

MICRO SWITCH Heavy-Duty Limit Switch, HDLS Series

ASSEMBLY MODIFICATIONS • ROTARY

Momentary action rotary switches can be furnished in other than the normal assembled conditions. To specify modifications, add the numbers shown below to the catalog listings.

Modification number suffixes are:

- 1** Clockwise actuation only
- 2** Counterclockwise actuation only
- 3** Shaft to right of switch front
- 4** Shaft to left of switch front
- 5** Shaft to back of switch
- 7** Indicator light wired to NC circuit

For example,

Catalog listing LSA1A**23** is an LSA1A switch adjusted for counterclockwise actuation only. The operating shaft is to the right side of the switch when viewing it from the front (label side). No lever.

Catalog listing LSA8A**7** is an LSA8A switch with the 240 volt indicator light wired to the NC circuit. No lever.

PLUNGER ASSEMBLY MODIFICATIONS

Add the following modification numbers to the catalog listing in the plunger switch:

- 3** Side plunger to right of switch front
- 4** Side plunger to left of switch front
- 5** Side plunger to back of switch
- 6** Roller on top plungers perpendicular to mounting surface
- 7** Light on indicator versions wired to NC circuit
- 8** Roller on side plungers in vertical position

For example,

Catalog listing LSF1A**3** is an LSF1A switch with the side roller plunger to the right side.

PLUG-IN VS. NON-PLUG-IN MODELS

Honeywell HDLS limit switches are offered in two styles: non-plug-in design and plug-in design. With plug-in construction, the wiring and conduit connection is made to the base receptacle. This feature reduces downtime as the plug-in unit can be removed and replaced without disconnecting the wiring or conduit connections to the switch.

HDLS Series Electrical Ratings: 10 A Continuous Carry ac Volts; Pilot Duty: AC15, A600/B600

Electrical Rating	Circuitry	Vac	Amps at 0.35 Power Factor Make	Amps at 0.35 Power Factor Break
A* AC15, A600	SPDT DPDT	120	60	6
		240	30	3
		480	15	1.5
		600	12	1.2
B AC15, B600	Δ	120	30	3
		240	15	1.5
		480	7.5	0.75
		600	6	0.60

Δ Gravity return (Model LSS..) and extra-low torque (Model LST..)

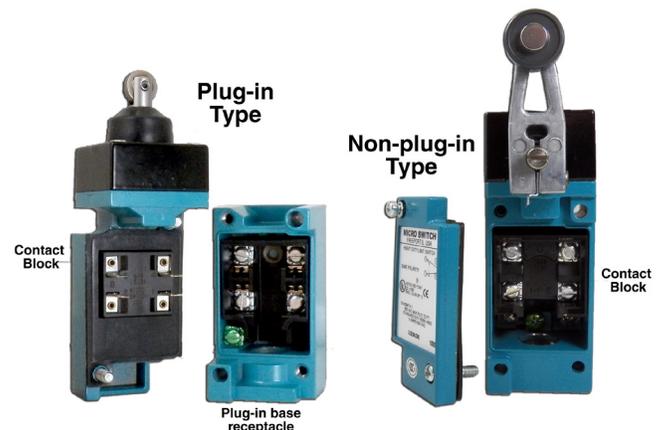
HDLS Series Electrical Ratings: dc Volts; Pilot Duty: DC13, R300

Electrical Rating	Circuitry	Vdc	Make & Break Amps Inductive	Make & Break Amps Resistive
A, B*	SPDT DPDT	120	0.25	0.8
		240	0.15	0.4

* For switches with an indicator light, use only at voltage stated for indicator light.

MICRO SWITCH HDLS limit switches are capable of the following low voltage dc loads

Circuitry	Vdc	Amps Inductive	Amps Resistive
SPDT	24	10	10
DPDT	24	10	10



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MICRO SWITCH HDLS SERIES ACTUATOR HEADS

SIDE ROTARY: Available levers provide greater versatility. Heads may be positioned with shaft on any side. All are momentary action except maintained head (LSN Series).



LSA - Standard: 15° maximum pretravel, 5° (single pole) and 7° (double pole) maximum differential travel, 60° minimum overtravel. Operating temperature range from -12°C to 121°C [10°F to 250°F].*

LSR - Low operating torque: 0.19 Nm [1.7 in lb] maximum operating torque. 60° minimum overtravel, 15° maximum pretravel. Operating temperature range from -1°C to 121°C [250°F to 250°F].*

LSN - Maintained contact: Maintained on counterclockwise rotation and reset on clockwise rotation, and vice versa. Operating temperature range from -1°C to 121°C [30°F to 250°F].

