# Honeywell

# MICRO SWITCH Miniature Industrial Limit Switch
## SZL-VL-S Series

**Datasheet**



## DESCRIPTION

The SZL-VL-S Series miniature-type limit switch is designed for use in applications where limited mounting space is available. With IP67 seal rating, these switches are suitable for OEM machinery that requires a rugged and reliable limit switch capable of being mounted in space restricted applications. Its design enhances ease of wiring with ample wiring space, and has an optional cable gland for faster and more efficient wiring termination.

The SZL-VL-S Series switches have a split-housing design made of a die-cast body and head with glass-filled, flame-retardant thermoplastic cover. The cover is removable for easy access and ease of installation. Modular actuator head design allows for configurations to meet a variety of application needs. The SZL-VL-S are available globally and carry certifications for applications around the world.

## DIFFERENTIATION

- With robust environmental ratings,  the SZL-VL-S is protected for all kinds of industrial applications. IP67 indicates that the SZL-VL-S is protected against the effect of immersion in water between 15 cm and 1 m.  The competition standard is IP65 which can only withstand low pressure spray and jets of water.
- The electrical rating of 10 A permits the SZL-VL-S switch to be used with heavier electrical loads than competitors

## VALUE TO CUSTOMERS

- These switches are user-friendly interfaces and may be used in a broad range of applications to help meet the challenges of many industrial environments.
- A variety of actuators fit on the same platform reducing the need to use various kinds of mounting hardware.

## FEATURES

- Approvals: CCC, CE, cULus
- Sealed to IP67, NEMA 1, 12, 13
- Snap-action contacts
- Die-cast metal housing with glass-filled, flame-retardant thermoplastic cover
- Stainless steel levers with either steel and nylon rollers
- Variety of actuators
- Positive-opening contacts (side rotary version only)
- RoHS compliant
- Utilization category: AC-15 A300 (380 Vac/0.5 A)
                                      DC-13 Q300 (220 Vdc/0.05 A)
- Mechanical life rating: 10 million cycles
- Electrical life rating: 0.5 million cycles

## APPLICATIONS

- Scissor/boom position detection
- Vehicle accessibility lifts
- Escalators/Motorized walkways
- Machine tools
- Mobile light towers
- Packaging equipment
- Conveyor equipment
- Overhead doors
- Agriculture equipment
- Rail passenger cars (internal doors)

## PORTFOLIO

The MICRO SWITCH SZL-VL-S series joins Honeywell's NGC Series and the GLL Series switches for general industrial applications. The combined portfolio helps ensure a variety of industrial applications or position sensing tasks can be performed by a Honeywell limit switch.  To view the entire product portfolio, click here.

# MICRO SWITCH Miniature Industrial Limit Switch, SZL-VL-S Series

**Table 1. Performance Specifications**

| Characteristic | Parameter |
|---|---|
| Description | Miniature industrial limit switch |
| Approvals | CCC, CE, cULus |
| Housing material | Die-cast metal housing with glass-filled, flame-retardant thermoplastic cover<br>UL 94 flame spread testing: V-0 rated |
| Electrical connection | Conduit entry or cable gland |
| Contact design | Snap-action (all versions)<br>Positive-opening contacts (side rotary version only) |
| Contact material | Silver alloy |
| Electrical ratings | AC-15 A300 (380 Vac/0.5 A)<br>DC-13 Q300 (220 Vdc/0.05 A) |
| Thermal current ($I_{th}$) | 10 A/250 Vac (EN 60947-5-1) |
| Initial contact resistance | $\leq$ 25 mOhm |
| Insulation resistance | >100 MOhm at 500 Vdc |
| Impulse voltage | 2500 Vdc |
| Dielectric voltage | 1890 Vac for metal housing, 1890 Vac between all terminals to enclosure after durability test |
| Leakage current | $\leq$ 10 mA |
| Pollution degree | 3 |
| Environmental sealing | IP67 |
| Operating temperature | -20°C to 70°C [-4°F to 158°F] (with no icing) |
| Humidity | 95 %RH |
| Shock | 30 G, conforming to IEC 60068-2-27 |
| Vibration | 10 G, 10 Hz to 55 Hz displacement amplitude 0,75 mm, conforming to IEC 60068-2-6 (wobble excluded) |
| MCTF (Mechanical life) | 10M cycles @ 120 cpm max. |
| MCTF (Electrical life) | 0.5M cycles @ 30 cpm max. under the rated resistance load |
| Operating speed | 0,05 mm/s to 2 m/s (based on pin plunger limit switch) |
| Operating frequency | Mechanical: 120 ops/min; Electrical: 30 ops/min |
| Weight | 120 g to 150 g |

