

# 3SE03 North American Limit Switches

## General Information

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### Features

Modular plug-in



Prewired receptacle with pin connector



Prewired cable



### Features

- UL Listed, CSA Certified.
- UL File: E47512
- All Metal Captive Screws.
- Keyed, Four-Directional Head.
- Steel-Reinforced Diaphragm Seal Between Operational Head And Switch Body.
- Permanent Instructions for Adjusting Operational Head.
- Modular, Plug-In Housing
  1. Heavy-Duty, Bifurcated, Plug-In Prongs.
  2. Ample Receptacle Wiring Space with 1/2 - NPT threaded conduit opening.
  3. Stepped Terminals On Single Pole; Deep Center Trough On Double Pole.
- NEMA Type 6P Submersible
  1. Completely Sealed With Epoxy.
  2. SOOW-A Cable or Prewired Receptacle With Pin Connector.
  3. Factory wired cable features a 350 pound pullput capacity.
- Rotary heads are field convertible CW, CCW, or both without special tools.

### Design

#### Modular Plug-In Housing

These heavy duty plug-in limit switches may be provided as complete devices using a composite catalog number; or, separately as components; operating head, plug-in module and base receptacle.

#### Example:

Complete Switch:

#### 3SE03-AR1

Single Pole, Double Throw contacts with Side Rotary, Momentary Head

Components

#### 3SE03-SA ①

Single Pole, Double Throw Plug-in Module

#### 3SE03-DR1

Side Rotary Head, Momentary

#### 3SE03-RA ①

Standard, Single Pole Receptacle, 1 NO + 1 NC

Since components may be interchanged, operating heads, plug-in modules and receptacles may be combined to satisfy most of your everyday limit switch requirements. This leads to less inventory with greater flexibility.

Operating heads include side rotary; plain and roller plunger; and, wobble. A variety of levers are available.

The zinc die-cast housing has an epoxy finish to protect against corrosion. All screws on the module and head are captive.

### NEMA Type 6P Submersible

These heavy duty prewired, factory sealed switches meet the demanding enclosure requirements of UL (NEMA) Type 3, 4, 4X, 6P, 12, and 13. They are intended for wet environments where the integrity of the threaded conduit and switch body seals must be assured.

The switch body cavity including threaded conduit entry is completely sealed with epoxy. An 8 foot, 5 or 9 conductor SOOW-A cable; or 5 or 9 pin prewired receptacle with pin connector is provided as standard.

Switches are provided as complete devices using composite catalog numbers; or, separately as components; operating head and switch body.

UL (NEMA) Type 6P switches are designed to provide a degree of protection against the entry of water during prolonged submersion at limited depths (tested with a 6 foot head of water for 24 hours).

Both the Modular Plug-in and the (NEMA) Type 6P Submersible styles provide 60 Amp make and 6 Amp break—120V AC and 10 Amp continuous current for 120, 240, 480 and 600V AC. The circuit contact configuration depends on the device selected and the application criteria.

Switches are available with momentary or maintained operating heads; and, single pole, double pole or center neutral (modular, plug-in only) contact configurations.

3SE03 limit switches offer a new standard of reliability and quality in automatic control circuits under heavy duty applications.

① Plug-in module and receptacle are keyed.

# 3SE03 North American Limit Switches Specifications

Modular, plug-in and NEMA type 6P submersible

## Technical data

Type	Modular, Plug-in and NEMA Type 6P Submersible					
<b>Mechanical life</b>	Side rotary: $13 \times 10^6$ make-break operations minimum					
<b>Electrical life</b>	All others: $10 \times 10^6$ make-break operations minimum Single Pole: $1 \times 10^6$ operations typical at full load Double Pole: $1 \times 10^5$ operations typical at full load					
<b>Switching frequency</b>	$8 \times 10^3$ make-break operations per hour (maximum)					
<b>Operating point accuracy</b>	Side operated: 0.0012 in. (modular, plug-in housing) Side rotary: 0.0014 in. (modular plug-in). Top operated: 0.0003 in. (modular, plug-in housing)					
<b>Cable entry</b>	1/2 in.-NPT, Prewired Cable or Prewired Receptacle with Pin Connector					
<b>Ambient temperature</b>	Without Cable: $-10^\circ$ to $+121^\circ\text{C}$ , $14^\circ$ to $250^\circ\text{F}$					
<b>Degree of protection</b>	With Cable: $-10^\circ$ to $+105^\circ\text{C}$ , $14^\circ$ to $221^\circ\text{F}$ NEMA Type 1, 3, 3S, 4, 4X, 6, 6P, 13; IP67					
<b>Conductor size</b>	22–12 AWG (modular, plug-in housing), single or stranded wire					
<b>Mounting</b>	5 or 9 conductor, 16 AWG yellow jacketed type SOOW-A cable (prewired cable)					
<b>Tightening Torque</b>	5 or 9 pin, 0.87 in. (22 mm) diameter receptacle (prewired receptacle with pin connector) Any position Switch body screws: 25–30 lb-in. Operating head screws: 14–18 lb-in.					
<b>NEMA rating</b>	DC, NEMA R300			AC, NEMA A600		
<b>Maximum current at</b>	<b>125V</b>	<b>250V</b>	<b>120V</b>	<b>240V</b>	<b>480V</b>	<b>600V</b>
<b>Make</b>	0.22A	0.11A	60A	30A	15A	12A
<b>Break</b>	0.22A	0.11A	6A	3A	1.5A	1.2A
<b>Max. volt-ampere</b>						
<b>Make</b>	28VA	28VA	7200VA	7200VA	7200VA	7200VA
<b>Break</b>	28VA	28VA	720VA	720VA	720VA	720VA
<b>Rated thermal current</b>	DC, 1A		AC, 10A			
<b>Rated operating voltage</b>	DC, 300V		AC, 600V			

## Operating temperature <sup>1) 2)</sup>

Temperature rating	Operation		Temperature range	
	Type	Return	Without cable	With cable
<b>1</b>	Side rotary <sup>3)</sup>	Momentary CW only or CCW only	$10^\circ\text{F}$ to $200^\circ\text{F}$ $-12^\circ\text{C}$ to $94^\circ\text{C}$	$10^\circ\text{F}$ to $200^\circ\text{F}$ $-12^\circ\text{C}$ to $94^\circ\text{C}$
<b>2</b>	Center neutral Side rotary Side plunger Two-sided plunger Roller side plunger <sup>4)</sup>	Momentary CW or CCW Maintained Momentary Maintained Momentary	$14^\circ\text{F}$ to $200^\circ\text{F}$ $-10^\circ\text{C}$ to $94^\circ\text{C}$	$14^\circ\text{F}$ to $200^\circ\text{F}$ $-10^\circ\text{C}$ to $94^\circ\text{C}$
<b>3</b>	Top plunger Top roller plunger <sup>4)</sup> Wobble head	Momentary Momentary Momentary	$14^\circ\text{F}$ to $250^\circ\text{F}$ $-10^\circ\text{C}$ to $121^\circ\text{C}$	$14^\circ\text{F}$ to $221^\circ\text{F}$ $-10^\circ\text{C}$ to $105^\circ\text{C}$

1) Temperature ranges below  $+32^\circ\text{F}$  ( $0^\circ\text{C}$ ) are based on absence of freezing moisture or water.