LSP - Low differential: 3° (single pole) and 4° (double pole) maximum differential travel. 68° minimum overtravel, 7° maximum pretravel. Operating temperature range from -12°C to 121°C [10°F to 250°F].*

LSH - Low torque, low differential travel: Features low operating torque and narrow differential travel. 68° minimum overtravel. Operating temperature range from -1°C to 121°C [30°F to 250°F].*

LSU - Low pretravel: 5° max. pretravel, 70° min. overtravel. Operating temperature range from -12°C to 121°C [10°F to 250°F].*

LSL - Sequence action: Delayed action between operation of two poles. 48° minimum overtravel. Operating temperature range from -12°C to 121°C [10°F to 250°F].*

LSM - Center neutral: One set of contacts operates on the clockwise rotation, and another set on the counterclockwise rotation. 53° minimum overtravel. Operating temperature range from -1°C to 121°C [30°F to 250°F].*

LST - Momentary action with extra low torque: 12 in oz of operating torque with momentary action. Operating temperature range from -12°C to 121°C [10°F to 250°F].*

LSS - Gravity return: Has no return spring mechanism in actuator head so weight of the lever must provide the return force. Extremely light operating torque (5 in oz max.) is useful in conveyor applications and can be operated by small or lightweight objects. Operating temperature range from -1°C to 121°C [30°F to 250°F].*

TOP ROTARY: Available levers provide greater versatility. Momentary action.



LSB: With 100° minimum overtravel. Various levers that fit side rotary shafts may be used on the top rotary shaft. Switch is ideal when increased overtravel is required. Momentary action. Standard operating temperature range from -1°C to 121°C [30°F to 250°F].*

TOP PLUNGERS: Available with 4,83 mm [0.19 in] minimum overtravel. Top pin plungers are offered in pin plunger, an adjustable plunger, and a roller plunger. Standard temperature range of -12°C to 93°C [10°F to 200°F].



LSC - Top pin plunger: A corrosion-resistant steel plunger for in-line actuating motion. A boot seal on the plunger and a seal between the actuator head and housing keep out coolant, dust, and chips. Momentary action.



LSD - Top roller plunger: A corrosion-resistant steel roller and plunger that is adjustable to 90° angles to accept cam or slide operation from any of two directions. Boot seal on the plunger and a seal between the actuator head and housing. Momentary action.



LSV - Adjustable top pin plunger: Provides easy application and saves on installation time. The operating points of the switch can be adjusted from 52,8 mm to 59,3 mm [2.085 in to 2.335 in]. Seals are the same as the pin plunger. Momentary action.

*(Fluorocarbon seals are preferred for temperatures above 93°C [200°F]).

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MICRO SWITCH HDLS SERIES ACTUATOR HEADS

SIDE PLUNGERS: Available with 4,83 mm [0.19 in] minimum overtravel. Side plungers are offered in plain plunger, an adjustable plain plunger, a roller plunger, and a maintained plunger. Standard temperature range of -12°C to 93°C [10°F to 200°F].

	<p>LSE - Side pin plunger: For actuating motion inline with the plunger travel. Actuating head may be faced in any of four positions, 90° apart. A boot seal on the plunger and a seal between the head and housing keep out coolant, dust, and chips. Momentary action.</p>		<p>LSW - Adjustable side pin plunger: Has the same features of the side plain plunger plus the means to adjust the operating points of the switch from 41 mm to 47,4 mm [1.615 in to 1.865 in]. Seals are same as side pin plunger. Momentary action.</p>
	<p>LSF - Side roller plunger: Fits close quarters under cams and slides. The head may be faced in any of four positions, 90° apart. <u>The roller can be turned vertical or horizontal to the switch.</u> Seals are same as side pin plunger. Momentary action.</p>		<p>LSG - Maintained contact side pin plunger: Offers a maintained contact on actuation of the switch. A reverse motion of the plunger resets the switch. Sealing is the same as other side plunger actuation heads. Operating temperature range is -1°C to 93°C [30°F to 200°F].</p>

WOBBLE LEVER ACTUATING HEADS: Heads come with either a spring wire, Delrin® plastic rod, or steel cat whisker. Any movement of the lever (except pull) will actuate the switch. Standard temperature range of -12°C to 93°C [10°F to 200°F].