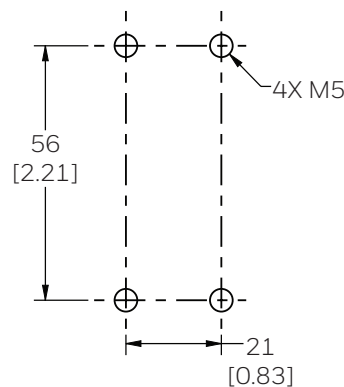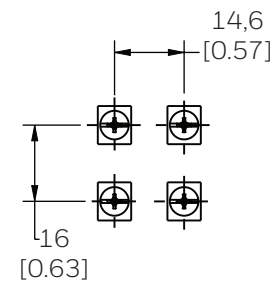**Figure 1. Circuitry**
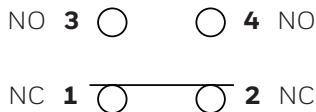


**Figure 2. Mounting Holes**



**Figure 3. Wiring**

# MICRO SWITCH Miniature Industrial Limit Switch, SZL-VL-S Series

**Figure 4. Product Nomenclature**

**SZL-VL** – **S** – **A** – **N** –

| Series | Code | Actuator | Sealing | Customer Options[1] |
|---|---|---|---|---|
| **SZL-VL Series** Limit Switch | **S** Standard | **A** Side rotary, fixed lever nylon roller, Ø18 x 6,5 | **N** IP67 | Without M12 cable gland (blank) |
| | | **B** Side rotary, adjustable lever nylon roller, Ø18 x 6,5 | | **M** With M12 cable gland |
| | | **C** Side rotary, adjustable rod Ø2,5 mm, 125 mm | | |
| | | **D** Top pin plunger | | |
| | | **E** Cross roller plunger Ø12,5 x 3,8 | | |
| | | **F** Coil spring wobble with plastic rod | | |
| | | **G** Steel wire wobble | | |
| | | **H** Top roller plunger Ø12,5 x 3,8 | | |
| | | **I** Side rotary, fixed lever steel roller, Ø18 x 6,5 | | |
| | | **J** Side rotary, adjustable lever steel roller, Ø18 x 6,5 | | |
| | | **K** Coil spring wobble | | |

[1] This special designator code consists of up to two alphanumeric characters, and is used to indicate some optional features such as customer code.

