

## MICRO SWITCH™ HDLS Series

### Heavy-Duty Limit Switches

#### DESCRIPTION

Honeywell Sensing and Control's MICRO SWITCH™ heavy-duty limit switches' modular construction allows for a wide variety of actuator styles, operating heads, and electrical circuitry options. The plug-in versions greatly reduce downtime on high production lines as replacement of the switch is accomplished in seconds. The base receptacle contains all the wiring and conduit connection while the switching component with operating head easily assembles to the base and is attached with two screws.

#### FEATURES AND BENEFITS

- Rugged, zinc die-cast housings with epoxy coating for indoor and outdoor applications
- Sealed to NEMA 1, 3, 4, 4X, 6, 6P, 12, 13; IP 65/66/67
- Full complement of bodies and head styles for design flexibility
- Wide variety of actuators and electrical circuitry options available
- Conduit options available for global applications
- Rotary actuated heads are field adjustable for CW actuation, CCW actuation or both to reduce inventory
- Keyed head design for secure head-to-body retention and 90 degree head rotation
- Plug-in and non plug-in bodies have identical operating characteristics and dimensionally interchangeable
- Actuating levers for single and double pole, plug-in and non plug-in bodies provide same tracking and minimize inventory
- UL, CSA, CE, and CCC for global use
- Fluorosilicone seals available for low temperature applications
- Fluorocarbon seals available for chemically harsh environments and higher temperature applications.
- Self-lifting pressure plate terminals saves wiring time



#### APPLICATIONS

- Material handling
- Balers/compactors
- Automotive machine tools
- Conveyors
- Food & beverage machinery
- Machine tools
- Power plants
- Off-road equipment
- Agricultural equipment
- Valves
- Shipboard and dockside

#### TABLE OF CONTENTS

|                                           |       |
|-------------------------------------------|-------|
| Features and options . . . . .            | 2     |
| General specifications . . . . .          | 3     |
| Operating head descriptions . . . . .     | 4-5   |
| Special options . . . . .                 | 6-8   |
| Side rotary switches . . . . .            | 9-12  |
| Top rotary switches . . . . .             | 13-14 |
| Levers . . . . .                          | 15-16 |
| Cam tracking . . . . .                    | 17    |
| Plunger switches . . . . .                | 18-26 |
| Wobble switches . . . . .                 | 27-32 |
| Special applications . . . . .            | 33-34 |
| MICRO SWITCH™ HDLS nomenclature . . . . . | 35    |
| MICRO SWITCH™ HDLS listings . . . . .     | 36-37 |
| Series variations . . . . .               | 38    |

# MICRO SWITCH™ HDLS Series

Figure 1. MICRO SWITCH™ HDLS SERIES FEATURES AND OPTIONS



# Heavy Duty Limit Switches

**Table 1. General MICRO SWITCH™ HDLS Series Specifications**

| Characteristic                        | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Type</b>                   | MICRO SWITCH™ Heavy-Duty Limit Switches                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Actuators</b>                      | <div>Side plunger - adjustable</div> <div>Side roller plunger</div> <div>Top plunger - adjustable</div> <div>Top rotary</div> <div>Wobble - coil spring</div> <div>Side plunger - pin</div> <div>Side rotary</div> <div>Top plunger - pin</div> <div>Wobble - cable</div> <div>Wobble - plastic rod</div> <div>Side plunger maintained - pin</div> <div>Side rotary maintained</div> <div>Top roller plunger</div> <div>Wobble - cat whisker</div> <div>Wobble - spring wire</div> |
| <b>Circuitry</b>                      | <div>1NC 1NO SPDT snap action, double break</div> <div>2NC 2NO DPDT center neutral, snap action, double break</div> <div>2NC 2NO DPDT snap action, double break</div> <div>2NC 2NO DPDT sequential, snap action, double break</div>                                                                                                                                                                                                                                                |
| <b>Electrical</b>                     | <div>10 A thermal</div> <div>Single and double pole: AC15 A600; DC13 R300</div>                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Housing Material</b>               | Zinc die-cast with an electrostatic epoxy coating                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Termination Types</b>              | <div>0.5 in - 14NPT conduit</div> <div>PG 13,5 conduit</div> <div>4-pin mini-style connector</div> <div>6 ft cable</div> <div>0.75 in - 14NPT conduit</div> <div>20 mm conduit</div> <div>5-pin mini-style connector</div> <div>Manifold mounting</div> <div>12 ft cable</div> <div>4-pin micro-style connector</div> <div>9-pin mini-style connector</div>                                                                                                                        |
| <b>Housing Type</b>                   | HDLS Plug-in, HDLS Non-Plug-in                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Sealing</b>                        | IP65/66/67; NEMA 1, 3, 4, 4X, 6, 6P, 12, 13                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Operating Temperature</b>          | <div>-12 °C to 121 °C [10 °F to 250 °F];</div> <div>optional: -40 °C to 121 °C [-40 °F to 250 °F]</div>                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Agency Approvals and Standards</b> | UL, CE, CSA, CCC                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>UNSPSC Code</b>                    | 302119                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>UNSPSC Commodity</b>               | 302119 Switches and controls and relays                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Sealed</b>                         | Industrial                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

# MICRO SWITCH™ HDLS Series

## 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]).

## Heavy Duty Limit Switches

### MICRO SWITCH™ HDLS SERIES OPERATING 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].

|                                                                                   |                                                                                                                                                                                                                                                                                     |                                                                                    |                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>LSE - Side pin plunger:</b> 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 gasket seal between the head and housing keep out coolant, dust, and chips. Momentary action. |  | <b>LSW - Adjustable side pin plunger:</b> 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]. Momentary action.                                                                    |
|  | <b>LSF - Side roller plunger:</b> 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> Boot seal on plunger. Momentary action.                               |  | <b>LSG - Maintained contact side pin plunger:</b> 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]. |

**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].

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

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

# MICRO SWITCH™ HDLS Series

## 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 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>LSYAC1A</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<br>(Fluorosilicone Sealed): Y_B |                    |                   |                    | High Temperature HDLS<br>(Fluorocarbon Sealed)*: Y_C |                  |                    |
|---------------------------------------|-------------------|------------------|-------------------|--------------------|------------------------------------------------------|--------------------|-------------------|--------------------|------------------------------------------------------|------------------|--------------------|
|                                       | Low Limit         |                  | High Limit        |                    | Low Limit                                            |                    | High Limit        |                    | Low Limit                                            |                  | High Limit         |
|                                       | -12 °C<br>[10 °F] | -1 °C<br>[30 °F] | 93 °C<br>[200 °F] | 121 °C<br>[250 °F] | -40 °C<br>[-40 °F]                                   | -29 °C<br>[-20 °F] | 93 °C<br>[200 °F] | 121 °C<br>[250 °F] | -12 °C<br>[10 °F]                                    | -1 °C<br>[30 °F] | 121 °C<br>[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                  |
| 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.

## Heavy Duty Limit Switches

### FACTORY SEALED PRE-WIRED LIMIT SWITCHES

#### Features

- Pre-wired with 6 ft STOW-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                                                       |
|-----------|-------|------------------------------------------------------------------------|
| SPDT      | C     | A (4-pin mini-style)<br>B (5-pin mini-style)<br>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**BM**-7N = LSJ2B-7N with 6 feet of 9-conductor STOW-A cable

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

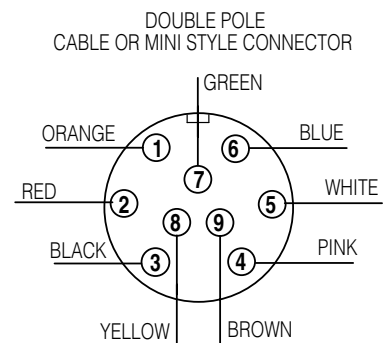
LSA1A**DD** = LSA1A with a 4-pin micro-style connector

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

### WIRING DIAGRAMS

Connectors = Numbers (mini-style)

Cables = Colors



#### Electrical Ratings: Connector Versions

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

### SWITCH WIRE POINTS FOR CONNECTOR/CABLE

#### Single-Pole Circuitry



3 = Ground

#### Double-Pole Circuitry



7 = Ground

# MICRO SWITCH™ HDLS Series

## ASSEMBLY MODIFICATIONS

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 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 |
|------------------------------------------|--------------|-----|--------------------------------|---------------------------------|
| <b>A*</b><br><b>AC15,</b><br><b>A600</b> | SPDT<br>DPDT | 120 | 60                             | 6                               |
|                                          |              | 240 | 30                             | 3                               |
|                                          |              | 480 | 15                             | 1.5                             |
|                                          |              | 600 | 12                             | 1.2                             |
| <b>B</b><br><b>AC15,</b><br><b>B600</b>  | 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 |
|-------------------|--------------|-----|-----------------------------|-----------------------------|
| <b>A, B*</b>      | SPDT<br>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             |



## Heavy Duty Limit Switches

### Side Rotary

#### MICRO SWITCH™ HDLS SERIES ORDER GUIDE/RECOMMENDED LISTINGS



|                             | Standard (LSA)                                                                                  |                                | Low Differential (LSP)                  |                                | 5° Pretravel (LSU)             |                                |
|-----------------------------|-------------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Description                 | Standard                                                                                        |                                | Low pretravel & low differential travel |                                | Low pretravel                  |                                |
|                             | SPDT                                                                                            | DPDT                           | SPDT                                    | DPDT                           | SPDT                           | DPDT                           |
|                             | <p>Snap Action<br/>1NO/1NC</p>                                                                  | <p>Snap Action<br/>2NO/2NC</p> | <p>Snap Action<br/>1NO/1NC</p>          | <p>Snap Action<br/>2NO/2NC</p> | <p>Snap Action<br/>1NO/1NC</p> | <p>Snap Action<br/>2NO/2NC</p> |
|                             | <p>Contact closed ■<br/>Contact open □</p>                                                      |                                |                                         |                                |                                |                                |
|                             | Pretravel                                                                                       | 15° max.                       | 15° max.                                | 9° max.                        | 9° max.                        | 5° max.                        |
| Different. travel           | 5° max.                                                                                         | 7° max.                        | 3° max.                                 | 4° max.                        | 3° max.                        | 4° max.                        |
| Overtravel                  | 60° min.                                                                                        | 60° min.                       | 66° min.                                | 66° min.                       | 70° min.                       | 70° min.                       |
| Oper. torque                | 0,45 Nm [4 in-lb] max.                                                                          |                                | 0,45 Nm [4 in-lb] max.                  |                                | 0,45 Nm [4 in-lb] max.         |                                |
| Action                      | CW & CCW (Spring return)                                                                        |                                |                                         |                                |                                |                                |
| Op. temp range <sup>3</sup> | -12 °C to 121 °C [10 °F to 250 °F] (for low temp, high temp, or preloaded versions, see page 6) |                                |                                         |                                |                                |                                |

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

\* 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

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 LSA**Y****C**1A limit switch.

# MICRO SWITCH™ HDLS Series

## Side Rotary

### MICRO SWITCH™ HDLS SERIES ORDER GUIDE/RECOMMENDED LISTINGS



|                             | Low Torque (LSR)                                                                              |                                | Low Diff., Low Torque (LSH)             |                                |         |
|-----------------------------|-----------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------|--------------------------------|---------|
| Description                 | Low operating torque                                                                          |                                | Momentary, low pretravel and low torque |                                |         |
|                             | SPDT                                                                                          | DPDT                           | SPDT                                    | DPDT                           |         |
|                             | <p>Snap Action<br/>1NO/1NC</p>                                                                | <p>Snap Action<br/>2NO/2NC</p> | <p>Snap Action<br/>1NO/1NC</p>          | <p>Snap Action<br/>2NO/2NC</p> |         |
|                             |                                                                                               |                                |                                         |                                |         |
|                             | Pretravel                                                                                     | 15° max.                       | 15° max.                                | 9° max.                        | 9° max. |
|                             | Different. travel                                                                             | 5° max.                        | 7° max.                                 | 3° max.                        | 4° max. |
| Overtravel                  | 60° min.                                                                                      | 60° min.                       | 66° min.                                | 66° min.                       |         |
| Oper. torque                | 0,19 Nm [1.7 in-lb] max.                                                                      |                                | 0,19 Nm [1.7 in-lb] max.                |                                |         |
| Action                      | CW & CCW (Spring return)                                                                      |                                |                                         |                                |         |
| Op. temp range <sup>3</sup> | -1 °C to 121 °C [30 °F to 250°F] (for low temp, high temp, or preloaded versions, see page 6) |                                |                                         |                                |         |

| Circuitry | Contacts          | Body Style <sup>2</sup> | Conduit (NPT) | Options                                |              |              |
|-----------|-------------------|-------------------------|---------------|----------------------------------------|--------------|--------------|
| SPDT<br>  | Silver            | Plug-in                 | 0.5 in        |                                        | <b>LSR1A</b> | <b>LSH1A</b> |
|           | Gold <sup>4</sup> | Plug-in                 | 0.5 in        |                                        | <b>LSR1E</b> | <b>LSH1E</b> |
|           | Silver            | Plug-in                 | 0.5 in        | 120 V Ind. lite*                       | <b>LSR5A</b> | <b>LSH5A</b> |
|           | Silver            | Plug-in                 | 0.5 in        | 240 V Ind. lite*                       | <b>LSR8A</b> | <b>LSH8A</b> |
|           | Silver            | Plug-in                 | 0.5 in        | 24 V LED lit 1.5 mA max. auto polarity | <b>LSR9A</b> | <b>LSH9S</b> |
|           | Silver            | Non-plug-in             | 0.5 in        |                                        | <b>LSR3K</b> | <b>LSH3K</b> |
| DPDT<br>  | Silver            | Plug-in                 | 0.75 in       |                                        | <b>LSR3B</b> | <b>LSH2B</b> |
|           | Silver            | Plug-in                 | 0.5 in        |                                        | <b>LSR6B</b> | <b>LSH6B</b> |
|           | Silver            | Plug-in                 | 0.75 in       | 120 V Ind. lite*                       | <b>LSR2R</b> | <b>LSH2R</b> |
|           | Silver            | Non-plug-in             | 0.75 in       |                                        | <b>LSR4L</b> | <b>LSH4L</b> |
|           | Silver            | Non-plug-in             | 0.5 in        |                                        | <b>LSR7L</b> | <b>LSH7L</b> |

\* 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

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 LSA**Y****C**1A limit switch.