				
<p>LSJ1A-7M - Spring wire: 300 Series SST wire may be formed for special applications.</p>	<p>LSJ1A-7N - Flexible actuator: Designed with a tin-plated cable.</p>	<p>LSK1A-8C - Coil spring: Designed with a 300 Series SST coil spring.</p>	<p>LSJ1A-7A - Plastic rod: Recommended where possible scratching or marring by the actuator is to be avoided.</p>	<p>LSK1A-8A - Cat whisker: 300 Series SST actuator designed for low operating force applications.</p>

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SPECIAL OPTIONS

High temperature/Chemical-resistant Switches

Completely fluorocarbon (FC)-sealed switches have a full FC body gasket coving the switch cavity. Rotary types have an extra FC seal on the operating shaft, while plunger versions have FC boot seals. They are for use in many applications where the environment includes fire-resistant synthetic fluids. In addition to most all fluids, the FC-sealed switches may be used with such industrial fluids such as Cellulube, Fyrquell, Houghto-Safe, Pydraul, and other special cutting and hydraulic fluids. The additional FC seals also promote longer operating life for rotary-actuated HDLS switches in applications where the temperatures are normally -12°C to 121°C [10°F to 250°F]. If pre-wired with cable, then temperature limits are 105°C [221°F] dry and 60°C [140°F] wet.

To order, insert the additional letters **Y** and **C** in the appropriate places in the standard catalog listing, as shown below:

LSA1A	standard, side-rotary plug-in switch
LSYAC1A	completely FC-sealed version of LSA1A

Low Temperature Switches

All forms of HDLS limit switches are also available in low-temperature construction. Design features include fluorosilicone diaphragm, shaft seals, and external booth seal (where applicable). If pre-wired with a cable, low temperature limits are -10°C [14°F] flex and -30°C [-22°F] non-flex.

To order, insert the additional letters **Y** and **B** in the appropriate places in the standard catalog listing, as shown below:

LSA1A	standard, side-rotary plug-in switch
LSYAB1A	low-temperature version of LSA1A

Conduit Openings

For conduit openings other than 1/2-NPT and 3/4-NPT, substitute the following after LS in the catalog listing:

LS3 PG13,5

LS4 20 mm

LSA1A	side rotary with 1/2-14 NPT conduit
LS4A1A	side rotary with 20 mm conduit

Table 2. Temperature Limits

	Standard HDLS				Low Temperature HDLS (Fluorosilicone Sealed): Y_B				High Temperature HDLS (Fluorocarbon Sealed)*: Y_C		
	Low Limit		High Limit		Low Limit		High Limit		Low Limit		High Limit
	-12°C [10°F]	-1°C [30°F]	93°C [200°F]	121°C [250°F]	-40°C [-40°F]	-29°C [-20°F]	93°C [200°F]	121°C [250°F]	-12°C [10°F]	-1°C [30°F]	121°C [250°F]
LSA - Side Rotary Momentary	X			X	X			X	X		X
LSB - Top Rotary		X		X		X		X		X	X
LSC - Top Plain Plunger	X		X		X		X		X		X
LSD - Top Roller Plunger	X		X		X		X		X		X
LSE - Side Plain Plunger	X		X		X		X		X		X
LSF - Side Roller Plunger	X		X		X		X		X		X
LSG - Side Plunger, Maintained		X	X			X	X			X	X
LSH - Side Rotary, Low PT, Low Torque		X		X		X		X		X	X
LSJ - Wobble Stick	X		X		X			X	X		X
LSK - Cat Whisker	X		X			X		X	X		X
LSL - Side Rotary, Sequence	X			X	X			X	X		X
LSM - Side Rotary, Center Neutral		X		X	X			X		X	X
LSN - Side Rotary, Maintained		X		X		X		X		X	X
LSP - Side Rotary, Low Pretravel	X			X	X			X	X		X
LSR - Side Rotary, Low Torque		X		X		X		X		X	X
LSU - 5° Low Pretravel	X			X	X			X	X		X
LSV - Top Adjustable Plunger	X		X		X		X		X		X
LSW - Side Adjustable Plunger	X		X		X		X		X		X

* For HDLS application wherein the upper temperature limit is normally above 93°C [200°F], much longer switch life can be obtained by using completely fluorocarbon-sealed switches rather than standard HDLS.

MICRO SWITCH Heavy-Duty Limit Switch, HDLS Series

Factory-sealed Pre-wired Limit Switches

Features

- Pre-wired with 6 ft ST00W-A cable or other 4, 5, or 9-pin connectors (other lengths available)
- Wire entry area completely factory sealed
- (Cable version) NEMA 1, 6, 6P, 12; IP67
- (Connector version) NEMA 1, 6, 6P, 12, 13; IP67

How to order:

To order factory sealed switches, add the modification codes shown below to the standard HDLS listings (reference product nomenclature on page 4):

Circuitry	Cable	1/2 in connector style
SPDT	C	A (4-pin mini-style) B (5-pin mini-style) DD (4-pin micro-style)
DPDT	M	R (9-pin mini-style)

Examples:

LSA1A**C** = LSA1A with 6-feet of 5-conductor STOW-A cable

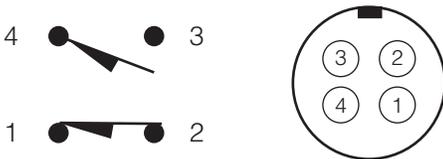
LSJ2B**M**-7N = LSJ2B-7N with 6 feet of 9-conductor ST00W-A cable

LSA1A**B** = LSA1A with a 5-pin mini-style connector

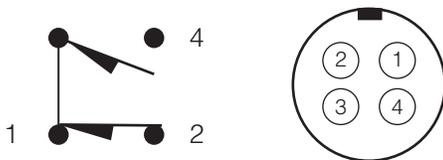
LSA1A**DD** = LSA1A with a 4-pin micro-style connector

NOTE: Connector versions available with 1/2 in conduit only.

Wiring Diagram (Style A)



Wiring Diagram (Style DD)

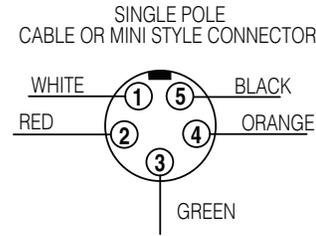


Pin 3 not connected

Wiring Diagrams (Styles B&G)

Connectors = Numbers (mini-style)

Cables = Colors



Single-Pole Circuitry

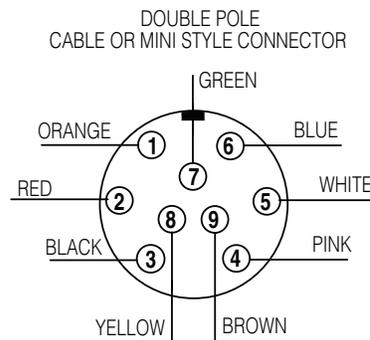


3 = Ground

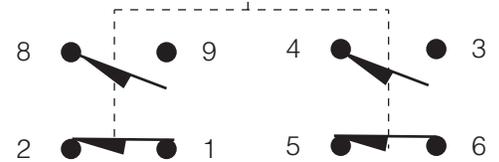
Electrical Ratings: Connector Versions

Mini	600 VAC, 7A
Micro	300 VAC, 3A

Wiring Diagrams (Styles M&R)



Double-Pole Circuitry



7 = Ground

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Table 9. Top Plungers • MICRO SWITCH HDLS Series Order Guide/Recommended Listings

All top plungers are momentary action.



	Plain (LSC)		Roller (LSD)		Adjustable (LSV)	
Description	Top plain plunger for in-line operating motion		Roller plunger can be rotated at 90° increments		Adjustable top plain plunger	
	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
Contact closed ■ Contact open □						
Pretravel	1,78 mm [0.07 in]					
Different. travel	0,38 mm [0.015 in]	0,51 mm [0.02 in]	0,38 mm [0.015 in]	0,51 mm [0.02 in]	0,38 mm [0.015 in]	0,51 mm [0.02 in]
Overtravel	4,83 mm [0.19 in]					
Operating point (nom.)	45,8 mm [1.805 in]		55,9 mm [2.20 in]		53 mm to 59 mm [2.08 in to 2.34 in]	
Operating force	17,8 N [4 lb] max.					
Op. temp range ³	-12°C to 93°C [10°F to 200°F] (for low temp, high temp, or preloaded versions, see pages 8-9)					

Circuitry	Contacts	Body Style ²	Conduit (NPT)	Options			
SPDT 	Silver	Plug-in	0.5 in		LSC1A	LSD1A	LSV1A
	Gold ⁴	Plug-in	0.5 in		LSC1E	LSD1E	LSV1E
	Silver	Plug-in	0.5 in	120 V Ind. lite ¹	LSC5A	LSD5A	LSV5A
	Silver	Plug-in	0.5 in	240 V Ind. lite ¹	LSC8A	LSD8A	LSV8A
	Silver	Non-plug-in	0.5 in		LSC3K	LSD3K	LSV3K
DPDT 	Silver	Plug-in	0.75 in		LSC2B	LSD2B	LSV2B
	Silver	Plug-in	0.5 in		LSC2R	LSD2R	LSV2R
	Silver	Plug-in	0.75 in	120 V Ind. lite ¹	LSC6B	LSD6B	LSV6B
	Silver	Non-plug-in	0.75 in		LSC4L	LSD4L	LSV4L
	Silver	Non-plug-in	0.5 in		LSC7L	LSD7L	LSV7L

¹ Use at voltage indicated for light. Wired to NO circuit. Upper temperature limit for lighted units is 93°C [200°F]

² Plug-in listings include base receptacle

³ Completely fluorocarbon sealed switches are preferred for use in temperatures above 93°C [200°F]

⁴ Gold-plated contacts

NOTE: Same polarity each pole.

