

E57 Premium+ Series Inductive Proximity Sensors

Contents

Overview	1
Model Selection, Sensors	2
Model Selection, Compatible Connector Cables	5
Wiring Diagrams	6
Specifications	7
Model Selection, Accessories	7
Dimensions	8

The Cutler-Hammer® Premium+ Series Inductive Proximity Sensors by Eaton's electrical business have improved sensing performance, product durability and selection. This improved line of sensors carries the Premium+ Series name because we have upgraded the design to a rugged stainless steel body, shock-resistant front caps and impact-absorbing potting compound. Plus, the Premium+ Series line now includes a choice of AC, AC/DC and DC-only, 12, 18 and 30 mm sensors with unmatched noise immunity of greater than 20V/meter.

Approvals

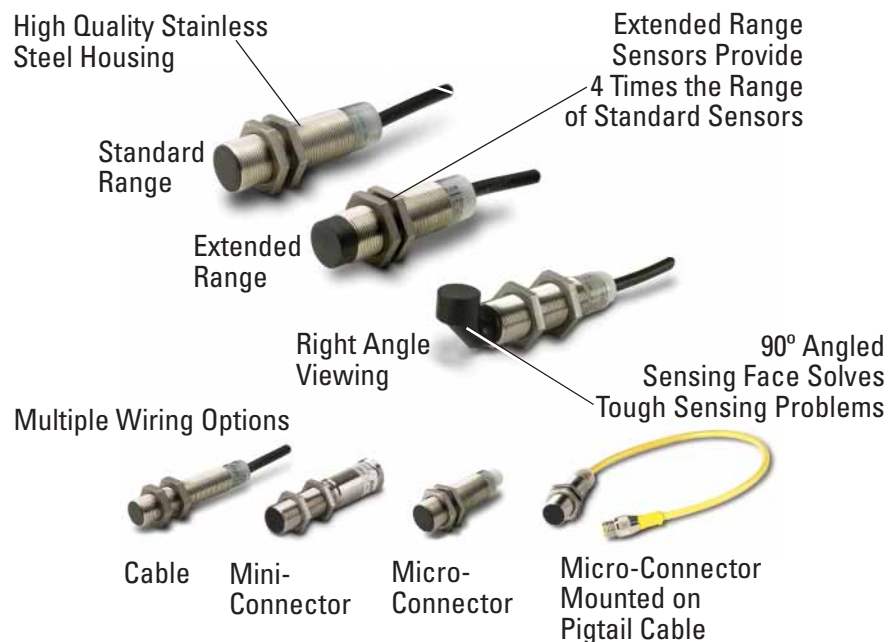
- C-UL Listed

CE (AC/DC and DC-only models)



Unless otherwise noted, the products contained in this document are not designed or intended for use in human safety applications.

High Performance Inductive Sensors Include Stainless Steel Models, Extended Ranges and Right Angle Sensing

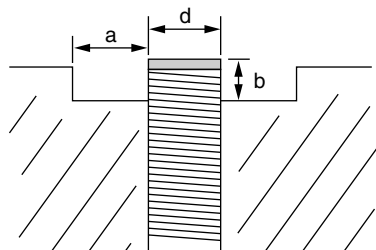


Product Features

- New expanded offering of 2-wire, 3-wire, AC, DC, and AC/DC multiple range sensor models
- Manufactured to take the physical and environmental abuse
- Designed with stainless steel barrel and new potting compound for robust, high temperature, high pressure washdown, as well as intense shock and vibration applications
- Unmatched high noise immunity eliminates problems associated with electrical noise (all models > 20V/meter)
- 360° output status indicator is visible from any angle and in any light condition
- Resettable short circuit protection and reverse polarity in select models
- Right angle sensing models offer unique problem-solving capabilities
- Wide temperature range -13 to 158°F (-25 to 70°C) on cable, micro-style connections

Recommended Mounting Clearances

For unshielded standard range sensors and extended range sensors, clearance must be provided around the sensor when mounting for reliable performance. ("Sn" is the sensing range of the sensor, "d" is the sensor diameter.)



Type	Shielding	a	b
Standard Range	Shielded	0	0
	Unshielded	Cap Height	2 x Sn
Extended Range	Semi-shielded	d	Sn
	Non-embeddable	Cap Height	2 x Sn

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**.

