Enhanced 50 Series Sensors

Contents

Enhanced 50 Series Sensors

Product Description

The new Enhanced versions of the 50 Series™ Photoelectric Sensors from Eaton's Electrical Sector offer flexibility, durability and high optical performance in a cost-effective self-contained package. Choose from three output types, four time delay functions, six sensing modes and four connection styles to tailor the sensor to exactly meet your needs.

Sensors are available in thru-beam, reflex, polarized reflex, diffuse reflective, clear object, and fiber optic sensing modes. Brackets are available for easy mounting and to allow precise adjustment of sensor alignment.

Features

- High optical performance models including a 500 ft (152 m) thru-beam and a 10 ft (3 m) diffuse reflective unit
- Output options include a 3 Amp SPDT relay
- All units offer light/dark selection
- Logic options include ON-delay, OFF-delay, ON/OFF-delay and one-shot delay
- Fiber optic sensors operate in thru-beam or diffuse reflective mode depending on the fiber optic cable selected
- Fully potted construction for use in areas subject to washdown, high shock and/or vibration
- Choice of pre-wired power cable, built-in mini-connector, built-in micro-connector and pigtail micro-connector versions. Standard pre-wired cable length is 6 ft (2 m)
- Variety of brackets available including ball swivel

Standards and Certifications

- CSA Certified, 224447
- Products certified by CSA for U.S.
- CE
- RoHS Compliant

⚠ 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

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

Connection Options

Cable Version

Mini QD (Body)

Micro or Euro (Micro) QD (Body)

Micro or Euro (Micro) QD (Pigtail)

Product Selection

Thru-Beam Sensors

Field of View: 2.4°

Thru-Beam Standard Range ①②

Voltage Range	Sensing Range	Optimum Range	Sensing Beam	Thru-Beam Component	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	200 ft (61 m)	0.1 to 100 ft (0.03 to 31 m)	Infrared	Source	N/A	N/A	6 ft cable	**1150E-6517**
				Detector	NPN/PNP 250 mA	no		**1250E-6517**
						yes		**1250E-8517**
				Source	N/A	N/A	4-pin Euro (micro) connector	**1150E-6547** ⊛
				Detector	NPN/PNP 250 mA	no		**1250E-6547** ⊛
						yes		**1250E-8547** ⊛
				Source	N/A	N/A	4-pin Euro (micro) connector (pigtail)	**1150E-6537** ⊛
				Detector	NPN/PNP 250 mA	no		**1250E-6537** ⊛
						yes		**1250E-8537** ⊛
				Source	N/A	N/A	4-pin mini-connector	**1150E-6507** ⊛
				Detector	NPN/PNP 250 mA	no		**1250E-6507** ⊛
						yes		**1250E-8507** ⊛
12–240 Vdc 24–240 Vac	200 ft (61 m)	0.1 to 100 ft (0.03 to 31 m)	Infrared	Source	N/A	N/A	6 ft cable	**1150E-6513**
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1250E-6513**
						yes		**1250E-8513**
					SPDT EM relay 3A at 120 Vac	no		**1250E-6514**
						yes		**1250E-8514**
				Source	N/A	N/A	4-pin micro-connector	**1150E-6543** ⊛
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1250E-6543** ⊛
						yes		**1250E-8543** ⊛
				Source	N/A	N/A	4-pin micro-connector (pigtail)	**1150E-6534** ⊛
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1250E-6533** ⊛
						yes		**1250E-8533** ⊛
					SPDT EM relay 3A at 120 Vac	no	5-pin micro-connector (pigtail)	**1250E-6534** ⊛
						yes		**1250E-8534** ⊛
				Source	N/A	N/A	4-pin mini-connector	**1150E-6504** ⊛
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1250E-6503** ⊛
						yes		**1250E-8503** ⊛
					SPDT EM relay 3A at 120 Vac	no	5-pin mini-connector	**1250E-6504** ⊛
						yes		**1250E-8504** ⊛

Notes

⊛ See listing of compatible connector cables on **Page V8-T5-19**.

① For a complete system, order one sensor and one detector.

② For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

Field of View: 2.4°

Thru-Beam Extended Range ①②

Voltage Range	Sensing Range	Optimum Range	Sensing Beam	Thru-Beam Component	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	500 ft (152 m)	0.1 to 250 ft (0.03 to 77 m)	Infrared	Source	N/A	N/A	6 ft cable	**1151E-6517**
				Detector	NPN/PNP 250 mA	no		**1251E-6517**
						yes		**1251E-8517**
				Source	N/A	N/A	4-pin Euro (micro) connector	**1151E-6547** ⊞
				Detector	NPN/PNP 250 mA	no		**1251E-6547** ⊞
						yes		**1251E-8547** ⊞
				Source	N/A	N/A	4-pin Euro (micro) connector (pigtail)	**1151E-6537** ⊞
				Detector	NPN/PNP 250 mA	no		**1251E-6537** ⊞
						yes		**1251E-8537** ⊞
				Source	N/A	N/A	4-pin mini-connector	**1151E-6507** ⊞
				Detector	NPN/PNP 250 mA	no		**1251E-6507** ⊞
						yes		**1251E-8507** ⊞
12–240 Vdc 24–240 Vac	500 ft (152 m)	0.1 to 250 ft (0.03 to 77 m)	Infrared	Source	N/A	N/A	6 ft cable	**1151E-6513**
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1251E-6513**
						yes		**1251E-8513**
					SPDT EM relay 3A at 120 Vac	no		**1251E-6514**
						yes		**1251E-8514**
				Source	N/A	N/A	4-pin micro-connector	**1151E-6543** ⊞
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1251E-6543** ⊞
						yes		**1251E-8543** ⊞
				Source	N/A	N/A	4-pin micro-connector (pigtail)	**1151E-6534** ⊞
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1251E-6533** ⊞
						yes		**1251E-8533** ⊞
					SPDT EM relay 3A at 120 Vac	no	5-pin micro-connector (pigtail)	**1251E-6534** ⊛
						yes		**1251E-8534** ⊛
				Source	N/A	N/A	4-pin mini-connector	**1151E-6504** ⊞
				Detector	Isolated output solid-state relay 300 mA at 240 Vac/dc	no		**1251E-6503** ⊞
						yes		**1251E-8503** ⊞
					SPDT EM relay 3A at 120 Vac	no	5-pin mini-connector	**1251E-6504** ⊛
						yes		**1251E-8504** ⊛