# MICRO SWITCH Miniature Industrial Limit Switch, SZL–VL–S Series

**Table 2. Order Guide mm [in]**

| Catalog listing | Actuator | Roller/pin plunger | Lever | Free position | Pretravel max. mm [in] | Differential travel max. mm [in] | Overtravel min. mm [in] | Min. travel to achieve positive opening | Operating force/torque (max.) | Bar chart |
|---|---|---|---|---|---|---|---|---|---|---|
| SZL-VL-S-A-N-M | Side rotary, fixed lever | Nylon roller, Ø18 x 6,5 [Ø0.71 x 0.25] | Steel, R30 | 0° | 25° | 15° | 70° | 40° | 18 Ncm [1.59 in-lb] | |
| SZL-VL-S-I-N-M | Side rotary, fixed lever | Steel roller, Ø18 x 6,5 [Ø0.71 x 0.25] | Steel, R30 | 0° | 25° | 15° | 70° | 40° | 18 Ncm [1.59 in-lb] | |
| SZL-VL-S-B-N-M | Side rotary, adjustable lever | Nylon roller, Ø18 x 6,5 [Ø0.71 x 0.25] | Steel, R30 to R70 | 0° | 25° | 15° | 70° | 40° | 18 Ncm [1.59 in-lb] | |
| SZL-VL-S-J-N-M | Side rotary, adjustable lever | Steel roller, Ø18 x 6,5 [Ø0.71 x 0.25] | Steel, R30 to R70 | 0° | 25° | 15° | 70° | 40° | 18 Ncm [1.59 in-lb] | |
| SZL-VL-S-C-N-M | Side rotary, adjustable rod | – | Metal rod, Ø2,5 mm [0.1 in], 125 mm [4.92 in] long | 0° | 25° | 15° | 70° | 40° | 18 Ncm [1.59 in-lb] | |
| SZL-VL-S-D-N-M | Top pin plunger | Metal pin, Ø6,6 [0.26] | | 27 ±0,8 [1.04 ±0.03]* | 2 [0.08] | 1,5 [0.06] | 3,5 [0.14] | n/a | 9 N [2.02 lb] | |
| SZL-VL-S-H-N-M | Top roller plunger | Steel roller, Ø12,5 x 3,8 [Ø0.5 x 0.15] | | 38,5 ±0,8 [1.5 ±0.03]* | 2 [0.08] | 1,5 [0.06] | 3,5 [0.14] | n/a | 9 N [2.02 lb] | |
| SZL-VL-S-E-N-M | Top cross roller plunger | Steel roller, Ø12,5 x 3,8 [Ø0.5 x 0.15] | | 38,5 ±0,8 [1.5 ±0.03]* | 2 [0.08] | 1,5 [0.06] | 3,5 [0.14] | n/a | 9 N [2.02 lb] | |
| SZL-VL-S-F-N-M | Wobble, coil spring and nylon rod | – | Ø5,8 mm [0.23 in] coil spring with plastic rod | 0° | 30° | – | 20° | n/a | 2 N [0.45lb] | |
| SZL-VL-S-G-N-M | Wobble, coil spring and metal wire | – | Ø5,8 mm [0.23 in] coil spring with Ø1,2 mm [0.05 in] metal wire | 0° | 30° | – | 20° | n/a | 2 N [0.45lb] | |
| SZL-VL-S-K-N-M | Wobble, coil spring | – | Ø5,8 mm [0.23 in] coil spring | 0° | 30° | – | 20° | n/a | 2 N [0.45lb] | |

* (from the center of the mounting hole)

# MICRO SWITCH Miniature Industrial Limit Switch, SZL-VL-S Series

**Dimensional Drawings • mm [in]**

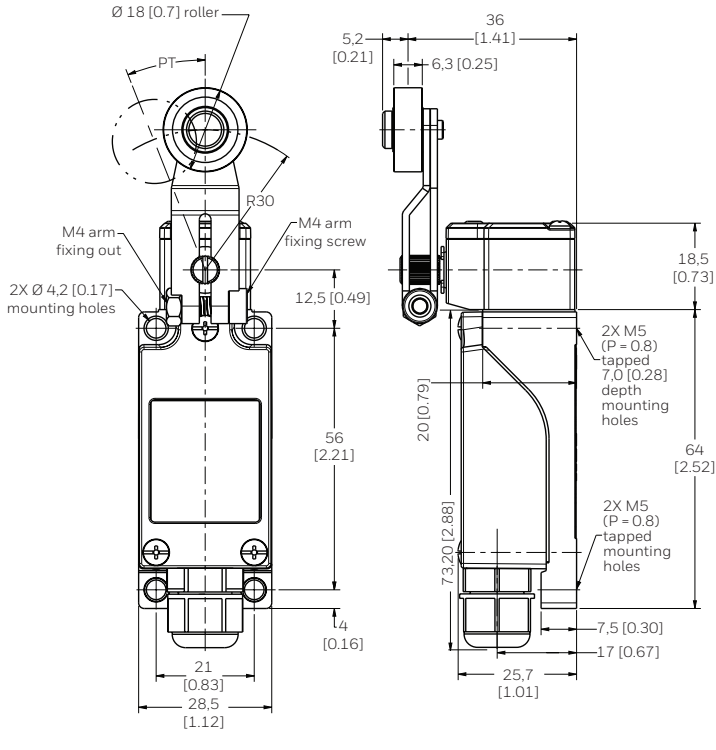**Figure 5. SZL-VL Side Rotary Limit Switch (Fixed Lever)**



