

Industrial Electromechanical Limit Switches

Honeywell offers an advanced line of heavy duty limit switches and a wide selection of application-proven enclosed switches (precision snap-acting switches sealed in rugged metal housing). Sealed versions keep out moisture and other contaminants. Our products meet or exceed critical standards allowing for global use. Our rugged switches are suitable for use in harsh-duty, wash-down environments. We offer a variety of circuitry, terminations and actuators to ensure that can match your choice of switch to your application.

Limit and enclosed switches are the cost effective switches of choice for detecting objects which can be touched. When an object comes in contact with an actuator, the switch operates. Rugged and dependable, these switches are offered in a variety of sizes, with different seals, enclosures, actuation, circuitries and electrical ratings. Enclosed switches are known for high precision and low cost. Limit Switches are especially rugged and well sealed. Explosion proof switches are designed for use in hazardous locations.

The Honeywell switches featured here are all proven in a broad range of Industrial applications - machine tools, packaging machinery, lifting gear, presses and construction machinery.

More information about our complete product range - and the depth of product available within each product line - can be found on our interactive catalogue at www.honeywell.com/sensing.


MICRO SWITCH Brand products

Honeywell has been at the forefront of switching technology since we were the first to develop the precision snap-action switch more than 60 years ago. Ever since we introduced the Micro Switch Brand Products in 1937, we have been recognized as the performance standard that all other switches are measured against. We continue in that tradition by constantly improving the technology, cost-effectiveness, and delivery of these hardworking, versatile electromechanical switches.



! WARNING

IF USED IN APPLICATIONS CONCERNING HUMAN SAFETY

- Only use NC direct opening (“positive opening”/ “positive break”) contacts, identified by the symbol .
- Do NOT use flexible / adjustable actuators. Only use actuators designed for safety applications.
- Do NOT defeat, tamper, remove, or bypass this switch.
- Hazardous voltage, disconnect power before servicing.
- Strictly adhere to all installation and maintenance instructions.
- Consult with local safety agencies and their requirements when designing a machine-control link, interface and all control elements that affect safety.

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

Honeywell

www.honeywell.com/sensing

Selection Guide for Limit Switches

GLOBAL

EVN2000



SZL-VL

GLC

GLD

GLA

GLE

GLA

PRECISION

BF

**BAF/
DTF**

**BZE/
DTE
E7**

EXPLOSION PROOF

14CE100

GXE

EX

CX

LSX/BX

Series	Housing Material		Approvals				Sealing		Dimensions			Electrical Rating	
	Plastic	Metal	CE	C-UL	UL	CSA	IEC IP	NEMA (USA)	HeightxWidthxDepth mm (in)	AC	DC		
Global	EVN2000		•		•	•	•	66, 67	1, 12, 13			AC15, A300	DC13, Q300
		SZL-VL	Die cast base/ Plastic cover		•	•	•	64		96.0 x 28.0 x 39.0 (3.8 x 1.10 x 1.51)	5 A Resistive - 125, 250 Vac	0.4 A Resistive 125 Vdc	
	GL	EN50041 (GLA)		•		•	•	67	1, 4, 12, 13	102.9 x 42.0 x 42.0 (4.05 x 1.65 x 1.65)	AC15 A600 (A300 DPDT)	DC13	
		EN50047 (GLC/D/E)	•	•	•	•	•	66	GLC/E 1, 4, 12, 13 GLD 1, 2, 12	77.0 x 30.0 x 30.5 (3.03 x 1.18 x 1.20)	AC15 A600 Plastic, A300 Metal Housing	DC13	
Compact	SL1	Thermoplastic/ Metal		•	•	•	67	3, 4, 13	28.4 x 44.2 x 18.0 (1.12 x 1.74 x 0.71)	5 A - 125, 250 Vac			
		14CE		•	•		66, 67, 68	1, 2, 3, 3R, 4, 6, 6P, 12 (boot seal), 13	44.0 x 40.0 x 16.0 (1.73 x 1.57 x 0.63)	5 A - 125, 250 Vac			
	914CE		•	•									
	24CE		•	•			66 (standard), 67 (boot seal)		49.0 x 40.0 x 16.0 (1.93 x 1.57 x 0.63)	10 A - 250 Vac			
	924CE		•	•			67 (20 mm conduit)	1, 3, 4, 6, 13 (½ in conduit)	94.0 x 40.6 x 58.42 (3.7 x 1.6 x 2.3)	10 A - 120, 240, 480 Vac			
Precision	BF	•			•		67	1, 3, 4, 13	44.5 x 73.5 x 30.2 (1.75 x 2.9 x 1.19)	11 A - 125 Vac, 5 A - 125 Vac			
	BZE/DTE		•	•	•	•		1 (E6) 1, 3 (V6)	44.4 x 77.2 x 25.4 (1.75 x 3.04 x 1.0)	1 A - 125 Vac, 15 A - 125 Vac			
	E7		•	•			50 (standard), 65 (boot seal)		45.2 x 76.4 x 25.4 (1.67 x 3.0 x 1.0)	1 A - 125 Vac, 15 A - 125 Vac			
	BAF/DTF		•		•	•		1, 3, 4, 13; 1 (-2RQ9)	54.8 x 101.6 x 33.0 (2.16 x 4.0 x 1.3)	10 A - 125 Vac, 20 A - 125 Vac			
Heavy Duty	HDLS		•	•	•	•		1, 3, 4, 4X, 6, 6P, 12, 13	SDPT: 106.7 x 41.1 x 62.0 (4.2 x 1.6 x 2.4) DPDT: 119.1 x 47.8 x 62.0 (4.7 x 1.9 x 2.4)	10 A Thermal: SPDT (NEMA A600), DPDT (NEMA B600)			
	HDLS Fully potted		•	•	•	•		1, 4, 6, 6P, 12, 13 (connector) 1, 4, 6, 6P, 12 (cable)					
	HDLS Stainless steel	Stainless Steel	•	•	•	•		1, 3, 3R, 4, 4X, 6, 6P, 12, 13	123.0 x 47.7 x 61.9 (4.9 x 1.9 x 2.4)				
Explosion Proof	14CE100		•	•			65 (standard), 67 (boot seal)	1, 3 (standard), 1, 3, 4, 12, 13 (boot seal)	49.0 x 40.0 x 16.0 (1.93 x 1.57 x 0.63)	AC14 D300, DC13 R300			
	GXE		•	•			66/67		60.0 x 52.0 x 25.0 (2.36 x 2.05 x 1.0)	AC15, DC13			
	EX		•	•	•	•		1, 7, 9	65.0 x 93.0 x 52.0 (2.56 x 3.66 x 2.0)	Up to 20 A @ 125, 250 or 480 Vac			
	CX		•	•	•	•		1, 3, 4, 4X, 6, 6P, 7, 9, 13	102.0 x 102.0 x 145.0 (4.0 x 4.0 x 5.71)	Up to 20 A @ 125, 250 or 480 Vac			
	LSX		•	•	•	•		1, 3, 4, 6, 7, 9, 13					
	BX		•	•	•	•	67	1, 3, 4, 6, 7, 9, 13	121.0 x 76.0 x 73.0 (4.8 x 3.0 x 3.0)	SPDT (NEMA A600), DPDT (NEMA B600)			

	Operating Temperature		Switching Options*												Termination	Special Features	Page Number		
	From	To	Snap Action				Slow Action											Gold Contacts (Low Energy Options)	
	°C (°F)		1NC/1NO	2NC/2NO	1NC/1NO	2NC/2NO	1NC	2NC	1NC/1NO	1NC/1NO	2NC/1NO	2NC/2NO	3NC/1NO	4NC					
	-25 (-13)	85 (185)			•												Cable gland/cord grip	Insulation Displacement Termination	10
	-20 (-4)	60 (140)	•														Flexible cable gland/cord grip	Gold plated silver contacts standard	11
	-25 (-13)	85 (185)			•	•		•	•	•	•	•					Conduit	Wide variety of actuator styles and circuitry options	14
	-25 (-13)	85 (185)			•	•		•	•	•	•								16
	-10 (-14)	70 (160)	•														Cord grip	Miniature size	20
	0 (32); low temp option to -30°	70 (221)	•														Cable, Quick Connect	Low and high temperature options available. Superior Sealing (IP 68)	22
	0 (32)	105 (221)	•																25
	0 (32)	70 (221)					•		•	•							Cable, Quick Connect	Low and high temperature options available. Direct acting contacts	25
	-29 (-20)	71 (160)	•						•	•									Conduit
	-32 (-25)	71 (160)	•														Conduit	Cost effective solution	34
	-32 (-25)	71 (160)	•	•													Conduit	Precise operation. Low temperature versions available	36
	-30 (-22)	70 (158)	•	•													Conduit	Precise operation	41
	-32 (-25)	71 (160)	•	•													Conduit	Rugged housed precise operation	42
	-12 (-10); -40 (-40)	121 (250)**	•	•													Conduit	Low temperature and Fluorocarbon Seal versions available. Wide variety of actuator styles. Cable and connector available.	46
	-12 (-10)	Connector 121 (250); Cable version 105 (221)	•	•													Cable or Connector	Switch cavity is epoxy filled	53
	-12 (-10); -40 (-40)	121 (250)**	•	•													Conduit, Cable	Corrosion resistant stainless steel housing	55
	0 (32)	70 (158)	•														Prelead cable	Miniature size	58
	-20 (-4)	75 (167)	•														Prelead cable		59
	-40 (-40)	71 (160)	•	•													Conduit	High temperature option (400 °F for 100 Hr)	60
	See Catalog for details	85 (185)	•	•													Conduit	Optional 4-20 mA analog output	64
	See Catalog for details	See Catalog for details	•	•													Conduit	Wide variety of actuators, circuitry and termination options	66
	-40 (-40)	See Catalog for details	•	•													Conduit	ATEX approvals for European use	66

** Refer to catalog for additional data

* HDLS, LSX and BX Series are available with the following Switching Options
 NC/NO snap-action, Maintained; 2NC/2NO snap-action, Maintained;
 2NC/2NO snap-action, Center Neutral; 2NC/2NO snap-action, Sequential
 CX, LSX, BX also available with 1NC Direct Acting

COMPACT



14/914CE



24/924CE

LS



HEAVY DUTY



HDLS



Stainless Steel HDLS

Proper application of limit switches

The following are guidelines for the correct application of Limit Switches. Never use the Limit Switch as a physical end stop. Mechanical damage or incorrect operation may occur if this is done. Always ensure that the mechanical actuator is protected from excessive mechanical shock. Never release the actuator suddenly - gradual actuation and release will ensure that stress on the mechanics of the switch is kept to a minimum. This has the added benefit that the switch life will be improved. The diagrams illustrate how to actuate your limit switch for optimum performance.

Standards and Electrical rating

IEC/EN 60947-1 explains the general rules relating to **Low Voltage switchgear and controlgear**. The purpose of this standard is to harmonize as much as possible the product performance and test requirements for equipment where the rated voltage does not exceed 1,000 Vac or 1,500 Vdc.

IEC 60947-5-1 is part 5 of the general rules which relates to **Control-circuit devices and switching elements**, where rated voltage does not exceed 1,000 Vac or 600 Vdc. There are special requirements for control switches with positive opening operation. These switches are marked on the outside with this symbol:



The Contact Element form defines the configuration and number of contacts within the switch.

Form Za – both contact elements have the same polarity

Form Zb – the two contact elements are electrically separated.

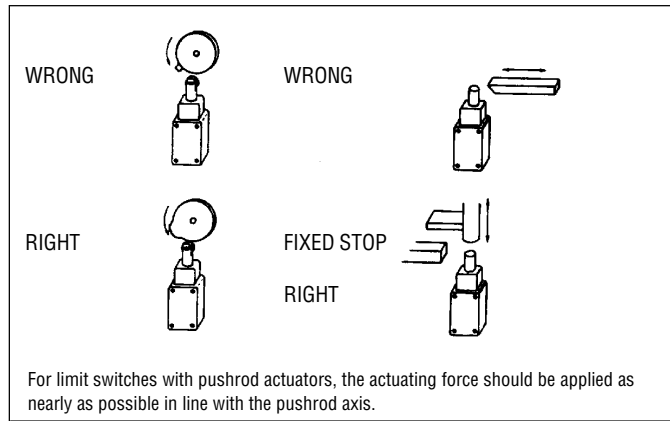
The **Utilization Category** defines the type of current carried – ac or dc – and the typical application where the switch is used.

The contact rating **Designation** relates to the Utilization Categories and defines the conventional thermal current I_{th} (a) rated operational current I_e (A) at rated operational voltages U_e and the VA rating.

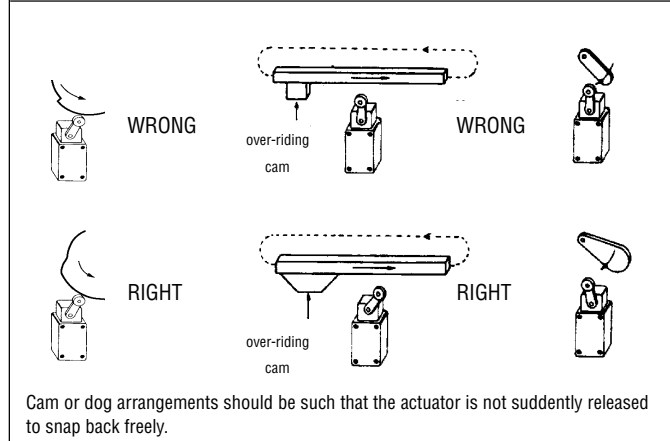
Actuators

A range of actuators is available for limit switches. Illustrations of actuator types available from this catalogue are shown at the beginning of each product family. Other actuators may be available - for more information please contact your local Honeywell office.

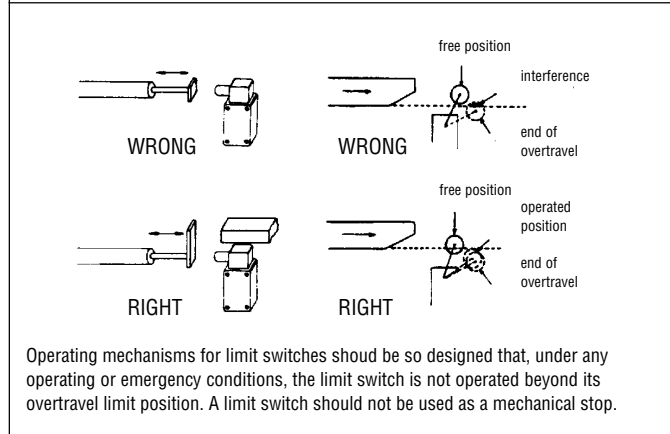
Roller lever 	Top roller lever 	Adjustable roller lever 	Top pin plunger 	Top pin plunger, boot seal 	
Top roller plunger 	Top roller plunger, boot seal 	Top roller plunger, perpendicular 	Top roller plunger, perpendicular, boot seal 	Ball bearing plunger 	
Side pin plunger 	Side roller plunger 	Roller lever 	Yoke lever 	Rod lever 	Wobble head



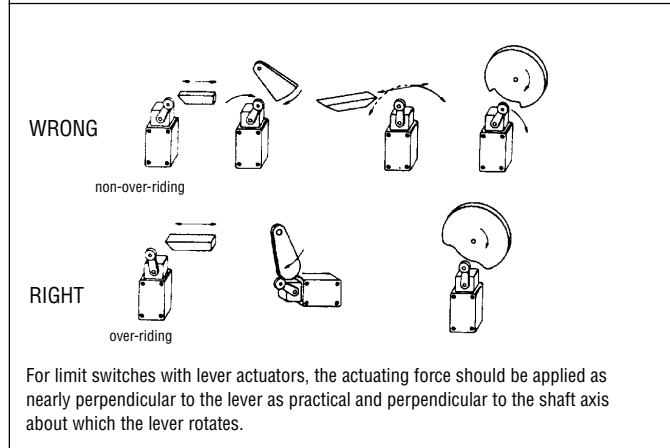
For limit switches with pushrod actuators, the actuating force should be applied as nearly as possible in line with the pushrod axis.



Cam or dog arrangements should be such that the actuator is not suddenly released to snap back freely.



Operating mechanisms for limit switches should be so designed that, under any operating or emergency conditions, the limit switch is not operated beyond its overtravel limit position. A limit switch should not be used as a mechanical stop.



For limit switches with lever actuators, the actuating force should be applied as nearly perpendicular to the lever as practical and perpendicular to the shaft axis about which the lever rotates.

A Note on Degrees of Protection

IP Classification

The IEC 529 standard describes a system for classifying the degree of protection provided by the enclosures of electrical equipment. The level of protection given by the enclosure is indicated by the IP code. This code system uses the letters "IP" (International Protection) followed by up to four digits. Normally only the first two digits are used.

IP 1st Digit 2nd Digit 3rd Digit 4th Digit

The first digit is numerical and indicates the level of protection within the enclosure against the ingress of solid foreign objects and access to hazardous parts by persons.

The second digit is also numerical and indicates the level of protection against the ingress of **WATER** into the enclosure.

The third digit is a letter and indicates a higher level of protection for persons against access to hazardous parts.

The fourth digit is also a letter and is used in exceptional cases for supplementary information.

If the first or second digit is not required to be specified, then it is replaced by the letter "X" ("XX" if both digits are not required). While the tables below serve as a guide to the level of protection, Honeywell recommends that customers refer to the full official IEC specification for the exact definitions. If in doubt about the degree of protection required for a particular application, please consult your local Honeywell office.

Note:

The IEC 529 standard does not relate to protection against rust, corrosion, icing or corrosive solvents (e.g. cutting fluids) and that product coded IP 67 may not necessarily meet IP 66 requirements.

First Digit Protection against ingress of solid objects

IP TEST

- 0 no protection
- 1 protected against solid objects with a diameter greater than 50 mm
- 2 protected against solid objects with a diameter greater than 12 mm
- 3 protected against solid objects with a diameter greater than 2.5 mm
- 4 protected against solid objects with a diameter greater than 1 mm
- 5 protected against dust-limited ingress (no harmful deposit)
- 6 totally protected against dust

Second Digit Protection against ingress of water

IP TEST

- 0 no protection
- 1 protected against vertically falling drops of water
- 2 protected against vertically falling drops of water when the enclosure is tilted at an angle up to 15 degrees
- 3 protected against water sprayed at an angle of 60 degrees from the vertical
- 4 protected against splashing water from all directions – limited ingress (no harmful effects)
- 5 protected against low pressure jets of water from all directions – limited ingress permitted
- 6 protected against powerful jets of water from all directions – limited ingress permitted
- 7 protected against the effects of temporary immersion in water
- 8 protected against the effects of continuous immersion in water

NEMA Classification (USA)

NEMA (National Electrical Manufacturer's Association) prepares standards which define a product, process or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, quality, electrical rating, testing and the service for which designed. This standard provides degrees of protection for Enclosures for Electrical Equipment (1000 Volts Maximum) similar to that of the IEC 529 standard. The reference standard herein reflects the latest data in the NEMA Standards Publication when this information went to print. Please check for the latest information.

Non-hazardous locations

Type 1 enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment.

Type 3 enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, sleet, and external ice formation.

Type 4 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water.

Type 4X enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose-directed water.

Type 6 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against the entry of water during occasional temporary submersion at a limited depth.

Type 6P enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against the entry of water during prolonged submersion at a limited depth.

Type 12 enclosures are intended for indoor use primarily to provide a degree of protection against dust, falling dirt, and dripping noncorrosive liquids.

Type 13 enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying water, oil and noncorrosive coolant.

Note:

Enclosures are based, in general, on the broad definitions outlined in NEMA Standards. Therefore, it will be necessary to ascertain that a particular enclosure will be adequate when exposed to the specific conditions that might exist in intended applications.

Except as might otherwise be noted, all references to products relative to NEMA enclosure type are based on Honeywell evaluation and Underwriter's Laboratory (UL) tested. This NEMA Standards Publication does test for environmental conditions such as corrosion, rust, icing, oil, and coolants. The IEC 529 does not, and does not specify degree of protection against mechanical damage of equipment. For this reason, and because the tests and evaluations for other characteristics are not identical, the IEC Enclosure Classification Designations cannot be exactly equated with NEMA Enclosure Type Numbers.

EVN2000 Series EN 50047 Global Limit Switches



Actuators



The EVN2000 series limit switch is an innovative product which has been developed to address a need highlighted by Original Equipment Manufacturers (OEM), where "Ease of Wiring" is required. With the new design there is no need for access to the inside of the housing and therefore the housing cover, cover screws and gasket become obsolete. Furthermore, the integrated cable gland eliminates the need for additional conduit or cable gland hardware. All Normally Closed (NC) contacts are Direct Opening.

Mechanical life:

Sealing:

Operating temperature:

Approvals:

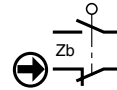
10 million
IP 66/67, NEMA 1, 12, 13
-25 °C to 85 °C (-13 °F to 185 °F)
IEC/EN 60947-5-1
EN 60529
EN81-1
AC15 A300
DC13 Q300
UL, CE
Plastic
Insulation Displacement Terminals (IDT)
Single Pole, Double Throw,
Snap action contacts (1NC/1NO)

Housing material:

Termination:

Switching options:

SPDT

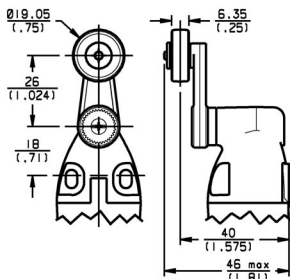


Operating characteristics

Actuator type	Operating torque/force (OF)	Free position (FP)	Pretravel (PT)	Travel to positive opening (PO)	Overtravel (OT)	Differential travel (DT)	Operating point (OP)
Side rotary A	0,120 N m (1.10 lb in)	0°	25°	45°	45°	12°	25°
Top pin plunger B	16,0 N (3.60 lb)	20,0 mm (0.79 in)	2,0 mm (0.08 in)	3,5 mm (0.14 in)	4,0 mm (0.16 in)	1,0 mm (0.04 in)	18,0 mm (0.71 in)
Top roller plunger, parallel C	16,0 N (3.60 lb)	30,0 mm (1.18 in)	2,0 mm (0.08 in)	3,5 mm (0.14 in)	4,0 mm (0.16 in)	1,0 mm (0.04 in)	28,0 mm (1.10 in)
Top roller plunger, perpendicular D	16,0 N (3.60 lb)	30,0 mm (1.18 in)	2,0 mm (0.08 in)	3,5 mm (0.14 in)	4,0 mm (0.16 in)	1,0 mm (0.04 in)	28,0 mm (1.10 in)

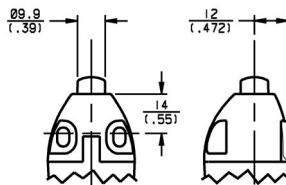
OPTIONS

Side rotary plastic roller



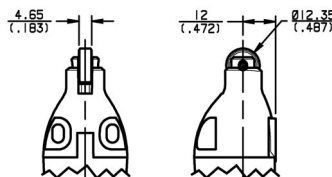
REFERENCE
EVN2000A

Top pin plunger



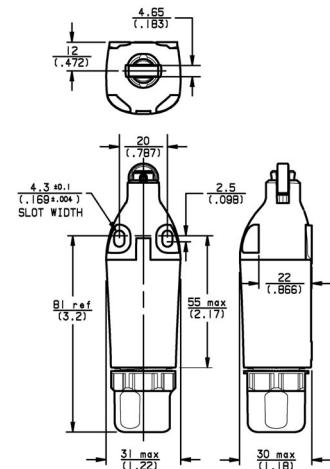
REFERENCE
EVN2000B

Top roller plunger, perpendicular



REFERENCE
EVN2000D

Top roller plunger, parallel



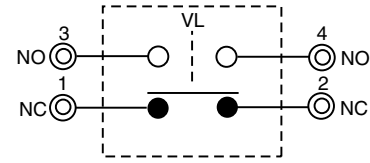
REFERENCE
EVN2000C

VL Series General Purpose Compact Limit Switches



The new economical SZL-VL Series miniature type limit switches are specially designed for applications of small mounting space. These miniature switches are ideal for OEM machinery which requires a rugged and reliable limit switch that is capable of being mounted in space restricted applications. A wide range of actuators and optional neon lamp indicators add additional flexibility. A special pre-molded flexible cable gland allows for fast and simple wiring termination.

