



## MOLD PROTECTIVE SWITCHES

Smartflow® Mold Protective Limit Switches are designed and built by engineers with expert mold-building experience. Thinswitch®, SmartLock® and Versaswitch™ are the benchmark switches in the injection molding industry. Molders rely on them to provide dependable position indication and protection for valuable injection molds.

**Thinswitch** for ejector plate return

- ◆ Standard Temperature
- ◆ High Temperature
- ◆ Liquid-Resistant
- ◆ Global (3mm, 4mm or 3/16" height) for use with European or US Standard Molds

**SmartLock** Slide Retainer and Limit Switch for slide retention and position verification

- ◆ Standard Temperature
- ◆ High Temperature
- ◆ Locking Plunger

**Versaswitch** for core pull applications

- ◆ Optional Mounting Bracket



**VERSASWITCH™**



**SMARTLOCK®**  
U.S. Patent No. 6,126,429



**THINSWITCH®**  
U.S. Patent No. 5,446,252



**GLOBAL THINSWITCH®**  
U.S. Patent No. 7,569,783



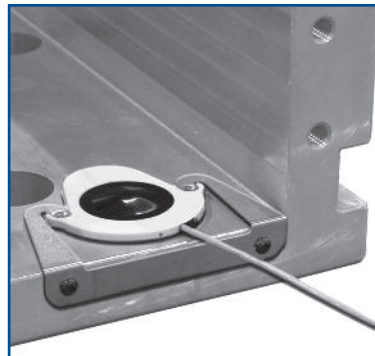
**LIQUID-RESISTANT THINSWITCH®**  
U.S. Patent No. 6,982,392

*Design and specifications are subject to change without notice.*

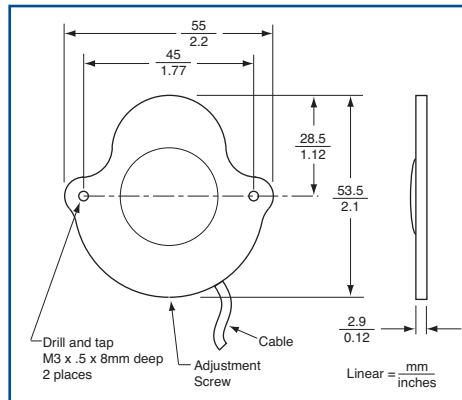
## GLOBAL THINSWITCH® Liquid-Resistant 3mm, 4mm, 3/16" Height

### General Description

Smartflow® Global Thinswitch® Limit Switch helps prevent accidental closure in injection molds by verifying ejector plate return in injection molds with 3mm, 4mm or 3/16" rest buttons, and where occasional water or oil spray is present. A polyurethane dome covers the actuator spring, protecting internal gold switch contacts from environmental contamination.



A special mounting bracket aids installation from the edge of the mold. The bracket allows molders to slide the Thinswitch into place without disassembling the mold or using screws to hold the switch in place. Spacers placed under the switch accommodate different rest button heights.



### Part Number

TW-222-LR

### Specifications

Operating Temperature .....80°C (176°F) max.  
Switching.....SPST (normally open)  
Contacts .....BeCu with Hard Gold Plating



| Rated Current (Resistive) at 24VDC vs. Operating Temperature |      |     |
|--|------|-----|
| mAmps  | °C   | °F  |
| 100  | 29.4 | 85  |
| 90   | 49.0 | 120 |
| 80   | 68.3 | 155 |
| 70   | 79.4 | 175 |

### Materials

Body .....Fiberglass-Reinforced Nylon  
Dome.....Polyurethane  
Back Cover .....Polyester film  
Mounting Bracket.....Stainless Steel  
Wire Leads .....28ga stranded  
2-conductor, shielded cable  
2m long, ends stripped and tinned



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*SMARTFLOW Limit Switches are designed for use in very low power mold protection control circuits. They are not intended to switch heavy loads in power applications.*



# THINSWITCH® LIMIT SWITCH

## General Description

Smartflow Thinswitch Limit Switch verifies ejector plate return in plastics injection molds. This small switch is thin enough to fit inside the ejector housing. It can also be used for core slides, or places where space is limited. Choose from the original design or the liquid-resistant housing for areas where water or oil spray is present.

The Thinswitch® Limit Switch has been tested for reliability over 10 million cycles without failure. Two switches can be used in series for larger molds.



