How to use this catalogue

For each referenced listing, key specification parameters, descriptions and mounting drawing information are presented. These illustrate our capabilities while the specifications include allow easy differentiation between similar products.

There are, of course, many more product options available. Full product specification may be accessed on our website (www.honeywell.com/sensing). At the Home page enter the catalogue listing reference in the SEARCH box and click GO! This will take you directly to the interactive catalogue/specification search tables for this listing. Alternatively select and click the interactive catalogue icon on the Home page and then choose a product category against which to do a specification search.

Also on the website you can access installation instructions, application notes, Frequently Asked Questions (FAQs), selection guides and additional technical information.

Mounting dimensions

Mounting dimensions shown in each product section are for reference only. For exact information, request an engineering drawing from you nearest Honeywell sales office or visit our website and access it through the interactive catalogue. Where dual dimensions are shown on mounting drawings, the first or upper one is millimetres (mm) and the second or lower is inches (in). Where single dimensions are shown, they are millimetres (mm), unless otherwise stated.

To order these products

Simply contact your local Honeywell Sales Representative, your Honeywell Distributor or your local Honeywell office.

If you need a product not listed in this catalogue

One of Honeywell's strengths is in application-specific packaging of sensing technology. Honeywell provides many variations of our basic switches and sensors. For more information, either browse the full interactive catalogue available on our website, or telephone the following numbers:

USA	1-800-537-6945/1-815-537-6945		
UK	+44 (0)1698 481 481	Germany	+49 69 8064 444
France	+33 1 60 19 80 40	Italy	+39 02 92146 450/456

More information on Honeywell Sensing & Control products and how to contact us can be found on our website.

Interactive Catalog
www.honeywell.com/sensing

Select the right product – select the right supplier

Delivering excellence in system critical sensing solutions

A system is critical if the quality, reliability, delivery and customer service associated with a component part is essential to the performance of the operation or end product. If a sensor or a switch is critical to the performance, cost effectiveness, delivery or safety of a product or operation then it's systems critical. It is therefore a defining element in the performance of the system under whatever conditions apply. Failure of the component - or failure of delivery of the component - results in lost productivity, increased costs or a catastrophic event such as a shutdown. Therefore selecting the right product is essential. It can make the difference between success and failure.

Honeywell Sensing and Control – delivering excellence

To select the right product, first select the right supplier. To deliver the right products for our customers' applications we listen to them to understand their needs. Using techniques such as "Voice of the Customer and "Concept Engineering" we make sure that the products and solutions we deliver are the right ones. As part of Honeywell we can use local knowledge and understanding combined with global expertise and resources to achieve this. We can deploy many key technologies to bring innovative solutions to customers' problems.

Our products are manufactured to work well and to last. We use Six Sigma Plus productivity to ensure this is the case. We have award winning manufacturing facilities around the world and recognised world class business excellence in manufacturing and supply chain management to deliver on time, anywhere in the world.

Our e-business approach offers instant access to product information, technical support and application knowledge through out Internet site. Check out our powerful new interactive catalogue that can search and find the right products for customers' needs and deliver a drawing ready for incorporation in a CAD system direct to your desk.

And of course, we manage our whole business for the benefit of our customers, using an acknowledged world-class business excellence approach that incorporates Six Sigma principles.

Expanded Product Lines

As well as many new and innovative switches, this catalogue includes an expanded range of Pressure and Position Sensors, previously known under the Clarostat, NEI and Electrocorporation brand names.

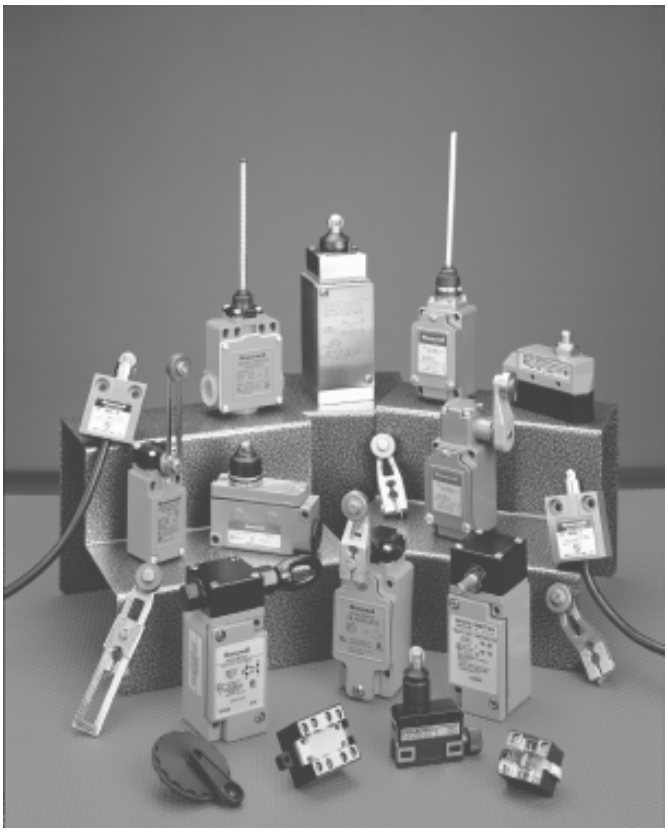
Industrial Electromechanical Limit Switches

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.

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.

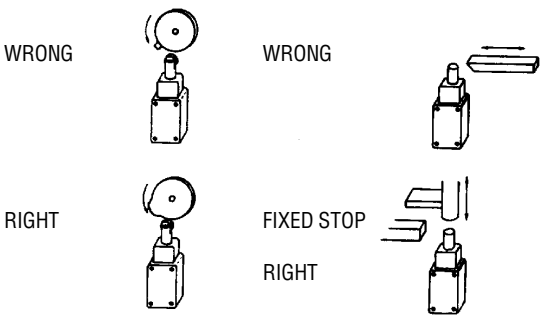
The **Utilization Category** defines the type of current carried – ac or dc – and the typical application where the switch is used.

The contact rating **Designation** relates to the Utilization Categories and defines the conventional thermal current Ith (a) rated operational current Ie (A) at rated operational voltages Ue and the VA rating.

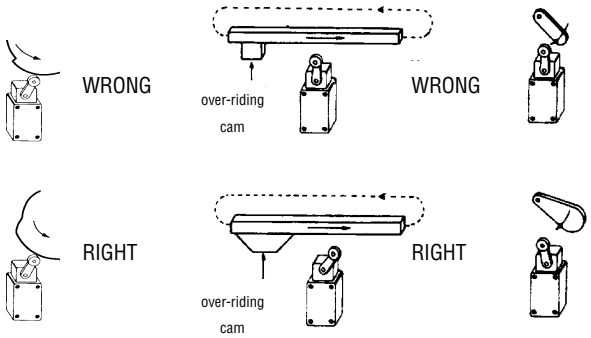
Actuators

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.

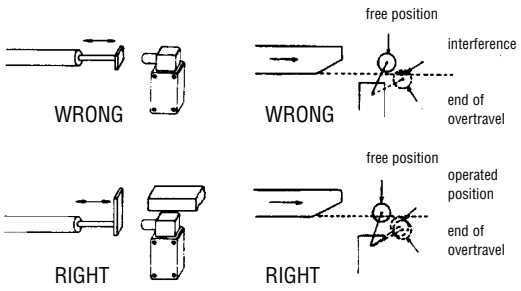
Roller lever	Top roller lever	Adjustable roller lever	Top pin plunger	Top pin plunger, boot seal
Top roller plunger	Top roller plunger, boot seal	Top roller plunger, perpendicular	Top roller plunger, perpendicular, boot seal	Ball bearing plunger
Side pin plunger	Side roller plunger	Roller lever	Yoke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



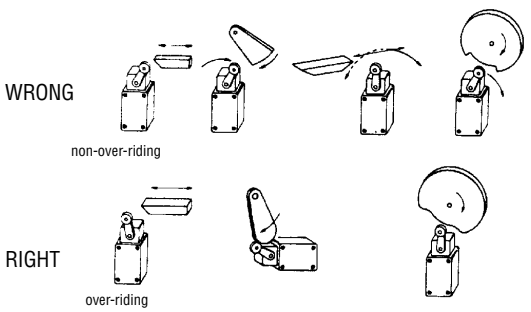
For limit switches with pushrod actuators, the actuating force should be applied as nearly as possible in line with the pushrod axis.



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



Operating mechanisms for limit switches shoud 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.