February 2008

Model Selection — E57 Premium+ Sensors

	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	Catalog Number	
					N.O. Output	N.C. Output
2-Wire Sensors						
12 mm Diameter End Sensing Standard Range Extended Range	20 – 250V AC	2 mm (Standard Range)	Shielded	2-meter Cable	E57LAL12A2	E57LBL12A2
		4 mm (Standard Range)	Unshielded	3-pin Micro AC Connector	E57LAL12A2SA ☼	E57LBL12A2SA ☼
				3-pin Micro AC Pigtail Connector	E57LAL12A2SP ☼	E57LBL12A2SP ☼
				2-meter Cable	E57LAL12A2E	E57LBL12A2E
				3-pin Micro AC Connector	E57LAL12A2EA ☼	E57LBL12A2EA ☼
				3-pin Micro AC Pigtail Connector	E57LAL12A2EP ☼	E57LBL12A2EP ☼
	20 – 132V AC			6 mm (Extended Range)	Semi-shielded	2-meter Cable
		10 mm (Extended Range)	Non-embeddable	3-pin Micro AC Connector	E57-12LE06-AA ☼	E57-12LE06-A1A ☼
				3-pin Micro AC Pigtail Connector	E57-12LE06-AP ☼	—
				2-meter Cable	E57-12LE10-A	E57-12LE10-A1
				3-pin Micro AC Connector	E57-12LE10-AA ☼	E57-12LE10-A1A ☼
				3-pin Micro AC Pigtail Connector	E57-12LE10-AP ☼	E57-12LE10-A1P ☼
40 – 250V AC 50/60 Hz ② 20 – 250V DC	2 mm (Standard Range)			Shielded	2-meter Cable	E57SAL12A2
	4 mm (Standard Range)	Unshielded	3-pin Micro AC Connector	E57SAL12A2SA ☼	E57SBL12A2SA ☼	
			3-pin Mini-Connector	E57MAL12A2B1 ☼	—	
			2-meter Cable	E57SAL12A2E	E57SBL12A2E	
			3-pin Micro AC Connector	E57SAL12A2EA ☼	E57SBL12A2EA ☼	
18 mm Diameter End Sensing Standard Range Extended Range	20 – 250V AC	5 mm (Standard Range)	Shielded	2-meter Cable	E57LAL18A2	E57LBL18A2
		8 mm (Standard Range)	Unshielded	3-pin Micro AC Connector	E57LAL18A2SA ☼	E57LBL18A2SA ☼
				3-pin Micro AC Pigtail Connector	E57LAL18A2SP ☼	E57LBL18A2SP ☼
				3-pin Mini-Connector	E57MAL18A2B1 ☼	E57MBL18A2B1 ☼
				2-meter Cable	E57LAL18A2E	E57LBL18A2E
				3-pin Micro AC Connector	E57LAL18A2EA ☼	E57LBL18A2EA ☼
				3-pin Micro AC Pigtail Connector	E57LAL18A2EP ☼	E57LBL18A2EP ☼
				3-pin Mini-Connector	E57MAL18A2EB1 ☼	E57MBL18A2EB1 ☼
	20 – 132V AC			12 mm (Extended Range)	Semi-shielded	2-meter Cable
		20 mm (Extended Range)	Non-embeddable	3-pin Micro AC Connector	E57-18LE12-AA ☼	E57-18LE12-A1A ☼
				3-pin Micro AC Pigtail Connector	E57-18LE12-AP ☼	E57-18LE12-A1P ☼
				3-pin Mini-Connector	E57-18LE12-AB ☼	E57-18LE12-A1B ☼
				2-meter Cable	E57-18LE20-A	E57-18LE20-A1
				3-pin Micro AC Connector	E57-18LE20-AA ☼	E57-18LE20-A1A ☼
				3-pin Micro AC Pigtail Connector	E57-18LE20-AP ☼	E57-18LE20-A1P ☼
				3-pin Mini-Connector	E57-18LE20-AB ☼	E57-18LE20-A1B ☼
	40 – 250V AC 50/60 Hz ② 20 – 250V DC			5 mm (Standard Range)	Shielded	2-meter Cable
		8 mm (Standard Range)	Unshielded	3-pin Micro AC Connector	E57SAL18A2SA ☼	E57SBL18A2SA ☼
				2-meter Cable	E57SAL18A2E	E57SBL18A2E
				3-pin Micro AC Connector	E57SAL18A2EA ☼	E57SBL18A2EA ☼
18 mm Diameter Right Angle Sensing 	20 – 250V AC	5 mm	Shielded	2-meter Cable	E57RAL18A2	E57RBL18A2
				3-pin Micro AC Connector	E57RAL18A2SA ☼	E57RBL18A2SA ☼
				3-pin Micro AC Pigtail Connector	E57RAL18A2SP ☼	E57RBL18A2SP ☼
				3-pin Mini-Connector	E57RAL18A2B1 ☼	E57RBL18A2B1 ☼
		8 mm	Unshielded	2-meter Cable	E57RAL18A2E	E57RBL18A2E
				3-pin Micro AC Connector	E57RAL18A2EA ☼	E57RBL18A2EA ☼
				3-pin Micro AC Pigtail Connector	E57RAL18A2EP ☼	E57RBL18A2EP ☼
				3-pin Mini-Connector	E57RAL18A2EB1 ☼	E57RBL18A2EB1 ☼

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.

② Avoid wiring these AC/DC models in series as the sensors may not perform reliably. Contact Eaton's Cutler-Hammer Applications Engineering at 1-800-426-9184 with questions.

☐ Fast turn product with typical one business day lead-time to shipment.

■ Stocked product, typical order quantities guaranteed in stock.

☼ See listing of compatible connector cables on **Page 5**.