**T-222**  
Thinswitch



**HT-291-LR**  
Liquid-Resistant  
Thinswitch

## Part Numbers

|                             |                     |
|-----------------------------|---------------------|
| Original Thinswitch         |                     |
| <b>T-222</b> .....          | 175°F (79.4°C) max. |
| <b>HT-291</b> .....         | 250°F (121°C) max.  |
| Liquid-Resistant Thinswitch |                     |
| <b>T-222-LR</b> .....       | 175°F (79.4°C) max. |
| <b>HT-291-LR</b> .....      | 250°F (121°C) max.  |

## Specifications

|                         |                                      |
|-------------------------|--------------------------------------|
| Electrical              |                                      |
| 250VAC .....            | 5 Amps Resistive<br>4 Amps Inductive |
| 28VDC (sea level) ..... | 5 Amps Resistive<br>4 Amps Inductive |

See chart below for temperature effects on maximum current rating

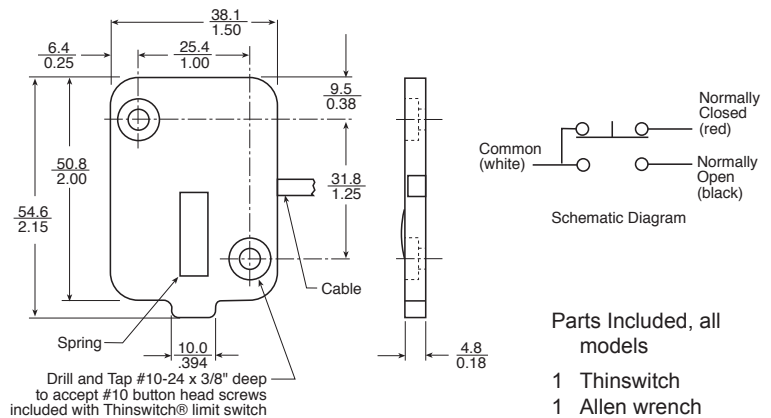
| Rated Current vs. Steel Temperature |     |      |        |     |       |
|-------------------------------------|-----|------|--------|-----|-------|
| T-222                               |     |      | HT-291 |     |       |
| Amps                                | °F  | °C   | Amps   | °F  | °C    |
| 5.0                                 | 85  | 29.4 | 5.0    | 100 | 37.7  |
| 4.0                                 | 120 | 49.0 | 4.5    | 155 | 68.3  |
| 3.0                                 | 155 | 68.3 | 4.0    | 210 | 98.8  |
| 2.0                                 | 175 | 79.4 | 3.5    | 250 | 121.1 |

Switching.....SPDT

## Materials

|                 |   |
|-----------------|---|
| Body .....      | Glass-Filled Nylon  |
| Spring.....     | Stainless Steel   |
| Back Cover..... | Polyester Film  |
| Wire Leads..... | 22ga stranded<br>3-conductor, shielded cable<br>6 ft. (1.8m) long<br>ends stripped and tinned |

