

## Heavy-Duty Plug-In Switches

### Contents

Overview .....	1
Model Selection, Assembled Switches .....	2
Model Selection, Operating Heads .....	5
Model Selection, Switch Bodies.....	6
Model Selection, Receptacles.....	7
Model Selection, Accessories.....	8
Specifications.....	10
Dimensions.....	11

Cutler-Hammer® E50 Modular Plug-In Limit Switch Components from Eaton's electrical business 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 – 120V AC/DC LED indicating light versions simplify setup and troubleshooting operations.

### Approvals

- UL Listed
- CSA Certified
- IEC.947.5.1
- TUV — E9271605E02

CE (where shown)



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

Viton® is a registered trademark of Dupont Dow Elastomers.

## Modular Limit Switches Provide Extremely Easy Installation, High Reliability, and Low Maintenance and Inventory Costs

Available as Assembled Switches or Components

Viton Gasket Seals

Rugged Zinc Die-Cast Housing

Conduit, Cable and Connector Wiring Options



Dozens of Operators to Perfectly Fit Your Application

Rotary, Top and Side Push, Wobble and Specialty Operating Heads

Single- or Double-Pole Switch Bodies with Optional Indicating Lights

A Variety of Receptacles Meet Your Wiring Needs



### Product Features











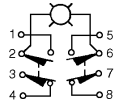
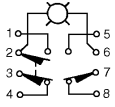
- Modular, plug-in components (head, body and receptacle) provide application flexibility, reduced inventory and less downtime
- Manufactured to take the physical and environmental abuse (including cutting fluids and chemicals) of harsh industrial environments
- Chemical resistant Viton® gaskets, seals and boots are standard, and so are captive, posi-drive screws
- The switches have terminal identification on the nameplate for a visual wiring check-out 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 – 120V AC/DC LED and 120V AC 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

For Customer Service in the U.S. call 1-800-356-1243, in Canada call 1-800-268-3578.

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

July 2005

Model Selection — Assembled Switches — Standard

Assembled Switch	Single Pole (5 Terminal Receptacle)			Double Pole (9 Terminal Receptacle)					
									
	Indicating Light:	None	LED (24 – 120V AC/DC)	Neon (120V AC)	None	LED (24 – 120V AC/DC)	Neon (120V AC)	LED (24 – 120V AC/DC)	Neon (120V AC)
	Switch Body:	E50SA 1N.O.-1N.C.	E50SAL 1N.O.-1N.C.	E50SAN 1N.O.-1N.C.	E50SB 2N.O.-2N.C.	E50SBL 2N.O.-2N.C.	E50SBN 2N.O.-2N.C.	E50SCL 1N.O.-2N.C.	—
Receptacle: ①	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB	
Operating Head Type ②		Catalog Number for Assembled Switches							
Side Rotary (requires an operating lever, see PG.05C.04.T.E)	Standard Spring Return — E50DR1 ③	E50AR1 CE	E50ALR1	E50ANR1	E50BR1	E50BLR1	E50BNR1	—	—
	Low Force Spring Return — E50DL1 ③	E50AL1 CE	E50ALL1	E50ANL1	E50BL1	E50BLL1	E50BNL1	—	—
	Maintained Two-Position — E50DM1	E50AM1 CE	E50ALM1	E50ANM1	E50BM1	E50BLM1	E50BNM1	—	—
Side Pushbutton, Spring Return — E50DS1		E50AS1 CE	E50ALS1	E50ANS1	E50BS1	E50BLS1	E50BNS1	E50CLS1	—
Side Pushbutton, Adjustable Spring Return — E50DS2		E50AS2 CE	E50ALS2	E50ANS2	E50BS2	E50BLS2	E50BNS2	E50BLS2	E50CNS2
Side Push Roller, Spring Return — E50DS3 ④		E50AS3 CE	E50ALS3	E50ANS3	E50BS3	E50BLS3	E50BNS3	E50BLS3	—
Side Pushbutton, Maintained — E50DH1		E50AH1 CE	E50ALH1	E50ANH1	E50BH1	E50BLH1	E50BNH1	E50BLH1	—
Wiring:		Single Pole 1N.O.-1N.C. Must be same polarity 			Double Pole 2N.O.-2N.C. Parallel wired Indicator light Same polarity each pole 			Double Pole 1N.O.-2N.C. Series wired Indicator light; Same polarity each pole 	

① Connection options (add the Code Suffix from the table below to the end of the Catalog Number):

Option	Catalog Number	Code Suffix	
Mini-Connector ⑤ (with epoxy filled receptacle)	Single Pole (5-Pin Mini-Connector)	CSMS5D5CY1602	P5
	Double Pole (9-pin Mini-Connector)	CSMS9D9CY1602	P9
Cable Connection (with epoxy filled receptacle)	8-foot cable length	—	S
	12-foot cable length	—	S12
	20-foot cable length	—	S20
Manifold Mount (rear wiring entrance)	—	—	M
20 mm Conduit Entrance	—	—	20

② For Operating Head specifications, see Page 5.









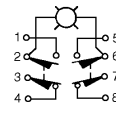
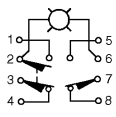
③ CW (clockwise) and CCW (counterclockwise) operation, easily convertible to CW only or CCW only operation.

④ Roller can be converted in the field between horizontal and vertical.

⑤ For a full selection of cable connectors, see PG.05.05.T.E.

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

**Model Selection — Assembled Switches — Standard (Continued)**<sup>①</sup>

		<b>Single Pole (5 Terminal Receptacle)</b> 			<b>Double Pole (9 Terminal Receptacle)</b> 				
	<b>Indicating Light:</b>	None	LED (24 – 120V AC/DC)	Neon (120V AC)	None	LED (24 – 120V AC/DC)	Neon (120V AC)	LED (24 – 120V AC/DC)	Neon (120V AC)
	<b>Switch Body:</b>	E50SA 1N.O.-1N.C.	E50SAL 1N.O.-1N.C.	E50SAN 1N.O.-1N.C.	E50SB 2N.O.-2N.C.	E50SBL 2N.O.-2N.C.	E50SBN 2N.O.-2N.C.	E50SCL 1N.O.-2N.C.	—
	<b>Receptacle:</b> <sup>①</sup>	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB
<b>Operating Head Type</b> <sup>②</sup>		<b>Catalog Number for Assembled Switches</b>							
Top Pushbutton, Spring Return — E50DT1 	E50AT1	E50ALT1	E50ANT1	E50BT1	E50BLT1	E50BNT1	E50CLT1	E50BNT1	
Top Pushbutton, Adjustable Spring Return — E50DT2 	E50AT2	E50ALT2	E50ANT2	E50BT2	E50BLT2	E50BNT2	—	—	
Top Push Roller, Spring Return — E50DT3 <sup>③</sup> 	E50AT3	E50ALT3	E50ANT3	E50BT3	E50BLT3	E50BNT3	—	—	
Wobble Head, Spring Return (requires a wobble operator, see PG.05C.04.T.E) 	Standard Duty — E50DW1 CE	E50AW1	E50ALW1	E50ANW1	E50BW1	E50BLW1	E50BNW1	E50CLW1	—
	Heavy-Duty High Strength Steel — E50DW2 CE	E50AW2	E50ALW2	E50ANW2	E50BW2	E50BLW2	E50BNW2	E50CLW2	E50BNW2
	<b>Wiring:</b> Single Pole 1N.O.-1N.C. Must be same polarity 				Double Pole 2N.O.-2N.C. Parallel wired Indicator light Same polarity each pole 			Double Pole 1N.O.-2N.C. Series wired Indicator light; Same polarity each pole 	


