

## E50 Heavy-Duty Plug-In Switches

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## E50 Heavy-Duty Plug-In Switches

## Product Description

E50 Modular Plug-In Limit Switch Components from Eaton's electrical sector are the industry standard with versatility of design and high reliability for low maintenance, installation and inventory costs. Standard Viton® gaskets, seals and boots and a zinc die cast enclosure provide exceptional chemical resistance to the common coolants, cleansing agents, and hydraulic fluids found in machine tool, automotive, waste water treatment and other heavy-duty industrial applications. Mounting dimensions accommodate both U.S. and DIN standards for easy retrofit installations. Super bright 24–120 Vac/Vdc LED indicating light versions simplify setup and troubleshooting operations.

## Features

- 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
- The switches have terminal identification on the nameplate for a visual wiring checkout without guesswork. Heads and switch bodies can be replaced without rewiring
- E50 devices can be ordered in separate components or as complete assembled switches
- 600V rating, ridge-topped contacts and wiping action assure continuity even to logic level circuits
- Keyed, four direction head positioning
- Standard 5° pre-travel and 90° total travel
- 24–120 Vac/Vdc LED and 120 Vac neon indicating lights available
- Rotary heads are field convertible CW, CCW, or both, without special tools
- Epoxy filled, pin connector or pigtail pin connector receptacles available

## Standards and Certifications

- UL Listed
- CSA Certified
- IEC.947.5.1
- TUV—E9271605E02
- CE (where shown)



## Safety Note



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

For the most current information on this product, visit our web site: [www.eaton.com](http://www.eaton.com)

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578.

For Application Assistance in the U.S. and Canada call 1-800-426-9184.

## Product Selection

## Assembled Switches—Standard

## Assembled Switch

## E50 Heavy-Duty Plug-In Switches, Assembled—Standard



## Single-Pole (5 Terminal Receptacle)

## Two-Pole (9 Terminal Receptacle)

Indicating Light:	None	LED (24–120 Vac/Vdc)	Neon (120 Vac)	None	LED (24–120 Vac/Vdc)	Neon (120 Vac)	LED (24–120 Vac/Vdc)	Neon (120 Vac)
Switch Body:	E50SA	E50SAL	E50SAN	E50SB	E50SBL	E50SBN	E50SCL	—
Receptacle: ①	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB
Description	Assembled Switch (Head + Receptacle + Body) Catalog Number			Assembled Switch (Head + Receptacle + Body) Catalog Number				

## Operating Head Type ②

## Side Rotary



## Side Rotary (requires an operating lever, see section 46.8)

Standard spring return—E50DR1 ③	E50AR1 C E	E50ALR1	E50ANR1
Low force spring return—E50DL1 ③	E50AL1 C E	E50ALL1	E50ANL1
Maintained two-position—E50DM1	E50AM1 C E	E50ALM1	E50ANM1

E50BR1	E50BLR1	E50BNR1	—	—
E50BL1	E50BLL1	E50BNL1	—	—
E50BM1	E50BLM1	E50BNM1	—	—

## Side Pushbutton

Spring return—E50DS1	E50AS1 C E	E50ALS1	E50ANS1
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E50BS1	E50BLS1	E50BNS1	E50CLS1	—
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## Spring Return



## Adjustable Spring Return



Adjustable spring return—E50DS2	E50AS2 C E	E50ALS2	E50ANS2
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E50BS2	E50BLS2	E50BNS2	E50BLS2	E50CNS2
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## Circuit Diagrams, see Page 79.

## Notes

① Connection options (add the code suffix from the table below to the end of the catalog number):

Option		Mating Cordset Catalog Number	Code Suffix
Mini-connector ④ (with epoxy filled receptacle)	Single-pole (5-pin mini-connector)	CSMS5D5CY1602	P5 ⑤
	Two-pole (9-pin mini-connector)	CSMS9D9CY1602	P9 ⑤
Micro-connector ④ (with epoxy filled receptacle)	Single-pole (5-pin micro-connector)	CSDS5A5CY2202	A5 ⑤
Cable connection (with epoxy filled receptacle)	8 ft cable length	—	S
	12 ft cable length	—	S12
	20 ft cable length	—	S20
Manifold mount (rear wiring entrance)		—	M
20 mm conduit entrance		—	20

② For operating head specifications, see Page 73.

