

# 3.4

## Inductive Proximity Sensors

### Global Proximity Sensors

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### Global Proximity Sensors

#### Product Description

The Global Proximity Sensor family was created by Eaton’s electrical sector with the high volume OEM in mind. It has been optimized to include only those functions necessary for basic, reliable sensing. Why pay for extra features when you don’t need them? That’s not to say these sensors lack the performance or features you expect. Our DC units are short circuit protected and will sense up to 2000 operations per second. Plus, all sensors include a bright LED indicator to show output status.

There’s no need to design your machine around these sensors. The Global family includes models in a variety of diameters so they will fit right where you need them.

Select models from 8 mm diameter all the way up to 30 mm, for just the size or sensing range that you require. Need something smaller? Our standard line includes inductive proximity sensors as small as 4 mm in diameter.

The Global Proximity is available in AC or DC, two-wire or three-wire, and NPN or PNP. You can even choose between cable wiring or quick-disconnect connectors. For power handling, our DC units feature a 100 mA load current rating and AC units are rated up to 200 mA.

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#### Features

- The Global Proximity Line features solid performance and a basic feature set for reliable, cost-effective sensing
- Available in a variety of sizes to fit in all of your applications: 8 mm, 12 mm, 18 mm and 30 mm diameters
- DC sensors operate on 10–30 Vdc in two-wire and three-wire (NPN or PNP) configurations
- AC sensors operate on 20–250 Vac in two-wire configuration
- Switching frequency of 2 kHz for DC models
- Shielded and unshielded versions available
- Terminations include:
  - 2-meter cable
  - Micro-connector
  - Nano-connector
- DC units include short circuit protection