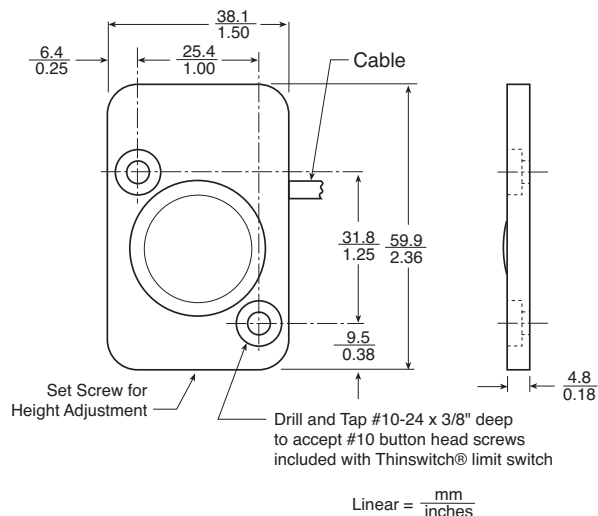
## T-222 & HT-291 Dimensions



Parts Included, all models

- 1 Thinswitch
- 1 Allen wrench
- 4 #10-24 screws
- 2 Wire clamps

## T-222-LR & HT-291-LR Dimensions



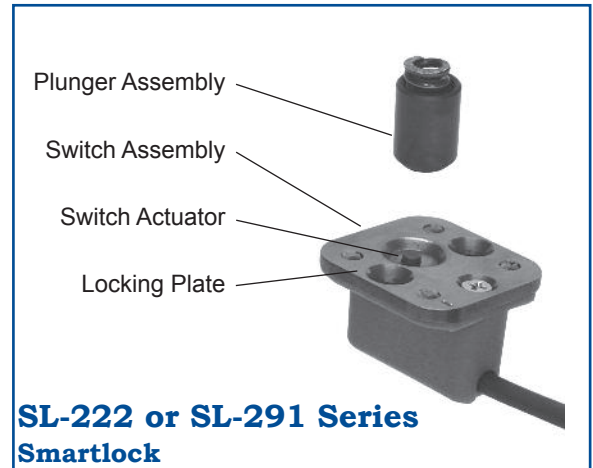


# SMARTLOCK® SLIDE RETAINER AND LIMIT SWITCH

## General Description

Smartflow Smartlock Slide Retainer and Limit Switch provides a switch and slide detent in one unique package. The locking function prevents premature slide movement during molded part ejection while the SPDT switch is simultaneously actuated.

The Smartlock has been tested for reliability over 10 million cycles without failure. Two or more switches may be used for larger molds, or molds with multiple slides. Slide position verification and prevention of mold damage result when the Smartlock slide retainer and limit switch is installed in a mold. A capture screw holds the plunger in the slide to prevent loss when using the "-C" version of the switch.



## Part Numbers

- Switches with 11mm/.44" dia Standard Plunger  
**SL-222-S-S**.....175°F (79.4°C) max.  
**SL-291-S-S**.....250°F (121°C) max.
- Switches with 14.2mm/.56" dia Captive Plunger  
**SL-222-S-C** .....175°F (79.4°C) max.  
**SL-291-S-C** .....250°F (121°C) max.

## Specifications

- Electrical .....250VAC / 28VDC  
 5 Amps Resistive  
 4 Amps Inductive

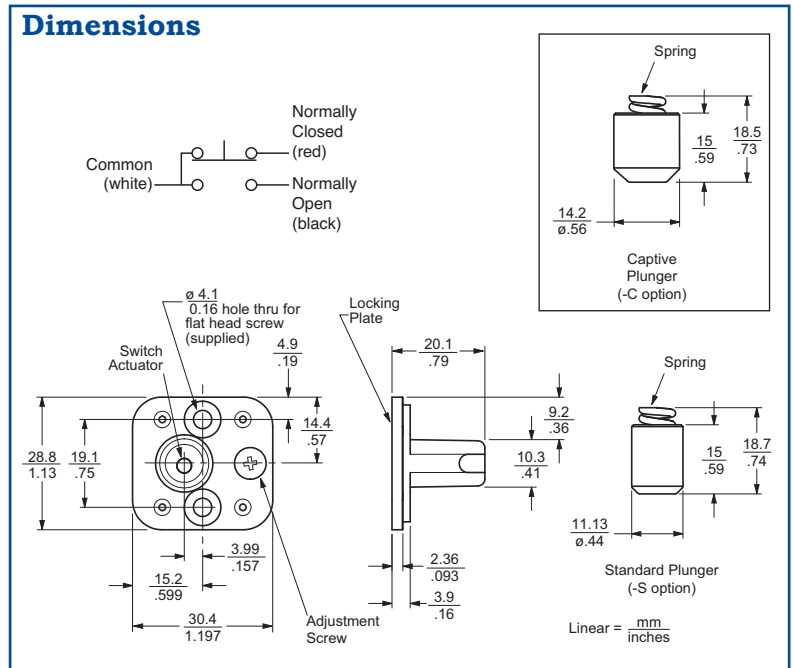
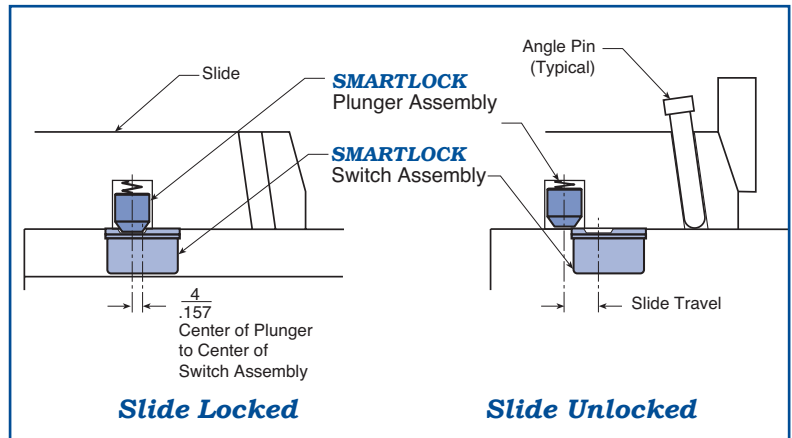
See chart below for temperature effects on maximum current rating