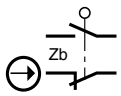
Except as might otherwise be noted, all references to products relative to NEMA enclosure type are based on Honeywell evaluation and Underwriter's Laboratory (UL) tested. This NEMA Standards Publication does test for environmental conditions such as corrosion, rust, icing, oil, and coolants. The IEC 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

New

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



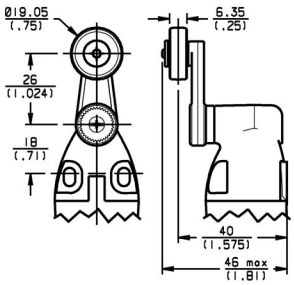
Actuators

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)

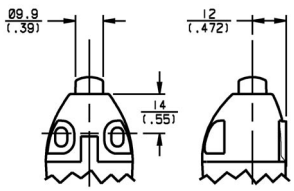
OPTIONS

Side rotary plastic roller



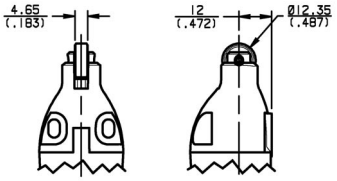
REFERENCE
EVN2000A

Top pin plunger



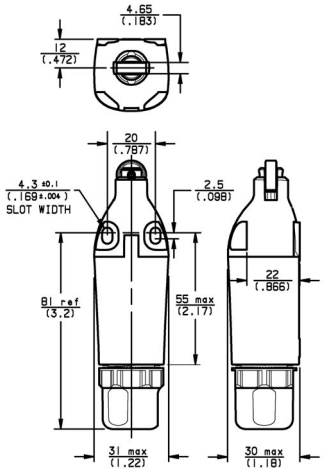
REFERENCE
EVN2000B

Top roller plunger, perpendicular



REFERENCE
EVN2000D

Top roller plunger, parallel

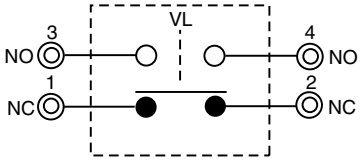


REFERENCE
EVN2000C

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:	
SPDT	Single Pole, Double Throw, Double break (1NC/1NO)



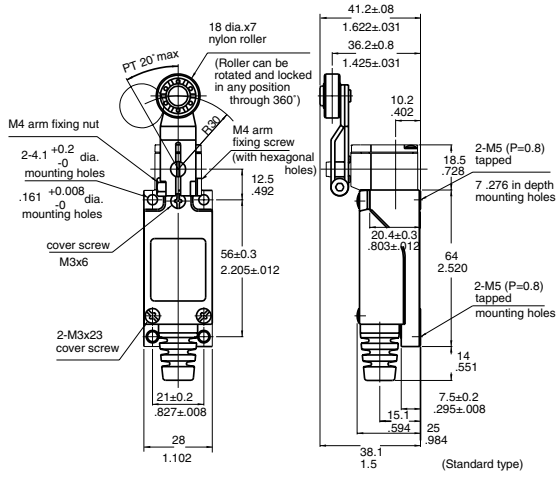
Actuators

Side rotary actuated switches

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

OPTIONS

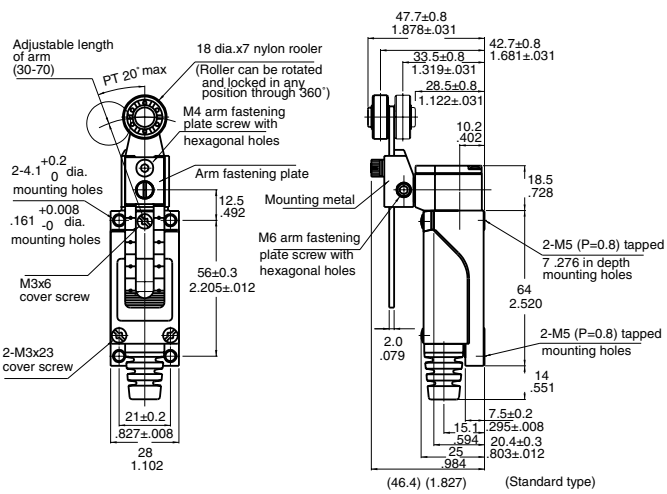
Roller lever



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

REFERENCE
SZL-VL-A

Roller lever, adjustable

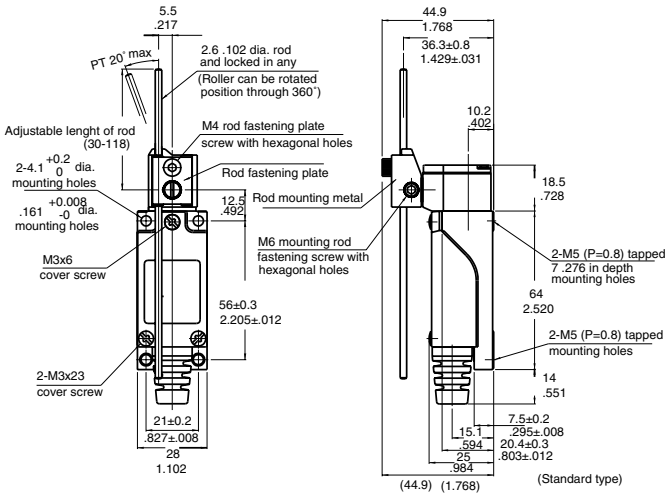


Operating torque max.: 3,35 N to 7,84 N (0.75 lb to 1.76 lb)

REFERENCE
SZL-VL-B

VL Series
Side rotary actuated switches (continued)

Adjustable rod



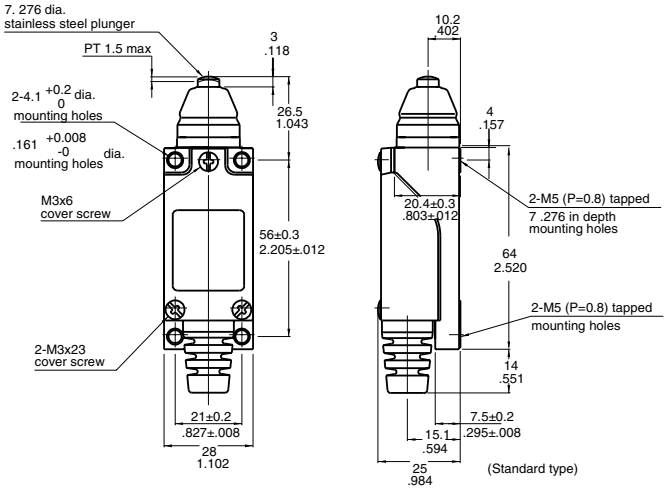
Operating torque max.: 2 N to 7,84 N (0.45 lb to 1.76 lb)

REFERENCE
SZL-VL-C

Plunger actuated switches

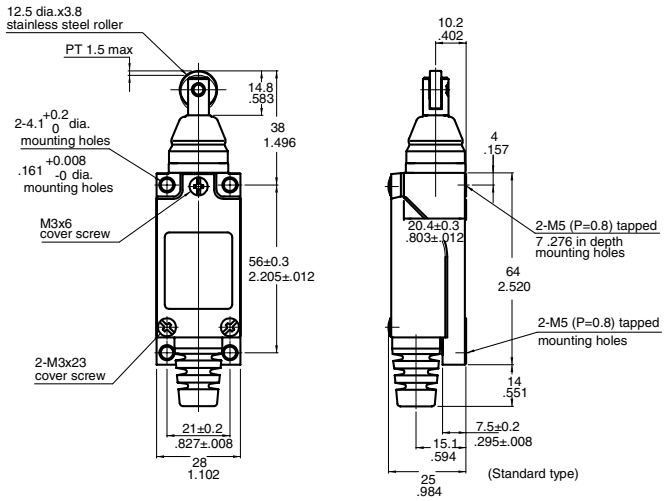
Pretravel max. (PT): 1,5 mm (0.060 in)
Overtravel min. (OT): 4,0 mm (0.158 in)
Differential travel max. (DT): 0,7 mm (0.028 in)
Operating force max. (OF): 8,83 N (2 lb)

Top pin plunger



REFERENCE
SZL-VL-D

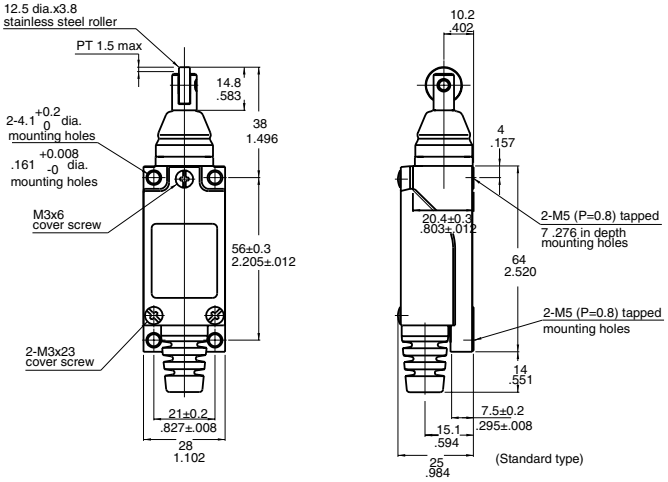
Top roller plunger



REFERENCE
SZL-VL-H

Plunger actuated switches (continued)

Cross roller plunger

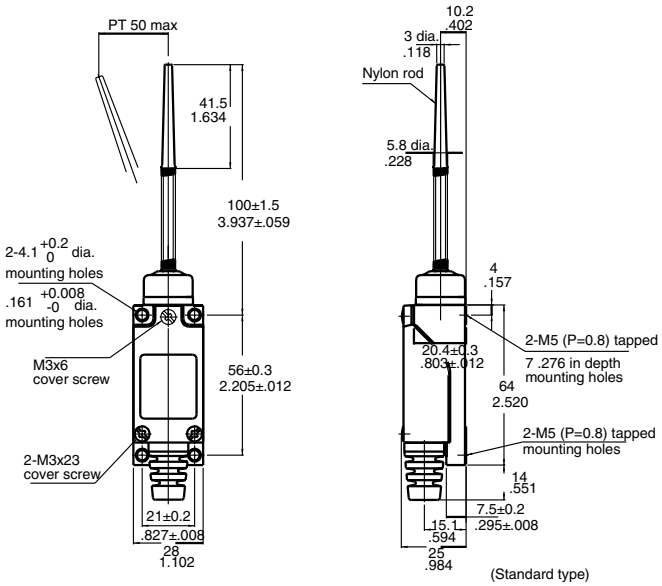


REFERENCE
SZL-VL-E

Wobble actuated switches

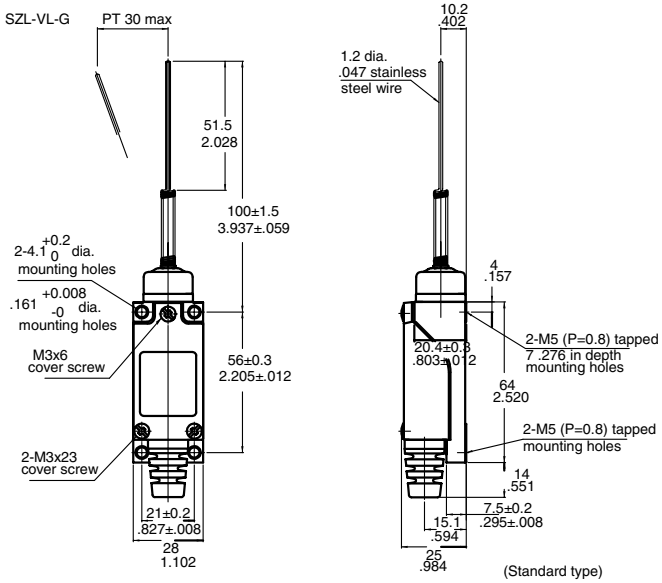
Pretravel max. (PT): 30 mm (1.18 in)
Overtravel min. (OT): 20 mm (0.788 in)
Operating force max. (OF): 0,88 N (0.2 lb)

Plastic rod, coil spring



REFERENCE
SZL-VL-F

Coil spring



REFERENCE
SZL-VL-G

GLS Series Global Limit Switches

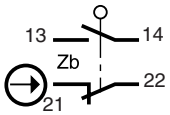
GLS Series switches offer a complete range of CENELEC approved products, and are suitable for most industrial applications.