#### Standards and Certifications

- CE (DC models only)
- cCSAus





#### 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.

### Three-Wire Sensors, continued

	Operating Voltage	Sensing Range	Shielding	Output Type	Connection Type	NO Output Catalog Number	NC Output Catalog Number		
<b>18 mm</b> 	<b>18 mm Diameter</b>								
	10–30 Vdc	5 mm	Shielded	NPN	2-meter cable	<b>E57-18GS05-C</b>	<b>E57-18GS05-C1</b>		
					4-pin micro DC connector	<b>E57-18GS05-CDB</b> ⊕	<b>E57-18GS05-C1DB</b> ⊕		
		8 mm (extended range)	Shielded	NPN	2-meter cable	<b>E57-18GS05-G</b>	<b>E57-18GS05-G1</b>		
					4-pin micro DC connector	<b>E57-18GS05-GDB</b> ⊕	<b>E57-18GS05-G1DB</b> ⊕		
		8 mm (extended range)	Shielded	PNP	2-meter cable	<b>E57-18GE08-C</b>	<b>E57-18GE08-C1</b>		
					4-pin micro DC connector	<b>E57-18GE08-CDB</b> ⊕	<b>E57-18GE08-C1DB</b> ⊕		
	8 mm (extended range)	Unshielded	PNP	2-meter cable	<b>E57-18GE08-G</b>	<b>E57-18GE08-G1</b>			
				4-pin micro DC connector	<b>E57-18GE08-GDB</b> ⊕	<b>E57-18GE08-G1DB</b> ⊕			
	18 mm (extended range)	8 mm	Unshielded	NPN	2-meter cable	<b>E57-18GU08-C</b>	<b>E57-18GU08-C1</b>		
					4-pin micro DC connector	<b>E57-18GU08-CDB</b> ⊕	<b>E57-18GU08-C1DB</b> ⊕		
		18 mm (extended range)	Unshielded	PNP	2-meter cable	<b>E57-18GU08-G</b>	<b>E57-18GU08-G1</b>		
					4-pin micro DC connector	<b>E57-18GU08-GDB</b> ⊕	<b>E57-18GU08-G1DB</b> ⊕		
		18 mm (extended range)	Unshielded	NPN	2-meter cable	<b>E57-18GE18-C</b>	<b>E57-18GE18-C1</b>		
					4-pin micro DC connector	<b>E57-18GE18-CDB</b> ⊕	<b>E57-18GE18-C1DB</b> ⊕		
	18 mm (extended range)	Unshielded	PNP	2-meter cable	<b>E57-18GE18-G</b>	<b>E57-18GE18-G1</b>			
				4-pin micro DC connector	<b>E57-18GE18-GDB</b> ⊕	<b>E57-18GE18-G1DB</b> ⊕			
	<b>30 mm</b> 	<b>30 mm Diameter</b>							
10–30 Vdc		10 mm	Shielded	NPN	2-meter cable	<b>E57-30GS10-C</b>	<b>E57-30GS10-C1</b>		
					4-pin micro DC connector	<b>E57-30GS10-CDB</b> ⊕	<b>E57-30GS10-C1DB</b> ⊕		
				15 mm (extended range)	Shielded	PNP	2-meter cable	<b>E57-30GS10-G</b>	<b>E57-30GS10-G1</b>
							5-meter Cable	<b>E57-30GS10-G5</b>	—
				15 mm (extended range)	Shielded	NPN	4-pin micro DC connector	<b>E57-30GS10-GDB</b> ⊕	<b>E57-30GS10-G1DB</b> ⊕
							2-meter cable	<b>E57-30GE15-C</b>	<b>E57-30GE15-C1</b>
15 mm (extended range)		Shielded	PNP	4-pin micro DC connector	<b>E57-30GE15-CDB</b> ⊕	<b>E57-30GE15-C1DB</b> ⊕			
				2-meter cable	<b>E57-30GE15-G</b>	<b>E57-30GE15-G1</b>			
15 mm (extended range)		Unshielded	PNP	4-pin micro DC connector	<b>E57-30GE15-GDB</b> ⊕	<b>E57-30GE15-G1DB</b> ⊕			
				2-meter cable	<b>E57-30GU15-C</b>	<b>E57-30GU15-C1</b>			
29 mm (extended range)		15 mm	Unshielded	NPN	4-pin micro DC connector	<b>E57-30GU15-CDB</b> ⊕	<b>E57-30GU15-C1DB</b> ⊕		
					2-meter cable	<b>E57-30GU15-G</b>	<b>E57-30GU15-G1</b>		
		29 mm (extended range)	Unshielded	PNP	4-pin micro DC connector	<b>E57-30GU15-GDB</b> ⊕	<b>E57-30GU15-G1DB</b> ⊕		
					2-meter cable	<b>E57-30GE29-C</b>	<b>E57-30GE29-C1</b>		
		29 mm (extended range)	Unshielded	NPN	4-pin micro DC connector	<b>E57-30GE29-CDB</b> ⊕	<b>E57-30GE29-C1DB</b> ⊕		
					2-meter cable	<b>E57-30GE29-G</b>	<b>E57-30GE29-G1</b>		
29 mm (extended range)		Unshielded	PNP	4-pin micro DC connector	<b>E57-30GE29-GDB</b> ⊕	<b>E57-30GE29-G1DB</b> ⊕			

**Note**

⊕ See listing of compatible connector cables on [Page V8-T3-40](#).