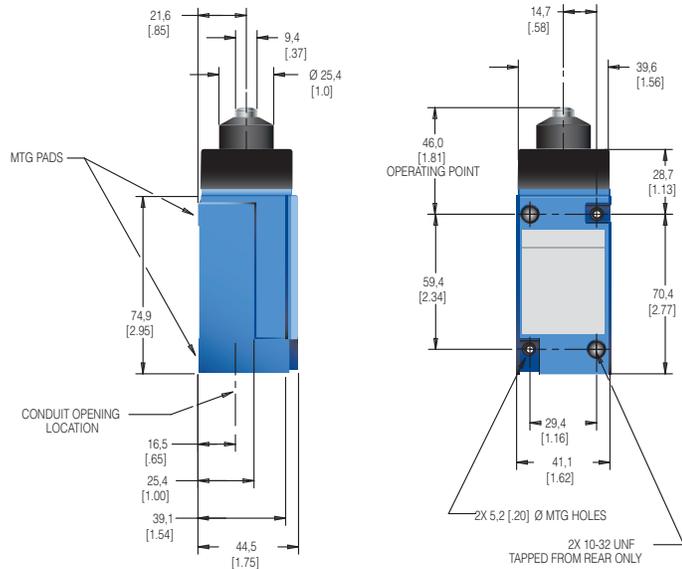
To order a fluorocarbon sealed switch, insert the letters **Y** and **C** into the catalog listing as follows. The LSA1A limit switch is changed to a LSY**AC**1A limit switch.

To order a low temperature, fluorosilicone sealed switch, insert the letters **Y** and **B** into the catalog listing as follows. The LSA1A limit switch is changed to a LSY**AB**1A limit switch.

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Figure 10. MICRO SWITCH HDLS LSC Series (single pole plunger dimensions)

SPDT Plug-in (mm[in])



SPDT Non-plug-in (mm[in])

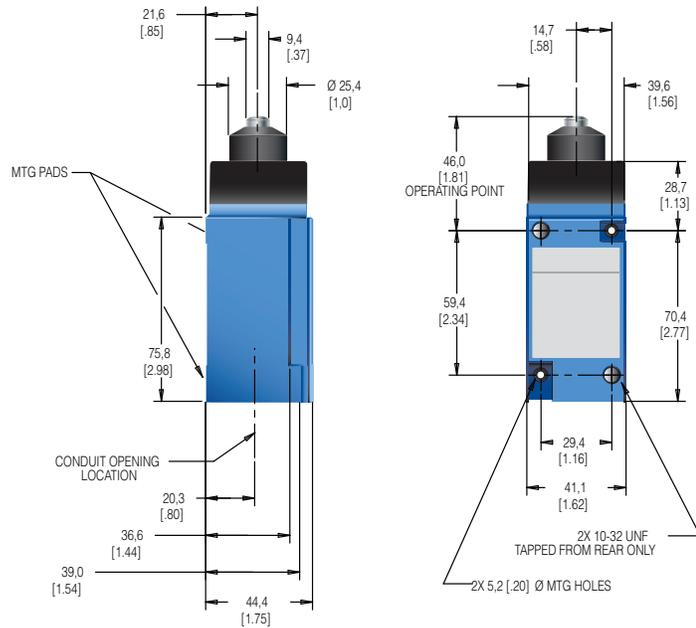
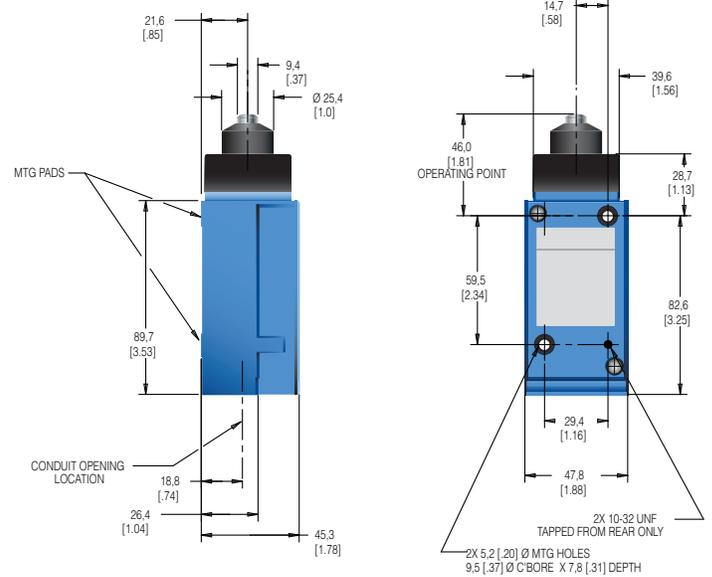
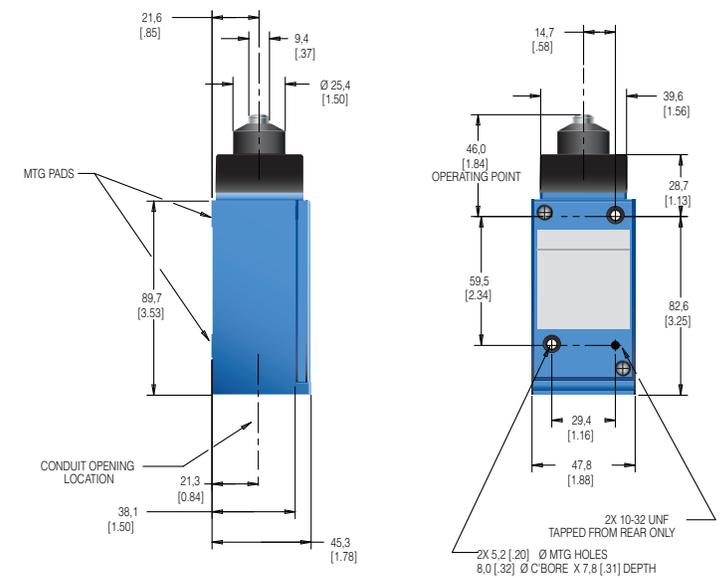