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.

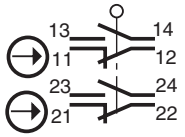
The miniature EN 50047 product range offers the user a choice of plastic, metal and three conduit versions which are all mounting (20 mm x 22 mm) compatible with each other. The EN 50047 standard defines how the switches are mounted and the switching characteristics for fixed side rotary lever, top pin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

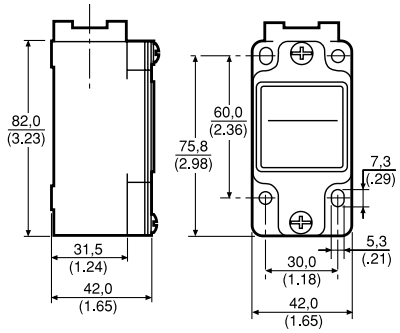
IEC947-5-1/EN60947-5-1								
Designation & Utilization Category		Rated operational current Ie (A) at rated operational voltage Ue						VA rating	
		120V	240V	380V	480V	500V	600V	Make	Break
AC15	A600	6	3	1.9	1.5	1.4	1.2	7200	720
AC15	A300	6	3	-	-	-	-	7200	720
AC15	B300	3	1.5	-	-	-	-	3600	360
AC14	D300	0.6	0.3	-	-	-	-	432	72
		125V	250V						
DC13	Q300	0.55	0.27					69	69
DC13	R300	0.22	0.1					28	28

Actuators

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˚	—	

GLA EN 50041
Standard metal body

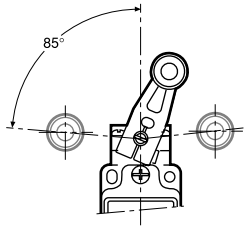


Mechanical life: up to 15 million
Sealing: IP 67, NEMA 1, 4, 12, 13
Operating temperature: -25 °C to 85 °C (-13 °F to 185 °F)
Approvals: IEC/EN 60947-5-1
AC15 A300/A600
DC13 Q300
UL, CSA, CE

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

HEAD OPTIONS

Side rotary



No lever

Levers: Levers for side rotary types are ordered separately (see pages 69-71 for details)

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

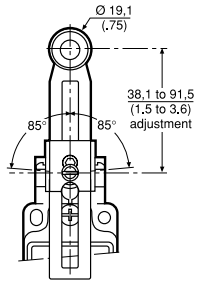
Plastic roller

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



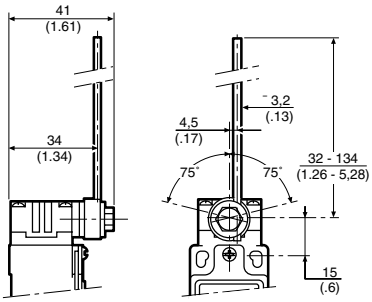
Plastic roller

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

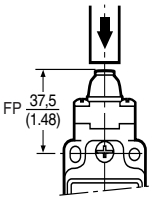
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A2B
DPDT	½ in NPT	GLAA20A2B
SPDT	PG 13,5	GLAB01A2B
DPDT	PG 13,5	GLAB20A2B
SPDT	20 mm	GLAC01A2B
DPDT	20 mm	GLAC20A2B

Side rotary adjustable metal rod



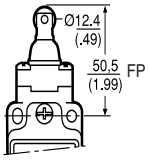
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01A4J
DPDT	½ in NPT	GLAA20A4J
SPDT	PG 13,5	GLAB01A4J
DPDT	PG 13,5	GLAB20A4J
SPDT	20 mm	GLAC01A4J

Top pin plunger



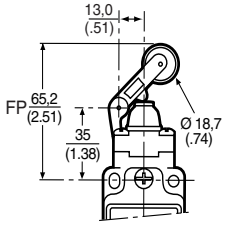
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01B
DPDT	½ in NPT	GLAA20B
SPDT	PG 13,5	GLAB01B
DPDT	PG 13,5	GLAB20B
SPDT	20 mm	GLAC01B
DPDT	20 mm	GLAC20B

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

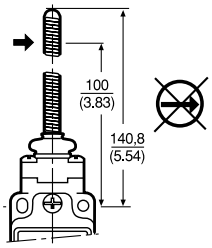
Top roller lever



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

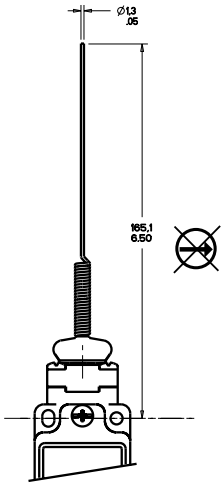
GLA EN 50041
Standard metal body (continued)

Wobble, coil actuator



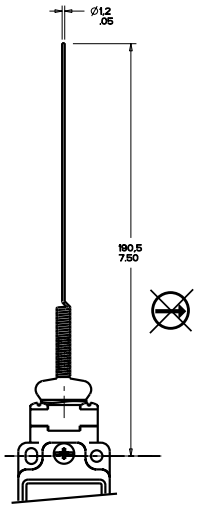
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01E7B
SPDT	PG 13,5	GLAB01E7B
DPDT	PG 13,5	GLAB20E7B
SPDT	20 mm	GLAC01E7B
DPDT	20 mm	GLAC20E7B

Coil wobble head, stainless steel spring actuator



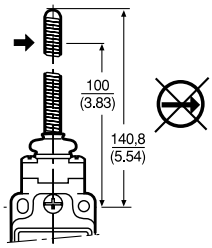
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01E7D

Wobble, cat whisker



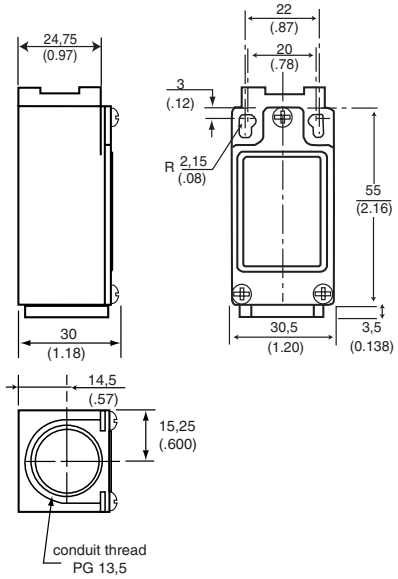
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLAA01K8B
SPDT	PG 13,5	GLAB01K8B

Wobble, cat whisker, coil actuator



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

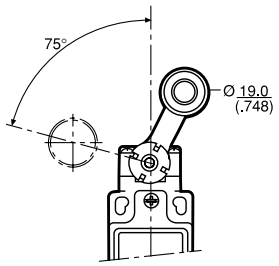
GLC EN 50047
Standard metal body



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

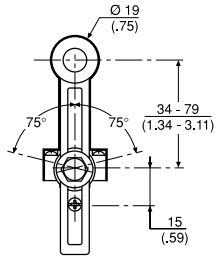
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A1A
SPDT	PG 13,5	GLCB01A1A

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



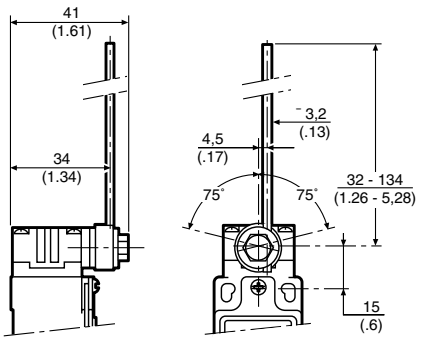
Plastic roller

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

Metal roller

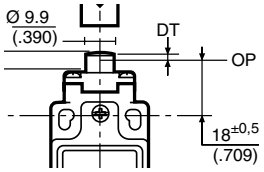
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A2B
SPDT	PG 13,5	GLCB01A2B
SPDT	20 mm	GLCC01A2B

Side rotary adjustable, metal rod



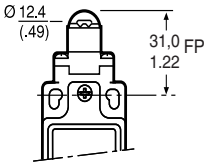
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01A4J
SPDT	PG 13,5	GLCB01A4J

Top pin plunger



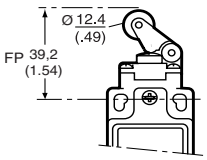
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01B
SPDT	PG 13,5	GLCB01B
SPDT	20 mm	GLCC01B

Top roller plunger



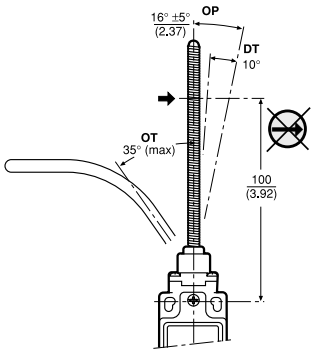
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01C
SPDT	PG 13,5	GLCB01C
SPDT	20 mm	GLCC01C