Mechanical life:	up to 10 million operations
Sealing:	IP 64
Operating temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Approvals:	UL, C-UL, CE
Termination:	Cable gland
Contacts:	Gold plated silver
Electrical ratings:	250 Vac 125 Vdc max.
Ampere rating:	5 A @ 250 Vac max./0.4 A @ 125 Vdc max.
Switching options:	Single Pole, Double Throw, Double break (1NC/1NO)



Actuators

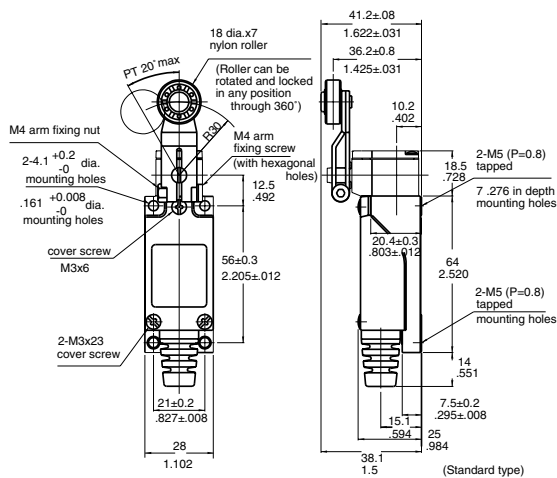


Side rotary actuated switches

Pretravel max. (PT):	20°
Overtravel min. (OT):	75°
Differential travel max. (DT):	10°

OPTIONS

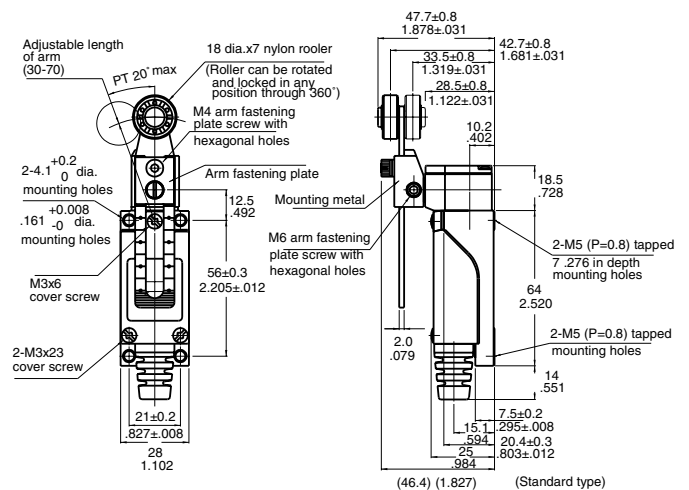
Roller lever



Operating torque max.: 5,88 N (1.32 lb)

REFERENCE
SZL-VL-A

Roller lever, adjustable

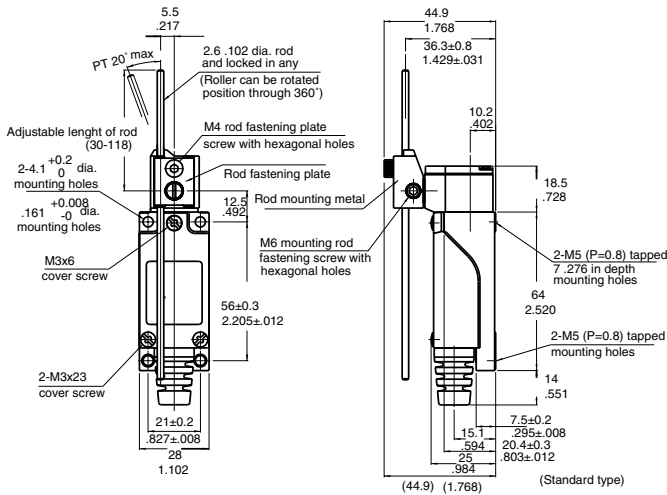


Operating torque max.: 3,35 N to 7,84 N (0.75 lb to 1.76 lb)

REFERENCE
SZL-VL-B

VL Series
Side rotary actuated switches (continued)

Adjustable rod



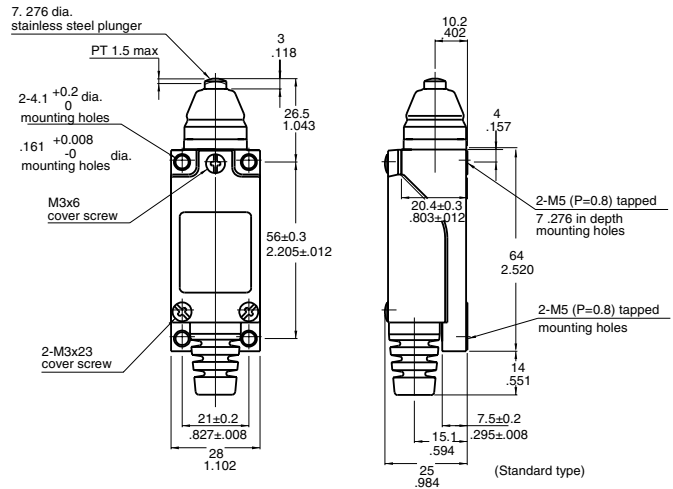
Operating torque max.: 2 N to 7,84 N
 (0.45 lb to 1.76 lb)

REFERENCE
 SZL-VL-C

Plunger actuated switches

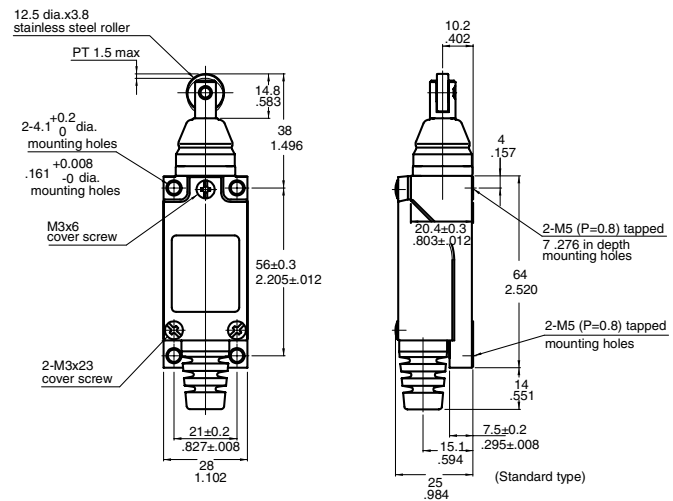
Pretravel max. (PT): 1,5 mm (0.060 in)
Overtravel min. (OT): 4,0 mm (0.158 in)
Differential travel max. (DT): 0,7 mm (0.028 in)
Operating force max. (OF): 8,83 N (2 lb)

Top pin plunger



REFERENCE
 SZL-VL-D

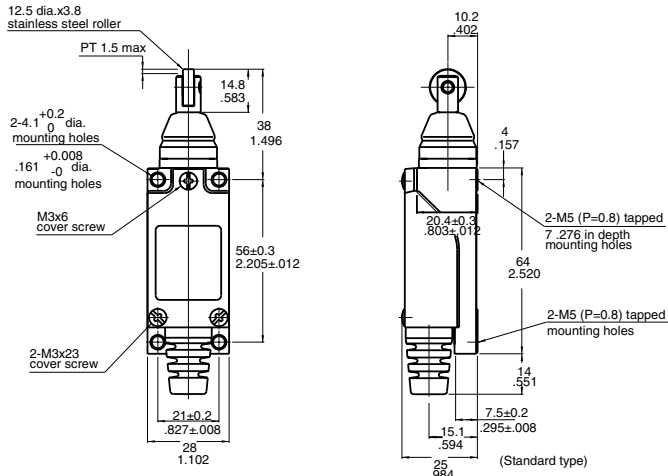
Top roller plunger



REFERENCE
 SZL-VL-H

Plunger actuated switches (continued)

Cross roller plunger



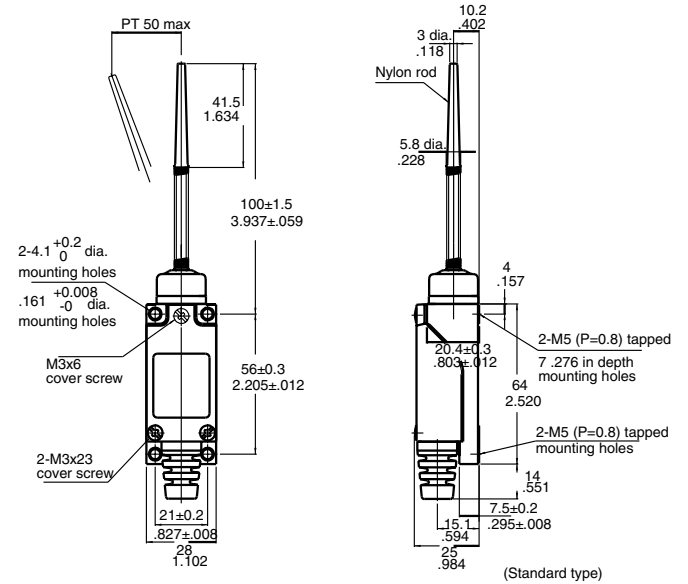
REFERENCE
SZL-VL-E

Wobble actuated switches

Pretravel max. (PT):
Overtravel min. (OT):
Operating force max. (OF):

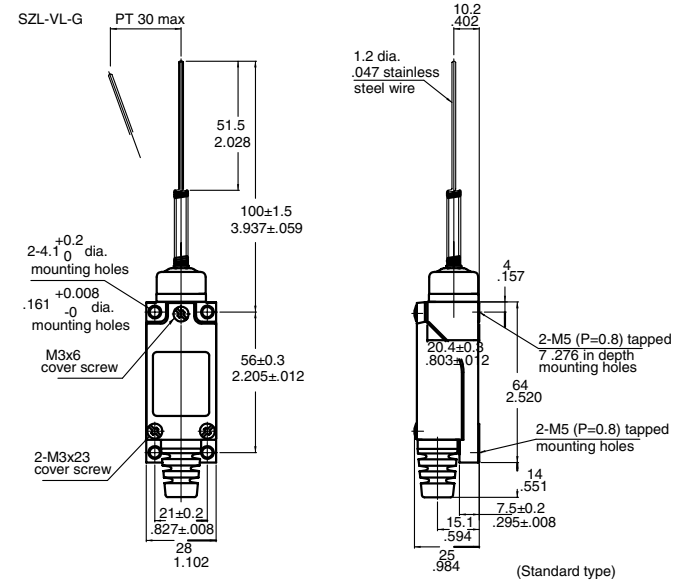
30 mm (1.18 in)
20 mm (0.788 in)
0,88 N (0.2 lb)

Plastic rod, coil spring



REFERENCE
SZL-VL-F

Coil spring



REFERENCE
SZL-VL-G

GLS Series Global Limit Switches



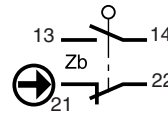
GLS Series switches offer a complete range of CENELEC approved products, and are suitable for most industrial applications.

The standard product EN 50041 norm defines the switch mounting centres as 30 mm x 60 mm and also defines the switching characteristics of the side rotary head with fixed lever, top pin plunger and top roller plunger. This means that the switch can be interchanged in the application with other EN 50041 switches with mounting and switching characteristics maintained. Honeywell offers many more head styles and switching options.

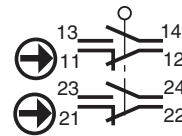
The miniature EN 50047 product range offers the user a choice of plastic, metal and three conduit versions which are all mounting (20 mm x 22 mm) compatible with each other. The EN 50047 standard defines how the switches are mounted and the switching characteristics for fixed side rotary lever, top pin plunger and top roller plunger.

Switching options:

SPDT Single Pole, Double Throw, Snap action contacts (1NC/1NO)



DPDT Double Pole, Double Throw Snap action contacts (2NC/2NO)



Electrical ratings

IEC947-5-1/EN60947-5-1									
Designation & Utilization Category		Rated operational current Ie (A) at rated operational voltage Ue						VA rating	
		120V	240V	380V	480V	500V	600V	Make	Break
AC15	A600	6	3	1.9	1.5	1.4	1.2	7200	720
AC15	A300	6	3	-	-	-	-	7200	720
AC15	B300	3	1.5	-	-	-	-	3600	360
AC14	D300	0.6	0.3	-	-	-	-	432	72
		125V	250V						
DC13	Q300	0.55	0.27						
DC13	R300	0.22	0.1						

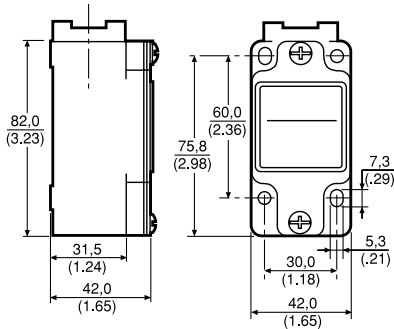
Operating characteristics

Actuator type	Body size	Operating torque/force (OF)		Free position (FP)		Pretravel (PT)		Travel to positive opening (PO)		Overtravel (OT)		Differential travel (DT)		Operating point (OP)	
		SPDT	DPDT	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT	SPDT	DPDT
Lever types A, A*A, A*B, A4J	EN50041 (GLA)	0,330 N m (2.90 lb in)		0°		26°		55°		59°		12°		26°	
	EN50047 (GLC, GLD, GLE)	0,120 N m (1.10 lb in)	0,165 N m (1.50 lb in) GLE only							49°		11.5°	8°		
Top pin plunger B	EN50041 (GLA)	16,0 N (3.60 lb)		37,5 mm (1.48 in)		2,5 mm (0.10 in)		4,5 mm (0.18 in)		4,5 mm (0.18 in)		0,9 mm (0.035 in)		35,0 mm (1.38 in)	
	EN50047 (GLC, GLD, GLE)	16,0 N (3.60 lb)	13,0 N (2.90 lb) GLE only	21,0 mm (0.83 in)		3,0 mm (0.12 in)		5,0 mm (0.20 in)		3,0 mm (0.12 in)		0,9 mm (0.035 in)	0,6 mm (0.024 in)	18,0 mm (0.71 in)	
Top roller plunger C	EN50041 (GLA)	16,0 N 3.60 lb		50,5 mm (2.00 in)		2,5 mm (0.10 in)		4,5 mm (0.18 in)		4,5 mm (0.18 in)		0,9 mm (0.035 in)		48,0 mm (1.89 in)	
	EN50047 (GLC, GLD, GLE)	16,0 N (3.60 lb)	13,0 N (2.90 lb) GLE only	31,0 mm (1.22 in)		3,0 mm (0.12 in)		5,0 mm (0.20 in)		3,0 mm (0.12 in)		0,9 mm (0.035 in)	0,6 mm (0.024 in)	28,0 mm (1.10 in)	
Top roller lever D	EN50041 (GLA)	9,5 N (2.10 lb)		65,2 mm (2.57 in)		4,2 mm (0.165 in)		8,3 mm (0.33 in)		9,0 mm (0.35 in)		1,7 mm (0.067 in)		61,0 mm (2.40 in)	
	EN50047 (GLC, GLD, GLE)	11,0 N (2.4 lb)	9,0 N (1.9 lb) GLE only	39,25 mm (1.55 in)		3,45 mm (0.14 in)		6,9 mm (0.27 in)		5,2 mm (0.205 in)		1,3 mm (0.19 in)		35,8 mm (1.41 in)	
Wobble head E7B, E7D, K8B, K8C	EN50041 (GLA)	0,1 N (0.90 in lb)		0°		18°		—		—		8°		—	
	EN50047 (GLC, GLD, GLE)	1,3 N (0.29 lb)	1,1 N (0.25 lb) GLE only			16°		—		—		10°	7°	—	

Actuators

GLA EN 50041

Standard metal body

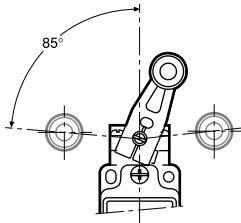


Mechanical life: up to 15 million
Sealing: IP 67, NEMA 1, 4, 12, 13
Operating temperature: -25 °C to 85 °C (-13 °F to 185 °F)
Approvals: IEC/EN 60947-5-1, AC15 A300/A600, DC13 Q300, UL, CSA, CE

Switching options:
 SPDT Single Pole, Double Throw
 DPDT Snap action contacts (1NC/1NO)
 DPDT Double Pole, Double Throw
 DPDT Snap action contacts (2NC/2NO)

HEAD OPTIONS

Side rotary



No lever

Levers: Levers for side rotary types are ordered separately (see pages 71-73 for details)

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A
DPDT	½ in NPT	GLAA20A
SPDT	PG 13,5	GLAB01A

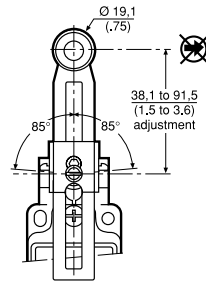
Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A1A
DPDT	½ in NPT	GLAA20A1A
SPDT	PG 13,5	GLAB01A1A
DPDT	PG 13,5	GLAB20A1A
SPDT	20 mm	GLAC01A1A
DPDT	20 mm	GLAC20A1A

Metal roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A1B
DPDT	½ in NPT	GLAA20A1B
SPDT	PG 13,5	GLAB01A1B
DPDT	PG 13,5	GLAB20A1B
SPDT	20 mm	GLAC01A1B
DPDT	20 mm	GLAC20A1B

Side rotary adjustable roller



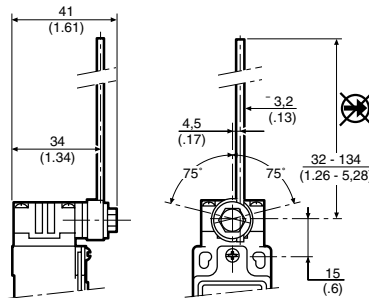
Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A2A
DPDT	½ in NPT	GLAA20A2A
SPDT	PG 13,5	GLAB01A2A
DPDT	PG 13,5	GLAB20A2A
SPDT	20 mm	GLAC01A2A

Metal roller

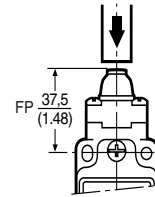
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A2B
DPDT	½ in NPT	GLAA20A2B
SPDT	PG 13,5	GLAB01A2B
DPDT	PG 13,5	GLAB20A2B
SPDT	20 mm	GLAC01A2B
DPDT	20 mm	GLAC20A2B

Side rotary adjustable metal rod



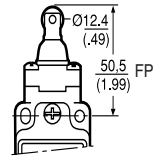
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A4J
DPDT	½ in NPT	GLAA20A4J
SPDT	PG 13,5	GLAB01A4J
DPDT	PG 13,5	GLAB20A4J
SPDT	20 mm	GLAC01A4J

Top pin plunger



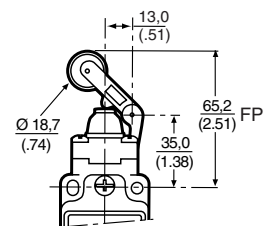
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01B
DPDT	½ in NPT	GLAA20B
SPDT	PG 13,5	GLAB01B
DPDT	PG 13,5	GLAB20B
SPDT	20 mm	GLAC01B
DPDT	20 mm	GLAC20B

Top roller plunger



CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01C
DPDT	½ in NPT	GLAA20C
SPDT	PG 13,5	GLAB01C
DPDT	PG 13,5	GLAB20C
SPDT	20 mm	GLAC01C
DPDT	20 mm	GLAC20C

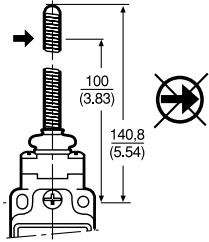
Top roller lever



CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01D
DPDT	½ in NPT	GLAA20D
SPDT	PG 13,5	GLAB01D
DPDT	PG 13,5	GLAB20D
SPDT	20 mm	GLAC01D
DPDT	20 mm	GLAC20D

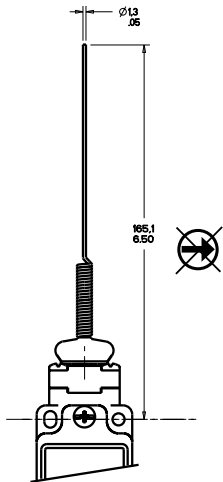
GLA EN 50041
Standard metal body
(continued)

Wobble, coil actuator



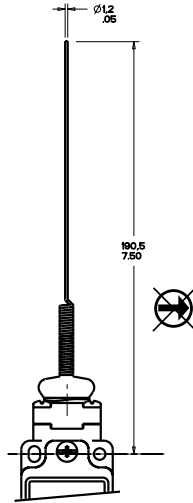
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01E7B
SPDT	PG 13,5	GLAB01E7B
DPDT	PG 13,5	GLAB20E7B
SPDT	20 mm	GLAC01E7B
DPDT	20 mm	GLAC20E7B