## Technical Data and Specifications

### Global Proximity Sensors

Description	Two-Wire AC Sensors	Two-Wire DC Sensors	Three-Wire DC Sensors
Operating voltage	20–250 Vac	10–30 Vdc	10–30 Vdc
OFF-state leakage	<1.8 mA	<0.8 mA	<0.01 mA
Maximum load current	200 mA	100 mA	100 mA
Minimum load current	5 mA	3 mA	—
Surge current	5A (20 ms)	—	—
Voltage drop	<8 Vac at 400 mA	<6V	<1.5V
Switching frequency			
8 mm diameter	—	—	2 kHz (shielded and unshielded)
12 mm diameter	25 Hz	1 kHz (shielded); 1 kHz (unshielded)	2 kHz (shielded); 1 kHz (unshielded)
18 mm diameter	25 Hz	1 kHz (shielded); 500 Hz (unshielded)	1 kHz (shielded); 500 Hz (unshielded)
30 mm diameter	25 Hz	500 Hz (shielded); 200 Hz (unshielded)	300 Hz (shielded); 150 Hz (unshielded)
Short circuit protection	No	Yes	Yes
Overload trip point	—	>120 mA	220 mA
Time delay before availability	—	—	<10 ms
Transient protection	—	2 kV, 1 ms, 1 kohm	1kV, 0.1 ms, 1 kohm
Repeat accuracy	Shielded: <1.0%/Unshielded: <3.0% (Sr)	<2.0% (Sr)	<1.0% (Sr)
Switching hysteresis	<15%	<15%	<15%
Operating temperature	–13° to 158°F (–25° to 70°C) (32° to 140°F [0° to 60°C] for all extended range models)	–13° to 158°F (–25° to 70°C) (32° to 140°F [0° to 60°C] for all extended range models)	–13° to 158°F (–25° to 70°C) (32° to 140°F [0° to 60°C] for all extended range models)
Temperature drift	<10% (Sr)	<10% (Sr)	<10% (Sr)
Protection	IP67, IP69K	IP67, IP69K	IP67, IP69K
Housing material	Nickel plated brass (stainless steel for 8 mm diameter, nano-connector models)	Nickel plated brass (stainless steel for 8 mm diameter, nano-connector models)	Nickel plated brass (stainless steel for 8 mm diameter, nano-connector models)
Cable	PVC jacket, 2-meter length	PVC jacket, 2-meter length	PVC jacket, 2-meter length

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#### Wiring Diagrams

Pin numbers are for reference, rely on pin location when wiring.

#### Global Proximity Sensors

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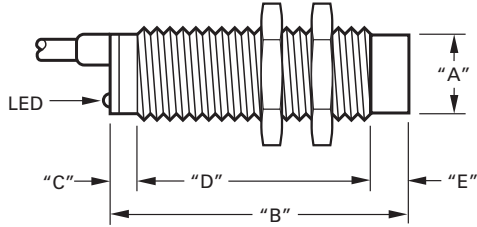
Operating Voltage	Output	Cable Models	Connector Models (Face View Male Shown)	
			Micro	Nano
<b>Two-Wire Sensors</b>				
20–250 Vac	NO			—
10–30 Vdc	NO (NPN)			—
	NO (PNP)			—
<b>Three-Wire Sensors</b>				
10–30 Vdc	NO (NPN)			
	NO (PNP)			
	NC (NPN)			
	NC (PNP)			

### Dimensions

Approximate Dimensions in mm

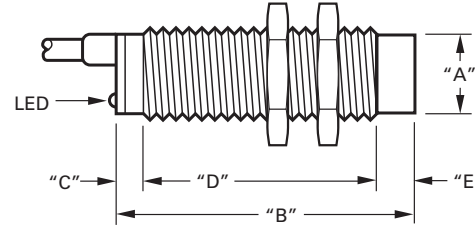
#### Cable Models

##### Two-Wire Sensors



Catalog Number	Operating Voltage	A	B	C	D	E
E57-12GS02-A	20–250 Vac	M12x1	65	15	50	—
E57-12GU04-A		M12x1	60	15	42	8
E57-18GS05-A		M18x1	80	20	60	—
E57-18GU08-A		M18x1	80	20	48	12
E57-30GS10-A		M30x1.5	80	20	60	—
E57-30GU15-A		M30x1.5	80	20	45	15
E57-12GS02-D	10–30 Vdc	M12x1	50	—	50	—
E57-12GU04-D		M12x1	50	—	42	8
E57-12GE08-D		M12x1	50	—	42	8
E57-12GE08-D1		M12x1	50	—	42	8
E57-18GS05-D		M18x1	55	5	50	—
E57-18GU08-D		M18x1	55	5	38	12
E57-18GE16-D		M18x1	55	5	38	12
E57-18GE16-D1		M18x1	55	5	38	12
E57-30GS10-D		M30x1.5	55	5	50	—
E57-30GU15-D		M30x1.5	55	5	35	15
E57-30GE25-D		M30x1.5	55	5	35	15
E57-30GE25-D1		M30x1.5	55	5	35	15

