

Sensors & Limit Switches

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Small, Modular and Rugged



Powering Business Worldwide

- Dependable and accurate performance
- Pre-cabled and encapsulated to protect against extreme 6P conditions and contaminants
- Mini-metal limit switches designed small and tough with machinery OEMs in mind
- Modular plug-in components provide greater flexibility and reduced inventory
- Eaton's sensor business specializes in providing modified or fully custom products direct to OEMs — call (800) 426-9184 x1

Limit Switches Product Overview

				
Description	E47 Precision Switches	Compact Prewired Switches	E49 Mini Metal Switches	E50 Heavy-Duty Plug-in Switches
Page	Page 212	Page 213	Page 214	Page 215
Overview	Specified when accurate repeatability, choice of operating forces and travel characteristics and tightly controlled action of cam or target in space restricted areas is of prime importance. Cost effective and compact	Designed to be a versatile, slim device for hard-to-fit applications where sealing integrity is required	Suitable for OEMs who require a small, cost-effective solution but cannot sacrifice durability and mechanical life as would be the case with a plastic IEC style switch	Versatile in design. High reliability. Low maintenance costs with installation ease. Best choice for heavy-duty limit switch applications. Withstands physical and chemical abuse of harsh industrial environments
Applications	Overhead, folding and elevator doors, sliding gates, automated guided vehicles and commercial instrumentation	Machine tool, food processing and packaging	Automatic vending machines, electronic assembly machines, elevators and lifts, injection molding, packaging	Punch presses, waste water treatment, machine tool, automotive, retrieval systems, industrial truck, car wash lines
Product Features	<ul style="list-style-type: none"> Self-contained switches or with an enclosed cast housing for increased durability and conduit connection (1/2" NPT) High current capacity for power load switching and motor handling capability Screw and solder terminations 	<ul style="list-style-type: none"> Rugged aluminum alloy die cast housing Sealed construction with enclosure ratings of Type 4, 6 and 13 Prewired with 3m of 18 AWG, AWM 2517, 300V cable 	<ul style="list-style-type: none"> Long life — rated for 10 million operations Pre-wired units with custom cable lengths available for high volume customers "Fingerproof" terminals protect against accidental shock 	<ul style="list-style-type: none"> Modular operating heads, switch bodies and receptacles are interchangeable without field adjustment Order as complete assemblies or components for stocking and manufacturing flexibility 90 degree total travel, 5 degree pretravel characteristics are standard features
Contact Ratings	NEMA A600, R300, AC-15, DC-13 15A/20A, 125 or 250V ac	NEMA B300	5A @ 250V ac 5A @ 30V dc	NEMA A600, R300 Lighted Versions A150, R150 6A, 120V ac; 10A Continuous
Enclosure Ratings	Enclosed — Type 1	Type 4, 6 and 13 IP67	IP65	Type 1, 3, 3S, 4, 4X, 6, 6P, 13 IP67
Construction	Basic — Phenolic Enclosed — Aluminum Die Cast	Aluminum Alloy Die Cast	Zinc Alloy	Zinc Die Cast
Approvals	UL Recognized CSA Certified	cULus	UL Recognized	UL Listed CSA Certified IEC 947-5-1 TUV

Sensors & Limit Switches

Limit Switches

PRODUCT SELECTION

E47 Precision

- The cost-effective solution for highly accurate switching applications
- Compact housings are ideal for use where space is restricted
- Precision, snap-action operators provide accurate repeatability of electrical and mechanical operating characteristics
- High current capacity (up to 20A) allows power load switching and motor handling capability
- Enclosed booted versions shield actuators from debris
- Solder and spade terminals available
- 15A models shown, 20A models also available



Basic Switches

Description	Type	Catalog Number	Specifications ①
		15A	
Straight Lever	Screw Terminal	E47BMS22	OF Max. — 2.47 oz (70g) RF Min. — 0.49 oz (14g) PT Max. — 0.394 in (10 mm) OT Max. — 0.220 in (5.6 mm) MD Max. — 0.051 in (1.3 mm) FP Max. — 1.11 in (28.2 mm) OP — 0.748 in (19 mm)
Standard Lever	Screw Terminal	E47BMS20	OF Max. — 3.53 oz (100g) RF Min. — 0.99 oz (28g) PT Max. — 0.197 in (5.0 mm) OT Max. — 0.079 in (2.0 mm) MD Max. — 0.039 in (1.0 mm) FP Max. — 0.976 in (24.8 mm) OP — 0.748 in (19 mm)
Cross Roller Plunger	Screw Terminal	E47BMS11	OF Max. — 12.3 oz (350g) RF Max. — 4.02 oz (114g) PT Max. — 0.016 in (0.4 mm) OT Max. — 0.14 in (3.58 mm) MD Max. — 0.002 in (0.05 mm) OP — 1.315 in (33.4 mm)
Extended Roller Lever	Screw Terminal	E47BMS42	OF Max. — 5.64 oz (160g) RF Min. — 0.78 oz (22g) PT Max. — 0.28 in (7.1 mm) OT Max. — 0.16 in (4 mm) MD Max. — 0.04 in (1.02 mm) FP Max. — 1.437 in (36.5 mm) OP — 1.189 in (30.2 mm)
Roller Lever	Screw Terminal	E47BMS30	OF Max. — 5.64 oz (160g) RF Min. — 1.48 oz (42g) PT Max. — 0.106 in (2.7 mm) OT Max. — 0.094 in (2.4 mm) MD Max. — 0.02 in (0.5 mm) FP Max. — 1.28 in (32.5 mm) OP — 1.189 in (30.2 mm)

① OF = Operating Force; RF = Return Force; PT = Pre-travel; OT = Overtravel; MD = Movement Differential; FP = Free Position; OP = Operating Position.

Enclosed Switches

Description	Catalog Number	Specifications ①
Roller Lever	E47BLS32	OF Max. — 20.1 oz (570g) RF Min. — 6.0 oz (1700g) PT Max. — 0.157 in (4.0 mm) OT Max. — 0.236 in (6.0 mm) MD Max. — 0.016 in (0.4 mm)
Booted Roller Lever	E47BLS33	OF Max. — 22.57 oz (640g) RF Min. — 8.11 oz (230g) PT Max. — 0.197 in (5.0 mm) OT Max. — 0.236 in (6.0 mm) MD Max. — 0.016 in (0.4 mm)
Booted Roller Plunger	E47BLS08	OF Max. — 17.64 oz (500g) RF Min. — 3.53 oz (100g) PT Max. — 0.039 in (1.0 mm) OT Max. — 0.138 in (3.5 mm) MD Max. — 0.005 in (0.12 mm) OP — 1.957 in (49.7 mm)
	E47BLS12 (Cross Roller Unit)	
Booted Wobble	E47BLS14	OF Max. — 2.11 oz (60g) RF Min. — 0.88 oz (25g) PT Max. — 0.520 in (13.2 mm) OT Max. — 0.315 in (8.0 mm) MD Max. — 0.039 in (1.0 mm)

① OF = Operating Force; RF = Return Force; PT = Pre-travel; OT = Overtravel; MD = Movement Differential; FP = Free Position; OP = Operating Position.