<sup>①</sup> Connection options (add the Code Suffix from the table below to the end of the Catalog Number):

Option	Catalog Number	Code Suffix
Mini-Connector <sup>④</sup> (with epoxy filled receptacle)	Single Pole (5-Pin Mini-Connector)	CSMS5D5CY1602
	Double Pole (9-pin Mini-Connector)	CSMS9D9CY1602
Cable Connection (with epoxy filled receptacle)	8-foot cable length	—
	12-foot cable length	—
	20-foot cable length	—
Manifold Mount (rear wiring entrance)	—	M
20 mm Conduit Entrance	—	20

<sup>②</sup> For Operating Head specifications, see Page 5.


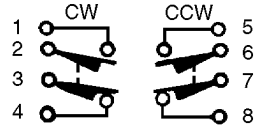

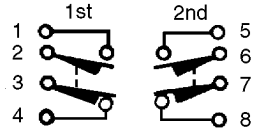


<sup>③</sup> Roller can be converted in the field between horizontal and vertical.

<sup>④</sup> For a full selection of cable connectors, see PG.05.05.T.E.

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

July 2005

**Model Selection — Assembled Switches — Special Purpose**

	Operating Data — Nominal	Catalog Number				Circuit Diagram
		Assembled Switch	Switch Body Only	Receptacle Only	Operating Head Only	
Neutral Position (requires an operating lever, see <b>PG.05C.04.T.E</b> )  	5° Travel	<b>E50NN1</b>	<b>E50SN</b>	<b>E50RB</b>	<b>E50DN1</b>	Same Polarity Each Pole  
	15° Travel	<b>E50NN2</b>	<b>E50SN</b>	<b>E50RB</b>	<b>E50DN2</b>	
	Travel to Operate Contacts: Travel to Reset Contacts: Total Travel: Force to Operate Contacts: Minimum Return Force: Operating Temperature:	5° or 15° (depending upon model selected) 2° 90° 1.8 in-lbs 2.5 in-oz 14° to 200°F (-10° to 94°C)				
Two Step CW, CCW or both, Convertible (requires an operating lever, see <b>PG.05C.04.T.E</b> )  		<b>E50TD1</b>	<b>E50ST</b>	<b>E50RB</b>	<b>E50DD1</b>	Same Polarity Each Pole  
	Travel to Operate Contacts: Travel to Reset Contacts: Total Travel: Force to Operate Contacts: Minimum Return Force: Operating Temperature:	1st Step 10°; 2nd Step 20° 4° Each 90° 3 in-lbs 4.5 in-oz CW or CCW: 14° to 250°F (-10° to 121°C) CW and CCW: 14° to 200°F (-10° to 94°C)				
Gravity Return (requires E50KL220, E50KL226 or equivalent operating lever, see <b>PG.05C.04.T.E</b> )  	without Indicating Light	<b>E50GG1</b>	<b>E50SG</b>	<b>E50RA</b>	<b>E50DG1</b>	Must Be Same Polarity  
	with LED Indicating Light (24-120V AC/DC)	<b>E50GLG1</b>	<b>E50SGL</b>			
	with Neon Indicating Light (120V AC)	<b>E50GNG1</b>	<b>E50SGN</b>			
	Travel to Operate Contacts: Travel to Reset Contacts: Total Travel: Force to Operate Contacts: Minimum Return Force: Operating Temperature:	10° to 170° 8° 360° 3.0 in-oz Gravity 14° to 200°F (-10° to 94°C)				

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

## Model Selection — Operating Heads

Description	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Operating Temperature <sup>①</sup>		Catalog Number	
						Without Cable	With Pre-wired Cable		
Side Rotary (requires an operating lever, see <b>PG.05C.04.T.E</b> ) 	Standard Spring Return <sup>②</sup>	5°	2°	90°	3 in-lbs	4.5 in-oz	10° to 200°F (-12° to 94°C) <sup>③</sup>	10° to 200°F (-12° to 94°C) <sup>③</sup>	<b>E50DR1</b>
	Low <sup>②</sup> Temperature Spring Return	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 <sup>②</sup>	15°	6°	90°	1.5 in-lbs	2.5 in-oz	10° to 200°F (-12° to 94°C) <sup>③</sup>	10° to 200°F (-12° to 94°C) <sup>③</sup>	<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>
Side Pushbutton, Spring Return 	0.065 inch	0.030 inch	0.250 inch	4 lbs	8 oz	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DS1</b>	
Side Pushbutton, Adjustable Spring Return 	0.065 inch	0.030 inch	0.250 inch	4 lbs	8 oz	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DS2</b>	
Side Push Roller, Spring Return <sup>④</sup> 	0.065 inch	0.030 inch	0.250 inch	4 lbs	8 oz	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DS3</b> <sup>⑤</sup>	
								<b>E50DS4</b> <sup>⑤</sup>	
Side Pushbutton, Maintained 	0.200 inch	0.130 inch	0.320 inch	5 lbs	5 lbs	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DH1</b>	
Top Pushbutton, Spring Return 	0.040 inch	0.020 inch	0.280 inch	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT1</b>	
Top Pushbutton, Adjustable Spring Return 	0.040 inch	0.020 inch	0.280 inch	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT2</b>	
Top Push Roller, Spring Return 	0.040 inch	0.020 inch	0.280 inch	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT3</b>	
Wobble Head, Spring Return (requires a wobble operator, see <b>PG.05C.04.T.E</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>

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.


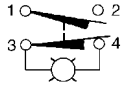
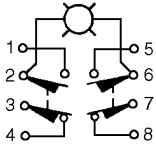
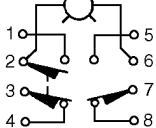
④ Roller can be converted in the field between horizontal and vertical.

