

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/dc 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

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Drawings
Online

Standards and Certifications

- UL Listed
- CSA Certified
- IEC.9475.1
- TUV—E9271605E02
- CE (where shown)



⚠ DANGER

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.

For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

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/dc)	Neon (120 Vac)	None	LED (24–120 Vac/dc)	Neon (120 Vac)	LED (24–120 Vac/dc)	Neon (120 Vac)
	Switch Body:	E50SA 1NO-1NC	E50SAL 1NO-1NC		E50SAN 1NO-1NC	E50SB 2NO-2NC	E50SBL 2NO-2NC	E50SBN 2NO-2NC
Receptacle: ①	E50RA	E50RA	E50RA	E50RB	E50RB	E50RB	E50RB	E50RB
Operating Head Type ②	Description			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 Page V8-T2-80)

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

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

Spring Return



Spring return—E50DS1	E50AS1	E50ALS1	E50ANS1
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E50BS1	E50BSL1	E50BNS1	E50CLS1	—
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Adjustable Spring Return



Adjustable spring return—E50DS2	E50AS2	E50ALS2	E50ANS2
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E50BS2	E50BSL2	E50BNS2	E50BLS2	E50CNS2
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Circuit Diagrams, see Page V8-T2-65.

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 V8-T2-59.

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 10, section 10.1.

⑤ Refer to Page V8-T2-65 for wiring diagrams.

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

Operating Head Type ②

Side Push Roller



Side Push Roller

Description	E50AS3	E50ALS3	E50ANS3	E50BS3	E50BLS3	E50BNS3	E50BLS3	—
Spring return— E50DS3 ③	CE							

Side Pushbutton



Side Pushbutton

Description	E50AH1	E50ALH1	E50ANH1	E50BH1	E50BLH1	E50BNH1	E50BLH1	—
Maintained— E50DH1	CE							

Top Pushbutton

Spring Return



Description	E50AT1	E50ALT1	E50ANT1	E50BT1	E50BLT1	E50BNT1	E50CLT1	E50BNT1
Spring return— E50DT1	CE							

Adjustable Spring Return



Description	E50AT2	E50ALT2	E50ANT2	E50BT2	E50BLT2	E50BNT2	—	—
Adjustable spring return—E50DT2	CE							

Circuit Diagrams, see [Page V8-T2-65](#).

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 V8-T2-59](#).

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

④ For a full selection of cable connectors, see [Tab 10, section 10.1](#).

⑤ Refer to [Page V8-T2-65](#) for wiring diagrams.

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

Assembled Switch



Single-Pole (5 Terminal Receptacle)

Two-Pole (9 Terminal Receptacle)

Indicating Light:	None	LED (24–120 Vac/dc)	Neon (120 Vac)	None	LED (24–120 Vac/dc)	Neon (120 Vac)	LED (24–120 Vac/dc)	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



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



Standard duty— E50DW1	E50AW1 CE	E50ALW1	E50ANW1	E50BW1	E50BLW1	E50BNW1	EB50BLW1	—
Heavy-duty high strength steel— E50DW2	E50AW2 CE	E50ALW2	E50ANW2	E50BW2	E50BLW2	E50BNW2	E50CLW2	E50BNW2

Circuit Diagrams, see Page V8-T2-65.

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 V8-T2-59.

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

④ For a full selection of cable connectors, see Tab 10, section 10.1.

⑤ Refer to Page V8-T2-65 for wiring diagrams.

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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
Neutral Position (requires an operating lever, see Page V8-T2-80)				
5° Travel	E50NN1 ①	E50SN	E50RB	E50DN1 ①
5° Travel; stainless steel shaft	E50NN1SPL ②	—	—	—
15° Travel	E50NN2	E50SN	E50RB	E50DN2 ①
Travel to operate contacts:	—	—	—	5° or 15° ③
Travel to reset contacts:	—	—	—	2°
Total travel:	—	—	—	90°
Force to operate contacts:	—	—	—	1.8 in-lbs
Minimum return force:	—	—	—	2.5 in-oz
Operating temperature:	—	—	—	14° to 200°F (–10° to 94°C)
Two-Step				
Two-Step CW, CCW, or both, Convertible (requires an operating lever, see Page V8-T2-80)				
—	E50TD1	E50ST	E50RB	E50DD1
Travel to operate contacts:	—	—	—	1st step 10°; 2nd step 20°
Travel to reset contacts:	—	—	—	4° each
Total travel:	—	—	—	90°
Force to operate contacts:	—	—	—	3 in-lbs
Minimum return force:	—	—	—	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)
Gravity Return				
Gravity Return (requires E50KL220, E50KL226 or equivalent operating lever, see Page V8-T2-80)				
Without indicating light	E50GG1	E50SG	E50RA	E50DG1
With LED indicating light (24–120 Vac/dc)	E50GLG1	E50SGL	E50RA	E50DG1
With neon indicating light (120 Vac)	E50NGG1	E50SGN	E50RA	E50DG1
Travel to operate contacts:	—	—	—	10° to 170°
Travel to reset contacts:	—	—	—	8°
Total travel:	—	—	—	360°
Force to operate contacts:	—	—	—	3.0 in-oz
Minimum return force:	—	—	—	Gravity
Operating temperature:	—	—	—	14° to 200°F (–10° to 94°C)
Circuit Diagrams , see Page V8-T2-65 .				

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

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	
Side Rotary								
Side Rotary (requires an operating lever, see Page V8-T2-80)								
 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	E50DR1
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)	E50DR19
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	E50DL1
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)	E50DM1
Side Pushbutton								
 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)	E50DS1
 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)	E50DS2
Side Push Roller								
 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)	E50DS3 ^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)	E50DS4 ^⑤
Side Pushbutton								
 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)	E50DH1
Top Pushbutton								
 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)	E50DT1
 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)	E50DT2

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 V8-T2-66](#).

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	
Top Push Roller								
Top Push Roller								
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)	E50DT3
Wobble Head, Spring Return (requires a wobble operator, see Page V8-T2-80)								
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)	E50DW1
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)	E50DW2



Switch Bodies

E50 Heavy-Duty Plug-In Switches, Switch Bodies



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









Circuit Diagrams, see **Page V8-T2-65**.

Note

^① Indicating lights are supplied from the factory wired as shown in Circuit Diagrams on **Page V8-T2-65**. 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
Surface Mount 	Surface Mount Conduit entrance, front or rear mounting	Single-pole (5 terminal)	1/2 NPT	—	E50RA
			20 mm	—	E50RA20
		Two-pole (9 terminal)	1/2 NPT	—	E50RB
			3/4 NPT	—	E50RB34
			20 mm	—	E50RB20
Manifold Mount 	Manifold Mount Rear wiring entrance instead of conduit hole, gasket on back for oil tightness	Single-pole (5 terminal)	—	—	E50RAM
		Two-pole (9 terminal)	—	—	E50RBM
Mini-Connector 	Mini-Connector 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	—	E50RAP5 
				—	E50RAP5-W 
		Two-pole (9 terminal)	9-pin mini-connector	—	E50RBP9 
Micro-Connector 	Micro-Connector Epoxy filled receptacle with M12 DC micro-connector	Single-pole (5 terminal)	—	—	E50RAA5 ^①
Pre-Wired Cable 	Pre-Wired Cable 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 ft	E50RAS
				12 ft	E50RAS12
				20 ft	E50RAS20
			20 mm	8 ft	E50RA20S
				12 ft	E50RA20S12
				20 ft	E50RA20S20
		Two-pole (9 terminal)	1/2 NPT	8 ft	E50RBS
				12 ft	E50RBS12
			20 mm	20 ft	E50RBS20
				8 ft	E50RB20S
12 ft	E50RB20S12				
20 ft	E50RB20S20				

Wiring Diagrams, see **Page V8-T2-65**.

Notes

 See listing of compatible connector cables on **Page V8-T2-62**.

^① Model E50RAA5 is not UL listed or CSA certified.