Compact Prewired

- Rugged and dependable compact limit switch
- Rugged aluminum alloy die cast housing
- Sealed construction with enclosure ratings of Type 4, 6 and 13
- Prewired with 3m of 18 AWG, AWM 2517, 300V cable
- Stackable ridge for ganged operation



Compact Prewired

Actuator Type	Operating Force (Maximum)	Reset Force (Minimum)	Overtravel (Minimum)	Pre-travel	Movement Differential (Maximum)	Operating Position	Catalog Number
Pin Plunger	42.3 oz (1.2 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	0.62 ± 0.04 inch (15.7 ± 1 mm)	E47BCC05
Sealed Plunger	63.5 oz (1.8 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	0.99 ± 0.04 inch (24.9 ± 1 mm)	E47BCC06
Roller Plunger	42.3 oz (1.2 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	1.12 ± 0.04 inch (28.5 ± 1 mm)	E47BCC07
Sealed Roller Plunger	63.5 oz (1.8 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	1.35 ± 0.04 inch (34.3 ± 1 mm)	E47BCC08
Cross Roller Plunger	42.3 oz (1.2 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	1.12 ± 0.04 inch (28.5 ± 1 mm)	E47BCC11
Sealed Cross Roller Plunger	63.5 oz (1.8 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	1.35 ± 0.04 inch (34.3 ± 1 mm)	E47BCC12
Bevel Plunger	42.3 oz (1.2 kg)	15.9 oz (450g)	0.118 inch (3 mm)	0.07 inch (1.8 mm)	0.008 inch (0.2 mm)	1.12 ± 0.04 inch (28.5 ± 1 mm)	E47BCC13
Roller Lever	20.5 oz (580g)	5.3 oz (150g)	40°	25° max.	3°	—	E47BCC15
Wobble Stick	5.3 oz (150g)	—	—	15° max.	—	—	E47BCC20

Sensors & Limit Switches

Limit Switches

PRODUCT SELECTION

E49 Mini Metal

- Long life — rated for 10 million operations
- “Fingerproof” terminals protect against accidental shock
- Double-spring mechanism for contact reliability
- Captive screws on enclosure cover make wiring hassle-free
- SPDT double break



E49 Mini Metal

Operating Head Type	Specifications					Catalog Numbers
	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Assembled Units (Switch Body and Head) 1NO-1NC Contacts
Side Rotary Lever	20°	12°	70°	750 g	100 g	E49G31AP3
Adjustable Side Rotary Lever	20°	12°	70°	750 g	100 g	E49G31UP3
Top Pushbutton	0.06 in (1.5 mm)	0.04 in (1 mm)	0.22 in (5.5 mm)	900 g	150 g	E49G31BP3
Top Push Roller	0.06 in (1.5 mm)	0.04 in (1 mm)	0.22 in (5.5 mm)	900 g	150 g	E49G31CP3
Top Push Roller (90 Degree Roller)	0.06 in (1.5 mm)	0.04 in (1 mm)	0.22 in (5.5 mm)	900 g	150 g	E49G31C1P3
Adjustable Rod Lever	20°	12°	70°	750 g	100 g	E49G31DP3
Wobble Stick (Nylon Coil)	1.18 in (30 mm)	—	—	150 g	—	E49G31NP3
Wobble Stick (Metal Coil)	1.18 in (30 mm)	—	—	150 g	—	E49G31VP3
Wobble Stick (Metal Rod)	1.18 in (30 mm)	—	—	150 g	—	E49G31MP3
Wobble Stick (Whisker)	1.18 in (30 mm)	—	—	150 g	—	E49G31XM3

E50 Heavy-Duty Plug-In

- Modular, plug-in components (head, body and receptacle) provide application flexibility, reduced inventory and less downtime
- Manufactured to take the physical and environmental abuse (including cutting fluids and chemicals) of harsh industrial environments
- Chemical-resistant Viton® gaskets, seals and boots are standard, and so are captive, posi-drive screws
- 600V rating, ridge-topped contacts and wiping action assure continuity even to logic level circuits
- Rotary heads are field convertible clockwise, counterclockwise or both, without special tools



Assembled Switches — Standard

Operating Head Type		Catalog Number
Side Rotary (requires an operating lever)	Standard Spring Return — E50DR1 ①	E50AR1
	Low Force Spring Return — E50DL1 ①	E50AL1
	Maintained Two-Position — E50DM1	E50AM1
Side Pushbutton, Spring Return — E50DS1		E50AS1
Side Pushbutton, Adjustable Spring Return — E50DS2		E50AS2
Side Push Roller, Spring Return — E50DS3 ②		E50AS3
Side Pushbutton, Maintained — E50DH1		E50AH1
Top Pushbutton, Spring Return — E50DT1		E50AT1
Top Pushbutton, Adjustable Spring Return — E50DT2		E50AT2
Top Push Roller, Spring Return — E50DT3 ②		E50AT3
Wobble Head, Spring Return (requires a wobble operator)	Standard Duty — E50DW1	E50AW1
	Heavy-Duty High Strength Steel — E50DW2	E50AW2

① CW (clockwise) and CCW (counterclockwise) operation, easily convertible to CW only or CCW only operation.

② Roller can be converted in the field between horizontal and vertical.

Note: Order assembled (as shown in this product guide) or as head, body, receptacle and lever components.





Detect Tough Targets



Powering Business Worldwide

- A full family of compact sensors with high optical performance and built-in relays
- Light / dark switch and gain control provides quick adjustment and peak optical performance
- Detect targets of different color, reflectance, contrast or surface shape at the same range
- Harsh-duty sensors withstand the harshest electrical, chemical or physical environments
- Eaton's sensor business specializes in providing modified or fully custom products direct to OEMs — call (800) 426-9184 x1