⑤ Roller shaft is 0.38 inches (9.5 mm) longer on E50DS4, see dimensions on **Page 11**.

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

July 2005





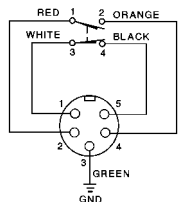


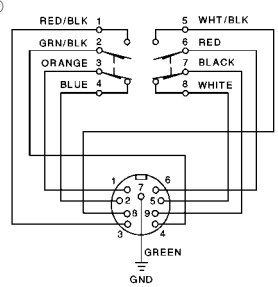

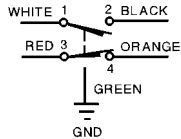
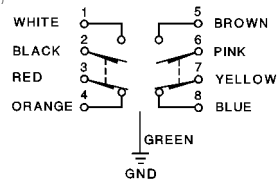
**Model Selection — Switch Bodies**



	Circuit	Switch Body Construction	Catalog Number
<p>Switch Bodies</p> 	<p>Single Pole 1N.O.-1N.C. Must Be Same Polarity ①</p> 	Without Indicating Light	<b>E50SA</b> CE
		With LED Indicating Light 24 – 120V AC/DC	<b>E50SAL</b>
		With Neon Indicating Light 120V AC	<b>E50SAN</b>
	<p>Double Pole 2N.O.-2N.C. Parallel Wired Ind. Light Same Polarity Each Pole</p> 	Without Indicating Light	<b>E50SB</b>
		With LED Indicating Light 24 – 120V AC/DC	<b>E50SBL</b>
		With Neon Indicating Light 120V AC	<b>E50SBN</b>
<p>Double Pole 2N.C.-1N.O. Series Wired Ind. Light Same Polarity Each Pole ①</p> 	With LED Indicating Light 24 – 120V AC/DC	<b>E50SCL</b>	

① Indicating lights are supplied from the factory wired as shown. However, they can easily be re-connected to terminals 1 and 2 if necessary (SPDT).

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

**Model Selection — Receptacles**




	Description	Poles	Conduit Entrance	Cable Length	Catalog Number	Wiring
	Conduit entrance, front or rear mounting	Single Pole (5 Terminal)	1/2 NPT	—	<b>E50RA</b>	①
			20 mm	—	<b>E50RA20</b>	
		Double Pole (9 Terminal)	1/2 NPT	—	<b>E50RB</b>	①
			3/4 NPT	—	<b>E50RB34</b>	
	Rear wiring entrance instead of conduit hole, gasket on back for oil tightness	Single Pole (5 Terminal)	—	—	<b>E50RAM</b>	①
		Double Pole (9 Terminal)	—	—	<b>E50RBM</b>	①
	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> 	② 
					<b>E50RAP5-W</b> 	
		Double Pole (9 Terminal)	9-pin Mini-Connector	—	<b>E50RBP9</b> 	② 
	Epoxy filled receptacle with pre-wired 16 gauge, yellow jacketed, type SOOW-A cable. Cable enters through hole threaded for conduit	Single Pole (5 Terminal)	1/2 NPT	8-foot	<b>E50RAS</b>	② 
				12-foot	<b>E50RAS12</b>	
			20-foot	<b>E50RAS20</b>		
			20 mm	8-foot	<b>E50RA20S</b>	
				12-foot	<b>E50RA20S12</b>	
				20-foot	<b>E50RA20S20</b>	
		Double Pole (9 Terminal)	1/2 NPT	8-foot	<b>E50RBS</b>	② 
				12-foot	<b>E50RBS12</b>	
			20-foot	<b>E50RBS20</b>		
			20 mm	8-foot	<b>E50RB20S</b>	
12-foot	<b>E50RB20S12</b>					
20-foot	<b>E50RB20S20</b>					

① See Model Selection — Switch Bodies for wiring information.  
 ② The wire colors referenced on these diagrams are those internal to the switch itself.  
 See listing of compatible connector cables on **Page 8**.  
 Fast turn product with typical one day lead-time to shipment.



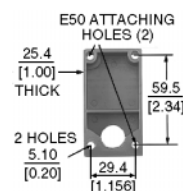
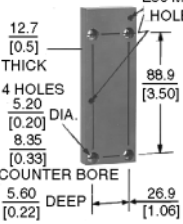
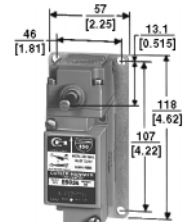
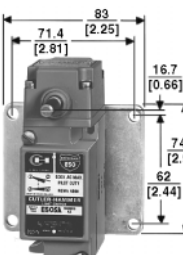
July 2005

**Model Selection — Compatible Connector Cables** ①

	Voltage Style	Number of Pins	Gauge	Length	Catalog Number	Pin Configuration/Wire Colors (Face View Female Shown)
<b>Standard Cables — Mini Style</b>						
 Mini Style Straight Female  Current Rating @ 600V 5-pin: 8A 9-pin: 7A	—	5-pin	16 AWG	6 feet (2m)	<b>CSMS5D5CY1602</b>	 1-White 2-Red 3-Green 4-Orange 5-Black
	—	9-pin	16 AWG	12 feet (4m)	<b>CSMS9D9CY1602</b>	 1-Orange 2-Blue 3-Red/Black 4-Green/Black 5-White 6-Red 7-Green 8-White/Black 9-Black

① For a full selection of connector cables, see **PG.05.05.T.E.**

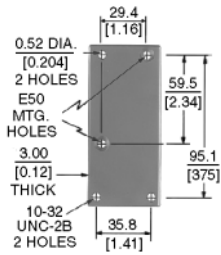
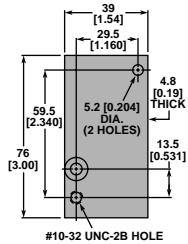
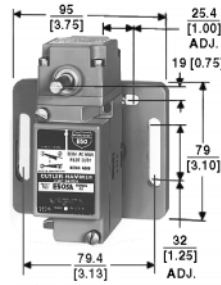

**Model Selection — Accessories**

Approximate Dimensions in mm [Inches]	Description	Catalog Number
 E50 ATTACHING HOLES (2) 25.4 [1.00] THICK 59.5 [2.34] 2 HOLES 5.10 [0.20] 29.4 [1.156]	Allows E50 to replace Eaton's Cutler-Hammer 10316 Type LP Surface Mounting Plug-In Limit Switch	<b>E50KH1</b>
	Allows E50 to replace Eaton's Cutler-Hammer 10316 Type LP Manifold Mounting Plug-In Limit Switch	<b>E50KH1M</b>
 E50 MTG HOLES 12.7 [0.5] THICK 4 HOLES 5.20 [0.20] DIA. 8.35 [0.33] COUNTER BORE 5.60 [0.22] DEEP 88.9 [3.50] 26.9 [1.06]	Allows E50 to replace Square D Type AW Surface Mounting Non Plug-In Standard Box Limit Switch	<b>E50KH7</b>
 46 [1.81] 57 [2.25] 13.1 [0.515] 118 [4.62] 107 [4.22]	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 inch thick, with 1/4 inch mounting holes.)	<b>E50KH4</b> ①
 71.4 [2.81] 83 [2.25] 16.7 [0.66] 74.6 [2.94] 62 [2.44]	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 inch thick, with 1/4 inch mounting holes.)	<b>E50KH5</b> ①

① Limit Switch not included.