Top roller lever



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

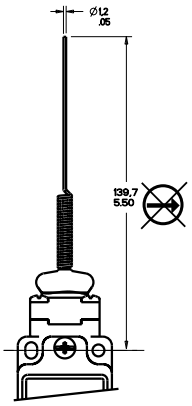
Wobble, coil actuator



Mechanical life: up to 5 million

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLCA01E7B
SPDT	PG 13.5	GLCB01E7B
SPDT	20 mm	GLCC01E7B

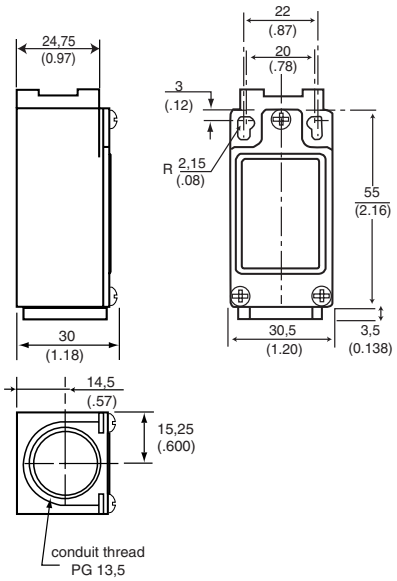
Wobble, cat whisker



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

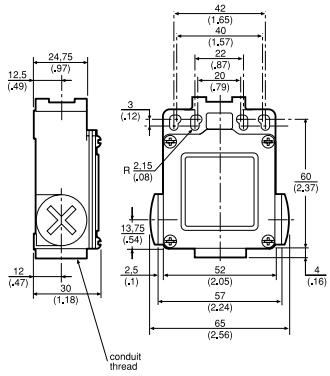
Top roller lever

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

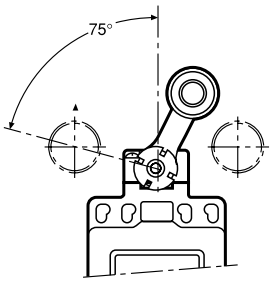
GLE EN 50047 Compatible
3 conduit
metal standard body



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

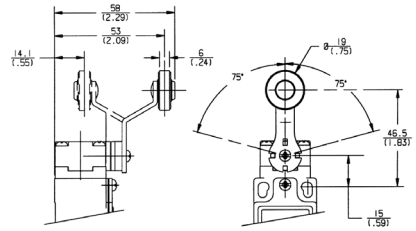
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A1A
SPDT	PG 13,5	GLEB01A1A
DPDT	PG 13,5	GLEB24A1A

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)

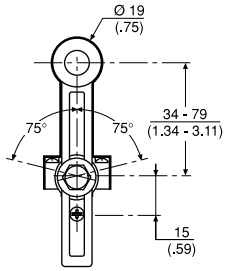
Offset side rotary roller



Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A5A
SPDT	PG 13,5	GLEB01A5A

Side rotary adjustable



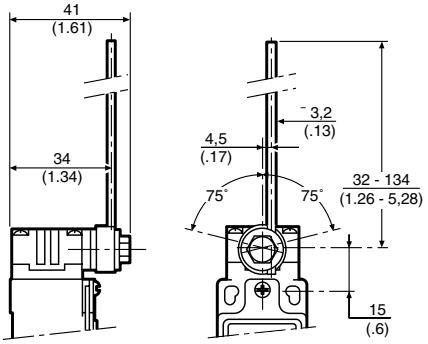
Plastic roller

CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A2A
DPDT	½ in NPT	GLEA24A2A
SPDT	PG 13,5	GLEB01A2A

Metal roller

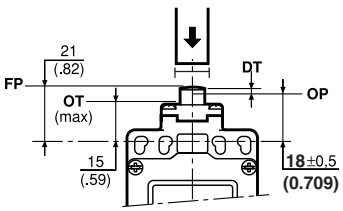
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01A2B
SPDT	PG 13,5	GLEB01A2B
DPDT	PG 13,5	GLEB24A2B

Side rotary adjustable metal rod



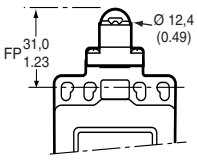
CONTACT	CONDUIT	REFERENCE
SPDT	PG 13,5	GLEB01A4J
DPDT	PG 13,5	GLEB24A4J

Top pin plunger



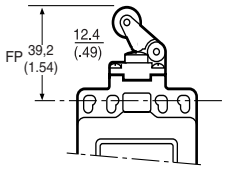
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01B
DPDT	½ in NPT	GLEA24B
SPDT	PG 13,5	GLEB01B
DPDT	PG 13,5	GLEB24B

Top roller plunger



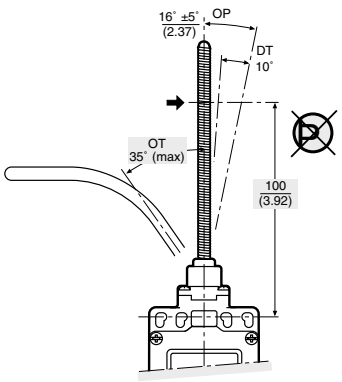
CONTACT	CONDUIT	REFERENCE
SPDT	½ in NPT	GLEA01C
DPDT	½ in NPT	GLEA24C
SPDT	PG 13,5	GLEB01C
DPDT	PG 13,5	GLEB24C
DPDT	20 mm	GLEC24C

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



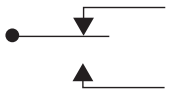
Mechanical life: up to 5 million

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.

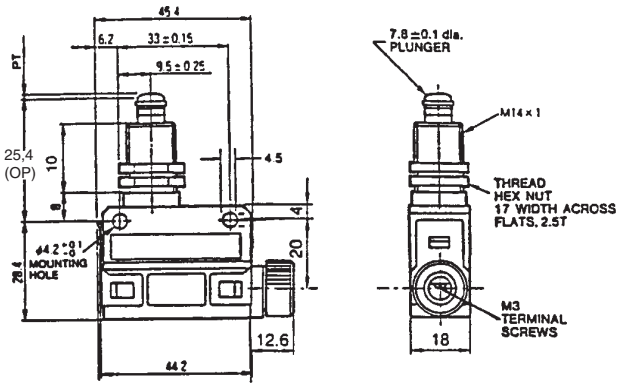
Mechanical life:		10 million
Sealing:		IP 67, NEMA 3, 4, 13
Operating temperature:		-10 °C to 70 °C (14 °F to 160 °F)
Approvals:		UL, CSA, CE
Termination:		Cable gland
Operating force max. (OF):		11,76 N (2.64 lb)
Pretravel max. (PT):		1,5 mm (0.060 in)
Overtravel min. (OT):		3,0 mm (0.118 in)
Differential travel max. (DT):		0,10 mm (0.004 in)
Electrical rating/contact:	**SL1-*** 5A - 125, 250 Vac	Silver
	SL1-* K 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)



Actuators

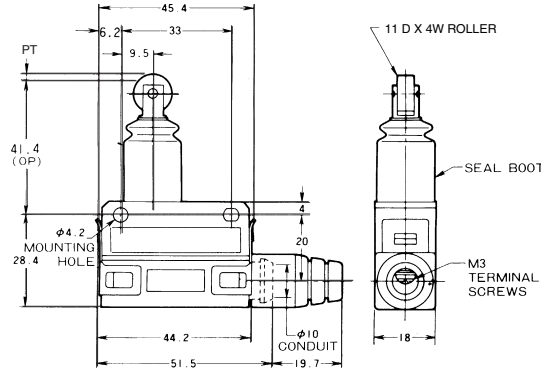
OPTIONS

Top pin plunger



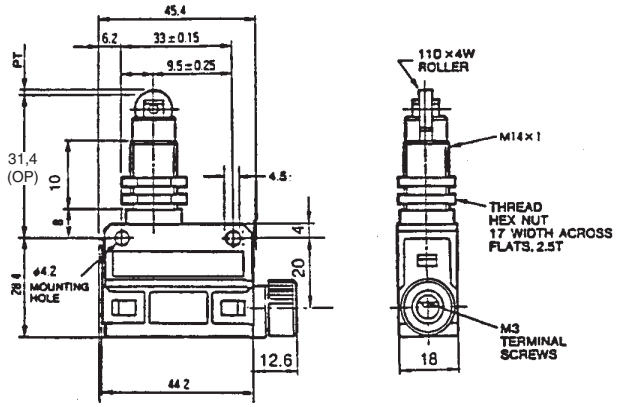
CONTACT	REFERENCE
Silver	SL1-H
Gold clad cross point	SL1-HK

Top roller plunger, parallel, boot seal



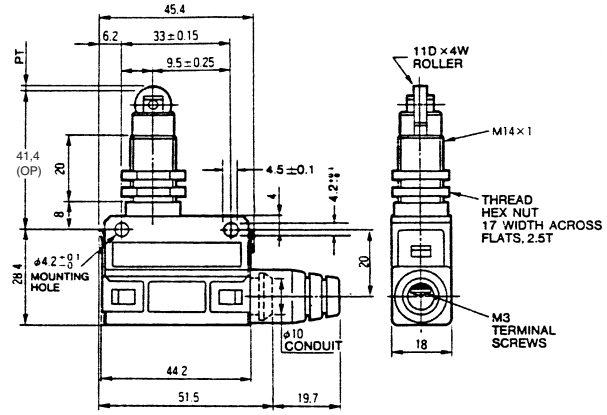
CONTACT	REFERENCE
Silver	SL1-B
Gold clad cross point	SL1-BK