2) For temperature rating of specific switch, refer to page 13/70, Operating Heads.




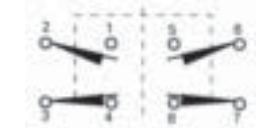









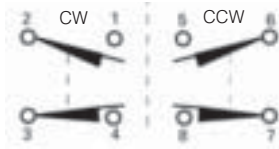

3) For CW only or CCW only operation, upper temperature limit increases to  $250^\circ\text{F}$  ( $121^\circ\text{C}$ ) without cable, and  $221^\circ\text{F}$  ( $105^\circ\text{C}$ ) with pre-wired cable.

4) Roller direction can be converted in the field.

# 3SE03 North American Limit Switches Selection

## Modular, plug-in metal housing

### Complete switches without lever - threaded cable entry:

	<b>Plug-In module type</b>	Standard single pole 1 NO + 1 NC (3SE03-SA)	Standard double pole 2 NO + 2 NC (3SE03-SB)			
	<b>Receptacle type surface mount</b>	Single pole (3SE03-RA) 	Double pole (3SE03-RB) 			
<b>Operating head type</b>		<b>Composite catalog number consisting of head, module and receptacle</b>				
		<b>Catalog Number</b>	<b>List Price \$ 1 unit</b>	<b>Catalog Number</b>	<b>List Price \$ 1 unit</b>	
	<b>Side rotary</b> CW and CCW operation convertible to CW only or CCW only	Standard momentary (3SE03-DR1)	<b>3SE03-AR1</b> <sup>ⓐ</sup>		<b>3SE03-BR1</b> <sup>ⓐ</sup>	
		Standard maintained (3SE03-DM1)	<b>3SE03-AM1</b>		<b>3SE03-BM1</b>	
		Low torqued momentary (3SE03-DL1)	<b>3SE03-AL1</b> <sup>ⓑ</sup>		<b>3SE03-BL1</b> <sup>ⓑ</sup>	
	<b>Plain side plunger</b>	Momentary (3SE03-DS1)	<b>3SE03-AS1</b>		<b>3SE03-BS1</b>	
	<b>Roller side plunger</b>	Momentary (3SE03-DS3)	<b>3SE03-AS3</b>		<b>3SE03-BS3</b>	
	<b>Two-sided plunger</b>	Maintained (3SE03-DH1)	<b>3SE03-AH1</b>		<b>3SE03-BH1</b>	
	<b>Plain top plunger</b>	Momentary (3SE03-DT1)	<b>3SE03-AT1</b>		<b>3SE03-BT1</b>	
	<b>Roller top plunger</b>	Momentary (3SE03-DT3)	<b>3SE03-AT3</b>		<b>3SE03-BT3</b>	
	<b>Wobble head (without lever)</b>	Momentary (3SE03-DW1)	<b>3SE03-AW1</b>		<b>3SE03-BW1</b>	
	<b>Plug-In module type</b>	Center neutral Double pole 2 NO + 2 NC (3SE03-SN)				
	<b>Receptacle type surface mount</b>	Center neutral (3SE03-RB) 				
<b>Operating head type</b>		<b>Composite catalog number consisting of head, module and receptacle</b>				
		<b>Catalog Number</b>	<b>List Price \$ 1 unit</b>			
	<b>Side rotary (momentary)</b>	Center Neutral	(3SE03-DN1) (3SE03-DN2)	<b>3SE03-NN1</b> <sup>ⓐ</sup> <b>3SE03-NN2</b> <sup>ⓑ</sup>		


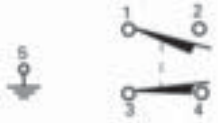
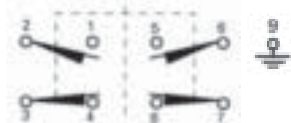
<sup>ⓐ</sup> 5° pretravel to operate contacts.








<sup>ⓑ</sup> 15° pretravel to operate contacts.

# 3SE03 North American Limit Switches Selection

## NEMA type 6P submersible, prewired cable

### Complete switches without lever - prewired cable:

 <p>Switch body type—prewired cable with 8 foot cable</p>	<p>Single pole 1 NO + 1 NC (3SE03-SA6P)</p> <p>Cable color code 1 - White 2 - Black 3 - Red 4 - Orange 5 - Green</p>	<p>Double pole 2 NO + 2 NC (3SE03-SB6P)</p> <p>Cable color code 1 - White      6 - Pink 2 - Black      7 - Yellow 3 - Red        8 - Blue 4 - Orange     9 - Green 5 - Brown</p>
		


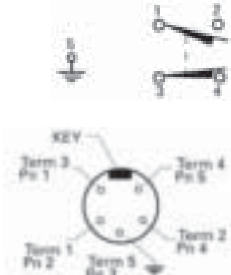
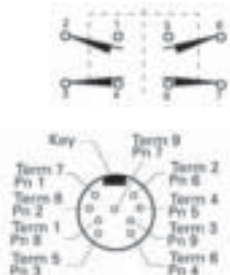
Operating head type		Composite catalog number consisting of head and switch body			
		Catalog Number	List Price \$ 1 unit	Catalog Number	List Price \$ 1 unit
 <p><b>Side rotary</b> CW and CCW operation convertible to CW only or CCW only</p>	Standard momentary (3SE03-DR1)	<b>3SE03-AR16P</b>		<b>3SE03-BR16P</b>	
	Standard maintained (3SE03-DM1)	<b>3SE03-AM16P</b>		<b>3SE03-BM16P</b>	
	Low torqued momentary (3SE03-DL1)	<b>3SE03-AL16P</b>		<b>3SE03-BL16P</b>	
 <p><b>Plain side plunger</b></p>	Momentary (3SE03-DS1)	<b>3SE03-AS16P</b>		<b>3SE03-BS16P</b>	
 <p><b>Roller side plunger</b></p>	Momentary (3SE03-DS3)	<b>3SE03-AS36P</b>		<b>3SE03-BS36P</b>	
 <p><b>Two-sided plunger</b></p>	Maintained (3SE03-DH1)	<b>3SE03-AH16P</b>		<b>Not available</b>	
 <p><b>Plain top plunger</b></p>	Momentary (3SE03-DT1)	<b>3SE03-AT16P</b>		<b>3SE03-BT16P</b>	
 <p><b>Roller top plunger</b></p>	Momentary (3SE03-DT3)	<b>3SE03-AT36P</b>		<b>3SE03-BT36P</b>	
 <p><b>Wobble head (without lever)</b></p>	Momentary (3SE03-DW1)	<b>3SE03-AW16P</b>		<b>3SE03-BW16P</b>	








