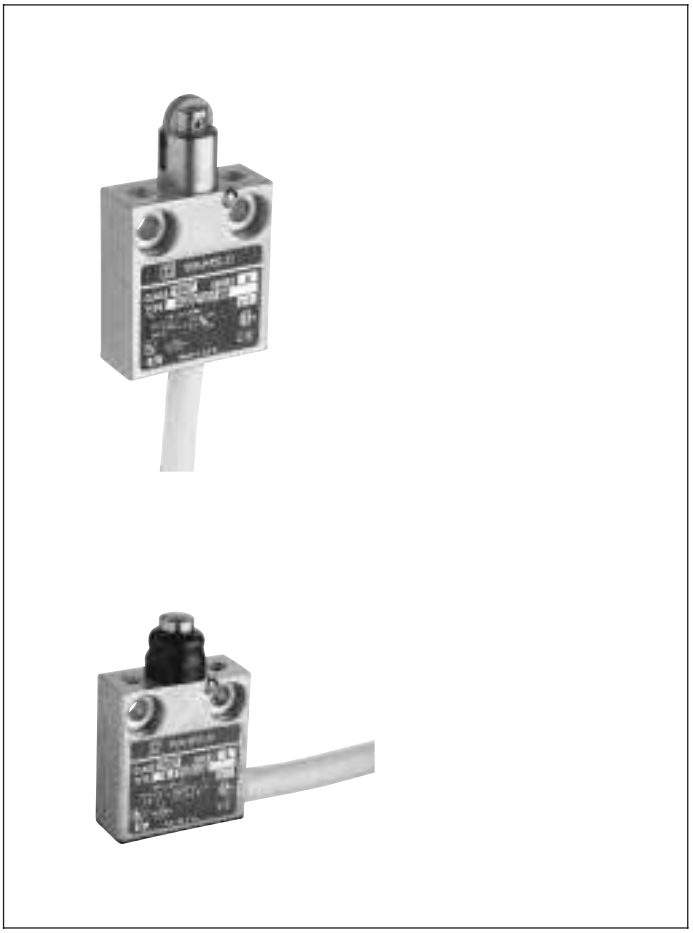


COMPACT LIMIT SWITCHES
Type MS, ML

- Compact size
- Zinc diecast housing
- 10 amp continuous current rating
- Several mounting possibilities
- Protected against temporary submersion by Epoxy Encapsulation
- M12 and ⅞″ 16UN connectors available
- Snap action contacts
- Temperature range: −40°C +105°C

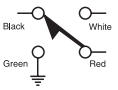
General Specification and Selection. . . . . 2a2 – 2a3
Catalogue Number explanation 2a4
Connectors pin-outs. 2a4
Dimensions 2a4

Type MS/ML Compact



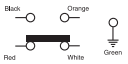
General Specifications

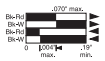
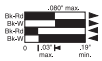
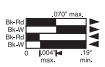
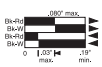
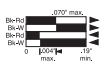
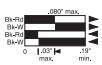
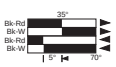
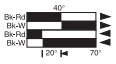
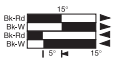
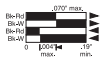
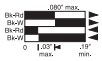
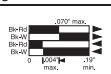
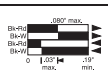
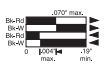
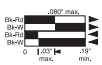
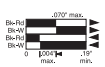
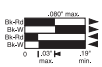
Temperature range	-40°F to +221°F (-40°C to +105°C) The minimum temperatures listed are based on the absence of freezing moisture or water.
Enclosure rating	NEMA Type 1, 2, 4, 6, 6P, 12, 13, IP 67
Vibration resistance	10G (75–1200 Hz)
Shock resistance	35G

MS Circuit – Form C	Electrical Ratings/SPDT Form C (MS Type)			
	Silver Contacts			Gold Contacts
1 N.O. – 1 N.C.	Volts	Make	Break	
	120 ac	60 A	6 A	100 mA @ 125 Vac 30 mA 28 Vdc
	240 ac	30 A	3 A	
	10.0 Amperes Continuous			
	DC Contact Rating: 5 A (Res), 28 Vdc			

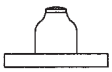
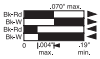
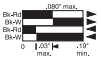
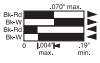
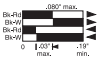
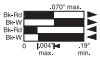
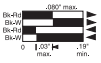
Contact Characteristics

