series	20 Series
Operating voltage	20–264 Vac 10–30 Vdc	16–240 Vac/Vdc	10–30 Vdc	115–125 Vac 230 Vac	95–130 Vac 100–125 Vac 200–250 Vac
Output function	Light and dark operate models available	Selectable light or dark operate	Selectable light or dark operate	Selectable light or dark operate	Selectable light or dark operate
Maximum load current	AC: 300 mA DC: 250 mA (NPN) 100 mA (PNP)	1A at 250 Vac 2A at 30 Vdc	100 mA NPN or PNP	Varies by output device from 5 mA to 10A	Varies by output device from 5 mA to 10A
Enclosure ratings	NEMA 1, 2, 3, 4, 4X, 6, 12 and 13	NEMA 1, 3, 4, 12 and 13 IP66	NEMA 1, 3, 4, 12 and 13 IP66	NEMA 4 and 13	NEMA 3, 4, 6 and 13
Response time range	1 ms to 10 ms	20 ms	330 microseconds to 2 ms	7 ms	1 ms to 30 ms
Description	50 Series	55 Series	60 Series	70 Series	80 Series
Operating voltage	90–132 Vac at 60 Hz 100–132 Vac at 50 Hz 180–264 Vac at 60 Hz 200–264 Vac at 50 Hz 10–30 Vdc	20–264 Vac and 15–30 Vdc 10–30 Vdc	115 Vac 230 Vac 11–15.5 Vdc	Self-contained control units: 115 Vac or 230 Vac versions Modular control units: 9–18 Vdc	97–130 Vac 204–255 Vac 22–26 Vac 10–30 Vdc
Output function	Selectable light or dark operate	Light and dark operate models available	Selectable light or dark operate	Selectable light or dark operate	Light or dark operate (switch- selected on control unit)
maximum load current	Varies from 50 mA to 2A	AC/DC units: 300 mA DC units: 250 mA (NPN), 100 mA (PNP) Optional three amp SPDT relay (AC/DC models)	Varies by output device from 5 mA to 10A	Varies by output device from 5 mA to 10A	Varies by model from 50 mA to 1A
Enclosure ratings	NEMA 1, 3, 4, 12 and 13	NEMA 1, 3, 4, 6, 12 and 13	Heads: NEMA 3, 4, 6, 12 and 13 Control Units: NEMA 12 (enclosed) NEMA 1 (module)	Varies with control unit or sensor head selected	NEMA 1, 3, 4, 12 and 13
Response time range	2 ms to 18 ms	1 ms to 11 ms	1.6 ms to 16 ms	0.5 ms to 14 ms	5 ms to 18 ms