Photoelectric Sensors Product Overview

				
Description	Enhanced 50 Series	SM Series	Comet Series	E58 Harsh-Duty Series
Page	Page 218	Page 220	Page 221	Page 223
Overview	Provides outstanding optical performance and application flexibility in a self-contained, industry-standard package	Provides high performance and ease of use in an economical, compact package	This high-performance, 18 mm tubular sensor family features a wide variety of models in all sensing modes	Designed to withstand your harshest physical, chemical and optical environments, 18 and 30 mm tubular enclosures
Sensing Types and Ranges	<ul style="list-style-type: none"> • Thru-Beam: 200 and 500 feet • Reflex: 30 feet • Polarized Reflex: 16 feet • Diffuse Reflective: 5 and 10 feet • Clear Object Detector: 45 inches • Infrared Fiber Optic: range varies with fiber • Visible Fiber Optic: range varies with fiber 	<ul style="list-style-type: none"> • Thru-Beam: 50 feet • Polarized Reflex: 10 feet • Diffuse Reflective: 8 inches • Perfect Prox® Background rejection: 2 and 4 inches 	<ul style="list-style-type: none"> • Thru-Beam: 20 and 80 feet • Reflex: 25 feet • Polarized Reflex: 15 and 10 feet • Diffuse Reflective: 8 and 24 inches • Focused Diffuse Reflective: 1.6 inches • Wide Angle Diffuse: 6 inches • Fine spot Perfect Prox: 2 inches • Perfect Prox Background Rejection: 2, 4, 6 and 9 inches • Glass and Plastic Fiber Optic: range varies with fiber 	<ul style="list-style-type: none"> • Thru-Beam: 800 feet • Reflex: 59 feet • Polarized Reflex: 34 feet • Perfect Prox background rejection: 2, 4, 6 and 11 inches
Product Features	<ul style="list-style-type: none"> • High optical performance, including 10-foot Diffuse and 500-foot Thru-Beam versions • Output options include a high-current 10 amp SPDT relay • Built-in Light/Dark selection on all models 	<ul style="list-style-type: none"> • Highly visible LED indicators for power, output and alignment (TargetLock™) • TargetLock simplifies setup and ensures that the sensor operates at the highest level of reliability possible • Perfect Prox models sense different colored targets at the same range and ignore objects in the background 	<ul style="list-style-type: none"> • The 18 mm tubular body has flat sides for added mounting flexibility • Available in universal voltage ac/dc versions as well as dc only models • Short circuit protection on all models 	<ul style="list-style-type: none"> • Designed to be the most rugged photoelectric sensor available • Perfect Prox background rejection technology for unmatched optical performance • Output status indicator is the brightest available and is visible from any angle and in any lighting condition
Operating Voltage	24 – 240V ac and 12 – 240V dc, 10 – 40V dc	18 – 264V ac and 18 – 50V dc 10 – 30V dc	90 – 132V ac and 18 – 50V dc 20 – 264V ac and 15 – 30V dc 10 – 30V dc	2-wire models: 90 – 132V ac and 18 – 50V ac 3- and 4-wire models: 20 – 132V ac and 15 – 30V dc 10 – 30V dc
Output Function	Selectable Light or Dark Operate	Light and Dark Operate models available	Selectable Light or Dark Operate	Light and Dark Operate models available
Maximum Load Current	dc units: 250 mA ac/dc units: 300 mA to 10A	ac/dc units — 200 mA dc units — 100 mA (NPN or PNP)	ac/dc units — 300 mA dc units — 250 mA (NPN), 100 mA (PNP)	ac/dc units — 300 mA (100 mA for 18 mm diameter units) dc units — 250 mA (NPN), 100 mA (PNP)
Enclosure Ratings	IP67	Type 1, 3, 4, 4X, 6, 6P, 12 and 13 IP68	Type 1, 2, 3, 4, 4X, 6, 12 and 13	Type 1, 2, 3, 3R, 3S, 4, 4X, 6, 6P, 12, 12K and 13
Response Time Range	dc operation: 2 ms ac operation: 15 ms	dc operation: 1 ms ac operation: 16 ms	dc operation: 1 ms ac operation: 10 ms 2W ac/dc Operation: 32 ms	2 ms to 35 ms
Approvals	CSA Approved Certified to UL Standard, UL 508	UL Listed cUL Listed	UL Recognized cUL Recognized	UL Listed cUL Listed

Sensors & Limit Switches

Photoelectric Sensors

PRODUCT SELECTION

Enhanced 50 Series

- High-performance sensors for demanding applications
- High-optical performance models, including a 500-foot (152 m) thru-beam and a 10-foot (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 and One-Shot delay
- 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 feet (1.8 m)



Enhanced 50 Series Sensors

Description	Voltage Range	Sensing Range	Optimum Range	Sensing Beam	Thru-Beam Component	Output Type	Time Delay	Connection Type	Catalog Number
Thru-Beam Standard Range	10 – 40V dc	200 ft. (61 m)	0.1 – 100 ft. (0.03 – 31 m)	Infrared	Source	N/A	N/A	4-pin Euro (Micro) Connector	1150E-6547
					Detector	NPN/PNP 250 mA	no		1250E-6547
	12 – 240V dc 24 – 240V ac	200 ft. (61 m)	0.1 – 100 ft. (0.03 – 31 m)	Infrared	Source	N/A	N/A	4-pin Micro Connector	1150E-6543
					Detector	Isolated Output Solid-State Relay 300 mA @ 240V ac/dc	no		1250E-6543
					Source	N/A	N/A	4-pin Mini-Connector	1150E-6504
					Detector	SPDT EM Relay 3A @ 120V ac	no	5-pin Mini-Connector	1250E-6504
Thru-Beam Extended Range	10 – 40V dc	500 ft. (152 m)	0.1 – 250 ft. (0.03 – 77 m)	Infrared	Source	N/A	N/A	4-pin Euro (Micro) Connector	1151E-6547
					Detector	NPN/PNP 250 mA	no		1251E-6547
	12 – 240V dc 24 – 240V ac	500 ft. (152 m)	0.1 – 250 ft. (0.03 – 77 m)	Infrared	Source	N/A	N/A	4-pin Micro Connector	1151E-6543
					Detector	Isolated Output Solid-State Relay 300 mA @ 240V ac/dc	no		1251E-6543
					N/A	N/A	4-pin Mini-Connector	1151E-6504	
					SPDT EM Relay 3A @ 120V ac	no	5-pin Mini-Connector	1251E-6504	

Enhanced 50 Series

Enhanced 50 Series Sensors

Description	Voltage Range	Sensing Range ①	Optimum Range ①	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
Standard Reflex	10 – 40V dc	30 ft. (9 m)	0.5 – 15 ft. (0.2 – 4.6 m)	Visible Red	NPN/PNP 250 mA	no	4-pin Euro (Micro) Connector	1450E-6547
	12 – 240V dc 24 – 240V ac	30 ft. (9 m)	0.5 – 15 ft. (0.2 – 4.6 m)	Visible Red	Isolated Output Solid-State Relay 300 mA @ 240V ac/dc	no	4-pin Micro Connector	1450E-6543
					SPDT EM Relay 3A @ 120V ac	no	5-pin Mini-Connector	1450E-6504
Polarized Reflex ②	10 – 40V dc	16 ft. (4.9 m)	0.5 – 8 ft. (0.2 – 2.5 m)	Visible Red	NPN/PNP 250 mA	no	4-pin Euro (Micro) Connector	1451E-6547
	12 – 240V dc 24 – 240V ac	16 ft. (4.9 m)	0.5 – 8 ft. (0.2 – 2.5 m)	Visible Red	Isolated Output Solid-State Relay 300 mA @ 240V ac/dc	yes		1451E-8547
					SPDT EM Relay 3A @ 120V ac	no	4-pin Micro Connector	1451E-6543
Diffuse Reflective Extended Range	10 – 40V dc	10 ft. (3 m) ③	1 – 60 in. (25 – 1520 mm) ③	Infrared	NPN/PNP 250 mA	no	4-pin Euro (Micro) Connector	1351E-6547
	12 – 240V dc 24 – 240V ac	10 ft. (3 m) ③	1 – 60 in. (25 – 1520 mm) ③	Infrared	Isolated Output Solid-State Relay 300 mA @ 240V ac/dc	no	4-pin Micro Connector	1351E-6543
					SPDT EM Relay 3A @ 120V ac	no	5-pin Mini-Connector	1351E-6504
Clear Object Detector	10 – 40V dc	45 in. (1.2 m)	1 – 24 in. (25 – 610 mm)	Visible Red	NPN/PNP 250 mA	no	4-pin Euro (Micro) Connector	1452E-6547
	12 – 240V dc 24 – 240V ac	45 in. (1.2 m)	1 – 24 in. (25 – 610 mm)	Visible Red	Isolated Output Solid-State Relay 300 mA @ 240V ac/dc	no	4-pin Micro Connector	1452E-6543
					SPDT EM Relay 3A @ 120V ac	no	5-pin Mini-Connector	1452E-6504

① Ranges based on 3-inch retroreflector for reflex sensors.

