

# 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.

## MICRO 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..)

## MICRO SWITCH™ 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



# MICRO SWITCH™ Heavy-Duty Limit Switches

## MICRO SWITCH™ HDLS SERIES OPERATING 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:** 60° minimum overtravel, 15° maximum pretravel, 5° (single pole) and 7° (double pole) maximum differential travel. Operating temperature range from -12 °C to 121 °C [10 °F to 250 °F].\*

**LSR - Low operating torque:** 60° minimum overtravel, 15° maximum pretravel, 0.19 Nm [1.7 in lb] maximum operating torque. 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:** 68° minimum overtravel, 7° maximum pretravel, 3° (single pole) and 4° (double pole) maximum differential travel. Operating temperature range from -12 °C to 121 °C [10 °F to 250 °F].\*

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

**LSU - Low pretravel:** 5° max. pretravel, 70° min. overtravel, and a second step of 18° max. Operating temperature range from -12 °C to 121 °C [10 °F to 250 °F].\*

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

**LSM - Center neutral:** 53° minimum overtravel. One set of contacts operates on the clockwise rotation, and another set on the counterclockwise rotation. 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 and full travel 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 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. Heads may be positioned with shaft on any side. All are momentary action except maintained head.



**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. Oil-tight seals on plunger and between the operating 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. 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]).

# MICRO SWITCH™ Heavy-Duty Limit Switches

## SPECIAL OPTIONS

### HIGH TEMPERATURE/CHEMICAL RESISTANT SWITCHES

Completely fluorocarbon (FC)-sealed switches have a full FC body gasket covering 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:

<b>LSA1A</b>	standard, side-rotary plug-in switch
<b>LSYA1A</b>	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:

<b>LSA1A</b>	standard, side-rotary plug-in switch
<b>LSYAB1A</b>	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

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

## 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.

## FACTORY SEALED PRE-WIRED LIMIT SWITCHES

### Features

- Pre-wired with 6 ft STOOW-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:

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

# MICRO SWITCH™ Heavy-Duty Limit Switches

## SIDE ROTARY • MICRO SWITCH™ HDLS SERIES ORDER GUIDE/RECOMMENDED LISTINGS



Description	Standard (LSA)		Low Differential (LSP)		5° Pretravel (LSU)	
	Standard		Low pretravel & low differential travel		Low pretravel	
	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
<b>Pretravel</b>	15° max.	15° max.	9° max.	9° max.	5° max.	5° max.
<b>Different. travel</b>	5° max.	7° max.	3° max.	4° max.	3° max.	4° max.
<b>Overtravel</b>	60° min.	60° min.	66° min.	66° min.	70° min.	70° min.
<b>Oper. torque</b>	0,45 Nm [4 in-lb] max.		0,45 Nm [4 in-lb] max.		0,45 Nm [4 in-lb] max.	
<b>Action</b>	CW & CCW (Momentary)					
<b>Op. temp range<sup>3</sup></b>	-12 °C to 121 °C [10 °F to 250 °F] (for low temp, high temp, or preleaded versions, see pages 11-12)					

Circuitry	Contacts	Body Style <sup>2</sup>	Conduit (NPT)	Options	Standard (LSA)	Low Differential (LSP)	5° Pretravel (LSU)
	Silver	Plug-in	0.5 in		<b>LSA1A</b>	<b>LSP1A</b>	<b>LSU1A</b>
	Gold <sup>4</sup>	Plug-in	0.5 in		<b>LSA1E</b>	<b>LSP1E</b>	<b>LSU1E</b>
	Silver	Plug-in	0.5 in	120 V Ind. lite <sup>1</sup>	<b>LSA5A</b>	<b>LSP5A</b>	<b>LSU5A</b>
	Silver	Plug-in	0.5 in	240 V Ind. lite <sup>1</sup>	<b>LSA8A</b>	<b>LSP8A</b>	<b>LSU8A</b>
	Silver	Plug-in	0.5 in	24 V LED 1.5 mA max. auto polarity <sup>1</sup>	<b>LSA9A</b>	<b>LSP9A</b>	<b>LSU9A</b>
	Silver	Non-plug-in	0.5 in		<b>LSA3K</b>	<b>LSP3K</b>	<b>LSU3K</b>
	Silver	Plug-in	0.75 in		<b>LSA2B</b>	<b>LSP2B</b>	<b>LSU2B</b>
	Gold <sup>4</sup>	Plug-in	0.75 in		<b>LSA2S</b>	-	-
	Silver	Plug-in	0.5 in		<b>LSA6B</b>	<b>LSP6B</b>	<b>LSU6B</b>
	Gold <sup>4</sup>	Plug-in	0.5 in		<b>LSA6S</b>	-	-
	Silver	Plug-in	0.75 in	120 V Ind. lite <sup>1</sup>	<b>LSA2R</b>	<b>LSP2R</b>	<b>LSU2R</b>
	Silver	Non-plug-in	0.75 in		<b>LSA4L</b>	<b>LSP4L</b>	<b>LSU4L</b>
	Silver	Non-plug-in	0.5 in		<b>LSA7L</b>	<b>LSP7L</b>	<b>LSU7L</b>

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

<sup>2</sup> Plug-in listings include base receptacle

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

<sup>4</sup> 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.