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
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Compatible Connector Cables

Standard Cables ^①

	Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
Mini-style Straight Female 	Mini-Style, Straight Female						
	8A	—	5-pin	16 AWG	6 ft (2m)	 1-White 2-Red 3-Green 4-Orange 5-Black	CSMS5D5CY1602
	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
Micro-Style 	Micro-Style						
	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




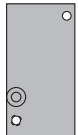


	Description	Catalog Number
E50KH7 	Adapter Plate	
	Allows E50 to replace Square D Type AW Surface Mounting Non Plug-In Standard Box Limit Switch	E50KH7

Dimensions, see **Page V8-T2-67**.

Note

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

E50 Heavy-Duty Plug-In Switch Accessories, continued

Description	Catalog Number
Adapter Plate, continued	
E50KH4	E50KH4 ①
	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.
E50KH5	E50KH5 ①
	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.)
E50KH2	E50KH2
	Allows E50 to replace Eaton's 10316 Type LT Non Plug-In Two-Pole Limit Switch
E50KH10	E50KH10
	Allows E50 to replace Allen-Bradley 802M Sealed Limit Switch
Adjustable Mounting Plate	
E50KH3	E50KH3 ①
	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
E50KH6	E50KH6
	Conduit Sealing Nut 1/2 in oiltight

Dimensions, see **Page V8-T2-67**.

Note

① Limit switch not included.

Technical Data and Specifications

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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)

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	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	—	—	—

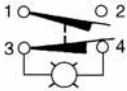
Note

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

Circuit Diagrams

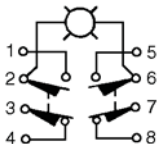
Standard Assembled Switches and Switch Bodies

Single-Pole 1NO-1NC



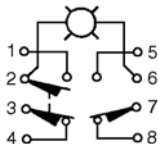
Must be same polarity.

Two-Pole 2NO-2NC



Parallel wired indicator light. Same polarity each pole.

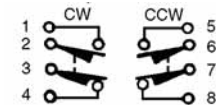
Two-Pole 1NO-2NC



Series wired indicator light. Same polarity each pole.

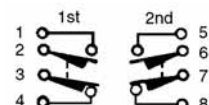
Special Purpose Assembled Switches

Neutral Position



Same polarity, each pole.

Two-Step (CW, CCW, or Both)



Same polarity, each pole.

Gravity Return

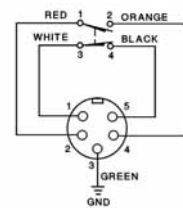


Must be same polarity.

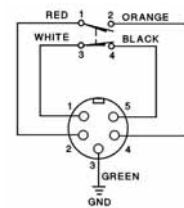
Wiring Diagrams

Receptacles ①

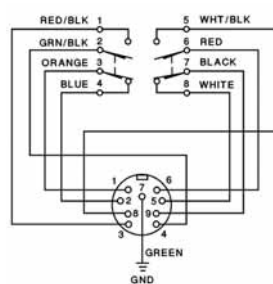
E50RAP5



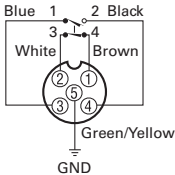
E50RAP5-W



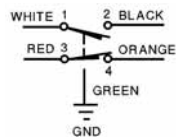
E50RBP9



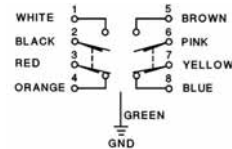
E50RAA5



E50RAS_



E50RBS_



Note

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

2.6

Limit Switches

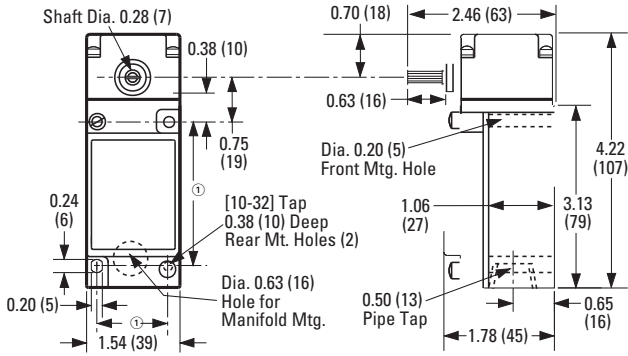
E50 Heavy-Duty Plug-In Switches

Dimensions

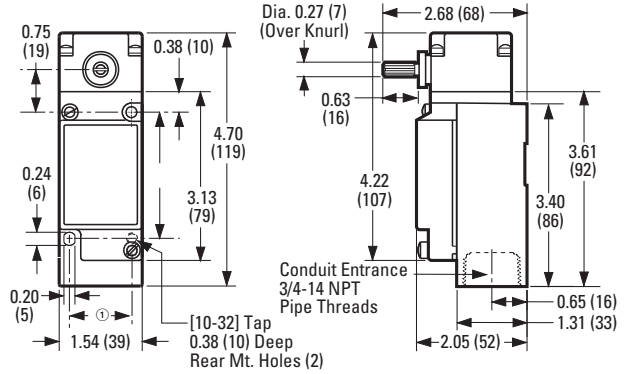
Approximate Dimensions in Inches (mm)

2

Standard



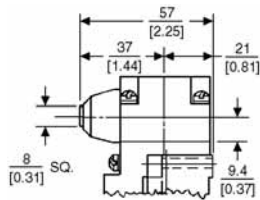
E50SB34



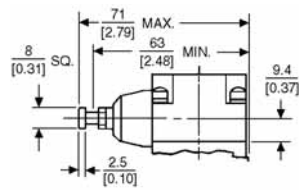
Side Push Operators

Approximate Dimensions in mm [in]

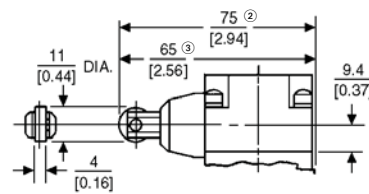
Pushbutton



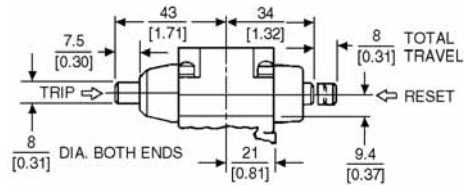
Adjustable Pushbutton



Roller

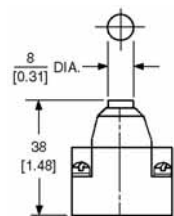


Maintained Pushbutton

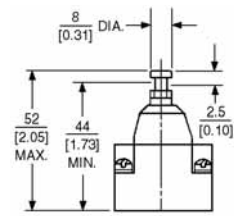


Top Push Operators

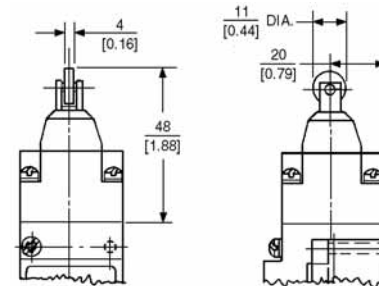
Pushbutton



Adjustable Pushbutton



Roller



Wobble Operators

See Operators on Page V8-T2-80.

Notes

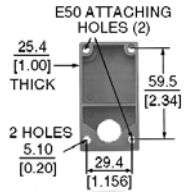
- ① Can accommodate both U.S., 1.16 (29.4) x 2.34 (59.5) and DIN, 1.18 (30) x 2.36 (60), mounting dimensions.
- ② For E50DS4.
- ③ For E50DS3.