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

③ Ranges based on 90% reflectance white card for diffuse reflective sensors.

Sensors & Limit Switches

Photoelectric Sensors

PRODUCT SELECTION

SM Series

- SM Series™ with TargetLock™ — the *easiest* photoelectric sensor to set up and use
- Highly visible LED indicators for power, output and TargetLock
- TargetLock simplifies setup and ensures the sensor operates at the highest level of reliability possible
- Perfect Prox® models sense different colored targets at the same range and ignore objects in the background
- Visible beam on all models lets you see exactly where the sensor is pointing
- Compact size to fit in tight spaces
- Multiple mounting options, including industry-standard 18 mm threads
- Reverse polarity, overload and short circuit protection
- Full family includes thru-beam, polarized reflex, diffuse reflective and Perfect Prox background rejection



SM Series

Description	Operating Voltage	Sensing Range	Optimum Range	Cutoff Range	Field of View	Thru-Beam Component	Connection Type	Catalog Number	
								Light Operate	Dark Operate
3-Wire and 4-Wire Sensors									
Thru-Beam	10 – 30V dc	50 feet (15 m)	0.1 to 25 feet (30 mm to 7.5m)	—	10 inch (254 mm) diameter at 10 feet (3 m)	Source	4-pin Micro dc Connector	E65-SMTS15-HAD	
						Detector	4-pin Micro dc Connector	—	E65-SMTD15-HDD
Polarized Reflex	18 – 264V ac 50/60 Hz or 18 – 50V dc	10 feet (3 m)	0.1 to 5 feet (30 mm to 1.5m)	—	1 inch (25 mm) diameter at 50 inches (1.3 m)	—	4-pin Micro ac Connector	—	E65-SMPR3-GDD
	10 – 30V dc	10 feet (3 m)	0.1 to 5 feet (30 mm to 1.5m)	—	1 inch (25 mm) diameter at 50 inches (1.3 m)	—	4-pin Micro dc Connector	—	E65-SMPR3-HDD
Diffuse Reflective	18 – 264V ac 50/60 Hz or 18 – 50V dc	8 inches (200 mm)	0.25 to 5 inches (6 mm to 127 mm)	—	2 inch (50 mm) diameter at 5 inches (127 mm)	—	4-pin Micro ac Connector	E65-SMSD200-GLD	—
	10 – 30V dc	8 inches (200 mm)	0.25 to 5 inches (6 mm to 127 mm)	—	2 inch (50 mm) diameter at 5 inches (127 mm)	—	4-pin Micro dc Connector	E65-SMSD200-HLD	—
Perfect Prox	18 – 264V ac 50/60 Hz or 18 – 50V dc	2 inches (50 mm)	0.4 to 1.8 inches (10 mm to 45 mm)	2.3 inches (58 mm) and beyond	0.25 inch (6 mm) diameter at 2.25 inches (57 mm)	—	4-pin Micro ac Connector	E65-SMPP050-GLD	—
	10 – 30V dc	2 inches (50 mm)	0.4 to 1.8 inches (10 mm to 45 mm)	2.3 inches (58 mm) and beyond	0.25 inch (6 mm) diameter at 2.25 inches (57 mm)	—	4-pin Micro dc Connector	E65-SMPP050-HLD	—

① Sensor will detect a 90% reflectance white card at this range.

② Sensor will ignore a 90% reflectance white card at this range.

Sensors & Limit Switches

Photoelectric Sensors

PRODUCT SELECTION

Comet Series

- Industry-standard 18 mm diameter threaded body has flat sides allowing it to be mounted like a tubular sensor or against any flat surface
- Right-angle viewing models mount in a depth of only 6/10th of an inch
- Perfect Prox technology provides exceptional background rejection and application problem-solving
- Visible sensing beams let you see where the beam is aimed for quick setup and alignment
- Solid polyurethane housing completely encapsulates internal circuits for high resistance to shock and vibration



Reflex Sensors

Description	Operating Voltage	Sensing Range ①	Optimum Range ①	Field of View	Sensing Beam	Connection Type	Catalog Number
3-Wire and 4-Wire Sensors							
Standard Reflex Forward Viewing	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	25 feet (7.6 m)	0.1 to 15 feet (0.03 – 4.5 m)	1 inch (25 mm) diameter at 50 inches (1.3 m)	Visible Red Beam	4-pin Micro ac Connector	14102AQD03
	10 – 30V dc (NPN and PNP)	25 feet (7.6 m)	0.1 to 15 feet (0.03 – 4.5 m)	1 inch (25 mm) diameter at 50 inches (1.3 m)	Visible Red Beam	4-pin Micro dc Connector	14102AQD07
Polarized Reflex Forward Viewing②	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	15 feet (4.5 m)	0.1 to 15 feet (0.03 – 4.5 m)	1 inch (25 mm) diameter at 50 inches (1.3 m)	Visible Red Beam	4-pin Micro ac Connector	14101AQD03
	10 – 30V dc (NPN and PNP)	15 feet (4.5 m)	0.1 to 10 feet (0.03 – 4.5 m)	1 inch (25 mm) diameter at 50 inches (1.3 m)	Visible Red Beam	4-pin Micro dc Connector	14101AQD07
Polarized Reflex Right-Angle Viewing ②③	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	10 feet (3 m)	0.1 to 15 feet (0.03 – 4.5 m)	1 inch (25 mm) diameter at 50 inches (1.3 m)	Visible Red Beam	4-pin Micro ac Connector	14101RQD03
	15 – 30V dc	10 feet (3 m)	0.1 to 15 feet (0.03 – 1.5 m)	1 inch (25 mm) diameter at 50 inches (1.3 m)	Visible Red Beam	4-pin Micro dc Connector	14101RQD07

① Ranges based on a 3-inch diameter retroreflector.

② Polarized reflex sensors may not operate with retroreflective tape. Test selected tape prior to installation.

③ Right-angle viewing polarized reflex models are rated Type 1 only.

Diffuse Reflective and Focused Diffuse Reflective Sensors

Description	Operating Voltage	Sensing Range ①	Optimum Range	Field of View	Sensing Beam	Connection Type	Catalog Number
3-Wire and 4-Wire Sensors							
Diffuse Reflective Forward Viewing	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	24 inches (610 mm)	0.1 to 15 inches (3 to 380 mm)	5 inch (127 mm) diameter at 15 inches (380 mm)	Infrared Beam	4-pin Micro ac Connector	13100AQD03
	10 – 30V dc (NPN and PNP)						13100AQD07
Diffuse Reflective Right-Angle Viewing	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	24 inches (610 mm)	0.1 to 15 inches (3 to 380 mm)	5 inch (127 mm) diameter at 15 inches (380 mm)	Infrared Beam	4-pin Micro ac Connector	13100RQD03
	10 – 30V dc (NPN and PNP)						13100RQD07

① Sensor will detect a 90% reflective white card at this range.