Notes

⊞⊛ See listing of compatible connector cables on **Page V8-T5-19**.

① For a complete system, order one sensor and one detector.

② For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

Reflex Sensors

Field of View: 1.0°

Standard Reflex ①②

Voltage Range	Sensing Range ③	Optimum Range ③	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	30 ft (9 m)	0.5 to 15 ft (0.2 to 4.6 m)	Visible red	NPN/PNP 250 mA	no	6 ft cable	**1450E-6517**
					yes		**1450E-8517**
					no	4-pin Euro (micro) connector	**1450E-6547**
					yes		**1450E-8547**
					no	4-pin Euro (micro) connector (pigtail)	**1450E-6537**
					yes		**1450E-8537**
					no	4-pin mini-connector	**1450E-6507**
					yes		**1450E-8507**
12–240 Vdc 24–240 Vac	30 ft (9 m)	0.5 to 15 ft (0.2 to 4.6 m)	Visible red	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1450E-6513**
					yes		**1450E-8513**
					no	4-pin micro-connector	**1450E-6543**
					yes		**1450E-8543**
					no	4-pin micro-connector (pigtail)	**1450E-6533**
					yes		**1450E-8533**
					no	4-pin mini-connector	**1450E-6503**
					yes		**1450E-8503**
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1450E-6514**
					yes		**1450E-8514**
					no	5-pin micro-connector (pigtail)	**1450E-6534**
					yes		**1450E-8534**
					no	5-pin mini-connector	**1450E-6504**
					yes		**1450E-8504**

Notes

See listing of compatible connector cables on **Page V8-T5-19**.

① For a complete system, order one sensor and one retroreflector (see **Tab 8**, **section 8.1**).

② For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

③ Ranges based on 3 in retroreflector for reflex sensors.

Field of View: 1.0°

Polarized Reflex ①②③

Voltage Range	Sensing Range ④	Optimum Range ④	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	16 ft (4.9 m)	0.5 to 8 ft (0.2 to 2.5 m)	Visible red	NPN/PNP 250 mA	no	6 ft cable	**1451E-6517**
					yes		**1451E-8517**
					no	4-pin Euro (micro) connector	**1451E-6547**
					yes		**1451E-8547**
					no	4-pin Euro (micro) connector (pigtail)	**1451E-6537**
					yes		**1451E-8537**
					no	4-pin mini-connector	**1451E-6507**
					yes		**1451E-8507**
12–240 Vdc 24–240 Vac	16 ft (4.9 m)	0.5 to 8 ft (0.2 to 2.5 m)	Visible red	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1451E-6513**
					yes		**1451E-8513**
					no	4-pin micro-connector	**1451E-6543**
					yes		**1451E-8543**
					no	4-pin micro-connector (pigtail)	**1451E-6533**
					yes		**1451E-8533**
					no	4-pin mini-connector	**1451E-6503**
					yes		**1451E-8503**
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1451E-6514**
					yes		**1451E-8514**
					no	5-pin micro-connector (pigtail)	**1451E-6534**
					yes		**1451E-8534**
					no	5-pin mini-connector	**1451E-6504**
					yes		**1451E-8504**

Notes

See listing of compatible connector cables on **Page V8-T5-19**.

① For a complete system, order one sensor and one retroreflector (see **Tab 8**, **section 8.1**).

② Polarized sensors may not operate with reflective tape. Test tape selection before installation.

③ For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

④ Ranges based on 3 in retroreflector for reflex sensors.

Diffuse Sensors

Field of View: 2.8°

Diffuse Reflective ①

Voltage Range	Sensing Range ②	Optimum Range ②	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	5 ft (1.5 m)	1 to 30 in (25 to 760 mm)	Infrared	NPN/PNP 250 mA	no	6 ft cable	**1350E-6517**
					yes		**1350E-8517**
					no	4-pin Euro (micro) connector	**1350E-6547**
					yes		**1350E-8547**
					no	4-pin Euro (micro) connector (pigtail)	**1350E-6537**
					yes		**1350E-8537**
					no	4-pin mini-connector	**1350E-6507**
					yes		**1350E-8507**
12–240 Vdc 24–240 Vac	5 ft (1.5 m)	1 to 30 in (25 to 760 mm)	Infrared	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1350E-6513**
					yes		**1350E-8513**
					no	4-pin micro-connector	**1350E-6543**
					yes		**1350E-8543**
					no	4-pin micro-connector (pigtail)	**1350E-6533**
					yes		**1350E-8533**
					no	4-pin mini-connector	**1350E-6503**
					yes		**1350E-8503**
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1350E-6514**
					yes		**1350E-8514**
					no	5-pin micro-connector (pigtail)	**1350E-6534**
					yes		**1350E-8534**
					no	5-pin mini-connector	**1350E-6504**
					yes		**1350E-8504**

Notes

See listing of compatible connector cables on **Page V8-T5-19**.