## Heavy Duty Limit Switches

### Side Rotary

#### MICRO SWITCH™ HDLS SERIES ORDER GUIDE/RECOMMENDED LISTINGS



|                                                  | Maint. Contact (LSQ)                                                                             | Maint. Contact (LSN)                       | Center Neutral (LSM)                                              | Sequence Action (LSL)                                                        |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------|
| Description                                      | Maint. <sup>2</sup><br>360° Alt.<br>Action                                                       | Maintained,<br>2-pos <sup>1,2</sup> . Std. | Center Neutral<br>(Pole 1 operates<br>CCW; Pole 2<br>operates CW) | Sequential<br>(Pole 1 operates<br>before Pole 2, either<br>CW, CCW, or both) |
|                                                  | SPDT                                                                                             | SPDT DPDT                                  | DPDT                                                              | DPDT                                                                         |
|                                                  |                                                                                                  |                                            |                                                                   |                                                                              |
| <b>Contact closed</b> ■<br><b>Contact open</b> □ |                                                                                                  |                                            |                                                                   |                                                                              |
| <b>Pretravel</b>                                 | 65° max.                                                                                         | 65° max.                                   | 18° max.                                                          | 1 <sup>st</sup> : 15°<br>2 <sup>nd</sup> : add'l 10°                         |
| <b>Different. travel</b>                         | 40° max.                                                                                         | 40° max.                                   | 10° max.                                                          | each pole: 5°                                                                |
| <b>Overtravel</b>                                | 20° min.                                                                                         | 20° min.                                   | 57° min.                                                          | 48° min.                                                                     |
| <b>Oper. torque</b>                              | 0,45 Nm [4 in-lb]                                                                                |                                            | 0,45 Nm [4 in-lb]                                                 | 0,45 Nm [4 in-lb]                                                            |
| <b>Action</b>                                    | Maintained                                                                                       |                                            | CW & CCW (Spring return)                                          |                                                                              |
| <b>Op. temp range<sup>3</sup></b>                | -1 °C to 121 °C [30 °F to 250°F]<br>(for low temp, high temp, or preloaded versions, see page 6) |                                            |                                                                   | -12 °C to 121 °C<br>[10 °F to 250°F]                                         |

| Circuitry       | Contacts          | Body Style <sup>2</sup> | Conduit (NPT) | Options          |               |              |                                       |                                 |
|-----------------|-------------------|-------------------------|---------------|------------------|---------------|--------------|---------------------------------------|---------------------------------|
| <b>SPDT</b><br> | Silver            | Plug-in                 | 0.5 in        |                  | <b>LSQ300</b> | <b>LSN1A</b> | <b>CENTER NEUTRAL (Momentary)</b><br> | <b>SEQUENCE (Momentary)</b><br> |
|                 | Gold <sup>3</sup> | Plug-in                 | 0.5 in        |                  | —             | <b>LSN1E</b> |                                       |                                 |
|                 | Silver            | Plug-in                 | 0.5 in        | 120 V Ind. lite* | —             | <b>LSN5A</b> |                                       |                                 |
|                 | Silver            | Plug-in                 | 0.5 in        | 240 V Ind. lite* | —             | <b>LSN8A</b> |                                       |                                 |
|                 | Silver            | Non-plug-in             | 0.5 in        |                  | —             | <b>LSN3K</b> |                                       |                                 |
| <b>DPDT</b><br> | Silver            | Plug-in                 | 0.75 in       |                  | —             | <b>LSN2B</b> | <b>LSM2D</b>                          | <b>LSL2C</b>                    |
|                 | Silver            | Plug-in                 | 0.5 in        |                  | —             | <b>LSN6B</b> | <b>LSM6D</b>                          | <b>LSL6C</b>                    |
|                 | Gold <sup>3</sup> | Plug-in                 | 0.5 in        |                  | —             | —            | <b>LSM6U</b>                          | —                               |
|                 | Silver            | Non-plug-in             | 0.75 in       |                  | —             | <b>LSN4L</b> | <b>LSM4N</b>                          | <b>LSL4M</b>                    |
|                 | Silver            | Non-plug-in             | 0.5 in        |                  | —             | <b>LSN7L</b> | <b>LSM7N</b>                          | <b>LSL7M</b>                    |

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

\*\* Plug-in listings include base receptacle

\*\*\* Completely fluorocarbon-sealed switches are preferred for temperatures above 93 °C [200 °F].

<sup>1</sup> Mechanical trip before electrical trip.

<sup>2</sup> Total travel is approximately 80° max. Maintained contact switch normally used with LSZ53 yoke actuator.

<sup>3</sup> Gold-plated contacts

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 LSYAC1A limit switch.

# MICRO SWITCH™ HDLS Series

## Side Rotary

Figure 2. MICRO SWITCH™ HDLS side rotary (single pole) dimensions

### SPDT Plug-in (mm[in])

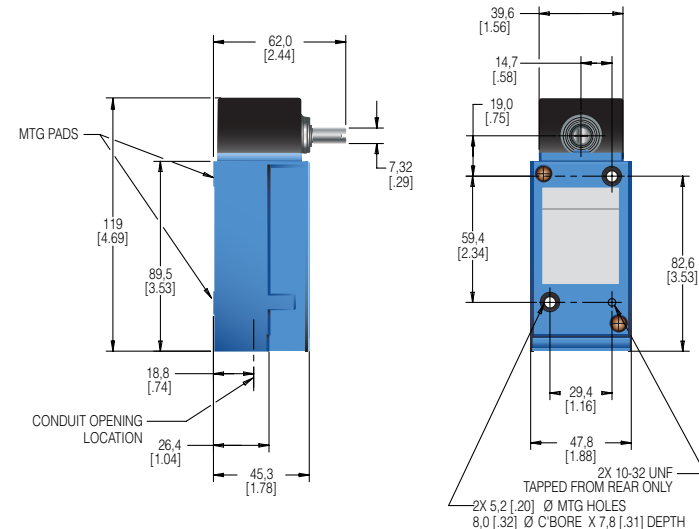


### SPDT Non-plug-in (mm[in])

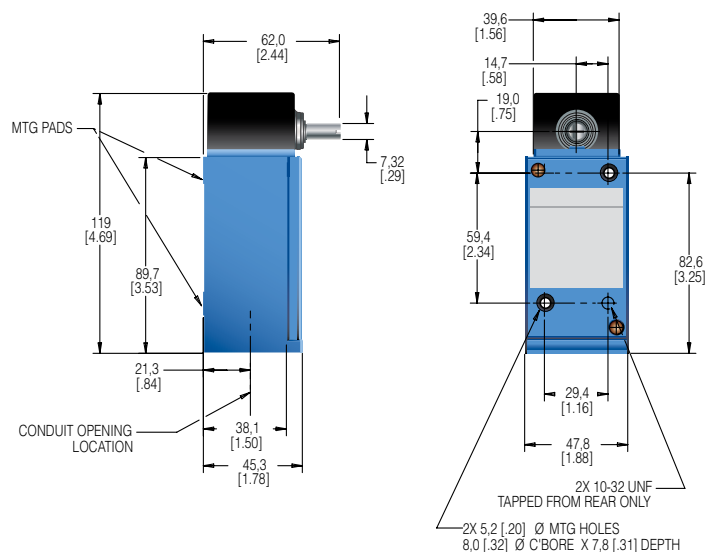


Figure 3. MICRO SWITCH™ HDLS side rotary (double pole) dimensions

### DPDT Plug-in (mm[in])



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



## Heavy Duty Limit Switches

### Top Rotary

#### MICRO SWITCH™ HDLS SERIES OPERATING CHARACTERISTICS BY OPERATING HEAD/MODEL



|                                    |  | Top Rotary (LSB)                                                                                                 |                                           |
|------------------------------------|--|------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Description                        |  | High overtravel – often ideal when increased overtravel is required (100° min.). Uses same levers as side rotary |                                           |
|                                    |  | SPDT                                                                                                             | DPDT                                      |
|                                    |  | Snap Action<br>1NO/1NC<br><br>0° 25° 135°                                                                        | Snap Action<br>2NO/2NC<br><br>0° 25° 135° |
| Contact closed ■<br>Contact open □ |  |                                                                                                                  |                                           |
| Pretravel                          |  | 25° max.                                                                                                         | 25° max.                                  |
| Different. travel                  |  | 10° max.                                                                                                         | 12° max.                                  |
| Overtravel                         |  | 110° min.                                                                                                        | 110° min.                                 |
| Oper. torque                       |  | 0,28 Nm [2.5 in lb] max.                                                                                         |                                           |
| Op. temp range <sup>3</sup>        |  | -12 °C to 121 °C [10 °F to 250 °F] (for low temp, high temp, or preloaded versions, see page 6)                  |                                           |

| Circuitry |  | Contacts          | Body Style <sup>2</sup> | Conduit (NPT) | Options                                |       |       |
|-----------|--|-------------------|-------------------------|---------------|----------------------------------------|-------|-------|
| SPDT      |  | Silver            | Plug-in                 | 0.5 in        |                                        | LSB1A | –     |
|           |  | Gold <sup>4</sup> | Plug-in                 | 0.5 in        |                                        | LSB1E | –     |
|           |  | Silver            | Plug-in                 | 0.5 in        | 120 V Ind. lite*                       | LSB5A | –     |
|           |  | Silver            | Plug-in                 | 0.5 in        | 240 V Ind. lite*                       | LSB8A | –     |
|           |  | Silver            | Plug-in                 | 0.5 in        | 24 V LED lit 1.5 mA max. auto polarity | LSB9A | –     |
|           |  | Silver            | Non-plug-in             | 0.5 in        |                                        | LSB3K | –     |
| DPDT      |  | Silver            | Plug-in                 | 0.75 in       |                                        | –     | LSB2B |
|           |  | Silver            | Plug-in                 | 0.5 in        |                                        | –     | LSB6B |
|           |  | Silver            | Plug-in                 | 0.75 in       | 120 V Ind. lite*                       | –     | LSB2R |
|           |  | Silver            | Non-plug-in             | 0.75 in       |                                        | –     | LSB4L |
|           |  | Silver            | Non-plug-in             | 0.5 in        |                                        | –     | LSB7L |

\* 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

# MICRO SWITCH™ HDLS Series

## Top Rotary

**Figure 4. MICRO SWITCH™ HDLS top rotary (single pole) dimensions**

### SPDT Plug-in (mm[in])

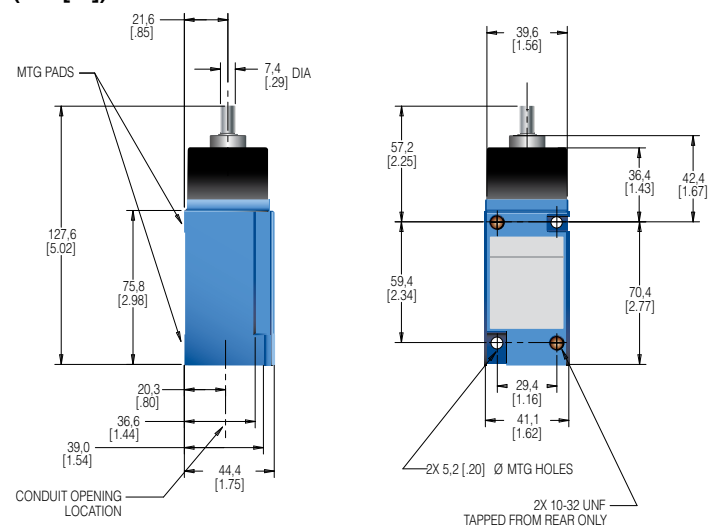


**Figure 5. MICRO SWITCH™ HDLS top rotary (double pole) dimensions**

### DPDT Plug-in (mm[in])



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



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



## Heavy Duty Limit Switches

### Levers

**Table 2. Common levers for use with MICRO SWITCH™ HDLS Rotary Switches**

Levers for use with side or top rotary actuated switches are available in a wide choice of sizes and materials. The most common listings are shown below. Rollers may be on either side of the lever to best match the external actuating mechanism.

|                                                                                      |                                                                                     |                                                                                                           |                                                                                     |                                                                                       |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|     |    |                          |                                                                                     |    |
| <b>LSZ51A&amp;C</b><br>fixed rotary lever,<br>nylon roller, front/<br>back           | <b>LSZ51B&amp;D</b><br>fixed rotary lever,<br>steel roller, front/<br>back          | <b>LSZ59A,LSZ59B,<br/>LSZ59C,LSZ59D</b><br>short fixed lever,<br>front/back                               |                                                                                     | <b>LSZ69CA</b><br>spoke lever - 6 inches                                              |
|    |   |                         |   |                                                                                       |
| <b>LSZ55A,LSZ55B,<br/>LSZ55C,LSZ55D</b><br>offset lever,<br>front/back               | <b>LSZ60</b><br>one-way<br>roller lever                                             | <b>LSZ53A, LSZ53B, LSZ53C,<br/>LSZ53D</b><br>yoke lever, nylon and steel rollers,<br>front/back placement | <b>LSZ54R</b><br>spring wire<br>304,8 mm [12 in]                                    |                                                                                       |
|   |  |                        |  |    |
| <b>LSZ52A, LSZ52B,<br/>LSZ52C, LSZ52D</b><br>adj. lever, nylon/<br>steel, front/back | <b>LSZ52J</b><br>adjustable lever,<br>nylon roller<br>25,4 mm [1 in]                | <b>LSZ52K</b><br>adjustable lever,<br>nylon roller<br>38,1 [1.5 in]                                       | <b>LSZ54M</b><br>aluminum rod<br>139,7 mm<br>[5.5 in]                               | <b>LSZ61</b><br>loop<br>152,4 mm [6 in]                                               |
|                                                                                      |                                                                                     |                                                                                                           |                                                                                     |  |
|                                                                                      |                                                                                     |                                                                                                           |                                                                                     |   |
|                                                                                      |                                                                                     |                                                                                                           |                                                                                     |   |
|                                                                                      |                                                                                     |                                                                                                           |                                                                                     | <b>LSZ67CA</b><br>Plastic conveyor roller                                             |
|                                                                                      |                                                                                     |                                                                                                           |                                                                                     | <b>LSZ68</b><br>rod w/ spring<br>304,8 mm<br>[12 in]                                  |
|                                                                                      |                                                                                     |                                                                                                           |                                                                                     | <b>LSZ54N</b><br>stainless steel<br>rod 330,2 mm<br>[13 in]                           |