Sensors & Limit Switches

Photoelectric Sensors

PRODUCT SELECTION

Comet Series

Perfect Prox Background Rejection Sensor

Description	Operating Voltage	Nominal Range ①	Optimum Range	Cutoff Range ②	Field of View	Sensing Beam Type	Connection Type	Catalog Number
3-Wire and 4-Wire Sensors								
Perfect Prox Forward Viewing	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	2 inches (50 mm) Sharp Cutoff	0.4 to 1.8 inches (10 to 45 mm)	2.25 inches (57 mm) and beyond	0.25 inch (6 mm) diameter at 2.25 inches (64 mm)	Visible Red	4-pin Micro AC Connector	13104AQD03
		4 inches (100 mm) Sharp Cutoff	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.35 inch (9 mm) diameter at 5 inches (127 mm)	Visible Red		13101AQD03
	10 – 30V dc (NPN and PNP)	2 inches (50 mm) Sharp Cutoff	0.4 to 1.8 inches (10 to 45 mm)	2.25 inches (57 mm) and beyond	0.25 inch (6 mm) diameter at 2.25 inches (64 mm)	Visible Red	4-pin Micro dc Connector	13104AQD07
		4 inches (100 mm) Sharp Cutoff	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.35 inch (9 mm) diameter at 5 inches (127 mm)	Visible Red		13101AQD07
Perfect Prox Right-Angle Viewing	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	2 inches (50 mm) Sharp Cutoff	0.4 to 1.8 inches (10 to 45 mm)	2.25 inches (57 mm) and beyond	0.25 inch (6 mm) diameter at 2.25 inches (64 mm)	Visible Red	4-pin Micro ac Connector	13104RQD03
		4 inches (100 mm) Sharp Cutoff	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.35 inch (9 mm) diameter at 5 inches (127 mm)	Visible Red		13104RS5003
	10 – 30V dc (NPN and PNP)	2 inches (50 mm) Sharp Cutoff	0.4 to 1.8 inches (10 to 45 mm)	2.25 inches (57 mm) and beyond	0.25 inch (6 mm) diameter at 2.25 inches (64 mm)	Visible Red	4-pin Micro dc Connector	13104RQD07
		4 inches (100 mm) Sharp Cutoff	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.35 inch (9 mm) diameter at 5 inches (127 mm)	Visible Red		13104RS5007
Fine Spot Perfect Prox Forward Viewing	20 – 264V ac 50/60 Hz or 15 – 30V dc (NPN)	2 inches (50 mm) Sharp Cutoff	0.9 to 1.8 inches (23 to 45 mm)	2.25 inches (57 mm) and beyond	0.05 inch (1.3 mm) diameter at 1.7 inches (43 mm)	Visible Red	4-pin Micro ac Connector	13105AQD03
	10 – 30V dc (NPN and PNP)	2 inches (50 mm) Sharp Cutoff	0.9 to 1.8 inches (23 to 45 mm)	2.25 inches (57 mm) and beyond	0.05 inch (1.3 mm) diameter at 1.7 inches (43 mm)	Visible Red	4-pin Micro dc Connector	13105AQD07

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

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

E58 Harsh-Duty Series

- Sensors are available in 18 mm and 30 mm 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, food processing and forest products industries
- Suitable for high-temperature, high-pressure washdown (1200 psi)
- 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



Thru-Beam and Reflex Sensors

Description	Operating Voltage	Sensing Range	Optimum Range	Field of View	Thru-Beam Component	Connection Type	Catalog Number Dark Operate
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3-Wire and 4-Wire Sensors

30 mm Diameter Thru-Beam	20 – 132V ac 50/60 Hz or 15 – 30V dc	800 feet (250 m)	0.1 to 300 feet (0.03 – 90 m)	33 inches (830 mm) diameter at 25 feet (7.6 m)	Source	4-pin Micro ac Connector	E58-30TS250-GAP
	Detector				4-pin Micro ac Connector	E58-30TD250-GDP	
	10 – 30V dc	800 feet (250 m)	0.1 to 300 feet (0.03 – 90 m)	33 inches (830 mm) diameter at 25 feet (7.6 m)	Detector	4-pin Micro dc Connector	E58-30TD250-HDP
30 mm Diameter Reflex	20 – 132V ac 50/60 Hz or 15 – 30V dc	59 feet (18 m)	1 to 40 feet (0.03 – 12m)	6 inches (150 mm) diameter at 20 feet (6 m)	—	4-pin Micro ac Connector	E58-30RS18-GDP
	10 – 30V dc				59 feet (18 m)	1 to 40 feet (0.03 – 12m)	6 inches (150 mm) diameter at 20 feet (6 m)
30 mm Diameter Polarized Reflex	20 – 132V ac 50/60 Hz or 15 – 30V dc	34 feet (10 m)	1 to 20 feet (0.03 – 6 m)	6 inches (150 mm) diameter at 20 feet (6 m)	—	4-pin Micro ac Connector	E58-30RP10-GDP
	10 – 30V dc				34 feet (10 m)	1 to 20 feet (0.03 – 6 m)	6 inches (150 mm) diameter at 20 feet (6 m)

Sensors & Limit Switches

Photoelectric Sensors

PRODUCT SELECTION

E58 Harsh-Duty Series

Perfect Prox Background Rejection Sensors

Description	Operating Voltage	Nominal Range	Optimum Range	Cutoff Range	Field of View	Connection Type	Catalog Number Light Operate
2-Wire Sensors							
18 mm Diameter Perfect Prox	90 – 132V ac 50/60 Hz or 18 – 50V dc	4 inches (100 mm)	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.38 inch (10 mm) diameter at 4 inches (100 mm)	2-meter Cable	E58-18DP100-EL
3-Wire and 4-Wire Sensors							
18 mm Diameter Perfect Prox	10 – 30V dc	4 inches (100 mm)	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.38 inch (10 mm) diameter at 4 inches (100 mm)	4-pin Micro dc Connector	E58-18DP100-HLP
30 mm Diameter Perfect Prox	20 – 132V ac 50/60 Hz or 15 – 30V dc	11 inches (280 mm)	1 to 9 inches (26 to 228 mm)	12.5 inches (318 mm)	1.0 inch (26 mm) diameter at 11 inches (280 mm)	4-pin Micro ac Connector	E58-30DPS280-GLP
	10 – 30V dc	11 inches (280 mm)	1 to 9 inches (26 to 228 mm)	12.5 inches (318 mm)	1.0 inch (26 mm) diameter at 11 inches (280 mm)	4-pin Micro dc Connector	E58-30DPS280-HLP

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

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

One Part, Many Applications



Powering Business Worldwide




- Programmable prox provides dozens of competitive sensors with just one part in inventory
- Put in a proximity sensor with an analog output that signals proportional to position
- Designed for high temperature, high pressure washdown, and intense shock and vibration
- Sensors for global ac and dc applications, in 8 mm, 12 mm, 18 mm and 30 mm sizes
- Industry standard cubes with long sensing and Eaton's auto-configure output technology
- Eaton's sensor business specializes in providing modified or fully custom products direct to OEMs — call (800) 426-9184 x1