| Rated Currents vs. Steel Temperature |     |      |               |     |       |
|--------------------------------------|-----|------|---------------|-----|-------|
| SL-222 Series                        |     |      | SL-291 Series |     |       |
| Amps                                 | °F  | °C   | Amps          | °F  | °C    |
| 5.0                                  | 85  | 29.4 | 5.0           | 100 | 37.7  |
| 4.0                                  | 120 | 49.0 | 4.5           | 155 | 68.3  |
| 3.0                                  | 155 | 68.3 | 4.0           | 210 | 98.8  |
| 2.0                                  | 175 | 79.4 | 3.5           | 250 | 121.1 |

- Break Away Force .....17 to 27 lbs. (adjustable)  
 Switching .....SPDT

## Materials

- Switch Body .....Glass-Reinforced Nylon  
 Locking Plate .....Hardened Steel  
 Locking Plunger.....Hardened Steel  
 Wire Leads .....22ga stranded  
 3-conductor, shielded cable  
 6 ft. (1.8m) long  
 ends stripped and tinned





# VERSASWITCH™ LIMIT SWITCH

## General Description

Smartflow Versaswitch Limit Switch installs into an injection mold to indicate location of the core, preventing tool damage.

Versaswitch is easily installed into a 5/8"-24 female thread. The switch actuates when 3.5 lbs of force is applied to the plunger. Actuation height is adjusted by threading the switch to the correct position in the installation. The switch is held in place via a lock-washer and hex nut. SPDT snap action switch provides a simple, positive indication of the mold or core location.

Optional mounting bracket is available to aid installation. Threaded fastener holes facilitate mounting the switch in many positions. The bracket is made from corrosion-resistant anodized aluminum.

## Part Numbers

- V-222** .....Versaswitch  
includes lockwasher and nut
- VB-222** .....Mounting Bracket  
red anodized aluminum

## Switch Specifications

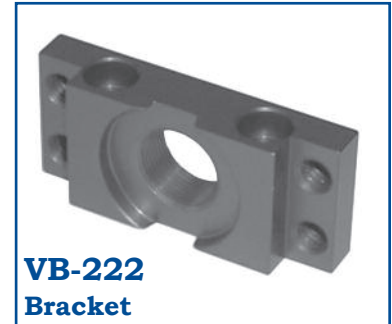
- Electrical .....240VAC  
5 Amps Resistive  
3 Amps Inductive
- Operating Temperature .....180°F max.  
(82°C max.)
- Switching .....SPDT
- Operating Force .....3.5 lbs (1.605 kg)
- Pre-travel to operating point .....0.06" (1.5mm)
- Overtravel .....0.01" (.25mm)
- Enclosure .....Watertight per IP68S

## Switch Materials

- Body .....Anodized Aluminum/Epoxy
- Plunger .....Stainless Steel
- Nut .....Anodized Aluminum
- Lockwasher .....Zinc-Plated Steel
- Wire Leads .....22ga stranded  
3-conductor, shielded cable  
6 ft. (1.8m) long  
ends stripped and tinned

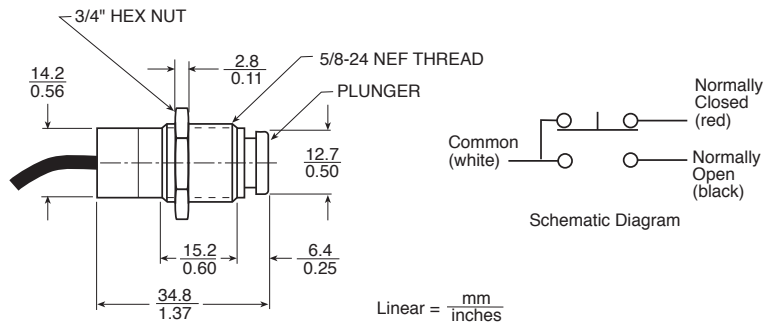


**V-222**  
Versaswitch



**VB-222**  
Bracket

## V-222 Switch Dimensions



## VB-222 Bracket Dimensions