Model Selection — E57 Premium+ Sensors (Continued)

		Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	Catalog Number	
						N.O. Output	N.C. Output
2-Wire Sensors (Continued)							
 Standard Range  Extended Range	20 – 250V AC	10 mm (Standard Range)	Shielded	2-meter Cable	E57LAL30A2	E57LBL30A2	
				3-pin Micro AC Connector	E57LAL30A2SA ☼	E57LBL30A2SA ☼	
				3-pin Micro AC Pigtail Connector	E57LAL30A2SP ☼	E57LBL30A2SP ☼	
				3-pin Mini-Connector	E57MAL30A2B1 ☼	E57MBL30A2B1 ☼	
		15 mm (Standard Range)	Unshielded	2-meter Cable	E57LAL30A2E	E57LBL30A2E	
				3-pin Micro AC Connector	E57LAL30A2EA ☼	E57LBL30A2EA ☼	
				3-pin Micro AC Pigtail Connector	E57LAL30A2EP ☼	E57LBL30A2EP ☼	
				3-pin Mini-Connector	E57MAL30A2EB1 ☼	E57MBL30A2EB1 ☼	
	20 – 132V AC	22 mm (Extended Range)	Semi-shielded	2-meter Cable	E57-30LE22-A	E57-30LE22-A1	
				3-pin Micro AC Connector	E57-30LE22-AA ☼	E57-30LE22-A1A ☼	
				3-pin Micro AC Pigtail Connector	E57-30LE22-AP ☼	E57-30LE22-A1P ☼	
				3-pin Mini-Connector	E57-30LE22-AB ☼	E57-30LE22-A1B ☼	
		40 – 250V AC 50/60 Hz ② 20 – 250V DC	10 mm (Standard Range)	Shielded	2-meter Cable	E57SAL30A2	E57SBL30A2
					3-pin Micro AC Connector	E57SAL30A2SA ☼	E57SBL30A2SA ☼
			15 mm (Standard Range)	Unshielded	2-meter Cable	E57SAL30A2E	E57SBL30A2E
					3-pin Micro AC Connector	E57SAL30A2EA ☼	E57SBL30A2EA ☼
3-Wire Sensors							
 Standard Range  Extended Range	6 – 48V DC	2 mm (Standard Range)	Shielded (NPN)	2-meter Cable	E57LAL12T110	E57LBL12T110	
				4-pin Micro DC Connector	E57LAL12T110SD ☼	E57LBL12T110SD ☼	
				4-pin Micro DC Pigtail Connector	E57LAL12T110SP ☼	E57LBL12T110SP ☼	
			Shielded (PNP)	2-meter Cable	E57LAL12T111	E57LBL12T111	
				4-pin Micro DC Connector	E57LAL12T111SD ☼	E57LBL12T111SD ☼	
				4-pin Micro DC Pigtail Connector	E57LAL12T111SP ☼	E57LBL12T111SP ☼	
		4 mm (Standard Range)	Unshielded (NPN)	2-meter Cable	E57LAL12T110E	E57LBL12T110E	
				4-pin Micro DC Connector	E57LAL12T110ED ☼	E57LBL12T110ED ☼	
				4-pin Micro DC Pigtail Connector	E57LAL12T110EP ☼	E57LBL12T110EP ☼	
			Unshielded (PNP)	2-meter Cable	E57LAL12T111E	E57LBL12T111E	
				4-pin Micro DC Connector	E57LAL12T111ED ☼	E57LBL12T111ED ☼	
				4-pin Micro DC Pigtail Connector	E57LAL12T111EP ☼	E57LBL12T111EP ☼	
		6 mm (Extended Range)	Semi-shielded (NPN)	2-meter Cable	E57-12LE06-C	E57-12LE06-C1	
				4-pin Micro DC Connector	E57-12LE06-CD ☼	E57-12LE06-C1D ☼	
				4-pin Micro DC Pigtail Connector	E57-12LE06-CP ☼	E57-12LE06-C1P ☼	
			Semi-shielded (PNP)	2-meter Cable	E57-12LE06-B	E57-12LE06-B1	
				4-pin Micro DC Connector	E57-12LE06-BD ☼	E57-12LE06-B1D ☼	
				4-pin Micro DC Pigtail Connector	E57-12LE06-BP ☼	E57-12LE06-B1P ☼	
		10 mm (Extended Range)	Non-embeddable (NPN)	2-meter Cable	E57-12LE10-C	E57-12LE10-C1	
				4-pin Micro DC Connector	E57-12LE10-CD ☼	E57-12LE10-C1D ☼	
				4-pin Micro DC Pigtail Connector	E57-12LE10-CP ☼	—	
			Non-embeddable (PNP)	2-meter Cable	E57-12LE10-B	E57-12LE10-B1	
				4-pin Micro DC Connector	E57-12LE10-BD ☼	E57-12LE10-B1D ☼	
				4-pin Micro DC Pigtail Connector	E57-12LE10-BP ☼	—	

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.

② Avoid wiring these AC/DC models in series as the sensors may not perform reliably. Contact Eaton's Cutler-Hammer Applications Engineering at 1-800-426-9184 with questions.