### Model Selection — Accessories (Continued)

Approximate Dimensions in mm [Inches]	Description	Catalog Number
<p>Adapter Plate</p> 	Allows E50 to replace Eaton's Cutler-Hammer 10316 Type LT Non Plug-In 2-Pole Limit Switch	<b>E50KH2</b>
<p>Adapter Plate</p> 	Allows E50 to replace Allen-Bradley 802M Sealed Limit Switch	<b>E50KH10</b>
<p>Adjustable Mounting Plate</p> 	This is a mounting plate only 5/16 inch thick and includes the proper mounting bolts and nuts. The slots in the plate allow a maximum horizontal adjustment of 1 inch and vertical adjustment of 1-1/4 inches	<b>E50KH3</b> ①
<p>Conduit Sealing Nut</p> 	1/2 inch oiltight	<b>E50KH6</b>

① Limit Switch not included.

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

July 2005

**Specifications**

Description	Specification
Environmental Ratings	NEMA 1, 3, 3S, 4, 4X, 6, 6P, 13, IP67
Material of Construction	Zinc die cast
Switch Gasket Material	Viton <sup>®</sup>
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 Side or Top Push	13,000,000 operations minimum 10,000,000 operations minimum
Electrical Life: Single Pole Double Pole	1,000,000 operations typical at full load 100,000 operations typical at full load
Ambient Temperature Range — Standard Standard without Cable Standard with Cable Low Temperature without Cable Low Temperature with Cable	14° to 250°F (-10° to 121°C) 14° to 221°F (-10° to 105°C) -40° to 250°F (-40° to 121°C) -40° to 221°F (-40° to 105°C)
Repeat Accuracy — Standard Side Operated Top Operated Side Rotary	Within 0.0012 in Within 0.0003 in Within 0.0014 in
Torque Requirements: Switch Body Screws Operating Head Screws	25 – 30 lb-in 14 – 18 lb-in
Wire Size	Will accept AWG #22 – #12, single or stranded wire

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

AC Volts	Current, Amperes			Voltamperes		DC Volts	Current, Amperes	
	Make	Break	Cont. ①	Make	Break		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				250	0.11	1.0
480	15	1.5						
600	12	1.2						

**Switches with Indicating Lights (LED or Neon)**

NEMA A150 Rating						NEMA R150		
120	60	6	10	7200	720	125	0.22	1.0

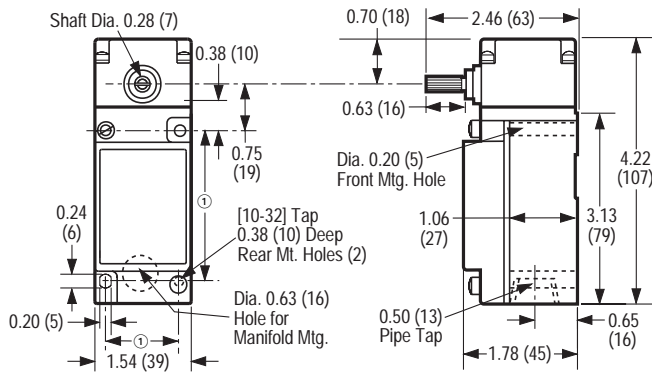
**Gravity Return Switches — Maximum Contact Ratings**

NEMA 6600 Rating — Contacts on Same Polarity						—		
120	30	3	5	3600	360	—	—	—
240	15	1.5						
480	7.5	0.75						
600	6	0.60						

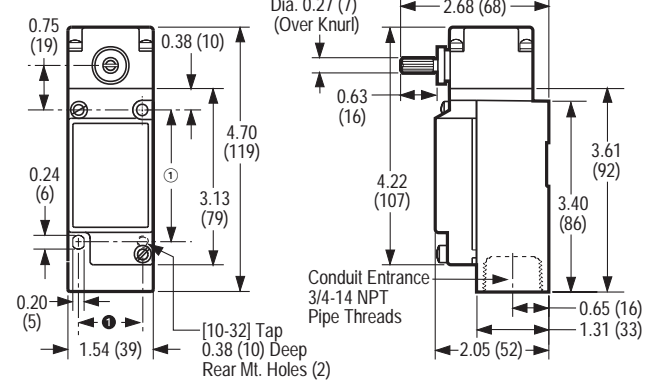
① Thermal rating. Valid only if switch does not have to make or break.

**Approximate Dimensions in Inches (mm)**

**Standard**



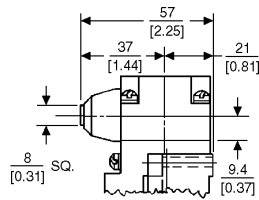
**E50SB34**



① 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.

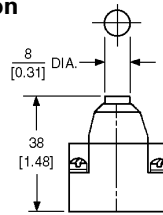
**Side Push Operators in mm [Inches]**

**Pushbutton**



**Top Push Operators in mm [Inches]**

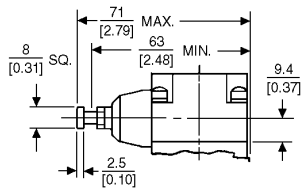
**Pushbutton**



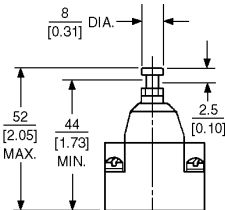
**Wobble Operators**

See Operators, PG.05C.04.T.E

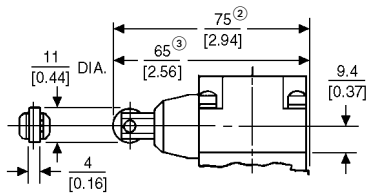
**Adjustable Pushbutton**



**Adjustable Pushbutton**

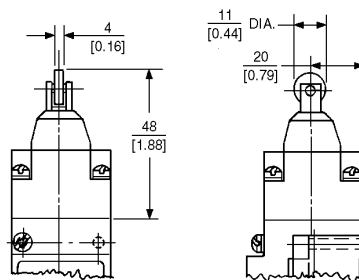


**Roller**

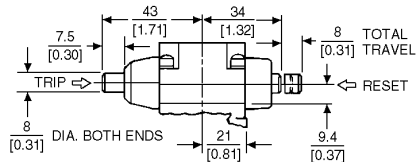


② For E50DS4.  
③ For E50DS3.