Rated thermal current	10 A (standard)
Rated insulation voltage	300 Vac and dc (standard)
Gold contact switching ratings	.1A, 24 Vdc; .24 VA
Cable	#18 AWG SJTO

ML Circuit – Form Z	Electrical Ratings/SPDT-DB Form Z (ML Type)		
	Silver Contacts		
1 N.O. – 1 N.C.	Volts	Make	Break
	120 ac	60 A	6 A
	240 ac	30 A	3 A
	10.0 Amperes Continuous		
	DC Contact Rating: 5 A (Res), 28 Vdc		

Description/Functional Diagram	MS	ML	Operating Force/Torque	Contact Form	Contact Type	Order Class 9007 Type...
Top plunger						
			80 oz	SPDT Form C	Silver	MS01S0100
			80 oz	SPDT Form C	Gold	MS01G0100
			80 oz	SPDT Form Z	Silver	ML01S0100
Parallel roller plunger						
			80 oz	SPDT Form C	Silver	MS02S0100
			80 oz	SPDT Form C	Gold	MS02G0100
			80 oz	SPDT Form Z	Silver	ML02S0100
Cross roller plunger						
			80 oz	SPDT Form C	Silver	MS03S0100
			80 oz	SPDT Form C	Gold	MS03G0100
			80 oz	SPDT Form Z	Silver	ML03S0100
Rotary lever, CW and CCW						
			48 in oz	SPDT Form C	Silver	MS04S0100
			48 in oz	SPDT Form C	Gold	MS04G0100
			48 in oz	SPDT Form Z	Silver	ML04S0100
Omnidirectional – wire whisker (NEMA 1, 2, 12, 13 only)						
			15 in oz	SPDT Form C	Silver	MS05S0100
			15 in oz	SPDT Form C	Gold	MS05G0100
Bushing mounted – top plunger						
			80 oz	SPDT Form C	Silver	MS06S0100
			80 oz	SPDT Form C	Gold	MS06G0100
			80 oz	SPDT Form Z	Silver	ML06S0100
Bushing mounted – parallel roller plunger						
			80 oz	SPDT Form C	Silver	MS07S0100
			80 oz	SPDT Form C	Gold	MS07G0100
			80 oz	SPDT Form Z	Silver	ML07S0100
Bushing mounted – cross roller plunger						
			80 oz	SPDT Form C	Silver	MS08S0100
			80 oz	SPDT Form C	Gold	MS08G0100
			80 oz	SPDT Form Z	Silver	ML08S0100
Adjustable top plunger						
			80 oz	SPDT Form C	Silver	MS09S0100
			80 oz	SPDT Form C	Gold	MS09G0100
			80 oz	SPDT Form Z	Silver	ML09S0100

Type MS/ML Miniature

Description/Functional Diagram	MS	ML	Operating Force/Torque	Contact Form	Contact Type	Order Class 9007 Type...
Booted top plunger						
			80 oz	SPDT Form C	Silver	MS10S0100
			80 oz	SPDT Form C	Gold	MS10G0100
			80 oz	SPDT Form Z	Silver	ML10S0100
Booted parallel roller plunger						
			80 oz	SPDT Form C	Silver	MS12S0100
			80 oz	SPDT Form C	Gold	MS12G0100
			80 oz	SPDT Form Z	Silver	ML12S0100
Booted cross roller plunger						
			80 oz	SPDT Form C	Silver	MS13S0100
			80 oz	SPDT Form C	Gold	MS13G0100
			80 oz	SPDT Form Z	Silver	ML13S0100

** See available options below. Add to the end of catalog number. Up to three options may be added, if applicable.
■ See example below for conductor length selection.



With side entrance cable

Conductor Length

	Designator
3 feet – standard	01
6 feet	02
9 feet	03
12 feet	04
18 feet	05
33 feet	13

9007 MS General Options

Does not apply to ML except where noted.