Figure 11. MICRO SWITCH HDLS LSC Series (double pole plunger dimensions)

DPDT Plug-in (mm[in])



DPDT Non-plug-in (mm[in])



MICRO SWITCH Heavy-Duty Limit Switch, HDLS Series

Figure 12. MICRO SWITCH HDLS LSD Series (single pole) top roller plunger dimensions

SPDT Plug-in (mm[in])

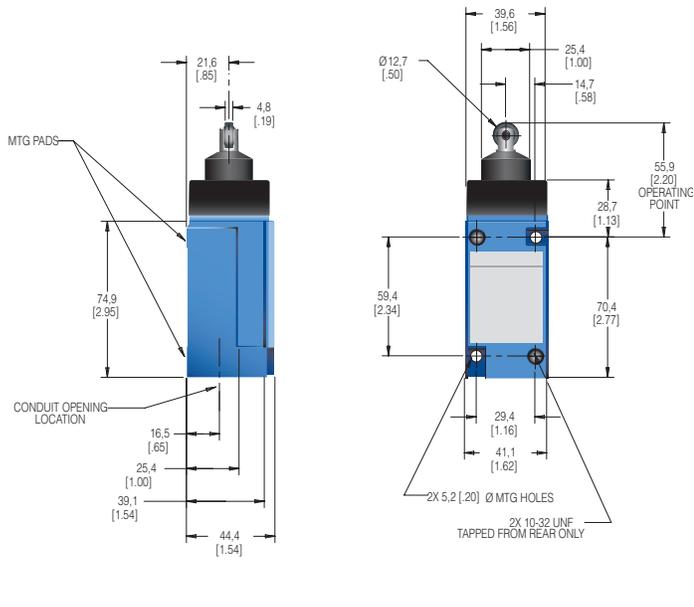
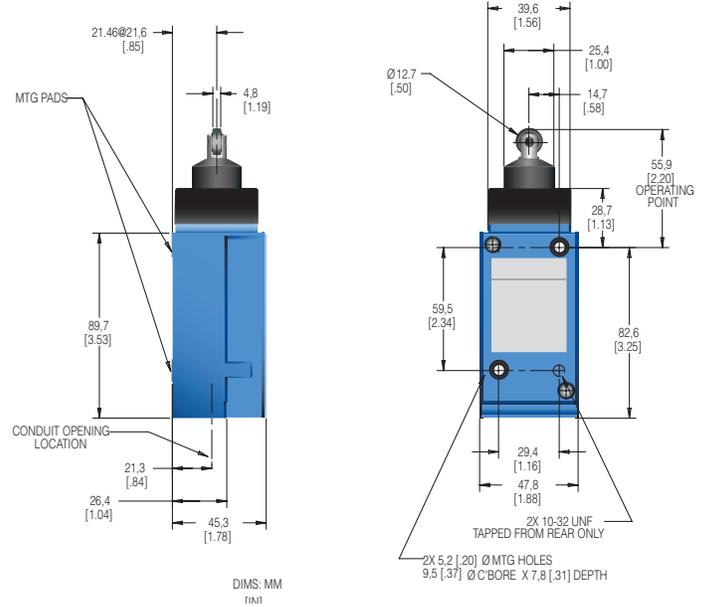
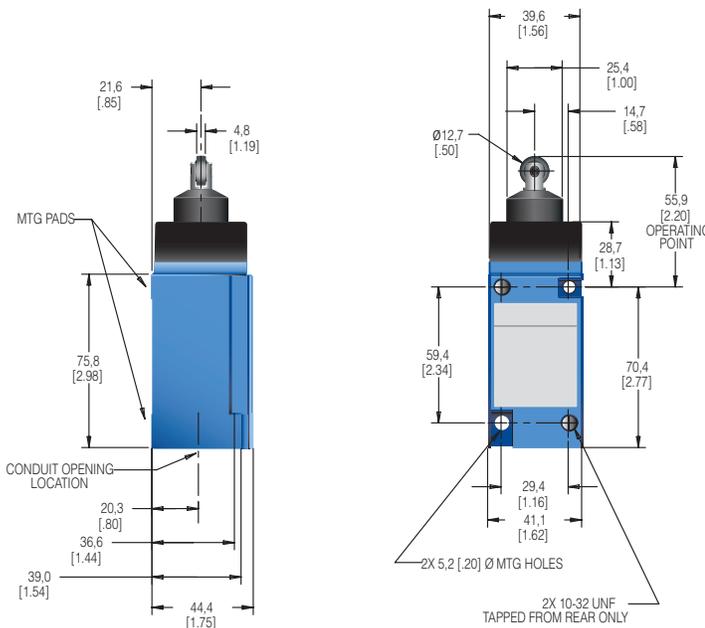