**Roller**



**Maintained Pushbutton**



## Heavy-Duty Plug-In Switches

### Contents

Overview .....	1
Model Selection, Assembled Switches .....	2
Model Selection, Operating Heads .....	5
Model Selection, Switch Bodies .....	6
Model Selection, Receptacles .....	7
Model Selection, Accessories .....	8
Specifications .....	10
Dimensions .....	11

Cutler-Hammer® E50 Modular Plug-In Limit Switch Components from Eaton's electrical business 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 – 120V AC/DC LED indicating light versions simplify setup and troubleshooting operations.

### Approvals

- UL Listed
- CSA Certified
- IEC.947.5.1
- TUV — E9271605E02

CE (where shown)



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

Viton® is a registered trademark of Dupont Dow Elastomers.

## Modular Limit Switches Provide Extremely Easy Installation, High Reliability, and Low Maintenance and Inventory Costs

Available as Assembled Switches or Components

Viton Gasket Seals

Rugged Zinc Die-Cast Housing

Conduit, Cable and Connector Wiring Options



Dozens of Operators to Perfectly Fit Your Application

Rotary, Top and Side Push, Wobble and Specialty Operating Heads

Single- or Double-Pole Switch Bodies with Optional Indicating Lights

A Variety of Receptacles Meet Your Wiring Needs



### Product Features











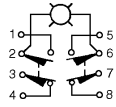
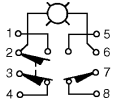
- Modular, plug-in components (head, body and receptacle) provide application flexibility, reduced inventory and less downtime
- Manufactured to take the physical and environmental abuse (including cutting fluids and chemicals) of harsh industrial environments
- Chemical resistant Viton® gaskets, seals and boots are standard, and so are captive, posi-drive screws
- The switches have terminal identification on the nameplate for a visual wiring check-out 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 – 120V AC/DC LED and 120V AC 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

For Customer Service in the U.S. call 1-800-356-1243, in Canada call 1-800-268-3578.

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

July 2005

Model Selection — Assembled Switches — Standard

Assembled Switch	Single Pole (5 Terminal Receptacle)			Double Pole (9 Terminal Receptacle)					
									
	Indicating Light:	None	LED (24 – 120V AC/DC)	Neon (120V AC)	None	LED (24 – 120V AC/DC)	Neon (120V AC)	LED (24 – 120V AC/DC)	Neon (120V AC)
	Switch Body:	E50SA 1N.O.-1N.C.	E50SAL 1N.O.-1N.C.	E50SAN 1N.O.-1N.C.	E50SB 2N.O.-2N.C.	E50SBL 2N.O.-2N.C.	E50SBN 2N.O.-2N.C.	E50SCL 1N.O.-2N.C.	—
Receptacle: ①	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB	
Operating Head Type ②		Catalog Number for Assembled Switches							
Side Rotary (requires an operating lever, see PG.05C.04.T.E)	Standard Spring Return — E50DR1 ③	E50AR1 CE	E50ALR1	E50ANR1	E50BR1	E50BLR1	E50BNR1	—	—
	Low Force Spring Return — E50DL1 ③	E50AL1 CE	E50ALL1	E50ANL1	E50BL1	E50BLL1	E50BNL1	—	—
	Maintained Two-Position — E50DM1	E50AM1 CE	E50ALM1	E50ANM1	E50BM1	E50BLM1	E50BNM1	—	—
Side Pushbutton, Spring Return — E50DS1		E50AS1 CE	E50ALS1	E50ANS1	E50BS1	E50BLS1	E50BNS1	E50CLS1	—
Side Pushbutton, Adjustable Spring Return — E50DS2		E50AS2 CE	E50ALS2	E50ANS2	E50BS2	E50BLS2	E50BNS2	E50BLS2	E50CNS2
Side Push Roller, Spring Return — E50DS3 ④		E50AS3 CE	E50ALS3	E50ANS3	E50BS3	E50BLS3	E50BNS3	E50BLS3	—
Side Pushbutton, Maintained — E50DH1		E50AH1 CE	E50ALH1	E50ANH1	E50BH1	E50BLH1	E50BNH1	E50BLH1	—
Wiring:		Single Pole 1N.O.-1N.C. Must be same polarity 			Double Pole 2N.O.-2N.C. Parallel wired Indicator light Same polarity each pole 			Double Pole 1N.O.-2N.C. Series wired Indicator light; Same polarity each pole 	

① Connection options (add the Code Suffix from the table below to the end of the Catalog Number):

Option	Catalog Number	Code Suffix
Mini-Connector ⑤ (with epoxy filled receptacle)	Single Pole (5-Pin Mini-Connector)	CSMS5D5CY1602
	Double Pole (9-pin Mini-Connector)	CSMS9D9CY1602
Cable Connection (with epoxy filled receptacle)	8-foot cable length	—
	12-foot cable length	—
	20-foot cable length	—
Manifold Mount (rear wiring entrance)	—	M
20 mm Conduit Entrance	—	20

② For Operating Head specifications, see Page 5.











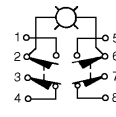
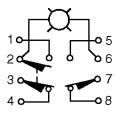
③ CW (clockwise) and CCW (counterclockwise) operation, easily convertible to CW only or CCW only operation.

④ Roller can be converted in the field between horizontal and vertical.

⑤ For a full selection of cable connectors, see PG.05.05.T.E.