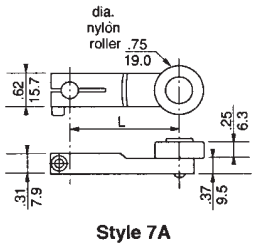
	Designator ■
#16 AWG SJTO cable	02
Side entrance #18 AWG SJTO cable, or Connector 12, 54, 55 *	06
Gray #18 AWG SJTO cable	10
Male 4 pin ⅞″ 16UN connector with 3 ft. cable	12
Male 4 pin M12 connector in housing (DC type) ** (no cable)	54
Male 5 pin M12 connector in housing (DC type) ** (no cable) (MS and ML)	55
No mounting hole inserts (MS and ML) in body	79
Tapped holes in top of plunger housing (MS and ML)	81
Male 4 pin M12 connector in housing (AC type) (no cable)	82

■ Ex: 9007MS01S0100 with 9′ of cable becomes 9007MS01S0300. 9007MS01S0100 with side entrance becomes 9007MS01S0106.

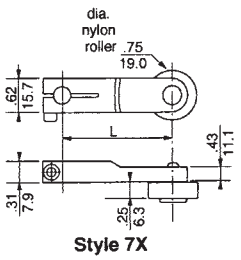
* For side entry connectors, include 06 and then 12, 54, or 55, otherwise connector will come from bottom of housing.

Example of catalogue no. with side entrance connector: 9007MS01S000654. No cable available with 54 and 55. Option 12 is supplied with 3 ft. of cable.

** DC connectors are rated 3 AMP 250 Volts, AC/DC.



Style 7A



Style 7X

Style 7 Levers – .75″ (19mm) diameter, nylon or steel roller

Length		¼″ (6mm) Wide Order Class 9007 Type...		½″ (13mm) Wide Order Class 9007 Type...		¾″ (19mm) Wide Order Class 9007 Type...		1″ (25mm) Wide Order Class 9007 Type...	
inch	(mm)	Nylon	Steel	Nylon	Steel	Nylon	Steel	Nylon	Steel
.875	(22.23)	7A2N	7A2	7B2N	7B2	7F2N	–	7J2N	–
1.375	(34.93)	7A3N	–	7B3N	–	7F3N	–	7J3N	–
1.5	(38.10)	7A1N	7A1	7B1N	–	7F1N	–	7J1N	–
1.75	(44.45)	7A7N	–	7B7N	–	7F7N	–	7J7N	–
2.00	(50.8)	7A4N	–	7B4N	–	7F4N	–	7J4N	–

Style 7X Levers – .75″ (19mm) diameter, nylon or steel roller

Length		¼″ (6mm) Wide Order Class 9007 Type...		½″ (13mm) Wide Order Class 9007 Type...		¾″ (19mm) Wide Order Class 9007 Type...		1″ (25mm) Wide Order Class 9007 Type...	
inch	(mm)	Nylon	Steel	Nylon	Steel	Nylon	Steel	Nylon	Steel
.875	(22.23)	7XA2N	7XA2	7XB2N	7XB2	7XF2N	–	7XJ2N	–
1.375	(34.93)	7XA3N	–	7XB3N	–	7XF3N	–	7XJ3N	–
1.5	(38.10)	7XA1N	7XA1	7XB1N	–	7XF1N	–	7XJ1N	–
1.75	(44.45)	7XA7N	–	7XB7N	–	7XF7N	–	7XJ7N	–
2.00	(50.8)	7XA4N	–	7XB4N	–	7XF4N	–	7XJ4N	–

Specialty Arms and Options

Description	Order Class 9007 Type...
Style 7D adjustable length 1⅜″ to 3⅜″ – .75″ diameter, ¼″ wide, metal roller	7D
Style 7DN adjustable length 1⅜″ to 3⅜″ – .75″ diameter, ¼″ wide, nylon roller	7DN
Style 7S spring nylon, 6″ rod, .3″ diameter	7S
Style 7N nylon rod, 5″ long, .3″ diameter	7N
Corrosion proof (option available with nylon rollers only)	S

Lever Tightening torque: for mounting lever on the shaft: minimum **17 in lb.**

Catalogue Number Explanation

Interpretation of the catalog number

9007 M S Ø 1 S Ø 1 Ø Ø

Contact form
- S — SPDT Form C (standard)
- L — SPDT Form Z

Actuator type
EX: Top push plunger 0 1
Parallel roller plunger 0 2

Contact type
- S — 10 A silver contacts (Standard)
- G — Gold contacts

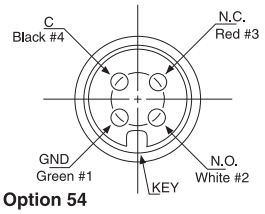
Conductor length options
- 0 0 — EX: No cable
- 0 1 — 3 feet (standard)
- 0 2 — 6 feet