##### Three-Wire Sensors



Catalog Number	Operating Voltage	A	B	C	D	E
E57-08GE03-C	10–30 Vdc	M8x1	46	6	40	—
E57-08GE03-G		M8x1	46	6	40	—
E57-08GE06-C		M8x1	45	—	41	4
E57-08GE06-G		M8x1	45	—	41	4
E57-08GS01-C		M8x1	45	—	45	—
E57-08GS01-G		M8x1	45	—	45	—
E57-08GU02-C		M8x1	45	—	41	4
E57-08GU02-G		M8x1	45	—	41	4
E57-12GE05-C		M12x1	51	2	49	—
E57-12GE05-G		M12x1	51	2	49	—
E57-12GE10-C		M12x1	50.5	1.7	41	7.8
E57-12GE10-G		M12x1	50.5	1.7	41	7.8
E57-12GS02-C		M12x1	50	—	50	—
E57-12GS02-G		M12x1	50	—	50	—
E57-12GU04-C		M12x1	50	—	42	8
E57-12GU04-G		M12x1	50	—	42	8
E57-18GE08-C		M18x1	67.5	2.5	65	—
E57-18GE08-G		M18x1	65.5	2.5	65	—
E57-18GE18-C		M18x1	66	2.5	52	11.5
E57-18GE18-G		M18x1	66	2.5	52	11.5
E57-18GS05-C		M18x1	55	5	50	—
E57-18GS05-G		M18x1	55	5	50	—
E57-18GU08-C		M18x1	55	5	38	12
E57-18GU08-G		M18x1	55	5	38	12
E57-30GE15-C		M30x1.5	69	5	64	—
E57-30GE15-G		M30x1.5	69	5	64	—
E57-30GE29-C		M30x1.5	83	5	64	15
E57-30GE29-G		M30x1.5	83	5	64	15
E57-30GS10-C		M30x1.5	55	5	50	—
E57-30GS10-G		M30x1.5	55	5	50	—
E57-30GU15-C		M30x1.5	55	5	35	15
E57-30GU15-G		M30x1.5	55	5	35	15

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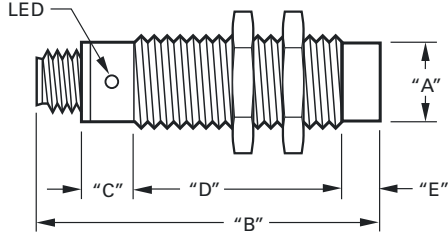
## Inductive Proximity Sensors