① For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

② Ranges based on 90% reflectance white card for diffuse reflective sensors.

Field of View: 2.8°

Diffuse Reflective Extended Range ①

Voltage Range	Sensing Range ②	Optimum Range ②	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	10 ft (3 m)	1 to 60 in (25 to 1520 mm)	Infrared	NPN/PNP 250 mA	no	6 ft cable	**1351E-6517**
					yes		**1351E-8517**
					no	4-pin Euro (micro) connector	**1351E-6547**
					yes		**1351E-8547**
					no	4-pin Euro (micro) connector (pigtail)	**1351E-6537**
					yes		**1351E-8537**
					no	4-pin mini-connector	**1351E-6507**
					yes		**1351E-8507**
12–240 Vdc 24–240 Vac	10 ft (3 m)	1 to 60 in (25 to 1520 mm)	Infrared	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1351E-6513**
					yes		**1351E-8513**
					no	4-pin micro-connector	**1351E-6543**
					yes		**1351E-8543**
					no	4-pin micro-connector (pigtail)	**1351E-6533**
					yes		**1351E-8533**
					no	4-pin mini-connector	**1351E-6503**
					yes		**1351E-8503**
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1351E-6514**
					yes		**1351E-8514**
					no	5-pin micro-connector (pigtail)	**1351E-6534**
					yes		**1351E-8534**
					no	5-pin mini-connector	**1351E-6504**
					yes		**1351E-8504**

Notes

See listing of compatible connector cables on **Page V8-T5-19**.

① For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

② Ranges based on 90% reflectance white card for diffuse reflective sensors.

Clear Object Sensors

Field of View: 0.68°

Clear Object Detector ①②

Voltage Range	Sensing Range	Optimum Range	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	45 in (1.2 m)	1 to 24 in (25 to 610 mm)	Visible red	NPN/PNP 250 mA	no	6 ft cable	**1452E-6517**
					yes		**1452E-8517**
					no	4-pin Euro (micro) connector	**1452E-6547**
					yes		**1452E-8547**
					no	4-pin Euro (micro) connector (pigtail)	**1452E-6537**
					yes		**1452E-8537**
					no	4-pin mini-connector	**1452E-6507**
					yes		**1452E-8507**
12–240 Vdc 24–240 Vac	45 in (1.2 m)	1 to 24 in (25 to 610 mm)	Visible red	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1452E-6513**
					yes		**1452E-8513**
					no	4-pin micro-connector	**1452E-6543**
					yes		**1452E-8543**
					no	4-pin micro-connector (pigtail)	**1452E-6533**
					yes		**1452E-8533**
					no	4-pin mini-connector	**1452E-6503**
					yes		**1452E-8503**
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1452E-6514**
					yes		**1452E-8514**
					no	5-pin micro-connector (pigtail)	**1452E-6534**
					yes		**1452E-8534**
					no	5-pin mini-connector	**1452E-6504**
					yes		**1452E-8504**

Notes

See listing of compatible connector cables on **Pages V8-T5-19** and **V8-T5-20**.

① For a complete system, order one sensor and one retroreflector (see **Tab 8**, **section 8.1**).

② For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

Fiber Optic Sensors

Field of View: ②③④

Fiber Optic Infrared ①

Voltage Range	Sensing Range	Optimum Range	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	Depends on fiber selected ⑤	Depends on fiber selected	Infrared	NPN/PNP 250 mA	no	6 ft cable	**1550E-6517**
					yes		**1550E-8517**
					no	4-pin Euro (micro) connector	**1550E-6547** ⊛
					yes		**1550E-8547** ⊛
					no	4-pin Euro (micro) connector (pigtail)	**1550E-6537** ⊛
					yes		**1550E-8537** ⊛
					no	4-pin mini-connector	**1550E-6507** ⊛
					yes		**1550E-8507** ⊛
12–240 Vdc 24–240 Vac	Depends on fiber selected ⑤	Depends on fiber selected	Infrared	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1550E-6513**
					yes		**1550E-8513**
					no	4-pin micro-connector	**1550E-6543** ⊛
					yes		**1550E-8543** ⊛
					no	4-pin micro-connector (pigtail)	**1550E-6533** ⊛
					yes		**1550E-8533** ⊛
					no	4-pin mini-connector	**1550E-6503** ⊛
					yes		**1550E-8503** ⊛
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1550E-6514**
					yes		**1550E-8514**
					no	5-pin micro-connector (pigtail)	**1550E-6534** ⊛
					yes		**1550E-8534** ⊛
					no	5-pin mini-connector	**1550E-6504** ⊛
					yes		**1550E-8504** ⊛

Notes

⊛ See listing of compatible connector cables on **Pages V8-T5-19** and **V8-T5-20**.

① For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

② Field of view depends on fiber selected.

③ For a complete system, order one sensor and one fiber optic cable (see **Pages V8-T5-19** and **V8-T5-20**).

④ Infrared fiber optic sensors are compatible with glass fiber optic cables (E51KE_).

⑤ Diffuse mode—up to 6 in (152 mm); thru-beam—up to 35 in (890 mm).