Coil wobble head, stainless steel spring actuator



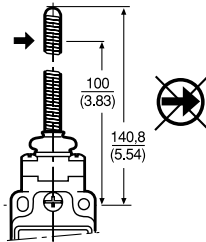
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01E7D

Wobble, cat whisker



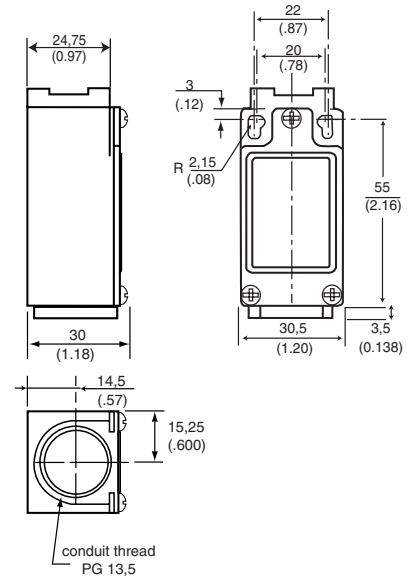
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01K8B
SPDT	PG 13,5	GLAB01K8B

Wobble, cat whisker, coil actuator



CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01K8C
DPDT	½ in NPT	GLAA20K8C
SPDT	PG 13,5	GLAB01K8C

GLC EN 50047
Standard metal body

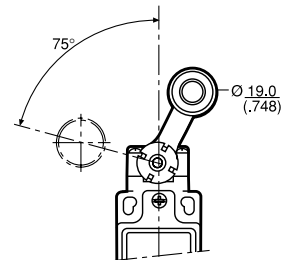


Mechanical life: up to 10 million
Sealing: IP 66, NEMA 1, 4, 12, 13
Operating temperature: -25 °C to 85 °C
 -13 °F to 185 °F
Approvals: IEC/EN 60947-5-1
 AC15 A300
 DC13 Q300
 UL, CSA, CE

Switching options:
 SPDT Single Pole, Double Throw
 Snap action contacts (1NC/1NO)

HEAD OPTIONS

Side rotary



Plastic roller

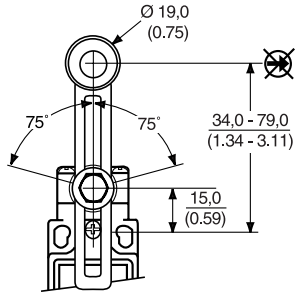
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A1A
SPDT	PG 13,5	GLCB01A1A

Metal roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A1B
SPDT	PG 13,5	GLCB01A1B
SPDT	20 mm	GLCC01A1B

GLC EN 50047
Standard metal body
(continued)

Side rotary adjustable



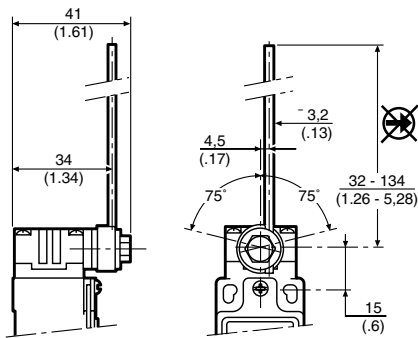
Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A2A
SPDT	PG 13,5	GLCB01A2A

Metal roller

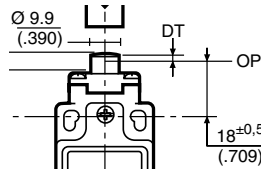
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A2B
SPDT	PG 13,5	GLCB01A2B
SPDT	20 mm	GLCC01A2B

Side rotary adjustable, metal rod



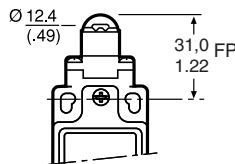
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A4J
SPDT	PG 13,5	GLCB01A4J

Top pin plunger



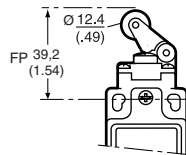
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01B
SPDT	PG 13,5	GLCB01B
SPDT	20 mm	GLCC01B

Top roller plunger



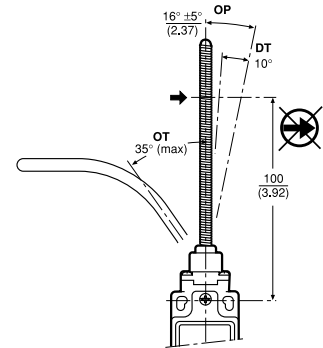
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01C
SPDT	PG 13,5	GLCB01C
SPDT	20 mm	GLCC01C

Top roller lever



CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01D
SPDT	PG 13,5	GLCB01D
SPDT	20 mm	GLCC01D

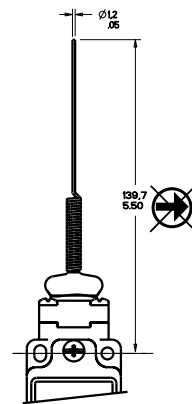
Wobble, coil actuator



Mechanical life: up to 5 million

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01E7B
SPDT	PG 13,5	GLCB01E7B
SPDT	20 mm	GLCC01E7B

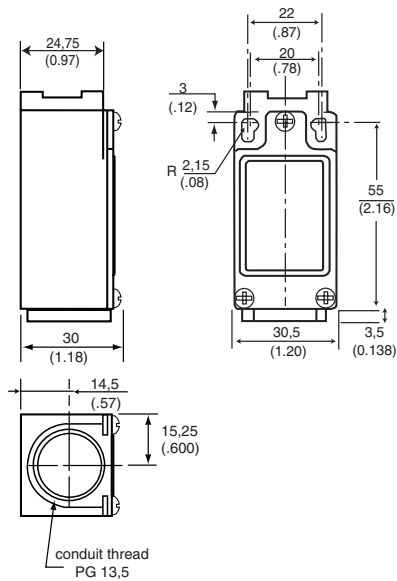
Wobble, cat whisker



Mechanical life: 5 million

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01K8A
SPDT	PG 13,5	GLCB01K8A

GLD EN 50047
Double insulated
standard body



Mechanical life: See GLC section
Sealing: IP 66, NEMA 1, 2, 13
Operating temperature: -25 °C to 85 °C
 -13 °F to 185 °F
Approvals: IEC/EN 60947-5-1
 AC15 A600
 DC13 Q300
 UL, CSA, CE
Switching options:
 SPDT Single Pole, Double Throw
 Snap action contacts (1NC/1NO)

HEAD OPTIONS

See GLC section for dimension illustrations

Side rotary

Plastic roller/lever

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01A1A
SPDT	PG 13,5	GLDB01A1A

Metal roller/lever

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01A1B
SPDT	PG 13,5	GLDB01A1B
SPDT	20 mm	GLDC01A1B

Side rotary adjustable

Plastic roller/metal lever

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01A2A
SPDT	PG 13,5	GLDB01A2A

Metal roller/metal lever

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01A2B
SPDT	PG 13,5	GLDB01A2B
SPDT	20 mm	GLDC01A2B

Side rotary adjustable metal rod

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01A4J
SPDT	PG 13,5	GLDB01A4J

Top pin plunger

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01B
SPDT	PG 13,5	GLDB01B
SPDT	20 mm	GLDC01B

Top roller plunger

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01C
SPDT	PG 13,5	GLDB01C
SPDT	20 mm	GLDC01C

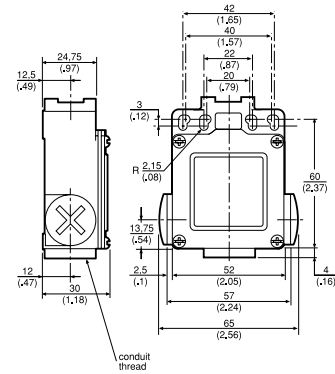
Top roller lever

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01D
SPDT	PG 13,5	GLDB01D
SPDT	20 mm	GLDC01D

Wobble, coil actuator

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLDA01E7B
SPDT	PG 13,5	GLDB01E7B
SPDT	20 mm	GLDC01E7B

GLE EN 50047 Compatible
3 conduit
metal standard body

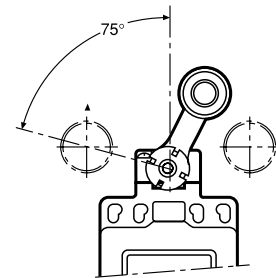


Mechanical life: up to 10 million
Sealing: IP 66, NEMA 1, 4, 12, 13
Operating temperature: -25 °C to 85 °C
 -13 °F to 185 °F
Approvals: IEC/EN 60947-5-1
 AC15 A300
 DC13 Q300
 UL, CSA, CE

Switching options:
 SPDT Single Pole, Double Throw
 Snap action contacts (1NC/1NO)
 DPDT Double Pole, Double Throw
 Snap action contacts (2NC/2NO)

HEAD OPTIONS

Side rotary



Plastic roller

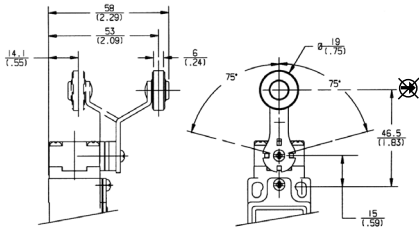
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A1A
SPDT	PG 13,5	GLEB01A1A
DPDT	PG 13,5	GLEB24A1A

Metal roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A1B
DPDT	½ in NPT	GLEA24A1B
SPDT	PG 13,5	GLEB01A1B
DPDT	PG 13,5	GLEB24A1B
SPDT	20 mm	GLEC01A1B

GLE EN 50047 Compatible
3 conduit
metal standard body
(continued)

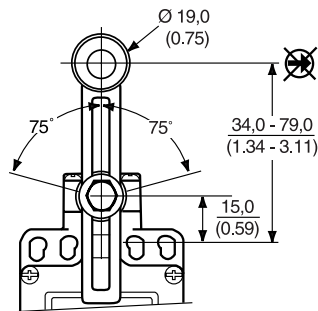
Offset side rotary roller



Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A5A
SPDT	PG 13.5	GLEB01A5A

Side rotary adjustable



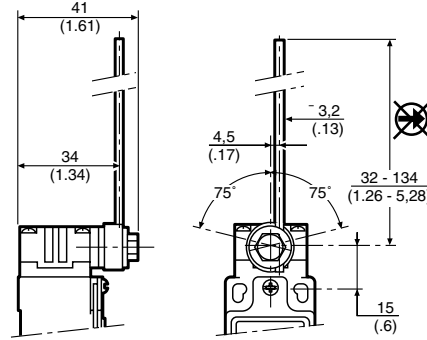
Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A2A
DPDT	½ in NPT	GLEA24A2A
SPDT	PG 13.5	GLEB01A2A

Metal roller

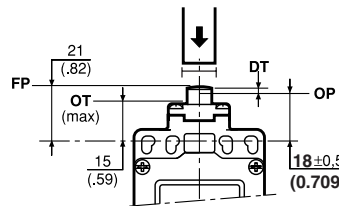
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A2B
SPDT	PG 13.5	GLEB01A2B
DPDT	PG 13.5	GLEB24A2B

Side rotary adjustable metal rod



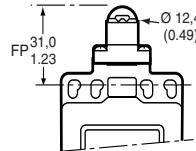
CONTACT	CONDUIT	REFERENCE
SPDT	PG 13.5	GLEB01A4J
DPDT	PG 13.5	GLEB24A4J

Top pin plunger



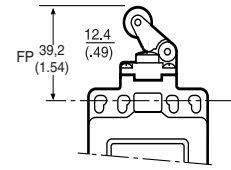
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01B
DPDT	½ in NPT	GLEA24B
SPDT	PG 13.5	GLEB01B
DPDT	PG 13.5	GLEB24B

Top roller plunger



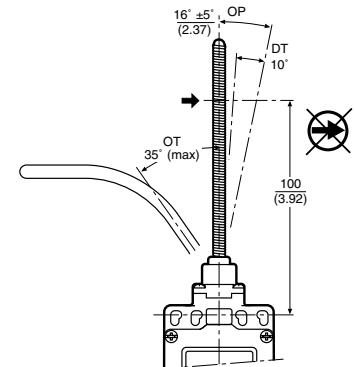
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01C
DPDT	½ in NPT	GLEA24C
SPDT	PG 13.5	GLEB01C
DPDT	PG 13.5	GLEB24C
DPDT	20 mm	GLEC24C

Top roller lever



CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01D
DPDT	½ in NPT	GLEA24D
SPDT	PG 13.5	GLEB01D
DPDT	13,5	GLEB24D
SPDT	20 mm	GLEC01D
DPDT	20 mm	GLEC24D

Wobble, coil actuator



Mechanical life: up to 5 million

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01E7B
DPDT	½ in NPT	GLEA24E7B
SPDT	PG 13.5	GLEB01E7B
DPDT	PG 13.5	GLEB24E7B

SL1 Series Compact Limit Switches

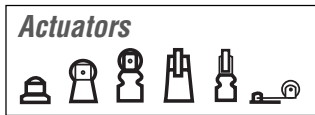
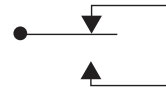


The SL1 Series compact limit switches are sealed, sensitive and have a long life. The compact size makes them suitable for the total miniaturization of machinery or equipment.

Mechanical life:	10 million
Sealing:	IP 67, NEMA 3, 4, 13
Operating temperature:	-10 °C to 70 °C (14 °F to 160 °F)
Approvals:	UL, CSA, CE
Termination:	Cable gland
Operating force max. (OF):	11,76 N (2.64 lb)
Pretravel max. (PT):	1,5 mm (0.060 in)
Overtravel min. (OT):	3,0 mm (0.118 in)
Differential travel max. (DT):	0,10 mm (0.004 in)
Electrical rating/contact:	5A - 125, 250 Vac 0.1 A - 125 Vac; 0.1 A - 30 Vdc
	Gold clad cross point

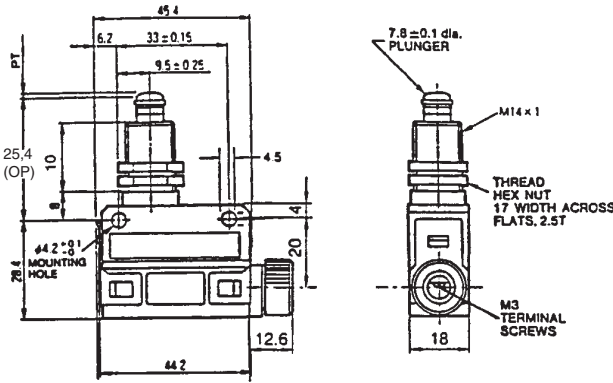
Switching options:
SPDT

Single Pole, Double Throw,
Snap action contacts (1NC/1NO)



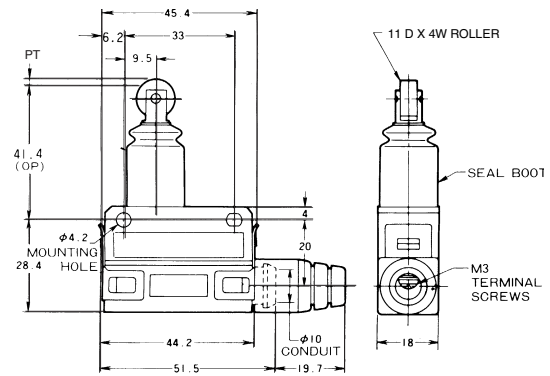
OPTIONS

Top pin plunger



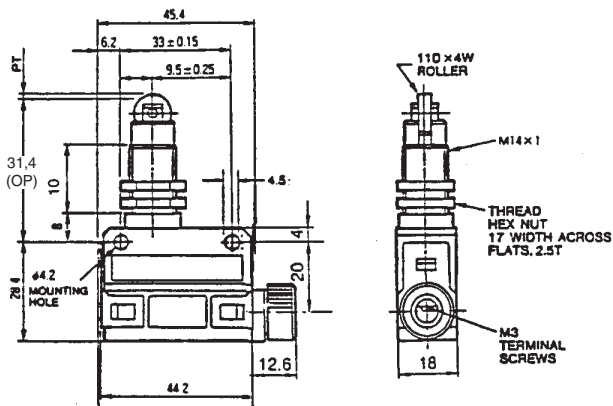
CONTACT	REFERENCE
Silver	SL1-H
Gold clad cross point	SL1-HK

Top roller plunger, parallel, boot seal



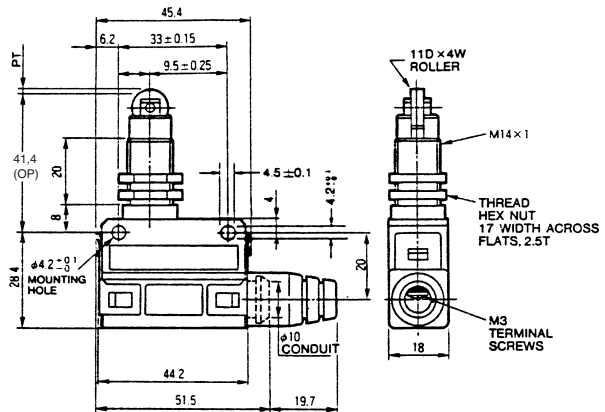
CONTACT	REFERENCE
Silver	SL1-B
Gold clad cross point	SL1-BK

Top roller plunger, parallel



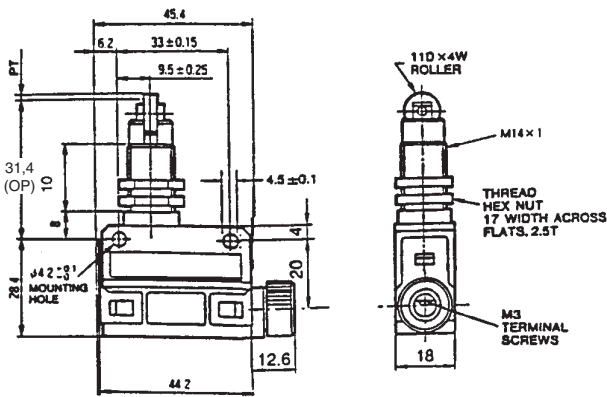
CONTACT	REFERENCE
Silver	SL1-A
Gold clad cross point	SL1-AK

Top roller plunger, long, parallel



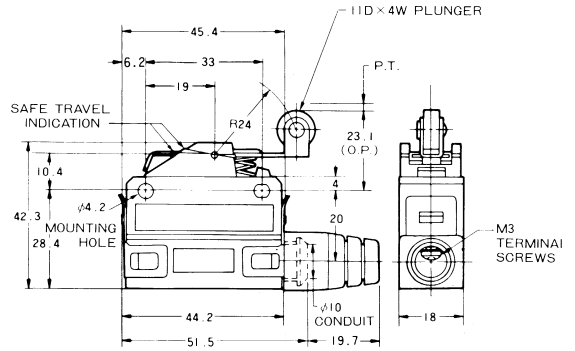
CONTACT	REFERENCE
Silver	SL1-E
Gold clad cross point	SL1-EK

Top roller plunger, perpendicular



CONTACT	REFERENCE
Silver	SL1-D
Gold clad cross point	SL1-DK

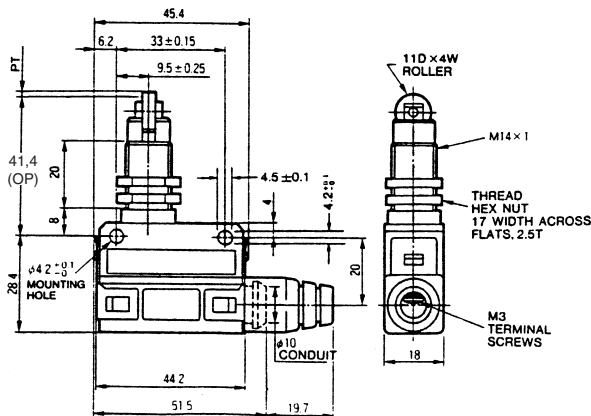
Top roller lever



Operating force max. (OF):	3,92 N (0.88 lb)
Pretravel max. (PT):	2,0 mm (0.079 in)
Overtravel min. (OT):	4,0 mm (0.158 in)
Differential travel max. (DT):	0,3 mm (0.012 in)

CONTACT	REFERENCE
Silver	SL1-P
Gold clad cross point	SL1-PK

Top roller plunger, long, perpendicular



CONTACT	REFERENCE
Silver	SL1-K
Gold clad cross point	SL1-KK

14CE/914CE Series Miniature Enclosed Switches



Actuators

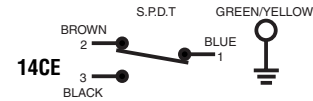


The 14CE/914CE Series offers a miniature, rugged, compact, pre-wired switch which has proved itself successful and gained wide market acceptance. The entire range of 14CE and 914CE switches has been approved to meet the requirements of the Low Voltage directive and is therefore CE marked.

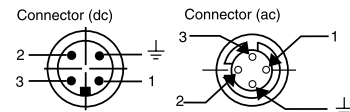
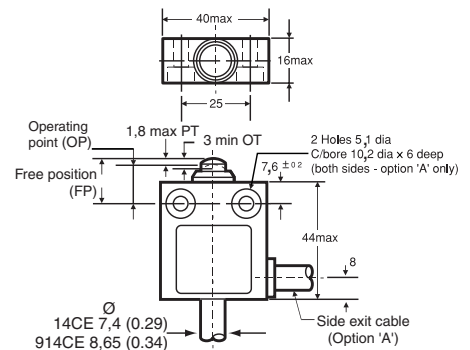
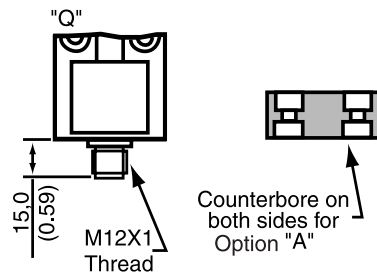
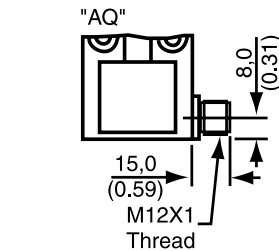
CE switches have different degrees of protection from IP66 to IP68 for the fully booted head styles. The cable entry is fully potted using a special compound to ensure that ingress is virtually impossible.