☼ Fast turn product with typical one business day lead-time to shipment.

☼☼ See listing of compatible connector cables on **Page 5**.

February 2008

Model Selection — E57 Premium+ Sensors (Continued)

	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	Catalog Number	
					N.O. Output	N.C. Output
3-Wire Sensors (Continued)						
18 mm Diameter End Sensing  Standard Range  Extended Range	6 – 48V DC	5 mm (Standard Range)	Shielded (NPN)	2-meter Cable	E57LAL18T110	E57LBL18T110
				4-pin Micro DC Connector	E57LAL18T110SD ②	E57LBL18T110SD ②
				4-pin Micro DC Pigtail Connector	E57LAL18T110SP ②	E57LBL18T110SP ②
				4-pin Mini-Connector	E57MAL18T110B1 ②	E57MBL18T110B1 ②
			Shielded (PNP)	2-meter Cable	E57LAL18T111	E57LBL18T111
				4-pin Micro DC Connector	E57LAL18T111SD ②	E57LBL18T111SD ②
				4-pin Micro DC Pigtail Connector	E57LAL18T111SP ②	E57LBL18T111SP ②
				4-pin Mini-Connector	E57MAL18T111B1 ②	E57MBL18T111B1 ②
		8 mm (Standard Range)	Unshielded (NPN)	2-meter Cable	E57LAL18T110E	E57LBL18T110E
				4-pin Micro DC Connector	E57LAL18T110ED ②	E57LBL18T110ED ②
				4-pin Micro DC Pigtail Connector	E57LAL18T110EP ②	E57LBL18T110EP ②
				4-pin Mini-Connector	E57MAL18T110EB1 ②	E57MBL18T110EB1 ②
			Unshielded (PNP)	2-meter Cable	E57LAL18T111E	E57LBL18T111E
				4-pin Micro DC Connector	E57LAL18T111ED ②	E57LBL18T111ED ②
				4-pin Micro DC Pigtail Connector	E57LAL18T111EP ②	E57LBL18T111EP ②
				4-pin Mini-Connector	E57MAL18T111EB1 ②	E57MBL18T111EB1 ②
		12 mm (Extended Range)	Semi-shielded (NPN)	2-meter Cable	E57-18LE12-C	E57-18LE12-C1
				4-pin Micro DC Connector	E57-18LE12-CD ②	E57-18LE12-C1D ②
				4-pin Micro DC Pigtail Connector	E57-18LE12-CP ②	E57-18LE12-C1P ②
				4-pin Mini-Connector	E57-18LE12-CB ②	E57-18LE12-C1B ②
			Semi-shielded (PNP)	2-meter Cable	E57-18LE12-B	E57-18LE12-B1
				4-pin Micro DC Connector	E57-18LE12-BD ②	E57-18LE12-B1D ②
				4-pin Micro DC Pigtail Connector	E57-18LE12-BP ②	E57-18LE12-B1P ②
				4-pin Mini-Connector	E57-18LE12-BB ②	E57-18LE12-B1B ②
		20 mm (Extended Range)	Non-embeddable (NPN)	2-meter Cable	E57-18LE20-C	E57-18LE20-C1
				4-pin Micro DC Connector	E57-18LE20-CD ②	E57-18LE20-C1D ②
				4-pin Micro DC Pigtail Connector	E57-18LE20-CP ②	E57-18LE20-C1P ②
				4-pin Mini-Connector	E57-18LE20-CB ②	E57-18LE20-C1B ②
			Non-embeddable (PNP)	2-meter Cable	E57-18LE20-B	E57-18LE20-B1
				4-pin Micro DC Connector	E57-18LE20-BD ②	E57-18LE20-B1D ②
				4-pin Micro DC Pigtail Connector	E57-18LE20-BP ②	E57-18LE20-B1P ②
				4-pin Mini-Connector	E57-18LE20-BB ②	E57-18LE20-B1B ②
18 mm Diameter Right Angle Sensing 		5 mm	Shielded (NPN)	2-meter Cable	E57RAL18T110	E57RBL18T110
				4-pin Micro DC Connector	E57RAL18T110SD ②	E57RBL18T110SD ②
				4-pin Micro DC Pigtail Connector	E57RAL18T110SP ②	E57RBL18T110SP ②
				4-pin Mini-Connector	E57RAL18T110B1 ②	E57RBL18T110B1 ②
			Shielded (PNP)	2-meter Cable	E57RAL18T111	E57RBL18T111
				4-pin Micro DC Connector	E57RAL18T111SD ②	E57RBL18T111SD ②
				4-pin Micro DC Pigtail Connector	E57RAL18T111SP ②	E57RBL18T111SP ②
				4-pin Mini-Connector	E57RAL18T111B1 ②	E57RBL18T111B1 ②
		8 mm	Unshielded (NPN)	2-meter Cable	E57RAL18T110E	E57RBL18T110E
				4-pin Micro DC Connector	E57RAL18T110ED ②	E57RBL18T110ED ②
				4-pin Micro DC Pigtail Connector	E57RAL18T110EP ②	E57RBL18T110EP ②
				4-pin Mini-Connector	E57RAL18T110EB1 ②	E57RBL18T110EB1 ②
			Unshielded (PNP)	2-meter Cable	E57RAL18T111E	E57RBL18T111E
				4-pin Micro DC Connector	E57RAL18T111ED ②	E57RBL18T111ED ②
				4-pin Micro DC Pigtail Connector	E57RAL18T111EP ②	E57RBL18T111EP ②
				4-pin Mini-Connector	E57RAL18T111EB1 ②	E57RBL18T111EB1 ②

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.