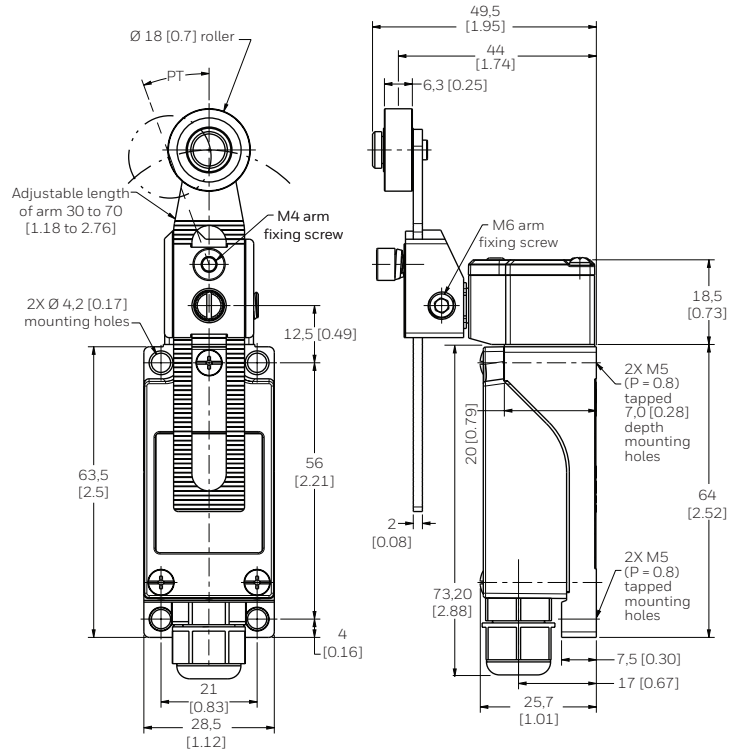**Figure 6. SZL-VL Side Rotary Limit Switch (Adjust. Lever)**



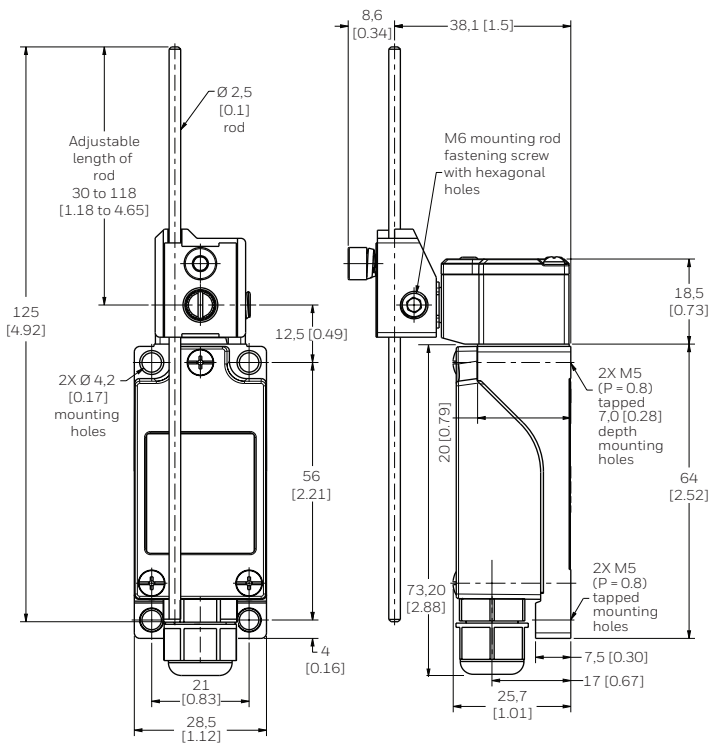**Figure 7. SZL-VL Side Rotary Limit Switch (Adjust. Rod)**