Sensors & Limit Switches



Inductive Sensors

PRODUCT OVERVIEW

Inductive Sensors Product Overview

			
Description	iProx®	E57 Premium+ Series	E57 Premium+ Series Short Barrel
Page	Page 228	Page 229	Page 230
Overview	Standard features include extended sensing ranges, high noise-immunity, extreme durability and includes autoconfigure technology. Optional advanced features include output delay, speed detection and cloning with the ProxView Software	High-performance inductive sensors include stainless steel models, extended ranges and right-angle sensing	Full featured sensors with shorter overall length than standard tubular sensors
Applications	Automotive, machine tool, material handling where high sensing performance and inventory consolidation is an issue	A wide variety of applications, including those where customers require ac/dc universal inventory sensors	Automation, robotics, transfer lines, conveyors, material handling
Product Features	<ul style="list-style-type: none"> Auto-configure technology automatically detects a sinking (NPN) or sourcing (PNP) connection and switches the sensor accordingly, without any user intervention Optional computer programming cable and Windows-based ProxView configuration software makes it easy to customize sensors Clone the sensor to match the characteristics of more than 4,800 competitive models, or configure it to match your specific application needs 	<ul style="list-style-type: none"> 12, 18 and 30 mm diameters 2-wire and 3-wire ac and dc sensors ac/dc models operate on 20 – 250V ac or dc 	<ul style="list-style-type: none"> Available in 12, 18 and 30 mm diameters 2-wire sensors offer 20 – 250V ac or dc operation; ac only 20 – 135V ac 3-wire models operate on 6 – 30V dc
Output Ratings	ac — 250 – 500 mA dc — 300 – 500 mA	ac mode — 250 – 500 mA dc mode — 200 mA	ac — 200 – 500 mA continuous dc — 500 mA continuous
Enclosure Ratings	Type 4, 4X, 6, 6P, 12, 13 IEC — IP67	Type 4, 4X, 6, 6P, 12, 13 IEC — IP67	Type 4, 4X, 6, 6P, 12, 13 IEC — IP67
Construction	Stainless steel	Stainless steel	Stainless steel Semi-shielded models: nickel-plated brass
Approvals	cUL Listed	cUL Listed	UL Listed CSA Certified

Inductive Sensors Product Overview

		
Description	Global Proximity	E52 Cube Style
Page	Page 231	Page 232
Overview	This full-line, tubular proximity sensor family provides a cost-effective solution for high volume OEM use	A family of industry-standard, cube-sized inductive sensors with long range capabilities
Applications	Machine tool detection, press applications, cam detection, material handling, valve and shaft position, automotive assembly	Automotive, manufacturing, machinery OEMs
Product Features	<ul style="list-style-type: none"> • 8, 12, 18 and 30 mm diameters • 2-wire sensors available in ac or dc versions • 3-wire sensors available in dc versions 	<ul style="list-style-type: none"> • Long inductive proximity ranges available (up to 40 mm sensing distance) • 4-wire dc models have complementary outputs (1NO-1NC) • 4-wire dc models use auto-configure technology, which allows the sensor to automatically adapt for NPN or PNP without user intervention
Output Ratings	ac mode — 200 mA dc mode — 100 mA	ac — 400 mA maximum dc — 300 mA maximum
Enclosure Ratings	IP67	Type 4, 4X, 6, 6P, 12, 13 IEC — IP67
Construction	Nickel-plated brass 8 mm Nano Stainless steel	Zinc Alloy PPS, PL
Approvals	cCSAus	—

Sensors & Limit Switches

Inductive Sensors

PRODUCT SELECTION

iProx®

- Available in ac 2-wire, dc 3-wire and unique dc 4-wire with complementary (NO-NC) or dual NO outputs
- Reliably detect metal targets at up to three times the range of conventional shielded or unshielded tubular inductive sensors
- Quality construction using a stainless steel barrel, 360-degree dual-color LED indicator, Ryton® impact-resistant face cap and vibration-absorbing potting compound
- Auto-configure technology automatically detects a sinking (NPN) or sourcing (PNP) connection and switches the sensor accordingly, without any user intervention
- Resistant to extreme temperatures (-40°C)



iProx

Description	Operating Voltage	Sensing Range	Shielding	Connection Type	Catalog Number NO Output ①
3-Wire Sensors					
12 mm Diameter	6 – 48V dc	4 mm	Shielded	4-pin Micro dc Connector	E59-M12A105D01-D1
		10 mm	Unshielded	4-pin Micro dc Connector	E59-M12C110D01-D1
18 mm Diameter	6 – 48V dc	8 mm	Shielded	4-pin Micro dc Connector	E59-M18A108D01-D1
		18 mm	Unshielded	4-pin Micro dc Connector	E59-M18C116D01-D1
30 mm Diameter	6 – 48V dc	15 mm	Shielded	4-pin Micro dc Connector	E59-M30A115D01-D1
		29 mm	Unshielded	4-pin Micro dc Connector	E59-M30C129D01-D1

① Sensors are ordered with pre-set outputs from the factory, but can be later programmed either NO or NC using ProxView software.

iProx Complementary and Dual Output

Description	Operating Voltage	Sensing Range	Shielding	Output Type	Connection Type	Catalog Number
						Complementary Outputs (1NO-1NC)
4-Wire Sensors						
12 mm Diameter	6 – 48V dc	4 mm	Shielded	NPN (Sinking)	4-pin Micro dc Connector	E59-M12A105D01-D3NN
				PNP (Sourcing)	4-pin Micro dc Connector	E59-M12A105D01-D3PP
18 mm Diameter	6 – 48V dc	18 mm	Unshielded	NPN (Sinking)	4-pin Micro dc Connector	E59-M18C116D01-D3NN
				PNP (Sourcing)	4-pin Micro dc Connector	E59-M18C116D01-D3PP

E57 Premium+ Series

- High-performance inductive sensors include stainless steel models, extended ranges and right angle sensing
- New expanded offering of 2-wire, 3-wire, ac, dc, and ac/dc multiple range sensor models
- Designed with stainless steel barrel and new potting compound for robust, high-temperature, high-pressure washdown, as well as intense shock and vibration applications
- 360° output status indicator is visible from any angle and in any light condition
- Resettable short circuit protection and reverse polarity in select models
- Wide temperature range -13 to 158°F (-25 to 70°C) on cable, micro-style connections



E57 Premium+ Series

Description	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	Catalog Number N.O. Output
3-Wire Sensors					
12 mm Diameter End Sensing	6 – 48V dc	2 mm (Standard Range)	Shielded (NPN)	4-pin Micro dc Connector	E57LAL12T110SD
		2 mm (Standard Range)	Shielded (PNP)	4-pin Micro dc Connector	E57LAL12T111SD
		4 mm (Standard Range)	Unshielded (NPN)	4-pin Micro dc Connector	E57LAL12T110ED
		4 mm (Standard Range)	Unshielded (PNP)	4-pin Micro dc Connector	E57LAL12T111ED
18 mm Diameter End Sensing	6 – 48V dc	5 mm (Standard Range)	Shielded (NPN)	4-pin Micro dc Connector	E57LAL18T110SD
		5 mm (Standard Range)	Shielded (PNP)	4-pin Micro dc Connector	E57LAL18T111SD
		8 mm (Standard Range)	Unshielded (NPN)	4-pin Micro dc Connector	E57LAL18T110ED
		8 mm (Standard Range)	Unshielded (PNP)	4-pin Micro dc Connector	E57LAL18T111ED
		20 mm (Extended Range)	Non-embeddable (PNP)	4-pin Micro dc Connector	E57-18LE20-BD
		5 mm	Shielded (PNP)	4-pin Micro dc Connector	E57RAL18T111SD
30 mm Diameter End Sensing	6 – 48V dc	10 mm (Standard Range)	Shielded (PNP)	4-pin Micro dc Connector	E57LAL30T111SD
		15 mm (Standard Range)	Unshielded (PNP)	4-pin Micro dc Connector	E57LAL30T111ED

① For cable lengths longer than 2 meters, add the number of the desired length in meters to the end of the listed catalog number (for catalog numbers ending with a number, add an S and then the length). Examples for a 5-meter cable: E57-18LE12-A becomes E57-18LE12-A5 ; E57LAL12A2 becomes E57LAL12A2S5.