# MICRO SWITCH™ HDLS Series

## Levers

Table 3. HDLS SERIES ACTUATOR CODE TABLE (see previous page)

|                                                                                     | Catalog Listing                           | Material                              | Roller Dia. (in) | Roller Width (in) | Roller Mounting |
|-------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------|------------------|-------------------|-----------------|
|    | <b>Fixed 1.5 inch radius</b>              |                                       |                  |                   |                 |
|                                                                                     | –                                         | Rollerless                            | n/a              | n/a               | n/a             |
|                                                                                     | LSZ51A                                    | Nylon                                 | 0.75             | 0.25              | Front           |
|                                                                                     | LSZ51B                                    | Steel                                 | 0.75             | 0.25              | Front           |
|                                                                                     | LSZ51C                                    | Nylon                                 | 0.75             | 0.25              | Back            |
|                                                                                     | LSZ51D                                    | Steel                                 | 0.75             | 0.25              | Back            |
|                                                                                     | LSZ51F                                    | Nylon                                 | 1.0              | 0.520             | Front           |
|                                                                                     | LSZ51G                                    | Nylon                                 | 1.5              | 0.25              | Front           |
|                                                                                     | LSZ51J                                    | Nylon                                 | 1.0              | 0.520             | Back            |
|                                                                                     | LSZ51L                                    | Ball bearing                          | 0.75             | 0.25              | Back            |
|                                                                                     | LSZ51M                                    | Nylon                                 | 0.75             | 1.25              | Back            |
|                                                                                     | LSZ51N                                    | Steel                                 | 0.75             | 1.25              | Front           |
|                                                                                     | LSZ51P                                    | Nylon                                 | 0.75             | 0.50              | Front           |
|   | <b>Adjustable 1.5 in to 3.5 in radius</b> |                                       |                  |                   |                 |
|                                                                                     | –                                         | Rollerless                            | n/a              | n/a               | n/a             |
|                                                                                     | LSZ52A                                    | Nylon                                 | 0.75             | 0.25              | Back            |
|                                                                                     | LSZ52B                                    | Steel                                 | 0.75             | 0.25              | Back            |
|                                                                                     | LSZ52C                                    | Nylon                                 | 0.75             | 0.25              | Front           |
|                                                                                     | LSZ52D                                    | Steel                                 | 0.75             | 0.25              | Front           |
|                                                                                     | LSZ52E                                    | Nylon                                 | 0.75             | 1.30              | Front           |
|                                                                                     | LSZ52J                                    | Nylon                                 | 1.0              | 0.50              | Front           |
|                                                                                     | LSZ52K                                    | Nylon                                 | 1.5              | 0.25              | Front           |
|                                                                                     | LSZ52L                                    | Ball bearing                          | 0.75             | 0.25              | Front           |
|                                                                                     | LSZ52M                                    | Nylon                                 | 2.0              | 0.25              | Front           |
|                                                                                     | LSZ52N                                    | Nylon                                 | 0.75             | 0.50              | Front           |
|  | <b>Yoke – 1.5 in radius</b>               |                                       |                  |                   |                 |
|                                                                                     | LSZ53A                                    | Nylon                                 | 0.75             | 0.25              | Front/Back      |
|                                                                                     | LSZ53B                                    | Steel                                 | 0.75             | 0.25              | Front/Back      |
|                                                                                     | LSZ53D                                    | Steel                                 | 0.75             | 0.25              | Front/Front     |
|                                                                                     | LSZ53E                                    | Nylon                                 | 0.75             | 0.25              | Back/Front      |
|                                                                                     | LSZ53M                                    | Nylon                                 | 0.75             | 1.25              | Back/Front      |
|                                                                                     | LSZ53P                                    | Steel                                 | 0.75             | 0.25              | Back/Back       |
|                                                                                     | LSZ53S                                    | Nylon                                 | 0.75             | 0.25              | Back/Back       |
|  | <b>Rod</b>                                |                                       |                  |                   |                 |
|                                                                                     | –                                         | Hub only                              | n/a              | n/a               | n/a             |
|                                                                                     | LSZ54M                                    | Alum, 5.5 in                          | Ø 0.125          | n/a               | n/a             |
|                                                                                     | LSZ54N                                    | Stainless, 13 in                      | Ø 0.125          | n/a               | n/a             |
|                                                                                     | LSZ54R                                    | SST spring wire, 12 in                | Ø 0.075          | n/a               | n/a             |
|                                                                                     | LSZ54V                                    | Flex cable (tin plated steel), 4.8 in | Ø 0.19           | n/a               | n/a             |
|                                                                                     | LSZ54P                                    | Plastic rod, 12 in                    | Ø 0.27           | n/a               | n/a             |
|                                                                                     | LSZ54W                                    | Plastic rod, 7.2 in                   | Ø 0.27           | n/a               | n/a             |
|                                                                                     | LSZ59T                                    | 13 in stainless steel                 | Ø 0.19           | n/a               | n/a             |
|  | <b>Spoke</b>                              |                                       |                  |                   |                 |
|                                                                                     | LSZ69CA                                   | Stainless                             | 6.0              | n/a               | n/a             |

|                                                                                      | Catalog Listing                    | Material          | Roller Dia. (in)                 | Roller Width (in) | Roller Mounting |
|--------------------------------------------------------------------------------------|------------------------------------|-------------------|----------------------------------|-------------------|-----------------|
|     | <b>Offset – 1.5 in radius</b>      |                   |                                  |                   |                 |
|                                                                                      | –                                  | Rollerless        | n/a                              | n/a               | n/a             |
|                                                                                      | LSZ55A                             | Nylon             | 0.75                             | 0.25              | Back            |
|                                                                                      | LSZ55B                             | Steel             | 0.75                             | 0.25              | Back            |
|                                                                                      | LSZ55C                             | Nylon             | 0.75                             | 0.25              | Front           |
|                                                                                      | LSZ55D                             | Steel             | 0.75                             | 0.25              | Front           |
|                                                                                      | LSZ55E                             | Nylon             | 0.75                             | 0.50              | Front           |
|                                                                                      | LSZ55K                             | Nylon             | 1.5                              | 0.25              | Front           |
|     | <b>Short fixed - 1.3 in radius</b> |                   |                                  |                   |                 |
|                                                                                      | LSZ59A                             | Nylon             | 0.75                             | 0.25              | Front           |
|                                                                                      | LSZ59B                             | Steel             | 0.75                             | 0.25              | Front           |
|                                                                                      | LSZ59C                             | Nylon             | 0.75                             | 0.25              | Back            |
|                                                                                      | LSZ59D                             | Steel             | 0.75                             | 0.25              | Back            |
|    | <b>One-way roller lever</b>        |                   |                                  |                   |                 |
|                                                                                      | LSZ60A                             | Nylon             | 0.75                             | 0.25              | Front           |
|                                                                                      | LSZ60B                             | Steel             | 0.75                             | 0.25              | Front           |
|   | <b>Flexible loop</b>               |                   |                                  |                   |                 |
|                                                                                      | LSZ61                              | Ø 0.19 Nylatron   | 6 inch flexible loop/cap screw   |                   |                 |
|                                                                                      | LSZ618                             | Ø 0.19 Nylatron   | 9.5 inch flexible loop/cap screw |                   |                 |
|                                                                                      | LSZ54                              | Hub only          | n/a                              | n/a               | n/a             |
|   | <b>Spring rod</b>                  |                   |                                  |                   |                 |
|                                                                                      | LSZ68                              | Delrin rod, 12 in | Ø 0.25                           | n/a               | n/a             |
|                                                                                      | LSZ617                             | Delrin rod, 16 in | Ø 0.25                           | n/a               | n/a             |
|                                                                                      | LSZ686                             | Delrin rod, 6 in  | Ø 0.25                           | n/a               | n/a             |
|   | <b>Rubber roller levers</b>        |                   |                                  |                   |                 |
|                                                                                      | LSZ51Y (standard)                  | Rubber            | 2.0                              | 0.5               | front           |
|                                                                                      | LSZ55Y (offset)                    | Rubber            | 2.0                              | 0.5               | front           |
|                                                                                      | LSZ52Y (adjustable)                | Rubber            | 2.0                              | 0.5               | front           |
|  | <b>Plastic roller levers</b>       |                   |                                  |                   |                 |
|                                                                                      | LSZ67AA (conveyor)                 | Plastic           | 1.5                              | 3.8               | n/a             |

## Heavy Duty Limit Switches

### Side Rotary

#### MICRO SWITCH™ HDLS side rotary levers' cam tracking

Levers for side and top rotary switches are normally ordered as separate catalog listings. They also may be ordered by including a suffix to the switch catalog listing (see nomenclature tree in this document) and adding the lever price.

**Figure 6. LSZ51 type levers cam tracking**

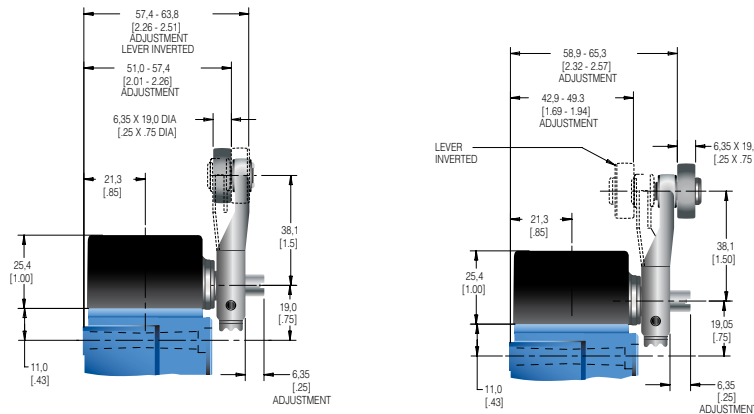


**Figure 7. LSZ52 type levers cam tracking**

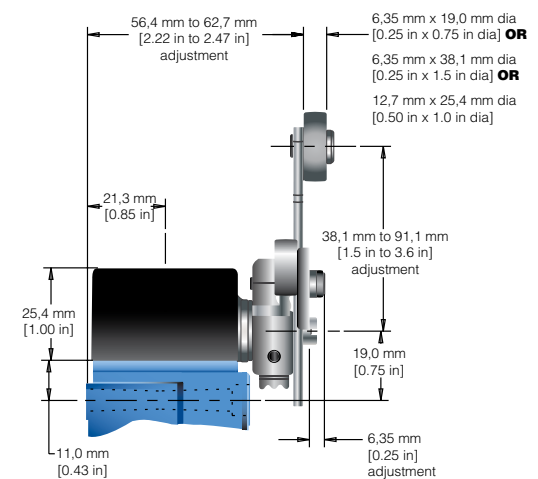


**Figure 8. LSZ54 type levers cam tracking**

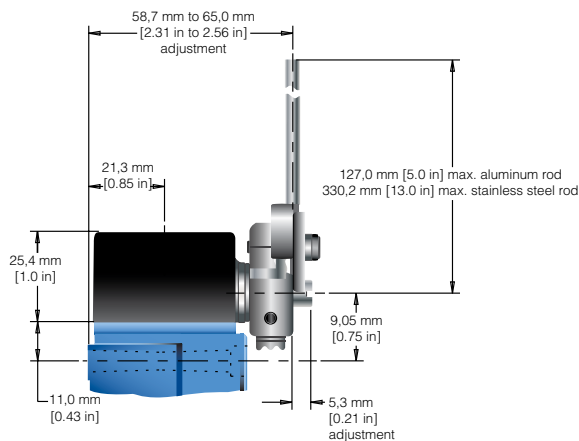
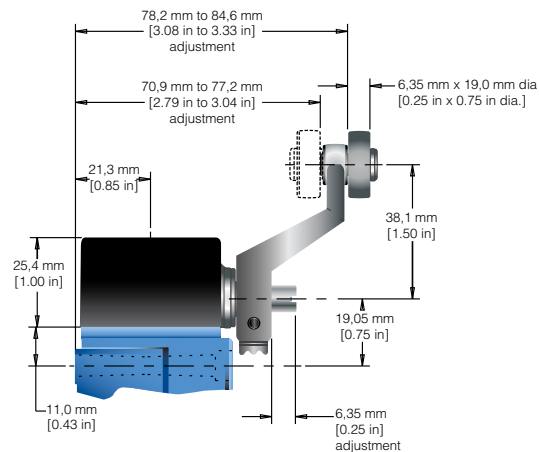