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

Model Selection — Assembled Switches — Standard (Continued)<sup>①</sup>

		Single Pole (5 Terminal Receptacle)  			Double Pole (9 Terminal Receptacle)  				
	Indicating Light:	None	LED (24 – 120V AC/DC)	Neon (120V AC)	None	LED (24 – 120V AC/DC)	Neon (120V AC)	LED (24 – 120V AC/DC)	Neon (120V AC)
	Switch Body:	E50SA 1N.O.-1N.C.	E50SAL 1N.O.-1N.C.	E50SAN 1N.O.-1N.C.	E50SB 2N.O.-2N.C.	E50SBL 2N.O.-2N.C.	E50SBN 2N.O.-2N.C.	E50SCL 1N.O.-2N.C.	—
	Receptacle: <sup>①</sup>	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB
Operating Head Type <sup>②</sup>		Catalog Number for Assembled Switches							
Top Pushbutton, Spring Return — E50DT1 		E50AT1	E50ALT1	E50ANT1	E50BT1	E50BLT1	E50BNT1	E50CLT1	E50BNT1
Top Pushbutton, Adjustable Spring Return — E50DT2 		E50AT2	E50ALT2	E50ANT2	E50BT2	E50BLT2	E50BNT2	—	—
Top Push Roller, Spring Return — E50DT3 <sup>③</sup> 		E50AT3	E50ALT3	E50ANT3	E50BT3	E50BLT3	E50BNT3	—	—
Wobble Head, Spring Return (requires a wobble operator, see PG.05C.04.T.E) 	Standard Duty — E50DW1	E50AW1	E50ALW1	E50ANW1	E50BW1	E50BLW1	E50BNW1	E50CLW1	—
	Heavy-Duty High Strength Steel — E50DW2	E50AW2	E50ALW2	E50ANW2	E50BW2	E50BLW2	E50BNW2	E50CLW2	E50BNW2
	Wiring:	Single Pole 1N.O.-1N.C. Must be same polarity 			Double Pole 2N.O.-2N.C. Parallel wired Indicator light Same polarity each pole 			Double Pole 1N.O.-2N.C. Series wired Indicator light; Same polarity each pole 	


<sup>①</sup> Connection options (add the Code Suffix from the table below to the end of the Catalog Number):

Option	Catalog Number	Code Suffix
Mini-Connector <sup>④</sup> (with epoxy filled receptacle)	Single Pole (5-Pin Mini-Connector)	CSMS5D5CY1602
	Double Pole (9-pin Mini-Connector)	CSMS9D9CY1602
Cable Connection (with epoxy filled receptacle)	8-foot cable length	—
	12-foot cable length	—
	20-foot cable length	—
Manifold Mount (rear wiring entrance)	—	M
20 mm Conduit Entrance	—	20

<sup>②</sup> For Operating Head specifications, see Page 5.


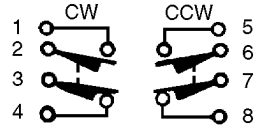

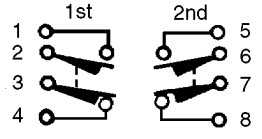


<sup>③</sup> Roller can be converted in the field between horizontal and vertical.

<sup>④</sup> For a full selection of cable connectors, see PG.05.05.T.E.

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

July 2005





**Model Selection — Assembled Switches — Special Purpose**

	Operating Data — Nominal	Catalog Number				Circuit Diagram
		Assembled Switch	Switch Body Only	Receptacle Only	Operating Head Only	
Neutral Position (requires an operating lever, see <b>PG.05C.04.T.E</b> )  	5° Travel	<b>E50NN1</b>	<b>E50SN</b>	<b>E50RB</b>	<b>E50DN1</b>	Same Polarity Each Pole  
	15° Travel	<b>E50NN2</b>	<b>E50SN</b>	<b>E50RB</b>	<b>E50DN2</b>	
	Travel to Operate Contacts: Travel to Reset Contacts: Total Travel: Force to Operate Contacts: Minimum Return Force: Operating Temperature:	5° or 15° (depending upon model selected) 2° 90° 1.8 in-lbs 2.5 in-oz 14° to 200°F (-10° to 94°C)				
Two Step CW, CCW or both, Convertible (requires an operating lever, see <b>PG.05C.04.T.E</b> )  		<b>E50TD1</b>	<b>E50ST</b>	<b>E50RB</b>	<b>E50DD1</b>	Same Polarity Each Pole  
	Travel to Operate Contacts: Travel to Reset Contacts: Total Travel: Force to Operate Contacts: Minimum Return Force: Operating Temperature:	1st Step 10°; 2nd Step 20° 4° Each 90° 3 in-lbs 4.5 in-oz CW or CCW: 14° to 250°F (-10° to 121°C) CW and CCW: 14° to 200°F (-10° to 94°C)				
Gravity Return (requires E50KL220, E50KL226 or equivalent operating lever, see <b>PG.05C.04.T.E</b> )  	without Indicating Light	<b>E50GG1</b>	<b>E50SG</b>	<b>E50RA</b>	<b>E50DG1</b>	Must Be Same Polarity  
	with LED Indicating Light (24-120V AC/DC)	<b>E50GLG1</b>	<b>E50SGL</b>			
	with Neon Indicating Light (120V AC)	<b>E50GNG1</b>	<b>E50SGN</b>			
	Travel to Operate Contacts: Travel to Reset Contacts: Total Travel: Force to Operate Contacts: Minimum Return Force: Operating Temperature:	10° to 170° 8° 360° 3.0 in-oz Gravity 14° to 200°F (-10° to 94°C)				

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



## Model Selection — Operating Heads

Description	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Operating Temperature <sup>①</sup>		Catalog Number	
						Without Cable	With Pre-wired Cable		
Side Rotary (requires an operating lever, see <b>PG.05C.04.T.E</b> ) 	Standard Spring Return <sup>②</sup>	5°	2°	90°	3 in-lbs	4.5 in-oz	10° to 200°F (-12° to 94°C) <sup>③</sup>	10° to 200°F (-12° to 94°C) <sup>③</sup>	<b>E50DR1</b>
	Low <sup>②</sup> Temperature Spring Return	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 <sup>②</sup>	15°	6°	90°	1.5 in-lbs	2.5 in-oz	10° to 200°F (-12° to 94°C) <sup>③</sup>	10° to 200°F (-12° to 94°C) <sup>③</sup>	<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>
Side Pushbutton, Spring Return 	0.065 inch	0.030 inch	0.250 inch	4 lbs	8 oz	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DS1</b>	
Side Pushbutton, Adjustable Spring Return 	0.065 inch	0.030 inch	0.250 inch	4 lbs	8 oz	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DS2</b>	
Side Push Roller, Spring Return <sup>④</sup> 	0.065 inch	0.030 inch	0.250 inch	4 lbs	8 oz	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DS3</b> <sup>⑤</sup>	
								<b>E50DS4</b> <sup>⑤</sup>	
Side Pushbutton, Maintained 	0.200 inch	0.130 inch	0.320 inch	5 lbs	5 lbs	14° to 200°F (-10° to 94°C)	14° to 200°F (-10° to 94°C)	<b>E50DH1</b>	
Top Pushbutton, Spring Return 	0.040 inch	0.020 inch	0.280 inch	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT1</b>	
Top Pushbutton, Adjustable Spring Return 	0.040 inch	0.020 inch	0.280 inch	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT2</b>	
Top Push Roller, Spring Return 	0.040 inch	0.020 inch	0.280 inch	4 lbs	8 oz	14° to 250°F (-10° to 121°C)	14° to 221°F (-10° to 105°C)	<b>E50DT3</b>	
Wobble Head, Spring Return (requires a wobble operator, see <b>PG.05C.04.T.E</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>

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.