③ CW (clockwise) and CCW (counterclockwise) operation, easily convertible to CW only or CCW only operation.

④ For a full selection of cable connectors, see Tab 54, section 54.1.

⑤ Refer to Page 79 for wiring diagrams.

## Assembled Switch



## E50 Heavy-Duty Plug-In Switches, Assembled—Standard, continued



## Single-Pole (5 Terminal Receptacle)

Indicating Light:	None	LED (24–120 Vac/Vdc)	Neon (120 Vac)
Switch Body:	E50SA 1NO-1NC	E50SAL 1NO-1NC	E50SAN 1NO-1NC
Receptacle: ①	E50RA	E50RA	E50RA
Description	Assembled Switch (Head + Receptacle + Body) Catalog Number		



## Two-Pole (9 Terminal Receptacle)

Indicating Light:	None	LED (24–120 Vac/Vdc)	Neon (120 Vac)	LED (24–120 Vac/Vdc)	Neon (120 Vac)
Switch Body:	E50SB 2NO-2NC	E50SBL 2NO-2NC	E50SBN 2NO-2NC	E50SCL 1NO-2NC	—
Receptacle: ①	E50RB	E50RB	E50RB	E50RB	E50RB
Description	Assembled Switch (Head + Receptacle + Body) Catalog Number				

## Operating Head Type ②

## Side Push Roller



## Side Push Roller

Spring return— E50DS3 ③	E50AS3 CE	E50ALS3	E50ANS3
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E50BS3	E50BLS3	E50BNS3	E50BLS3	—
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## Side Pushbutton



## Side Pushbutton

Maintained— E50DH1	E50AH1 CE	E50ALH1	E50ANH1
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E50BH1	E50BLH1	E50BNH1	E50BLH1	—
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## Top Pushbutton

## Spring Return



Spring return— E50DT1	E50AT1 CE	E50ALT1	E50ANT1
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E50BT1	E50BLT1	E50BNT1	E50CLT1	E50BNT1
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## Adjustable Spring Return



Adjustable spring return—E50DT2	E50AT2 CE	E50ALT2	E50ANT2
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E50BT2	E50BLT2	E50BNT2	—	—
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Circuit Diagrams, see Page 79.

## Notes

① Connection options (add the code suffix from the table below to the end of the catalog number):

Option		Mating Cordset Catalog Number	Code Suffix
Mini-connector ④ (with epoxy filled receptacle)	Single-pole (5-pin mini-connector)	CSMS5D5CY1602	P5 ⑤
	Two-pole (9-pin mini-connector)	CSMS9D9CY1602	P9 ⑤
Micro-connector ④ (with epoxy filled receptacle)	Single-pole (5-pin micro-connector)	CSDS5A5CY2202	A5 ⑤
Cable connection (with epoxy filled receptacle)	8 ft cable length	—	S
	12 ft cable length	—	S12
	20 ft cable length	—	S20
Manifold mount (rear wiring entrance)	—	—	M
20 mm conduit entrance	—	—	20

② For operating head specifications, see Page 73.

③ Roller can be converted in the field between horizontal and vertical.

④ For a full selection of cable connectors, see Tab 54, section 54.1.

⑤ Refer to Page 79 for wiring diagrams.

## Assembled Switch



## E50 Heavy-Duty Plug-In Switches, Assembled—Standard, continued



## Single-Pole (5 Terminal Receptacle)

## Two-Pole (9 Terminal Receptacle)

Indicating Light:	None	LED (24–120 Vac/Vdc)	Neon (120 Vac)	None	LED (24–120 Vac/Vdc)	Neon (120 Vac)	LED (24–120 Vac/Vdc)	Neon (120 Vac)
Switch Body:	E50SA 1NO-1NC	E50SAL 1NO-1NC	E50SAN 1NO-1NC	E50SB 2NO-2NC	E50SBL 2NO-2NC	E50SBN 2NO-2NC	E50SCL 1NO-2NC	—
Receptacle: ①	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB
Description	Assembled Switch (Head + Receptacle + Body) Catalog Number			Assembled Switch (Head + Receptacle + Body) Catalog Number				

## Operating Head Type ②

## Top Push Roller



## Top Push Roller

Spring return E50DT3 ③	E50AT3 CE	E50ALT3	E50ANT3	E50BT3	E50BLT3	E50BNT3	—	—
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Wobble Head,  
Spring Return

## Wobble Head, Spring Return

(requires a wobble operator, see section 46.8)

Standard duty— E50DW1	E50AW1 CE	E50ALW1	E50ANW1	E50BW1	E50BLW1	E50BNW1	E50CLW1	—
Heavy-duty high strength steel— E50DW2	E50AW2 CE	E50ALW2	E50ANW2	E50BW2	E50BLW2	E50BNW2	E50CLW2	E50BNW2

Circuit Diagrams, see Page 79.