# 3SE03 North American Limit Switches

## Selection

### NEMA type 6P submersible, prewired receptacle

#### Complete switches without lever - prewired receptacle with pin connector:

 <p>Switch Body Type—prewired receptacle with pin connector</p>	<p>Single pole 1 NO + 1 NC (3SE03-SA6PC)</p> 	<p>Double pole 2 NO + 2 NC (3SE03-SB6PC)</p> 
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Operating head type		Composite catalog number consisting of head and switch body			
		Catalog Number	List Price \$ 1 unit	Catalog Number	List Price \$ 1 unit
 <p><b>Side rotary</b> CW and CCW operation convertible to CW only or CCW only</p>	Standard momentary (3SE03-DR1)	3SE03-AR16PC		3SE03-BR16PC	
	Standard maintained (3SE03-DM1)	3SE03-AM16PC		3SE03-BM16PC	
	Low torqued momentary (3SE03-DL1)	3SE03-AL16PC		3SE03-BL16PC	
 <p><b>Plain side plunger</b></p>	Momentary (3SE03-DS1)	3SE03-AS16PC		3SE03-BS16PC	
 <p><b>Roller side plunger</b></p>	Momentary (3SE03-DS3)	3SE03-AS36PC		3SE03-BS36PC	
 <p><b>Two-sided plunger</b></p>	Maintained (3SE03-DH1)	3SE03-AH16PC		Not available	
 <p><b>Plain top plunger</b></p>	Momentary (3SE03-DT1)	3SE03-AT16PC		3SE03-BT16PC	
 <p><b>Roller top plunger</b></p>	Momentary (3SE03-DT3)	3SE03-AT36PC		3SE03-BT36PC	
 <p><b>Wobble head (without lever)</b></p>	Momentary (3SE03-DW1)	3SE03-AW16PC		3SE03-BW16PC	

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# 3SE03 North American Limit Switches Selection

Modular, plug-in and NEMA 6P submersible



## Components:

 Plug-in module	Plug-in module		Catalog Number	List Price \$ 1 unit
	Standard single pole 1 NO + 1 NC		3SE03-SA	
	Standard double pole 2 NO + 2 NC		3SE03-SB	
	Center neutral 2 NO + 2 NC <sup>①</sup>		3SE03-SN	









  

 Receptacle	Receptacle for plug-in module		Catalog Number	List Price \$ 1 unit
	Single pole 1 NO + 1 NC (5 terminals)		3SE03-RA	
	Single pole 2 NO + 2 NC (9 terminals)		3SE03-RB	

## Switch body-NEMA type 6P submersible:

 Prewired cable	Switch body	Prewired cable 8 foot length		Prewired receptacle with pin connector	
		Catalog Number	List Price \$ 1 unit	Catalog Number	List Price \$ 1 unit
 Prewired receptacle	Single pole 1 NO + 1 NC	3SE03-SA6P		—	—
	Single pole 2 NO + 2 NC	3SE03-SB6P		—	—
	Single pole 1 NO + 1 NC	—	—	3SE03-SA6PC	
	Single pole 2 NO + 2 NC	—	—	3SE03-SB6PC	

## Operating heads<sup>②</sup>:

Operating head type		Nominal operating data							
		Total travel	Pretravel	Operating force	Release position	Minimum return force	Operating temp range <sup>④</sup>	Catalog Number	List Price \$ 1 unit
 Side rotary <sup>⑤</sup>	Standard momentary <sup>⑥</sup>	90°	5°	3 lb-in.	2°	4.5 oz-in.	1	3SE03-DR1	
	Low torqued momentary <sup>⑥</sup>	90°	15°	1.5 lb-in.	6°	2.5 oz-in.	1	3SE03-DL1	
	Standard maintained	90°	50°	3 lb-in.	50°	—	2	3SE03-DM1	
 Plain side plunger	Momentary	0.25 in.	0.065 in.	4 lbs	0.03 in.	8 oz.	2	3SE03-DS1	
 Roller side plunger	Momentary <sup>⑦</sup>	0.25 in.	0.065 in.	4 lbs	0.03 in.	8 oz.	2	3SE03-DS3	
 Two-sided plunger	Maintained	0.32 in.	0.2 in.	5 lbs	0.13 in.	5 lbs	2	3SE03-DH1	
 Plain top plunger	Momentary	0.28 in.	0.04 in.	4 lbs	0.02 in.	8 oz.	3	3SE03-DT1	
 Roller top plunger	Momentary	0.28 in.	0.04 in.	4 lbs	0.02 in.	8 oz.	3	3SE03-DT3	
 Wobble head <sup>⑧⑨</sup>	Momentary	15°	10°	2 lb-in.	6°	2.4 oz-in.	3	3SE03-DW1	
 Center neutral <sup>⑩⑪</sup>	Momentary	90°	5°	1.8 lb-in.	2°	2.5 oz-in.	2	3SE03-DN1	
		90°	15°	1.8 lb-in.	2°	2.5 oz-in.	2	3SE03-DN2	

① For use with 3SE03-DN1, -DN2 operating heads and 3SE03-RB receptacle only.

② For use with modular, Plug-in and NEMA Type 6P.

③

④ Refer to "Operating Temperature", Catalog page 13/118 for Temperature Ranges.

⑤ Without Operating Levers.

⑥ CW and CCW operation. Convertible to CW or CCW operation only.

⑦ Convertible—Horizontal to Vertical.






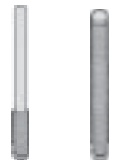
⑧ Requires Lever.

⑨ For use with 3SE03-SN plug-in module only.