Field of View: ②③④

Fiber Optic Visible ①

Voltage Range	Sensing Range	Optimum Range	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
10–40 Vdc	Depends on fiber selected ⑤	Depends on fiber selected	Infrared	NPN/PNP 250 mA	no	6 ft cable	**1551E-6517**
					yes		**1551E-8517**
					no	4-pin Euro (micro) connector	**1551E-6547**
					yes		**1551E-8547**
					no	4-pin Euro (micro) connector (pigtail)	**1551E-6537**
					yes		**1551E-8537**
					no	4-pin mini-connector	**1551E-6507**
					yes		**1551E-8507**
12–240 Vdc 24–240 Vac	Depends on fiber selected ⑤	Depends on fiber selected	Infrared	Isolated output solid-state relay 300 mA at 240 Vac/dc	no	6 ft cable	**1551E-6513**
					yes		**1551E-8513**
					no	4-pin micro-connector	**1551E-6543**
					yes		**1551E-8543**
					no	4-pin micro-connector (pigtail)	**1551E-6533**
					yes		**1551E-8533**
					no	4-pin mini-connector	**1551E-6503**
					yes		**1551E-8503**
				SPDT EM relay 3A at 120 Vac	no	6 ft cable	**1551E-6514**
					yes		**1551E-8514**
					no	5-pin micro-connector (pigtail)	**1551E-6534**
					yes		**1551E-8534**
					no	5-pin mini-connector	**1551E-6504**
					yes		**1551E-8504**

Notes

See listing of compatible connector cables on **Page V8-T5-19**.

① For brackets compatible with these sensors, see Accessories on **Page V8-T5-21**.

② Field of view depends on fiber selected.

③ For a complete system, order one sensor and one fiber optic cable (see **Page V8-T5-20**).

④ Visible fiber optic sensors are compatible with plastic fiber optic cables only.

⑤ Diffuse mode—up to 3 in (76 mm); thru-beam—up to 35 in (890 mm).

Compatible Connector Cables

Micro-Style, Straight Female

Standard Cables—Micro ①

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/ Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number	IRR PUR Jacket Catalog Number
Micro-Style, Straight Female							
AC Micro	4-pin, 4-wire	22 AWG	6 ft (2 m)	 1-Red/Black 2-Red/White 3-Red 4-Green	**CSAS4F4CY2202**	**CSAS4F4RY2202**	**CSAS4F4IO2202**
	5-pin, 5-wire	22 AWG	6 ft (2 m)	 1-Brown 2-Blue 3-Gray 4-Black 5-White	**CSAS5A5CY2202**	—	—
DC	4-pin, 4-wire	22 AWG	6 ft (2 m)	 1-Brown 2-White 3-Blue 4-Black	**CSDS4A4CY2202**	**CSDS4A4RY2202**	**CSDS4A4IO2202**

Mini-Style, Straight Female

Standard Cables—Mini ①

Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/ Wire Colors (Face View Female Shown)	Catalog Number
Mini-Style, Straight Female						
8A	AC/DC	4-pin, 4-wire	16 AWG	6 ft (2 m)	 1-Black 2-Blue 3-Brown 4-White	**CSMS4A4CY1602**
		5-pin, 5-wire	16 AWG	6 ft (2 m)	 1-Black 2-Blue 3-Orange 4-Brown 5-White	**CSMS5A5CY1602**

Note

① For a full selection of connector cables, see **Tab 10**, **section 10.1**.

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Fiber Optic Cables

Glass Fiber Optic Cables

Glass Fiber Optic Cables—Duplex Cables (for Diffuse Reflective Sensing)

Sensing Tip Style	Fiber Bundle Size A in In (mm)	Stainless Steel Jacket Catalog Number	PVC/Monocoil Jacket Catalog Number
Forward Viewing, Unthreaded			
	0.125 (3.2)	**E51KE713**	**E51KE313**
Right Angle Viewing, Unthreaded			
	0.125 (3.2)	**E51KE733**	**E51KE333**
Forward Viewing, Threaded Cable End			
	0.125 (3.2)	**E51KE723**	**E51KE323**
Right Angle Viewing, Threaded Cable Shaft			
	0.125 (3.2)	**E51KE7A3**	**E51KE3A3**
Right Angle Viewing, Threaded Cable End			
	0.125 (3.2)	**E51KE7B3**	**E51KE3B3**

Dimensions, see **Page V8-T5-25**.

Glass Fiber Optic Cables—Single Cables (for Thru-Beam Sensing)

Sensing Tip Style	Fiber Bundle Size A in In (mm)	Stainless Steel Jacket Catalog Number	PVC/Monocoil Jacket Catalog Number
Forward Viewing, Unthreaded			
	0.125 (3.2)	**E51KE813**	**E51KE413**
Right Angle Viewing, Unthreaded			
	0.125 (3.2)	**E51KE833**	**E51KE433**
Forward Viewing, Threaded Cable End			
	0.125 (3.2)	**E51KE823**	**E51KE423**
Right Angle Viewing, Threaded Cable Shaft			
	0.125 (3.2)	**E51KE8A3**	**E51KE4A3**
Right Angle Viewing, Threaded Cable End			
	0.125 (3.2)	**E51KE8B3**	**E51KE4B3**

Dimensions, see **Page V8-T5-25**.

Plastic Fiber Optic Cables

Plastic Fiber Optic Cables—Pre-Assembled Duplex Cables

Sensing Tip Style	Fiber Diameter in In (mm)	Catalog Number
Large Diameter, Threaded Tip		
	0.059 (1.5)	**6324E-6501** ①②
Large Diameter, Threaded Tip with Bendable Probe		
	0.039 (1.0)	**6324E-6502** ②

Dimensions, see **Page V8-T5-25**.