Accessories

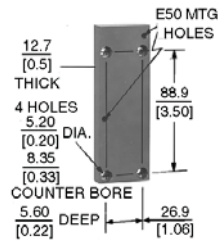
Approximate Dimensions in mm [in]

Adapter Plates

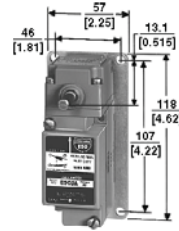
E50KH1M



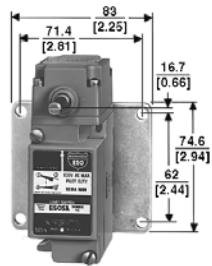
E50KH7



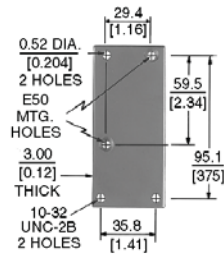
E50KH4



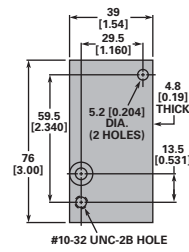
E50KH5



E50KH2

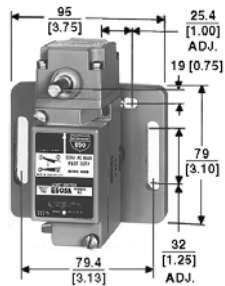


E50KH10



Adjustable Mounting Plate

E50KH3



E50 Heavy-Duty Factory Sealed 6P+ Switches



E50 Heavy-Duty Factory Sealed 6P+ Switches

Product Description

E50 6P+ Limit Switches by Eaton's electrical sector were specifically designed to withstand the penetrating properties of cutting fluids and coolants, such as those used in the automotive industry, as well as extreme shock, vibration and temperature fluctuations. The one-piece, epoxy filled switch body is prewired at the factory to ensure leak-proof, submersible performance. This unique construction positively stops fluid from finding its way to any and all critical connections.

Our 6P+ switches can be ordered in separate components or as complete assembled devices. They are available with prewired 16 AWG cables or mini-connectors. Standard and custom cable lengths are available. As part of the E50 line, the 6P+ switches use the same operating heads as the standard E50 plug-in models to reduce the components you need to inventory.

Features

- Manufactured to take the physical and environmental abuse (including cutting fluids and chemicals) of harsh industrial environments
- Modular, plug-in components (head and switch body) provide application flexibility, reduced inventory and less downtime
- Chemical resistant Viton gaskets, seals and boots are standard, and so are captive, posi-drive screws
- A special tertiary seal on the switch body prevents fluid from entering even when the operating head is not attached
- 600V rating, ridge-topped contacts and wiping action assure continuity even to logic level circuits
- Factory wired cable features a 350 pound pullout capacity
- Keyed, four direction head positioning. Standard 5° pre-travel and 90° total travel
- 24–120 Vac/dc LED and 120 Vac neon indicating lights available
- Rotary heads are field convertible CW, CCW, or both, without special tools

Standards and Certifications

- UL Listed
- CSA Certified
- IEC.9475.1
- TUV—E9271605E02
- CE (where shown)



⚠ DANGER

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.

Contents

Description

Page

E50 Heavy-Duty Factory Sealed 6P+ Switches

Product Selection	
Assembled Switches—Standard	V8-T2-69
Operating Heads	V8-T2-72
Switch Bodies	V8-T2-73
Compatible Connector Cables	V8-T2-74
Accessories	V8-T2-74
Technical Data and Specifications	V8-T2-76
Circuit Diagrams	V8-T2-77
Wiring Diagrams	V8-T2-77
Dimensions	V8-T2-78



Drawings
Online

For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578.
For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

Assembled Switches—Standard

Connection is by 8 ft cable ①.

Assembled Switch E50 Heavy-Duty Factory Sealed 6P+ Switches, Assembled—Standard



Lever sold separately



Single-Pole



Two-Pole

Indicating Light:	None	LED (24–120 Vac/dc)	Neon (120 Vac)	None	LED (24–120 Vac/dc)	Neon (120 Vac)
Switch Body:	E50SA6P 1NO-1NC	E50SAL6P 1NO-1NC	E50SAN6P 1NO-1NC	E50SB6P 2NO-2NC	E50SBL6P 2NO-2NC	E50SBN6P 2NO-2NC

Operating Head Type ②

Side Rotary



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
Side Rotary (requires an operating lever, see Page V8-T2-80)						
Standard spring return—E50DR1 ③	E50AR16P C C	E50ALR16P	E50ANR16P	E50BR16P	E50BLR16P	E50BNR16P
Low force spring return—E50DL1 ③	E50AL16P C C	E50ALL16P	E50ANL16P	E50BL16P	E50BLL16P	E50BNL16P
Maintained two-position—E50DM1	E50AM16P C C	E50ALM16P	E50ANM16P	E50BM16P	E50BLM16P	E50BNM16P

Spring Return



Spring return—E50DS1	E50AS16P C C	E50ALS16P	E50ANS16P	E50BS16P	E50BLS16P	E50BNS16P
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Adjustable Spring Return



Adjustable spring return—E50DS2	E50AS26P C C	E50ALS26P	E50ANS26P	E50BS26P	E50BLS26P	E50BNS26P
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Circuit Diagrams, see Page V8-T2-77.

Notes

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 ④	Single-pole (5-pin mini-connector)	CSMS5D5CY1602	C
	Two-pole (9-pin mini-connector)	CSMS9D9CY1602	C
Cable connection	12 ft cable length (standard)	—	12
	20 ft cable length (standard)	—	20
	Other lengths (special order)	—	Length in ft

② For operating head specifications, see Page V8-T2-72.

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

④ For a full selection of connector cables, see Tab 10, section 10.1.

2.7

Limit Switches

E50 Heavy-Duty Factory Sealed 6P+ Switches

Connection is by 8 ft cable ①.

2

Assembled Switch

E50 Heavy-Duty Factory Sealed 6P+ Switches, Assembled—Standard, continued



Lever sold separately



Single-Pole



Two-Pole

Indicating Light:	Single-Pole			Two-Pole		
	None	LED (24–120 Vac/dc)	Neon (120 Vac)	None	LED (24–120 Vac/dc)	Neon (120 Vac)
Switch Body:	E50SA6P 1N0-1NC	E50SAL6P 1N0-1NC	E50SAN6P 1N0-1NC	E50SB6P 2N0-2NC	E50SBL6P 2N0-2NC	E50SBN6P 2N0-2NC
Operating Head Type ②	Description			Assembled Switch Catalog Number		

Side Push Roller



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
	Spring return— E50DS3 ③	E50AS36P CE	E50ALS36P	E50ANS36P	E50BS36P	E50BLS36P

Side Pushbutton



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
	Maintained— E50DH1	E50AH16P CE	E50ALH16P	E50ANH16P	E50BH16P	E50BLH16P

Top Pushbutton

Spring Return



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
	Spring return— E50DT1	E50AT16P CE	E50ALT16P	E50ANT16P	E50BT16P	E50BLT16P

Adjustable Spring Return



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
	Adjustable spring return—E50DT2	E50AT26P CE	E50ALT26P	E50ANT26P	E50BT26P	E50BLT26P

Circuit Diagrams, see [Page V8-T2-77](#).

Notes

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 ④	Single-pole (5-pin mini-connector)	CSMS5D5CY1602	C
	Two-pole (9-pin mini-connector)	CSMS9D9CY1602	C
Cable connection	12 ft cable length (standard)	—	12
	20 ft cable length (standard)	—	20
	Other lengths (special order)	—	Length in ft

② For operating head specifications, see [Page V8-T2-72](#).

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

④ For a full selection of connector cables, see [Tab 10, section 10.1](#).

Connection is by 8 ft cable ①.