**Figure 8. SZL-VL Pin Plunger Limit Switch**
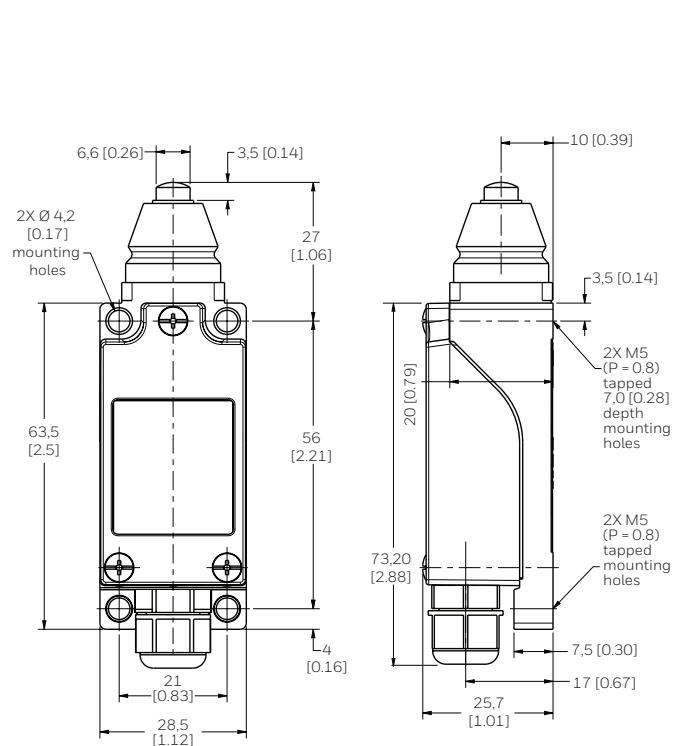
**Figure 9. SZL-VL Cross Roller Plunger Limit Switch**
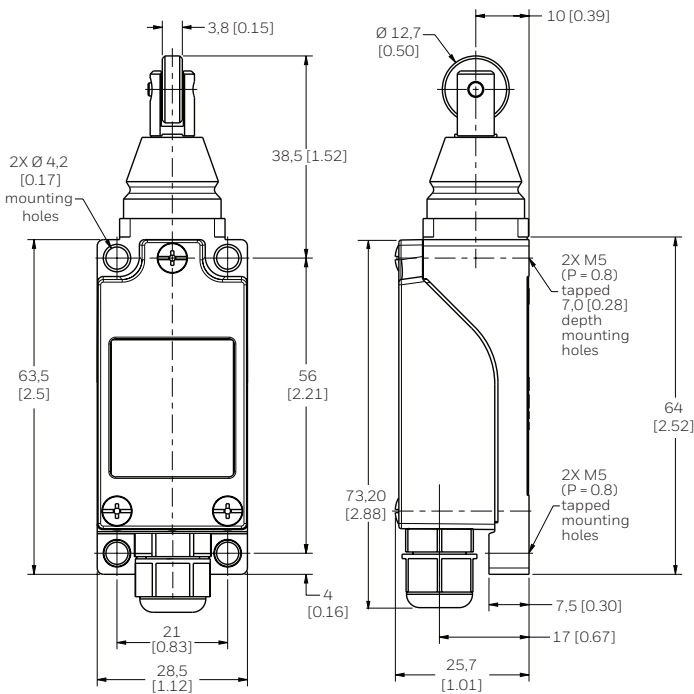