□ Fast turn product with typical one business day lead-time to shipment.

■ Stocked product, typical order quantities guaranteed in stock.

⊕ See listing of compatible connector cables on **Page 5**.

Model Selection — E57 Premium+ Sensors (Continued)

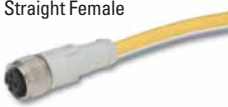
	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type ①	Catalog Number	
					N.O. Output	N.C. Output
3-WireSensors (Continued)						
 Standard Range  Extended Range	6 – 48V DC	10 mm (Standard Range)	Shielded (NPN)	2-meter Cable	E57LAL30T110	E57LBL30T110
				4-pin Micro DC Connector	E57LAL30T110SD ⊕	E57LBL30T110SD ⊕
				4-pin Micro DC Pigtail Connector	E57LAL30T110SP ⊕	E57LBL30T110SP ⊕
				4-pin Mini-Connector	E57MAL30T110B1 ⊕	E57MBL30T110B1 ⊕
			Shielded (PNP)	2-meter Cable	E57LAL30T111	E57LBL30T111
				4-pin Micro DC Connector	E57LAL30T111SD ⊕	E57LBL30T111SD ⊕
				4-pin Micro DC Pigtail Connector	E57LAL30T111SP ⊕	E57LBL30T111SP ⊕
				4-pin Mini-Connector	E57MAL30T111B1 ⊕	E57MBL30T111B1 ⊕
		15 mm (Standard Range)	Unshielded (NPN)	2-meter Cable	E57LAL30T110E	E57LBL30T110E
				4-pin Micro DC Connector	E57LAL30T110ED ⊕	E57LBL30T110ED ⊕
				4-pin Micro DC Pigtail Connector	E57LAL30T110EP ⊕	E57LBL30T110EP ⊕
				4-pin Mini-Connector	E57MAL30T110EB1 ⊕	E57MBL30T110EB1 ⊕
			Unshielded (PNP)	2-meter Cable	E57LAL30T111E	E57LBL30T111E
				4-pin Micro DC Connector	E57LAL30T111ED ⊕	E57LBL30T111ED ⊕
				4-pin Micro DC Pigtail Connector	E57LAL30T111EP ⊕	E57LBL30T111EP ⊕
				4-pin Mini-Connector	E57MAL30T111EB1 ⊕	E57MBL30T111EB1 ⊕
		22 mm (Extended Range)	Semi-shielded (NPN)	2-meter Cable	E57-30LE22-C	E57-30LE22-C1
				4-pin Micro DC Connector	E57-30LE22-CD ⊕	E57-30LE22-C1D ⊕
				4-pin Micro DC Pigtail Connector	E57-30LE22-CP ⊕	E57-30LE22-C1P ⊕
				4-pin Mini-Connector	E57-30LE22-CB ⊕	E57-30LE22-C1B ⊕
			Semi-shielded (PNP)	2-meter Cable	E57-30LE22-B	E57-30LE22-B1
				4-pin Micro DC Connector	E57-30LE22-BD ⊕	E57-30LE22-B1D ⊕
				4-pin Micro DC Pigtail Connector	—	E57-30LE22-B1P ⊕
				4-pin Mini-Connector	E57-30LE22-BB ⊕	E57-30LE22-B1B ⊕

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.

■ Fast turn product with typical one business day lead-time to shipment.

⊕ See listing of compatible connector cables below.

Model Selection — Compatible Connector Cables ②

	Voltage Style	Number of Pins	Gauge	Length	Catalog Number	PVC Jacket	PUR Jacket	IRR PUR Jacket	Pin Configuration/Wire Colors (Face View Female Shown)
Standard Cables — Micro Style									
Micro Style Straight Female 	AC	3-pin 3-wire	22 AWG	6.0 feet (2m)	CSAS3F3CY2202	CSAS3F3RY2202	—	 1-Green 2-Red/Black 3-Red/White	
	DC	4-pin 4-wire	22 AWG	6.0 feet (2m)	CSDS4A4CY2202	CSDS4A4RY2202	CSDS4A4I02202	 1-Brown 2-White 3-Blue 4-Black	
Standard Cables — Mini Style									
Mini Style Straight Female Current Rating @ 600V 3-pin: 13A 4-pin: 10A 	—	3-pin	16 AWG	6 feet (2m)	CSMS3F3CY1602	 1-Green 2-Black 3-White			
	AC/DC	4-pin, 4-wire	16 AWG	6 feet (2m)	CSMS4A4CY1602	 1-Black 2-Blue 3-Brown 4-White			