Plastic Fiber Optic Cables—Pre-Assembled Single Cables

Sensing Tip Style	Fiber Diameter in In (mm)	Catalog Number
Large Diameter, Threaded Tip		
	0.059 (1.5)	**6323E-6501** ①③
Large Diameter, Threaded Tip with Bendable Probe		
	0.039 (1.0)	**6323E-6502** ③

Dimensions, see **Page V8-T5-25**.

Notes

① Larger diameter (1.5 mm) fibers provide approximately 50% longer sensing range than small diameter (1 mm).
② One cable.
③ Set of two.

Accessories

Enhanced 50 Series Sensors

	Description	Catalog Number
Mounting Bracket Right Angle—Short 	**Mounting Bracket Right Angle—Short**	
	Provides for full 360° rotation of sensor. Bracket slots allow for up to 1.5 in of vertical adjustment. Nickel plated	**6150E-6501**
Mounting Bracket Right Angle—Tall 	**Mounting Bracket Right Angle—Tall**	
	Provides for full 360° rotation of sensor. Bracket slots allow for up to 1.5 in of vertical adjustment in each slot, and 3.5 in of overall positioning adjustment.	**6150E-6502**
Mounting Bracket Right Angle—Ball Swivel 	**Mounting Bracket Right Angle—Ball Swivel**	
	Provides for full 360° rotation of sensor. Ball swivel allows for ±30° sensor angle.	**6150E-6503**
	Retroreflectors	
	Retroreflectors and retroreflective tape, see **Tab 8**, **section 8.1**	—
	Connector Cables	
	For use with connector version sensors, see **Tab 10**, **section 10.1**	—
	Dimensions, see **Page V8-T5-25**.	

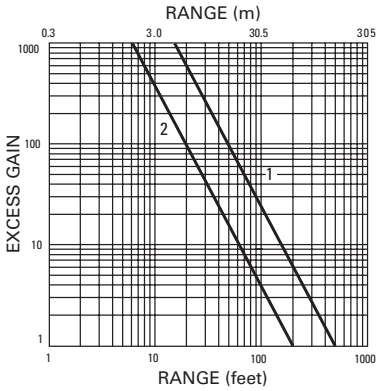
Technical Data and Specifications

Enhanced 50 Series Sensors

Description	AC/DC EM Relay Model Specification	AC/DC Solid-state Relay Model Specification	DC Only Standard Range Model Specification	DC Only Extended Range Model Specification
Input voltage	12–240 Vdc; 24–240 Vac	12–240 Vdc; 24–240 Vac	10–40 Vdc	10–40 Vdc
Light/dark operation	Switch selectable	Switch selectable	Switch selectable	Switch selectable
Operating temperature	–13° to 131°F (–25° to 55°C)	–13° to 131°F (–25° to 55°C)	–13° to 131°F (–25° to 55°C)	–13° to 131°F (–25° to 55°C)
Humidity	95% Relative humidity, non-condensing	95% Relative humidity, non-condensing	95% Relative humidity, non-condensing	95% Relative humidity, non-condensing
Case material	Fiberglass reinforced plastic	Fiberglass reinforced plastic	Fiberglass reinforced plastic	Fiberglass reinforced plastic
Lens material	Acrylic	Acrylic	Acrylic	Acrylic
Vibration	IEC 60947-5-2 part 7.4.2	IEC 60947-5-2 part 7.4.2	IEC 60947-5-2 part 7.4.2	IEC 60947-5-2 part 7.4.2
Shock	IEC 60947-5-2 part 7.4.1	IEC 60947-5-2 part 7.4.1	IEC 60947-5-2 part 7.4.1	IEC 60947-5-2 part 7.4.1
Protection	—	Output short circuit and overcurrent protection Reverse polarity protection	Output short circuit and overcurrent protection Reverse polarity protection	Output short circuit and overcurrent protection Reverse polarity protection
Enclosure ratings	IP67, IP69	IP67, IP69	IP67, IP69	IP67, IP69
Output load	3A at 120 Vac; 3A at 240 Vac 3A at 28 Vac	300 mA at 240 Vac/dc	250 mA at 40 Vdc	250 mA at 40 Vdc
Response time	15 ms	2 ms	2 ms	2 ms
Timer timing response	0–15 sec.	0–15 sec.	0–15 sec.	0–15 sec.
No load current	<30 mA	<30 mA	<30 mA	<30 mA
Leakage current (max.)	—	1 mA at 240 Vac	<10 µA	<10 µA
Indicator LEDs	Green: output; yellow: power; red: alignment	Green: output; yellow: power; red: alignment	Green: output; yellow: power; red: alignment	Green: output; yellow: power; red: alignment
Emitter LED				
Diffuse, infrared fiber optic, thru-beam models	Infrared 880 mm	Infrared 880 mm	Infrared 880 mm	Infrared 880 mm
Reflex, polarized reflex, clear object, visible fiber optic units	Visible red 660 mm	Visible red 660 mm	Visible red 660 mm	Visible red 660 mm