### Global Proximity Sensors

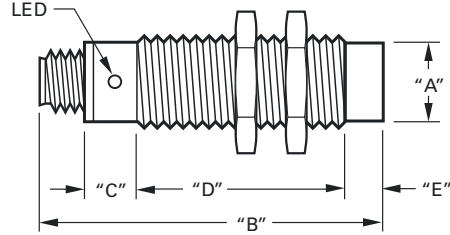
Approximate Dimensions in mm

#### Connector Models

##### Two-Wire Sensors



##### Three-Wire Sensors



Catalog Number ①	Operating Voltage	A	B	C	D	E
<b>E57-12GS02-AAB</b>	20–250 Vac	M12x1	68	16	42	—
<b>E57-12GU04-AAB</b>		M12x1	68	16	34	8
<b>E57-18GS05-AAB</b>		M18x1	91	20	60	—
<b>E57-18GU08-AAB</b>		M18x1	91	20	48	12
<b>E57-18GE16-AAB</b>		M18x1	79.2	15	37	11.5
<b>E57-30GS10-AAB</b>		M30x1.5	80	20	60	—
<b>E57-30GU15-AAB</b>		M30x1.5	91	20	45	15
<b>E57-12GS02-DBB</b>	10–30 Vdc	M12x1	69	16	42	—
<b>E57-12GU04-DBB</b>		M12x1	68	16	34	8
<b>E57-12GE08-DBB</b>		M12x1	68	10	50	8
<b>E57-12GE08-D1DB</b>		M12x1	68	10	50	8
<b>E57-18GS05-DBB</b>		M18x1	76	15	61	—
<b>E57-18GU08-DBB</b>		M18x1	80	15	49	12
<b>E57-18GE16-DBB</b>		M18x1	79	15	52	12
<b>E57-30GS10-DBB</b>		M30x1.5	75	15	60	—
<b>E57-30GU15-DBB</b>		M30x1.5	79	15	45	15
<b>E57-30GE25-DBB</b>		M30x1.5	78	15	48	15

Catalog Number ①	Operating Voltage	A	B	C	D	E
<b>E57-08GE03-CDB</b>	10–30 Vdc	M8x1	71	26	36	—
<b>E57-08GE03-CNB</b>		M8x1	61	19	42	—
<b>E57-08GE03-GDB</b>		M8x1	71	26	36	—
<b>E57-08GE03-GNB</b>		M8x1	61	19	42	—
<b>E57-08GE06-CDB</b>		M8x1	70	31	35	4
<b>E57-08GE06-GDB</b>		M8x1	70	31	35	4
<b>E57-08GS01-CDB</b>		M8x1	70	21	49	—
<b>E57-08GS01-CNB</b>		M8x1	60	20	40	—
<b>E57-08GS01-GDB</b>		M8x1	70	21	49	—
<b>E57-08GS01-GNB</b>		M8x1	60	20	40	—
<b>E57-08GU02-CDB</b>		M8x1	70	21	45	4
<b>E57-08GU02-CNB</b>		M8x1	60	20	36	4
<b>E57-08GU02-GDB</b>		M8x1	70	21	45	4
<b>E57-08GU02-GNB</b>		M8x1	60	20	36	4
<b>E57-12GE05-CDB</b>		M12x1	69	24	45	—
<b>E57-12GE05-GDB</b>		M12x1	69	24	45	—
<b>E57-12GE10-CDB</b>		M12x1	68.5	10.3	36	7.8
<b>E57-12GE10-GDB</b>		M12x1	68.5	10.3	36	7.8
<b>E57-12GS02-CDB</b>		M12x1	68	16	52	—
<b>E57-12GS02-GDB</b>		M12x1	68	16	52	—
<b>E57-12GU04-CDB</b>		M12x1	68	20	31	8
<b>E57-12GU04-GDB</b>		M12x1	68	20	31	8
<b>E57-18GE08-CDB</b>		M18x1	79	30	49	—
<b>E57-18GE08-GDB</b>		M18x1	79	30	49	—
<b>E57-18GE18-CDB</b>		M18x1	79.2	15	37	11.5
<b>E57-18GE18-GDB</b>		M18x1	79.2	15	37	11.5
<b>E57-18GS05-CDB</b>		M18x1	76	15	61	—
<b>E57-18GS05-GDB</b>		M18x1	76	15	61	—
<b>E57-18GU08-CDB</b>		M18x1	76	15	49	12
<b>E57-18GU08-GDB</b>		M18x1	80	15	49	12
<b>E57-30GE29-CDB</b>		M30x1.5	79	30	34	15
<b>E57-30GE29-GDB</b>		M30x1.5	79	30	34	15
<b>E57-30GS10-CDB</b>		M30x1.5	79	15	60	—
<b>E57-30GS10-GDB</b>		M30x1.5	75	15	60	—
<b>E57-30GU15-CDB</b>		M30x1.5	75	15	45	15
<b>E57-30GU15-GDB</b>		M30x1.5	75	15	45	15

#### Note

① Normally closed models are dimensionally identical to equivalent normally open models.