# 3SE03 North American Limit Switches Selection

Modular, plug-in metal housing

## Levers for plug-in and non-plug-in versions—most widely used

Description		Length <sup>①</sup>	Roller mounted on side of lever	Roller material	Roller diameter	Roller face width	Max required return torque <sup>②</sup> (oz-in.)	Catalog Number	List Price \$ 1 unit
	Roller crank lever <sup>③</sup>	1.5 (38)	Front	Nylatron	0.75 (19)	0.31 (8)	0.53	3SX03-KL200	
		1.5 (38)	Front	Cast aluminum	0.75 (19)	0.31 (8)	1.10	3SX03-KL355	
		1.5 (38)	Back	Cast aluminum	0.75 (19)	0.31 (8)	1.10	3SX03-KL579	
	Fork lever	1.5 (38)	Back / back	Nylatron	0.75 (19)	0.31	-	3SX03-KL204	
	Adjustable radius lever <sup>④</sup>	1-3.5 (25-89)	Front	Nylatron	0.75 (19)	0.31 (8)	1.90 <sup>⑤</sup>	3SX03-KL201	
		1-3.5 (25-89)	Front	Metal	0.75 (19)	0.31 (8)	3.40 <sup>⑤</sup>	3SX03-KL538	
	Rod lever	9 (229)	-	Stainless steel	-	-	7.00 <sup>⑤</sup>	3SX03-KL220	
	Adjustable spring rod	12.125 (308)	-	Nylon	-	-	3.50 <sup>⑤</sup>	3SX03-KL556	
	Flexible loop lever	6 (152)	-	Nylatron	-	-	0.40	3SX03-KL142	
<b>Levers</b>									
	Rod	-	-	Nylon	-	-	-	3SX03-KW2	
	Coil spring	-	-	Coil spring	-	-	-	3SX03-KW4	
	For plunger actuated switches wobble actuators	⑥							

## Levers for plug-in and non-plug-in versions:

Operator	Length <sup>①</sup>	Roller			Max required return torque <sup>②</sup> (oz-in.)	Catalog Number		List Price \$ 1 unit
		Type	Diameter	Face (width)		Stainless steel	Cast aluminum	
	0.87 (22)	Metal	0.75 (19)	0.31 (8)	0.62	-	3SX03-KL39	
	1.37 (35)	Metal	0.75 (19)	0.31 (8)	0.95	-	3SX03-KL40	
	1.50 (38)	Nylatron	0.75 (19)	1.00 (25)	0.92	-	3SX03-KL337	
		Ball bearing	0.69 (17)	0.25 (6)	0.77	-	3SX03-KL531	
		Without roller	-	-	0.32	-	3SX03-KL32	
	2.00 (51)	Nylatron	0.75 (19)	0.31 (8)	0.71	-	3SX03-KL546	
		Nylatron	0.75 (19)	1.00 (25)	1.45	-	3SX03-KL572	
		Metal	0.75 (19)	0.31 (8)	1.5	-	3SX03-KL549	
		Ball bearing	0.69 (17)	0.25 (6)	1.1	-	3SX03-KL552	
	250 (64)	Nylatron	0.75 (19)	0.31 (8)	1.0	-	3SX03-KL547	
Nylatron		0.75 (19)	1.00 (25)	1.8	-	3SX03-KL573		
Nylatron		1.5 (38)	0.28 (7)	1.4	-	3SX03-KL575		
Metal		0.75 (19)	0.31 (8)	2.0	-	3SX03-KL550		
Ball bearing		0.69 (17)	0.25 (6)	1.5	-	3SX03-KL553		
Cast aluminum	3.00 (76)	Nylatron	0.75 (19)	0.31 (8)	1.3	-	3SX03-KL548	
		Nylatron	0.75 (19)	1.00 (25)	2.3	-	3SX03-KL574	
		Nylatron	1.5 (38)	0.28 (7)	1.8	-	3SX03-KL576	
		Metal	0.75 (19)	0.31 (8)	2.5	-	3SX03-KL551	
		Ball bearing	0.69 (17)	0.25 (6)	1.8	-	3SX03-KL554	

All dimensions shown in inches and (millimeters). For reference purposes only. Not to be used for design or construction purposes.

① Roller lever: Length from the operating shaft axis to the roller axis.  
All other: Length from the operating shaft axis to the tip.

② Caution—When selecting lever, required return torque should not exceed minimum return torque in operating head.




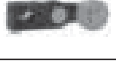



③ Cap screw accommodates 3/64 inch Allen wrench.  
④ By re-assembling lever minimum can be reduced another 0.50 (13).

⑤ Applies when lever extended to maximum dimension.  
⑥ See dimensions page 13/76.



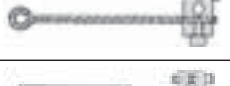
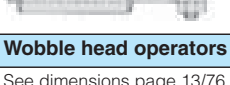
# 3SE03 North American Limit Switches Selection

Modular, plug-in and NEMA type 6P submersible

## Levers for plug-in and non-plug-in versions—most widely used

Operator	Length <sup>①</sup> Inches (mm)	Roller			Min. required return torque oz-in. <sup>⑤</sup>	Catalog Number			
		Type	Diameter In. (mm)	Face width in. (mm)		Stainless steel	Cast aluminum	List Price \$ 1 unit	
<b>Roller levers</b>									
	Roller on reverse side	1.50 (38)	Nylatron	0.75 (19)	0.31 (8)	0.53	—	<b>3SX03-KL310</b>	
			Nylatron	1.5 (38)	0.28 (7)	0.96	—	<b>3SX03-KL536</b>	
			Ball bearing	0.69 (17)	0.25 (6)	0.77	—	<b>3SX03-KL580</b>	
	Offset lever (Inboard roller shown)	1.50 (38)	Inboard roller	Nylatron	0.75 (19)	0.31 (8)	0.65	<b>3SX03-KL24</b>	—
			Metal	0.75 (19)	0.31 (8)	1.20	—	<b>3SX03-KL25</b>	—
			Ball bearing	0.69 (17)	0.25 (6)	0.90	—	<b>3SX03-KL26</b>	—
		1.50 (38)	outboard roller	Nylatron	0.75 (19)	0.31 (8)	0.65	<b>3SX03-KL27</b>	—
			Metal	0.75 (19)	0.31 (8)	1.20	—	<b>3SX03-KL28</b>	—
			Ball bearing	0.69 (17)	0.25 (6)	0.90	—	<b>3SX03-KL29</b>	—
Nylatron	0.75 (19)	1 (25)	1.10	—	<b>3SX03-KL30</b>	—			
	Bantam lever	0.69 (18)	Metal	0.88 (22)	0.19 (5)	0.45	<b>3SX03-KL532</b>		
	Precision adjustment	1.50 (38) <sup>②</sup>	Nylatron	0.75 (19)	0.31 (8)	0.65	<b>3SX03-KL340</b>		
			Metal	0.75 (19)	0.31 (8)	1.20	<b>3SX03-KL465</b>		
			Ball bearing	0.69 (17)	0.25 (6)	0.90	<b>3SX03-KL535</b>		
	Adjustable roller	1–3.75 (25–95) <sup>③</sup>	Nylatron	0.75 (19)	0.5 (13)	1.90 <sup>④</sup>	<b>3SX03-KL599</b>		
		1–3.75 (25–95) <sup>③</sup>	Nylatron	0.75 (19)	1 (25)	3.10 <sup>④</sup>	<b>3SX03-KL537</b>		
		1.62–3.75 (41–95) <sup>③</sup>	Nylatron	1.5 (38)	0.28 (7)	2.50 <sup>④</sup>	<b>3SX03-KL443</b>		
		0.50–3.75 (13–95)	Large nylatron	4 (102)	0.11 (3)	4.50 <sup>④</sup>	<b>3SX03-KL598</b>		
		1–3.75 (25–95) <sup>③</sup>	Ball bearing	0.69 (17)	0.25 (6)	2.50 <sup>④</sup>	<b>3SX03-KL539</b>		
		0.50–3.75 (13–95)	Without roller	—	—	1.20 <sup>④</sup>	<b>3SX03-KL31</b>		
	Fork lever _ both rollers one side	1.50 (38)	Nylatron	0.75 (19)	1 (25)	—	<b>3SX03-KL543</b>		
			Metal	0.75 (19)	0.31 (8)	—	<b>3SX03-KL544</b>		
			Ball bearing	0.69 (17)	0.25 (6)	—	<b>3SX03-KL545</b>		
	Fork lever _ both rollers outside, one side	1.50 (38)	Nylatron	0.75 (19)	0.31 (8)	—	<b>3SX03-KL203</b>		
			Metal	0.75 (19)	0.31 (8)	—	<b>3SX03-KL541</b>		
			Ball bearing	0.69 (17)	0.25 (6)	—	<b>3SX03-KL542</b>		