Sensors & Limit Switches

Inductive Sensors

PRODUCT SELECTION

E57 Premium+ Series Short Barrel

- These sensors feature a short barrel length to fit into tight locations
- Designed with stainless steel barrel and impact-absorbing new potting compound for robust, high-temperature, high-pressure washdown, as well as intense shock and vibration applications
- 360° output status indicator is visible from any angle and in any light condition
- Resettable short circuit protection in ac/dc and dc models
- Reverse polarity protection in 3-wire dc versions
- Small size to fit in tight spaces



Short Barrel Length Proximity Sensors

Description	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	Catalog Number N.O. Output
3-Wire Sensors					
12 mm Diameter	6 – 48V dc	2 mm	Shielded (NPN)	4-pin Micro dc Connector	E57SAL12T110SD
			Shielded (PNP)	4-pin Micro dc Connector	E57SAL12T111SD
		4 mm	Unshielded (NPN)	4-pin Micro dc Connector	E57SAL12T110ED
			Unshielded (PNP)	4-pin Micro dc Connector	E57SAL12T111ED
18 mm Diameter	6 – 48V dc	5 mm	Shielded (NPN)	4-pin Micro dc Connector	E57SAL18T110SD
			Shielded (PNP)	4-pin Micro dc Connector	E57SAL18T111SD
		8 mm	Unshielded (NPN)	4-pin Micro dc Connector	E57SAL18T110ED
			Unshielded (PNP)	4-pin Micro dc Connector	E57SAL18T111ED
30 mm Diameter	6 – 48V dc	10 mm	Shielded (NPN)	4-pin Micro dc Connector	E57SAL30T110SD
			Shielded (PNP)	4-pin Micro dc Connector	E57SAL30T111SD
		15 mm	Unshielded (NPN)	4-pin Micro dc Connector	E57SAL30T110ED
			Unshielded (PNP)	4-pin Micro dc Connector	E57SAL30T111ED

① Cable models are supplied as standard with a 2-meter cable. A 5-meter cable is available by adding **S5** to the catalog number. Example: E57SAL12T110 becomes E57SAL12T110S5.

Global Proximity

- Features solid performance and a basic feature set for reliable, cost-effective sensing
- Available in a variety of sizes to fit all applications: 8 mm, 12 mm, 18 mm and 30 mm diameters
- dc sensors operate on 10 – 30V dc in 2-wire and 3-wire (NPN or PNP) configurations
- Switching frequency of 2 kHz for dc models
- Shielded and unshielded versions available
- Terminations include 2-meter cable, micro-connector and Nano-connector



Global Proximity Sensors

Description	Operating Voltage	Sensing Range	Shielding	Output Type	Connection Type	Catalog Number
3-Wire Sensors						
8 mm Diameter	10 – 30V dc	3 mm (Extended Range)	Shielded	NO (NPN)	4-pin Micro dc Connector	E57-08GE03-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-08GE03-GDB
		6 mm (Extended Range)	Unshielded	NO (NPN)	4-pin Micro dc Connector	E57-08GE06-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-08GE06-GDB
12 mm Diameter	10 – 30V dc	5 mm (Extended Range)	Shielded	NO (NPN)	4-pin Micro dc Connector	E57-12GE05-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-12GE05-GDB
		10 mm (Extended Range)	Unshielded	NO (NPN)	4-pin Micro dc Connector	E57-12GE10-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-12GE10-GDB
18 mm Diameter	10 – 30V dc	8 mm (Extended Range)	Shielded	NO (NPN)	4-pin Micro dc Connector	E57-18GE08-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-18GE08-GDB
		18 mm (Extended Range)	Unshielded	NO (NPN)	4-pin Micro dc Connector	E57-18GE18-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-18GE18-GDB
30 mm Diameter	10 – 30V dc	15 mm (Extended Range)	Shielded	NO (NPN)	4-pin Micro dc Connector	E57-30GE15-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-30GE15-GDB
		29 mm (Extended Range)	Unshielded	NO (NPN)	4-pin Micro dc Connector	E57-30GE29-CDB
				NO (PNP)	4-pin Micro dc Connector	E57-30GE29-GDB

Sensors & Limit Switches

Inductive Sensors

PRODUCT SELECTION

E52 Cube

- Rugged inductive sensors in industry-standard cube package
- Long inductive proximity ranges available (up to 40 mm sensing distance)
- 4-wire dc models have complementary outputs (1NO-1NC)
- 4-wire dc models use auto-configure technology, which allows the sensor to automatically adapt for NPN or PNP without user intervention
- Robust design featuring vibration and impact-absorbing potting compound
- Ideal for extreme temperatures or high-pressure washdown environments



E52 Cube Inductive Proximity Sensors

Description	Voltage Type	Output Configuration	Shielding	Output Type	Sensing Range	Connector Style	Catalog Number
dc 4-Wire Sensors							
Cube Package (40 x 40 x 40 mm)	10 – 48V dc	NPN / PNP Autoconfigure ①	Shielded	1NO-1NC	15 mm	dc 4-Pin Micro	E52Q-DL15SAD01
			Unshielded	1NO-1NC	15 mm	dc 4-Pin Micro	E52Q-DL15UAD01
			Shielded	1NO-1NC	20 mm	dc 4-Pin Micro	E52Q-DL20SAD01
			Unshielded	1NO-1NC	20 mm	dc 4-Pin Micro	E52Q-DL20UAD01
			Unshielded	1NO-1NC	25 mm	dc 4-Pin Micro	E52Q-DL25UAD01
			Unshielded	1NO-1NC	30 mm	dc 4-Pin Micro	E52Q-DL30UAD01
			Unshielded	1NO-1NC	35 mm	dc 4-Pin Micro	E52Q-DL35UAD01
			Unshielded	1NO-1NC	40 mm	dc 4-Pin Micro	E52Q-DL40UAD01

① Autoconfigure technology allows the sensor to automatically adapt to NPN or PNP without user intervention.

Note: Micro-connector models shown; mini-connector models also available.

Connect to Controls Quickly



Powering Business Worldwide


- Rugged cables quickly connect sensors to a control system
- Eaton's sensor business specializes in providing modified or fully custom products direct to OEMs — call (800) 426-9184 x1