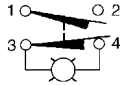
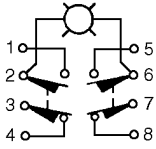
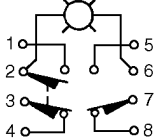
④ Roller can be converted in the field between horizontal and vertical.

⑤ Roller shaft is 0.38 inches (9.5 mm) longer on E50DS4, see dimensions on **Page 11**.

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

July 2005





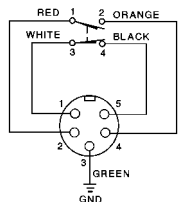


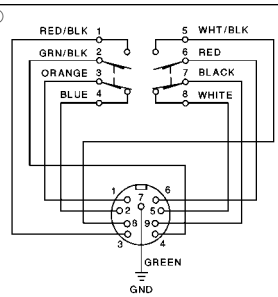

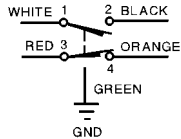
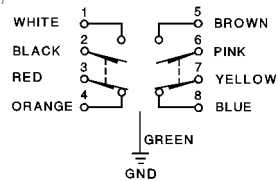
**Model Selection — Switch Bodies**



	Circuit	Switch Body Construction	Catalog Number
	Single Pole 1N.O.-1N.C. Must Be Same Polarity ①  	Without Indicating Light	<b>E50SA</b> CE
		With LED Indicating Light 24 – 120V AC/DC	<b>E50SAL</b>
		With Neon Indicating Light 120V AC	<b>E50SAN</b>
	Double Pole 2N.O.-2N.C. Parallel Wired Ind. Light Same Polarity Each Pole  	Without Indicating Light	<b>E50SB</b>
		With LED Indicating Light 24 – 120V AC/DC	<b>E50SBL</b>
		With Neon Indicating Light 120V AC	<b>E50SBN</b>
Double Pole 2N.C.-1N.O. Series Wired Ind. Light Same Polarity Each Pole ①  	With LED Indicating Light 24 – 120V AC/DC	<b>E50SCL</b>	

① Indicating lights are supplied from the factory wired as shown. However, they can easily be re-connected to terminals 1 and 2 if necessary (SPDT).

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




### Model Selection — Receptacles

	Description	Poles	Conduit Entrance	Cable Length	Catalog Number	Wiring
	Conduit entrance, front or rear mounting	Single Pole (5 Terminal)	1/2 NPT	—	<b>E50RA</b>	①
			20 mm	—	<b>E50RA20</b>	
		Double Pole (9 Terminal)	1/2 NPT	—	<b>E50RB</b>	①
			3/4 NPT	—	<b>E50RB34</b>	
	Rear wiring entrance instead of conduit hole, gasket on back for oil tightness	Single Pole (5 Terminal)	—	—	<b>E50RAM</b>	①
		Double Pole (9 Terminal)	—	—	<b>E50RBM</b>	①
	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> 	② 
					<b>E50RAP5-W</b> 	
		Double Pole (9 Terminal)	9-pin Mini-Connector	—	<b>E50RBP9</b> 	② 
	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-foot	<b>E50RAS</b>	② 
				12-foot	<b>E50RAS12</b>	
			20-foot	<b>E50RAS20</b>		
			20 mm	8-foot	<b>E50RA20S</b>	
				12-foot	<b>E50RA20S12</b>	
				20-foot	<b>E50RA20S20</b>	
		Double Pole (9 Terminal)	1/2 NPT	8-foot	<b>E50RBS</b>	② 
				12-foot	<b>E50RBS12</b>	
			20-foot	<b>E50RBS20</b>		
			20 mm	8-foot	<b>E50RB20S</b>	
12-foot	<b>E50RB20S12</b>					
20-foot	<b>E50RB20S20</b>					

① See Model Selection — Switch Bodies for wiring information.  
 ② The wire colors referenced on these diagrams are those internal to the switch itself.  
 See listing of compatible connector cables on **Page 8**.  
 Fast turn product with typical one day lead-time to shipment.

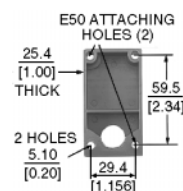
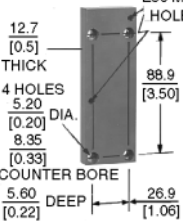
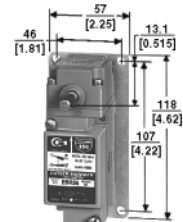
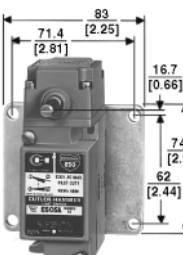
July 2005

**Model Selection — Compatible Connector Cables** ①

	Voltage Style	Number of Pins	Gauge	Length	Catalog Number	Pin Configuration/Wire Colors (Face View Female Shown)
<b>Standard Cables — Mini Style</b>						
 Mini Style Straight Female  Current Rating @ 600V 5-pin: 8A 9-pin: 7A	—	5-pin	16 AWG	6 feet (2m)	<b>CSMS5D5CY1602</b>	 1-White 2-Red 3-Green 4-Orange 5-Black
	—	9-pin	16 AWG	12 feet (4m)	<b>CSMS9D9CY1602</b>	 1-Orange 2-Blue 3-Red/Black 4-Green/Black 5-White 6-Red 7-Green 8-White/Black 9-Black

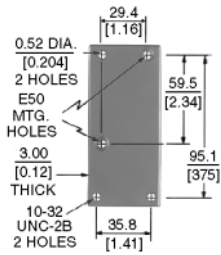
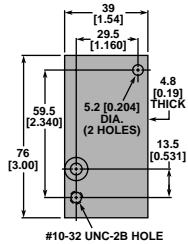
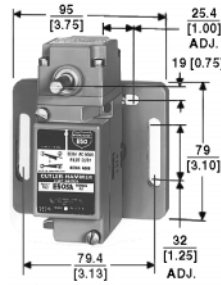

① For a full selection of connector cables, see **PG.05.05.T.E.**

**Model Selection — Accessories**

Approximate Dimensions in mm [Inches]	Description	Catalog Number
 E50 ATTACHING HOLES (2) 25.4 [1.00] THICK 59.5 [2.34] 2 HOLES 5.10 [0.20] 29.4 [1.156]	Allows E50 to replace Eaton's Cutler-Hammer 10316 Type LP Surface Mounting Plug-In Limit Switch	<b>E50KH1</b>
	Allows E50 to replace Eaton's Cutler-Hammer 10316 Type LP Manifold Mounting Plug-In Limit Switch	<b>E50KH1M</b>
 E50 MTG HOLES 12.7 [0.5] THICK 4 HOLES 5.20 [0.20] DIA. 8.35 [0.33] COUNTER BORE 5.60 [0.22] DEEP 88.9 [3.50] 26.9 [1.06]	Allows E50 to replace Square D Type AW Surface Mounting Non Plug-In Standard Box Limit Switch	<b>E50KH7</b>
 46 [1.81] 57 [2.25] 13.1 [0.515] 118 [4.62] 107 [4.22]	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 inch thick, with 1/4 inch mounting holes.)	<b>E50KH4</b> ①
 71.4 [2.81] 83 [2.25] 16.7 [0.66] 74.6 [2.94] 62 [2.44]	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 inch thick, with 1/4 inch mounting holes.)	<b>E50KH5</b> ①

① Limit Switch not included.