## Levers for plug-in and non-plug-in versions:

Operator		Length <sup>①</sup> Inches (mm)	Description Inches (mm)	Min. required return force oz-in. <sup>⑤</sup>	Catalog Number	List Price \$ 1 unit
	Adjustable rod	5.50 (140) Max.	Nylon Rod—0.19 (5) Dia.	0.40 <sup>④</sup>	<b>3SX03-KL399</b>	
		5.50 (140) Max.	Metal Rod—0.12 (3) Dia.	0.92 <sup>④</sup>	<b>3SX03-KL202</b>	
		8.75 (222) Max.	Metal Rod (Square)—0.12 (3) Max.	2.20 <sup>④</sup>	<b>3SX03-KL581</b>	
		12 (305) Max.	Steel (Formable) Rod—0.12 (3) Dia.	5.00 <sup>④</sup>	<b>3SX03-KL226</b>	
		—	Clamp Only—0.19 (5) Hole	—	<b>3SX03-KL35</b>	
		—	Clamp Only—0.12 (3) Hole	—	<b>3SX03-KL36</b>	
	Spring rod	11.62 (295)	Metal rod	2.80	<b>3SX03-KL421</b>	
	Adjustable wire	12.12 (308) max.	Nylon covered wire	1.50 <sup>④</sup>	<b>3SX03-KL533</b>	
	Adjustable wide roller lever	3.9 (99)	0.75 (19) Dia. Nylatron Roller 0.19 (30) Dia. Rod	4.50 <sup>④</sup>	<b>3SX03-KL37</b>	
<b>Wobble head operators</b>						
See dimensions page 13/76	Stainless steel rod	—	Rod diameter - 0.06 (2)	—	<b>3SX03-KW3</b>	

① Length from operating shaft axis to the roller axis.

② Maximum dimensions, precision adjustable to lesser dimensions.

③ By re-assembling lever minimum can be reduced by 1/2 in.

④ Applies when lever extended to maximum dimension.

⑤ Caution—When selecting lever, required return torque should not exceed minimum return force in operating head.

All dimensions shown in inches and (millimeters). For reference purposes only. Not to be used for design or construction purposes.



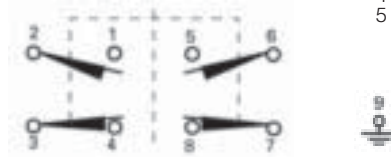
### Modular, plug-in and NEMA type 6P submersible

#### Wiring diagrams

Single Pole  
1 NO - 1 NC

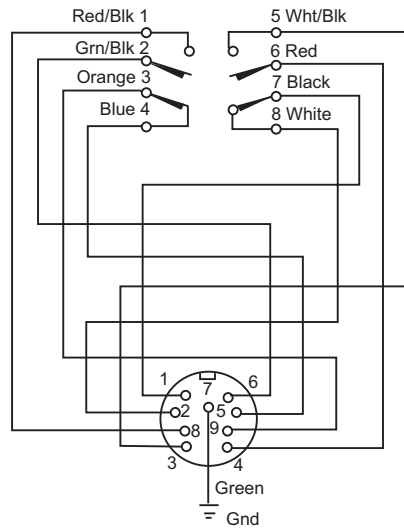
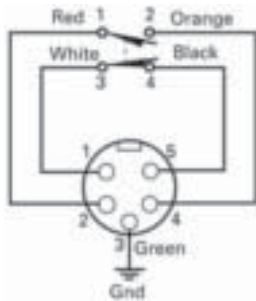


Double Pole  
1 NO - 1 NC



Cable color code  
 1 - White 6 - Pink  
 2 - Black 7 - Yellow  
 3 - Red 8 - Blue  
 4 - Orange 9 - Green  
 5 - Brown  
 Pre-wired cable

#### Modular, plug-in and prewired cable



#### Prewired receptacle with pin connector

#### Typical connector cable (supplied by user)

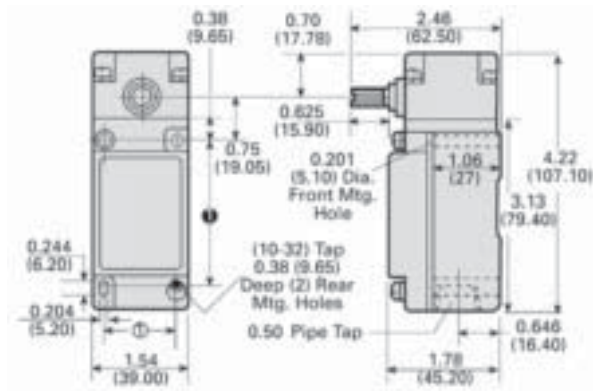
Cable length ft.	Manufacturers part number			
	Daniel Woodhead Brad Harrison	Cooper Crouse-Hinds	Molex (Industrial Interface)	Lumberg USA
<b>5 Pin connector cable</b>				
3	105000A01F030	5000111-3_	14541	RK50-77/1M
6	105000A01F060	5000111-4_	14542	RK50-77/2M
12	105000A01F120	5000111-5_	14544	RK50-77/4M
<b>9 Pin connector cable</b>				
3	309000A01F030	X8990-3	-	-
6	309000A01F060	X8990-4	-	-
12	309000A01F120	X8990-5	-	-