Assembled Switch E50 Heavy-Duty Factory Sealed 6P+ Switches, Assembled—Standard, continued



Lever sold separately



Single-Pole



Two-Pole

Indicating Light:	None	LED (24–120 Vac/dc)	Neon (120 Vac)	None	LED (24–120 Vac/dc)	Neon (120 Vac)
Switch Body:	E50SA6P 1NO-1NC	E50SAL6P 1NO-1NC	E50SAN6P 1NO-1NC	E50SB6P 2NO-2NC	E50SBL6P 2NO-2NC	E50SBN6P 2NO-2NC

Operating Head Type ②

Top Push Roller



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
Top Push Roller						
Spring return— E50DT3	E50AT36P CE	E50ALT36P	E50ANT36P	E50BT36P	E50BLT36P	E50BNT36P

Wobble Head, Spring Return



Description	Assembled Switch Catalog Number			Assembled Switch Catalog Number		
Wobble Head, Spring Return (requires a wobble operator, see Page V8-T2-80)						
Standard duty— E50DW1	E50AW16P CE	E50ALW16P	E50ANW16P	E50BW16P	E50BLW16P	E50BNW16P
Heavy-duty high strength steel— E50DW2	E50AW26P CE	E50ALW26P	E50ANW26P	E50BW26P	E50BLW26P	E50BNW26P

Circuit Diagrams, see Page V8-T2-77.

Notes

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 ③	Single-pole (5-pin mini-connector)	CSMS5D5CY1602	C
	Double-pole (9-pin mini-connector)	CSMS9D9CY1602	C
Cable connection	12 ft cable length (standard)	—	12
	20 ft cable length (standard)	—	20
	Other lengths (special order)	—	Length in ft








② For operating head specifications, see Page V8-T2-72.

③ For a full selection of connector cables, see Tab 10, section 10.1.

Operating Heads

2

E50 Heavy-Duty Factory Sealed 6P+ Switches, Operating Heads

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		
Side Rotary (requires an operating lever, see Page V8-T2-80)									
 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	E50DR1	
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)	E50DR19	
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	E50DL1	
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)	E50DM1	
Side Pushbutton									
 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)	E50DS1	
Adjustable Spring Return	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)	E50DS2
									
Side Push Roller									
 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)	E50DS3 ^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)	E50DS4 ^⑤	
Side Pushbutton									
 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)	E50DH1	
Top Pushbutton									
 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)	E50DT1	
Adjustable Spring Return	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)	E50DT2
									

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 V8-T2-78](#).

E50 Heavy-Duty Factory Sealed 6P+ Switches

E50 Heavy-Duty Factory Sealed 6P+ 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	
Top Push Roller	Top Push Roller							
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)	E50DT3
Wobble Head, Spring Return	Wobble Head, Spring Return (requires a wobble operator, see Page V8-T2-80)							
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)	E50DW1
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)	E50DW2

Circuit Diagrams, see [Page V8-T2-77](#).

Switch Bodies

E50 Heavy-Duty Factory Sealed 6P+, Switch Bodies

Circuit	Switch Body Construction	Cable Length	Catalog Number
Pre-Wired Cable	Pre-Wired Cable		
Single-pole 1NO-1NC	Without indicating light	8 ft	E50SA6P
		12 ft	E50SA6P12
		20 ft	E50SA6P20
	With LED indicating light 24–120 Vac/dc	8 ft	E50SAL6P
		12 ft	E50SAL6P12
		20 ft	E50SAL6P20
	With neon indicating light 120 Vac	8 ft	E50SAN6P
		12 ft	E50SAN6P12
		20 ft	E50SAN6P20
Two-pole 2NO-2NC	Without indicating light	8 ft	E50SB6P
		12 ft	E50SB6P12
		20 ft	E50SB6P20
	With LED indicating light 24–120 Vac/dc	8 ft	E50SBL6P
		12 ft	E50SBL6P12
		20 ft	E50SBL6P20
	With neon indicating light 120 Vac	8 ft	E50SBN6P
		12 ft	E50SBN6P12
		20 ft	E50SBN6P20
Mini-Connector	Mini-Connector		
Single-pole 1NO-1NC	Without indicating light normal wiring	—	E50SA6PC ☼
	Without indicating light alternate wiring	—	E50SA6PC-W ☼
	With LED indicating light 24–120 Vac/dc	—	E50SAL6PC ☼
	With neon indicating light 120 Vac	—	E50SAN6PC ☼
Two-pole 2NO-2NC	Without indicating light	—	E50SB6PC ☼
	With LED indicating light 24–120 Vac/dc	—	E50SBL6PC ☼
	With neon indicating light 120 Vac	—	E50SBN6PC ☼

Notes




☼ See listing of compatible connector cables on [Page V8-T2-74](#).

① Temperature ranges below 32°F (0°C) are based on absence of freezing moisture or water.

Compatible Connector Cables



2

Standard Cables ^①

	Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
Mini-Style, Straight Female 	Mini-Style, Straight Female						
	8A	—	5-pin	16 AWG	6 ft (2m)	 <ul style="list-style-type: none"> 1-White 2-Red 3-Green 4-Orange 5-Black 	CSMS5D5CY1602
	7A	—	9-pin	16 AWG	12 ft (4m)	 <ul style="list-style-type: none"> 1-Orange 2-Blue 3-Red/Black 4-Green/Black 5-White 6-Red 7-Green 8-White/Black 9-Black 	CSMS9D9CY1602

Accessories

E50 Heavy-Duty Factory Sealed 6P+ Switch Accessories




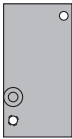
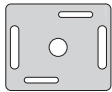

		Catalog Number
E50KH1M 	Adapter Plate	
	Allows E50 to replace Eaton's 10316 Type LP Manifold Mounting Plug-In Limit Switch	E50KH1M
E50KH7 	Allows E50 to replace Square D Type AW Surface Mounting Non Plug-In Standard Box Limit Switch	E50KH7

Dimensions, see **Page V8-T2-78**.

Note

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

E50 Heavy-Duty Factory Sealed 6P+ Switch Accessories, continued

		Catalog Number
Adapter Plate, continued		
E50KH4 	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.	E50KH4 ①
E50KH5 	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.)	E50KH5 ①
E50KH2 	Allows E50 to replace Eaton's 10316 Type LT Non Plug-In Two-Pole Limit Switch	E50KH2
E50KH10 	Allows E50 to replace Allen-Bradley 802M Sealed Limit Switch	E50KH10
Adjustable Mounting Plate		
E50KH3 	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	E50KH3 ①
Conduit Sealing Nut		
E50KH6 	1/2 in oiltight	E50KH6

Dimensions, see **Page V8-T2-78**.

Note

① Limit switch not included.

Technical Data and Specifications

2

E50 Heavy-Duty Factory Sealed 6P+ Switches

Description	Specification
Environmental ratings	NEMA 1, 3, 3S, 4, 4X, 6, 6P, 13, IP67, IP69K
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
Double-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	
Operating head screws	14–18 lb-in

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	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	

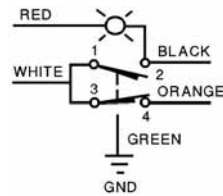
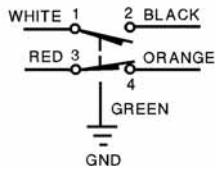
Note

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

Circuit Diagrams ①

Standard Assembled Switches

Single-Pole 1NO-1NC

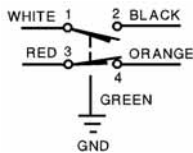


Must be same polarity.

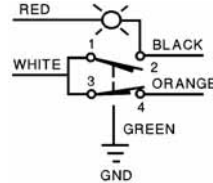
Switch Bodies

**Pre-Wired Cable—
Single-Pole 1NO-1NC**

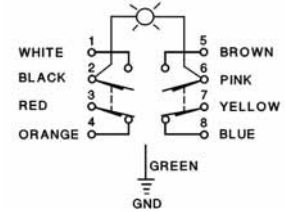
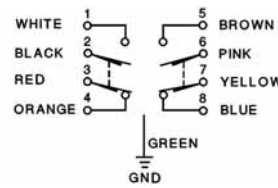
E50SA6P_



E50SAL6P_



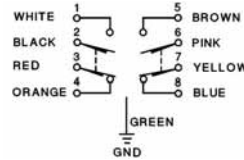
Two-Pole 2NO-2NC



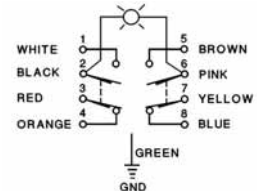
Same polarity, each pole.