### Model Selection — Accessories (Continued)

Approximate Dimensions in mm [Inches]	Description	Catalog Number
<p>Adapter Plate</p> 	Allows E50 to replace Eaton's Cutler-Hammer 10316 Type LT Non Plug-In 2-Pole Limit Switch	<b>E50KH2</b>
<p>Adapter Plate</p> 	Allows E50 to replace Allen-Bradley 802M Sealed Limit Switch	<b>E50KH10</b>
<p>Adjustable Mounting Plate</p> 	This is a mounting plate only 5/16 inch thick and includes the proper mounting bolts and nuts. The slots in the plate allow a maximum horizontal adjustment of 1 inch and vertical adjustment of 1-1/4 inches	<b>E50KH3</b> ①
<p>Conduit Sealing Nut</p> 	1/2 inch oiltight	<b>E50KH6</b>

① Limit Switch not included.

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

July 2005

**Specifications**

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 Side or Top Push	13,000,000 operations minimum 10,000,000 operations minimum
Electrical Life: Single Pole Double Pole	1,000,000 operations typical at full load 100,000 operations typical at full load
Ambient Temperature Range — Standard Standard without Cable Standard with Cable Low Temperature without Cable Low Temperature with Cable	14° to 250°F (-10° to 121°C) 14° to 221°F (-10° to 105°C) -40° to 250°F (-40° to 121°C) -40° to 221°F (-40° to 105°C)
Repeat Accuracy — Standard Side Operated Top Operated Side Rotary	Within 0.0012 in Within 0.0003 in Within 0.0014 in
Torque Requirements: Switch Body Screws Operating Head Screws	25 – 30 lb-in 14 – 18 lb-in
Wire Size	Will accept AWG #22 – #12, single or stranded wire

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

AC Volts	Current, Amperes			Voltamperes		DC Volts	Current, Amperes	
	Make	Break	Cont. ①	Make	Break		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				250	0.11	1.0
480	15	1.5						
600	12	1.2						

**Switches with Indicating Lights (LED or Neon)**

NEMA A150 Rating						NEMA R150		
120	60	6	10	7200	720	125	0.22	1.0

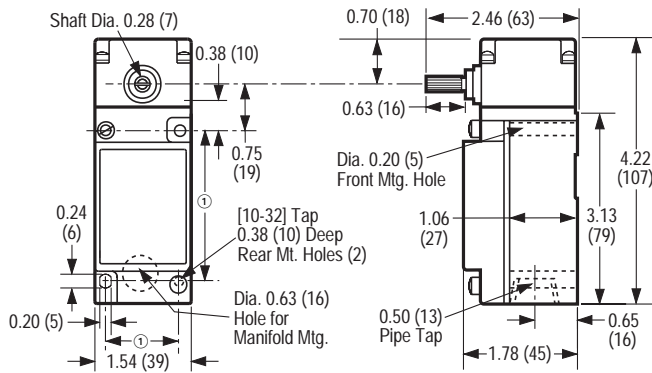
**Gravity Return Switches — Maximum Contact Ratings**

NEMA 6600 Rating — Contacts on Same Polarity						—		
120	30	3	5	3600	360	—	—	—
240	15	1.5						
480	7.5	0.75						
600	6	0.60						

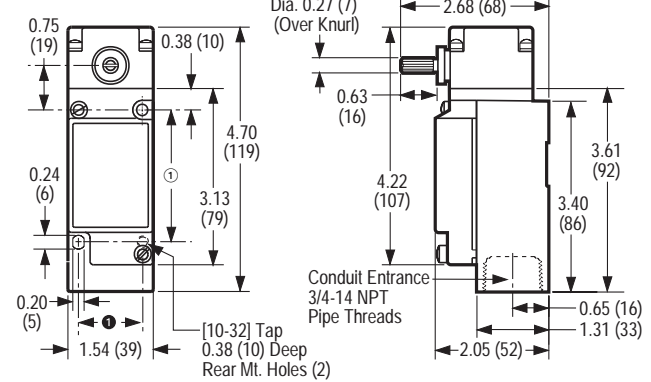
① Thermal rating. Valid only if switch does not have to make or break.

**Approximate Dimensions in Inches (mm)**

**Standard**



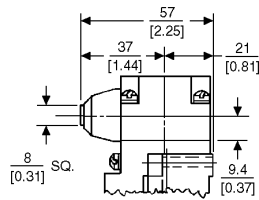
**E50SB34**



① 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.

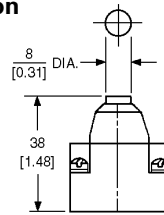
**Side Push Operators in mm [Inches]**

**Pushbutton**



**Top Push Operators in mm [Inches]**

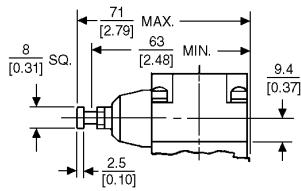
**Pushbutton**



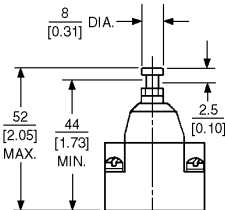
**Wobble Operators**

See Operators, PG.05C.04.T.E

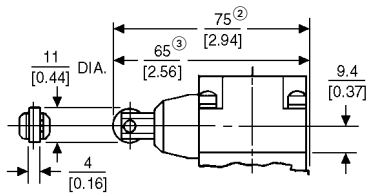
**Adjustable Pushbutton**



**Adjustable Pushbutton**

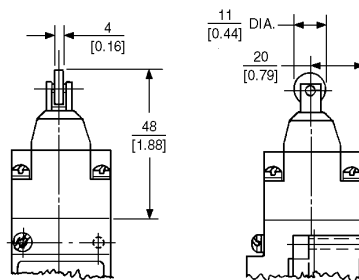


**Roller**



② For E50DS4.  
③ For E50DS3.

**Roller**



**Maintained Pushbutton**