**Figure 9. LSZ55 type levers cam tracking**



# MICRO SWITCH™ HDLS Series

## 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 set at 90° increments to accept cam or slide actuation                                                                                                                                                                                                                                         | Adjustable top plain plunger simplifies installation since operating point can be adjusted from 2.085 in to 2.335 in                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                      |                   |  |  |  |  |  |                   |                       |                      |                       |                      |                       |                      |            |                   |  |  |  |  |  |                 |                    |  |  |  |  |  |                             |                                                                                                |  |  |  |  |  |
| <div>Contact closed ■</div> <div>Contact open □</div> | <div><div>SPDT</div><div></div><div><div>Snap Action</div><div>1NO/1NC</div><div>3 0 4</div><div>1 2</div><div>7 8</div><div>5 6</div></div><div><div>0 in</div><div>0.07 in</div><div>0.055 in</div><div>0.26 in</div></div></div> | <div><div>DPDT</div><div></div><div><div>Snap Action</div><div>2NO/2NC</div><div>3 0 4</div><div>1 2</div><div>7 8</div><div>5 6</div></div><div><div>0 in</div><div>0.07 in</div><div>0.050 in</div><div>0.26 in</div></div></div> | <div><div>SPDT</div><div></div><div><div>Snap Action</div><div>1NO/1NC</div><div>3 0 4</div><div>1 2</div><div>7 8</div><div>5 6</div></div><div><div>0 in</div><div>0.07 in</div><div>0.055 in</div><div>0.26 in</div></div></div> | <div><div>DPDT</div><div></div><div><div>Snap Action</div><div>2NO/2NC</div><div>3 0 4</div><div>1 2</div><div>7 8</div><div>5 6</div></div><div><div>0 in</div><div>0.07 in</div><div>0.050 in</div><div>0.26 in</div></div></div> | <div><div>SPDT</div><div></div><div><div>Snap Action</div><div>1NO/1NC</div><div>3 0 4</div><div>1 2</div><div>7 8</div><div>5 6</div></div><div><div>0 in</div><div>0.07 in</div><div>0.055 in</div><div>0.26 in</div></div></div> | <div><div>DPDT</div><div></div><div><div>Snap Action</div><div>2NO/2NC</div><div>3 0 4</div><div>1 2</div><div>7 8</div><div>5 6</div></div><div><div>0 in</div><div>0.07 in</div><div>0.050 in</div><div>0.26 in</div></div></div> | Pretravel            | 1,78 mm [0.07 in] |  |  |  |  |  | Different. travel | 0,38 mm<br>[0.015 in] | 0,51 mm<br>[0.02 in] | 0,38 mm<br>[0.015 in] | 0,51 mm<br>[0.02 in] | 0,38 mm<br>[0.015 in] | 0,51 mm<br>[0.02 in] | Overtravel | 4,83 mm [0.19 in] |  |  |  |  |  | Operating force | 17,8 N [4 lb] max. |  |  |  |  |  | Op. temp range <sup>3</sup> | -12 °C to 93 °C [10 °F to 200 °F] (for low temp, high temp, or preloaded versions, see page 6) |  |  |  |  |  |
|                                                       | Pretravel                                                                                                                                                                                                                                                                                                             | 1,78 mm [0.07 in]                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                      |                   |  |  |  |  |  |                   |                       |                      |                       |                      |                       |                      |            |                   |  |  |  |  |  |                 |                    |  |  |  |  |  |                             |                                                                                                |  |  |  |  |  |
|                                                       | Different. travel                                                                                                                                                                                                                                                                                                     | 0,38 mm<br>[0.015 in]                                                                                                                                                                                                                                                                                                  | 0,51 mm<br>[0.02 in]                                                                                                                                                                                                                                                                                                    | 0,38 mm<br>[0.015 in]                                                                                                                                                                                                                                                                                                   | 0,51 mm<br>[0.02 in]                                                                                                                                                                                                                                                                                                    | 0,38 mm<br>[0.015 in]                                                                                                                                                                                                                                                                                                   | 0,51 mm<br>[0.02 in] |                   |  |  |  |  |  |                   |                       |                      |                       |                      |                       |                      |            |                   |  |  |  |  |  |                 |                    |  |  |  |  |  |                             |                                                                                                |  |  |  |  |  |
|                                                       | Overtravel                                                                                                                                                                                                                                                                                                            | 4,83 mm [0.19 in]                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                      |                   |  |  |  |  |  |                   |                       |                      |                       |                      |                       |                      |            |                   |  |  |  |  |  |                 |                    |  |  |  |  |  |                             |                                                                                                |  |  |  |  |  |
|                                                       | Operating force                                                                                                                                                                                                                                                                                                       | 17,8 N [4 lb] max.                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                      |                   |  |  |  |  |  |                   |                       |                      |                       |                      |                       |                      |            |                   |  |  |  |  |  |                 |                    |  |  |  |  |  |                             |                                                                                                |  |  |  |  |  |
| Op. temp range <sup>3</sup>                           | -12 °C to 93 °C [10 °F to 200 °F] (for low temp, high temp, or preloaded versions, see page 6)                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                         |                      |                   |  |  |  |  |  |                   |                       |                      |                       |                      |                       |                      |            |                   |  |  |  |  |  |                 |                    |  |  |  |  |  |                             |                                                                                                |  |  |  |  |  |

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

\* 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

## Heavy Duty Limit Switches

### Plungers

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

#### SPDT Plug-in (mm[in])



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

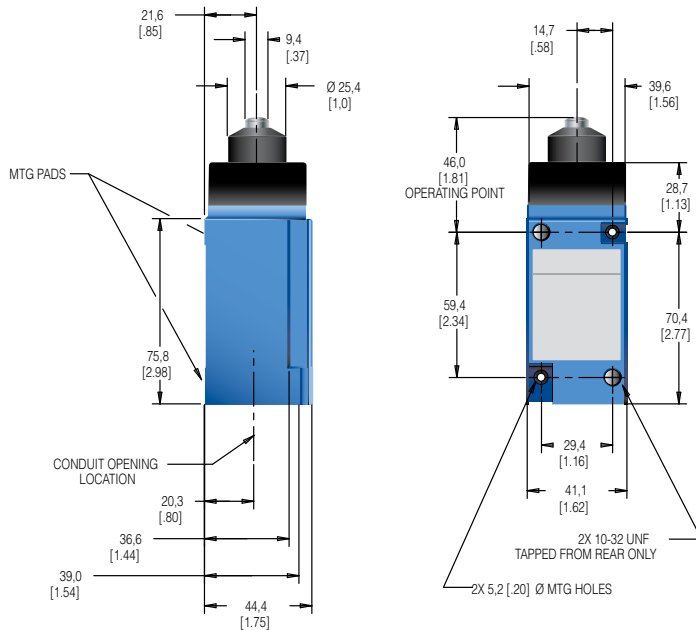
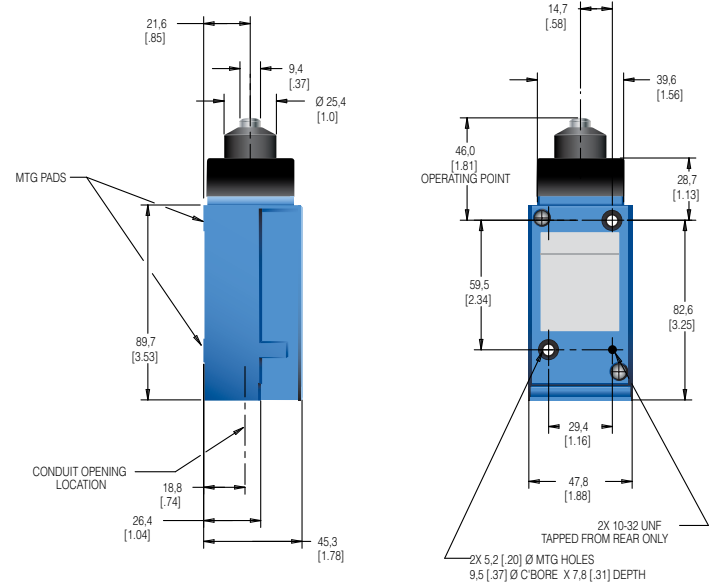
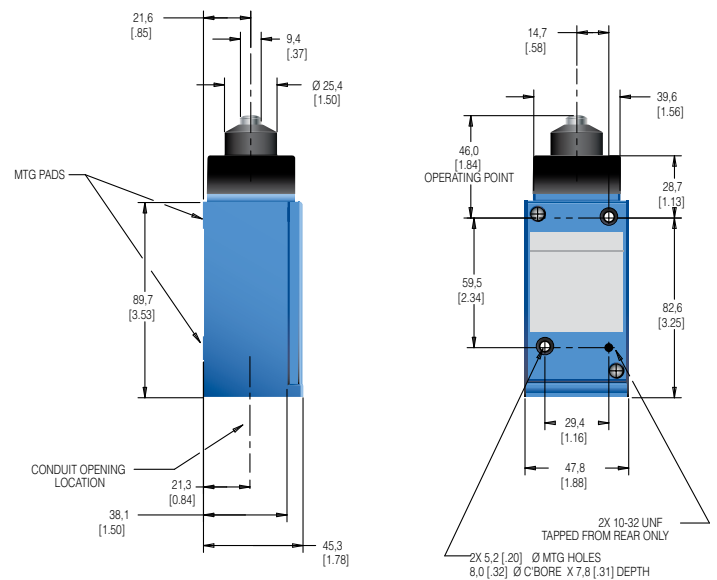


**Figure 11. MICRO SWITCH™ HDLS LSC Series (double pole plunger dimensions)**

#### DPDT Plug-in (mm[in])



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



# MICRO SWITCH™ HDLS Series

## Plungers

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

### SPDT Plug-in (mm[in])



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



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

### DPDT Plug-in (mm[in])



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



## Heavy Duty Limit Switches

### Plungers

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

#### SPDT Plug-in (mm[in])

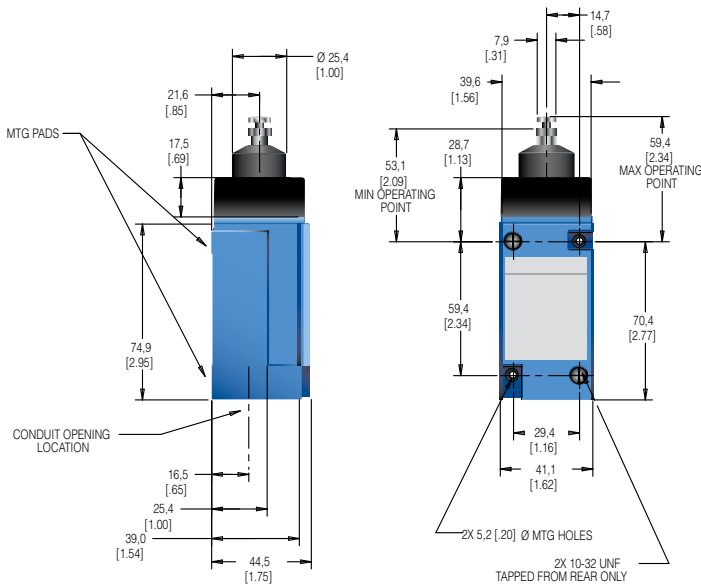
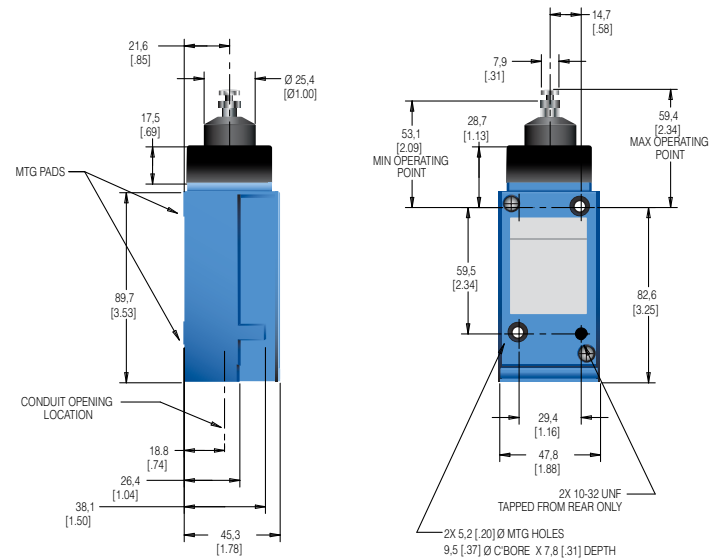
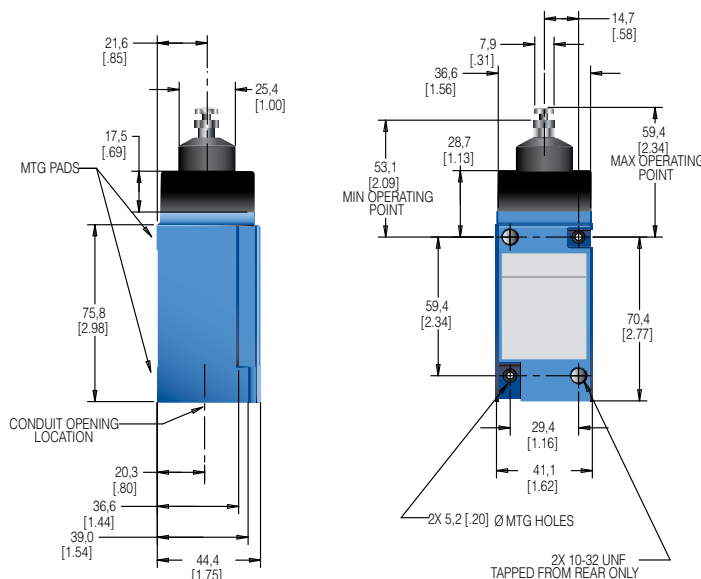


**Figure 15. MICRO SWITCH™ HDLS LSV Series top adjustable plunger (double pole) dimensions**

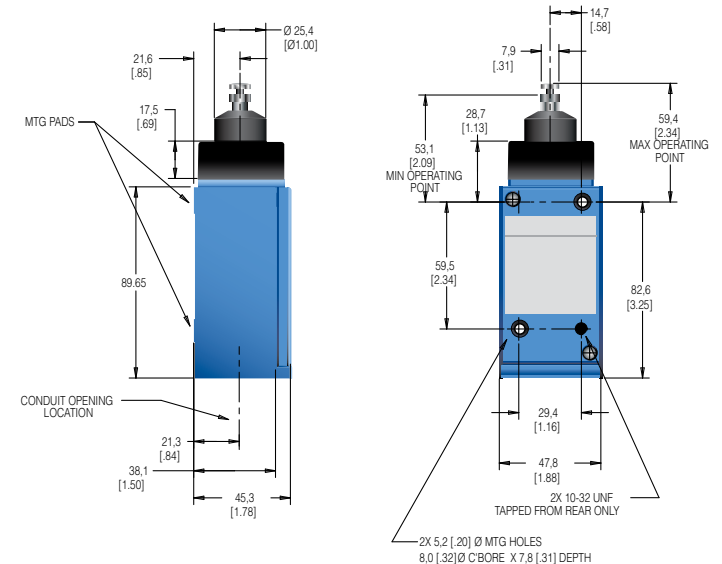
#### DPDT Plug-in (mm[in])



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



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



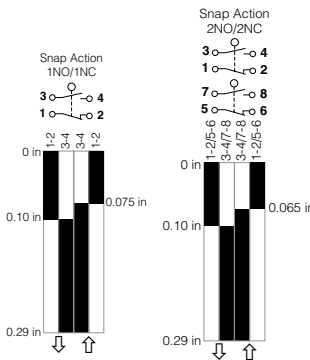
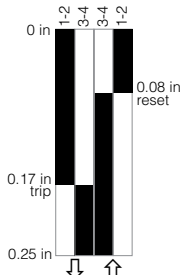
# MICRO SWITCH™ HDLS Series