**Pre-Wired Cable—
Two-Pole 2NO-2NC**

E50SB6P_



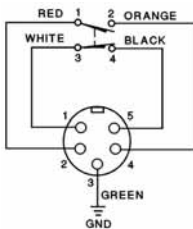
E50SBL6P_



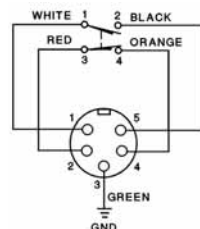
Wiring Diagrams ①

Mini-Connector—Single-Pole 1NO-1NC

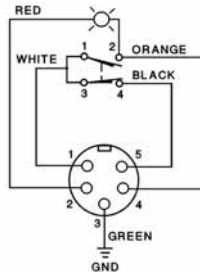
E50SA6PC



E50SA6PC-W

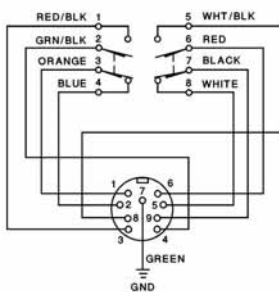


E50SAL6PC/E50SAN6PC

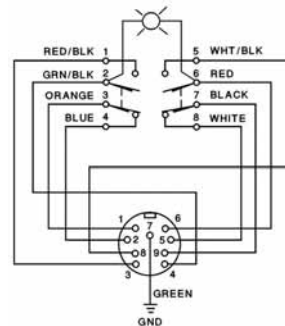


Mini-Connector—Two-Pole 2NO-2NC

E50SB6PC



E50SBL6PC/E50SBN6PC



Note

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

2.7

Limit Switches

E50 Heavy-Duty Factory Sealed 6P+ Switches

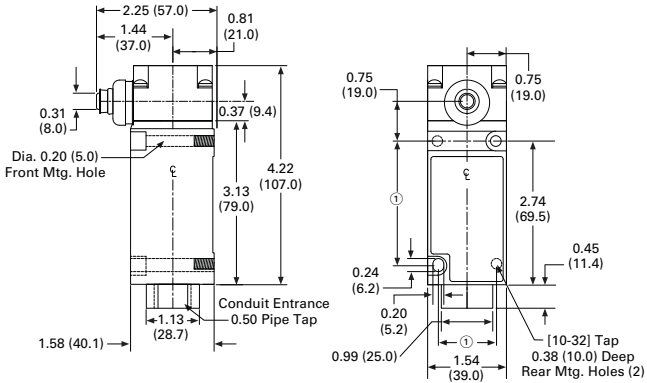
Dimensions

Approximate Dimensions in Inches (mm)

2

Standard

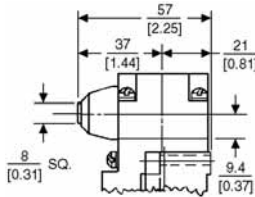
6P+ Limit Switch with Rotary Operating Head



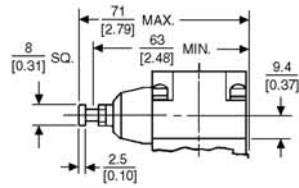
Side Push Operators

Approximate Dimensions in mm [in]

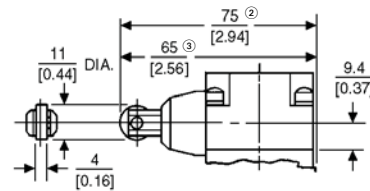
Pushbutton



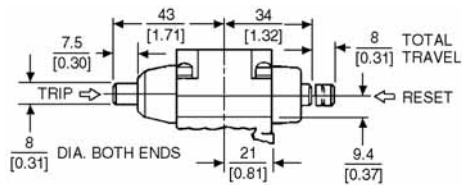
Adjustable Pushbutton



Roller

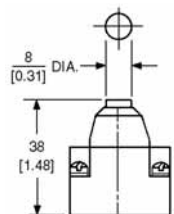


Maintained Pushbutton

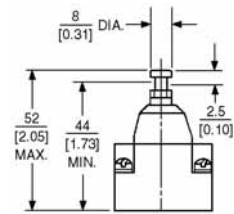


Top Push Operators

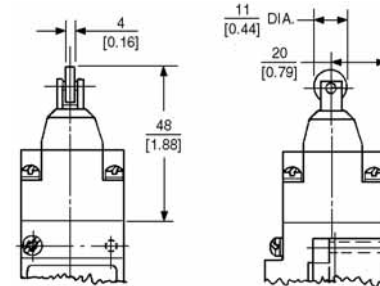
Pushbutton



Adjustable Pushbutton



Roller



Wobble Operators

See Operators on **Page V8-T2-80**.

Notes

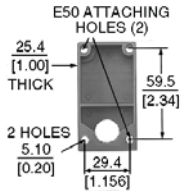
- Can accommodate both U.S., 1.16 (29.4) x 2.34 (59.5) and DIN, 1.18 (30.0) x 3.26 (60.0), mounting dimensions.
- For E50DS4.
- For E50DS3.

Accessories

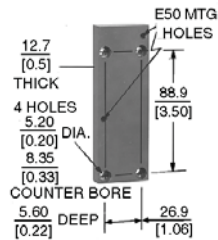
Approximate Dimensions in mm [in]

Adapter Plates

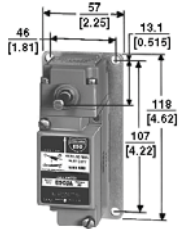
E50KH1M



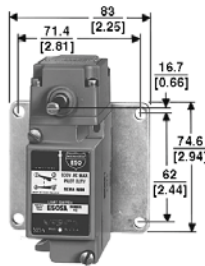
E50KH7



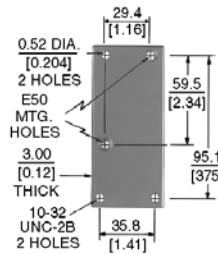
E50KH4



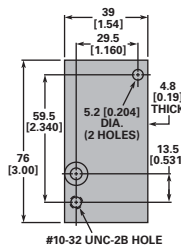
E50KH5



E50KH2

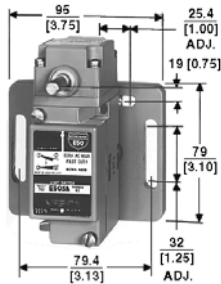


E50KH10



Adjustable Mounting Plate

E50KH3



Operators



Contents

Description

Page

Operators	
Product Selection	
Roller Type Operators	V8-T2-81
Rod Type Operators	V8-T2-83
Wobble Type Operators	V8-T2-84
Dimensions	V8-T2-84



Operators

Product Description

The Operators presented here are used with Eaton's E50 Plug-In and 6P+ limit switches, as well as our 10316 rotary type limit switches. A wide variety of styles and sizes are available to provide optimum performance for nearly any application.

Features

- Wide variety of operator types for rotary and wobble style limit switches
- Rollers and rods available in metal and nonmetal contact surfaces

⚠ DANGER

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.

For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

Roller Type Operators

For rotary head switches: E50 Plug-In, E50 6P+, and 10316.





Note: Only operators with Nylatron rods or rollers should be used with explosion-proof limit switches.