② For a full selection of connector cables, see **PG.05.05.T.E.**

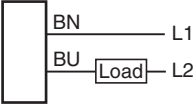
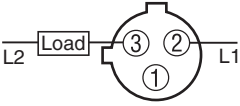
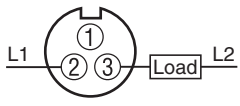
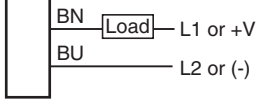
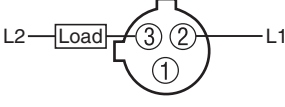
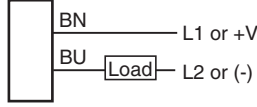
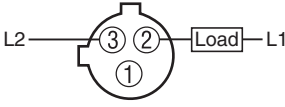
■ Stocked product, typical order quantities guaranteed in stock.

February 2008

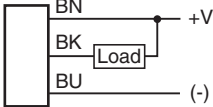
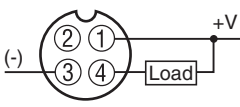
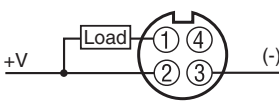
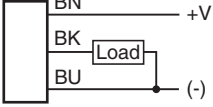
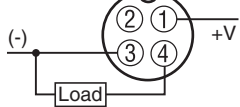
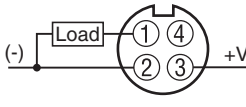
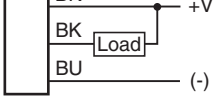
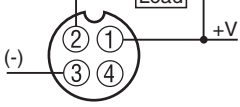
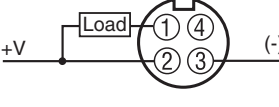
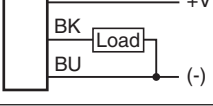
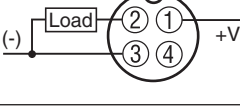
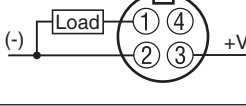
Wiring Diagrams (Pin numbers are for reference, rely on pin location when wiring)

Operating Voltage	Output	Cable Models	Connector Models (Face View Male Shown)	
			Micro	Mini

2-Wire Sensors

20 – 250V AC/DC and AC-only AC Wiring Example	N.O. and N.C.			
20 – 250V AC/DC DC Wiring Example	N.O. and N.C. (NPN)			—
	N.O. and N.C. (PNP)			—

3-Wire Sensors

6 – 48V DC	N.O. (NPN)			
	N.O. (PNP)			
	N.C. (NPN)			
	N.C. (PNP)			

Specifications — E57 Premium+ Series

	2-Wire AC Sensors	2-Wire Sensors	3-Wire Sensors
		AC/DC	DC Only Models
Operating Voltage	20 – 250V AC	40 – 240V AC ① 20 – 250V DC	6 – 48V DC
Maximum Load Current	500 mA @ 25°C 250 mA @ 70°C	250 mA @ 25°C 200 mA @ 70°C	500 mA @ 6 – 30V DC
Switching Frequency	20 Hz	60 Hz	12 mm: 800 Hz 18 mm: 500 Hz 30 mm: 300 Hz
Leakage Current	1.7 mA maximum @ 70°C	≤2.0 mA	≤100 µA
Voltage Drop	7V maximum	12V @ <10 mA ≤4V @ >25 mA	≤2.5V
Holding Current	5 mA minimum	5 mA minimum	—
Burden Current	—	—	≤10 mA
Protection	—	Resettable short circuit; overload protection	Auto reset
Switching Hysteresis	2 to 20% of rated sensing range	<15% rated sensing distance	
Repeat Accuracy	<3% sensing distance	Shielded models: <1% sensing distance; unshielded and extended range: <3%	
Time Delay Before Availability	—	<200 mS	
Output Indicator LED	360° viewable LED		
Operating Temperature	-13° to 158°F (-25° to 70°C) Mini: -13° to 122°F (-25° to 50°C)		
Enclosure Ratings	NEMA 4, 4X, 6, 6P, 12 and 13 (IP67)		
Shock	30g, 11 mS per IEC 68-2-76		
Vibration	10 to 55 Hz, 1 mm amplitude		
Housing Material	303 stainless steel ②; Polycarbonate end bells; Ryton® front ends		
Cable	AWM Style 20387 (PVC)		

Ryton® is a registered trademark of Phillips Chemical (division of Phillips Petroleum).

① Note: 40 – 240V AC @ <-20°C.

② Semi-shielded models are nickel-plated brass.