## Plungers

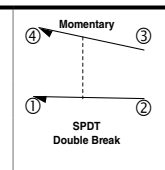
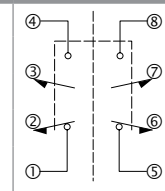
### MICRO SWITCH™ HDLS SERIES OPERATING CHARACTERISTICS BY OPERATING HEAD/MODEL

Heads may be positioned to accept actuation from any of four directions, 90° apart.



|                                   | Plain (LSE)                                                                                       | Roller (LSF)                                                                       | Adjustable (LSW)                                                                    | Maintained (LSG)                                                                     |
|-----------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                                   |                  |  |  |   |
| <b>Description</b>                | Side plain plunger for in-line actuating (momentary)                                              | Side roller plunger (momentary)                                                    | Adjustable side plain plunger (momentary)                                           | Side plain plunger with maintained contact                                           |
|                                   |                |                                                                                    |                                                                                     |  |
| <b>Pretravel</b>                  | 2,54 mm [0.10 in]                                                                                 |                                                                                    |                                                                                     | 4,32 mm [0.17 in]                                                                    |
| <b>Different. travel</b>          | Single pole: 0,64 mm [0.025 in]<br>Double pole: 0,89 mm [0.035 in]                                |                                                                                    |                                                                                     | 2,29 mm [0.09 in]                                                                    |
| <b>Overtravel</b>                 | 4,83 mm [0.19 in]                                                                                 |                                                                                    |                                                                                     | 2,0 mm [0.08 in]                                                                     |
| <b>Operating force</b>            | 26,7 N [6 lb] max.                                                                                |                                                                                    |                                                                                     | 44,5 N [10 lb] max.                                                                  |
| <b>Op. temp range<sup>3</sup></b> | -12 °C to 93 °C [10 °F to 200 °F]<br>(for low temp, high temp, or preleaded versions, see page 6) |                                                                                    |                                                                                     | -1 °C to 93 °C [30 °F to 200 °F]                                                     |

Contact closed ■  
Contact open □

| Circuitry                                                                                          | Contacts          | Body Style <sup>2</sup> | Conduit (NPT) | Options          |              |              |              |              |
|----------------------------------------------------------------------------------------------------|-------------------|-------------------------|---------------|------------------|--------------|--------------|--------------|--------------|
| <b>SPDT</b><br> | Silver            | Plug-in                 | 0.5 in        |                  | <b>LSE1A</b> | <b>LSF1A</b> | <b>LSW1A</b> | <b>LSG1A</b> |
|                                                                                                    | Gold <sup>4</sup> | Plug-in                 | 0.5 in        |                  | <b>LSE1E</b> | <b>LSF1E</b> | <b>LSW1E</b> | <b>LSG1E</b> |
|                                                                                                    | Silver            | Plug-in                 | 0.5 in        | 120 V Ind. lite* | <b>LSE5A</b> | <b>LSF5A</b> | <b>LSW5A</b> | <b>LSG5A</b> |
|                                                                                                    | Silver            | Plug-in                 | 0.5 in        | 240 V Ind. lite* | <b>LSE8A</b> | <b>LSF8A</b> | <b>LSW8A</b> | <b>LSG8A</b> |
|                                                                                                    | Silver            | Non-plug-in             | 0.5 in        |                  | <b>LSE3K</b> | <b>LSF3K</b> | <b>LSW3K</b> | <b>LSG3K</b> |
| <b>DPDT</b><br> | Silver            | Plug-in                 | 0.75 in       |                  | <b>LSE2B</b> | <b>LSF2B</b> | <b>LSW2B</b> | <b>LSG2B</b> |
|                                                                                                    | Silver            | Plug-in                 | 0.5 in        |                  | <b>LSE2R</b> | <b>LSF2R</b> | <b>LSW2R</b> | <b>LSG2R</b> |
|                                                                                                    | Silver            | Plug-in                 | 0.75 in       | 120 V Ind. lite* | <b>LSE6B</b> | <b>LSF6B</b> | <b>LSW6B</b> | <b>LSG6B</b> |
|                                                                                                    | Gold <sup>4</sup> | Plug-in                 | 0.5 in        |                  | <b>LSE6S</b> | —            | —            | —            |
|                                                                                                    | Silver            | Non-plug-in             | 0.75 in       |                  | <b>LSE4L</b> | <b>LSF4L</b> | <b>LSW4L</b> | <b>LSG4L</b> |
|                                                                                                    | Silver            | Non-plug-in             | 0.5 in        |                  | <b>LSE7L</b> | <b>LSF7L</b> | <b>LSW7L</b> | <b>LSG7L</b> |

\* 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

## Heavy Duty Limit Switches

### Plungers

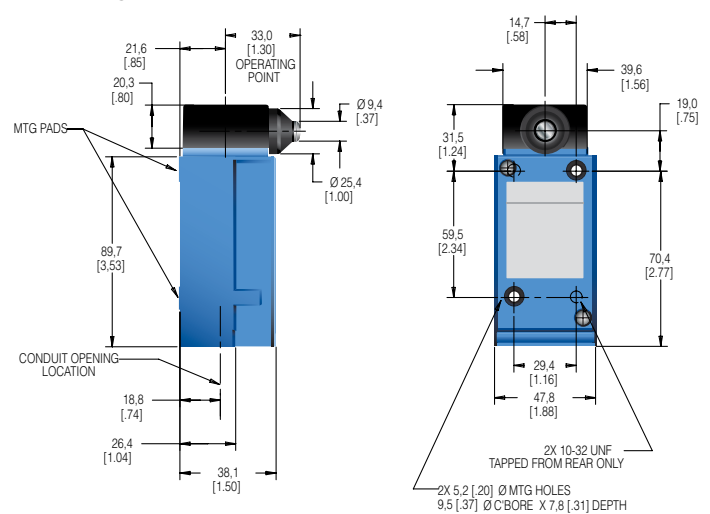
**Figure 16. MICRO SWITCH™ HDLS LSE Series side plain plunger (single pole) dimensions**

#### SPDT Plug-in (mm[in])



**Figure 17. MICRO SWITCH™ HDLS LSE Series side plain plunger (double pole) dimensions**

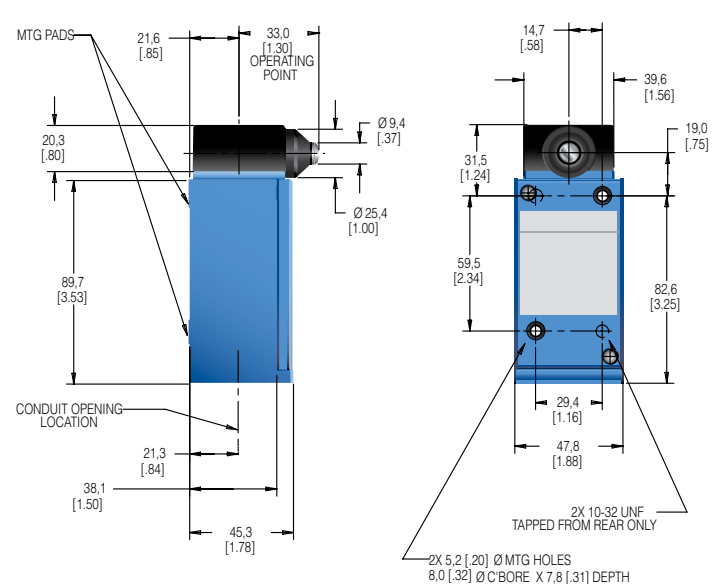
#### DPDT Plug-in (mm[in])



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



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



# MICRO SWITCH™ HDLS Series

## Plungers

**Figure 18. MICRO SWITCH™ HDLS LSF Series side roller plunger (single pole) dimensions**

### SPDT Plug-in (mm[in])



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



**Figure 19. MICRO SWITCH™ HDLS LSF Series side roller plunger (double pole) dimensions**

### DPDT Plug-in (mm[in])



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



## Heavy Duty Limit Switches

### Plungers

**Figure 20. MICRO SWITCH™ HDLS LSW Series side adjustable plunger (single pole) dimensions**

#### SPDT Plug-in (mm[in])

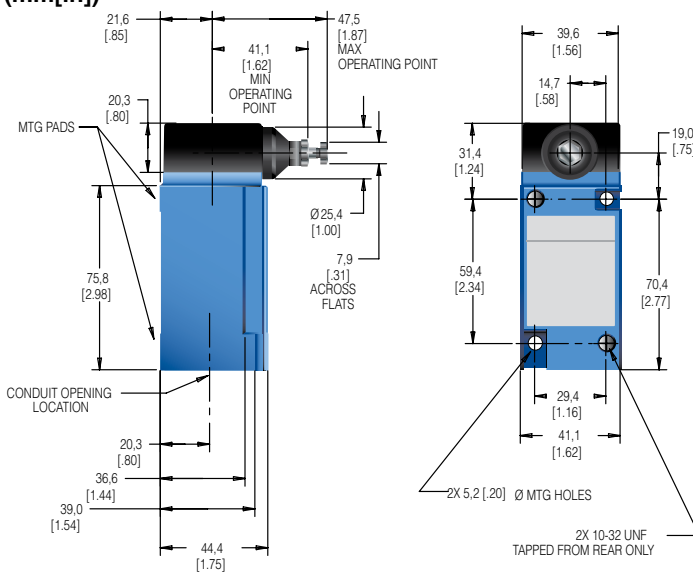


**Figure 21. MICRO SWITCH™ HDLS LSW Series side adjustable plunger (double pole) dimensions**

#### DPDT Plug-in (mm[in])



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



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



# MICRO SWITCH™ HDLS Series

## Plungers

**Figure 22. MICRO SWITCH™ HDLS LSG Series maintained contact side plunger (single pole) dimensions**

### SPDT Plug-in (mm[in])



**Figure 23. MICRO SWITCH™ HDLS LSG Series maintained contact side plunger (double pole) dimensions**

### DPDT Plug-in (mm[in])



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



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

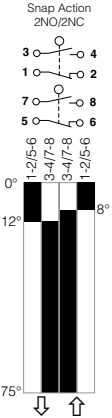
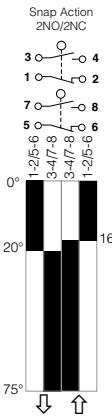
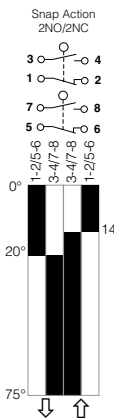
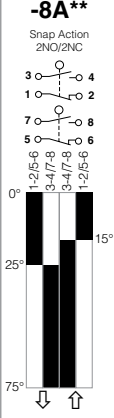
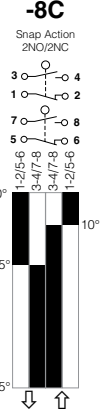


## Heavy Duty Limit Switches

### Wobblers



LSJ1A-7M - Spring wire  
LSJ1A-7N - Flexible actuator  
LSK1A-8C - Coil spring  
LSJ1A-7A - Plastic rod  
LSK1A-8A - Cat whisker

|                                    | LSJ Series<br>7A Actuator                                                                     | LSJ Series<br>7N Actuator                                                          | LSJ Series<br>7M Actuator                                                           | LSK Series<br>8A-8C Actuator                                                                        |                                                                                                   |
|------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Description                        | Delrin® plastic rod lever (wobble stick)                                                      | Flexible cable lever                                                               | Spring wire lever<br>- may be formed for special needs                              | Cat whisker actuator for low operating force applications                                           |                                                                                                   |
| Contact closed ■<br>Contact open □ |              |  |  | <b>-8A**</b><br> | <b>-8C</b><br> |
|                                    | Length                                                                                        | Actuator: 5.5 in                                                                   | Actuator: 5.5 in                                                                    | Actuator: 13 in                                                                                     | 8A act.: 5.5 in SST<br>8C act.: 5.5 in steel plated                                               |
| Pretravel                          | 25,4 mm [1.0 in]                                                                              | 38,0 mm [1.5 in]                                                                   | 102 mm [4.0 in]                                                                     | 51,0 mm [2.0 in]                                                                                    |                                                                                                   |
| Oper. force                        | 2,78 Nm [10 oz]                                                                               | 1,95 Nm [7 oz]                                                                     | 1,39 Nm [5 oz]                                                                      | 8A: 1,39 Nm [5 oz];<br>8C 1,95 Nm [7 oz]                                                            |                                                                                                   |
| Op. temp range <sup>3</sup>        | -12 °C to 93 °C [10°F to 200 °F] (for low temp, high temp, or preloaded versions, see page 6) |                                                                                    |                                                                                     |                                                                                                     |                                                                                                   |

| Circuitry       | Contacts          | Body Style <sup>2</sup> | Conduit (NPT) | Options          |                 |                 |                 |                 |                 |
|-----------------|-------------------|-------------------------|---------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>SPDT</b><br> | Silver            | Plug-in                 | 0.5 in        |                  | <b>LSJ1A-7A</b> | <b>LSJ1A-7N</b> | <b>LSJ1A-7M</b> | <b>LSK1A-8A</b> | <b>LSK1A-8C</b> |
|                 | Gold <sup>4</sup> | Plug-in                 | 0.5 in        |                  | —               | —               | <b>LSJ1E-7M</b> | —               | —               |
|                 | Silver            | Plug-in                 | 0.5 in        | 120 V Ind. lite* | <b>LSJ5A-7A</b> | <b>LSJ5A-7N</b> | <b>LSJ5A-7M</b> | <b>LSK5A-8A</b> | <b>LSK5A-8C</b> |
|                 | Silver            | Plug-in                 | 0.5 in        | 240 V Ind. lite* | <b>LSJ8A-7A</b> | <b>LSJ8A-7N</b> | <b>LSJ8A-7M</b> | <b>LSK8A-8A</b> | <b>LSK8A-8C</b> |
| <b>DPDT</b><br> | Silver            | Non-plug-in             | 0.5 in        |                  | <b>LSJ3K-7A</b> | <b>LSJ3K-7N</b> | <b>LSJ3K-7M</b> | <b>LSK3K-8A</b> | <b>LSK3K-8C</b> |
|                 | Silver            | Plug-in                 | 0.75 in       |                  | <b>LSJ2B-7A</b> | <b>LSJ2B-7N</b> | <b>LSJ2B-7M</b> | <b>LSK2B-8A</b> | <b>LSK2B-8C</b> |
|                 | Silver            | Plug-in                 | 0.5 in        |                  | <b>LSJ6B-7A</b> | <b>LSJ6B-7N</b> | <b>LSJ6B-7M</b> | <b>LSK6B-8A</b> | <b>LSK6B-8C</b> |
|                 | Silver            | Plug-in                 | 0.75 in       | 120 V Ind. lite* | <b>LSJ2R-7A</b> | <b>LSJ2R-7N</b> | <b>LSJ2R-7M</b> | <b>LSK2R-8A</b> | <b>LSK2R-8C</b> |
|                 | Silver            | Non-plug-in             | 0.75 in       |                  | <b>LSJ4L-7A</b> | <b>LSJ4L-7N</b> | <b>LSJ4L-7M</b> | <b>LSK4L-8A</b> | <b>LSK4L-8C</b> |
|                 | Silver            | Non-plug-in             | 0.5 in        |                  | <b>LSJ7L-7A</b> | <b>LSJ7L-7N</b> | <b>LSJ7L-7M</b> | <b>LSK7L-8A</b> | <b>LSK7L-8C</b> |

\* 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

\*\* These cat whiskers have a 5.5 inch long actuator. To specify a 7.5 inch length actuator, substitute **-8B** for **-8A**.

