SMARTFLOW®

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

SMARTLOCK®
U.S. Patent No. 6,126,429

THINSWITCH®
U.S. Patent No. 5,446,252

VERSASWITCH™

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

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

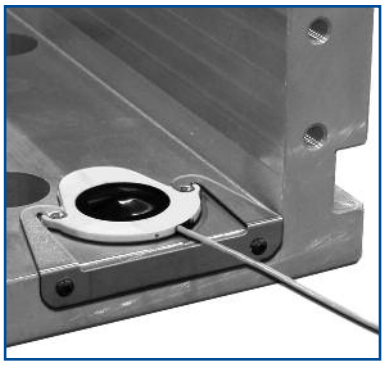
Design and specifications are subject to change without notice.

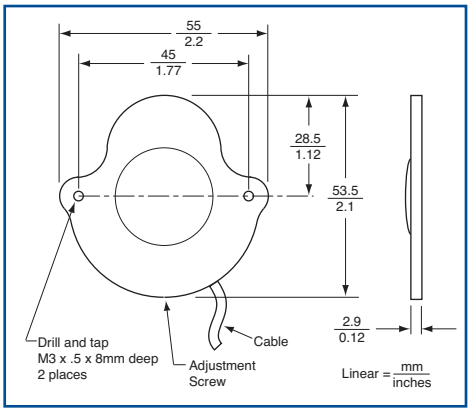
GLOBAL THINSWITCH® *Liquid-Resistant 3mm, 4mm, 3/16" Height*

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

CE EN 60947-5-1
IP 41

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

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.

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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.

CE EN 60947-5-1

Part Numbers

Original Thinswitch
T-222 .....175°F (79.4°C) max.
HT-291 .....250°F (121°C) max.

Liquid-Resistant Thinswitch (IP 41)
T-222-LR .....175°F (79.4°C) max.
HT-291-LR .....250°F (121°C) max.

Specifications

Electrical
250VAC .....5 Amps Resistive
4 Amps Inductive
28VDC (sea level) .....5 Amps Resistive
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

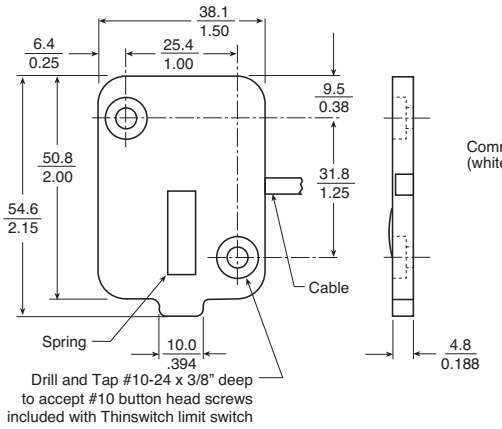
Materials

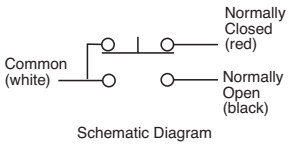
Body .....Glass-Filled Nylon
Spring.....Stainless Steel
Back Cover.....Polyester Film
Wire Leads.....22ga stranded
3-conductor, shielded cable
6 ft. (1.8m) long
ends stripped and tinned

T-222
Thinswitch

HT-291-LR
Liquid-Resistant Thinswitch IP 41

T-222 & HT-291 Dimensions



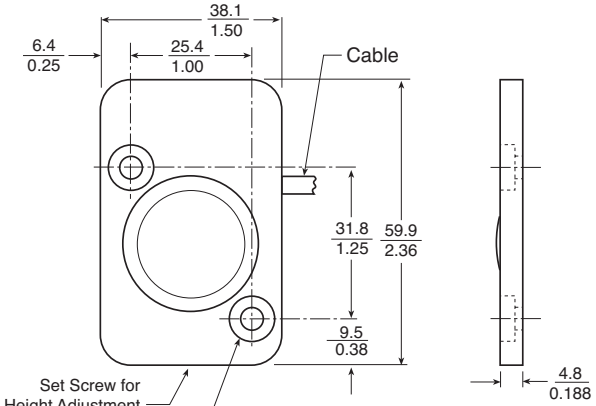


Schematic Diagram

Parts Included, all models

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

T-222-LR & HT-291-LR Dimensions (IP 41)



Linear = mm / inches

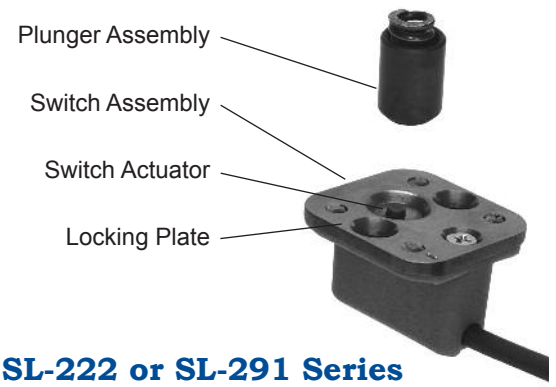
SMARTLOCK® SLIDE RETAINER AND LIMIT SWITCH

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.