## Notes

① Connection options (add the code suffix from the table below to the end of the catalog number):

Option		Mating Cordset Catalog Number	Code Suffix
Mini-connector ④ (with epoxy filled receptacle)	Single-pole (5-pin mini-connector)	CSMS5D5CY1602	P5 ⑤
	Two-pole (9-pin mini-connector)	CSMS9D9CY1602	P9 ⑤
Micro-connector ④ (with epoxy filled receptacle)	Single-pole (5-pin micro-connector)	CSDS5A5CY2202	A5 ⑤
Cable connection (with epoxy filled receptacle)	8 ft cable length	—	S
	12 ft cable length	—	S12
	20 ft cable length	—	S20
Manifold mount (rear wiring entrance)		—	M
20 mm Conduit Entrance		—	20

② For operating head specifications, see Page 73.

③ Roller can be converted in the field between horizontal and vertical.

④ For a full selection of cable connectors, see Tab 54, section 54.1.

⑤ Refer to Page 79 for wiring diagrams.

## Assembled Switches—Special Purpose

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## E50 Heavy-Duty Plug-In Switches, Assembled—Special Purpose








Operating Data— Nominal Switches	Assembled Switch Catalog Number	Switch Body Only Catalog Number	Receptacle Only Catalog Number	Operating Head Only Catalog Number
<b>Neutral Position</b> (requires an operating lever, see <a href="#">section 46.8</a> )				
5° Travel	<b>E50NN1</b> ①	<b>E50SN</b>	<b>E50RB</b>	<b>E50DN1</b> ①
5° Travel; stainless steel shaft	<b>E50NN1SPL</b> ②	—	—	—
15° Travel	<b>E50NN2</b>	<b>E50SN</b>	<b>E50RB</b>	<b>E50DN2</b> ①
Travel to operate contacts:	5° or 15° ③	5° or 15° ③	5° or 15° ③	5° or 15° ③
Travel to reset contacts:	2°	2°	2°	2°
Total travel:	90°	90°	90°	90°
Force to operate contacts:	1.8 in-lbs	1.8 in-lbs	1.8 in-lbs	1.8 in-lbs
Minimum return force:	2.5 in-oz	2.5 in-oz	2.5 in-oz	2.5 in-oz
Operating temperature:	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)
<b>Two-Step CW, CCW, or both, Convertible</b> (requires an operating lever, see <a href="#">section 46.8</a> )				
—	<b>E50TD1</b>	<b>E50ST</b>	<b>E50RB</b>	<b>E50DD1</b>
Travel to operate contacts:	1st step 10°; 2nd step 20°	1st step 10°; 2nd step 20°	1st step 10°; 2nd step 20°	1st step 10°; 2nd step 20°
Travel to reset contacts:	4° each	4° each	4° each	4° each
Total travel:	90°	90°	90°	90°
Force to operate contacts:	3 in-lbs	3 in-lbs	3 in-lbs	3 in-lbs
Minimum return force:	4.5 in-oz	4.5 in-oz	4.5 in-oz	4.5 in-oz
Operating temperature:	CW or CCW: 14° to 250°F (–10° to 121°C) CW and CCW: 14° to 200°F (–10° to 94°C)	CW or CCW: 14° to 250°F (–10° to 121°C) CW and CCW: 14° to 200°F (–10° to 94°C)	CW or CCW: 14° to 250°F (–10° to 121°C) CW and CCW: 14° to 200°F (–10° to 94°C)	CW or CCW: 14° to 250°F (–10° to 121°C) CW and CCW: 14° to 200°F (–10° to 94°C)
<b>Gravity Return</b> (requires E50KL220, E50KL226 or equivalent operating lever, see <a href="#">section 46.8</a> )				
Without indicating light	<b>E50GG1</b>	<b>E50SG</b>	<b>E50RA</b>	<b>E50DG1</b>
With LED indicating light (24–120 Vac/Vdc)	<b>E50GLG1</b>	<b>E50SGL</b>	<b>E50RA</b>	<b>E50DG1</b>
With neon indicating light (120 Vac)	<b>E50GNG1</b>	<b>E50SGN</b>	<b>E50RA</b>	<b>E50DG1</b>
Travel to operate contacts:	10° to 170°	10° to 170°	10° to 170°	10° to 170°
Travel to reset contacts:	8°	8°	8°	8°
Total travel:	360°	360°	360°	360°
Force to operate contacts:	3.0 in-oz	3.0 in-oz	3.0 in-oz	3.0 in-oz
Minimum return force:	Gravity	Gravity	Gravity	Gravity
Operating temperature:	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)
<b>Circuit Diagrams</b> , see <a href="#">Page 79</a> .				