# MICRO SWITCH™ HDLS Series

## Wobblers

**Figure 24. MICRO SWITCH™ HDLS LSJ\_ \_-7A Series wobble (single pole) dimensions**

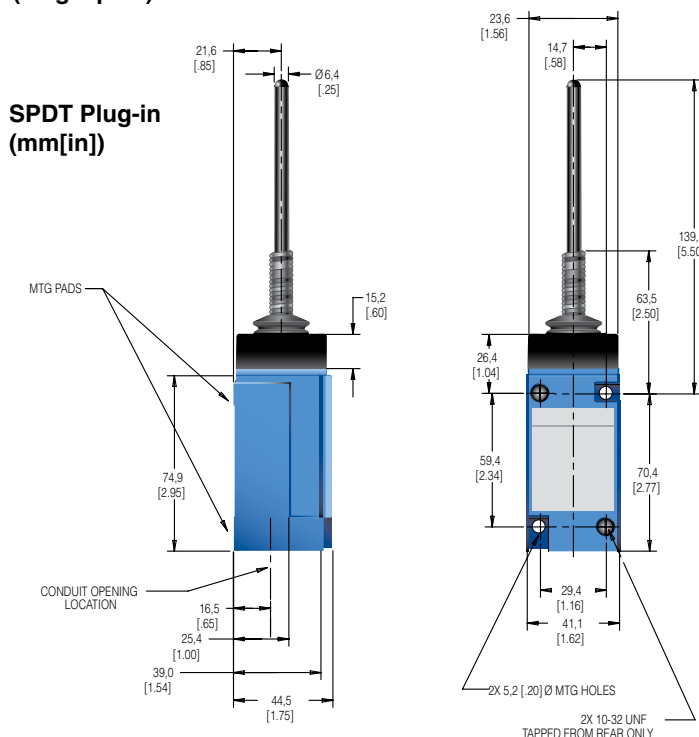
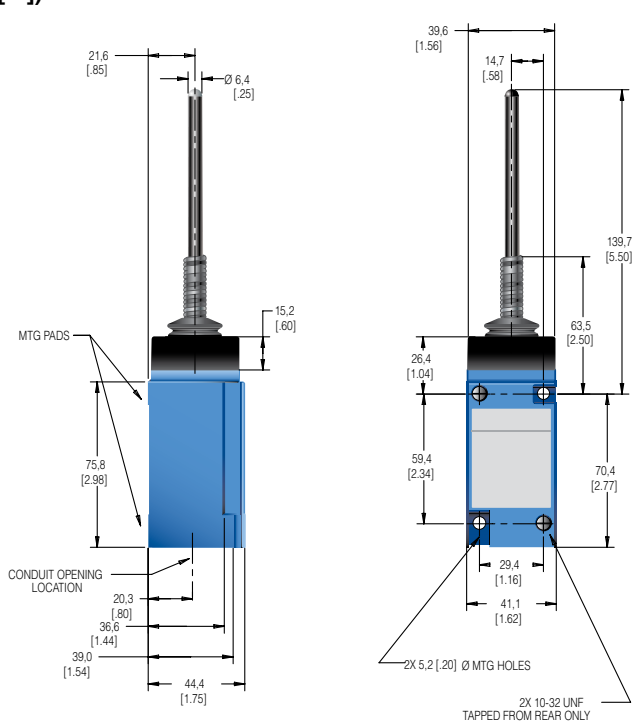


**Figure 25. MICRO SWITCH™ HDLS LSJ\_ \_-7A Series wobble (double pole) dimensions**



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



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



## Heavy Duty Limit Switches

### Wobblers

**Figure 26. MICRO SWITCH™ HDLS LSJ \_\_-7N Series wobble (single pole) dimensions**



**Figure 27. MICRO SWITCH™ HDLS LSJ \_\_-7N Series wobble (double pole) dimensions**



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



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



# MICRO SWITCH™ HDLS Series

## Wobblers

**Figure 28. MICRO SWITCH™ HDLS LSJ \_ \_-7M Series wobble (single pole) dimensions**



**Figure 29. MICRO SWITCH™ HDLS LSJ \_ \_-7M Series wobble (double pole) dimensions**



## Heavy Duty Limit Switches

### Wobblers

**Figure 30. MICRO SWITCH™ HDLS LSK\_\_-8A Series wobble (single pole) dimensions**

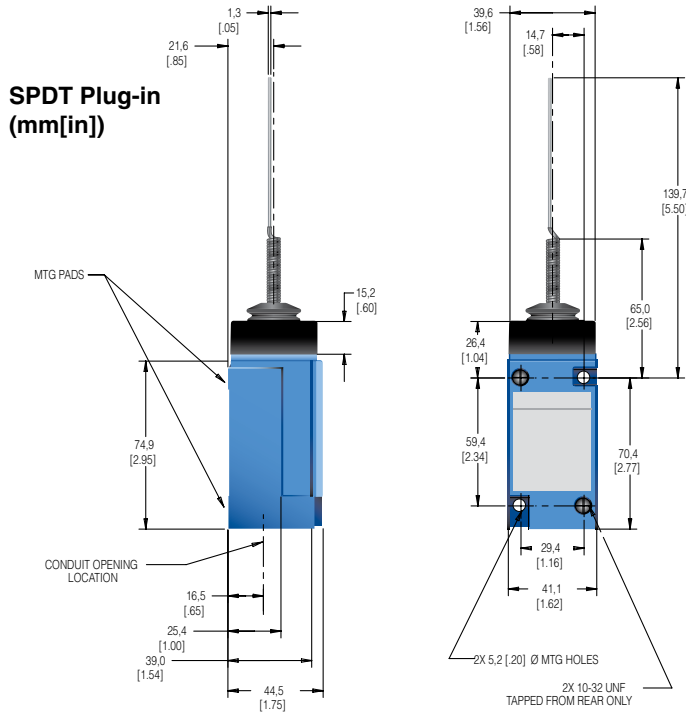
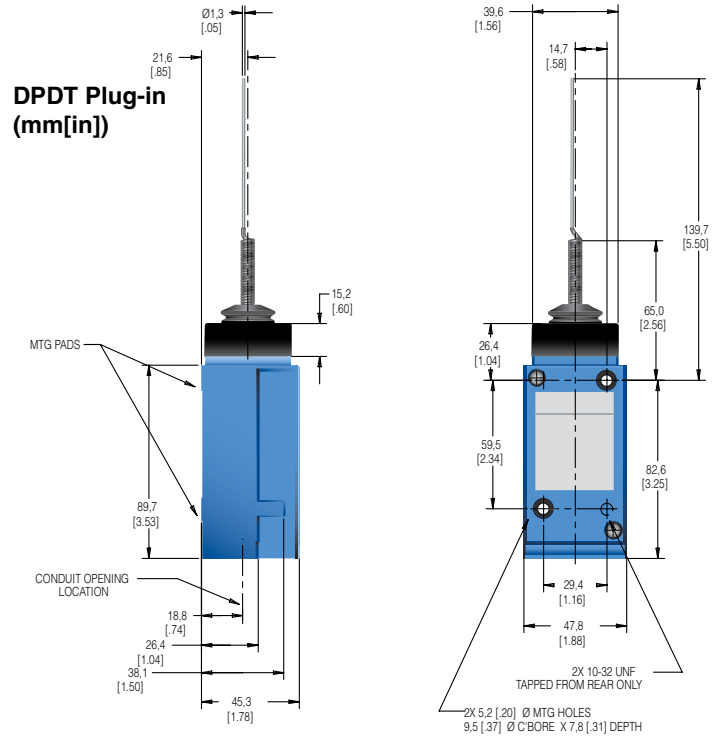
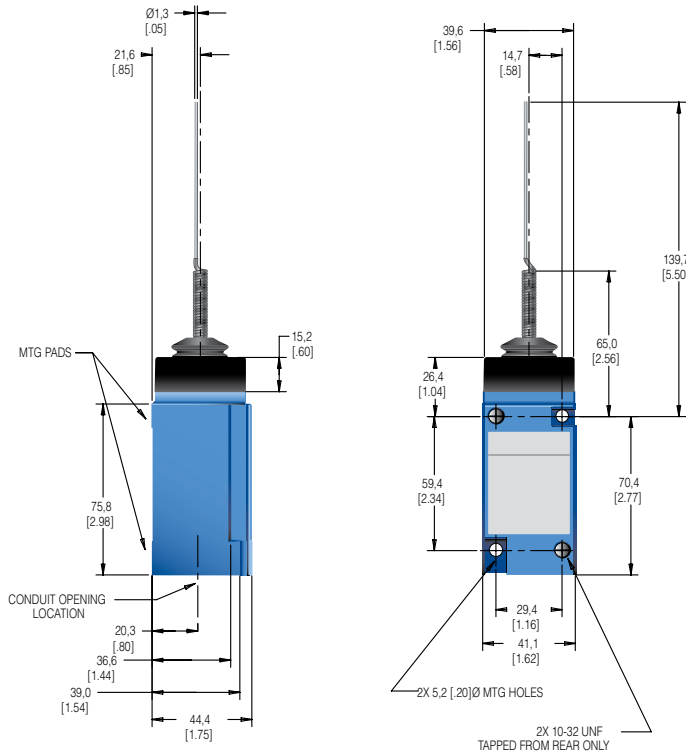


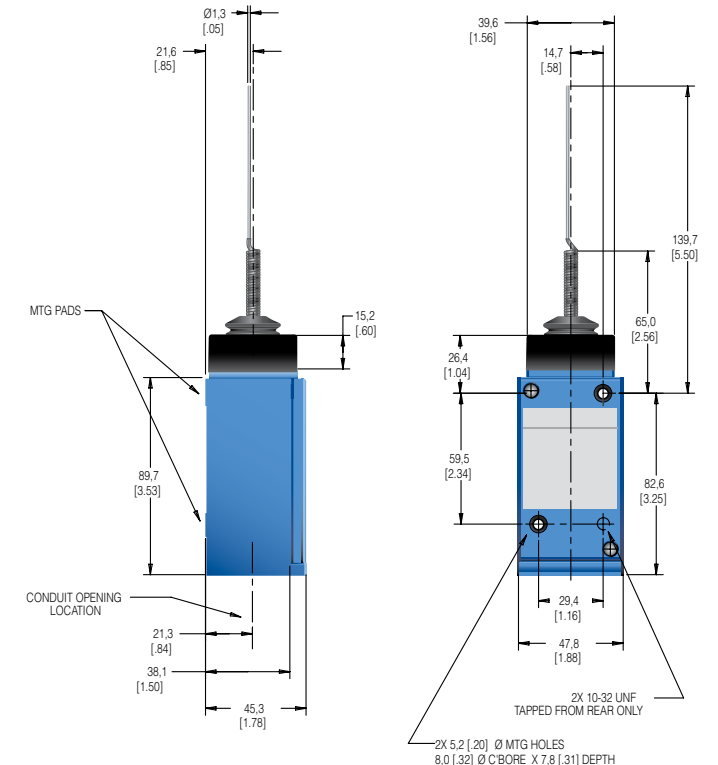
**Figure 31. MICRO SWITCH™ HDLS LSK\_\_-8A Series wobble (double pole) dimensions**



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



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



# MICRO SWITCH™ HDLS Series

## Wobblers

**Figure 32. MICRO SWITCH™ HDLS LSK\_\_-8C Series wobble (single pole) dimensions**



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



**Figure 33. MICRO SWITCH™ HDLS LSK\_\_-8C Series wobble (double pole) dimensions**



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



## Heavy Duty Limit Switches

### SPECIAL APPLICATIONS

#### HIGH CAPACITY LIMIT SWITCH

##### Features

- High dc current ratings
- 20 A rating at 120 Vac (single pole)
- Plug-in or non-plug in
- Positive retention lever arm
- High resistance to seismic shock

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 cap screw with locking nut for attaching the lever to the rotary shaft. This assures a firm grip on the operating shaft and positive retention of the lever adjustment.

The need for precise operation, coupled with severe environmental conditions places rigid demands on any control. Honeywell satisfies these demands with its high capacity HDLS, designed to perform reliably under these conditions.



| Voltage | Single Pole    |                | Double Pole    |                |
|---------|----------------|----------------|----------------|----------------|
|         | Resistive Load | Inductive Load | Resistive Load | Inductive Load |
| 125 Vdc | 2.0 A          | 1.0 A          | 1.0 A          | 0.4 A          |
| 250 Vdc | 0.7 A          | 0.4 A          | 0.4 A          | 0.2 A          |
| 120 Vac | 20 A           | 20 A           | 10 A           | 10 A           |
| 240 Vac | 15 A           | 15 A           | 7.5 A          | 7.5 A          |
| 480 Vac | 10 A           | 10 A           | 5 A            | 5 A            |
| 600 Vac | 5 A            | 5 A            | 2.5 A          | 2.5 A          |

Maximum operating rate - 15 operations per minute.