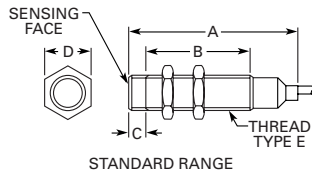
Model Selection — Accessories

Description	Reference
Mounting Brackets	See PG.05.03.T.E
Replacement Mounting Nuts and Other Accessories	See PG.05.04.T.E
Connector Cables	See PG.05.05.T.E

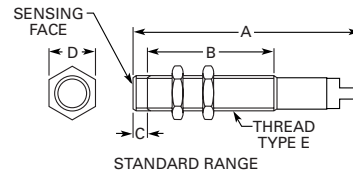
February 2008

Approximate Dimensions — E57 Premium+ Series, End Sensing Models in Inches (mm)^{①②}

Cable Models



Connector Models



Size	Shielding	Dimensions in Inches (mm)				
		Overall Length A	Threaded Length B	C	Nut Width D	Thread Size E

2-Wire AC Sensors — Cable Models

12 mm	Shielded	2.46 (62.4)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
	Semi-shielded	2.87 (72.8)	2.28 (57.9)	0.06 (1.62)	0.67 (16.8)	M12 x 1
	Unshielded	2.87 (72.7)	1.98 (50.3)	0.36 (9.14)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.54 (64.5)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
	Semi-shielded	2.60 (66.1)	1.90 (48.2)	0.10 (2.54)	0.94 (23.8)	M18 x 1
	Unshielded	2.60 (66.0)	1.47 (37.2)	0.56 (14.1)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.73 (69.3)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
	Semi-shielded	2.67 (67.8)	1.90 (48.2)	0.13 (3.30)	1.41 (35.9)	M30 x 1.5
	Unshielded	2.73 (69.3)	1.49 (37.8)	0.52 (13.26)	1.41 (35.9)	M30 x 1.5

2-Wire AC Sensors — Micro-Connector Models

12 mm	Shielded	2.69 (68.4)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
	Semi-shielded	3.04 (77.2)	2.28 (57.9)	0.06 (1.62)	0.67 (16.8)	M12 x 1
	Unshielded	3.06 (77.7)	1.98 (50.3)	0.36 (9.14)	0.36 (9.14)	M12 x 1
18 mm	Shielded	2.72 (69.06)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
	Semi-shielded	2.72 (69.1)	1.90 (48.2)	0.10 (2.54)	0.94 (23.8)	M18 x 1
	Unshielded	2.74 (69.4)	1.47 (37.2)	0.56 (14.1)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.91 (73.8)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
	Semi-shielded	2.78 (70.6)	1.90 (48.2)	0.13 (3.30)	1.41 (35.9)	M30 x 1.5
	Unshielded	2.91 (73.8)	1.49 (37.8)	0.52 (13.26)	1.41 (35.9)	M30 x 1.5

2-Wire AC/DC Sensors — Cable Models

12 mm	Shielded	2.45 (62.4)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
		2.45 (62.4)	1.80 (45.8)	0.20 (5)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.54 (64.5)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
		2.54 (64.5)	1.75 (44.4)	0.28 (7)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.72 (69.3)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
		2.72 (69.3)	1.49 (37.8)	0.52 (13.26)	1.41 (35.9)	M30 x 1.5

2-Wire AC/DC Sensors — Micro-Connector Models

12 mm	Shielded	2.69 (68.4)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
		2.69 (68.4)	1.80 (45.8)	0.20 (5)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.72 (69.06)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
		2.72 (69.06)	1.75 (44.4)	0.28 (7)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.91 (73.8)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
		2.91 (73.8)	1.49 (37.8)	0.52 (13.26)	1.41 (35.9)	M30 x 1.5

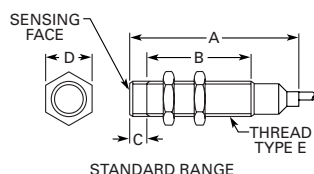
2-Wire AC/DC Sensors — Mini-Connector Models

12 mm	Shielded	3.36 (85.3)	1.98 (50.3)	0.02 (0.5)	0.67 (16.8)	M12 x 1
18 mm	Shielded	3.39 (86.1)	2.00 (50.8)	0.02 (0.5)	0.94 (23.8)	M18 x 1
	Semi-shielded	3.39 (86.0)	1.90 (48.2)	0.10 (2.54)	0.94 (23.8)	M18 x 1
	Unshielded	3.39 (86.1)	1.46 (37.0)	0.57 (14.5)	0.94 (23.8)	M18 x 1
30 mm	Shielded	3.39 (86.1)	2.1 (53.3)	0.03 (0.8)	1.41 (35.9)	M30 x 1.5
	Semi-shielded	3.44 (87.4)	1.90 (48.2)	0.13 (3.30)	1.41 (35.9)	M30 x 1.5
	Unshielded	3.39 (86.1)	1.55 (39.4)	0.55 (14.0)	1.41 (35.9)	M30 x 1.5

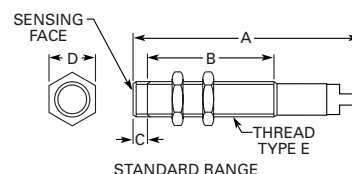
^① These dimensions apply to the Premium+ Series models in this section. Not indicated Premium Series models.^② For short barrel model dimensions (E57SAL ...) refer to PG.05D.12.T.E.