## Notes

- ① Add **9** suffix to the model number for low temperature –40° to 174°F (–40 to 79°C) versions.  
 ② Low temperature rating –40° to 174°F (–40° to 79°C)  
 ③ Depending upon model selected.

## Operating Heads



## E50 Heavy-Duty Plug-In Switches, Operating Heads

		Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Operating Temperature ①		
	Description						Without Cable	With Pre-Wired Cable	Catalog Number
	<b>Side Rotary</b> (requires an operating lever, see <b>section 46.8</b> )								
	Standard spring return ②	5°	2°	90°	3 in-lbs	4.5 in-oz	10° to 200°F (–12° to 94°C) ③	10° to 200°F (–12° to 94°C) ③	<b>E50DR1</b>
	Low temperature spring return ②	5°	2°	90°	3 in-lbs	4.5 in-oz	–40° to 175°F (–40° to 79°C)	–31° to 175°F (–34° to 79°C)	<b>E50DR19</b>
	Low force spring return ②	15°	6°	90°	1.5 in-lbs	2.5 in-oz	10° to 200°F (–12° to 94°C) ③	10° to 200°F (–12° to 94°C) ③	<b>E50DL1</b>
	Maintained two-position	50°	50°	90°	3 in-lbs	—	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	<b>E50DM1</b>
	<b>Side Pushbutton</b>								
	Spring return	0.065 in	0.030 in	0.250 in	4 lbs	8 oz	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	<b>E50DS1</b>
<b>Adjustable Spring Return</b>	Adjustable spring return	0.065 in	0.030 in	0.250 in	4 lbs	8 oz	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	<b>E50DS2</b>
									
<b>Side Push Roller</b>	<b>Side Push Roller</b>								
	Spring return ④	0.065 in	0.030 in	0.250 in	4 lbs	8 oz	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	<b>E50DS3</b> ⑤
		0.065 in	0.030 in	0.250 in	4 lbs	8 oz	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	<b>E50DS4</b> ⑤
<b>Side Pushbutton</b>	<b>Side Pushbutton</b>								
	Maintained	0.200 in	0.130 in	0.320 in	5 lbs	5 lbs	14° to 200°F (–10° to 94°C)	14° to 200°F (–10° to 94°C)	<b>E50DH1</b>
	<b>Top Pushbutton</b>								
<b>Spring Return</b>	Spring return	0.040 in	0.020 in	0.280 in	4 lbs	8 oz	14° to 250°F (–10° to 121°C)	14° to 221°F (–10° to 105°C)	<b>E50DT1</b>
									
<b>Adjustable Spring Return</b>	Adjustable spring return	0.040 in	0.020 in	0.280 in	4 lbs	8 oz	14° to 250°F (–10° to 121°C)	14° to 221°F (–10° to 105°C)	<b>E50DT2</b>
									

## Notes

- ① Temperature ranges below 32°F (0°C) are based on absence of freezing moisture or water.
- ② CW (clockwise) and CCW (counterclockwise) operation, easily convertible to CW only or CCW only operation.
- ③ For CW and CCW operation. For CW only or CCW only operation, high temperature limit increases to 250°F (121°C) without cable, and 221°F (105°C) with pre-wired cable.
- ④ Roller can be converted in the field between horizontal and vertical.
- ⑤ Roller shaft is 0.38 in (9.5 mm) longer on E50DS4, see Dimensions on [Page 80](#).