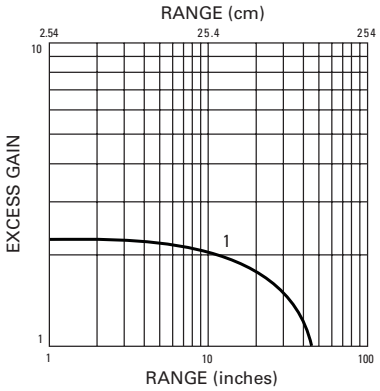
Excess Gain

Thru-Beam



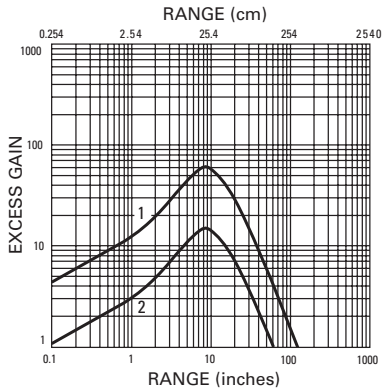
Thru-beam
1. 1151E/1251E
2. 1150E/1250E

Clear Object Detector



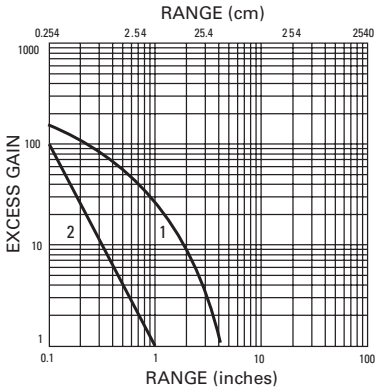
Clear object detector
3 in retroreflector
1. 1452E

Diffuse Reflective



Diffuse reflective
90% reflectance white card
1. 1351E
2. 1350E

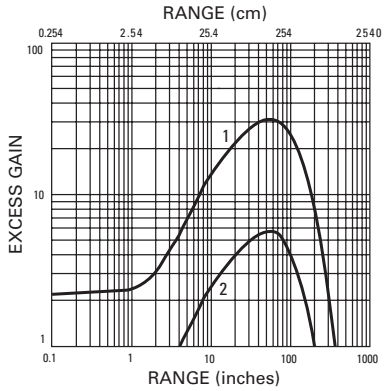
Fiber Optic Diffuse



Fiber optic diffuse

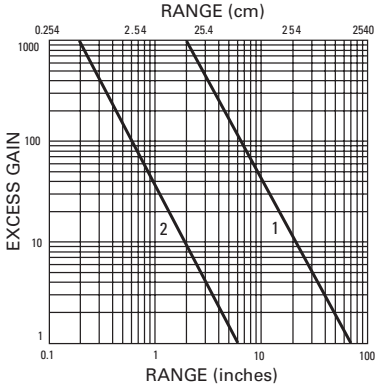
0.125 in dia. glass fiber	0.040 in dia. plastic fiber
1. 1550E	2. 1551E

Reflex



Reflex
3 in retroreflector
1. 1450E
2. 1451E

Fiber Optic Thru-Beam



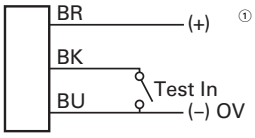
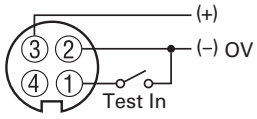
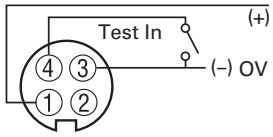
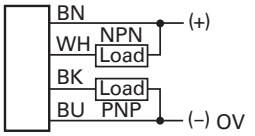
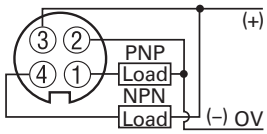
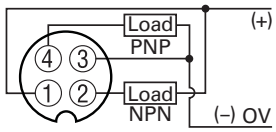
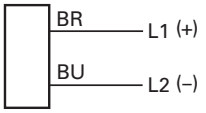
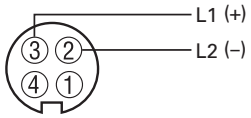
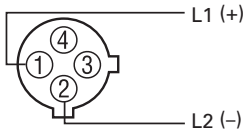
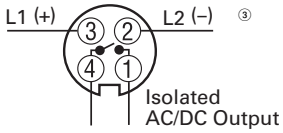
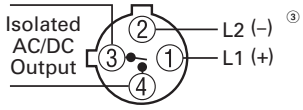
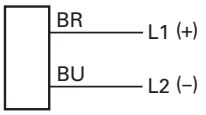
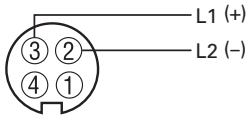
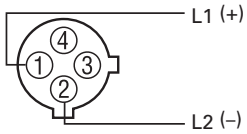
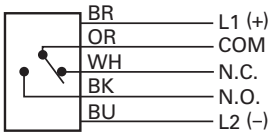
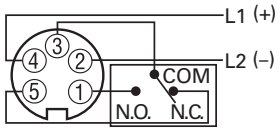
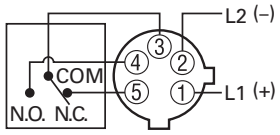
Fiber optic thru-beam

0.125 in dia. glass fiber	0.040 in dia. plastic fiber
1. 1550E	2. 1551E

Wiring Diagrams

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

Enhanced 50 Series Sensors

Operating Voltage	Cable Model	Mini-Connector Model (Face View Male Shown)	Micro-Connector Model (Face View Male Shown)
Thru-Beam Source			
10–40 Vdc			
All Others			
10–40 Vdc			
Thru-Beam Source			
12–240 Vdc or 24–240 Vac			
All Others with Isolated AC/DC Output			
12–240 Vdc or 24–240 Vac			
Thru-Beam Source			
12–240 Vdc or 24–240 Vac			
All Others			
12–240 Vdc or 24–240 Vac SPDT EM relay ②			

Notes

① Connecting the test input to 0 Vdc allows you to switch the light source off for troubleshooting while leaving the sensor under power.
② Over current protection is to be provided in the field. Conductor size for 20 AWG: 5 amp; 22 AWG: 3 amp; 24 AWG: 2 amp.
③ Connect load to appropriate output for either sinking or sourcing operation.