Mechanical life:		10 million
Sealing:		IP66, IP67, IP68
		NEMA 1, 2, 3, 3R, 4, 6, 6P, 12 (boot seal), 13
Operating temperature:	14CE	0 °C to 70 °C (32 °F to 158 °F)
	914CE	0 °C to 105 °C (32 °F to 221 °F)
Approvals:	14CE	CE
	914CE	CSA, UL, CE
		AC14 D300
		DC13 R300
Operating force (OF):		11,8 N (2,65 lb) max.
Pretravel (PT):		1,8 mm (0,71 in) max.
Overtravel (OT):		3,0 mm (0,118 in) min.
Differential travel (DT):		0,1mm (0,004 in) max.
Contact/Rating:	(9)14CE* -*	Silver A
	(9)14CE* -*G	Gold B
	(9)14CE* -Q, -AQ, -AQ1	Silver C

Connection:		Harmonised CENELEC 4 x 0,75 mm ² cable (14CE)
		SJTO 4 x 0,75 mm ² (18 AWG) cable (914CE)
		Connector (dc), 4 pin male, M12 thread (-Q)
		Connector (ac), 4 pin male, ½ in x 20 thread (-Q1)
		Single Pole, Double Throw
		Snap action contacts (1NC/1NO)
Switching options:	SPDT	



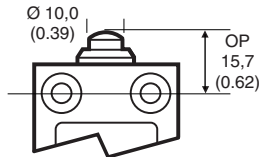
Electrical ratings:		Amps	
		Make	Break
A	240 Vac, ind.	1,2	0,2
	240 Vac, res.	5	5
	28 Vdc, res.	3	3
	28 Vdc, ind.	3	3
UL/CSA:	5 A, 1/10 Hp, 125 or 250 Vac		
B	UL:	1 A res., 0,5 A ind., 30 Vdc	
		1 A, 125 Vac	
C	UL/CSA:	3 A, 125 or 250 Vac	



Plunger actuated switches

OPTIONS

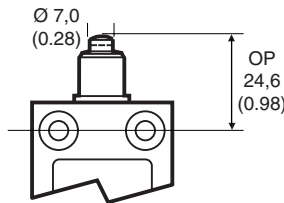
Top pin plunger



NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE1-3
3 ft cable, side exit	914CE1-3A
3 ft cable, bottom exit, gold contacts	914CE1-3G
6 ft cable, bottom exit	914CE1-6
6 ft cable, bottom exit, gold contacts	914CE1-6G
9 ft cable, bottom exit	914CE1-9
Connector (dc), bottom exit	914CE1-Q
Connector (ac), bottom exit	914CE1-Q1

EUROPE	REFERENCE
1 metre cable, bottom exit	14CE1-1
1 metre cable, side exit	14CE1-1A
1 metre cable, bottom exit, gold contacts	14CE1-1G
2 metre cable, bottom exit	14CE1-2
3 metre cable, bottom exit	14CE1-3
3 metre cable, side exit	14CE1-3A
3 metre cable, bottom exit, gold contacts	14CE1-3G
Connector (dc), side exit	14CE1-AQ
Connector (dc), bottom exit	14CE1-Q

Top pin plunger, boot seal

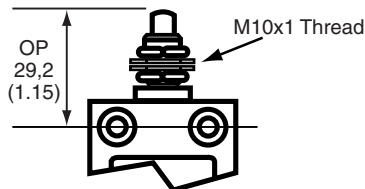


Operating force (OF): 22,5 N (5.06 lb)

NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE18-3
3 ft cable, side exit	914CE18-3A
6 ft cable, bottom exit	914CE18-6
9 ft cable, bottom exit	914CE18-9
9 ft cable, side exit	914CE18-9A
Connector (ac), side exit	914CE18-AQ1
Connector (dc), bottom exit	914CE18-Q
Connector (ac), bottom exit	914CE18-Q1

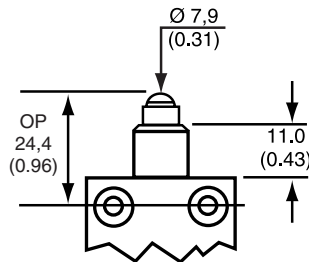
EUROPE	REFERENCE
1 metre cable, bottom exit	14CE18-1
3 metre cable, bottom exit	14CE18-3
Connector (dc), bottom exit	14CE18-Q

Top pin plunger, panel mounted



NORTH AMERICA/GLOBAL	REFERENCE
Connector (dc), bottom exit	914CE27-Q

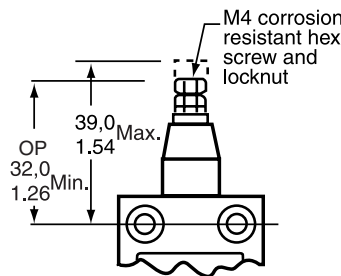
Ball bearing plunger



NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE66-3
6 ft cable, bottom exit	914CE66-6

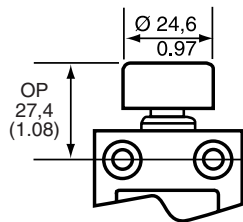
EUROPE/	REFERENCE
1 metre cable, bottom exit	14CE66-1
2 metre cable, bottom exit	14CE66-2

Adjustable plunger



NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE19-3
9 ft cable, bottom exit	914CE19-9

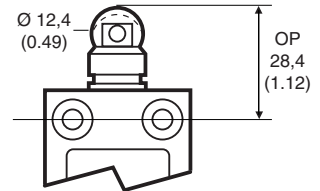
Manually operated



Operating force (OF): 9,0 N (2.02 lb)

NORTH AMERICA/GLOBAL	REFERENCE
6 ft cable, bottom exit	914CE22-6

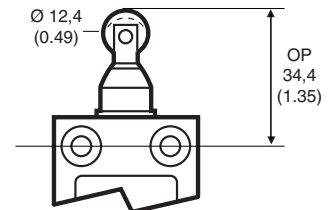
Top roller plunger, parallel



NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE2-3
3 ft cable, side exit	914CE2-3A
3 ft cable, bottom exit, gold contacts	914CE2-3G
6 ft cable, bottom exit	914CE2-6
6 ft cable, side exit	914CE2-6A
9 ft cable, bottom exit	914CE2-9
Connector (dc), side exit	914CE2-AQ
Connector (dc), bottom exit	914CE2-Q
Connector (ac), bottom exit	914CE2-Q1

EUROPE	REFERENCE
1 metre cable, bottom exit	14CE2-1
1 metre cable, side exit	14CE2-1A
1 metre cable, bottom exit, gold contacts	14CE2-1G
2 metre cable, bottom exit	14CE2-2
2 metre cable, side exit	14CE2-2A
3 metre cable, bottom exit	14CE2-3
3 metre cable, side exit	14CE2-3A
3 metre cable, bottom exit, gold contacts	14CE2-3G
Connector (dc), side exit	14CE2-AQ
Connector (dc), bottom exit	14CE2-Q

Top roller plunger, parallel, boot seal

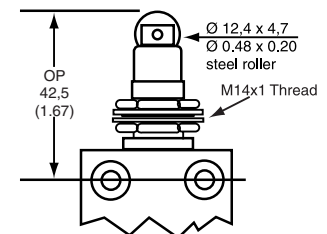


Operating force (OF): 17,5 N (3.82 lb)

NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE31-3
6 ft cable, bottom exit	914CE31-6

EUROPE	REFERENCE
1 metre cable, bottom exit	14CE31-1
3 metre cable, bottom exit	14CE31-3

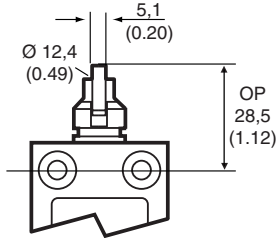
Top roller plunger, parallel, panel mounted



NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE28-3
6 ft cable, bottom exit	914CE28-6
Connector (dc), bottom exit	914CE28-Q

**14CE/914CE Series
Plunger actuated switches
(continued)**

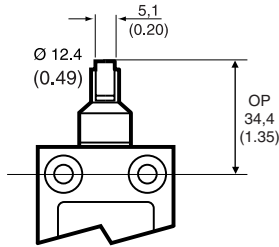
Top roller plunger, perpendicular



NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE3-3
6 ft cable, bottom exit	914CE3-6
6 ft cable, side exit	914CE3-6A
9 ft cable, bottom exit	914CE3-9
Connector (dc), bottom exit	914CE3-Q
Connector (ac), bottom exit	914CE3-Q1

EUROPE	REFERENCE
1 metre cable, bottom exit	14CE3-1
2 metre cable, bottom exit	14CE3-2
3 metre cable, bottom exit	14CE3-3

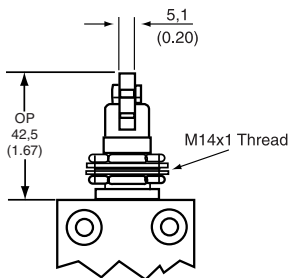
*Top roller plunger, perpendicular,
boot seal*



Operating force (OF): 17,5 N (3.82 lb)

NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE55-3
3 ft cable, side exit	914CE55-3A

*Top roller plunger, perpendicular,
panel mounted*



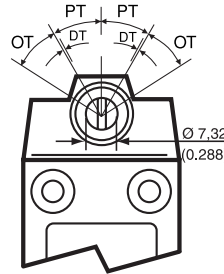
NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE29-3
6 ft cable, bottom exit	914CE29-6

**Side rotary and wobble
actuated switches**

OPTIONS

Rotary motion

(actuating lever not included - use any LSZ51*, LSZ52*, LSZ54*, LSZ55* or LSZ61* Series shown on pages 71-73).

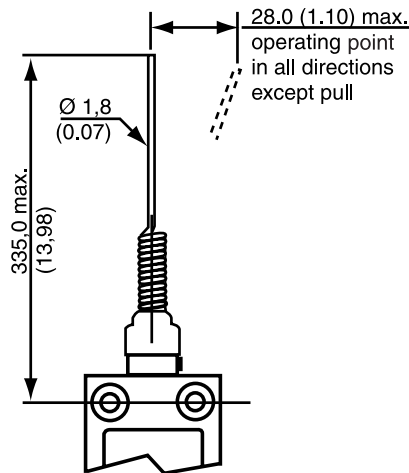


Operating torque: 0,3 Nm (2.66 in lb)
Pretravel (PT): 30° max.
Overtravel (OT) mm: 40° min.
Differential travel: 3°

NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE16-3
3 ft cable, side exit	914CE16-3A
6 ft cable, bottom exit	914CE16-6
9 ft cable, bottom exit	914CE16-9
Connector (dc), bottom exit	914CE16-Q

EUROPE	REFERENCE
1 metre cable, bottom exit	14CE16-1
2 metre cable, bottom exit	14CE16-2
3 metre cable, bottom exit	14CE16-3

Wobble Spring wire



Operating Force (OF): 0,55 N (0.12 lb)

NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE20-3
6 ft cable, bottom exit	914CE20-6
9 ft cable, bottom exit	914CE20-9
Connector (dc), bottom exit	914CE20-Q

EUROPE	REFERENCE
1 metre cable, bottom exit	14CE20-1
3 metre cable, bottom exit	14CE20-3

24CE/924CE Series Miniature Safety Electromechanical Switches



Actuators



For position sensing and switching applications requiring direct acting, positive opening contacts the 24CE and 924CE ranges are ideal. They have been tested and approved to meet the requirements of the Low Voltage directive and positive opening safety contacts per IEC/EN 60947-5-1-3. The devices are CE marked. The red colour clearly differentiates this safety component in the application. The 924CE range also has UL and CSA approval.

It is possible for the end user to enhance the safety level of these switches from Category 1 on their own to Categories 2, 3 or 4 when the switches are used in conjunction with our wide range of FF-SR safety relays to form a safety system.

Typical applications for these switches would use the roller plunger 24CE2- or 24CE3- style in conjunction with cams on doors with hinges; or our fixed side rotary 24CE16- style for detection of sliding doors. Also available are a range of panel mounting or top mounting versions to ensure that small space or difficult mounting can be simply achieved.

Several contact arrangements are available.

Mechanical life:

Sealing:

Operating temperature:

Approvals:

Connection:

Contacts:

Switching options:

10 million

standard type: IP66; with boot seal type: IP67

0 °C to 70 °C (32 °F to 158 °F)

Low temperature: -40 °C (-40 °F)

0 °C to 105 °C (32 °F to 221 °F)

CE

AC15 B300

DC13 R300

CSA, CE

per UL file #E41859, 10 A 250 Vac; 1/3 Hp 125-250 Vac

AC15 B300

DC13 R300

Harmonised CENELEC 3 or 5 x 0,75 mm² cable (24CE)

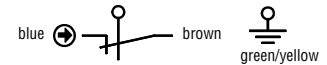
SJTO 3 or 5 x 18 AWG cable (924CE)

Silver

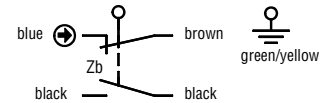
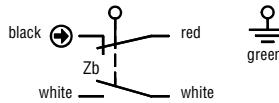
924CE

24CE

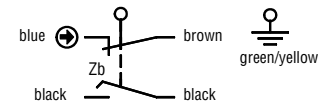
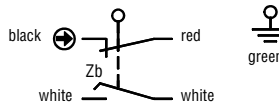
Slow action contacts (1NC)



Slow action contacts (1NC/1NO), Break Before Make (BBM)

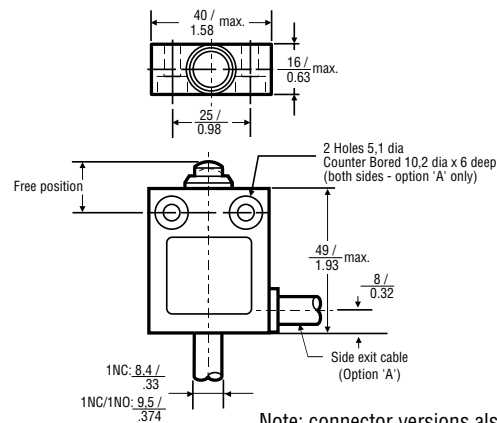


Slow action contacts (1NC/1NO), Make Before Break (MBB)



Electrical ratings:

Designation & Utilization Category		IEC 60947-5-1/EN 60947-5-1						VA rating	
		Rated operational current I _e (A) at rated operational voltage U _e						Make	Break
AC15	B300	120 V	240 V	380 V	480 V	500 V	600 V	3600	360
		125 V	250 V	-	-	-	-		
DC13	R300	0,22	0,1					28	28

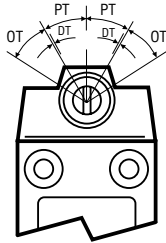


Note: connector versions also available

24CE/924CE Series

OPTIONS

Side rotary



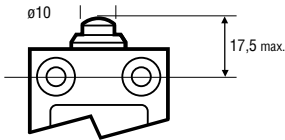
North America/Global

CABLE LENGTH	CONTACT	REFERENCE
3 ft	1NC, BBM	924CE16-S3
9 ft	1NC, BBM	924CE16-S9
3 ft	1NC, MBB	924CE16-T3
3 ft	1NC	924CE16-Y3
9 ft	1NC	924CE16-Y9

Europe

CABLE LENGTH	CONTACT	REFERENCE
1 m	1NC/1NO, BBM	24CE16-S1
1 m	1NC	24CE16-Y1
6 m	1NC	24CE16-Y6

Top pin plunger



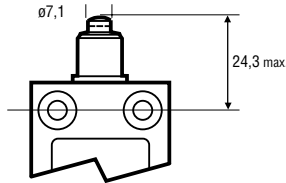
North America/Global

CABLE LENGTH	CONTACT	OPTION	REFERENCE
3 ft	1NC, BBM		924CE1-S3
6 ft	1NC, BBM		924CE1-S6
9 ft	1NC, BBM		924CE1-S9
25 ft	1NC, MBB	side exit	924CE1-T25A
3 ft	1NC, MBB		924CE1-T3
3 ft	1NC, MBB	side exit	924CE1-T3A
6 ft	1NC, MBB	side exit	924CE1-T6A
9 ft	1NC, MBB		924CE1-T9
9 ft	1NC, MBB	side exit	924CE1-T9A
3 ft	1NC		924CE1-Y3
9 ft	1NC		924CE1-Y9

Europe

CABLE LENGTH	CONTACT	OPTION	REFERENCE
12 m	1NC/1NO, BBM	low temperature	24CE1-S12B
2 m	1NC/1NO, BBM		24CE1-S2
2 m	1NC/1NO, BBM	side exit	24CE1-S2A
2 m	1NC/1NO, BBM	low temperature	24CE1-S2B
3 m	1NC/1NO, BBM		24CE1-S3
6 m	1NC/1NO, BBM		24CE1-S6
1 m	1NC	side exit	24CE1-Y1A
2 m	1NC		24CE1-Y2
3 m	1NC		24CE1-Y3

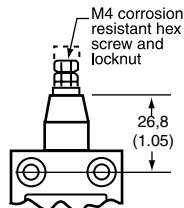
Top pin plunger, boot sealed



North America/Global

CABLE LENGTH	CONTACT	REFERENCE
6 ft	1NC/1NO, BBM	924CE18-S6

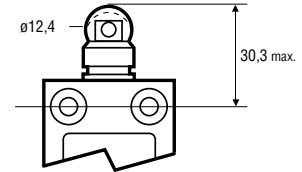
Adjustable plunger



North America/Global

CABLE LENGTH	CONTACT	OPTION	REFERENCE
3 ft	1NC/1NO, BBM	low temperature	924CE19-S3L1

Top roller plunger, parallel



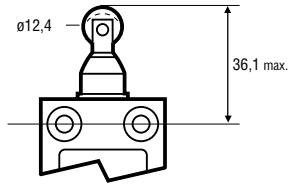
North America/Global

CABLE LENGTH	CONTACT	OPTION	REFERENCE
15 ft	1NC, BBM		924CE2-S15
21 ft	1NC, BBM		924CE2-S21
3 ft	1NC, BBM		924CE2-S3
6 ft	1NC, BBM		924CE2-S6
6 ft	1NC, BBM	side exit	924CE2-S6A
9 ft	1NC, BBM		924CE2-S9
25 ft	1NC, MBB		924CE2-T25
25 ft	1NC, MBB	side exit	924CE2-T25A
3 ft	1NC, MBB		924CE2-T3
6 ft	1NC, MBB		924CE2-T6
9 ft	1NC, MBB		924CE2-T9
3 ft	1NC		924CE2-Y3
9 ft	1NC		924CE2-Y9

Europe

CABLE LENGTH	CONTACT	OPTION	REFERENCE
1 m	1NC/1NO, BBM		24CE2-S1
2 m	1NC/1NO, BBM		24CE2-S2
2 m	1NC/1NO, BBM	side exit	24CE2-S2A
2 m	1NC/1NO, BBM	low temperature	24CE2-S2B
3 m	1NC/1NO, BBM		24CE2-S3
6 m	1NC/1NO, BBM		24CE2-S6
2 m	1NC/1NO, MBB		24CE2-T2
1 m	1NC		24CE2-Y1
2 m	1NC		24CE2-Y2
2 m	1NC	side exit	24CE2-Y2A
4 m	1NC		24CE2-Y4
6 m	1NC	side exit	24CE2-Y6A

Top roller plunger, parallel, boot sealed



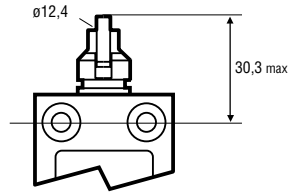
North America/Global

CABLE LENGTH	CONTACT	OPTION	REFERENCE
6 ft	1NC, BBM		924CE31-S6
20 ft	1NC		924CE31-Y20
3 ft	1NC	low temperature	924CE31-Y3L1

Europe

CABLE LENGTH	CONTACT	OPTION	REFERENCE
1 m	1NC/1NO, BBM		24CE31-S1
2 m	1NC/1NO, BBM		24CE31-S2
2 m	1NC/1NO, BBM	low temperature	24CE31-S2B
5 m	1NC/1NO, BBM		24CE31-S5
1 m	1NC		24CE31-Y1
2 m	1NC		24CE31-Y2
3 m	1NC		24CE31-Y3

Top roller plunger, perpendicular



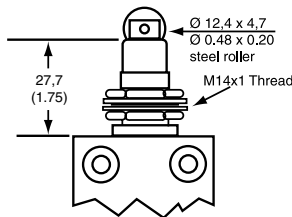
North America/Global

CABLE LENGTH	CONTACT	REFERENCE
3 ft	1NC, BBM	924CE3-S3
6 ft	1NC, BBM	924CE3-S6
9 ft	1NC, BBM	924CE3-S9
9 ft	1NC, MBB	924CE3-T9

Europe

CABLE LENGTH	CONTACT	REFERENCE
2 m	1NC/1NO, BBM	24CE3-S2
1 m	1NC	24CE3-Y1
2 m	1NC	24CE3-Y2

Top roller plunger, parallel, panel mounted



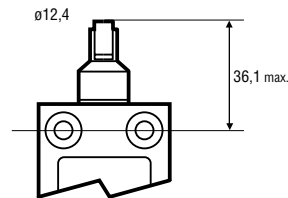
North America/Global

CABLE LENGTH	CONTACT	REFERENCE
15 ft	1NC, BBM	924CE28-S15

Europe

CABLE LENGTH	CONTACT	REFERENCE
2 m	1NC/1NO, BBM	24CE28-S2

Top roller plunger, perpendicular, boot sealed



Europe

CABLE LENGTH	CONTACT	REFERENCE
1 m	1NC/1NO, BBM	24CE55-S1
2 m	1NC/1NO, BBM	24CE55-S2
1 m	1NC	24CE55-Y1

LS Series Compact Limit Switches



LS Series compact limit switches are carefully designed for accurate repeatability under the most stringent conditions. Compact size and field adjustable features greatly extend the flexibility of these switches. Heads may be positioned at 90° increments. Side rotary models can be adjusted for clockwise and/or counter-clockwise operation. Actuators can be set and locked in any position through 360°.

The rugged housings and actuator heads are constructed from cast aluminium, capable of withstanding physical abuse. Protection against oil, water and dust is achieved by O-ring seals on the actuator shaft; a ring seal between head and body; and a seated compression seal between cover and case.

The LS fits in many places too small for any other fully adjustable limit switch.