## E50 Heavy-Duty Plug-In Switches, Operating Heads, continued

	Description	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Operating Temperature ①		Catalog Number
							Without Cable	With Pre-wired Cable	
	<b>Top Push Roller</b>								
	Spring return	0.040 in	0.020 in	0.280 in	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT3</b>
	<b>Wobble Head, Spring Return</b> (requires a wobble operator, see <b>section 46.8</b> )								
	Standard duty	10°	6°	15°	2 in-lbs	2.4 in-oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DW1</b>
	Heavy-duty high strength steel	10°	6°	15°	2 in-lbs	2.4 in-oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DW2</b>

## Switch Bodies









## E50 Heavy-Duty Plug-In Switches, Switch Bodies

Switch Body Construction <sup>①</sup>	Single-Pole 1NO-1NC	Two-Pole 2NO-2NC	Two-Pole 2NC-1NO
	Catalog Number	Parallel Wired Indicator Light Catalog Number	Series Wired Indicator Light Catalog Number
Without indicating light	<b>E50SA</b> CE	<b>E50SB</b>	—
With LED indicating light 24–120 Vac/Vdc	<b>E50SAL</b>	<b>E50SBL</b>	<b>E50SCL</b>
With neon indicating light 120 Vac	<b>E50SAN</b>	<b>E50SBN</b>	—

Circuit Diagrams, see **Page 79**.**Note**

- <sup>①</sup> Indicating lights are supplied from the factory wired as shown in Circuit Diagrams on **Page 79**. However, they can be easily re-connected to terminals 1 and 2 if necessary (SPDT).

**Receptacles****E50 Heavy-Duty Plug-In Switches, Receptacles**

	Description	Poles	Conduit Entrance	Cable Length	Catalog Number
<b>Surface Mount</b> 	<b>Surface Mount</b>				
	Conduit entrance, front or rear mounting	Single-pole (5 terminal)	1/2 NPT	—	<b>E50RA</b>
			20 mm	—	<b>E50RA20</b>
		Two-pole (9 terminal)	1/2 NPT	—	<b>E50RB</b>
			3/4 NPT	—	<b>E50RB34</b>
			20 mm	—	<b>E50RB20</b>
<b>Manifold Mount</b> 	<b>Manifold Mount</b>				
	Rear wiring entrance instead of conduit hole, gasket on back for oil tightness	Single-pole (5 terminal)	—	—	<b>E50RAM</b>
		Two-pole (9 terminal)	—	—	<b>E50RBM</b>
<b>Mini-Connector</b> 	<b>Mini-Connector</b>				
	Epoxy filled receptacle with pre-wired mini-connector. (The -W version is a wiring scheme typically used in automotive applications.)	Single-pole (5 terminal)	5-pin mini-connector	—	<b>E50RAP5</b> 
				—	<b>E50RAP5-W</b> 
		Two-pole (9 terminal)	9-pin mini-connector	—	<b>E50RBP9</b> 
<b>Micro Connector Straight Female</b> 	<b>Micro-Connector, Straight Female</b>				
	Epoxy filled receptacle with M12 DC micro connector	Single-pole (5 terminal)	—	—	<b>E50RAA5</b>
<b>Pre-Wired Cable</b> 	<b>Pre-Wired Cable</b>				
	Epoxy filled receptacle with pre-wired 16 gauge, yellow jacketed, type S00W-A cable. Cable enters through hole threaded for conduit.	Single-pole (5 terminal)	1/2 NPT	8 ft	<b>E50RAS</b>
				12 ft	<b>E50RAS12</b>
				20 ft	<b>E50RAS20</b>
			20 mm	8 ft	<b>E50RA20S</b>
				12 ft	<b>E50RA20S12</b>
				20 ft	<b>E50RA20S20</b>
		Two-pole (9 terminal)	1/2 NPT	8 ft	<b>E50RBS</b>
				12 ft	<b>E50RBS12</b>
				20 ft	<b>E50RBS20</b>
			20 mm	8 ft	<b>E50RB20S</b>
				12 ft	<b>E50RB20S12</b>
				20 ft	<b>E50RB20S20</b>






**Wiring Diagrams**, see **Page 79**.**Note** See listing of compatible connector cables on **Page 76**.



## Compatible Connector Cables



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Standard Cables <sup>①</sup>

	Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
<b>Mini-style Straight Female</b> 	<b>Mini-Style, Straight Female</b>						
	8A	—	5-pin	16 AWG	6 ft (2m)	 1-White 2-Red 3-Green 4-Orange 5-Black	CSMS5D5CY1602
<b>Micro-Style</b> 	7A	—	9-pin	16 AWG	12 ft (4m)	 1-Orange 2-Blue 3-Red/Black 4-Green/Black 5-White 6-Red 7-Green 8-White/Black 9-Black	CSMS9D9CY1602
	4A	—	5-pin, 5-wire	22 AWG	6.0 ft (2m)	 1-Brown 2-White 3-Blue 4-Black 5-Green/Yellow	CSDS5A5CY2202

## Accessories

## E50 Heavy-Duty Plug-In Switch Accessories







	Description	Catalog Number
<b>E50KH1M</b> 	<b>Adapter Plate</b>	
	Allows E50 to replace Eaton's 10316 Type LP Surface Mounting Plug-In Limit Switch	E50KH1M
<b>E50KH7</b> 	Allows E50 to replace Square D Type AW Surface Mounting Non Plug-In Standard Box Limit Switch	E50KH7

Dimensions, see Page 81.

## Note

① For a full selection of connector cables, see **Tab 54, section 54.1**.

E50 Heavy-Duty Plug-In Switch Accessories, continued

Description		Catalog Number
<b>Adapter Plate, continued</b>		
<b>E50KH4</b> 	Allows E50 to replace National Acme, Type D-1200M, Style 2 Mounting. Denison LoxSwitch, Model L-100W, Style 2 Mounting. Square D 9007 Type T, Style B Mounting. (Adapter plate is 1/8 in thick, with 1/4 in mounting holes.) Namco® long mount.	<b>E50KH4</b> ①
<b>E50KH5</b> 	Allows E50 to replace National Acme, Type D-1200M, Style 1 Mounting. Denison LoxSwitch, Model L-100W, Style 1 Mounting. Square D 9007 Type T, Style C Mounting. (Adapter plate is 1/8 in thick, with 1/4 in mounting holes.)	<b>E50KH5</b> ①
<b>E50KH2</b> 	Allows E50 to replace Eaton's 10316 Type LT Non Plug-In Two-Pole Limit Switch	<b>E50KH2</b>
<b>E50KH10</b> 	Allows E50 to replace Allen-Bradley 802M Sealed Limit Switch	<b>E50KH10</b>
<b>Adjustable Mounting Plate</b>		
<b>E50KH3</b> 	This is a mounting plate only 5/16 in thick and includes the proper mounting bolts and nuts. The slots in the plate allow a maximum horizontal adjustment of 1 in and vertical adjustment of 1-1/4 in	<b>E50KH3</b> ①
<b>Conduit Sealing Nut</b>		
<b>E50KH6</b> 	1/2 in oiltight	<b>E50KH6</b>
<b>Dimensions, see Page 81.</b>		

**Note**  
① Limit switch not included.

## Technical Data and Specifications

## E50 Heavy-Duty Plug-In Switches

Description	Specification
Environmental ratings	NEMA 1, 3, 3S, 4, 4X, 6, 6P, 13, IP67
Material of construction	Zinc die cast
Switch gasket material	Viton®
Universal U.S./DIN mounting dimensions	1.16 in (30 mm) x 2.34 in (60 mm)
Conduit entrance	1/2 in NPT or 20 mm threading
Contact ratings	See below
Contact operation	Snap action over center mechanism
Contact material	Fine silver
Maximum frequency of operation	8000 operations per hour
Mechanical life	
Side rotary	13,000,000 operations minimum
Side or top push	10,000,000 operations minimum
Electrical life	
Single-pole	1,000,000 operations typical at full load
Two-pole	100,000 operations typical at full load
Ambient temperature range—standard	
Standard without cable	14° to 250°F (–10° to 121°C)
Standard with cable	14° to 221°F (–10° to 105°C)
Low temperature without cable	–40° to 250°F (–40° to 121°C)
Low temperature with cable	–40° to 221°F (–40° to 105°C)
Repeat accuracy—standard	
Side operated	Within 0.0012 in
Top operated	Within 0.0003 in
Side rotary	Within 0.0014 in
Torque requirements:	
Switch body screws	25–30 lb-in
Operating head screws	14–18 lb-in
Wire size	Will accept AWG #22–#12, single or stranded wire