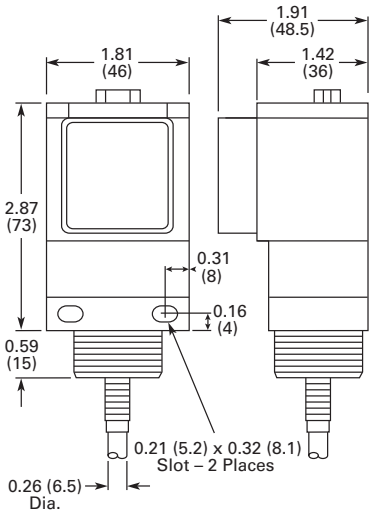
5

Dimensions

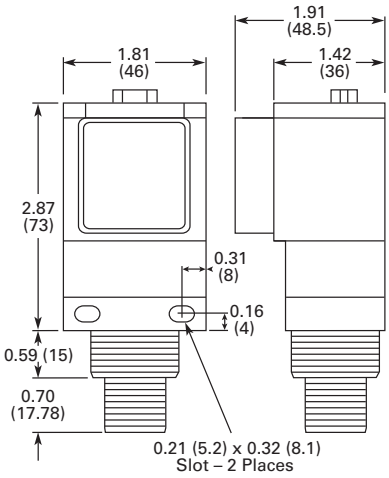
Approximate dimensions in inches (mm)

Enhanced 50 Series Sensors

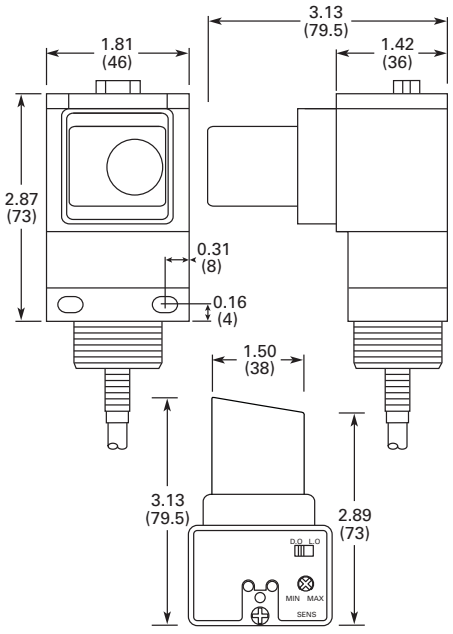
Cable and Pigtail Connector Versions



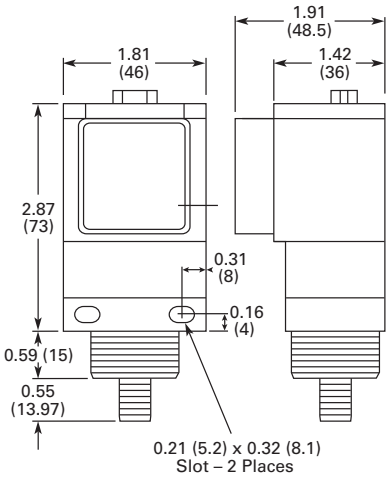
Mini-Connector Versions



Clear Object Versions

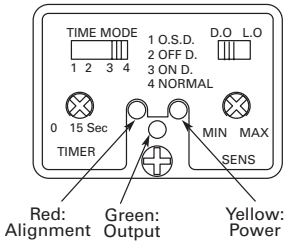


AC/DC Micro or Euro (Micro) Connector Versions

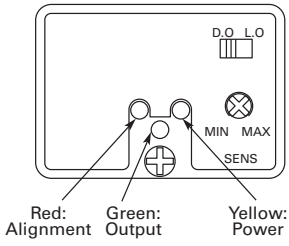


Top Views

With Timing



Without Timing



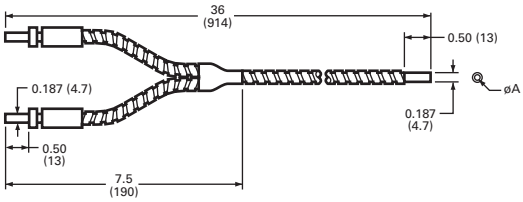
Approximate dimensions in inches (mm)

Glass Fiber Optic Cables—Duplex Cables

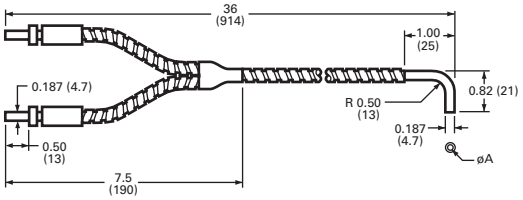
Stainless Steel Jacket shown for all.