# 3SE03 North American Limit Switches

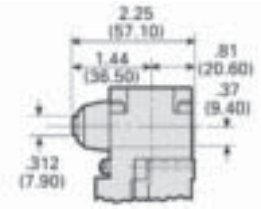
## Dimensions

Modular, plug-in and NEMA type 6P submersible

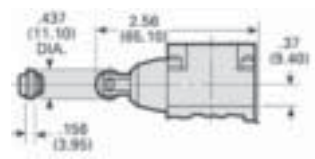
### Dimension drawings



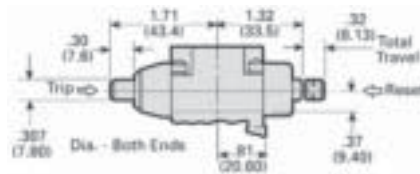
Plain side plunger



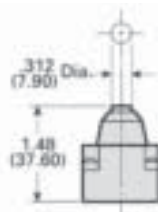
Roller side plunger



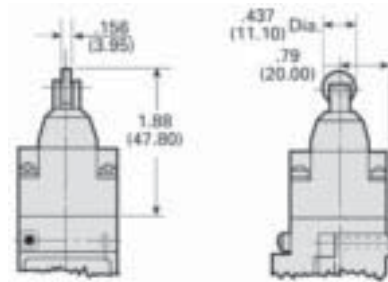
Two side plungers



Plain top plunger



Roller top plunger



### Rotary lever operators

Catalog Number	Dimensions						Catalog Number	Dimensions					
	A	B	C	D	E	F		A	B	C	D	E	F
3SX03-KL200	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.44 (11.2)	0.20 (5.1)	0.24 (6.1)	3SX03-KL554	3.00 (76.2)	0.688 (17.5)	0.25 (6.4)	0.42 (10.7)	0.12 (3.0)	0.18 (4.6)
3SX03-KL355	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.44 (11.2)	0.20 (5.1)	0.24 (6.1)	3SX03-KL572	2.00 (50.8)	0.75 (19.0)	1.00 (25.4)	0.42 (10.7)	0.90 (22.9)	0.90 (22.9)
3SX03-KL377	1.50 (38.1)	0.75 (19.0)	1.00 (25.4)	0.44 (11.2)	0.90 (22.9)	0.90 (22.9)	3SX03-KL573	2.50 (63.5)	0.75 (19.0)	1.00 (25.4)	0.42 (10.7)	0.90 (22.9)	0.90 (22.9)
3SX03-KL531	1.50 (38.1)	0.688 (17.5)	0.25 (6.4)	0.44 (11.2)	0.12 (3.0)	0.18 (4.6)	3SX03-KL574	3.00 (76.2)	0.75 (19.0)	1.00 (25.4)	0.42 (10.7)	0.90 (22.9)	0.90 (22.9)
3SX03-KL546	2.00 (50.8)	0.75 (19.0)	0.32 (8.1)	0.42 (10.7)	0.20 (5.1)	0.24 (6.1)	3SX03-KL575	2.50 (63.5)	1.50 (38.1)	0.29 (7.4)	0.42 (10.7)	0.18 (4.6)	0.24 (6.1)
3SX03-KL547	2.50 (63.5)	0.75 (19.0)	0.32 (8.1)	0.42 (10.7)	0.20 (5.1)	0.24 (6.1)	3SX03-KL576	3.00 (76.2)	1.50 (38.1)	0.29 (7.4)	0.42 (10.7)	0.18 (4.6)	0.24 (6.1)
3SX03-KL548	3.00 (76.2)	0.75 (19.0)	0.32 (8.1)	0.42 (10.7)	0.20 (5.1)	0.24 (6.1)	<b>With rollers on reverse side</b>						
3SX03-KL549	2.00 (50.8)	0.75 (19.0)	0.32 (8.1)	0.42 (10.7)	0.20 (5.1)	0.24 (6.1)	3SX03-KL310	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.44 (11.2)	0.34 (8.6)	0.38 (9.7)
3SX03-KL550	2.50 (63.5)	0.75 (19.0)	0.32 (8.1)	0.42 (10.7)	0.20 (5.1)	0.24 (6.1)	3SX03-KL536	1.50 (38.1)	1.50 (38.1)	0.28 (7.1)	0.44 (11.2)	0.30 (7.6)	0.38 (9.7)
3SX03-KL551	3.00 (76.2)	0.75 (19.0)	0.32 (8.1)	0.42 (10.7)	0.20 (5.1)	0.24 (6.1)	3SX03-KL579	1.50 (38.1)	0.75 (19.0)	0.32 (8.1)	0.44 (11.2)	0.34 (8.6)	0.38 (9.7)
3SX03-KL552	2.00 (50.8)	0.688 (17.5)	0.25 (6.4)	0.42 (10.7)	0.12 (3.0)	0.18 (4.6)	3SX03-KL580	1.50 (38.1)	0.688 (17.5)	0.25 (6.4)	0.44 (11.2)	0.25 (6.4)	0.31 (7.9)
3SX03-KL553	2.50 (63.5)	0.688 (17.5)	0.25 (6.4)	0.42 (10.7)	0.12 (3.0)	0.18 (4.6)							

All dimensions shown in inches and (millimeters). For reference purpose only. Not to be used for design or construction purposes.

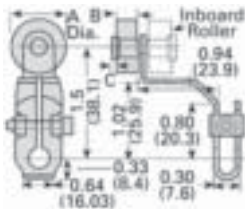
① Can accommodate both U.S. 1.16 (29.4) x 2.34 (59.5) and DIN 1.18 (30.0) x 2.36 (60.0) mounting dimensions.

# 3SE03 North American Limit Switches

## Dimensions

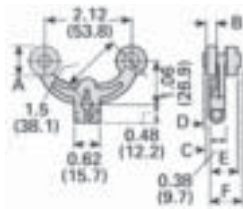
Modular, plug-in and NEMA type 6P submersible

### Dimension drawings



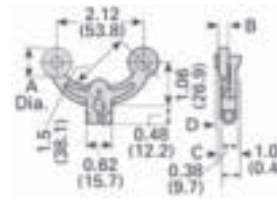
#### Offset roller levers

Catalog Number	Dimensions		
	A	B	C
<b>Outboard roller</b>			
3SX03-KL27	0.75 (19)	0.32 (8)	0.03 (1)
3SX03-KL28	0.75 (19)	0.32 (8)	0.03 (1)
3SX03-KL29	0.69 (18)	0.25 (6)	0.04 (1)
3SX03-KL30	0.75 (19)	1.0 (25)	-
<b>Inboard roller</b>			
3SX03-KL24	0.75 (19)	0.32 (8)	0.03 (1)
3SX03-KL25	0.75 (19)	0.32 (8)	0.03 (1)
3SX03-KL26	0.69 (18)	0.25 (6)	0.04 (1)