Approximate Dimensions — E57 Premium+ Series, End Sensing Models in Inches (mm) (Continued) ①②

Cable Models



Connector Models



Size	Shielding	Dimensions in Inches (mm)				
		Overall Length A	Threaded Length B	C	Nut Width D	Thread Size E

3-Wire DC Sensors — Mini-Connector Models

18 mm	Shielded	3.39 (86.1)	2.00 (50.8)	0.02 (0.5)	0.94 (23.8)	M18 x 1
	Semi-shielded	3.39 (86.0)	1.90 (48.2)	0.10 (2.54)	0.94 (23.8)	M18 x 1
	Unshielded	3.39 (86.1)	1.46 (37.0)	0.57 (14.5)	0.94 (23.8)	M18 x 1
30 mm	Shielded	3.39 (86.1)	2.1 (53.3)	0.03 (0.8)	1.41 (35.9)	M30 x 1.5
	Semi-shielded	3.44 (87.4)	1.90 (48.2)	0.13 (3.30)	1.41 (35.9)	M30 x 1.5
	Unshielded	3.39 (86.1)	1.55 (39.4)	0.55 (14.0)	1.41 (35.9)	M30 x 1.5

3-Wire DC Sensors — Cable Models

12 mm	Shielded	2.46 (62.4)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
	Semi-shielded	2.87 (72.8)	2.28 (57.9)	0.06 (1.62)	0.67 (16.8)	M12 x 1
	Unshielded	2.87 (72.7)	1.98 (50.3)	0.36 (9.14)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.54 (64.5)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
	Semi-shielded	2.60 (66.1)	1.90 (48.2)	0.10 (2.54)	0.94 (23.8)	M18 x 1
	Unshielded	2.60 (66.0)	1.47 (37.2)	0.56 (14.1)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.73 (69.3)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
	Semi-shielded	2.67 (67.8)	1.90 (48.2)	0.13 (3.30)	1.41 (35.9)	M30 x 1.5
	Unshielded	2.73 (69.3)	1.49 (37.8)	0.52 (13.26)	1.41 (35.9)	M30 x 1.5

3-Wire DC Sensors — Micro-Connector Models

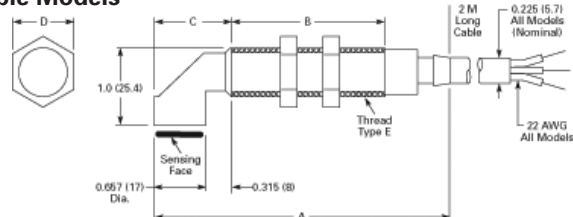
12 mm	Shielded	2.71 (68.7)	1.98 (50.3)	—	0.67 (16.8)	M12 x 1
	Semi-shielded	3.04 (77.2)	2.28 (57.9)	0.06 (1.62)	0.67 (16.8)	M12 x 1
	Unshielded	3.06 (77.7)	1.98 (50.3)	0.36 (9.14)	0.67 (16.8)	M12 x 1
18 mm	Shielded	2.73 (69.3)	2.00 (50.9)	—	0.94 (23.8)	M18 x 1
	Semi-shielded	2.72 (69.1)	1.90 (48.2)	0.10 (2.54)	0.94 (23.8)	M18 x 1
	Unshielded	2.74 (69.4)	1.47 (37.2)	0.56 (14.1)	0.94 (23.8)	M18 x 1
30 mm	Shielded	2.92 (74.1)	1.98 (50.3)	—	1.41 (35.9)	M30 x 1.5
	Semi-shielded	2.78 (70.6)	1.90 (48.2)	0.13 (3.30)	1.41 (35.9)	M30 x 1.5
	Unshielded	2.92 (74.1)	1.49 (37.8)	0.52 (13.26)	1.41 (35.9)	M30 x 1.5

① These dimensions apply to the Premium+ Series models in this section. Not indicated Premium Series models.

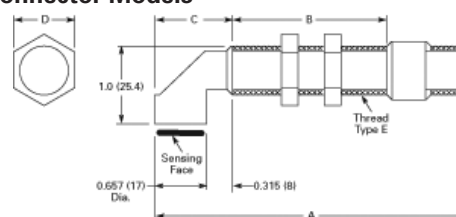
② For short barrel model dimensions (E57SAL ...) refer to PG.05D.12.T.E.

Approximate Dimensions — E57 Premium+ Series, Right Angle Sensing Models in Inches (mm)

Cable Models



Connector Models



Size	Dimensions in Inches (mm)				
	Overall Length A	Thread B	Cap C	Nut Width D	Thread Size E

Cable Models

18 mm	3.465 (88)	1.97 (50)	0.98 (25)	0.94 (24)	M18 x 1
-------	------------	-----------	-----------	-----------	---------

Micro-Connector Models

18 mm	3.65 (93)	1.97 (50)	0.98 (25)	0.94 (24)	M18 x 1
-------	-----------	-----------	-----------	-----------	---------

Mini-Connector Models

18 mm	4.303 (109)	1.97 (50)	0.98 (25)	0.94 (24)	M18 x 1
-------	-------------	-----------	-----------	-----------	---------