Collar Mounting End

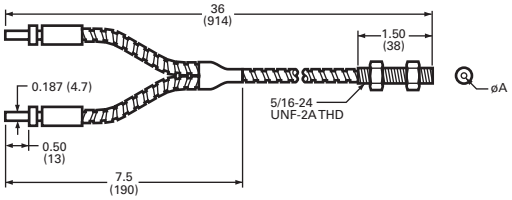
Forward Viewing, Unthreaded



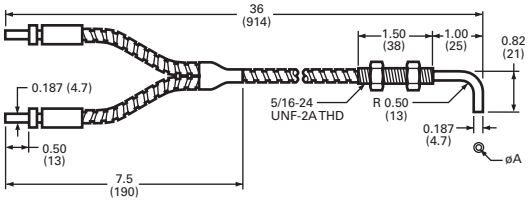
Right Angle Viewing, Unthreaded



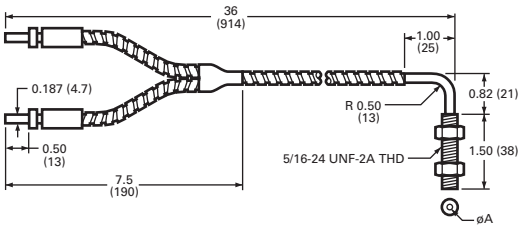
Forward Viewing, Threaded Cable End



Right Angle Viewing, Threaded Cable Shaft



Right Angle Viewing, Threaded Cable End

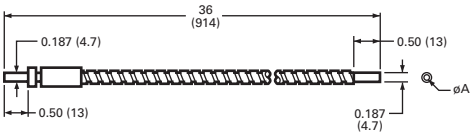


Glass Fiber Optic Cables—Single Cables

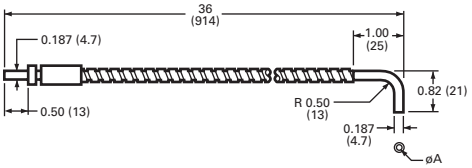
Stainless Steel Jacket shown for all.

Collar Mounting End

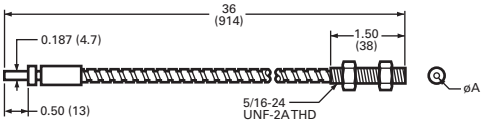
Forward Viewing, Unthreaded



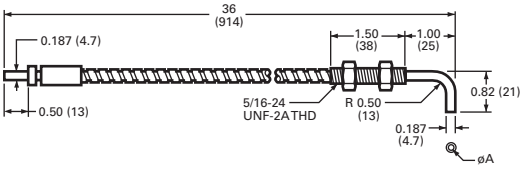
Right Angle Viewing, Unthreaded



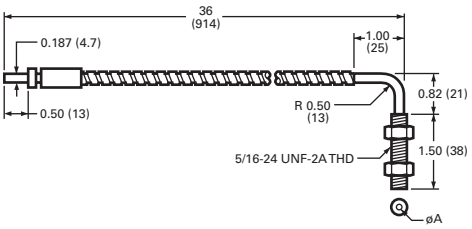
Forward Viewing, Threaded Cable End



Right Angle Viewing, Threaded Cable Shaft



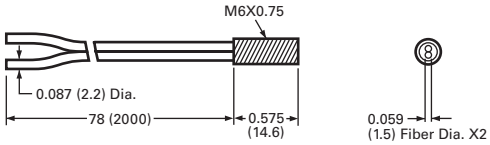
Right Angle Viewing, Threaded Cable End



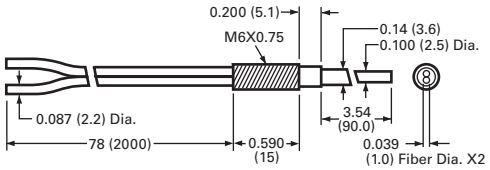
Approximate dimensions in inches (mm)

Plastic Fiber Optic Cables—Pre-Assembled Duplex Cables

Large Diameter, Threaded Tip

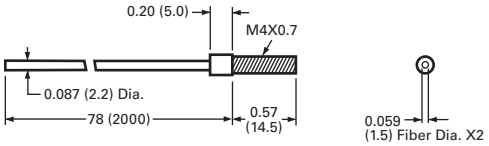


Large Diameter, Threaded Tip with Bendable Probe

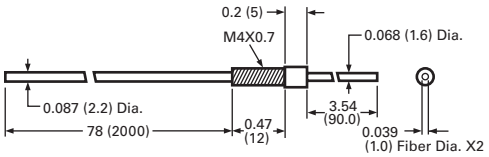


Plastic Fiber Optic Cables—Pre-Assembled Single Cables

Large Diameter, Threaded Tip

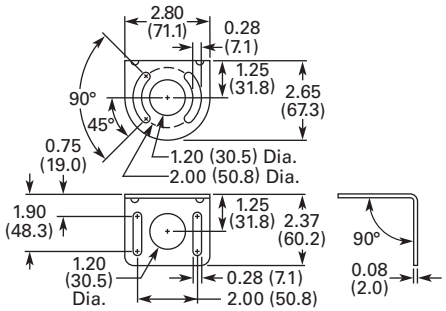


Large Diameter, Threaded Tip with Bendable Probe

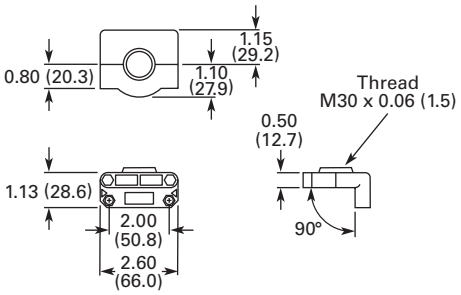


Accessories

Mounting Bracket Right Angle—Short



Mounting Bracket Right Angle—Ball Swivel



Mounting Bracket Right Angle—Tall