#### Fork lever, one roller inside, one roller outside

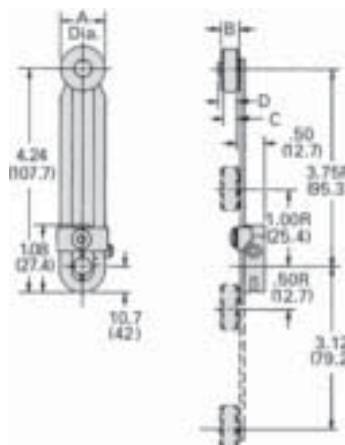
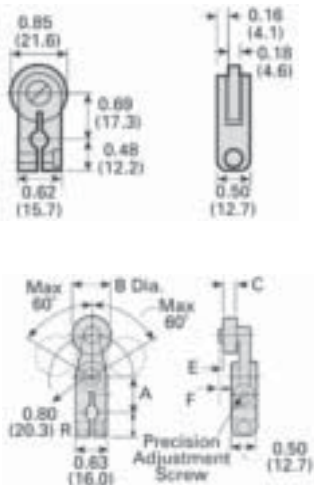
Catalog Number	Dimensions					
	A	B	C	D	E	F
3SX03-KL203	0.75 (19)	0.32 (8)	0.16 (4)	0.20 (5)	0.73 (19)	0.77 (20)
3SX03-KL541	0.75 (19)	0.32 (8)	0.16 (4)	0.20 (5)	0.73 (19)	0.77 (20)
3SX03-KL542	0.69 (18)	0.25 (6)	0.08 (2)	0.14 (4)	0.64 (16)	0.70 (18)



#### Fork lever - Both rollers on one side

Catalog Number	Dimensions			
	A	B	C	D
3SX03-KL204	0.75 (19)	0.32 (8)	0.16 (4)	0.20 (5)
3SX03-KL543	0.75 (19)	1.0 (25)	0.86 (22)	0.86 (22)
3SX03-KL544	0.75 (19)	0.32 (8)	0.16 (4)	0.20 (5)
3SX03-KL545	0.69 (18)	0.25 (6)	0.08 (2)	0.1 (3)

#### Bantam roller lever



#### Precision adjustment roller lever

Catalog Number	Dimensions					
	A	B	C	D	E	F
3SX03-KL340	0.69 (18)	0.75 (19)	0.32 (8)	0.48 (12)	0.24 (6)	0.28 (7)
3SX03-KL465	0.69 (18)	0.75 (19)	0.32 (8)	0.48 (12)	0.24 (6)	0.28 (7)
3SX03-KL535	0.69 (18)	0.69 (18)	0.25 (6)	0.48 (12)	0.16 (4)	0.22 (6)

#### Adjustable roller lever

Catalog Number	Dimensions			
	A	B	C	D
3SX03-KL201	0.75 (19)	0.32 (8)	0.29 (7)	0.33 (8)
3SX03-KL443	1.5 (38)	0.29 (7)	0.26 (7)	0.32 (8)
3SX03-KL537	0.75 (19)	0.32 (8)	0.29 (7)	0.33 (8)
3SX03-KL538	0.69 (18)	0.25 (6)	0.21 (5)	0.27 (7)
3SX03-KL539	0.69 (18)	0.25 (6)	0.21 (5)	0.27 (7)
3SX03-KL598	0.39 (10)	0.11 (3)	0.11 (3)	0.19 (5)
3SX03-KL599	0.75 (19)	0.5 (13)	0.46 (12)	0.47 (12)

All dimensions shown in inches and (millimeters). For reference purposes only. Not to be used for design or construction purposes.

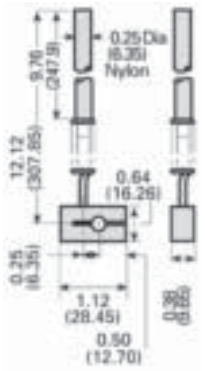
# 3SE03 North American Limit Switches

## Dimensions

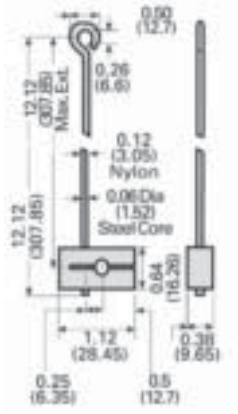
Modular, plug-in and NEMA type 6P submersible

### Dimension drawings

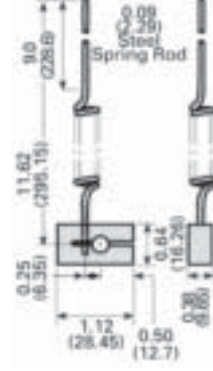
Nylon Spring Rod Actuator  
3SX03-KL556



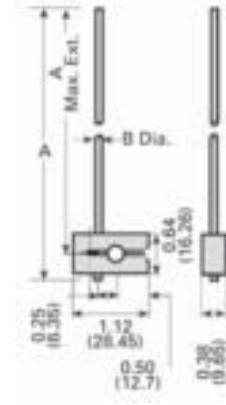
Nylon Covered Wire Actuator  
3SX03-KL533



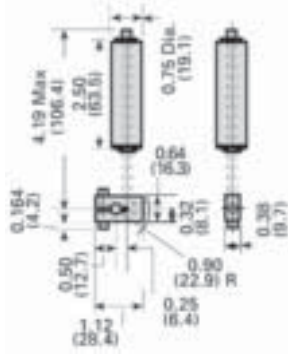
Stainless Steel Spring Actuator  
3SX03-KL421



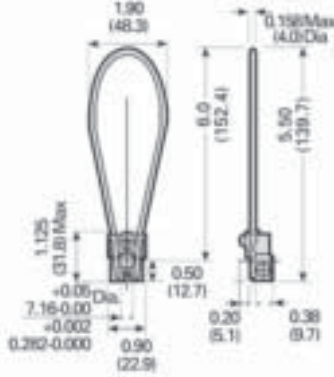
Adjustable Rod Actuator



Adjustable Wire Roller Actuator  
3SX03-KL37



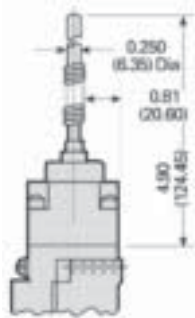
Nylon Loop Actuator  
3SX03-KL142



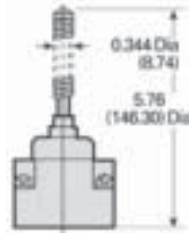
### Adjustable rod actuators

Catalog Number	Material	Dimensions	
		A	B
3SX03-KL202	Steel-Round	5.50 (140)	0.120 (3)
3SX03-KL581	Steel-Square	8.75 (222)	0.125 (3)
3SX03-KL399	Nylon	5.50 (140)	0.190 (5)
3SX03-KL220	Stainless Steel	9.00 (229)	0.190 (5)
3SX03-KL226	Plated Steel	12.0 (305)	0.120 (3)

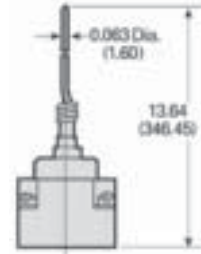
Wobble head with nylon head  
3SE03-DW1  
3SX03-KW2



Wobble head with coil spring  
3SE03-DW1  
3SX03-KW4



Wobble head with stainless steel rod  
3SE03-DW1  
3SX03-KW3



All dimensions shown in inches and (millimeters). For reference purposes only. Not to be used for design or construction purposes.