### Listings

|                     |                                           |  |
|---------------------|-------------------------------------------|--|
| <b>LSQ051</b>       | Double pole, non-plug-in, 0.75 in conduit |  |
| <b>LSQ052</b>       | Double pole, plug-in, 0.75 in conduit     |  |
| <b>LSQ053</b>       | Single pole, non-plug-in, 0.5 in conduit  |  |
| <b>LSQ054</b>       | Single pole, plug-in, 0.5 in conduit      |  |
| <b>LSZ616</b>       | Replacement lever for above listings      |  |
| <b>Pretravel</b>    | 17° max.                                  |  |
| <b>Diff. travel</b> | 8° max.                                   |  |
| <b>Overtravel</b>   | 58° min.                                  |  |
| <b>Oper. torque</b> | 0,45 Nm (4 in-lb) max.                    |  |
| <b>Action</b>       | CW and CCW (spring return)                |  |

# MICRO SWITCH™ HDLS Series

## SPECIAL APPLICATIONS

### GRAVITY RETURN SIDE ROTARY SWITCHES (LSS)

LSS1H gravity-return, side-rotary 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 classified as NEMA 1. However, the switch cavity is sealed to protect the switch contacts.

|                         | LSS1H                      |
|-------------------------|----------------------------|
| Description             | Gravity-return side rotary |
| Circuitry               | SPDT, double break         |
| Contacts                | Silver                     |
| Sealing                 | NEMA 1                     |
| Electrical rating       | (B) NEMA B600              |
| Body style              | Plug-in                    |
| Conduit (NPT)           | 0.5 in                     |
| Differential travel     | 12° max.                   |
| Total travel (no stop)* | 360°                       |
| Operating torque        | 0,035 Nm [5 in-oz] max.    |

\* Switch has approximately 180° dwell of the normally closed and normally open switch contacts.



### EXTRA LOW TORQUE SIDE ROTARY SWITCHES (LST)

LST1H extra-low torque, side-rotary switches have a low force return spring and a maximim operation torque of 12 in-oz. It is rated as NEMA 1 due to an unsealed head. The switch cavity is sealed to protect the switch contacts.

|                     | LST1H                        |
|---------------------|------------------------------|
| Description         | Extra-low torque side rotary |
| Circuitry           | SPDT, double break           |
| Contacts            | Silver                       |
| Sealing             | NEMA 1                       |
| Electrical rating   | (B) NEMA B600                |
| Body style          | Plug-in                      |
| Conduit (NPT)       | 0.5 in                       |
| Pretravel           | 15° max.                     |
| Differential travel | 5° max.                      |
| Overtravel          | 60' min.                     |
| Total travel        | 75° nom.                     |
| Operating torque    | 0,085 Nm [12 in-oz] max.     |



## Heavy Duty Limit Switches

### MICRO SWITCH™ HDLS SERIES NOMENCLATURE

| Switch Type                                | Head Style                                            | Body/Basic Switch Code                                             | Modification Code                                                        |
|--------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------|
| <b>LS</b>                                  | <b>A</b>                                              | <b>1A</b>                                                          |                                                                          |
| <b>HDLS Series Heavy-Duty Limit Switch</b> | <b>A</b> Side rotary; momentary 10° to 14° pretravel  | <b>1A</b> Plug-in, single pole standard switch                     | <b>6B</b> Plug-in, double pole standard switch, 1/2 in conduit           |
|                                            | <b>B</b> Top rotary; momentary 10° to 22° pretravel   | <b>1E</b> Plug-in, single pole gold contacts                       | <b>6C</b> Plug-in, double pole sequential, 1/2 in conduit                |
|                                            | <b>C</b> Top plunger, plain                           | <b>1F</b> Plug-in, single pole manifold mounting                   | <b>6D</b> Plug-in, double pole center neutral, 1/2 in conduit            |
|                                            | <b>D</b> Top plunger, roller                          | <b>1G</b> Plug-in, single pole gold ctcs, manifold mtg             | <b>6R</b> Plug-in, double pole 120 V neon indicator, 1/2 in conduit      |
|                                            | <b>E</b> Side plunger plain; momentary                | <b>1H</b> Plug-in, single pole low force                           | <b>6S</b> Plug-in, double pole stnd switch, gold ctcs., 1/2 in conduit   |
|                                            | <b>F</b> Side plunger roller; momentary               | <b>5A</b> Plug-in, single pole 120 V neon indicator                | <b>6T</b> Plug-in, double pole sequential, gold ctcs., 1/2 in conduit    |
|                                            | <b>G</b> Side plunger plain; maintained               | <b>8A</b> Plug-in, single pole 240 V neon indicator                | <b>6U</b> Plug-in, double pole cntr neutral, gold ctcs., 1/2 in conduit  |
|                                            | <b>H</b> Side rotary, momentary; low PT, low torque   | <b>9A</b> Plug-in, single pole 24 V LED indicator                  | <b>4L</b> Non-plug-in, dbl pole standard switch 3/4 in conduit           |
|                                            | <b>J</b> Wobble stick                                 | <b>3K</b> Non-plug-in, single pole standard switch                 | <b>4M</b> Non-plug-in, dbl pole sequential 3/4 in conduit                |
|                                            | <b>K</b> Whisker                                      | <b>3N</b> Non-plug-in, single pole NC direct acting                | <b>4N</b> Non-plug-in, dbl pole center neutral                           |
|                                            | <b>L</b> Side rotary; sequential                      | <b>3P</b> Non-plug-in, single pole low force, low differen.        | <b>4S</b> Non-plug-in, dbl pole standard switch, gold contacts           |
|                                            | <b>M</b> Side rotary; central neutral                 | <b>2B</b> Plug-in, double pole standard switch                     | <b>4T</b> Non-plug-in, dbl pole sequential, gold contacts                |
|                                            | <b>N</b> Side rotary; maintained                      | <b>2C</b> Plug-in, double pole sequential                          | <b>4U</b> Non-plug-in, dbl pole center neutral, gold contacts            |
|                                            | <b>P</b> Side rotary, momentary; low PT and DT        | <b>2D</b> Plug-in, double pole center neutral                      | <b>7L</b> Non-plug-in, dbl pole standard switch, 1/2 in conduit          |
|                                            | <b>R</b> Side rotary, momentary; low torque           | <b>2F</b> Plug-in, double pole standard switch, manifold mounting  | <b>7M</b> Non-plug-in, dbl pole sequential, 1/2 in conduit               |
|                                            | <b>S</b> Side rotary, gravity return, ex. low torque  | <b>2G</b> Plug-in, double pole sequential, manifold mounting       | <b>7N</b> Non-plug-in, dbl pole center neutral, 1/2 in conduit           |
|                                            | <b>T</b> Side rotary, momentary; extremely low torque | <b>2H</b> Plug-in, double pole center neutral, manifold mounting   | <b>7S</b> Non-plug-in, dbl pole stnd switch, gold ctcs., 1/2 in conduit  |
|                                            | <b>U</b> Side rotary, momentary; 5° max. pretravel    | <b>2R</b> Plug-in, double pole 120 V neon indicator 3/4 in conduit | <b>7T</b> Non-plug-in, dbl pole sequential, gold ctcs., 1/2 in conduit   |
|                                            | <b>V</b> Top plunger, adjustable                      | <b>2S</b> Plug-in, double pole standard switch, gold contacts      | <b>7U</b> Non-plug-in, dbl pole cntr neutral, gold ctcs., 1/2 in conduit |
|                                            | <b>W</b> Side plunger, adjustable                     | <b>2T</b> Plug-in, double pole sequential, gold contacts           |                                                                          |
|                                            |                                                       | <b>2U</b> Plug-in, double pole center neutral, gold contacts       |                                                                          |

**NOTE:** Not all combinations of model code are available. Please contact your local Honeywell provider for assistance.

Modification Code

See table

### HDLS SERIES MODIFICATION CODE TABLE

| Mod. code | Description                                          |
|-----------|------------------------------------------------------|
| <b>A</b>  | 4-pin mini-style                                     |
| <b>B</b>  | 5-pin mini-style                                     |
| <b>C</b>  | 5-conductor STOW-A cable, 6 ft                       |
| <b>E</b>  | 4-conductor SJTOW-A cable, 6 ft                      |
| <b>J</b>  | 8-pin mini-style                                     |
| <b>M</b>  | 9-conductor STOOW-A cable, 6 ft                      |
| <b>P</b>  | 5-conductor STOOW-A cable, 12 ft                     |
| <b>R</b>  | 9-pin mini-style                                     |
| <b>S</b>  | 5-pin micro-style                                    |
| <b>X</b>  | 9-conductor STOOW-A cable, 12 ft                     |
| <b>BB</b> | 3-foot mini-style pigtail, single pole               |
| <b>DD</b> | 4-pin micro-style with jumper                        |
| <b>PA</b> | 5-conductor STOOW-A cable, 8 ft                      |
| <b>XA</b> | 9-conductor STOOW-A cable, 8 ft                      |
| <b>PB</b> | 5-conductor STOOW-A cable, 30 ft                     |
| <b>1</b>  | Clockwise head rotation                              |
| <b>2</b>  | Counterclockwise head rotation                       |
| <b>3</b>  | Head assembled with actuator to right side           |
| <b>4</b>  | Head assembled with actuator to left side            |
| <b>5</b>  | Head assembled with actuator toward mounting surface |
| <b>6</b>  | Roller perpendicular to mounting surface             |
| <b>7</b>  | Indicator light wired to normally closed circuit     |
| <b>8</b>  | Roller on side plunger in vertical position          |

# MICRO SWITCH™ HDLS Series

This datasheet supports the following MICRO SWITCH™ HDLS Series Heavy-Duty Limit Switches.

|            |            |            |          |           |            |
|------------|------------|------------|----------|-----------|------------|
| LS3A1A     | LSA1A3-1B  | LSA3KA     | LSB1A1   | LSF1A4    | LSJ1AC-7N  |
| LS3A1A     | LSA1A3-5C  | LSA3KC     | LSB1A-1B | LSF1A5    | LSJ1ADD-7A |
| LS3A2B     | LSA1A3A-1A | LSA3N      | LSB1A2   | LSF1A8    | LSJ1E-7A   |
| LS3A3K     | LSA1A4     | LSA3N14-2J | LSB1A-4M | LSF1E     | LSJ1E-7M   |
| LS3A3K-7AA | LSA1A-4    | LSA4L      | LSB1A-4N | LSF1F     | LSJ1J-7A   |
| LS3D3K     | LSA1A-4M   | LSA4L1     | LSB1AC   | LSF2B     | LSJ1JDD-7A |
| LS3F1A8    | LSA1A-4N   | LSA4L-1A   | LSB1E    | LSF2C     | LSJ2B-7A   |
| LS3F1E     | LSA1A-4R   | LSA4L-1B   | LSB1J    | LSF3K     | LSJ3K      |
| LS3M2D     | LSA1A5     | LSA4L-1D   | LSB2B    | LSF3K3    | LSJ3K-7A   |
| LS3YDC1A   | LSA1A-9B   | LSA4L23    | LSB2R    | LSF3K-3B  | LSJ4L-7A   |
| LS3YDC1E   | LSA1AA     | LSA4L-2A   | LSB3K    | LSF3K4    | LSJ4L-7M   |
| LS3YVC1A   | LSA1AB     | LSA4L-2B   | LSB3K-1B | LSF3K5    | LSJ5A-7A   |
| LS3YVC1E   | LSA1AB-1B  | LSA4L3-1D  | LSB3K-1D | LSF3K8    | LSJ5A-7M   |
| LS4A1A     | LSA1AC     | LSA4L4     | LSB3K-2C | LSF3N     | LSJ5A-7N   |
| LS4A1E     | LSA1AC-2C  | LSA4L4-1D  | LSB4L    | LSF4L     | LSJ6B      |
| LS4A2B     | LSA1AC-4M  | LSA4L-4N   | LSB5A    | LSF5A     | LSJ6B-7A   |
| LS4A3K     | LSA1AP-1B  | LSA4S      | LSB5A-2D | LSF6B     | LSJ7L-7A   |
| LS4A3K-1B  | LSA1APA    | LSA5A      | LSB6B    | LSF6B3    | LSJ7L-7N   |
| LS4A3K-2B  | LSA1E      | LSA5A15    | LSB6B-4N | LSF6C     | LSJ8A-7A   |
| LS4A3K-7AA | LSA1E-1B   | LSA5A-1A   | LSB7L    | LSF7L     | LSK1A      |
| LS4C1A     | LSA1E-2A   | LSA5A-1B   | LSB7L-1B | LSF7L3    | LSK1A-8A   |
| LS4C3K     | LSA1E-2D   | LSA5A-1C   | LSB9A    | LSF7L4    | LSK1A-8B   |
| LS4D1A     | LSA1F      | LSA5A-1D   | LSC1A    | LSF7L5    | LSK1A-8C   |
| LS4D3K     | LSA1J      | LSA5A25    | LSC1E    | LSF7L8    | LSK1E-8A   |
| LS4F1A     | LSA1J1B    | LSA5A-4N   | LSC1J    | LSF8A     | LSK1E-8C   |
| LS4F2B     | LSA2B      | LSA5A7B    | LSC2B    | LSF9A     | LSK2B-8A   |
| LS4H1A     | LSA2B15-5D | LSA5AB-1A  | LSC2C    | LSG1A     | LSK3K      |
| LS4J1A-7A  | LSA2B-1A   | LSA5AB-1B  | LSC3K    | LSG1E     | LSK3K-8B   |
| LS4J1A-7M  | LSA2B-1B   | LSA5ADD    | LSC3KC   | LSG2B     | LSK4L-8C   |
| LS4J1A-7N  | LSA2B-1C   | LSA6B      | LSC4L    | LSG3K     | LSK5A-8A   |
| LS4J2B-7N  | LSA2B-1D   | LSA6B1     | LSC5A    | LSG4L     | LSK5A-8B   |
| LS4K1A-8A  | LSA2B25-5D | LSA6B-1A   | LSC6B    | LSG5A     | LSK5A-8C   |
| LS4K1A-8C  | LSA2B-2A   | LSA6B-1B   | LSC6C    | LSG7L     | LSK6B      |
| LS4L6C     | LSA2B-2B   | LSA6B-1D   | LSC7L    | LSG9A     | LSK7L-8A   |
| LS4M2D     | LSA2B-2C   | LSA6B-1F   | LSC8A    | LSH1A     | LSK7L-8B   |
| LS4N1A     | LSA2B-2D   | LSA6B-1L   | LSD1A    | LSH1A14   | LSK7L-8C   |
| LS4N2B     | LSA2B3-5C  | LSA6B-2B   | LSD1A6   | LSH1A-1B  | LSK8A-8A   |
| LS4P1A     | LSA2B4     | LSA6B-2C   | LSD1E    | LSH1A2    | LSK8A-8B   |
| LS4W1A     | LSA2B5     | LSA6B-2D   | LSD1F    | LSH1A-2B  | LSK8A-8C   |
| LS4YAC1A   | LSA2BM     | LSA6B-3D   | LSD2B    | LSH1A-2D  | LSK9A-8C   |
| LS4YDC1E   | LSA2BM-1B  | LSA6B4-2C  | LSD2F    | LSH1AB    | LSL2C      |
| LSA1A      | LSA2F      | LSA6BR     | LSD3K    | LSH1E     | LSL2C-2D   |
| LSA1A1     | LSA2R      | LSA6R      | LSD3K6   | LSH1E-1A  | LSL2G      |
| LSA1A1-1A  | LSA2S      | LSA6S      | LSD4L    | LSH2B     | LSL4M      |
| LSA1A1-1B  | LSA3K      | LSA7L      | LSD5A    | LSH2B-1B  | LSL4M4     |
| LSA1A1-2J  | LSA3K1     | LSA7L-1A   | LSD5A7   | LSH2B-2D  | LSL6C      |
| LSA1A13    | LSA3K1-1A  | LSA7L-1B   | LSD6B    | LSH3K     | LSL6C-4N   |
| LSA1A14    | LSA3K1-1B  | LSA7L-1C   | LSD7L    | LSH4L     | LSL7M      |
| LSA1A15    | LSA3K-1A   | LSA7L-1D   | LSD8A    | LSH4L13   | LSL7M-1P   |
| LSA1A-1A   | LSA3K-1B   | LSA7L2     | LSD9A    | LSH4L-1B  | LSM2D      |
| LSA1A-1B   | LSA3K1C-1C | LSA7L-2D   | LSE1A    | LSH4L3    | LSM2D-1A   |
| LSA1A-1C   | LSA3K-1D   | LSA7L-2J   | LSE1A3   | LSH5A     | LSM2D-1B   |
| LSA1A-1D   | LSA3K-1N   | LSA7L3-1B  | LSE1A4   | LSH5A-1L  | LSM2D-1D   |
| LSA1A-1F   | LSA3K-2A   | LSA7L4     | LSE1A5   | LSH5A-4N  | LSM2D-2B   |
| LSA1A-1L   | LSA3K-2B   | LSA7L-4N   | LSE1ADD  | LSH6B     | LSM2D-2D   |
| LSA1A-1M   | LSA3K-2C   | LSA7L-4R   | LSE1E    | LSH6B-1B  | LSM2D-2J   |
| LSA1A1S    | LSA3K-2D   | LSA7L-5C   | LSE1E4   | LSH7L     | LSM2DM     |
| LSA1A2     | LSA3K-2J   | LSA7LR     | LSE4L    | LSH9A     | LSM2H      |
| LSA1A2-2J  | LSA3K3     | LSA8A      | LSE5A    | LSH9A7    | LSM2U      |
| LSA1A-2A   | LSA3K4     | LSA8A7     | LSE6B    | LSJ1A     | LSM4N      |
| LSA1A-2B   | LSA3K4-1A  | LSA9A      | LSE6B5   | LSJ1A-1N  | LSM4N-1A   |
| LSA1A-2C   | LSA3K4-1B  | LSA9A-1A   | LSE6S    | LSJ1A-7A  | LSM4N-1B   |
| LSA1A-2D   | LSA3K4-1D  | LSA9A23    | LSE7L3   | LSJ1A-7M  | LSM4N-2B   |
| LSA1A-2E   | LSA3K-4M   | LSA9A-2L   | LSE7L4   | LSJ1A-7N  | LSM4N-2D   |
| LSA1A-2J   | LSA3K-4N   | LSA9ADD    | LSE9A    | LSJ1AB-7M | LSM6D      |
| LSA1A-2K   | LSA3K-4R   | LSA9EDD    | LSF1A    | LSJ1AB-7N | LSM6D-1B   |
| LSA1A3     | LSA3K-5C   | LSB1A      | LSF1A3   | LSJ1AC-7M | LSM6D-1D   |