Conduit:

½ in - 14 NPT

Sealing:

½ in - 14 NPT conduit
20 mm conduit

NEMA 1, 3, 4, 6, 13
IP67

Operating temperature:

Standard
High

-29 °C to 71 °C (-20 °F to 160 °F)
-29 °C to 121 °C (-20 °F to 250 °F)

Approvals:

LS-L

UL, CSA

Contacts:

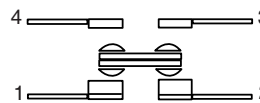
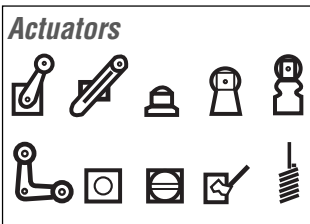
Electrical ratings A, B, C, D, E
Electrical ratings F, G

Silver Cadmium Oxide ⁽¹⁾
Fine Silver

Switching options:

SPDT

Single Pole, Double Throw
Snap action contacts (1NC/1NO)



Electrical ratings:

A	10 A, 120, 240 or 480 Vac; 1/3 hp, 120 Vac; 3/4 hp, 240 Vac; 0.8 A, 115 Vdc**; 0.4 A, 230 Vdc**; 0.1 A, 550 Vdc**; Pilot Duty, 600 Vac max.
B	10 A, 120, 240 or 480 Vac; 1/4 hp, 120 Vac; 1/2 hp, 240 Vac. Pilot Duty, 600 Vac max.
C	10 A, 120 Vac; 1/3 hp, 120 Vac.
D	10 A, 120, 240, 480 Vac; 1/4 hp, 120 Vac; 1/2 hp, 240 Vac; 0.8 A, 115 Vdc**; 0.4 A, 230 Vdc**; 0.1 A, 550 Vdc**; Pilot Duty, 600 Vac max.
E	10 A, 120, 240 or 480 Vac; 1/3 hp, 120 Vac; 3/4 hp, 240 Vac. Pilot Duty, 600 Vac max.
F	UL Rating: 10 A, 125, 250, or 480 Vac; 1/3 hp, 125 Vac; 3/4 hp, 250 Vac; 0.8 A, 125 Vdc**; 0.4 A, 250 Vdc**
G	UL Rating: 10 A, 125, 250 or 480 Vac; 1/4 hp, 125 Vac; 1/2 hp, 250 Vac; 0.8 A, 125 Vdc**; 0.4 A, 250 Vdc**

** Resistive rating

⁽¹⁾ Designed for use with inductive loads such as relays, contactors, motors and solenoids. Honeywell does *not* recommend the use of silver cadmium oxide switch contacts in non-arcing loads. Non-arcing loads are generally loads less than 12 volts and/or 0.5 amp.

LS Series
Side rotary actuated switches

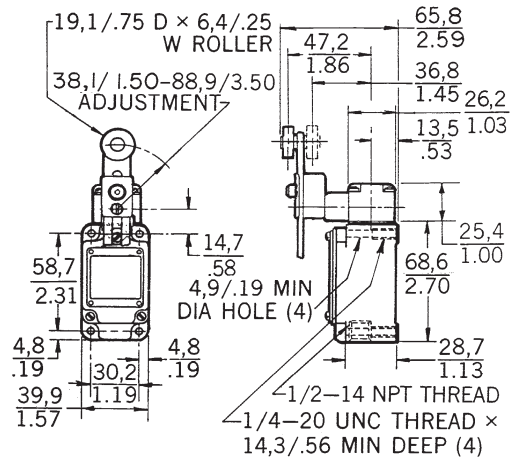
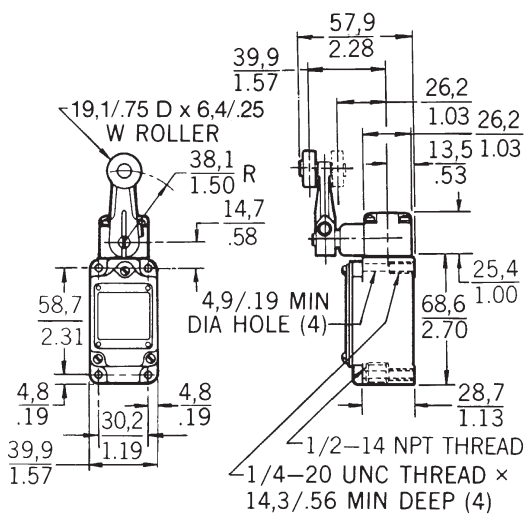
OPTIONS

Fixed length lever

Operating force max. (OF):	Standard	13,3 N (3.0 lb)
	Low	5,0 N (18 oz)
Pretravel max. (PT):	Standard	20°
	Low	5°
Overtravel min. (OT)		30°
Differential travel max. (DT):	Standard	12°
	Low	4°
Switching options:		SPDT
Lever:		Aluminium, steel roller

Adjustable roller lever

Operating force max. (OF):	Standard	13,3 N (3.0 lb)
	Low	5,0 N (18 oz)
Pretravel max. (PT):	Standard	20°
	Low	5°
Overtravel min. (OT)		30°
Differential travel max. (DT):	Standard	12°
	Low	4°
Switching options:		SPDT
Lever:		Aluminium, nylon roller



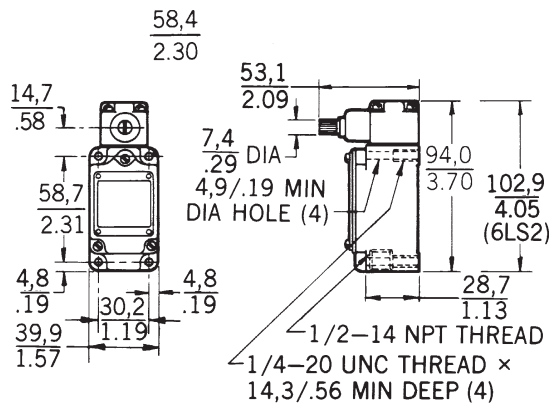
CONDUIT	ELECTRICAL RATING	REFERENCE
	A	1LS1
	F	1LS1-L
	A	1LS1-4C
Low PT/OF	B	1LS131
Low PT	B	1LS19
Low PT	B	1LS19-4C
High temperature	A	1LS243
High temperature	A	1LS243-4C
Indicator light	C	1LS501
Low OF	A	1LS6

CONDUIT	ELECTRICAL RATING	REFERENCE
	A	1LS3
	F	1LS3-L
20 mm	A	1LS3-4C
Low PT	B	1LS58
Low OF/PT/DT	B	1LS59

No lever

Note: Levers for are ordered separately (see pages 71-73 for details)

Operating force max. (OF):	Standard	0,51 N m (4.5 in lb)
	Low with standard PT	0,21 N m (30 in oz)
Pretravel max. (PT):	Standard	20°
	Low	5°
Overtravel min. (OT)	Maintained contact	55°
	Standard	30°
Differential travel max. (DT):	Maintained contact	35°
	Standard	12°
Switching options:	Low PT	4°
	Maintained contact	20°
		SPDT
		Aluminium rod



SPDT contact

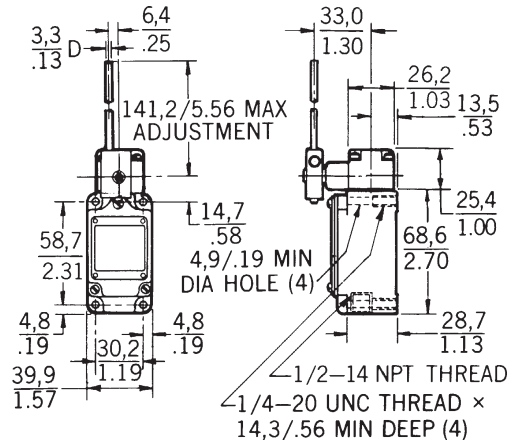
CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	1LS2
	F	1LS2-L
	A	1LS2-4C
	A	1LS23
Low OF	B	1LS56
Low OF/PT	B	1LS9

Maintained contact

CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	6LS2
	F	6LS2-L

Adjustable rod

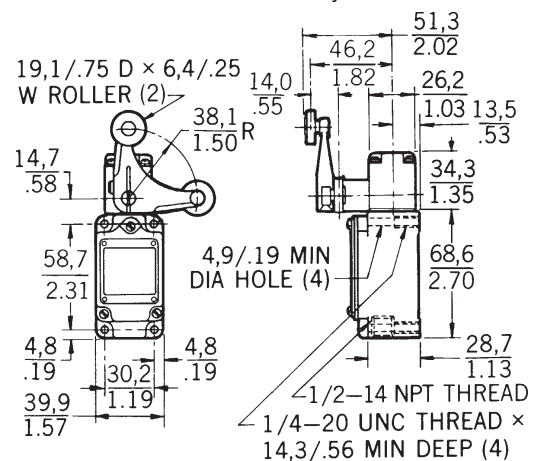
Operating force max. (OF):	Standard	1,39 N (5 oz)
	Low	0,83 Nm (3 oz)
Pretravel max. (PT):	Standard	20°
	Low	5°
Overtravel min. (OT)		30°
Differential travel max. (DT):	Standard	12°
	Low	4°
Switching options:		SPDT
Lever:		Aluminium rod



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	1LS10
	F	1LS10-L
	A	1LS10-4C
	B	1LS47
Low PT	B	1LS53
Low PT/OF/DT	B	

Side rotary, yoke lever, maintained contact

Operating force max. (OF):	8,9 N (2.0 lb)
Pretravel max. (PT):	55°
Switching options:	Maintained
Lever:	6LS1 Steel rollers on opposite sides of arm
	6LS3 Nylon rollers on same side of arm



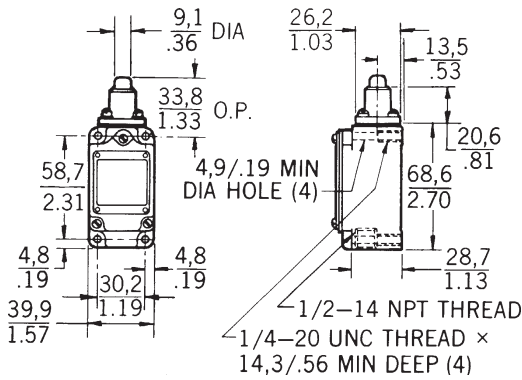
CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	6LS1
	A	6LS1-4C
	A	6LS3

**LS Series
Plunger actuated switches**

OPTIONS

Top pin plunger

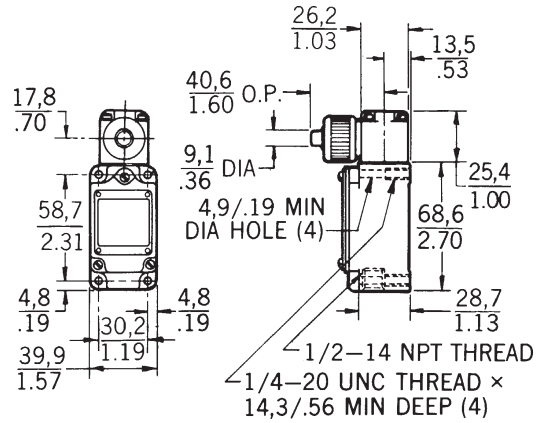
Operating force max. (OF):	Standard	31,14 N (7 lb)
	Low	10 N (36 oz)
Pretravel max. (PT):	Standard	1,65 mm (0.065 in)
	Low	6,35 mm (0.25 in)
Overtravel min. (OT)	Standard	6,35 mm (0.25 in)
	Low	5,56 mm (0.219 in)
Differential travel max. (DT):	Standard	0,51 mm (0.020 in)
	Low	0,23 mm (0.009 in)
Switching options:		SPDT



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	2LS1
	F	2LS1-L
	A	2LS1-4C
	E	2LS111
		Low OF/OT/DT

Side pin plunger

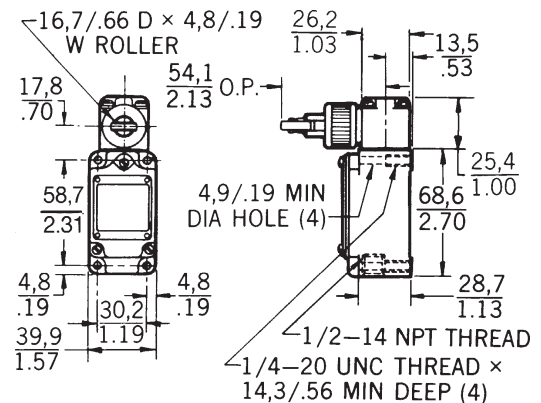
Operating force max. (OF):	Standard	40,03 N (9 lb)
	Low	10 N (36 oz)
Pretravel max. (PT):	Standard	2,8 mm (0.110 in)
	Low	6,35 mm (0.25 in)
Overtravel min. (OT)	Standard	6,35 mm (0.25 in)
	Low	5,56 mm (0.219 in)
Differential travel max. (DT):	Standard	1,02 mm (0.040 in)
	Low	0,23 mm (0.009 in)
Switching options:		SPDT



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	4LS1
	A	4LS1-4C

Side roller plunger

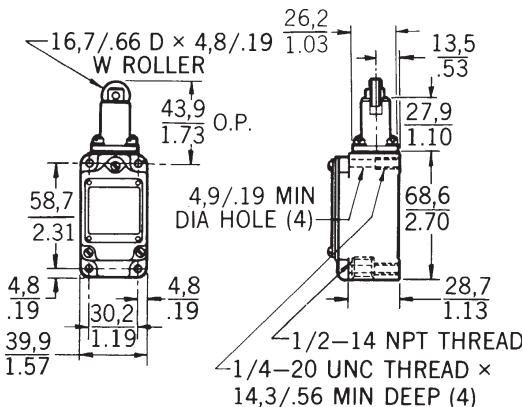
Operating force max. (OF):	Standard	40,03 N (9 lb)
	Low	10 N (36 oz)
Pretravel max. (PT):	Standard	2,8 mm (0.110 in)
	Low	6,35 mm (0.25 in)
Overtravel min. (OT)	Standard	5,56 mm (0.219 in)
	Low	5,56 mm (0.219 in)
Differential travel max. (DT):	Standard	1,02 mm (0.040 in)
	Low	0,23 mm (0.009 in)
Switching options:		SPDT



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	3LS1
	A	3LS1-4C

Top roller plunger

Operating force max. (OF):	Standard	31,14 N (7 lb)
	Low	10 N (36 oz)
Pretravel max. (PT):	Standard	1,65 mm (0.065 in)
	Low	6,35 mm (0.25 in)
Overtravel min. (OT)	Standard	6,35 mm (0.25 in)
	Low	5,56 mm (0.219 in)
Differential travel max. (DT):	Standard	0,51 mm (0.020 in)
	Low	0,23 mm (0.009 in)
Switching options:		SPDT



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	A	5LS1
	F	5LS1-L
	A	5LS1-4C
		Low OF/OT/DT

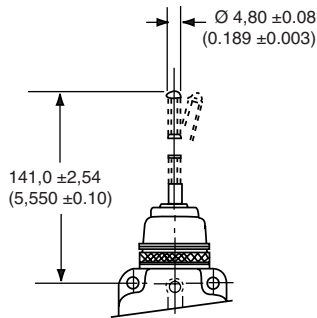
Wobble actuated switches

These switches will operate by moving actuator in any direction except direct pull.

Operating force max. (OF): 1,39 N (5 oz)
 Pretravel max. (PT): 28,6 mm (1,125 in)
 Switching options: SPDT

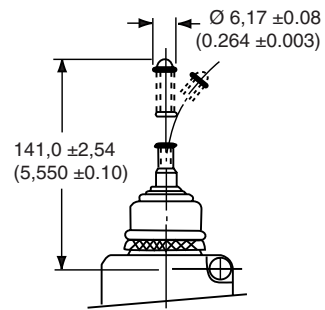
OPTIONS

Flexible cable



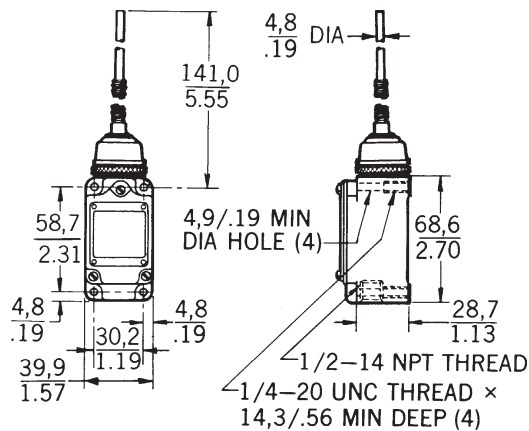
CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	D	8LS1
	G	8LS1-L
	D	8LS1-4C

Coil spring



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	D	8LS152
	D	8LS152-4C

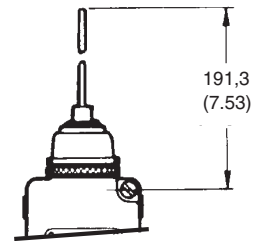
Spring rod



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	D	8LS3
	D	8LS3-4C

Steel wire

Operating force max. (OF): 0,28 N (1 oz)
 Pretravel max. (PT): 63,5 mm (2.5 in)



CONDUIT	ELECTRICAL RATING	REFERENCE
20 mm	D	8LS125
	D	8LS125-4C

BF Series Plastic Enclosed Basic Switches



BF Series Plastic Enclosed Basic Switches are available with a wide variety of actuators, and are designed for easy mounting and wiring. BF switches are designed to allow mounting with the cover either towards or away from the mounting surface.

Switches with lever type actuators are adjustable in two directions. The entire actuator can be rotated around its mounting bushing, and the angle of the lever can also be changed.

Sealing:

Operating temperature:

Approvals:

Termination:

Contacts:

Electrical ratings:

Switching options:
SPDT

NEMA 1, 3, 4, 13

-32 °C to 71 °C (-25 °F to 160 °F)

UL

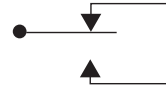
½ in - 14NPT

Silver

11 A - 125 Vac, 250 Vac or 277 Vac

5 A - 125 Vac, 250 Vac or 277 Vac

Single Pole, Double Throw,
Snap action contacts (1NC/1NO)



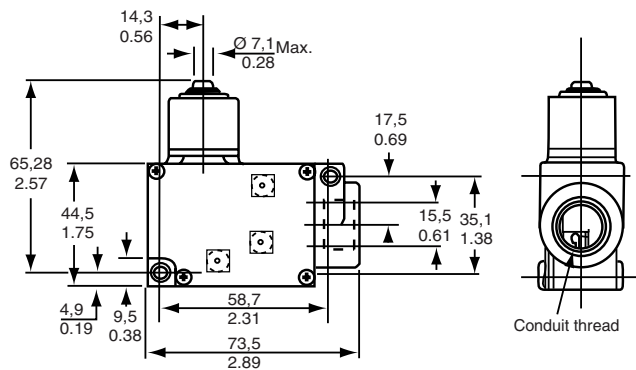
Actuators



Plunger actuated switches

OPTIONS

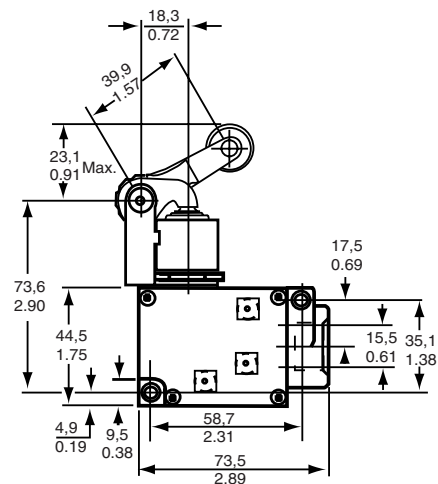
Top pin plunger



Operating force max. (OF): 12,23 N (44 oz)
Differential travel max. (DT): 0,64 mm (0.025 in)

ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	B	BFL1-BP1
Right	B	BFR1-BP1

Top roller arm, adjustable

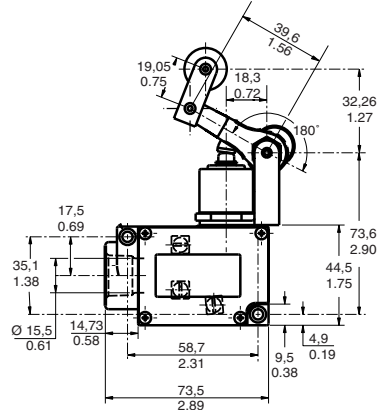


Operating force max. (OF): 10,56 N (38 oz)
Differential travel max. (DT): 1,65 mm (0.065 in)

ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	B	BFL1-BL1
Right	B	BFR1-BL1

**Plunger actuated switches
(continued)**

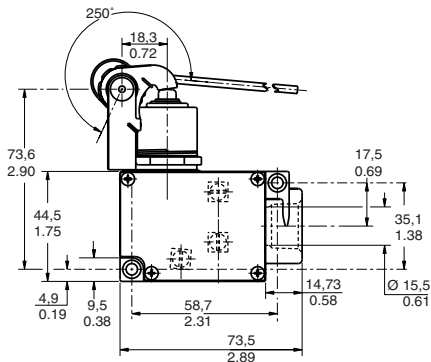
Top roller arm, adjustable, one way



Operating force max. (OF):
 Left 3,61 N (13 oz)
 Right 10,56 N (38 oz)

ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	B	BFL1-BL3
Right	B	BFR1-BL3

Low force rod



Operating force max. (OF):
 Left 10,56 N (38 oz)
 Right 3,61 N (13 oz)

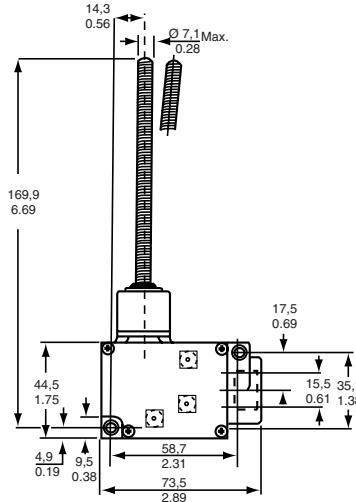
ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	B	BFL1-BL2
Right	B	BFR1-BL2

Wobble actuated switches

Operating force max. (OF): 1,95 N (7 oz)

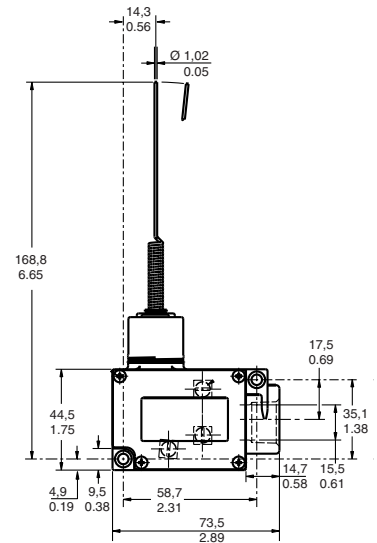
OPTIONS

Coil spring



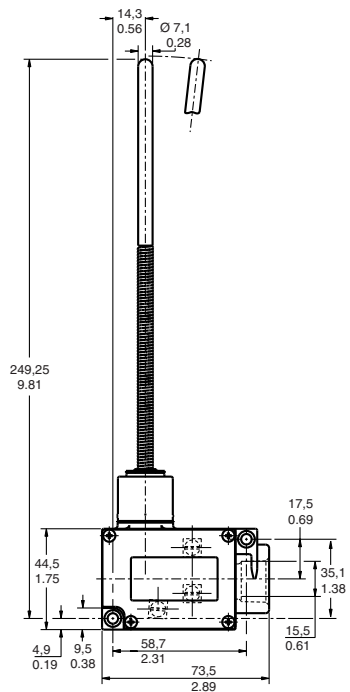
ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	A	BFL1-AW1
Left	B	BFL1-BW1
Right	B	BFR1-BW1

Spring wire



ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	B	BFL1-BW4
Right	B	BFR1-BW4

Plastic



Type -BW3

ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left, 179,3 mm (7.06 in) length rod	A	BFL1-AW2
Left, 249,25 mm (9.8 in) length rod	B	BFL1-BW3

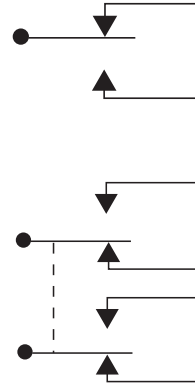
BZE/DTE Series Compact Enclosed Switches



The BZE/DTE Series general purpose enclosed limit switches offer precision operation and sturdy actuation in a compact but rugged aluminium housing. The large wiring enclosure means that the user can get access to wire the device simply. The switch incorporates high repeatability of the switch point early in the travel of the switch. This is achieved through a very tolerant over-travel mechanism which ensures that application drift will not affect long term accuracy of the switch.