Operators—Roller Type

Roller Type	Minimum Required Return Torque ^①	Approximate Dimensions in Inches (mm)						Catalog Number	
		A Lever Length ^②	B Roller Diameter	C Roller Width	D	E	F		
E50KL200	Standard Roller (Stainless Steel)								
	Metal	0.95 in-oz	1.38 (34.9)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL40
	Ball bearing	0.77 in-oz	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)	E50KL531
	Nylatron	0.53 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL200
	Metal	1.10 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL355
E50KL355	Nylatron	0.96 in-oz	1.50 (38.1)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)	E50KL377
	Without roller	0.32 in-oz	1.50 (38.1)	—	—	0.34 (8.6)	—	—	E50KL132
	Ball bearing	1.10 in-oz	2.00 (50.8)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)	E50KL552
	Nylatron	0.71 in-oz	2.00 (50.8)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL546
E50KL377	Metal	1.50 in-oz	2.00 (50.8)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL549
	Nylatron	1.45 in-oz	2.00 (50.8)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)	E50KL572
	Ball bearing	1.50 in-oz	2.50 (63.5)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)	E50KL553
	Nylatron	1.00 in-oz	2.50 (63.5)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL547
	Metal	2.00 in-oz	2.50 (63.5)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL550
	Nylatron	1.80 in-oz	2.50 (63.5)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)	E50KL573
E50KL554	Nylatron	1.40 in-oz	2.50 (63.5)	1.50 (38.1)	0.28 (7.1)	0.34 (8.6)	0.11 (2.8)	0.17 (4.3)	E50KL575
	Ball bearing	1.80 in-oz	3.00 (76.2)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)	E50KL554
	Nylatron	1.30 in-oz	3.00 (76.2)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL548
	Metal	2.50 in-oz	3.00 (76.2)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)	E50KL551
	Nylatron	2.30 in-oz	3.00 (76.2)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)	E50KL574
	Nylatron	1.80 in-oz	3.00 (76.2)	1.50 (38.1)	0.28 (7.1)	0.34 (8.6)	0.11 (2.8)	0.17 (4.3)	E50KL576
Dimensions, see Page V8-T2-84.									
E50KL580	Roller On Reverse Side (Stainless Steel)								
	Ball bearing	0.77 in-oz	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.18 (4.6)	0.24 (6.1)	E50KL580
	Nylatron	0.53 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.27 (6.9)	0.31 (7.9)	E50KL310
	Metal	1.10 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.27 (6.9)	0.31 (7.9)	E50KL579
	Nylatron	0.96 in-oz	1.50 (38.1)	1.50 (38.1)	0.28 (7.1)	0.34 (8.6)	0.23 (5.8)	0.31 (7.9)	E50KL536
E50KL24	Offset Inboard Roller (Stainless Steel)								
	Nylatron	0.65 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.03 (0.8)	—	—	E50KL24
	Metal	1.20 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.03 (0.8)	—	—	E50KL25
	Ball bearing	0.90 in-oz	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.04 (1.0)	—	—	E50KL26
E50KL27	Offset Outboard Roller (Stainless Steel)								
	Nylatron	0.65 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.03 (0.8)	—	—	E50KL27
	Metal	1.20 in-oz	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.03 (0.8)	—	—	E50KL28
	Ball bearing	0.90 in-oz	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.04 (1.0)	—	—	E50KL29
	Nylatron	1.10 in-oz	1.50 (38.1)	0.75 (19.0)	1.00 (25.4)	—	—	—	E50KL30
Dimensions, see Page V8-T2-85.									
Notes									
^① Caution: When selecting lever, the minimum required return torque of lever should not exceed minimum return force available in operating head as given in operating head specifications.									
^② Length from the operating shaft axis to the roller axis (or to the tip for non-roller operators).									



Note: Only operators with Nylatron rods or rollers should be used with explosion-proof limit switches.

Operators—Roller Type, continued

Roller Type	Minimum Required Return Torque ^①	Approximate Dimensions in Inches (mm)						Catalog Number
		A Lever Length ^②	B Roller Diameter	C Roller Width	D	E	F	
E50KL532								
Bantam Lever								
Metal	0.45 in-oz	0.69 (17.5)	0.85 (22.0)	0.18 (4.6)	—	—	—	E50KL532
								
E50KL340								
Precision Adjustment								
Nylatron	0.65 in-oz	0.69 (17.5)	0.75 (19.0)	0.32 (8.1)	0.48 (12.2)	0.24 (6.1)	0.28 (7.1)	E50KL340
Metal	1.20 in-oz	Roller length: 1.50 (38.1) ^③	0.75 (19.0)	0.32 (8.1)	0.48 (12.2)	0.24 (6.1)	0.28 (7.1)	E50KL465
Ball bearing	0.90 in-oz		0.69 (17.5)	0.25 (6.4)	0.48 (12.2)	0.16 (4.1)	0.22 (5.6)	E50KL535
								
E50KL201								
Dimensions, see Page V8-T2-85.								
Adjustable Roller (Stainless Steel)								
Ball bearing	2.50 in-oz ^④	1.0 (25.4) to 3.75 (95.2) ^⑤	0.69 (17.5)	0.25 (6.4)	0.23 (5.8)	0.30 (7.6)	—	E50KL539
Nylatron	1.90 in-oz ^④		0.75 (19.0)	0.32 (8.1)	0.29 (7.4)	0.33 (8.4)	—	E50KL201
								
E50KL537								
Metal	3.40 in-oz ^④		0.75 (19.0)	0.32 (8.1)	0.29 (7.4)	0.33 (8.4)	—	E50KL538
Nylatron	1.90 in-oz ^④		0.75 (19.0)	0.50 (12.7)	0.46 (11.6)	0.48 (12.2)	—	E50KL599
Nylatron	3.10 in-oz ^④		0.75 (19.0)	1.00 (25.4)	0.90 (22.9)	0.95 (24.1)	—	E50KL537
Large Nylatron	4.50 in-oz ^④	0.5 (12.7) to 3.25 (82.6)	4.00 (102.0)	0.11 (2.8)	0.11 (2.8)	0.19 (4.8)	—	E50KL598
Without roller	1.20 in-oz ^④	0.5 (12.7) to 3.75 (95.2)	—	—	—	—	—	E50KL31
Nylatron	2.50 in-oz ^④	1.63 (41.3) to 3.75 (95.2) ^⑥	1.50 (38.1)	0.29 (7.4)	0.26 (6.6)	0.32 (8.1)	—	E50KL443
								

Dimensions, see Page V8-T2-86.

Operators—Roller Type, continued

Roller Type	Minimum Required Return Torque ^①	Approximate Dimensions in Inches (mm)						Catalog Number	
		A Lever Length ^②	B Roller Diameter	C Roller Width	D	E	F		G
E50KL545									
Fork Lever—Both Rollers on One Side									
Ball bearing	—	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.08 (2.0)	0.14 (3.6)	—	E50KL545	
Nylatron	—		0.75 (19.0)	0.32 (8.1)	0.16 (4.1)	0.20 (5.1)	—	E50KL204	
Metal	—		0.75 (19.0)	0.32 (8.1)	0.16 (4.1)	0.20 (5.1)	—	E50KL544	
Nylatron	—		0.75 (19.0)	1.00 (25.4)	0.84 (21.3)	0.88 (22.4)	—	E50KL543	
									
E50KL542									
Fork Lever—One Roller Outside, One Inside									
Ball bearing	—	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.08 (2.0)	0.14 (3.6)	0.64 (16.3)	0.70 (17.8)	E50KL542
Nylatron	—		0.75 (19.0)	0.32 (8.1)	0.16 (4.1)	0.20 (5.1)	0.73 (18.5)	0.77 (19.6)	E50KL203
Metal	—		0.75 (19.0)	0.32 (8.1)	0.16 (4.1)	0.20 (5.1)	0.73 (18.5)	0.77 (19.6)	E50KL541
									

Dimensions, see Page V8-T2-86.

Notes



- ① **Caution:** When selecting lever, the minimum required return torque of lever should not exceed minimum return force available in operating head as given in operating head specifications.
- ② Length from the operating shaft axis to the roller axis (or to the tip for non-roller operators).
- ③ Maximum length dimension between operating shaft axis to roller axis for comparison. Precision adjustable to lesser dimensions.
- ④ Applies when lever is extended to the maximum dimension.
- ⑤ By reassembling lever, minimum length can be reduced another 0.5 in (12.7 mm).
- ⑥ High-grade stainless steel.

Rod Type Operators






For rotary head switches: E50 Plug-In, E50 6P+, and 10316.