## Heavy Duty Limit Switches

|           |           |              |              |              |
|-----------|-----------|--------------|--------------|--------------|
| LSM6D-1F  | LSP3K     | LSV5A        | LSYBC1A      | LSYMB4N      |
| LSM6D-1P  | LSP3K-1B  | LSV6B        | LSYBC3K      | LSYMB4N-2K   |
| LSM6D-2A  | LSP3K-1D  | LSW1A        | LSYBC5A      | LSYMB6D      |
| LSM6D-2B  | LSP3K3    | LSW1A4       | LSYBC9A-1D   | LSYMB6D-2D   |
| LSM6D3    | LSP4L     | LSW1A5       | LSYCB1A      | LSYMB7N      |
| LSM6D-3D  | LSP4L3    | LSW1AC       | LSYCB1E      | LSYMB7N-1C   |
| LSM6D4    | LSP5A     | LSW1E        | LSYCB1J      | LSYMB7N-1D   |
| LSM6D4-5D | LSP5A7    | LSW2B        | LSYCB4L      | LSYMB7N3-1A  |
| LSM6D-4N  | LSP6B     | LSW4L        | LSYCB4SX-FP  | LSYMC4N      |
| LSM6D-5B  | LSP7L     | LSW5A        | LSYCB6B      | LSYMC6D      |
| LSM6U     | LSP7L-2D  | LSYAB1A      | LSYCC1A      | LSYMC6DF     |
| LSM7N     | LSP7L3    | LSYAB1A-1B   | LSYCC1ADD    | LSYMC7N      |
| LSM7N-1A  | LSP7S3    | LSYAB1A-2A   | LSYCC1AE     | LSYNB1A      |
| LSM7N-1B  | LSP8A     | LSYAB1AB     | LSYCC3K      | LSYNB1AC     |
| LSM7N-1D  | LSQA1A313 | LSYAB1AC     | LSYCC4L      | LSYNB2B      |
| LSM7N3    | LSQA1A341 | LSYAB1E      | LSYCC4LX-FP  | LSYNB3K      |
| LSM7N-4   | LSQH1A322 | LSYAB1E-2B   | LSYCC5A      | LSYNB4L      |
| LSM7U     | LSQR1A316 | LSYAB1E4-2B  | LSYCC6B      | LSYNB5A      |
| LSM7U-2D  | LSR1A     | LSYAB1F      | LSYCC7L      | LSYNB7L      |
| LSN1A     | LSR1A-1A  | LSYAB1J      | LSYDB1A      | LSYNC1A      |
| LSN1A-1B  | LSR1A-1B  | LSYAB2B      | LSYDB2B      | LSYNC1ADD    |
| LSN1A-2C  | LSR1A-2K  | LSYAB2B3     | LSYDB3K      | LSYPB1A      |
| LSN1A-3A  | LSR1A-4N  | LSYAB2F      | LSYDB4L      | LSYPB1AC     |
| LSN1A-3B  | LSR1A-5C  | LSYAB2S      | LSYDB6B      | LSYPB2B      |
| LSN1A-3D  | LSR1ADD   | LSYAB3K      | LSYDB7L      | LSYPB3K      |
| LSN1A-3P  | LSR1E     | LSYAB3K-1B   | LSYDC1A      | LSYPB4L      |
| LSN1A-3S  | LSR2B     | LSYAB3K-5D   | LSYDC1ADD    | LSYPB4L-1B   |
| LSN1E     | LSR2B-4N  | LSYAB3N      | LSYDC1AE     | LSYPB6B      |
| LSN1E-1A  | LSR3K     | LSYAB4L      | LSYDC3K      | LSYPB7L      |
| LSN1F     | LSR3K1    | LSYAB4L-1B   | LSYDC5A      | LSYPC1A      |
| LSN1F-1B  | LSR4L     | LSYAB4L24    | LSYDC5AE     | LSYPC1J      |
| LSN2B     | LSR5A     | LSYAB4L-2A   | LSYDC6B      | LSYPC2B      |
| LSN3K     | LSR6B     | LSYAB4L4     | LSYDC7L      | LSYPC3K      |
| LSN3K3D   | LSR6B-2D  | LSYAB4S      | LSYFB1A      | LSYRB1A      |
| LSN3N     | LSR6B-2L  | LSYAB5A      | LSYFB3K      | LSYRB6B      |
| LSN4L     | LSR6B-4M  | LSYAB6B      | LSYFB3K3     | LSYRC1A      |
| LSN4L-2D  | LSR7L     | LSYAB6B-1B   | LSYFB3K4     | LSYRC1ADD    |
| LSN4L-3B  | LSR7L-2D  | LSYAB6B-2D   | LSYFB4L      | LSYRC2B      |
| LSN4L-3D  | LSR9A     | LSYAB7L      | LSYFB7L      | LSYRC4L      |
| LSN5A     | LSS1H     | LSYAB7L-1A   | LSYFC1A      | LSYRC9A      |
| LSN5A-3P  | LSS1H-4N  | LSYAB7L-2B   | LSYFC1ADD    | LSYUB1A      |
| LSN6B     | LSS1HDD   | LSYAC1A      | LSYFC1AE     | LSYUB1A13    |
| LSN6B-3B  | LST1H     | LSYAC1A1-1D  | LSYFC3K      | LSYUB1A13-2D |
| LSN6B-3D  | LST1H-1C  | LSYAC1A-1B   | LSYFC7L      | LSYUB1A3     |
| LSN7L     | LSU1A     | LSYAC1A-2D   | LSYFC7L3     | LSYUB2B      |
| LSN7L3-3D | LSU1A-1   | LSYAC1ADD    | LSYFC7L4     | LSYUB3K      |
| LSN8A     | LSU1A-1B  | LSYAC1ADD-1B | LSYGB1A      | LSYUB6B      |
| LSN8A37   | LSU1A-1D  | LSYAC1AH     | LSYHB1A      | LSYUB9AC     |
| LSN9A     | LSU1A-2B  | LSYAC1E      | LSYHC1A      | LSYUC1A      |
| LSN9ADD   | LSU1A-2D  | LSYAC1J      | LSYHC3K      | LSYUC1A-1B   |
| LSN9EDD   | LSU1A4    | LSYAC2B      | LSYHC3KA     | LSYUC1ADD    |
| LSP1A     | LSU1A-4R  | LSYAC2R      | LSYHC4L      | LSYUC6B      |
| LSP1A-1B  | LSU1E     | LSYAC2S      | LSYHC7L      | LSYUC9ADD    |
| LSP1A-1C  | LSU1J     | LSYAC3K      | LSYJB1A-7A   | LSYVB3K      |
| LSP1A-1D  | LSU2B     | LSYAC3KP     | LSYJB1E-7A   | LSYVC1A      |
| LSP1A2    | LSU3K     | LSYAC3N      | LSYJB1J-7A   |              |
| LSP1A25   | LSU3K1    | LSYAC4L      | LSYJB3K-7A   |              |
| LSP1A-2A  | LSU3K-1A  | LSYAC5A      | LSYJB5A-7A   |              |
| LSP1A-2D  | LSU3K-2J  | LSYAC6B      | LSYJC1A-7A   |              |
| LSP1A4    | LSU4L     | LSYAC6B-1A   | LSYJC1ADD-7A |              |
| LSP1A4B   | LSU5A     | LSYAC6B-1B   | LSYJC3K-7A   |              |
| LSP1A-4M  | LSU6B     | LSYAC6B-2L   | LSYLB4M      |              |
| LSP1A5-1C | LSU7L     | LSYAC7L      | LSYLB6C      |              |
| LSP1AB    | LSU8A     | LSYAC9A      | LSYLB6T      |              |
| LSP1E     | LSU9A     | LSYAC9AB     | LSYLB7M      |              |
| LSP1E-1A  | LSV1A     | LSYBB2B      | LSYLB7T      |              |
| LSP1F     | LSV1A-2B  | LSYBB3K      | LSYLC2C      |              |
| LSP2B     | LSV1E     | LSYBB3KP-FP  | LSYLC4M      |              |
| LSP2B-1B  | LSV2B     | LSYBB4L      | LSYLC6C      |              |
| LSP2B-2D  | LSV4L     | LSYBB5KP-FP  | LSYMB2D      |              |

# MICRO SWITCH™ HDLS Series

## ALSO AVAILABLE



**Fully potted MICRO SWITCH™ HDLS heavy-duty limit switches** provide an extra degree of protection in harsh environments by sealing the basic switch cavity with epoxy. These switches are the same as the non-plug-in HDLS except that the entire switch cavity is filled with epoxy in addition to the conduit entrance. The fully potted HDLS switches are pre-leaded, with either cable or connectors.

- Excellent sealing capability for harsh-duty food and beverage wash downs and severe machine tool environments
- Extra diaphragm sealing
- 12 inch STOOW-A cable or connector version (other lengths available)
- Cable versions: NEMA 1, 6, 6P, 12
- Connector versions: NEMA 1, 6, 6P, 12, 13
- All fluorocarbon seals (low temperature available)
- UL, CSA, CE, CCC



**MICRO SWITCH™ HDLS switches are also available in all stainless-steel versions.** Designed for use in highly corrosive environments, such as petrochemical plants, food processing plants, shipboard, and dockside locations. The type 316 cast stainless steel body is designed to minimize crevices where food particles could become trapped in water. The actuator, operating head, and screws are also stainless steel. All seals are fluorocarbon to provide excellent chemical resistance and to withstand operating temperatures up to 121 °C [250 °F] and pressurized steam cleaning. Pre-leaded and epoxy-filled versions also available.

- Corrosion-resistant stainless steel non-plug in body, head, and rotary shaft
- Stainless steel levers
- Fluorocarbon seals
- NEMA 1, 3, 3R, 4, 4X, 6, 6P, and 13
- UL, CSA, CE, CCC

To learn more about Honeywell's HDLS products, call  
**+1-815-235-6847 or 1-800-537-6945.**

### **WARNING** **PERSONAL INJURY**

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **WARNING** **MISUSE OF DOCUMENTATION**

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

**Warranty.** Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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