Top roller plunger, parallel



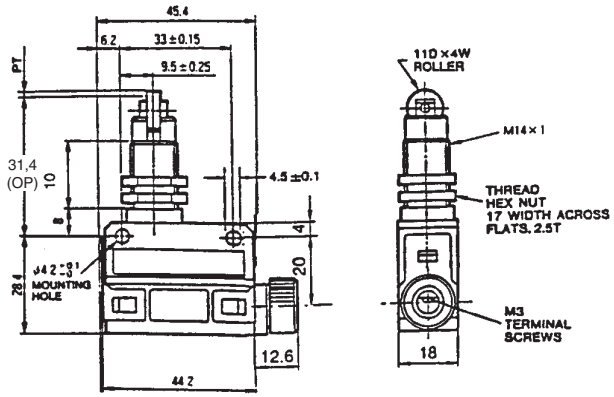
CONTACT	REFERENCE
Silver	SL1-A
Gold clad cross point	SL1-AK

Top roller plunger, long, parallel



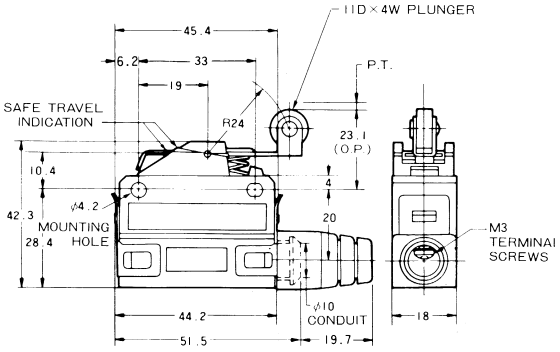
CONTACT	REFERENCE
Silver	SL1-E
Gold clad cross point	SL1-EK

Top roller plunger, perpendicular



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

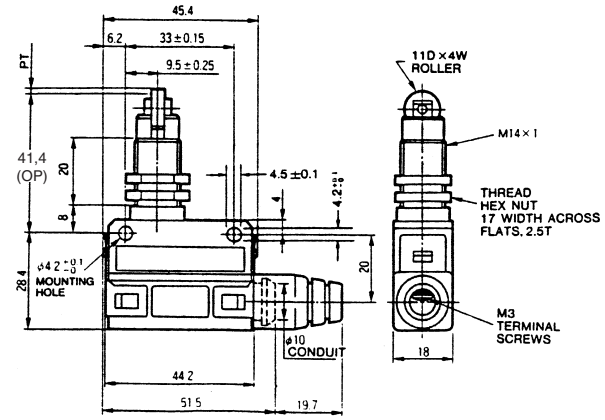
Top roller lever



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)

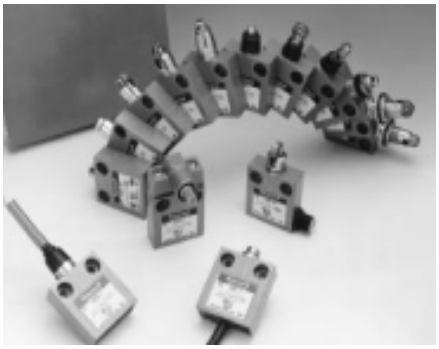
CONTACT	REFERENCE
Silver	SL1-P
Gold clad cross point	SL1-PK

Top roller plunger, long, perpendicular



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

14CE/914CE Series Miniature Enclosed Switches



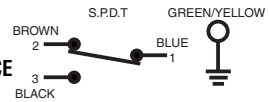
The 14CE/914CE Series offers a miniature, rugged, compact, pre-wired switch which has proved itself successful and gained wide market acceptance. The entire range of 14CE and 914CE switches has been approved to meet the requirements of the Low Voltage directive and is therefore CE marked.

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 mm² cable (14CE)
			SJTO 4 x 0,75 mm² (18 AWG) cable (914CE)
			Connector (dc), 4 pin male, M12 thread (-Q)
			Connector (ac), 4 pin male, ½ in x 20 thread (-Q1)
Switching options:	SPDT		Single Pole, Double Throw
			Snap action contacts (1NC/1NO)

914CE

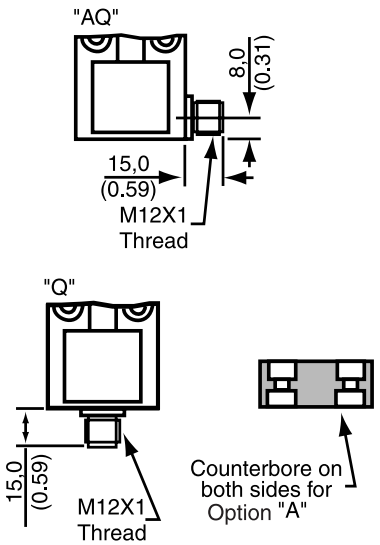
14CE

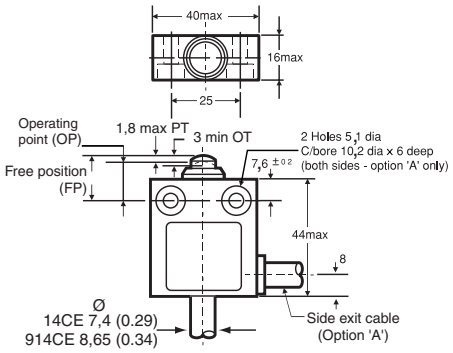


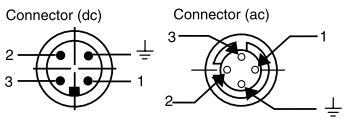
Electrical ratings:

			Amps Make	Amps 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		1 A res., 0.5 A ind., 30 Vdc		
	UL:	1 A, 125 Vac		
C	UL/CSA:	3 A, 125 or 250 Vac		

Actuators



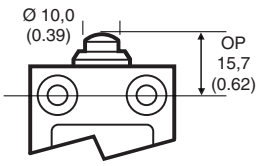




Plunger actuated switches

OPTIONS

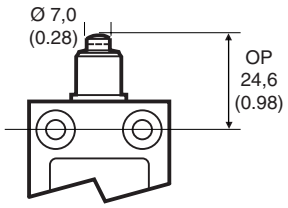
Top pin plunger



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

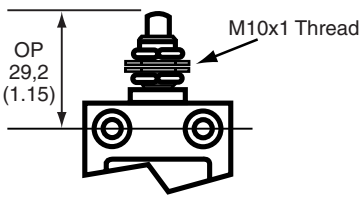
Top pin plunger, boot seal



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

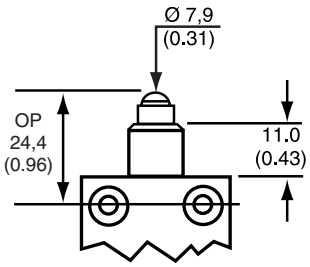
EUROPE	REFERENCE
1 metre cable, bottom exit	14CE18-1
3 metre cable, bottom exit	14CE18-3
Connector (dc), bottom exit	14CE18-Q

Top pin plunger, panel mounted



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

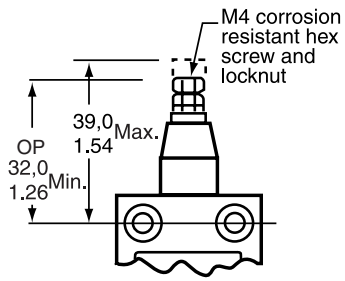
Ball bearing plunger



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

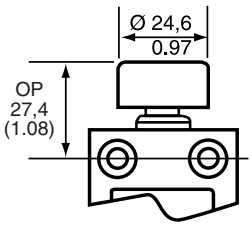
EUROPE/	REFERENCE
1 metre cable, bottom exit	14CE66-1
2 metre cable, bottom exit	14CE66-2

Adjustable plunger



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

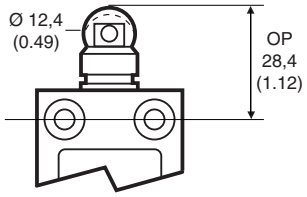
Manually operated



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

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

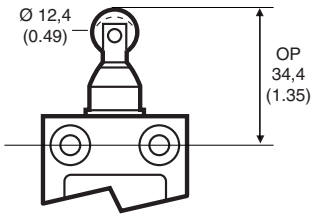
Top roller plunger, parallel



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

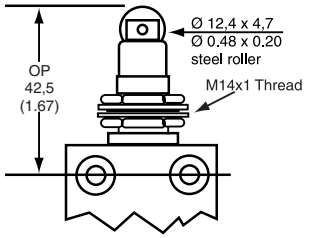


Operating force (OF): 17,5 N (3.82 lb)

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

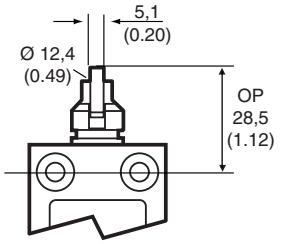
Top roller plunger, parallel, panel mounted



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)

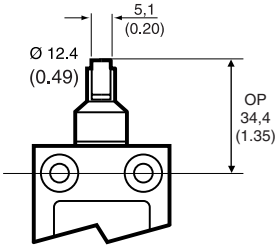
Top roller plunger, perpendicular



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

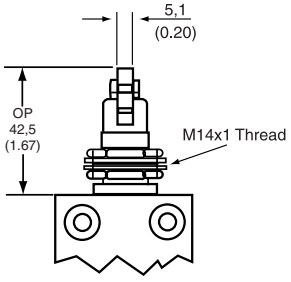
Top roller plunger, perpendicular, boot seal



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



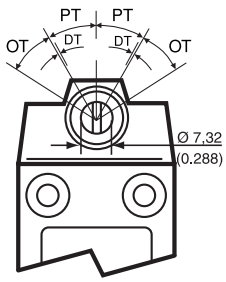
NORTH AMERICA/GLOBAL	REFERENCE
3 ft cable, bottom exit	914CE29-3
6 ft cable, bottom exit	914CE29-6

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 69-71.)