Sensors & Limit Switches

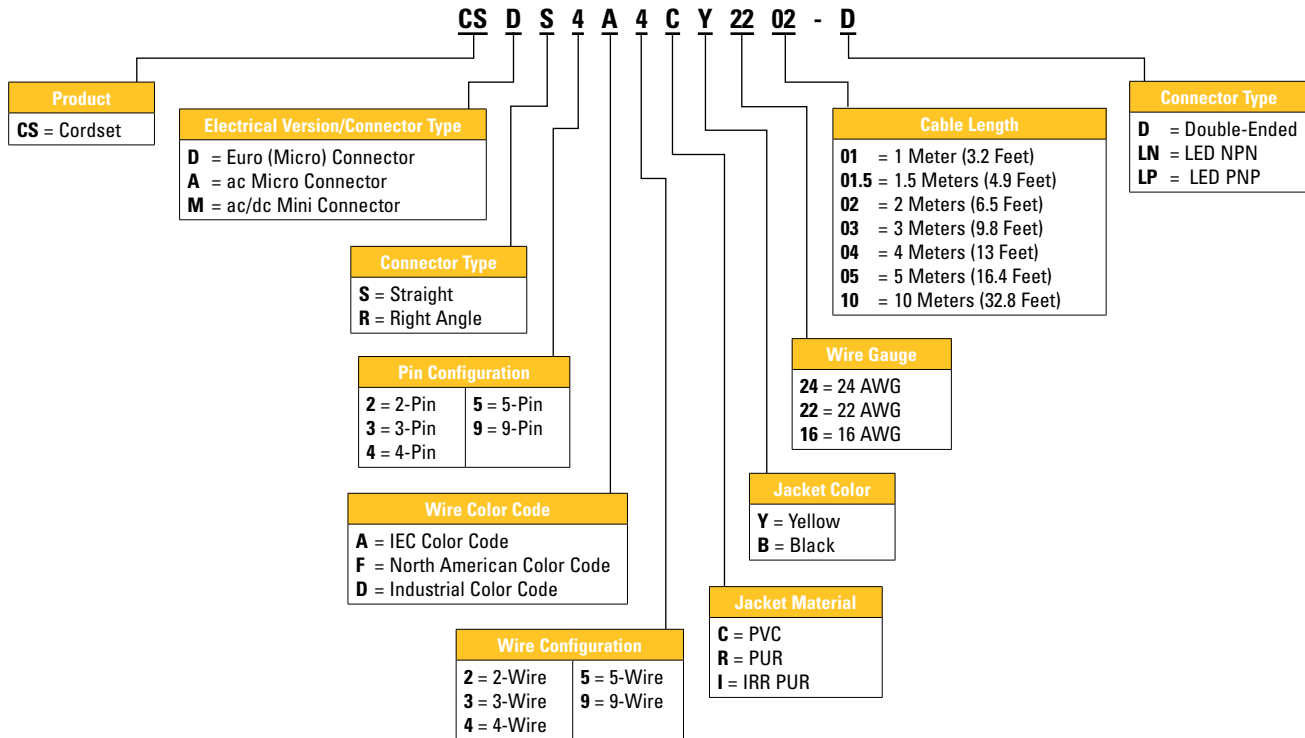
Connectivity

PRODUCT OVERVIEW

Connectivity Product Overview

	
Description	Global Plus Connector Cables
Page	Page 235
Overview	Includes a wide variety of single- and double-connector cables in a variety of sizes (mini, micro, nano), lengths and jacket materials to fit any application
Sensing Types and Ranges	<ul style="list-style-type: none"> • Nano (M8) • Micro (M12) • Mini
Product Features	<ul style="list-style-type: none"> • Industry standard connector types • Industrial-duty polymer jackets consisting of PVC, PUR, or irradiated PUR • Stranded copper conductors and polymer jackets provide a high resistance to bending motions • Right angle units for applications that have constricted space
Enclosure Ratings	Type 6P, IP68
Approvals	UL, cUL, CSA

Global Plus Connector Cables — Catalog Numbering System



① This is a representative guide to the catalog numbering system. All possible combinations may not be available for ordering.

Sensors & Limit Switches

Connectivity

PRODUCT SELECTION

Global Plus Connector Cables

- High-performance cost-effective quick-disconnect cable products for flexible wiring solutions
- A wide variety of single- and double-connector cables available
- Custom lengths are available upon request from the factory
- A full offering of Nano, micro and mini connector cables in a variety of lengths and jacket materials available
- Field wireable accessories
- Straight and right-angle connector ends





Micro Style, Single-Connector Cables


Description	Voltage Style	Number of Pins	Gauge	Length	Catalog Number PVC Jacket	Pin Configuration/Wire Colors (Face View Female Shown)
Micro Style Straight Female	dc	4-pin 3-wire	22 AWG	6.0 feet (2 m)	CSDS4A3CY2202	1-Brown 2-No Wire 3-Blue 4-Black
		4-pin 4-wire	22 AWG	6.0 feet (2 m)	CSDS4A4CY2202	1-Brown 2-White 3-Blue 4-Black
		5-pin 5-wire	22 AWG	6.0 feet (2 m)	CSDS5A5CY2202	1-Brown 2-White 3-Blue 4-Black 5-Green/Yellow
Micro Style Straight Female	dc	4-pin 3-wire	22 AWG	6.0 feet (2 m)	CSDR4A3CY2202	1-Brown 2-No Wire 3-Blue 4-Black
		4-pin 4-wire	22 AWG	6.0 feet (2 m)	CSDR4A4CY2202	1-Brown 2-White 3-Blue 4-Black
		5-pin 5-wire	22 AWG	6.0 feet (2 m)	CSDR5A5CY2202	1-Brown 2-White 3-Blue 4-Black 5-Green/Yellow
Micro Style Right Angle Female with 2 LED Indicators	dc NPN	4-pin 3-wire	22 AWG	16.4 feet (5 m)	CSDR4A3CY2205-LN	1-Brown 2-No Wire 3-Blue 4-Black
	dc PNP	4-pin 3-wire	22 AWG	16.4 feet (5 m)	CSDR4A3CY2205-LP	

Global Plus Connector Cables

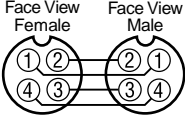
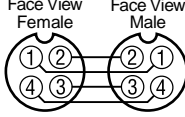
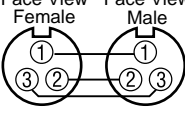
Mini Style, Single-Connector Cables

Description	Voltage Style	Number of Pins	Gauge	Length	Catalog Number	Pin Configuration/Wire Colors (Face View Female Shown)
Mini Style Straight Female	ac/dc	4-pin 4-wire	16 AWG	6 feet (2 m)	CSMS4A4CY1602	 1-Black 2-Blue 3-Brown 4-White
		5-pin 5-wire	16 AWG	6 feet (2 m)	CSMS5D5CY1602	 1-White 2-Red 3-Green 4-Orange 5-Black

Nano Style, Single-Connector Cables

Description	Voltage Style	Number of Pins	Gauge	Length	Catalog Number PVC Jacket	Pin Configuration/Wire Colors (Face View Female Shown)
Nano Style Straight Female	—	3-pin 3-wire	24 AWG	6.0 feet (2 m)	CSNS3A3CY2402	 1-Brown 3-Blue 4-Black
Nano Style Right Angle Female	—	3-pin 3-wire	24 AWG	6.0 feet (2 m)	CSNR3A3CY2402	

Micro and Mini Style, Double-Ended Connector Cables

Description	Voltage Style	Number of Pins	Gauge	Length	Catalog Number PVC Jacket	Pin Configuration/Wire Colors (Face View Female Shown)
Micro Style Straight Female/Male	dc	4-pin	22 AWG	6.0 feet (2 m)	CSDS4A4CY2202-D	 Face View Female Face View Male
Micro Style Straight Female/ Right Angle Male	dc	4-pin	22 AWG	6.0 feet (2 m)	CSDR4A4CY2202-D	 Face View Female Face View Male
Mini Style Straight Female/Male	ac/dc	3-pin	16 AWG	6.0 feet (2 m)	CSMS3F3CY1602-DP	 Face View Female Face View Male

Sensors & Limit Switches