## Electrical Data—Maximum Contact Ratings (Same polarity each pole)

Current, Amperes				Voltamperes		Current, Amperes		
AC Volts	Make	Break	Cont. ①	Make	Break	DC Volts	Max. Make or Break	Cont. ①
All Switches Except Gravity Return and Indicating Light Versions								
NEMA A600 Rating						NEMA R300		
120	60	6	10	7200	720	125	0.22	1.0
240	30	3	10	7200	720	250	0.11	1.0
480	15	1.5	10	7200	720	250	0.11	1.0
600	12	1.2	10	7200	720	250	0.11	1.0
Switches with Indicating Lights (LED or Neon)								
NEMA A150 Rating						NEMA R150		
120	60	6	10	7200	720	125	0.22	1.0
Gravity Return Switches—Maximum Contact Ratings								
NEMA 6600 Rating—Contacts on same polarity								
120	30	3	5	3600	360	—	—	—
240	15	1.5	5	3600	360	—	—	—
480	7.5	0.75	5	3600	360	—	—	—
600	6	0.60	5	3600	360	—	—	—

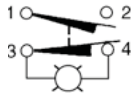
**Note**

① Thermal rating. Valid only if switch does not have to make or break.

## Circuit Diagrams

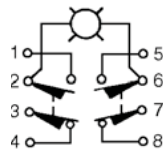
## Standard Assembled Switches and Switch Bodies

## Single-Pole 1NO-1NC



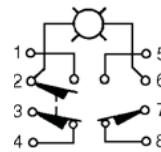
Must be same polarity.

## Two-Pole 2NO-2NC



Parallel wired indicator light.  
Same polarity each pole.

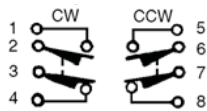
## Two-Pole 1NO-2NC



Series wired indicator light.  
Same polarity each pole.

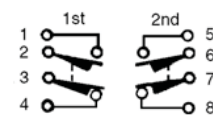
## Special Purpose Assembled Switches

## Neutral Position



Same polarity, each pole.

## Two-Step (CW, CCW, or Both)



Same polarity, each pole.

## Gravity Return

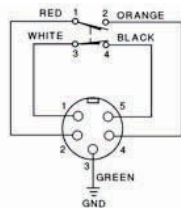


Must be same polarity.

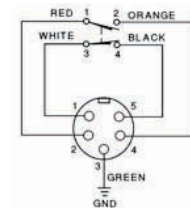
## Wiring Diagrams

Receptacles<sup>①</sup>

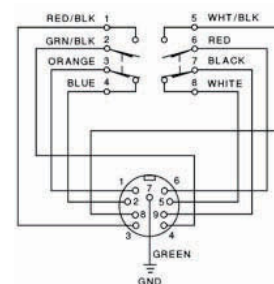
## E50RAP5



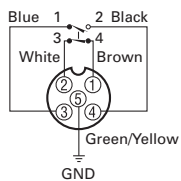
## E50RAP5-W



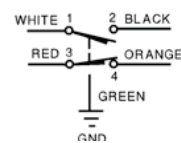
## E50RBP9



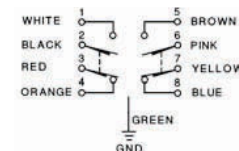
## E50RAA5



## E50RAS\_



## E50RBS\_

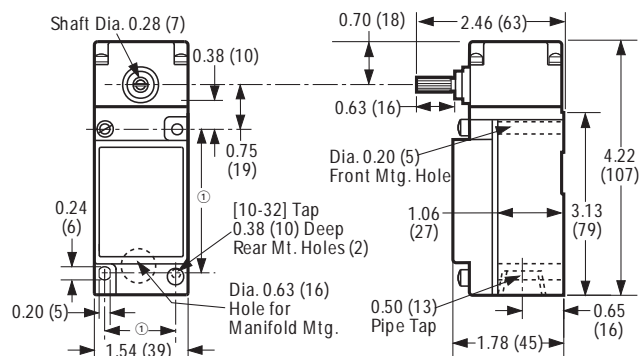
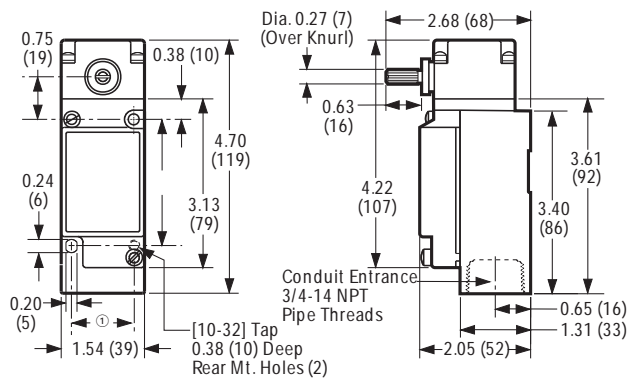