Conduit: E6
Sealing: V6
Operating temperature: Standard Low
Approvals: UL, CSA, CE
Contacts: Electrical ratings A, B, C Silver Gold
 Electrical rating D
Switching options: SPDT
 Single Pole, Double Throw Snap action contacts (1NC/1NO)
 Double Pole, Double Throw Snap action contacts (2NC/2NO)

DPDT



Electrical ratings:		
A	UL/CSA Rating:	15 A, 125, 250 or 480 Vac; 2 A, 600 Vac; 1/8 Hp, 125 Vac; 1/4 Hp, 250 Vac; 1/2 A, 125 Vdc; 1/4 A, 250 Vdc
B	UL/CSA Rating:	10 A, 125 or 250 Vac; 0.3 A, 125 Vdc; 0.15 A, 250 Vdc
C	UL/CSA Rating:	15 A, 125, 250 or 480 Vac; 1/4 Hp, 125 Vac; 1/2 Hp, 250 Vac; 1/2 A, 125 Vdc; 1/4 A, 250 Vdc
D	UL/CSA Rating:	1 A - 125 Vac

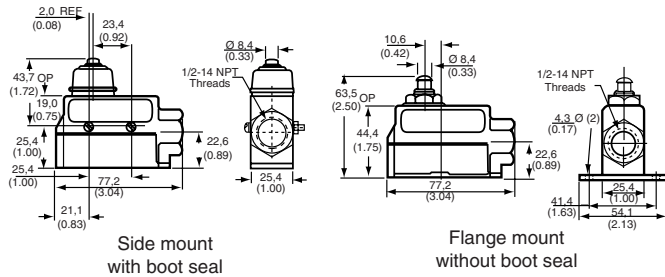
E6/V6

E6 (side mount) and V6 (flange mount) switches are offered with or without actuator seal boots. Both have a combination insulator/ seal cemented inside the bottom enclosure. Lead washers are used to seal the mounting holes on side mount switches. All side mount switches are installed with #6 screws, except the BZE6-2RN7 (#8 screws). Removal of the bottom enclosure exposes the terminals for easy wiring.

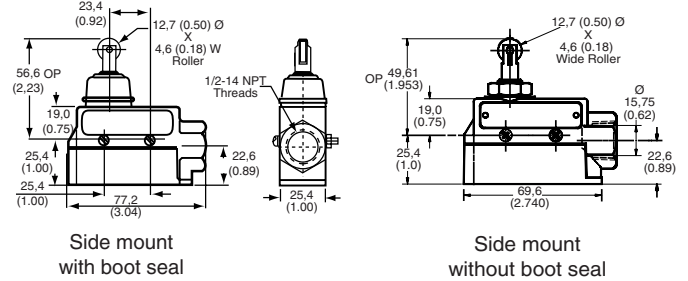
Momentary contact

OPTIONS

Top pin plunger



Top roller plunger, parallel



With boot seal

Operating force max. (OF):	SPDT Standard	2,50 N to 6,67 N (9 oz to 24 oz)
	SPDT Low temperature	4,17 N to 10,84 N (15 oz to 39 oz)
	DPDT	6,95 N to 16,4 N (25 oz to 59 oz)
Pretravel max. (PT):	SPDT	1,98 mm (0.078 in)
	DPDT	2,8 mm (0.110 in)
Overtravel min. (OT):	SPDT	5,56 mm (0.219 in)
	DPDT	3,18 mm (0.125 in)
Differential travel max. (DT):	SPDT	0,05 mm (0.002 in)
	DPDT	1,52 mm (0.060 in)

With boot seal

Operating force max. (OF):	SPDT	2,50 N to 6,67 N (9 oz to 24 oz)
	DPDT	5,56 N to 13,34 N (20 oz to 48 oz)
Pretravel max. (PT):	SPDT	1,98 mm (0.078 in)
	DPDT	2,8 mm (0.110 in)
Overtravel min. (OT):	SPDT	5,56 mm (0.219 in)
	DPDT	3,18 mm (0.125 in)
Differential travel max. (DT):	SPDT	0,01 mm to 0,05 mm (0.0004 in to 0.0020 in)
	DPDT	1,52 mm (0.060 in)

Side mount

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	BZE6-2RN
	DPDT	B	DTE6-2RN
Low temperature/High OF	SPDT	A	BZE6-2RN34
#8 screws	SPDT	A	BZE6-2RN7
Gold contacts	SPDT	D	BZE6-2RN72

Side mount

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	BZE6-2RN80
	DPDT	B	DTE6-2RN80

Flange mount

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	BZV6-2RN
	DPDT	B	DTV6-2RN

Flange mount

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
	SPDT		A	BZV6-2RN80

Without boot seal

Operating force max. (OF):	SPDT	2,50 N to 3,61 N (9 oz to 13 oz)
	DPDT	5,56 N to 11,12 N (20 oz to 40 oz)
Pretravel max. (PT):	SPDT	0,38 mm (0.015 in)
	DPDT	3,81 mm (0.150 in)
Overtravel min. (OT):	SPDT	5,56 mm (0.219 in)
	DPDT	2,24 mm (0.088 in)
Differential travel max. (DT):	SPDT	0,05 mm (0.002 in)
	DPDT	1,52 mm (0.060 in)

Without boot seal

Operating force max. (OF):	SPDT	2,50 N to 3,61 N (9 oz to 13 oz)
	DPDT	6,67 N to 13,34 N (24oz to 48 oz)
Pretravel max. (PT):	SPDT	0,38 mm (0.015 in)
	DPDT	3,58 mm (0.141 in)
Overtravel min. (OT):	SPDT	3,55 mm (0.140 in)
	DPDT	3,18 mm (0.125 in)
Differential travel max. (DT):	SPDT	0,05 mm (0.002 in)
	DPDT	1,52 mm (0.060 in)

Side mount

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	BZE6-2RQ
	DPDT	B	DTE6-2RQ

Side mount

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
Field adjustable roller	SPDT		A	BZE6-2RQ8
Field adjustable roller	SPDT		A	BZE6-2RQ9
Field adjustable roller	DPDT		B	DTE6-2RQ9

Flange mount

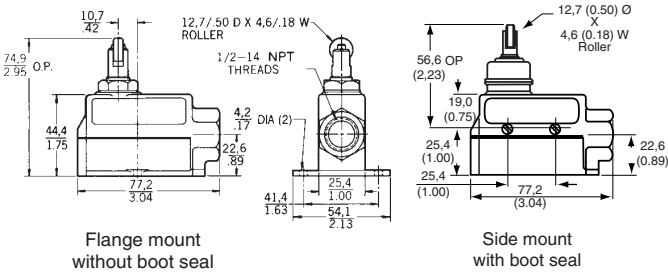
	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	BZV6-2RQ

Flange mount

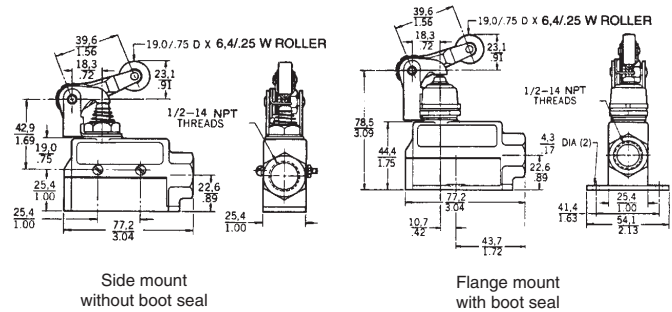
	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
	SPDT		A	BZV6-2RQ8

**BZE/DTE Series
E6/V6 Momentary contact (continued)**

Top roller plunger, perpendicular



Roller arm, adjustable



With boot seal

Operating Force max. (OF): 2,60 N to 6,67 N (9 oz to 24 oz)
Pretravel max. (PT): 1,98 mm (0.078 in)
Overtravel min. (OT): 5,56 mm (0.219 in)
Differential travel max. (DT): 0,01 mm to 0,05 mm (0.0004 in to 0.0020 in)

Side mount

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZE6-2RN81

Without boot seal

Operating Force max. (OF): SPDT 2,50 N to 3,61 N (9 oz to 13 oz)
 DPDT 6,67 N to 13,34 N (24 oz to 48 oz)
Pretravel max. (PT): SPDT 0,38 mm (0.015 in)
 DPDT 3,58 mm (0.141 in)
Overtravel min. (OT): SPDT 3,55 mm (0.140 in)
 DPDT 3,18 mm (0.125 in)
Differential travel max. (DT): SPDT 0,05 mm (0.002 in)
 DPDT 1,52 mm (0.060 in)

Side mount

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZE6-2RQ81
DPDT	B	DTE6-2RQ81

Flange mount

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZV6-2RQ81

Operating temperature: Standard -32 °C to 71 °C (-25 °F to 160 °F)
 Low -40 °C to 71 °C (-40 °F to 160 °F)
Roller: Steel

With boot seal

Operating Force max. (OF): 2,78 N to 5,56 N (10 oz to 20 oz)
Pretravel max. (PT): 4,78 mm (0.188 in)
Overtravel min. (OT): 5,56 mm (0.219 in)
Differential travel max. (DT): SPDT 0,15 mm (0.006 in)
 DPDT 4,19 mm (0.165 in)

Side mount

Operating Force max. (OF): DPDT 13,34 N (48 oz)
Pretravel max. (PT): DPDT 7,92 mm (0.312 in)

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZE6-2RN2
DPDT	B	DTE6-2RN2
Low temperature SPDT	A	BZE6-2RN234

Flange mount

Operating Force max. (OF): DPDT 2,78 N to 8,34 N (10 oz to 30 oz)
Pretravel max. (PT): DPDT 6,76 mm (0.266 in)

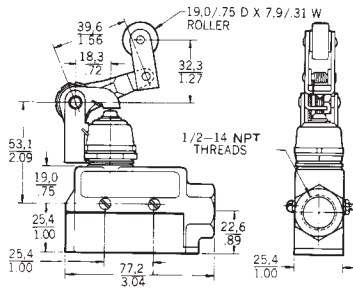
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZV6-2RN2
DPDT	B	DTV6-2RN2

Without boot seal

Operating Force max. (OF): 2,78 N to 5,00 N (10 oz to 20 oz)
Pretravel max. (PT): 4,78 mm (0.188 in)
Overtravel min. (OT): 5,56 mm (0.219 in)
Differential travel max. (DT): 0,15 mm (0.006 in)

	CONTACT	ELECTRICAL RATING	REFERENCE
Side mount	SPDT	A	BZE6-2RQ2
Flange mount	SPDT	A	BZV6-2RQ2

One way roller lever



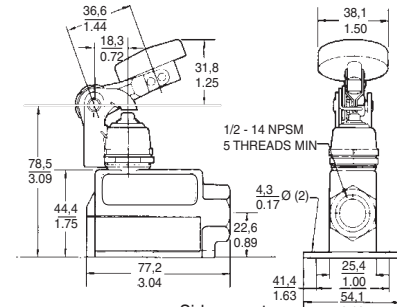
Side mount with boot seal

With boot seal

Operating force max. (OF): 2,22 N to 5,56 N (8 oz to 20 oz)
Pretravel max. (PT): 5,94 mm (0.234 in)
Overtravel min. (OT): 5,56 mm (0.219 in)
Differential travel max. (DT): 0,15 mm (0.006 in)

	CONTACT	ELECTRICAL RATING	REFERENCE
Side mount	SPDT	A	BZE6-2RN28

Manual palm button



Side mount with boot seal

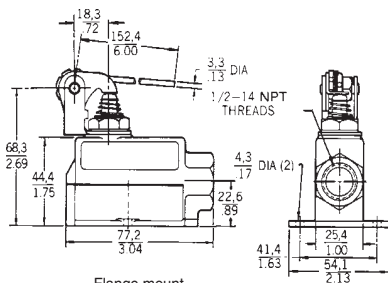
With boot seal

Operating force max. (OF): 2,78 N to 5,56 N (10 oz to 20 oz)
Pretravel max. (PT): 4,78 mm (0.188 in)
Overtravel min. (OT): 5,56 mm (0.219 in)
Differential travel max. (DT): 0,15 mm (0.006 in)

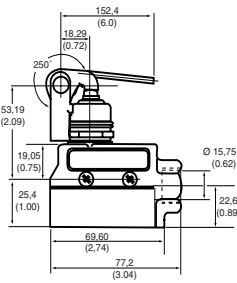
	CONTACT	ELECTRICAL RATING	REFERENCE
Flange mount	SPDT	A	BZV6-2RN4

Rod lever

Pretravel max. (PT): 18,24 mm (0.718 in)
Overtravel min. (OT): 21,29 mm (0.838 in)
Differential travel max. (DT): 5,82 mm (0.229 in)



Flange mount without boot seal



Side mount with boot seal

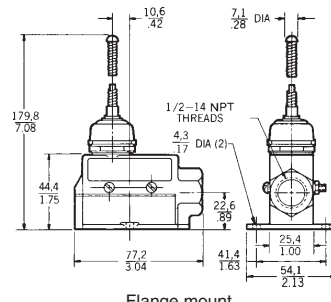
With boot seal

Operating force max. (OF): 0,83 N to 1,95 N (3 oz to 7 oz)

	CONTACT	ELECTRICAL RATING	REFERENCE
Side mount	SPDT	A	BZE6-2RN62
Flange mount	SPDT	A	BZV6-2RN62

Wobble, coil spring

These switches will operate by moving actuator in any direction except direct pull.



Flange mount with boot seal

With boot seal

Operating force max. (OF): 1,95 N (7 oz)
Pretravel max. (PT): 15°

	CONTACT	ELECTRICAL RATING	REFERENCE
Side mount	SPDT	A	BZE6-2RN18
Flange mount	SPDT	A	BZV6-2RN18

Without boot seal

Operating force max. (OF): 0,56 N to 1,39 N (2 oz to 5 oz)

	CONTACT	ELECTRICAL RATING	REFERENCE
Side mount	SPDT	A	BZE6-2RQ62
Flange mount	SPDT	A	BZV6-2RQ62

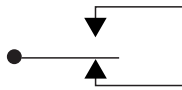
**BZE/DTE Series
E6/V6 Maintained contact (reset) switches**

The switches shown below provide maintained contact after the operating force on either top or bottom plunger is released.

Note: The top plungers on these switches provide more accurate and uniform operation than the "reset" plungers and should be used when closely held operating characteristics are required.

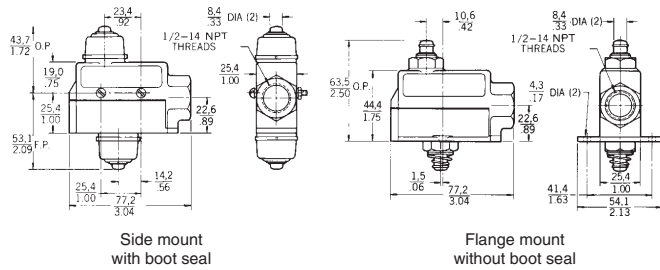
Switching:
SPDT

Single Pole, Double Throw
(1NC/1NO) Maintained

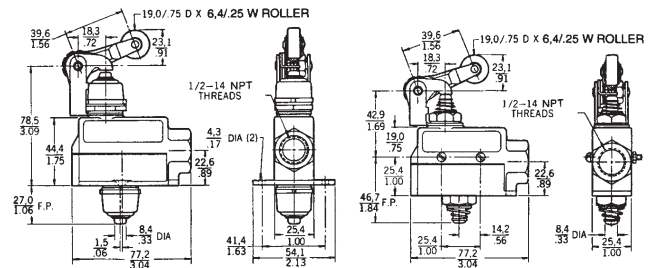


OPTIONS

Top pin plunger



Roller arm, adjustable



Side mount

Operating force max. (OF): With boot seal 1,67 N to 5,56 N (6 oz to 20 oz)
Without boot seal 1,67 N to 2,64 N (6 oz to 9.5 oz)
Pretravel max. (PT): With boot seal 1,98 mm (0.078 in)
Without boot seal 0,30 mm (0.012 in)
Overtravel min. (OT): 4,75 mm (0.187 in)

Flange mount with boot seal

Side mount without boot seal

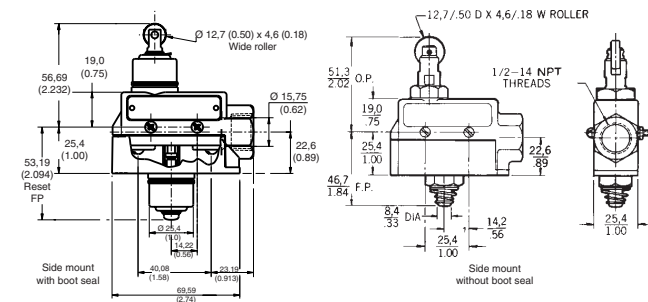
Side mount

Operating Force max. (OF): With boot seal 4,45 N (16 oz)
Without boot seal 3,34 N (12 oz)
Pretravel max. (PT): 4,78 mm (0.188 in)
Overtravel min. (OT): 5,56 mm (0.219 in)

	CONTACT	ELECTRICAL RATING	REFERENCE
With boot seal	SPDT Maintained	C	BZE6-RNX1
Without boot seal	SPDT Maintained	C	BZE6-RQX2

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
With boot seal	Maintained		C	BZE6-RN2X1
Without boot seal	Maintained		C	BZE6-RQ2X2

Top roller plunger



Side mount

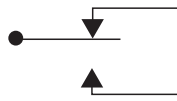
Operating force max. (OF): With boot seal 3,34 N to 15,57 N (12 oz to 56 oz)
Without boot seal 1,67 N to 2,64 N (6 oz to 9.5 oz)
Pretravel max. (PT): With boot seal 1,98 mm (0.078 in)
Without boot seal 0,30 mm (0.012 in)
Overtravel min. (OT): With boot seal 4,75 mm (0.187 in)
Without boot seal 3,55 mm (0.140 in)

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
With boot seal	SPDT		C	BZE6-RN80X2
Without boot seal	SPDT		C	BZE6-RQ8X2

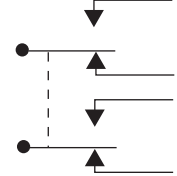
E7 Metal standard enclosed switch

Mechanical life: 10 million
Sealing: Without boot seal IP50 Standard
 With boot seal IP65 Sealed
Operating temperature: -30 °C to 70 °C (-22 °F to 158 °F)
Approvals: IEC 60947-5-1
 EN 60947-5-1

Switching options:
 SPDT Single Pole, Double Throw
 Snap action contacts (1NC/1NO)



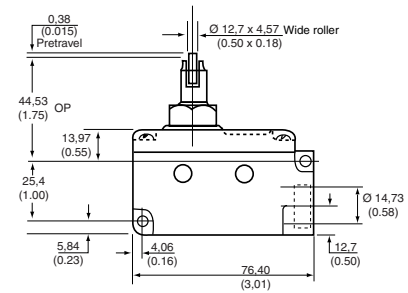
DPDT Double Pole, Double Throw
 Snap action contacts (2NC/2NO)



Actuators



Top roller plunger, perpendicular, without boot seal

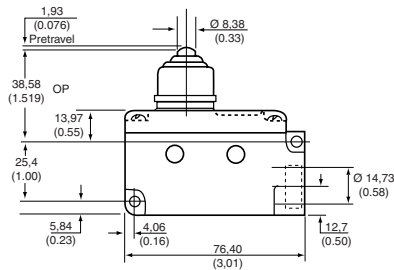


CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RQ81-PG

OPTIONS

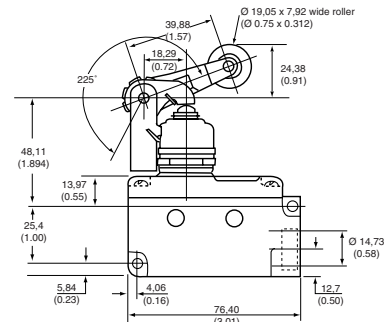
Top pin plunger

With boot seal



CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RN-PG
SPDT	20 mm		BZE7-2RN-C
DPDT	PG 13.5		DTE7-2RN-PG

Top roller lever, boot seal

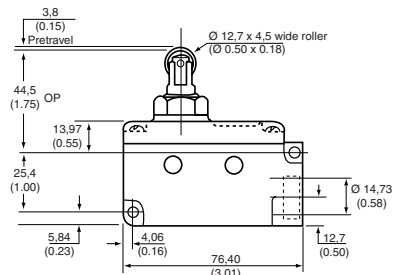


CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RN2-PG
SPDT	20 mm		BZE7-2RN2-C

Without boot seal

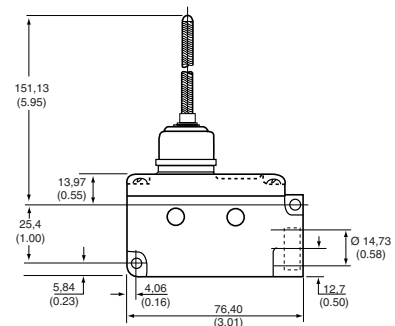
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RQ-PG

Top roller plunger, parallel, without boot seal



CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RQ8-PG

Wobble, coil spring, boot seal



CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RN18-PG

BAF/DTF Series High Capacity Enclosed Switches

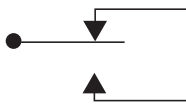


Actuators

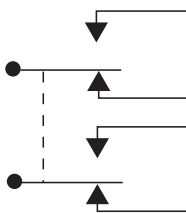


Approvals: UL, CSA
 Sealing: -2RQ9 NEMA 1, 3, 4, 13 NEMA 1
 Operating temperature: -32 °C to 71 °C (-25 °F to 160 °F)
 Conduit: ½ in - 14 NPT
 Contacts: Silver
 Electrical ratings: B UL/CSA Rating: 10 A, 125 or 250 Vac; 0.3 A, 125 Vdc; 0.15 A, 250 Vdc.
 D UL/CSA Rating: 20 A, 125, 250 or 480 Vac; 1 Hp, 125 Vac; 2 Hp, 250 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc; Lamp Load - 10 A, 125 Vac.