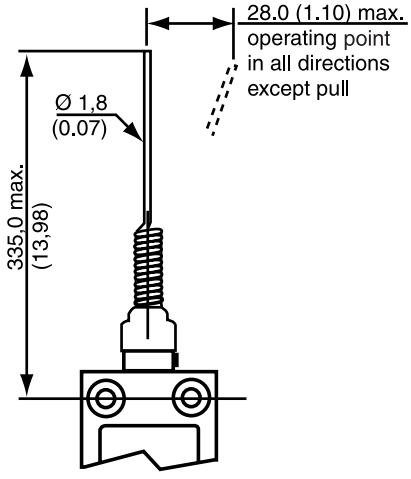


Operating torque: 0,3 Nm (2.66 in lb)
Pretravel (PT): 30° max.
Overtravel (OT) mm: 40° min.
Differential travel: 3°

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:		10 million
Sealing:		standard type: IP66; with boot seal type: IP67
Operating temperature:	24CE	0 °C to 70 °C (32 °F to 158 °F) Low temperature: -40 °C (-40 °F)
	924CE	0 °C to 105 °C (32 °F to 221 °F)
Approvals:	24CE	CE AC15 B300 DC13 R300
	924CE	CSA, CE per UL file #E41859, 10 A 250 Vac; 1/3 Hp 125-250 Vac AC15 B300 DC13 R300
Connection:		Harmonised CENELEC 3 or 5 x 0,75 mm² cable (24CE) SJTO 3 or 5 x 18 AWG cable (924CE)
Contacts:		Silver

Switching options:

924CE **24CE**

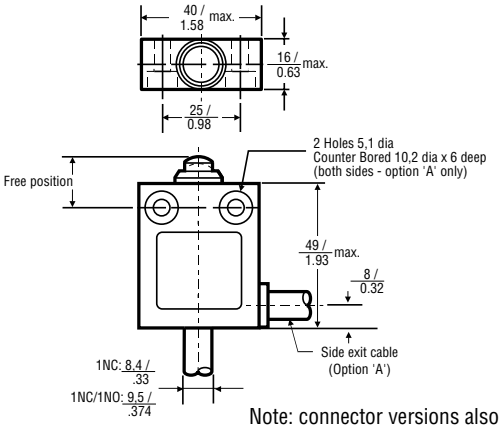
Slow action contacts (1NC)

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

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

Electrical ratings:

IEC 60947-5-1/EN 60947-5-1									
Designation & Utilization Category		Rated operational current Ie (A) at rated operational voltage Ue						VA rating	
		120 V	240 V	380 V	480 V	500 V	600 V	Make	Break
AC15	B300	3	1.5	-	-	-	-	3600	360
		125 V	250 V						
DC13	R300	0,22	0,1					28	28

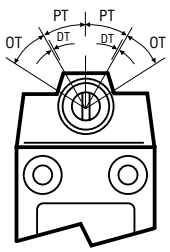


Note: connector versions also available

24CE/924CE Series

OPTIONS

Side rotary



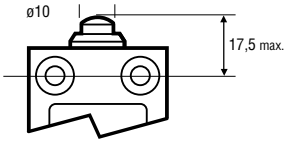
North America/Global

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



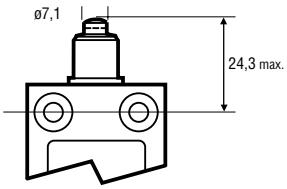
North America/Global

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

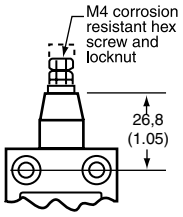
Top pin plunger, boot sealed



North America/Global

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

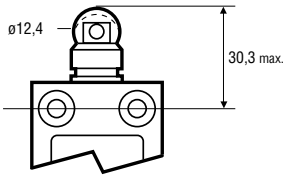
Adjustable plunger



North America/Global

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

Top roller plunger, parallel



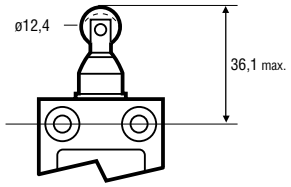
North America/Global

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



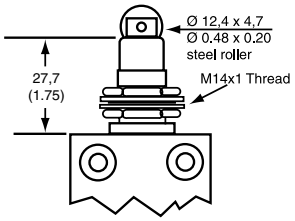
North America/Global

CABLE LENGTH	CONTACT	OPTION	REFERENCE
3 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, parallel, panel mounted



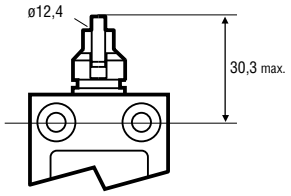
North America/Global

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



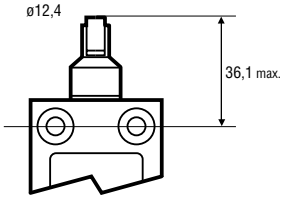
North America/Global

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

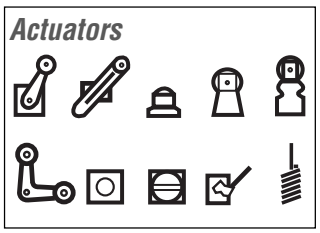
Top roller plunger, perpendicular, boot sealed



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

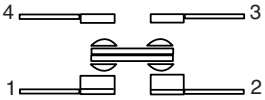


LS Series compact limit switches are carefully designed for accurate repeatability under the most stringent conditions. Compact size and field adjustable features greatly extend the flexibility of these switches. Heads may be positioned at 90° increments. Side rotary models can be adjusted for clockwise 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 20 mm
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; ¾ 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; ¼ hp, 120 Vac; ½ 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; ¼ hp, 120 Vac; ½ 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; ¾ hp, 240 Vac. Pilot Duty, 600 Vac max.
	F	UL Rating: 10 A, 125, 250, or 480 Vac; $^1/_3$ hp, 125 Vac; ¾ hp, 250 Vac; 0.8 A, 125 Vdc**; 0.4 A, 250 Vdc**
	G	UL Rating: 10 A, 125, 250 or 480 Vac; ¼ hp, 125 Vac; ½ hp, 250 Vac; 0.8 A, 125 Vdc**; 0.4 A, 250 Vdc**

** Resistive rating

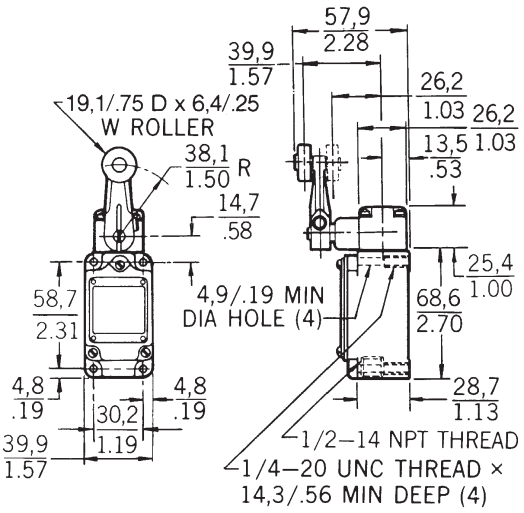
(1) Designed for use with inductive loads such as relays, contactors, motors and solenoids. Honeywell does ***not*** recommend the use of silver cadmium oxide switch contacts in non-arcing loads. Non-arcing loads are generally loads less than 12 volts and/or 0.5 amp.

LS Series
Side rotary actuated switches

OPTIONS

Fixed length lever

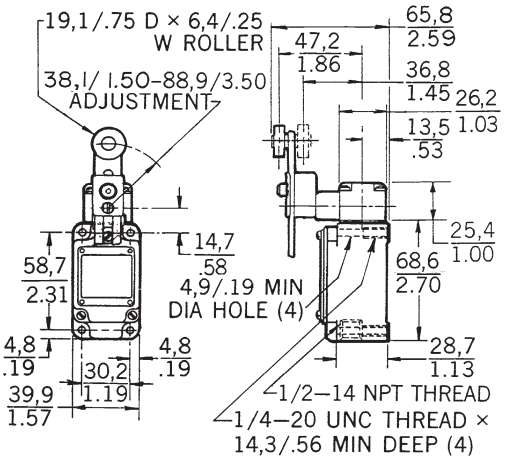
Operating force max. (OF):	Standard	13,3 N (3.0 lb)
	Low	5,0 N (18 oz)
Pretravel max. (PT):	Standard	20°
	Low	5°
Overtravel min. (OT)		30°
Differential travel max. (DT):	Standard	12°
	Low	4°
Switching options:		SPDT
Lever:		Aluminium, steel roller



	CONDUIT	ELECTRICAL RATING	REFERENCE
		A	1LS1
		F	1LS1-L
	20 mm	A	1LS1-4C
Low PT/OF		B	1LS131
Low PT		B	1LS19
Low PT	20 mm	B	1LS19-4C
High temperature		A	1LS243
High temperature	20 mm	A	1LS243-4C
Indicator light		C	1LS501
Low OF		A	1LS6

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

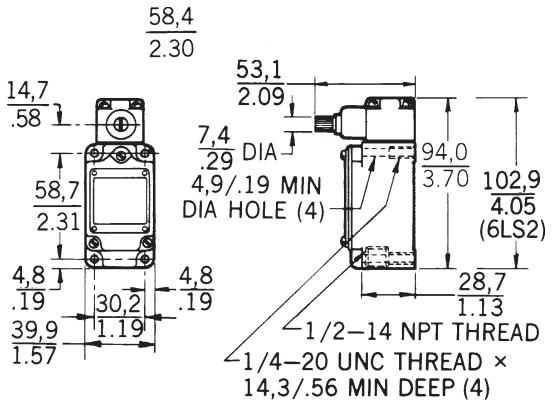
Honeywell

www.honeywell.com/sensing

No lever

Note: Levers are ordered separately (see pages 69-71 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)
	Low with low PT	0,11 N m (1 in lb)
Pretravel max. (PT):	Standard	20°
	Low	5°
	Maintained contact	55°
Overtravel min. (OT)	Standard	30°
	Maintained contact	35°
Differential travel max. (DT):	Standard	12°
	Low PT	4°
	Maintained contact	20°
Switching options:		SPDT
		Maintained contact