Options Examples[1]

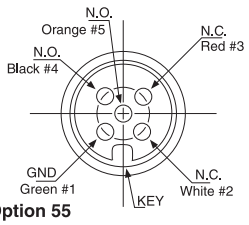
Option	Description
0 2	#16 AWG SJTO cable
0 6	Side entrance 18-4 SJTO cable
1 0	Gray 18-4 SJTO cable

[1] If several options are requested, list them in ascending order numerically. See others below.
EX: 9007MS01S030654

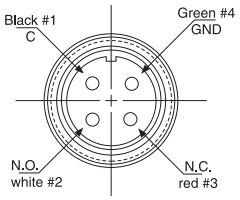
Connectors pin-outs



Option 54



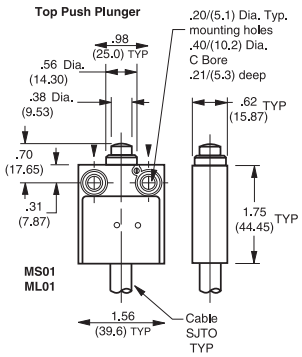
Option 55



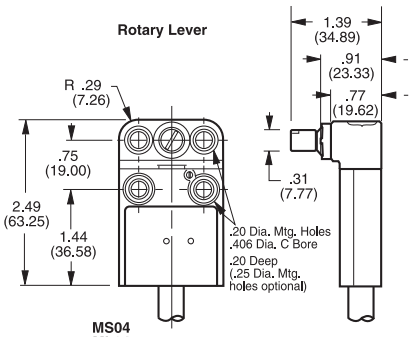
Option 12

Dimensions

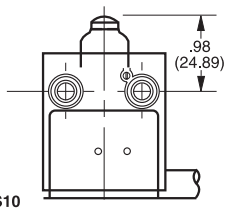
Top Push Plunger



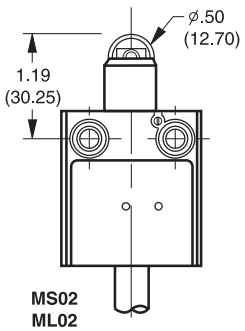
Rotary Lever



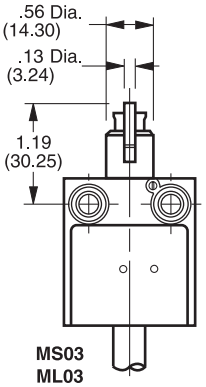
Top Push Plunger With Mid-Side Entry Cable



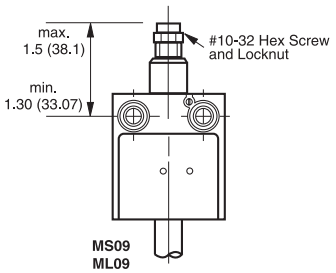
Parallel Roller Plunger



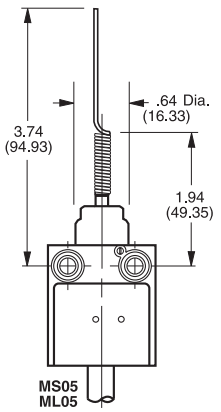
Cross Roller Plunger



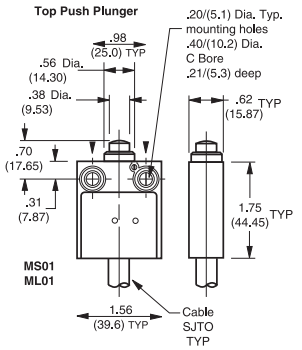
Adjustable Top Push Plunger



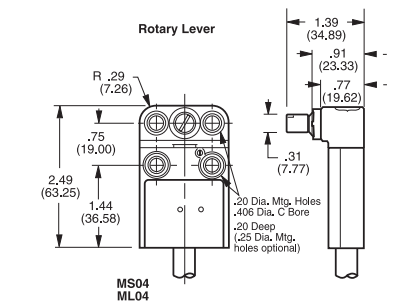
Omnidirectional



Top Push Plunger



Rotary Lever



Top Push Plunger With Mid-Side Entry Cable