Switching options: D SPDT Single Pole, Double Throw Snap action contacts (1NC/1NO)



B DPDT Double Pole, Double Throw Snap action contacts (2NC/2NO)



The BAF/DTF Series is available with or without boot seals. The elastomer boot on sealed actuator versions protects the actuating mechanism and the internal basic switch from contamination. They are therefore suitable for wash-down applications. Both sealed and unsealed versions are available with the actuators on the right or left hand side.

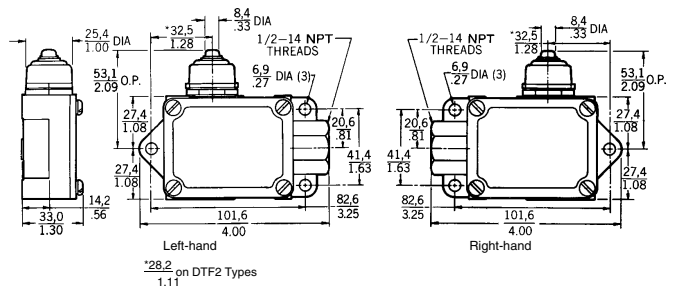
The cover plate is removable to allow ease of wiring and switch replacement without having to dismount the housing.

The BAF/DTF Series is suitable for use in packaging equipment, farm machinery, conveyors, overhead cranes and hoists.

Momentary contact

OPTIONS

Top pin plunger



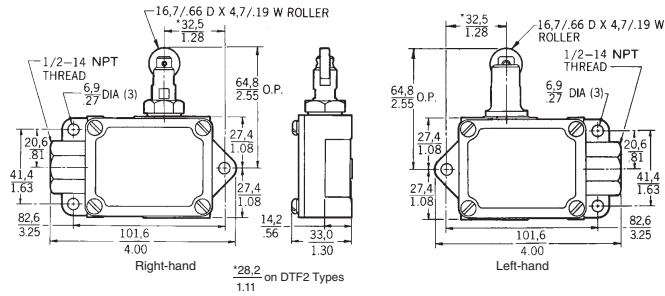
With boot seal

Operating force max. (OF):	BAF/DTF	11,2 N (2.5 lb)
Pretravel max. (PT):	BAF	2,39 mm (0.094 in)
	DTF	3,59 mm (0.141 in)
Overtravel min. (OT):	BAF	5,56 mm (0.219 in)
	DTF	3,96 mm (0.156 in)
Differential travel max. (DT):	BAF	0,26 mm (0.010 in)
	DTF	1,53 mm (0.060 in)
Operating position (OP):	BAF	53,19 mm (2.094 in)
	DTF	52,07 mm (2.050 in)

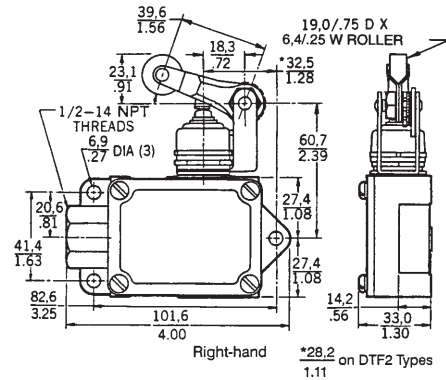
ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RN-RH
Left	SPDT	D	BAF1-2RN-LH
Right	DPDT	B	DTF2-2RN-RH
Left	DPDT	B	DTF2-2RN-LH

Momentary contact (continued)

Top roller plunger, parallel



Roller arm, adjustable



O-ring actuator seal

Operating force max. (OF):	BAF/DTF	35,6 N (8.0 lb)
Pretravel max. (PT):	BAF/DTF	3,18 mm (0.125 in)
Overtravel min. (OT):	BAF	4,75 mm (0.187 in)
	DTF	3,18 mm (0.125 in)
Differential travel max. (DT):	BAF	0,19 mm (0.0075 in)
	DTF	1,53 mm (0.060 in)
Operating position (OP):	BAF	64,69 mm (2.547 in)
	DTF	63,88 mm (2.515 in)

ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RQN8-RH
Left	SPDT	D	BAF1-2RQN8-LH
Right	DPDT	B	DTF2-2RQN8-RH
Left	DPDT	B	DTF2-2RQN8-LH

Field adjustable roller plunger

Adjustable 360° horizontally

Operating force max. (OF):	BAF/DTF	11,2 N (2.5 lb)
Pretravel max. (PT):	BAF	2,39 mm (0.094 in)
	DTF	3,18 mm (0.125 in)
Overtravel min. (OT):	BAF	3,96 mm (0.156 in)
	DTF	3,18 mm (0.125 in)
Differential travel max. (DT):	BAF	0,26 mm (0.010 in)
	DTF	1,53 mm (0.060 in)
Operating position (OP):	BAF	64,69 mm (2.547 in)
	DTF	63,88 mm (2.515 in)

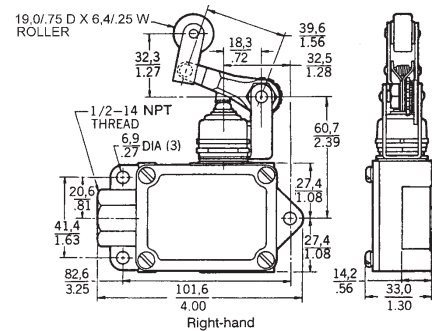
ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RQ9-RH
Left	SPDT	D	BAF1-2RQ9-LH
Right	DPDT	B	DTF2-2RQ9-RH
Left	DPDT	B	DTF2-2RQ9-LH

With boot seal

Operating force max. (OF):	BAF	8,90 N (2.0 lb)
	DTF	11,1 N (2.5 lb)
Pretravel max. (PT):	BAF	5,56 mm (0.219 in)
	DTF	7,93 mm (0.312 in)
Overtravel min. (OT):	BAF	6,35 mm (0.25 in)
	DTF	5,56 mm (0.219 in)
Differential travel max. (DT):	BAF	0,51 mm (0.020 in)
	DTF	3,05 mm (0.120 in)

ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RN2-RH
Left	SPDT	D	BAF1-2RN2-LH
Right	DPDT	B	DTF2-2RN2-RH
Left	DPDT	B	DTF2-2RN2-LH

One way roller lever



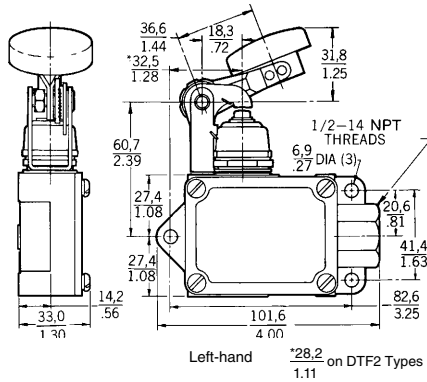
With boot seal

Operating force max. (OF):		8,90 N (2.0 lb)
Pretravel max. (PT):		5,56 mm (0.219 in)
Overtravel min. (OT):		6,35 mm (0.25 in)
Differential travel max. (DT):		0,51 mm (0.020 in)

ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RN28-RH
Left	SPDT	D	BAF1-2RN28-LH

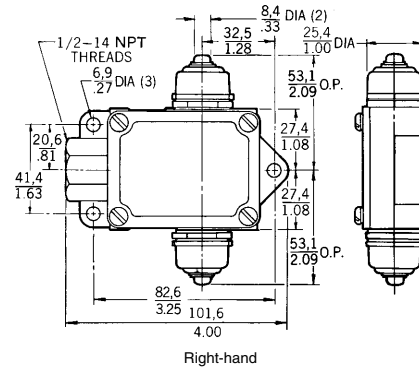
BAF/DTF Series
Momentary contact (continued)

Manual palm button



Maintained contact (reset) switches

Top pin plunger



With boot seal

Operating force max. (OF): 8,90 N (2.0 lb)

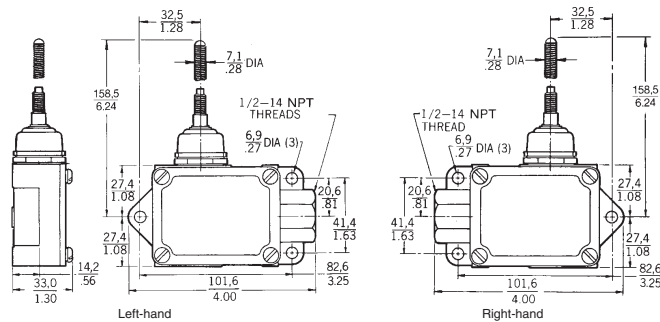
ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RN4-RH
Left	SPDT	D	BAF1-2RN4-LH

With boot seal

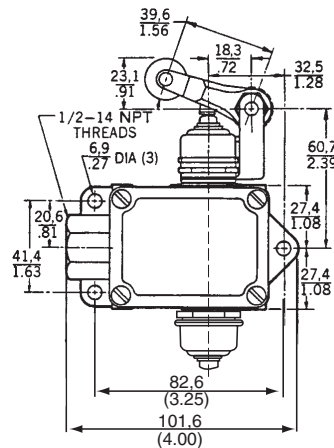
Operating force max. (OF): 7,79 N (1.75 lb)
Pretravel max. (PT): 2,39 mm (0.094 in)
Overtravel min. (OT): 5,56 mm (0.219 in)

ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	Maintained SPDT	D	BAF1-3RNX1

Wobble, coil spring



Roller arm, adjustable



With boot seal

Pretravel max. (PT): 15°

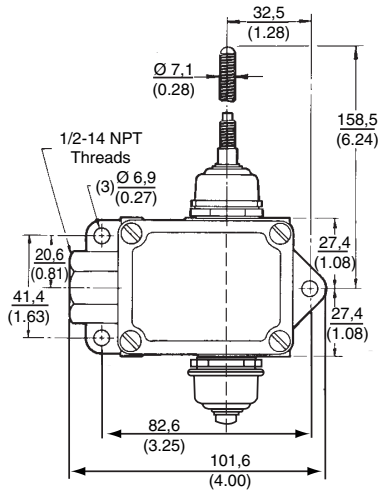
ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	SPDT	D	BAF1-2RN18-RH
Left	SPDT	D	BAF1-2RN18-LH

With boot seals on roller arm and plunger

Operating force max. (OF): 6,67 N (1.5 lb)
Pretravel max. (PT): 5,56 mm (0.219 in)
Overtravel min. (OT): 6,35 mm (0.25 in)
Operating position (OP): 60,71 mm (2.390 in)

ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	Maintained SPDT	D	BAF1-3RN2X-RH
Left	Maintained SPDT	D	BAF1-3RN2X-LH

Wobble, coil spring

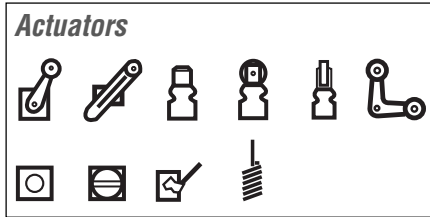


With boot seals on wobble stick and plunger

Pretravel max. (PT): 15°

ACTUATOR POSITION	CONTACT	ELECTRICAL RATING	REFERENCE
Right	Maintained SPDT	D	BAF1-3CN18X1

HDLS Series Heavy Duty Limit Switches



Levers: Levers for side rotary types are ordered separately (see pages 71-73 for details)

The HDLS Series Heavy Duty Limit Switches offer a wide choice of mounting and actuator options. Housed in a rugged, die-cast zinc body which is epoxy coated for protection, they are perfectly suited to special applications in harsh duty environments where conventional limit switches may not be used. Versatile and full featured, they are designed for long life.

Listings referenced in this section are mainly standard. Low temperature and fluorocarbon (FC, high temperature) construction is available in all forms of HDLS limit switches. For temperature ranges see table opposite. Also available are factory sealed, pre-wired switches.

Low temperature switches have fluorosilicone diaphragm, shaft seals and external boot seal (where applicable) plus a low temperature lubricant. If prewired with cable, temperature limits are -10 °C (14 °F) flex and -30 °C (22 °F) no flex.

To order a low temperature version insert the additional letters **Y** and **B** as in the following example:
LSA1A - standard side rotary plug-in switch
LSYAB1A - low temperature version.

Completely fluorocarbon (FC) sealed, high temperature, chemical resistance switches have a full FC body gasket covering the switch cavity. Rotary types have an extra FC seal on the operating shaft, while plunger versions have FC boot seals. They are for use in applications where the environment includes fire-resistant synthetic fluids. 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 prewired with cable, temperature limits are 105 °C (221 °F) dry and 60 °C (140 °F) wet.

To order a fluorocarbon (FC) sealed switch insert the additional letters **Y** and **C** as in the following example:
LSA1A - standard side rotary plug-in switch
LSYAC1A - completely FC sealed version.

Factory sealed, pre-wired limit switches have the entry area completely sealed and are available with 6 ft (1.83 m), ST00W-A cable or 4, 5 or 9-pin connectors. NEMA ratings are, for cable version 1, 4, 6, 6P, 12, for connector version 1, 4, 6, 6P, 12, 13.

To order a factory sealed switch add the appropriate letter:

Circuitry	Cable	½ in Connector (available with ½ in conduit tap only)
SPDT	C	A (4 pin mini) B (5 pin mini) DD (4 pin micro)
DPDT	M (¾ in only)	R (9 pin)

Example:

- LSA1AC - LSA1A with 6 ft of 5 conductor ST00W-A cable
- LSJ2BM-7N - LSJ2B-7N with 6 ft of 9 conductor ST00W-A cable
- LSA1AB - LSA1A with 5 pin receptable
- LSA1ADD - 4 pin micro-change connector

Electrical ratings

10 amps continuous carry. Circuits on any one pole must be the same polarity.

ac Volts

Pilot duty: 600 Vac, 720 VA

	Vac	Amps at 0.35 Power Factor	
		Make	Break
A	120	60	6
SPDT	240	30	3
NEMA	480	15	1.5
A600	600	12	1.2
B	120	30	3
DPDT	240	15	1.5
NEMA	480	7.5	0.75
B600	600	6	0.60
C	250 Vac or 60 Vdc, 0.050 amp max.		
SPDT/DPDT			

dc Volts

Pilot duty: 240 Vdc, 30 watts

	Vdc	Make and Break Amps	
		Inductive	Resistive
A	120	0.25	0.8
SPDT	240	0.15	0.4
B	120	0.25	0.8
DPDT	240	0.15	0.4
C	250 Vac or 60 Vdc, 0.050 amp max.		
SPDT/DPDT			

Operating temperatures

	Standard HDLS				Low Temperature HDLS				High Temperature HDLS (Fluorocarbon Sealed*)		
	Low Limit		High Limit		Low Limit		High Limit		Low Limit		High Limit
	10 °F -12 °C	30 °F -1 °C	200 °F 93 °C	250 °F 121 °C	-40 °F -40 °C	-20 °F -29 °C	200 °F 93 °C	250 °F 121 °C	10 °F -12 °C	30 °F -1 °C	250 °F 121 °C
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 P.T., 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
LSU - Side Rotary, Low Pretravel	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 200 °F (93 °C), much longer switch life can be obtained by using

completely fluorocarbon-sealed switches rather than the standard HDLS.

Environmental seal performance

Std. Seals	Cellulube	Detergent	5 Star	ASTM #1	ASTM #2	ASTM #3	ASTM #4	Houghto Safe 260, 271	Houghto Safe 1010, 1055, 1120	Mineral Oil	Petr. Oil Crude	Silicon Gr. & Oil	Sunsafe	Beer	Stoddard Solv.	Chlorinated Solvents	Citric Acids	Di-ester Syn. Lubricant	Ozone	Pydraul	Pyroguard	Petr. Base Hydraulic Oil	Lard Oil	Silicate Esters
LSA	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSB	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSC	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSD	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSE	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSF	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSG	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSH	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSJ	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSK	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSL	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSM	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSN	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSP	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSR	4	1	1	1	1	1	2	1	4	1	1	1	1	1	1	4	1	2	4	4	4	1	1	2
LSV	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2
LSW	4	2	2	1	2	4	4	2	4	2	2	1	2	1	2	4	1	4	3	4	4	2	2	2

All HDLS with seals of:

Fluorosilicone (Low Temp. HDLS)	4	1	1	1	1	1	2	2	4	1	1	1	1	1	1	1	1	2	1	4	4	1	1	1
Fluorocarbon (High Temp. HDLS)	1*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

*Fluorocarbon seals good for all Cellulubes Except A60 CODE:

1 J Satisfactory
2 J Fair

3 J Doubtful
4 J Unsatisfactory

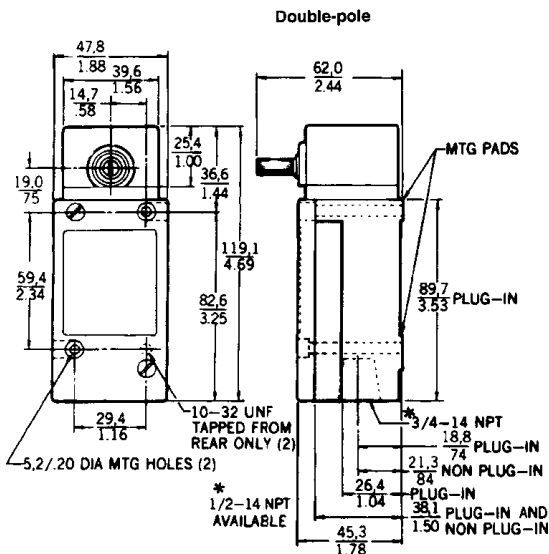
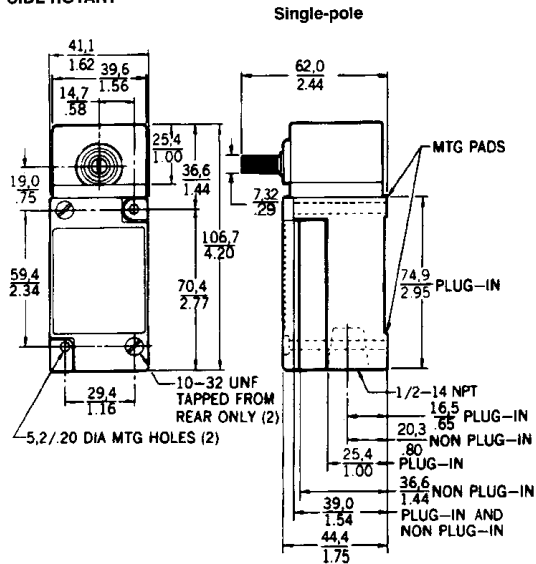
HDLS Series Side rotary actuated switches

Levers: Levers for side rotary types are ordered separately (see pages 71-73 for details)

Approvals:		NEMA 1, 3, 4, 4X, 6, 6P, 12, 13 UL, CSA, CE
Operating force (Newton meters, N m/in lb):	LSA, LSL, LSM, LSM, LSP, LSU	0,45 N m max. 4 in lb max.
	LSH, LSR	0,19 N m max. 1.7 in lb max
Conduit:		½ in - 14 NPT
Contacts:	Electrical ratings A, B Electrical rating C	Silver Gold
Switching options:		Snap action contacts



SIDE ROTARY

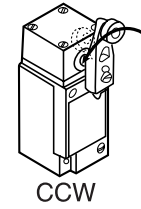
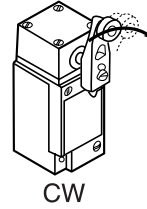


Side rotary, momentary action

The momentary action listings shown are factory assembled with the head adjusted for both clockwise (CW) and counterclockwise (CCW) operation. The shaft of side rotary heads face the front (label side of switch).

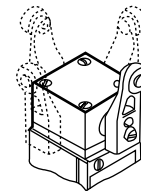
Actuation direction

A simple field adjustment converts switch to accept actuation from one or both directions. For ready reference, adjustment instructions are cast into the internal lid of side rotary heads.



Head orientation

The head may be orientated and locked in any of four 90° positions.



Momentary action switches can be factory assembled for operation in one direction only and/or with the shaft facing the rear or either side. Contact Honeywell for more information.

OPTIONS

Standard

Pretravel:		15° max.
Differential travel:	SPDT	5° max.
	DPDT	7° max.
Overtravel:		60° min.

Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSA1A
SPDT		C	LSA1E
DPDT	¼ in	B	LSA2B
DPDT		B	LSA6B
DPDT		C	LSA6S
SPDT	20 mm	A	LS4A1A
DPDT	20 mm	B	LS4A2B

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSA3K
DPDT	¼ in	B	LSA4L
SPDT	20 mm	A	LS4A3K

Low differential travel

Pretravel:		9° max.
Differential travel:	SPDT	3° max.
	DPDT	4° max.
Overtravel:		66° min.

Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSP1A
SPDT	C	LSP1E
DPDT	B	LSP2B
DPDT	B	LSP6B
DPDT	C	LSP6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSP3K
DPDT	¼ in	B	LSP4L

Low torque

Pretravel:		15° max.
Differential travel:	SPDT	5° max.
	DPDT	7° max.
Overtravel:		60° min.

Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSR1A
SPDT		C	LSR1E
DPDT	¼ in	B	LSR2B
DPDT		B	LSR6B
DPDT		C	LSR6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSR3K
DPDT	¼ in	B	LSR4L

Low differential, low torque

Pretravel:		9° max.
Differential travel:	SPDT	3° max.
	DPDT	4° max.
Overtravel:		66° min.

Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSH1A
SPDT		C	LSH1E
DPDT	¼ in	B	LSH2B
DPDT		B	LSH6B
DPDT		C	LSH6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSH3K
DPDT	¼ in	B	LSH4L

5° Pretravel

Pretravel:		5° max.
Differential travel:	SPDT	3° max.
	DPDT	4° max.
Overtravel:		70° min.

Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSU1A
SPDT		C	LSU1E
DPDT	¼ in	B	LSU2B
DPDT		B	LSU6B
DPDT		C	LSU6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSU3K
DPDT	¼ in	B	LSU4L

Side rotary, additional circuitry/ action

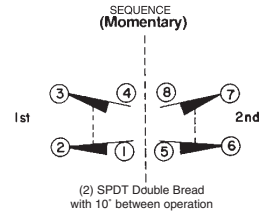
The following listings, sequential, centre neutral and maintained switches, are assembled with the operating shaft facing front. The user can position and lock the head with the shaft to rear or either side. They can also be factory assembled with the shaft to rear or either side. Contact Honeywell for more information.

OPTIONS

Sequential

One pole operates before the other in each direction, with 10° lever travel between operations.

Pretravel:	1st pole 15° max.
	2nd pole additional 10° max.
Differential travel:	Each pole 5° max.
Overtravel:	48° min.
Switching options:	



Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¼ in	B	LSL2C
DPDT		B	LSL6C

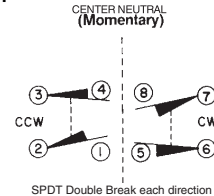
Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¼ in	B	LSL4M
DPDT		B	LSL7M

Centre neutral

One pole operates on clockwise rotation, the other on counterclockwise rotation.

Pretravel:	18° max.
Differential travel:	10° max.
Overtravel:	57° min.
Switching options:	



Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¼ in	B	LSM2D
SPDT	20 mm	B	LS4M2D
DPDT		B	LSM6D

Non plug in

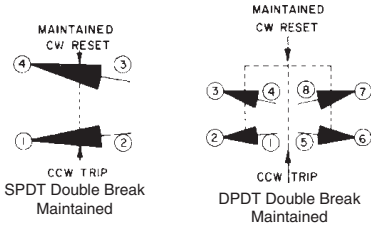
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¼ in	B	LSM4N
DPDT		B	LSM7N

**HDLS Series
Side rotary actuated
switches (continued)**

Maintained contact, 2 position

Operation is maintained on counterclockwise rotation, reset on clockwise rotation and vice versa.

Pretravel: 65° max.
Differential travel: 40° max.
Overtravel: 20° min.
Switching options: SPDT DPDT



Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSN1A
DPDT	B	LSN6B

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSN3K
DPDT	B	LSN7L

Plunger actuated switches

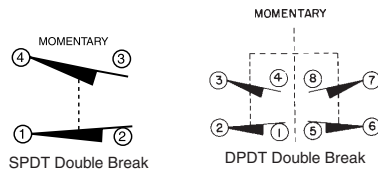
HDLS plunger actuated switches are available with either top or side facing plungers for application flexibility. Switches with adjustable plungers simplify installation. They have a hex setscrew and locknut on the plunger, providing an adjustment range of 0.25 in (6.35 mm).

Assembled conditions

The listing shown are factory assembled with side plungers facing front (label side of switch); rollers on side plungers are in horizontal position. Rollers on top plunger switches are parallel to mounting surface. Other options are available. Contact Honeywell for more information.

Approvals: NEMA 1, 3, 4, 4X, 6, 6P, 12, 13
UL, CSA, CE
Conduit: ½ in - 14 NPT

Contacts: Electrical ratings A, B Silver
Electrical rating C Gold
Switching options: Snap action contacts
SPDT DPDT

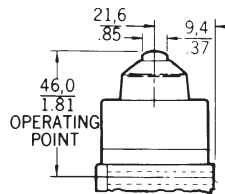


Top plungers, momentary action

Pretravel: 1,78 mm (0.07 in) max.
Differential travel: SPDT 0,38 mm (0.015 in) max.
DPDT 0,51 mm (0.02 in) max.
Overtravel: 4,83 mm (0.19 in) max.
Operating force: 17,8 N m (4 lb) max.

OPTIONS

Top pin plunger



Operating point: 45,8 mm ± 0,76
1.805 in ± 0.030

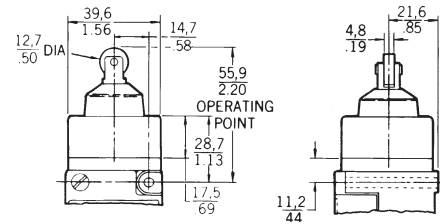
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSC1A
SPDT	C	LSC1E
DPDT	B	LSC6B
DPDT	C	LSC6S

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSC3K
DPDT	B	LSC7L

Top roller plunger



Operating point: 55,9 mm ± 1,02
2,20 in ± 0.040

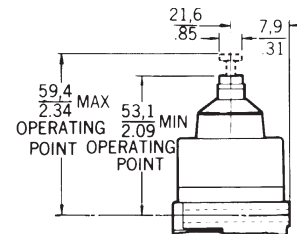
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSD1A
SPDT	C	LSD1E
DPDT	B	LSD6B
DPDT	C	LSD6S

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSD3K
DPDT	B	LSD7L

Adjustable plunger



Operating point: 53,0 mm to 59,3 mm
2.085 in to 2.335 in

Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSV1A
SPDT	C	LSV1E
DPDT	B	LSV6B
DPDT	C	LSV6S

Non plug in

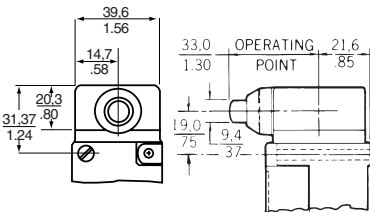
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSV3K
DPDT	B	LSV7L

Side plungers, momentary action

Pretravel: 2,54 mm (0.100 in) max.
Differential travel:
 SPDT 0,64 mm (0.025 in) max.
 DPDT 0,89 mm (0.035 in) max.
Overtravel: 4,83 mm (0.19 in) min.
Operating force: 26,7 N m (6 lb) max.

OPTIONS

Side pin plunger



Operating point: 33 mm ± 0,76
 1.300 in ± 0.030

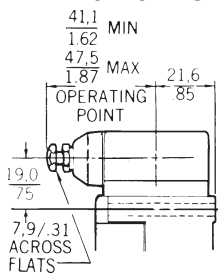
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSE1A
SPDT	C	LSE1E
DPDT	B	LSE6B
DPDT	C	LSE6S

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSE3K
DPDT	B	LSE7L

Adjustable side pin plunger



Operating point: 41,0 mm to 47,4 mm
 1.615 in to 1.865 in

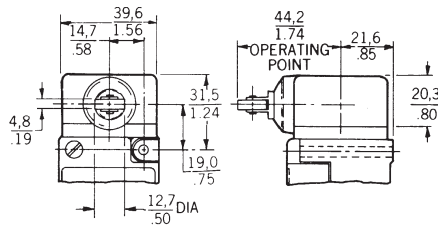
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSW1A
SPDT	C	LSW1E
DPDT	B	LSW6B
DPDT	C	LSW6S

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSW3K
DPDT	B	LSW7L

Side roller plunger



Operating point: 44,1 mm ± 1,02
 1.735 in ± 0.040

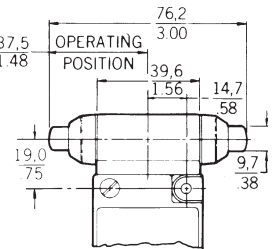
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSF1A
SPDT	C	LSF1E
DPDT	B	LSF6B
DPDT	C	LSF6S

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSF3K
DPDT	B	LSF7L

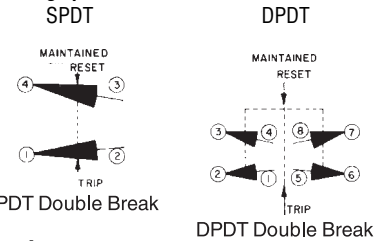
Side plunger, maintained circuitry



LSG contact transfer is maintained after either plunger is operated. Operation of other plunger resets switch.

Pretravel: 4,32 mm (0.170 in) max.
Differential travel:
 SPDT 2,29 mm (0.090 in) max.
 DPDT 2,29 mm (0.090 in) max.
Overtravel: 2,00 mm (0.0.80 in) max.
Operating force: 44,5 N m (10 lb) min.
Operating point: 37,6 ± 0,76 mm
 1.48 ± 0.030 in

Switching options:



Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSG1A
SPDT	C	LSG1E
DPDT	B	LSG6B
DPDT	C	LSG6S

Non plug in

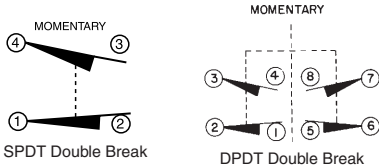
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSG3K
DPDT	B	LSG7L

HDLS Series Wobble actuated switches

Momentary action wobble actuated switches have flexible levers which may be operated with any movement, except direct pull.

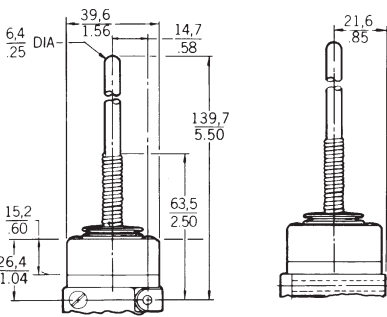
Approvals: NEMA 1, 3, 4, 4X, 6, 6P, 12, 13
UL, CSA, CE

Conduit: ½ in - 14 NPT
Contacts: Silver
Electrical ratings A, B
Switching options: Snap action contacts
SPDT DPDT



OPTIONS

Plastic rod



Pretravel (approx) (Radius): 25,4 mm (1.0 in)
Operating force: 2,78 g (10 oz) max.

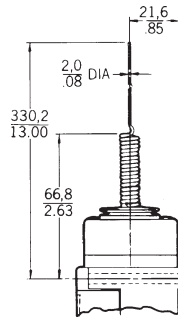
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSJ1A-7A
DPDT	B	LSJ6B-7A

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSJ3K-7A
DPDT	B	LSJ7L-7A

Spring wire



Pretravel (approx) (Radius): 102,0 mm (4.0 in)
Operating force: 1,39 g (5 oz) max.

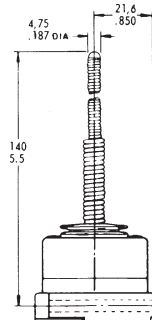
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSJ1A-7M
DPDT	B	LSJ6B-7M

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSJ3K-7M
DPDT	B	LSJ7L-7M

Cable



Pretravel (approx) (Radius): 38,0 mm (1.5 in)
Operating force: 1,95 N (7.0 oz) max.

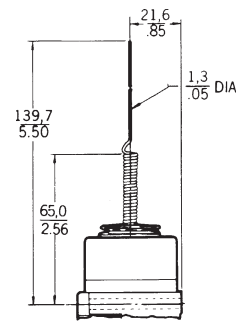
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSJ1A-7N
DPDT	B	LSJ6B-7N

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSJ3K-7N
DPDT	B	LSJ7L-7N

Cat whisker



Pretravel (approx) (Radius): 51,0 mm (2.0 in)
Operating force: 1,39 N (5.0 oz) max.

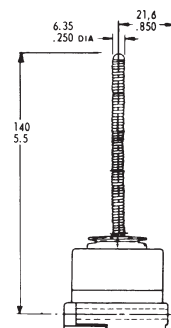
Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSK1A-8A
DPDT	B	LSK6B-8A

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSK3K-8A
DPDT	B	LSK7L-8A

Coil spring



Pretravel (approx) (Radius): 51,0 mm (2.0 in)
Operating force: 1,95 N (7.0 oz) max.

Plug in

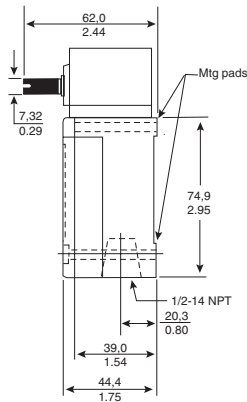
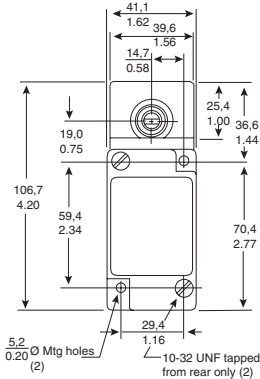
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSK1A-8C
DPDT	B	LSK6B-8C

Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSK3K-8C
DPDT	B	LSK7L-8C

Fully potted HDLS

Fully potted HDLS are designed to meet the demanding requirements of NEMA 1, 3, 4, 6, 6P and 13 for wet applications where the integrity of the conduit seal must be assured. These switches are the same as the standard HDLS non plug in limit switch except that the conduit entrance is factory sealed to simplify installation and ensure integrity of the conduit seal. They are epoxy filled and supplied with six feet of 5 or 9 conductor 16 gauge STO cable. Fully potted HDLS are built with all Fluorocarbon seals. Sealing exceeds Nema 6P. Low temperature versions are available, see page 46 for temperature range and how to order.



Approvals:

Connector NEMA 1, 4, 6, 6P, 12, 13
 Cable NEMA 1, 4, 6, 6P, 12
 UL, CSA, CE

Operating temperature:

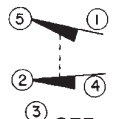
Cable versions -12 °C to 105 °C
 10 °F to 221 °F
 Connector versions -12 °C to 121 °C
 10 °F to 250 °F

Cable length:

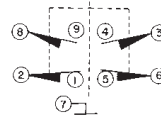
3,658 m (12 ft)

Contacts: Electrical ratings A, B Silver

Switching options: Snap action contacts



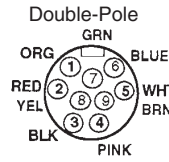
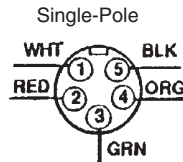
SPDT Double-Break Elect.
 Rating: A



DPDT Double-Break Elect.
 Rating: B

Wiring diagrams:

Numbers = Connectors
 Colours = Cables



Actuators

Side rotary actuated switches

Levers: Levers for side rotary types are ordered separately (see pages 71-73 for details)

OPTIONS

Standard

Pretravel:		15° max.
Differential travel:	SPDT	5° max.
	DPDT	7° max.
Overtravel:		60° min.
Operating force:		0,45 N m (4 in lb) max.

CONTACT TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT Cable	A	LSYAC3KP-FP
DPDT Cable	B	LSYAC4LX-FP
SPDT 5-pin Connector	A	LSYAC3KQ-FP
DPDT 9-pin Connector	B	LSYAC7LR-FP

Low differential travel

Pretravel:		9° max.
Differential travel:	SPDT	3° max.
	DPDT	4° max.
Overtravel:		66° min.
Operating force:		0,45 N m (4 in lb) max.

CONTACT TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT Cable	A	LSYPC3KP-FP
DPDT Cable	B	LSYPC4LX-FP
SPDT 5-pin Connector	A	LSYPC3KQ-FP
DPDT 9-pin Connector	B	LSYPC7LR-FP

5° Pretravel

Pretravel:		5° max.
Differential travel:	SPDT	3° max.
Overtravel:		70° min.
Operating force:		0,45 N m (4 in lb) max.

CONTACT TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT Cable	A	LSYUC3KP-FP
SPDT 5-pin Connector	A	LSYUC3KQ-FP

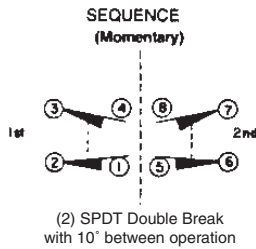
For low temperature versions substitute "Y_B" for "Y_C"

Fully potted HDLS (continued)

Side rotary actuated switches

Sequential

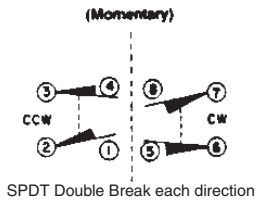
Pretravel: 1st pole 15° max.
2nd pole additional 10° max.
Differential travel: Each pole 5° max.
Overtravel: 48° max.
Operating force: 0,45 N m (4 in lb) max.
Switching options: DPDT



CONTACT	TERMINATION	ELECTRICAL RATING	REFERENCE
DPDT	Cable	B	LSYLC4MX-FP
DPDT	9-pin Connector	B	LSYLC7MR-FP

Centre neutral

Pretravel: 18° max.
Differential travel: 10° max.
Overtravel: 57° min.
Operating force: 0,45 N m (4 in lb) max.
Switching options: DPDT



CONTACT	TERMINATION	ELECTRICAL RATING	REFERENCE
DPDT	Cable	B	LSYMC4NX-FP
DPDT	9-pin Connector	B	LSYMC7NR-FP

For low temperature versions substitute "Y_B" for "Y_C"

Plunger actuated switches

OPTIONS

Top plungers

Pretravel: 1,78 mm (0.07 in) max.
Differential travel: SPDT 0,38 mm (0.015 in) max.
DPDT 0,51 mm (0.02 in) max.
Overtravel: 4,83 mm (0.19 in) min.
Operating force: 17,8 N m (4 lb) max.

Top pin plunger

CONTACT	TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT	Cable	A	LSYCC3KP-FP
DPDT	Cable	B	LSYCC4LX-FP
SPDT	5-pin Connector	A	LSYCC3KQ-FP
DPDT	9-pin Connector	B	LSYCC7LR-FP

Top roller plunger

CONTACT	TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT	Cable	A	LSYDC3KP-FP
DPDT	Cable	B	LSYDC4LX-FP
SPDT	5-pin Connector	A	LSYDC3KQ-FP
DPDT	9-pin Connector	B	LSYDC7LR-FP

Side plungers

Pretravel: 2,54 mm (0.100 in) max.
Differential travel: SPDT 0,38 mm (0.015 in) max.
DPDT 0,51 mm (0.02 in) max.
Overtravel: 4,83 mm (0.19 in) min.
Operating force: 26,7 N m (6 lb) max.

Side pin plunger

CONTACT	TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT	Cable	A	LSYEC3KP-FP
DPDT	Cable	B	LSYEC4LX-FP
SPDT	5-pin Connector	A	LSYEC3KQ-FP
DPDT	9-pin Connector	B	LSYEC7LR-FP

Wobble actuated switches

Actuator codes **:	Head style*
7A	Delrin rod J
7M	Spring wire J
8A	Cat whisker K
7N	Cable J
8C	Coil spring K

CONTACT	TERMINATION	ELECTRICAL RATING	REFERENCE
SPDT	Cable	A	LSY*C3KP-**FP
DPDT	Cable	B	LSY*C4LX-**FP
SPDT	5-pin Connector	A	LSY*C3KQ-**FP
DPDT	9-pin Connector	B	LSY*C7LR-**FP

Stainless steel HDLS



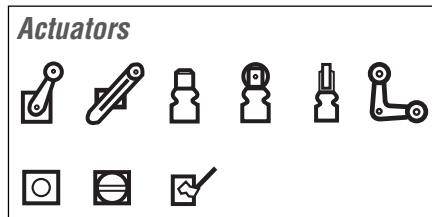
HDLS stainless steel switches are designed for use in highly corrosive environments such as petro-chemical plants, food processing plants, shipboard and dockside locations. The type 316 cast stainless steel body is designed to minimise crevices where food particles could become trapped. The actuator, 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 pressurised steam cleaning.

Approvals: NEMA 1, 3, 3R, 4, 4X, 6, 6P, 12, 13 UL, CSA, CE

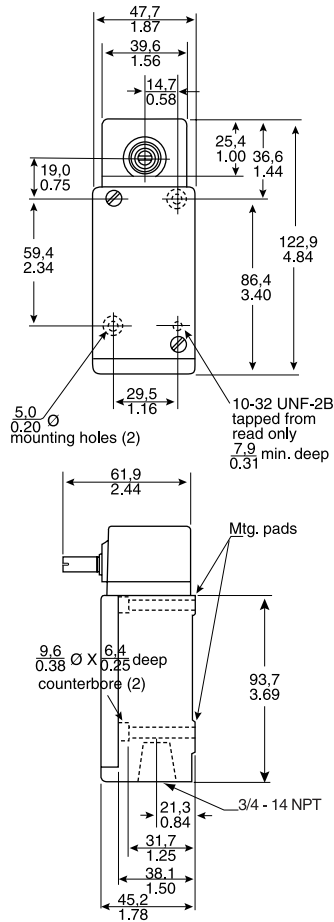
Operating temperature: -12 °C to 121 °C
10 °F to 250 °F

Contacts: Electrical ratings A, B Silver

Levers: Levers for side rotary types are ordered separately (see pages 71-73 for details)



Side rotary actuated switches



OPTIONS

Standard

Pretravel: 15° max.
Differential travel: SPDT 5° max.
DPDT 7° max.
Overtravel: 60° min

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LS2A4K
DPDT	B	LS2A4L

Low Torque

Pretravel: 9° max.
Differential travel: SPDT 3° max.
DPDT 4° max.
Overtravel: 60° min.

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LS2H4K
DPDT	B	LS2H4L

Centre neutral

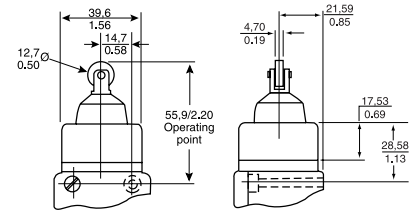
Pretravel: 18° max.
Differential travel: DPDT 10° max.
Overtravel: 57° min.

CONTACT	ELECTRICAL RATING	REFERENCE
DPDT	B	LS2M4N

Plunger actuated switches

OPTIONS

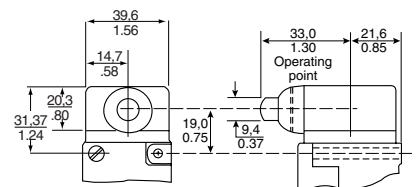
Top roller plunger



Pretravel: 1.78 mm (0.07 in) max.
Differential travel: 0.38 mm (0.015 in) max.
Overtravel: 4.83 mm (0.19 in) min.
Operating point: 55.9 mm ± 1.02
2.20 in ± 0.04

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LS2D4K
DPDT	B	LS2D4L

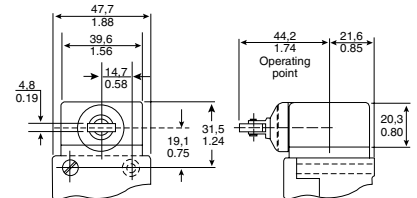
Side pin plunger



Pretravel: 2.54 mm (1.00 in) max.
Differential travel: 0.64 mm (0.025 in) max.
Overtravel: 4.83 mm (0.19 in) min.
Operating point: 33 mm ± 0.76
1.3 in ± 0.03

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LS2E4K
DPDT	B	LS2E4L

Side roller plunger



Pretravel: 2.54 mm (1.00 in) max.
Differential travel: 0.64 mm (0.025 in) max.
Overtravel: 4.83 mm (0.19 in) min.
Operating point: 44.1 mm ± 1.02
1.73 in ± 0.04

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LS2F4K
DPDT	B	LS2F4L

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