CE EN 60947-5-1



SL-222 or SL-291 Series
Smartlock

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

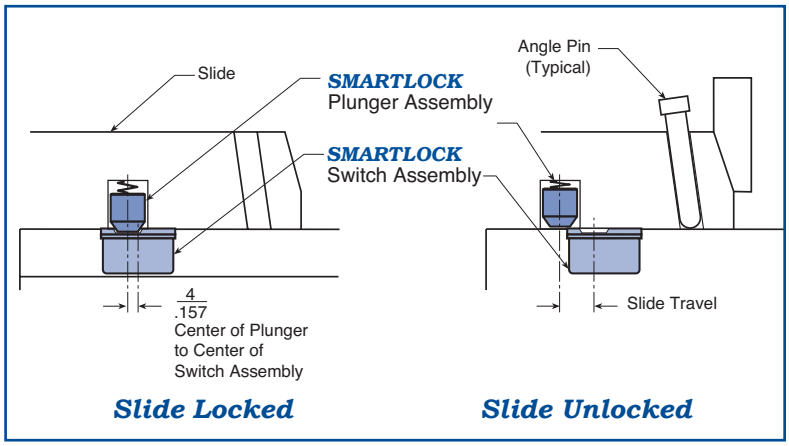
See chart below for temperature effects on maximum current rating

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

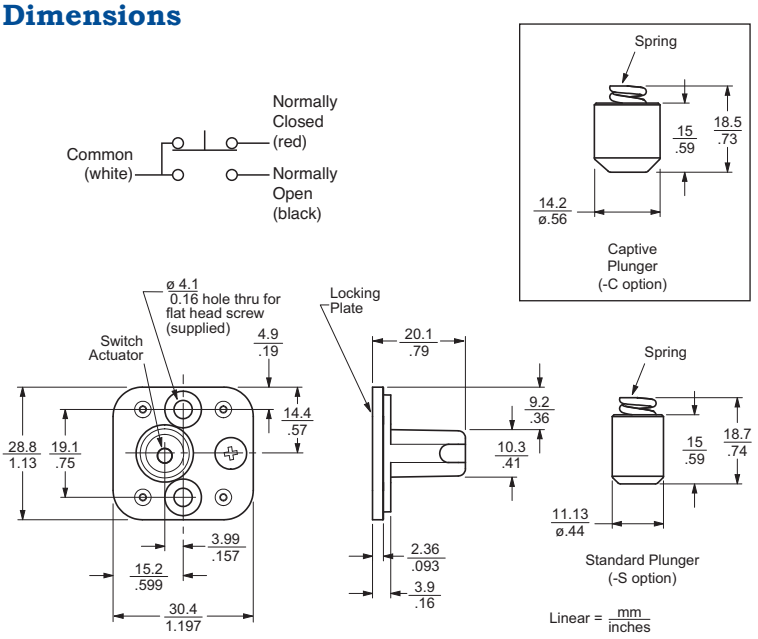
Break Away Force.....17 to 27 lbs. (adjustable)
Switching .....SPDT

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



Dimensions



VERSASWITCH™ LIMIT SWITCH

General Description

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

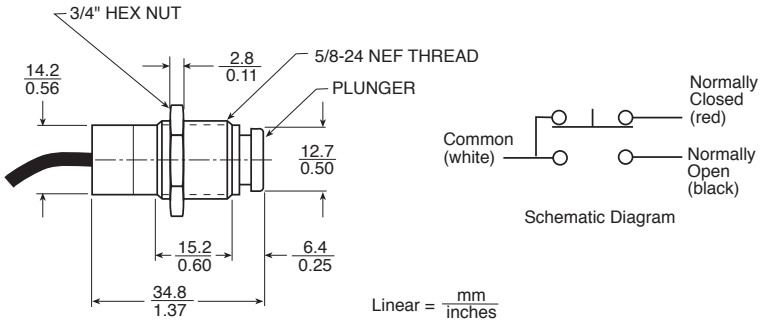
Versaswitch is easily installed into a 5/8"-24 female thread. The switch actuates when 3.5 lbs of force is applied to the plunger. Actuation height is adjusted by threading the switch to the correct position in the installation. The switch is held in place via a lockwasher and hex nut. SPDT snap action 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.

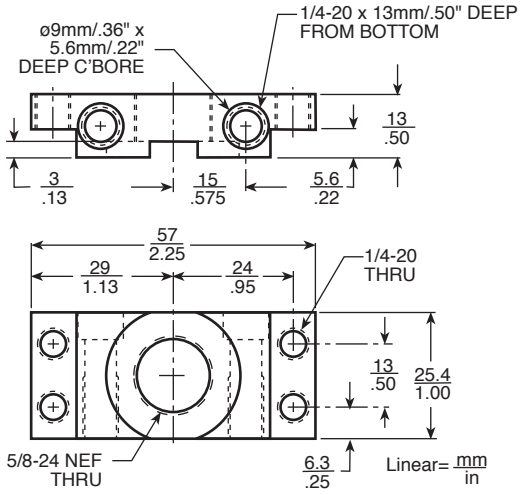
V-222
Versaswitch

VB-222
Bracket

V-222 Switch Dimensions



VB-222 Bracket Dimensions



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