Figure 13. MICRO SWITCH HDLS LSD Series (double pole) top roller plunger dimensions

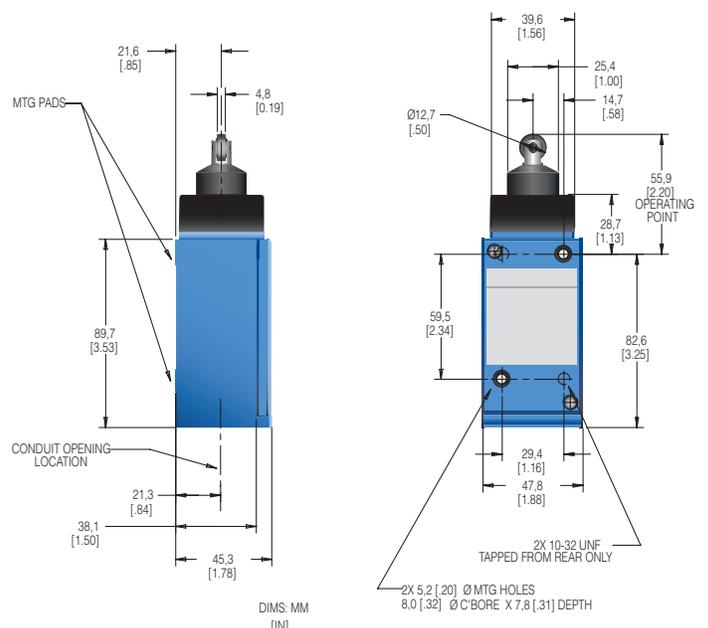
DPDT Plug-in (mm[in])



SPDT Non-plug-in (mm[in])



DPDT Non-plug-in (mm[in])



MICRO SWITCH Heavy-Duty Limit Switch, HDLS Series

Figure 14. MICRO SWITCH HDLS LSV Series top adjustable plunger (single pole) dimensions

SPDT Plug-in (mm[in])