**Figure 10. SZL-VL Roller Plunger Limit Switch**
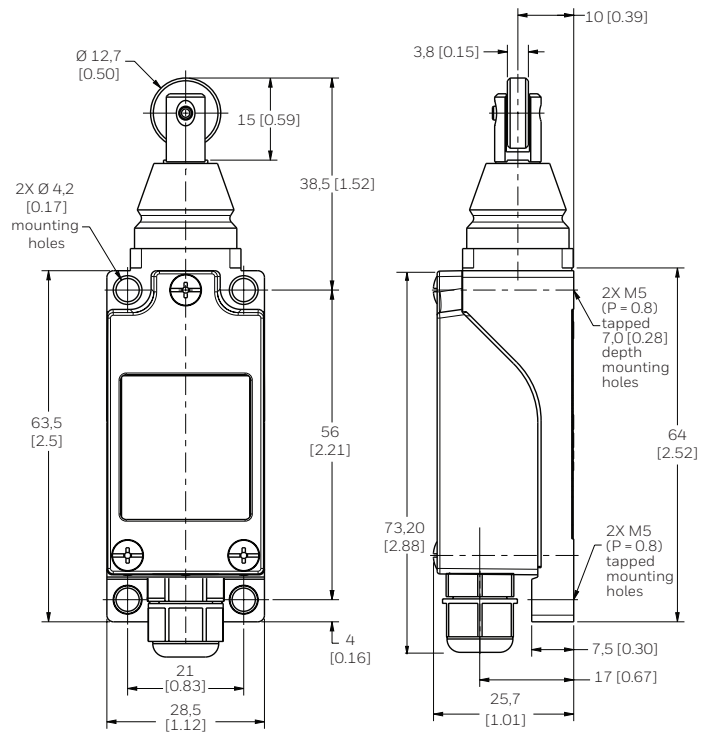


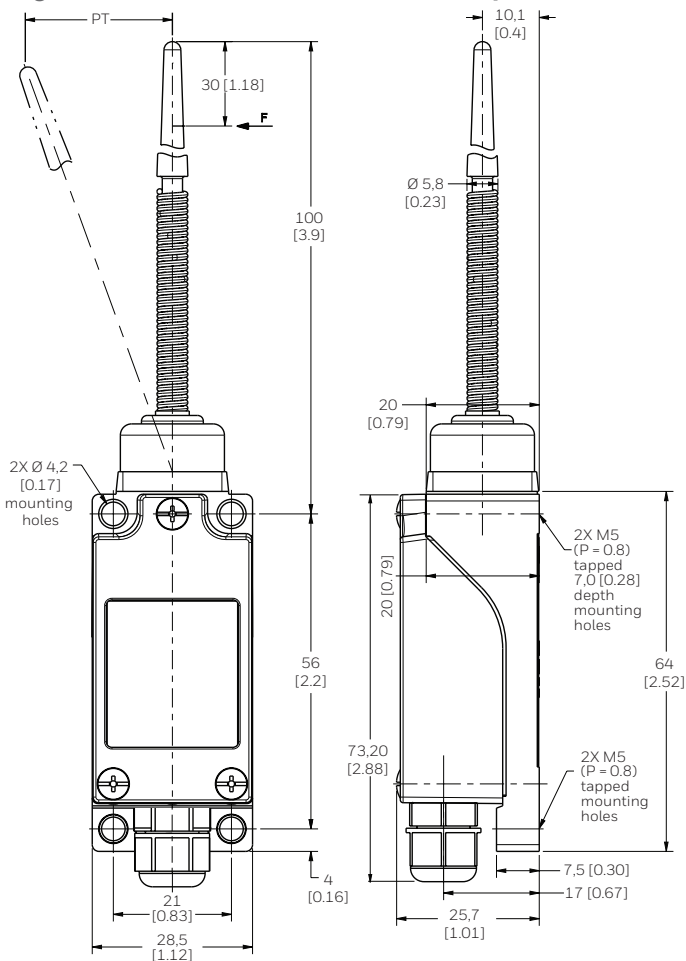**Figure 11. SZL-VL Coil Wobble (Plastic Tip) Limit Switch**