Note: Only operators with Nylatron rods or rollers should be used with explosion-proof limit switches.

Operators—Rod Type

Rod Type	Minimum Required Return Torque ^①	Approximate Dimensions in Inches (mm)			Catalog Number
		A Rod Length (Maximum) ^②	B Rod Diameter	C	
Adjustable Rod					
	Nylon	0.40 in-oz ^③	5.50 (140.0)	0.19 (4.8)	E50KL399
	Metal	0.92 in-oz ^③		0.12 (3.2)	E50KL202
	Metal	2.20 in-oz ^③	8.75 (222.0)	Rod size (square): 0.12 (3.2) x 0.12 (3.2)	E50KL581
	Stainless steel	7.00 in-oz ^③	9.00 (229.0)	0.19 (4.8)	E50KL220
	Bendable steel	5.00 in-oz ^③	12.00 (305.0)	0.12 (3.2)	E50KL226
Clamps for Adjustable Rods (Rod not included)					
Clamp for ...					
0.19 (4.8) diameter rods					E50KL35
0.12 (3.2) diameter rods					E50KL36
0.25 (6.4) diameter rods					E50KL41
Dimensions, see Page V8-T2-87.					

Operators—Rod Type, continued

Rod Type	Minimum Required Return Torque ^①	Approximate Dimensions in Inches (mm)				Catalog Number	
		A Rod Length ^②	B Rod Diameter	C	D		
Spring Rod							
	Nylon	3.50 in-oz	—	—	—	E50KL556	
	Stainless steel	2.80 in-oz	—	—	—	E50KL421	
Adjustable Wire							
	Nylon covered wire	1.50 in-oz ^③	—	—	—	E50KL533	
Adjustable Wide Roller Lever							
	Nylatron	4.50 in-oz ^③	—	—	—	E50KL37	
Nylatron Loop							
	Nylatron	0.40 in-oz	6.00 (152.0)	∅: 0.158 (4.0)	—	E50KL142	
Eye Bolt							
	Zinc-plated steel	0.53 in-oz	150.00 (38.1)	∅: 0.1875 (4.8) Loop ID: 0.375 (9.5)	0.52 (13.1)	0.24 (8.6)	E50KL33

Dimensions, see Page V8-T2-87.

Notes

- ^① **Caution:** When selecting lever, the minimum required return torque of lever should not exceed minimum return force available in operating head as given in operating head specifications.
- ^② Length from the operating shaft axis to tip.
- ^③ Applies when lever is extended to the maximum dimension.

Wobble Type Operators


For E50DW1 and E50DWZ Operator Heads on E50 Plug-In and E50 6P+ Switches.


2

Note: Only operators with Nylatron rods or rollers should be used with explosion-proof limit switches.

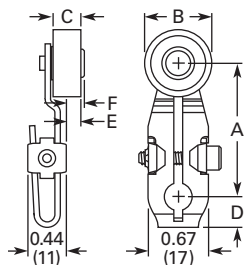
Operators—Wobble Type

	Wobble Type	Catalog Number
E50KW2	Nylon Rod	E50KW2
E50KW3	Stainless Steel Rod	E50KW3
E50KW4	Coil Spring	E50KW4





Dimensions, see Page V8-T2-88.

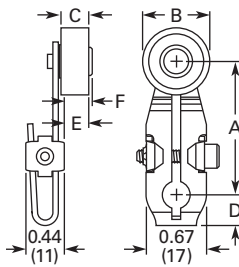
Dimensions**Roller Type Operators****Standard Roller**

Approximate Dimensions in Inches (mm)

Catalog Number	A Lever Length ^①	B Roller Diameter	C Roller Width	D	E	F
E50KL39	0.88 (22.2)	0.75 (19.0)	0.32 (8.1)	0.31 (7.9)	0.20 (5.1)	0.24 (6.1)
E50KL40	1.38 (34.9)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL531	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)
E50KL200	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL355	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL377	1.50 (38.1)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)
E50KL32	1.50 (38.1)	—	—	0.34 (8.6)	—	—
E50KL552	2.00 (50.8)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)
E50KL546	2.00 (50.8)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL549	2.00 (50.8)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL572	2.00 (50.8)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)
E50KL553	2.50 (63.5)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)
E50KL547	2.50 (63.5)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL550	2.50 (63.5)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL573	2.50 (63.5)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)
E50KL575	2.50 (63.5)	1.50 (38.1)	0.28 (7.1)	0.34 (8.6)	0.11 (2.8)	0.17 (4.3)
E50KL554	3.00 (76.2)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.05 (1.3)	0.11 (2.8)
E50KL548	3.00 (76.2)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL551	3.00 (76.2)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.13 (3.3)	0.17 (4.3)
E50KL574	3.00 (76.2)	0.75 (19.0)	1.00 (25.4)	0.34 (8.6)	0.83 (21.1)	0.83 (21.1)
E50KL576	3.00 (76.2)	1.50 (38.1)	0.28 (7.1)	0.34 (8.6)	0.11 (2.8)	0.17 (4.3)

Note

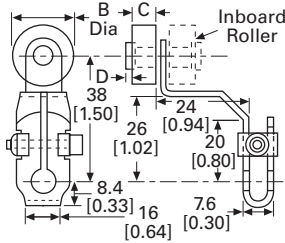
^① Length from the operating shaft axis to the roller axis (or to the tip for non-roller operators).



Roller on Reverse Side

Approximate Dimensions in Inches (mm)

Catalog Number	A Lever Length ①	B Roller Diameter	C Roller Width	D	E	F
E50KL580	1.50 (38.1)	0.69 (17.5)	0.25 (6.4)	0.34 (8.6)	0.18 (4.6)	0.24 (6.1)
E50KL310	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.27 (6.9)	0.31 (7.9)
E50KL579	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.34 (8.6)	0.27 (6.9)	0.31 (7.9)
E50KL536	1.50 (38.1)	1.50 (38.1)	0.28 (7.1)	0.34 (8.6)	0.23 (5.8)	0.31 (7.9)



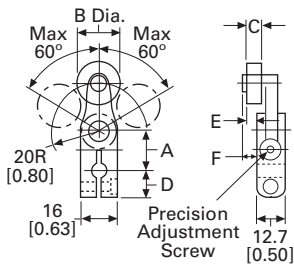
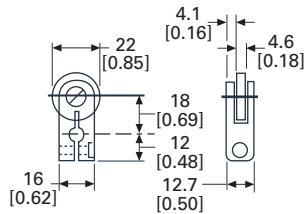
Offset Roller

Approximate Dimensions in mm [in]

Catalog Number	A Lever Length ①	B Roller Diameter	C Roller Width	D
Inboard				
E50KL24	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	0.8 [0.03]
E50KL25	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	0.8 [0.03]
E50KL26	38.1 [1.50]	17.5 [0.69]	6.4 [0.25]	1.0 [0.04]
Outboard				
E50KL27	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	0.8 [0.03]
E50KL28	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	0.8 [0.03]
E50KL29	38.1 [1.50]	17.5 [0.69]	6.4 [0.25]	1.0 [0.04]
E50KL30	38.1 [1.50]	19.0 [0.75]	25.4 [1.00]	—

Bantam Lever

Approximate Dimensions in mm [in]



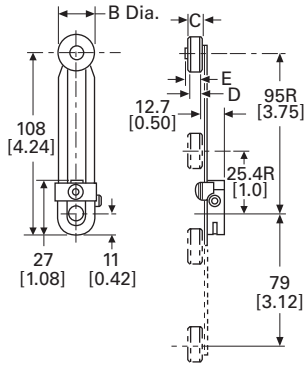
Precision Adjustment

Approximate Dimensions in mm [in]

Catalog Number	A Lever Length ①	B Roller Diameter	C Roller Width	D	E	F
E50KL340	17.5 [0.69]	19.0 [0.75]	8.1 [0.32]	12.2 [0.48]	6.1 [0.24]	7.1 [0.28]
E50KL465	Roller length: 38.1 [1.50] ②	19.0 [0.75]	8.1 [0.32]	12.2 [0.48]	6.1 [0.24]	7.1 [0.28]
E50KL535		17.5 [0.69]	6.4 [0.25]	12.2 [0.48]	4.1 [0.16]	5.6 [0.22]

Notes

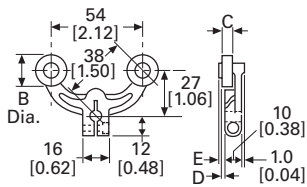
- ① Length from the operating shaft axis to the roller axis (or to the tip for non-roller operators).
- ② Maximum length dimension between operating shaft axis to the roller axis for comparison. Precision adjustable to lesser dimensions.