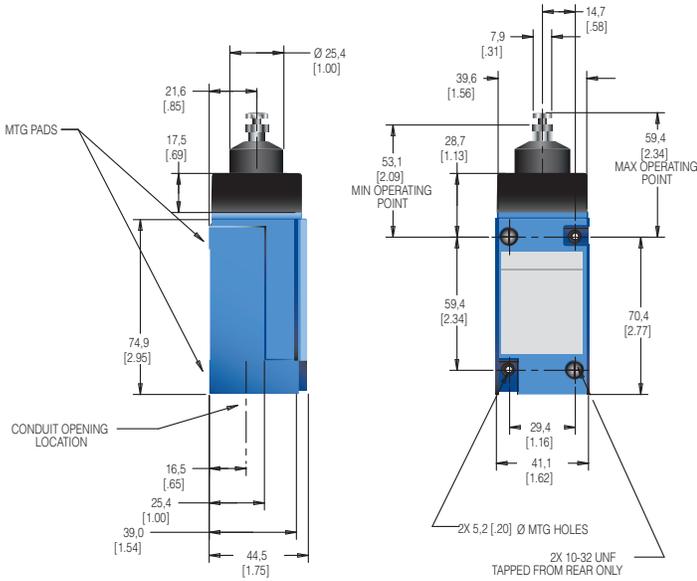
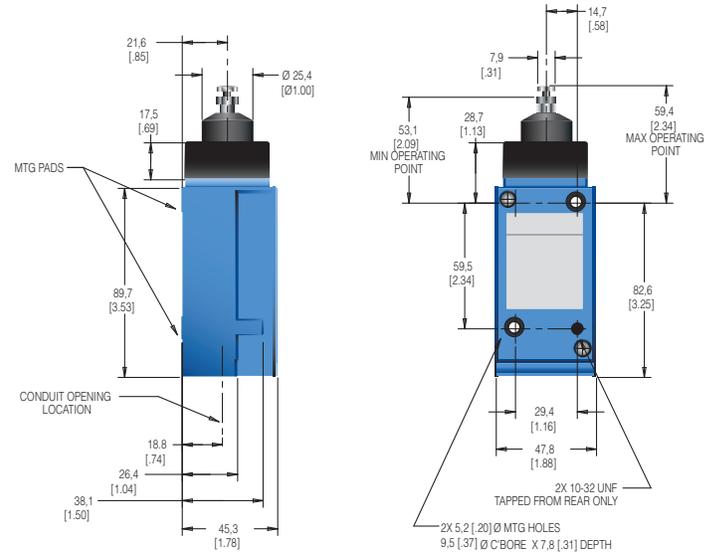
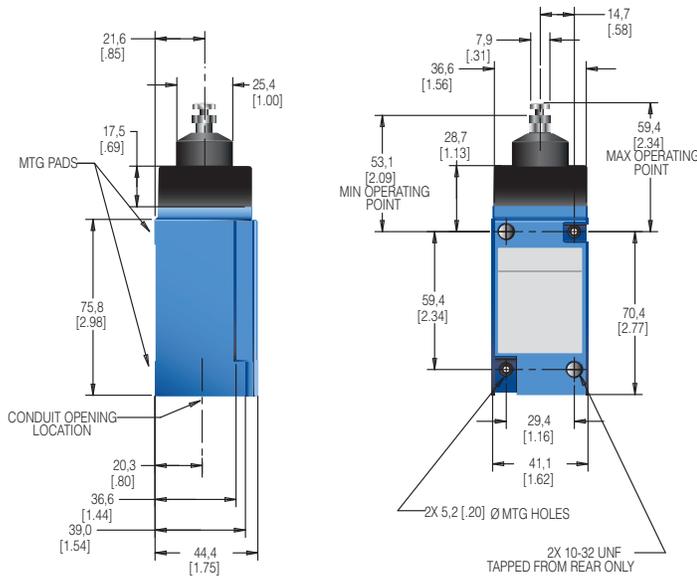


Figure 15. MICRO SWITCH HDLS LSV Series top adjustable plunger (double pole) dimensions

DPDT Plug-in (mm[in])

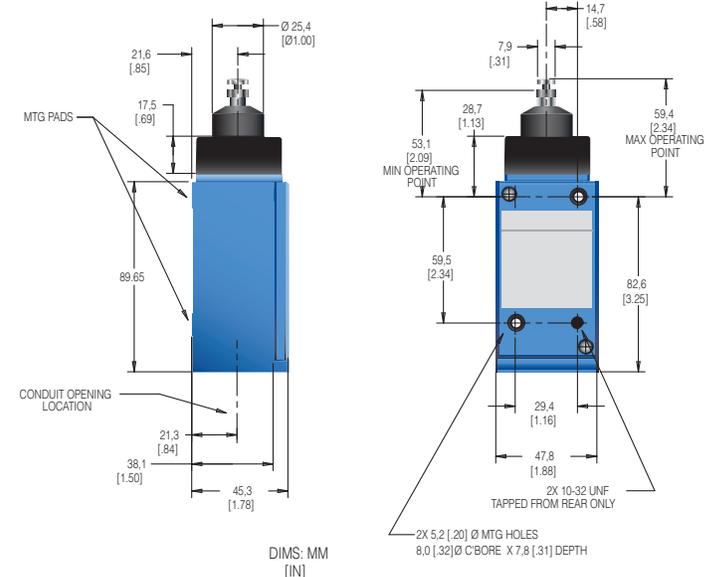


SPDT Non-plug-in (mm[in])



DIMS: MM
[IN]

DPDT Non-plug-in (mm[in])



DIMS: MM
[IN]