**Figure 12. SZL-VL Coil Wobble (Wire Tip) Limit Switch**
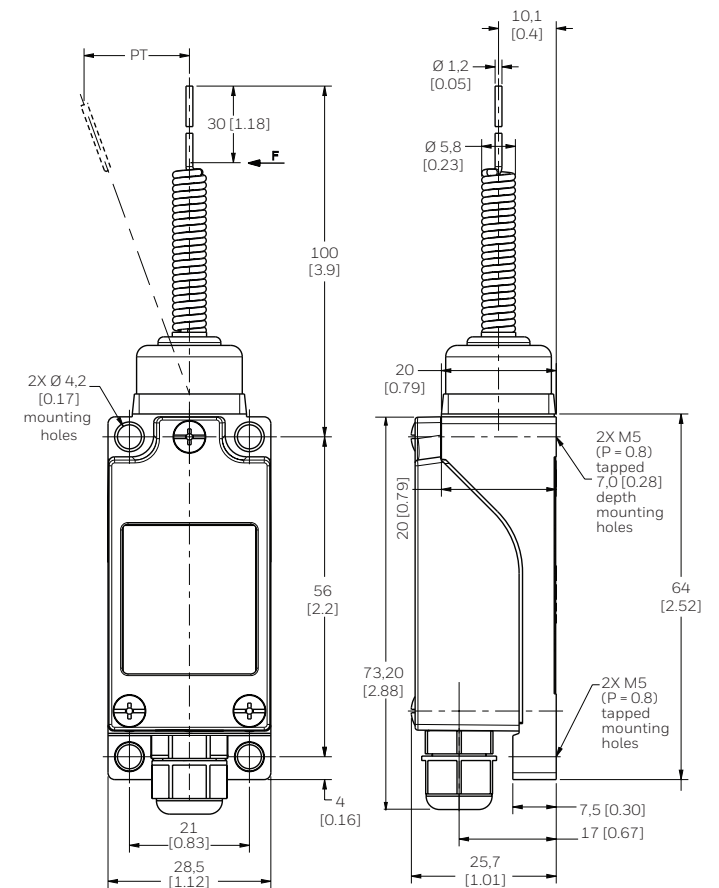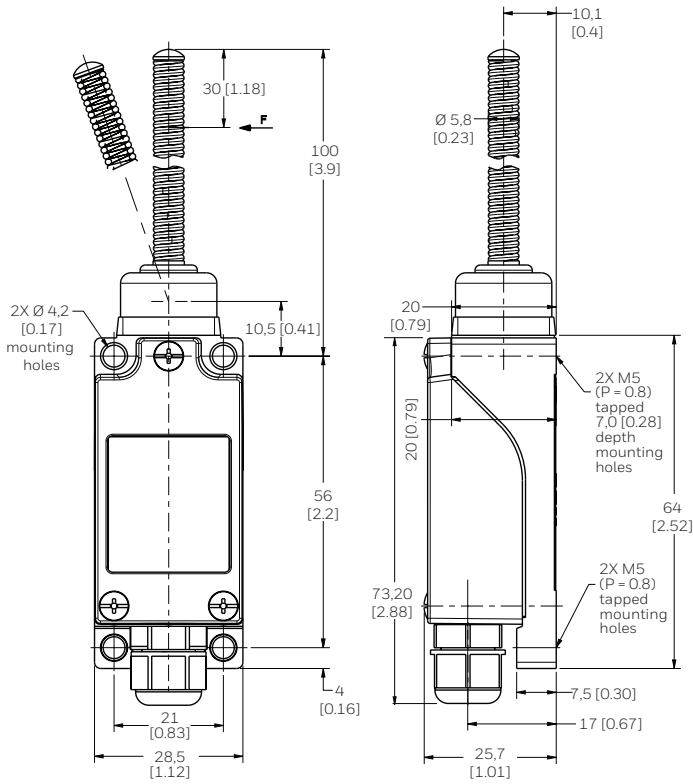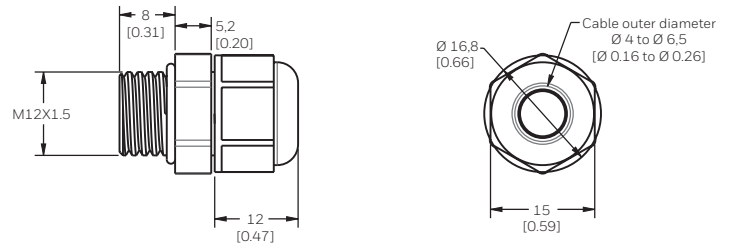
**Figure 13. SZL-VL Coil Wobble Limit Switch**

**Figure 14. SZL-VL M12 Cable Gland (A1-LSC-F)**

## ADDITIONAL INFORMATION

The following associated literature is available on the Web at sensing.honeywell.com:

- Product installation instructions
- Product range guide
- Product application-specific information
  – Application Note: Mid-tier Limit Switch Product Introduction

⚠ **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 product sheet is for reference only. Do not use this document as a product installation guide.
- 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/Remedy**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. 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 that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other 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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