# 3SE03 North American Enclosed Switches Selection

3SE03  
Metal enclosure

## Description

### Features

- NEMA 1 Enclosed Aluminum Die Cast Housing
- Screw Terminals
- Booted versions for added protection

- 1/2" Conduit Entrance
- NEMA A600, R300 Contacts
- UL Recognized
- CSA Certified
- INO/INC Snap-action contacts (form c)

### Application

These switches are designed for accurate repeatability. Their compact size makes them ideal for use in space-restricted areas.

Typical applications include overhead, folding and elevator doors, sliding gates and other automated equipment.

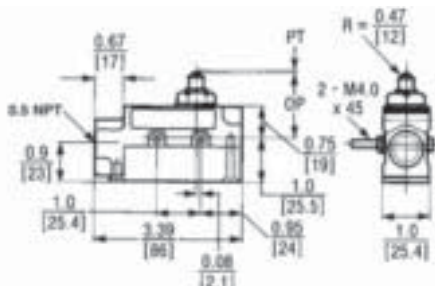
## Overall dimensions

## Specifications ①

## Catalog Number

## List Price \$ 1 unit

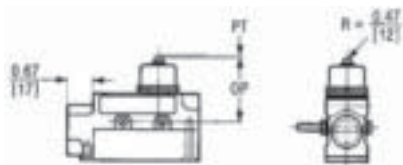
### Plunger actuator



OF Max. - 8.82 - 12.3 oz. (250 - 350 g)  
 RF Min. 4.02 oz. (114 g)  
 PT Max. - 0.016 in. (0.4 mm)  
 OT Min. - 0.217 in. (5.5 mm)  
 MD Max. - 0.002 in. (0.05 mm)  
 OP - 1.504 in. (38.2 mm)

3SE03 - EB05

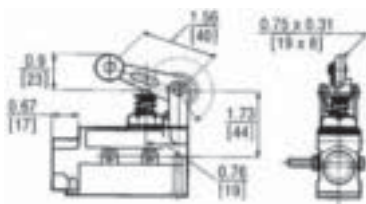
### Booted plunger



OF Max. - 28.22 oz. (800 g)  
 RF Min. 8.46 oz. (240 g)  
 PT Max. - 0.079 in. (2.0 mm)  
 OT Min. - 0.197 in. (5.0 mm)  
 MD Max. - 0.004 in. (0.1 mm)  
 OP - 1.803 in. (45.8 mm)

3SE03 - EB06

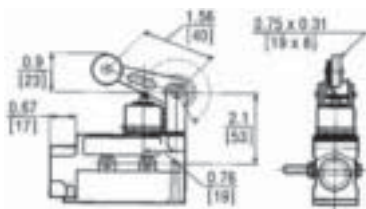
### Roller lever



OF Max. - 20.1 oz. (570 g)  
 RF Min. 6.0 oz. (170 g)  
 PT Max. - 0.157 in. (4.0 mm)  
 OT Min. - 0.236 in. (6.0 mm)  
 MD Max. - 0.016 in. (0.4 mm)

3SE03 - EB32

### Booted roller lever



OF Max. - 22.57 oz. (640 g)  
 RF Min. 8.11 oz. (230 g)  
 PT Max. - 0.197 in. (5.0 mm)  
 OT Min. - 0.236 in. (6.0 mm)  
 MD Max. - 0.016 in. (0.4 mm)

3SE03 - EB33

① OF = Operating Force  
 RF = Return Force  
 PT = Pretravel  
 OT = Operating Travel  
 MD = Movement Differential  
 OP = Operating Position

# 3SE03 North American Enclosed Switches

## Specifications

### 3SE03 Metal enclosure

#### Dimension drawings

Overall dimensions	Specifications	Catalog Number	List Price \$ 1 unit
<b>Roller plunger</b> 	OF Max. - 9.92 - 12.3 oz. (250 - 350 g) RF Min. 4.02 oz. (114 g) PT Max. - 0.02 in. (0.5 mm) OT Min. - 0.142 in. (3.6 mm) MD Max. - 0.002 in. (0.05 mm) OP - 1.957 in. (49.7 mm)	3SE03 - EB07	
<b>Booted roller plunger</b> 	OF Max. - 17.64 oz. (500 g) RF Min. 3.53 oz. (100 g) PT Max. - 0.039 in. (1.0 mm) OT Min. - 0.138 in. (3.5 mm) MD Max. - 0.006 in. (0.12 mm) OP - 1.957 in. (49.7 mm)	3SE03 - EB08	

Technical data								
<b>Mechanical Life</b>	3,000,000 operations maximum							
<b>Electrical Life</b>	500,000 operations minimum							
<b>Operating Speed</b>	0.01 m/second to 1m/second							
<b>Cable Entry</b>	1/2" NPT							
<b>Temperature Range</b>	-15° to 80° (5° to 176°F)							
<b>Degree of Protection</b>	NEMA 1							
<b>Mounting</b>	Any Position							
<b>NEMA Rating</b>	A600, R300							
Rated Voltage (V) <sup>1)2)</sup>	Non-Inductive Load (A)			Inductive load (A)			Inrush current (A)	
	Resistive load	Lamp load		Inductive load		Motor load	NO	NC
		NC-NO	NO	NC	NC-NO	NO		
125 VAC	15	3	1.5	15	5	2.5	30 maximum	15 maximum
250 VAC	15	2.5	1.25	15	3	1.5		
500 VAC	3	1.5	0.75	2.5	1.5	0.75		
8 VDC	15	3	1.5	15	5	2.5		
14 VDC	15	3	1.5	10	5	2.5		
30 VDC	6 (2)	3	1.5	5	5	2.5		
125 VDC	0.4	0.4	0.4	0.05	0.05	0.05		
250 VDC	0.2	0.2	0.2	0.03	0.03	0.03		

1) Inductive load has power factor of 0.04 minimum (AC) and a time of 7m/second (DC)

2) Lamp load has an inrush current of 6 times steady-state current.