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Sensing and Control  
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### Sensing and Control

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# Limit and Enclosed Switches

## Switches for Special Applications

HDLS Series



NOTE: LSS1H and LST1H switches are usually mounted with the lever down. Heavier levers, such as the LSZ54N (shown) and LSZ52D, should be used to enable gravity to help restore them to the free position. These levers are described on page A38.

### GRAVITY RETURN SIDE ROTARY SWITCHES

LSS1H gravity return side rotary limit switches have no return spring mechanism. The weight of the actuating lever must provide the force to restore it to the free position.

The extremely light 5 in. oz. max. operating torque is useful in conveyor applications, since it enables operation by small

or lightweight objects. Because the head is unsealed, the LSS1H is classed as NEMA 1. However, the switch cavity is sealed to protect the contacts.

The LSS1H has the plug-in body style, with a ½ in. conduit opening.

Circuitry is SPDT double break. Refer to electrical rating **B**, page A34.

#### ORDER GUIDE (Momentary action)

Operating Torque Max.	Differential Travel Max.	Total Travel No Stop	Catalog Listing
0,035 Nm 5 in. oz.	12°	360°	<b>LSS1H</b>

Nm = Newton meters

### EXTRA LOW TORQUE SIDE ROTARY SWITCHES

LST1H extra low torque side rotary limit switches have a low force return spring and a maximum operating torque of 12 in. oz. It is NEMA 1, because of an unsealed head. But, as with the LSS1H, the switch cavity is sealed.

The LST1H has a plug-in body style, with a ½ in. conduit opening.

Circuitry is SPDT double break. Refer to electrical rating **B**, page A34.

#### ORDER GUIDE (Momentary action)

Operating Torque max.	Pre-Travel max.	Over-Travel min.	Differential Travel max.	Total Travel ref.	Catalog Listing
0,085 Nm 12 in. oz.	15°	60°	5°	85° nom.	<b>LST1H</b>

Nm = Newton meters

### SPECIFYING GUIDE FOR:

#### HIGH TEMPERATURE-CHEMICAL RESISTANT SWITCHES

Completely fluorocarbon (FC)-sealed HDLS limit 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 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 as Cellulube, Fyrquell, Houghto-Safe, Pydraul, and other special cutting and hydraulic oils. **For seal performance chart see page A56.** The additional FC seals also promote longer operating life for rotary actuated HDLS switches in applications where the temperatures are normally 10° to 250°F (–12 to 121°C). If prewired with cable, then temperature limits are 221°F (105°C) dry and 140°F (60°C) wet.

#### How to order

Insert the additional letters **Y** and **C** in the appropriate places in the standard catalog listing as shown in the example below.

Example:

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 changes include fluorosilicone diaphragm, shaft seals, and external boot seal (where applicable) plus a low temperature lubricant. If prewired with cable, temperature limits are 14°F (–10°C) flex and 22°F (–30°C) no flex. **The temperature ranges for specific switches see page A56.**

#### How to order

A low temperature version of any HDLS limit switch shown in the order guide can be specified by inserting the additional letters **Y** and **B** into the appropriate place in the standard switch listing as shown in the example below.

Example:

LSA1A — standard side rotary plug-in switch

LSYAB1A — low temperature version of LSA1A

#### FACTORY SEALED PRE-WIRED LIMIT SWITCHES

#### FEATURES

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

#### How to order

To order factory sealed switches, add the modification codes shown below to standard HDLS listings:

Circuitry	Cable	½" Connector
SPDT	C	A (4 pin mini) B (5 pin mini) DD (4 pin micro)
DPDT	M	R (9 pin)

Example: LSA1AC — LSA1A with 6 ft of 5 conductor STOOW-A cable.  
LSJ2BM-7N — LSJ2B-7N with 6 ft of 9 conductor STOOW-A cable.  
LSA1AB — LSA1A with 5 pin receptacle.  
LSA1ADD — 4 pin micro-change connector.

NOTE: Connector versions available with ½ in. conduit tap only.

Refer to page A46 for pin-out and mating connector. Refer to page A58 for dimensions.

# Limit and Enclosed Switches

HDLS Series

## Switches for Special Applications

### HIGH CAPACITY LIMIT SWITCH



This series has a wide gap contact block that handles a higher make/break DC load. In addition, a special lever arm has a serrated shaft hole and a capscrew with locking nut for attaching the lever to the rotary shaft. (See inset.) This assures a firm grip on the operating shaft and positive retention of the lever adjustment.

#### FEATURES

- High DC current ratings
- 20 amp rating at 120 VAC (single pole)
- Plug in or non-plug in
- Positive retention lever arm

The need for precise operation, coupled with severe environmental conditions places rigid demands on any control. MICRO SWITCH satisfies these demands with its high capacity Heavy Duty Limit Switch, which is designed to perform reliably under these conditions.

#### ELECTRICAL RATINGS

Circuitry	Voltage	Single Pole		Double Pole	
 <b>DPDT Double Break</b>		Resistive Load	Inductive Load	Resistive Load	Inductive Load
	125 VDC	2.0A	1.0A	1.0A	0.4A
	250 VDC	0.7A	0.4A	0.4A	0.2A
	120 VAC	20A	20A	10A	10A
 <b>SPDT Double Break</b>	240 VAC	15A	15A	7.5A	7.5A
	480 VAC	10A	10A	5A	5A
	600 VAC	5A	5A	2.5A	2.5A

Maximum operating rate - 15 operations per minute

#### ORDER GUIDE INCLUDING LEVER

Catalog Listing	Description
LSQ051	Double pole, non-plug-in 3/4" Conduit opening
LSQ052	Double pole, plug-in 3/4" Conduit opening
LSQ053	Single pole, non-plug-in 1/2" Conduit opening
LSQ054	Single pole, plug-in 1/2" Conduit opening
LSZ616	Replacement lever for above listings

Limit/Enclosed

### MANIFOLD MOUNT SWITCHES



Manifold mount HDLS limit switches have an opening for the lead wires through the gasketed mounting base. The gasket maintains the oil tightness when the switch is surface mounted.

The manifold mount switches are available in either single-pole or double-pole forms of the plug-in types only. Mounting and wiring of the single-pole and double-pole forms is completely interchangeable. Any operating head type can be provided.

Catalog listings of plug-in HDLS switches in the order guides can be converted to specify manifold mount versions.

#### SINGLE-POLE CATALOG LISTINGS

Convert a single-pole, standard duty rated switch listing to specify manifold mount by changing the fifth character in the catalog listing to **F**.

Example:

LSA1A — standard side rotary plug-in switch

LSA1F — above switch in manifold mount

Convert a single-pole, electronic duty switch listing by changing the fifth character in the catalog listing to **G**.

Example:

LSA1J — standard side rotary plug-in switch

LSA1G — above switch in manifold mount

LSZ4015 — plug-in base only.

#### DOUBLE-POLE CATALOG LISTINGS

Convert double-pole catalog listings (except LSL sequential action and LSM center neutral types) to specify manifold mount by changing the fourth and fifth characters in the catalog listing to **2F**.

Example:

LSA2B — standard side rotary plug-in switch

LSA2F — above switch in manifold mount

Change the fourth and fifth characters of LSM listings to **2H**.

Example:

LSM2D — center neutral switch

LSM2H — above switch in manifold mount

Change the fourth and fifth characters of LSL listings to **2G**.

Example:

LSL2C — sequential action switch

LSL2G — above switch in manifold mount

LSZ4016 — plug-in base only.

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В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

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