Adjustable Roller

Approximate Dimensions in mm [in]

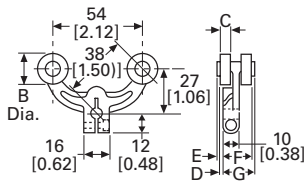
Catalog Number	A Lever Length ①	B Roller Diameter	C Roller Width	D	E
E50KL539	25.4 [1.0] to 95.2 [3.75] ②	17.5 [0.69]	6.4 [0.25]	5.8 [0.23]	7.6 [0.30]
E50KL201		19.0 [0.75]	8.1 [0.32]	7.4 [0.29]	8.4 [0.33]
E50KL201SPL ③		19.0 [0.75]	8.1 [0.32]	7.4 [0.29]	8.4 [0.33]
E50KL538		19.0 [0.75]	8.1 [0.32]	7.4 [0.29]	8.4 [0.33]
E50KL599		19.0 [0.75]	12.7 [0.50]	11.6 [0.46]	12.2 [0.48]
E50KL537		19.0 [0.75]	25.4 [1.00]	22.9 [0.90]	24.1 [0.95]
E50KL598	12.7 [0.50] to 82.6 [3.25]	102.0 [4.00]	2.8 [0.11]	4.8 [0.19]	24.1 [0.95]
E50KL31	12.7 [0.50] to 95.2 [3.75]	—	—	—	—
E50KL443	41.3 [1.63] to 95.2 [3.75] ②	38.1 [1.50]	7.4 [0.29]	6.6 [0.26]	8.1 [0.32]



Fork Lever—Both Rollers on One Side

Approximate Dimensions in mm [in]

Catalog Number	A Lever Length ①	B Roller Diameter	C Roller Width	D	E
E50KL545	38.1 [1.50]	17.5 [0.69]	6.4 [0.25]	2.0 [0.08]	3.6 [0.14]
E50KL204	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	4.1 [0.16]	5.1 [0.20]
E50KL544	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	4.1 [0.16]	5.1 [0.20]
E50KL543	38.1 [1.50]	19.0 [0.75]	25.4 [1.00]	21.3 [0.84]	22.4 [0.88]



Fork Lever—One Roller Outside, One Inside

Approximate Dimensions in mm [in]

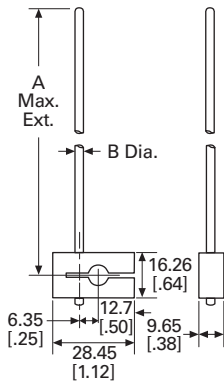
Catalog Number	A Lever Length ①	B Roller Diameter	C Roller Width	D	E	F	G
E50KL542	38.1 [1.50]	17.5 [0.69]	6.4 [0.25]	2.0 [0.08]	3.6 [0.14]	16.3 [0.64]	17.8 [0.70]
E50KL203	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	4.1 [0.16]	5.1 [0.20]	18.5 [0.73]	19.6 [0.77]
E50KL541	38.1 [1.50]	19.0 [0.75]	8.1 [0.32]	4.1 [0.16]	5.1 [0.20]	18.5 [0.73]	19.6 [0.77]

Notes

- ① Length from the operating shaft axis to the roller axis (or to the tip for non-roller operators).
- ② By reassembling lever, minimum length can be reduced another 12.7 mm [0.5 in].
- ③ High-grade stainless steel.

Approximate Dimensions in Inches or mm [in]

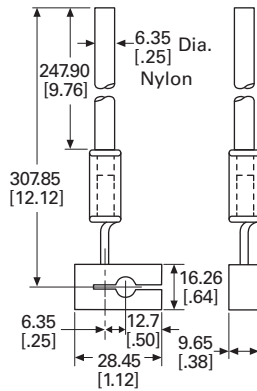
Rod Type Operators



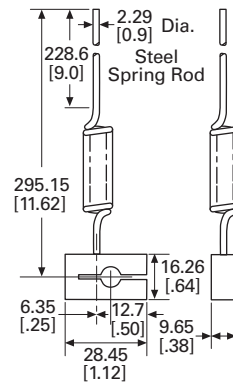
Adjustable Rod

Catalog Number	A Rod Length ①	B Rod Diameter
E50KL399	140.0 [5.50]	4.8 [0.19]
E50KL202		3.2 [0.12]
E50KL581	222.0 [8.75]	Rod size (square): 3.2 [0.12] x 3.2 [0.12]
E50KL220	229.0 [9.00]	4.8 [0.19]
E50KL226	305.0 [12.00]	3.2 [0.12]

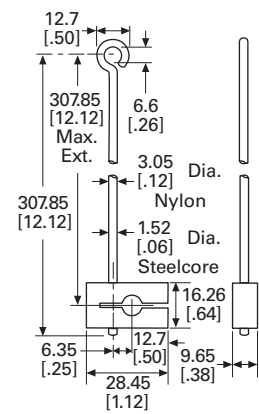
Spring Rod – E50KL556



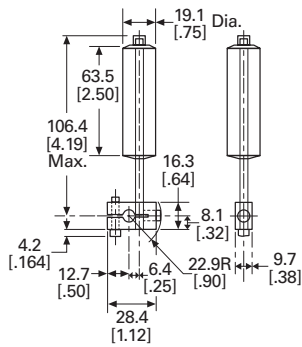
Spring Rod – E50KL421



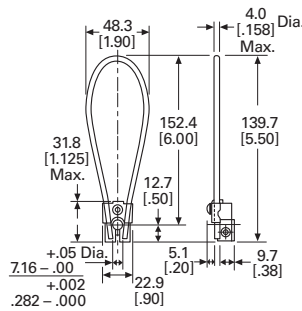
Adjustable Wire



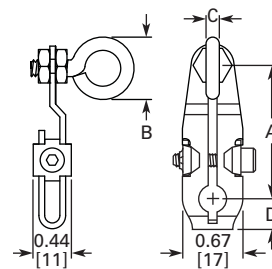
Adjustable Wide Roller Lever



Nylatron Loop – E50KL142



Eye Bolt



Catalog Number	A Rod Length ②	B Rod Diameter	C Rod Width	D
E50KL33	38.1 [1.50]	4.8 [0.1875]	13.1 [0.52]	8.6 [0.34]
			Loop ID: 9.5 [0.375]	

Notes

- ① Applies when lever is extended to the maximum dimension.
- ② Length from the operating shaft axis to tip.

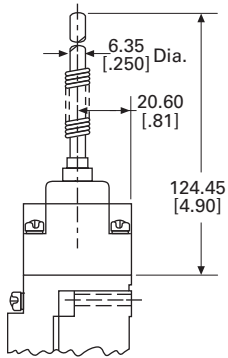
2.8

Limit Switches

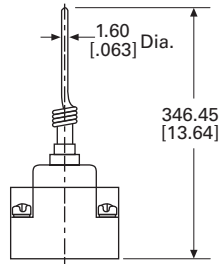
Operators

Wobble Type Operators

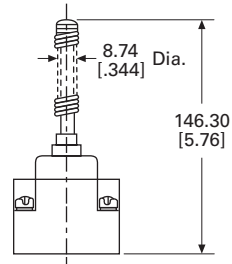
Nylon Rod



Stainless Steel Rod



Coil Spring



2