SPDT contact

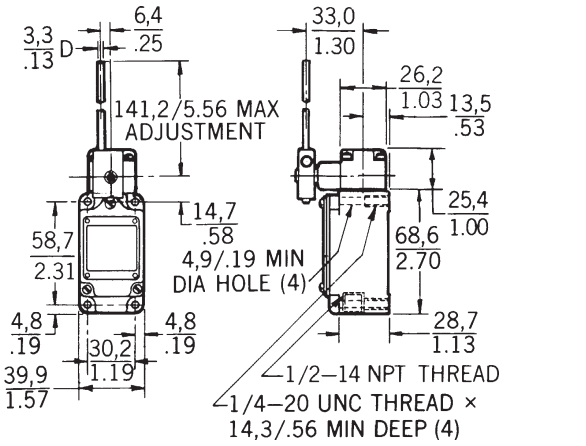
	CONDUIT	ELECTRICAL RATING	REFERENCE
		A	1LS2
		F	1LS2-L
	20 mm	A	1LS2-4C
Low OF		A	1LS23
Low OF/PT		B	1LS56
Low PT		B	1LS9

Maintained contact

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

Adjustable rod

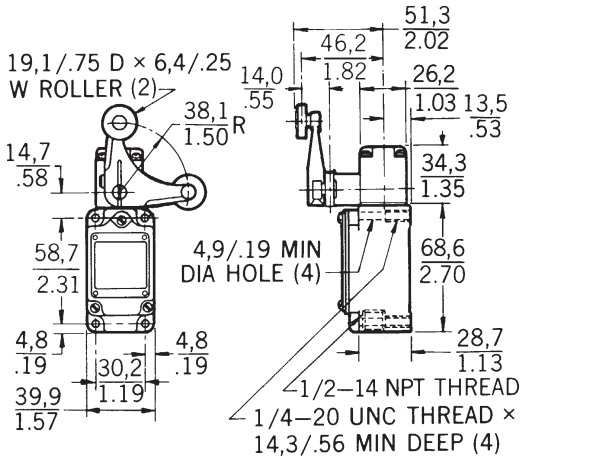
Operating force max. (OF):	Standard	1,39 N (5 oz)
	Low	0,83 Nm (3 oz)
Pretravel max. (PT):	Standard	20°
	Low	5°
Overtravel min. (OT)		30°
Differential travel max. (DT):	Standard	12°
	Low	4°
Switching options:		SPDT
Lever:		Aluminium rod



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

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



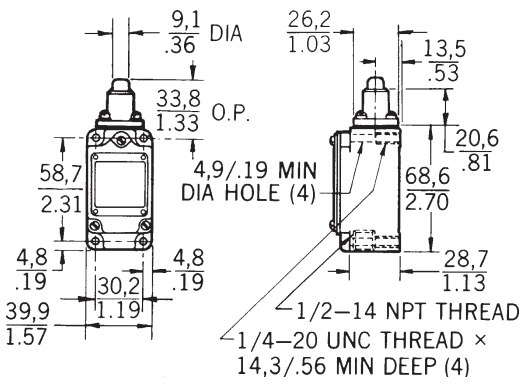
	CONDUIT	ELECTRICAL RATING	REFERENCE
		A	6LS1
	20 mm	A	6LS1-4C
		A	6LS3

LS Series
Plunger actuated switches

OPTIONS

Top pin plunger

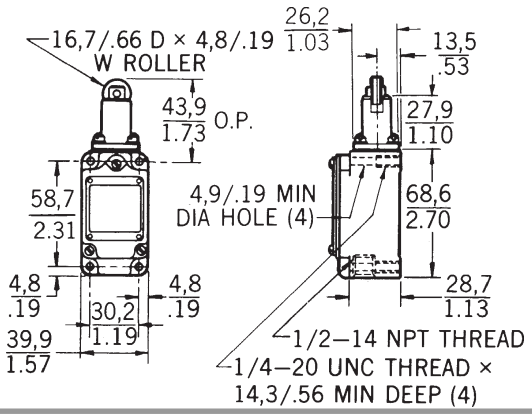
Operating force max. (OF):	Standard	31,14 N (7 lb)
	Low	10 N (36 oz)
Pretravel max. (PT):		1,65 mm (0.065 in)
Overtravel min. (OT)	Standard	6,35 mm (0.25 in)
	Low	5,56 mm (0.219 in)
Differential travel max. (DT):	Standard	0,51 mm (0.020 in)
	Low	0,23 mm (0.009 in)
Switching options:		SPDT



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

Top roller plunger

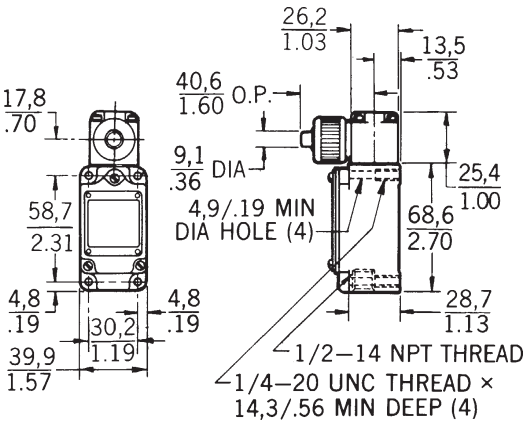
Operating force max. (OF):	31,14 N (7 lb)
Pretravel max. (PT):	1,65 mm (0.065 in)
Overtravel min. (OT)	5,56 mm (0.219 in)
Differential travel max. (DT):	0,51 mm (0.020 in)
Switching options:	SPDT



	CONDUIT	ELECTRICAL RATING	REFERENCE
		A	5LS1
		F	5LS1-L
	20 mm	A	5LS1-4C

Side pin plunger

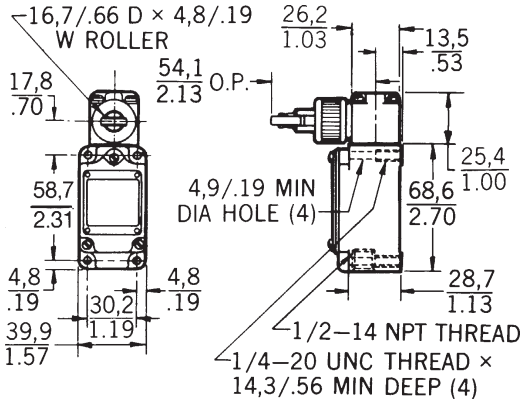
Operating force max. (OF):	40,03 N (9 lb)
Pretravel max. (PT):	2,8 mm (0.110 in)
Overtravel min. (OT)	6,35 mm (0.25 in)
Differential travel max. (DT):	1,02 mm (0.040 in)
Switching options:	SPDT



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

Side roller plunger

Operating force max. (OF):	40,03 N (9 lb)
Pretravel max. (PT):	2,8 mm (0.110 in)
Overtravel min. (OT)	5,56 mm (0.219 in)
Differential travel max. (DT):	1,02 mm (0.040 in)
Switching options:	SPDT



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

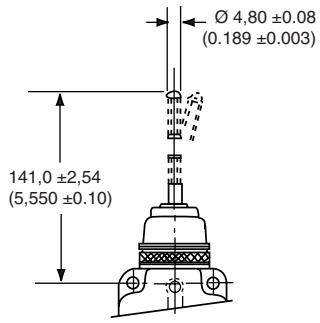
Wobble actuated switches

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

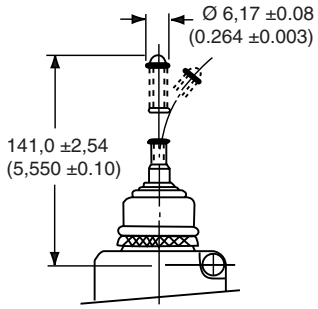
OPTIONS

Flexible cable



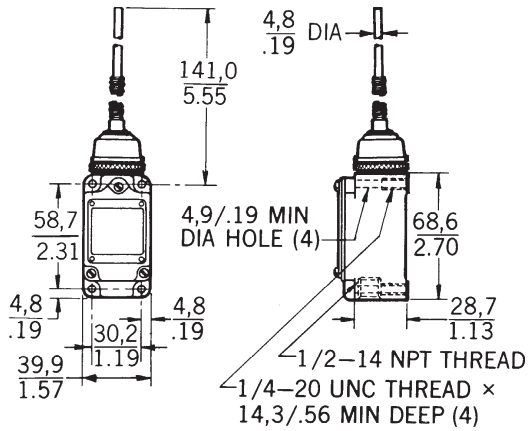
CONDUIT	ELECTRICAL RATING	REFERENCE
	D	8LS1
	G	8LS1-L
20 mm	D	8LS1-4C

Coil spring



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

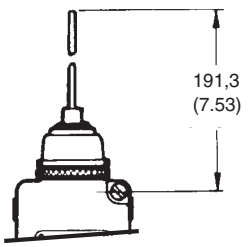
Spring rod



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

Steel wire

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



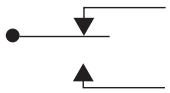
CONDUIT	ELECTRICAL RATING	REFERENCE
	D	8LS125
20 mm	D	8LS125-4C

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:		NEMA 1, 3, 4, 13
Operating temperature:		-32 °C to 71 °C (-25 °F to 160 °F)
Approvals:		UL
Termination:		½ in - 14NPT
Contacts:		Silver
Electrical ratings:	A	11 A - 125 Vac, 250 Vac or 277 Vac
	B	5 A - 125 Vac, 250 Vac or 277 Vac
Switching options:		
SPDT		Single Pole, Double Throw, Snap action contacts (1NC/1NO)