## Note

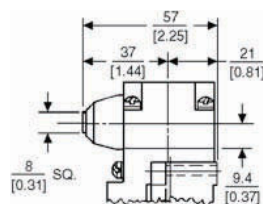
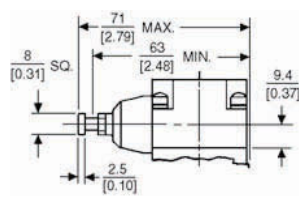
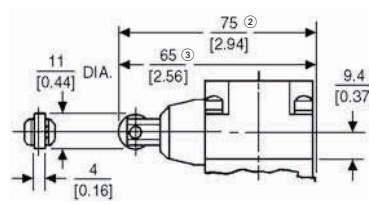
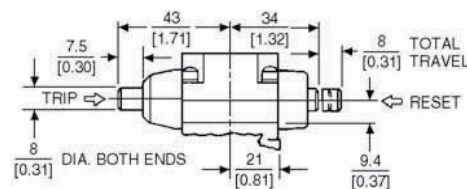
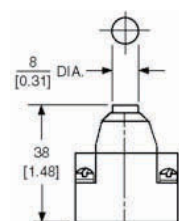
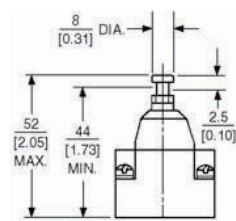
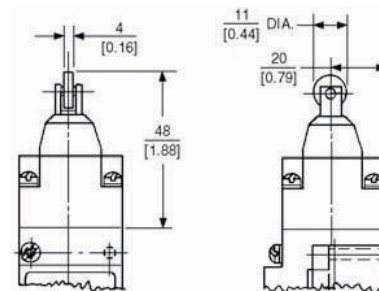
① The wire colors referenced on these diagrams are those internal to the switch itself.

**Dimensions**

Approximate Dimensions in Inches (mm)

**Standard****E50SB34****Side Push Operators**

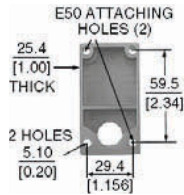
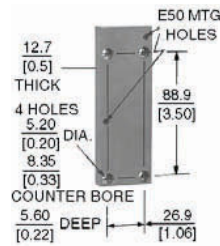
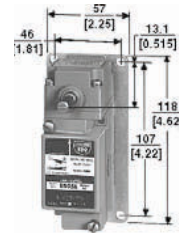
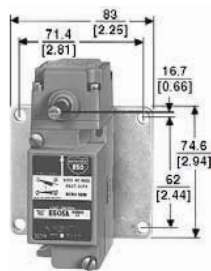
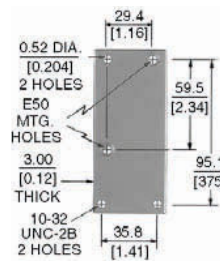
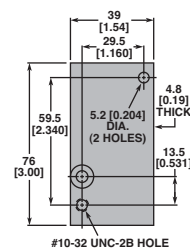
Approximate Dimensions in mm [in]

**Pushbutton****Adjustable Pushbutton****Roller****Maintained Pushbutton****Top Push Operators****Pushbutton****Adjustable Pushbutton****Roller****Wobble Operators**See Operators, **section 46.8**.**Notes**

- Can accommodate both U.S., 1.16 (29.4) x 2.34 (59.5) and DIN, 1.18 (30) x 3.26 (60), mounting dimensions.
- For E50DS4.
- For E50DS3.

**Accessories**

Approximate Dimensions in mm [in]

**Adapter Plates****E50KH1M****E50KH7****E50KH4****E50KH5****E50KH2****E50KH10****Adjustable Mounting Plate****E50KH3**