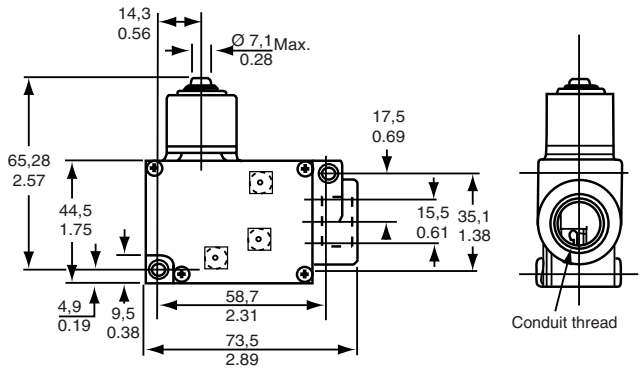


Actuators

Plunger actuated switches

OPTIONS

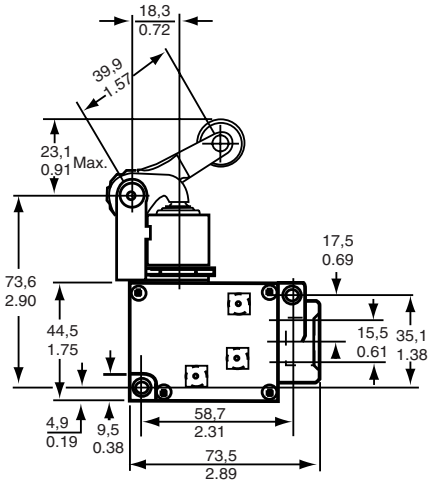
Top pin plunger



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

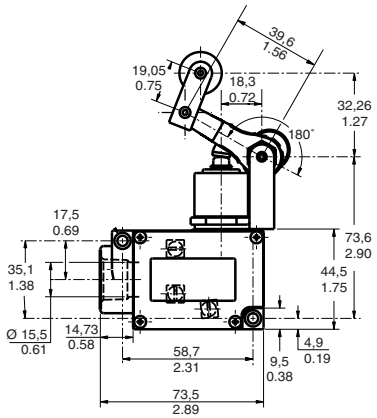


Operating force max. (OF):	10,56 N (38 oz)
Differential travel max. (DT):	1,65 mm (0.065 in)

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

Plunger actuated switches (continued)

Top roller arm, adjustable, one way

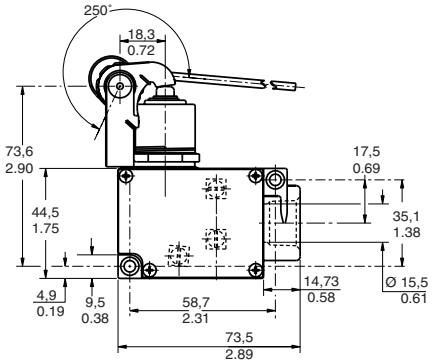


Operating force max. (OF):

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)

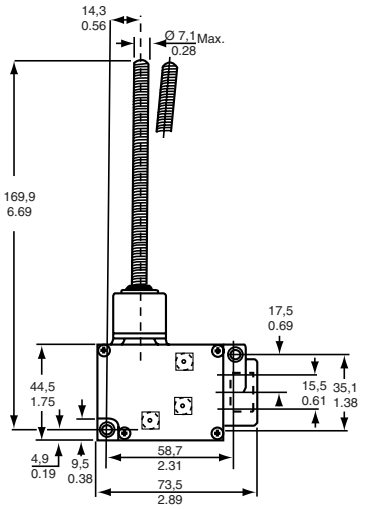
ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	B	BFL1-BL2
Right	B	BFR1-BL2

Wobble actuated switches

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

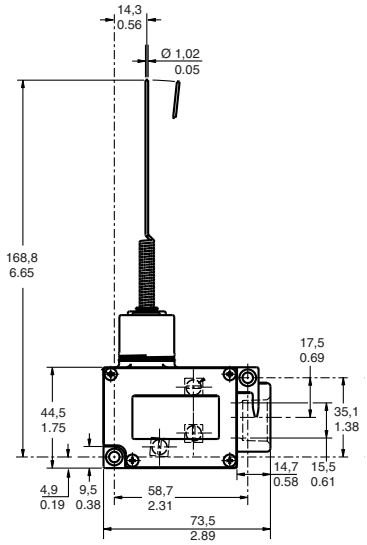
OPTIONS

Coil spring



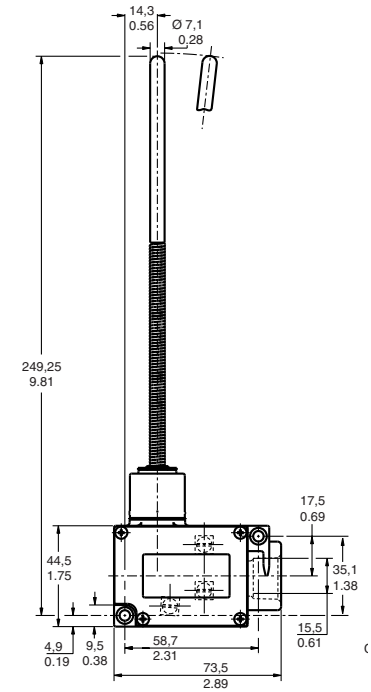
ACTUATOR POSITION	ELECTRICAL RATING	REFERENCE
Left	A	BFL1-AW1
Left	B	BFL1-BW1
Right	B	BFR1-BW1

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

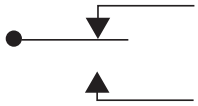
BZE/DTE Series Compact Enclosed Switches

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.

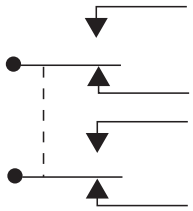
Conduit:		½ in - 14 NPT
Sealing:	E6	NEMA 1
	V6	NEMA 1, 3
Operating temperature:	Standard	-32 °C to 71 °C (-25 °F to 160 °F)
	Low	-40 °C to 71°C (-40 °F to 160 °F)
Approvals:		UL, CSA, CE
Contacts:	Electrical ratings A, B, C	Silver
	Electrical rating D	Gold

Switching options:

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



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



Electrical ratings:

A	UL/CSA Rating:	15 A, 125, 250 or 480 Vac: 2 A, 600 Vac: 1/8 Hp, 125 Vac: ¼ Hp, 250 Vac: ½ A, 125 Vdc: ¼ 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; ¼ Hp, 125 Vac; ½ Hp, 250 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc
D	UL/CSA Rating:	1 A - 125 Vac

Actuators

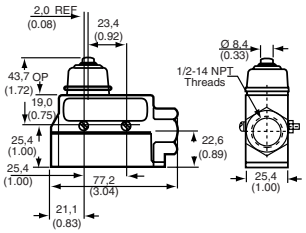
E6/V6

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.

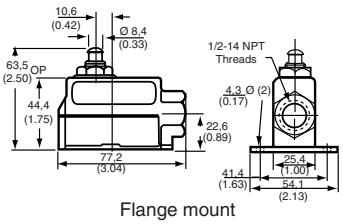
Momentary contact

OPTIONS

Top pin plunger

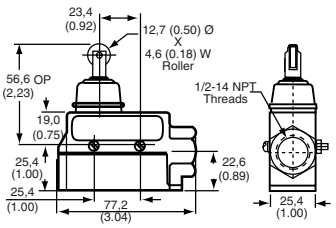


Side mount with boot seal

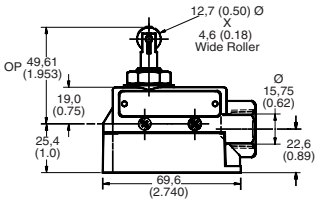


Flange mount without boot seal

Top roller plunger, parallel



Side mount with boot seal



Side mount without boot seal

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)

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

Flange mount

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

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)

Side mount

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

Flange mount

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZV6-2RQ

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	BZE6-2RN80
DPDT	B	DTE6-2RN80

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	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

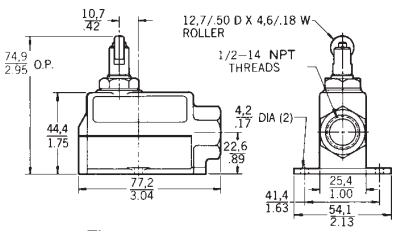
	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
	SPDT		A	BZE6-2RQ8
Field adjustable roller	SPDT		A	BZE6-2RQ9
Field adjustable roller	DPDT		B	DTE6-2RQ9

Flange mount

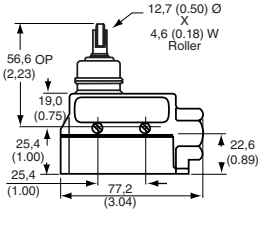
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	BZV6-2RQ8

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

Top roller plunger, perpendicular



Flange mount
without boot seal



Side mount
with boot seal

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)

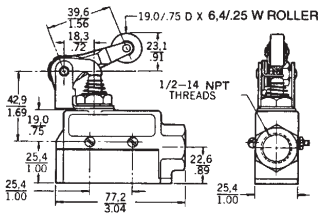
Side mount

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

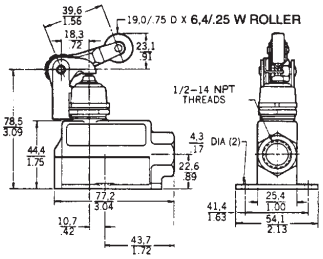
Flange mount

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZV6-2RQ81

Roller arm, adjustable



Side mount
without boot seal



Flange mount
with boot seal

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)

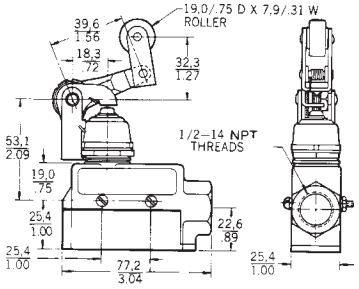
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	BZV6-2RN2
DPDT	B	DTV6-2RN2

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



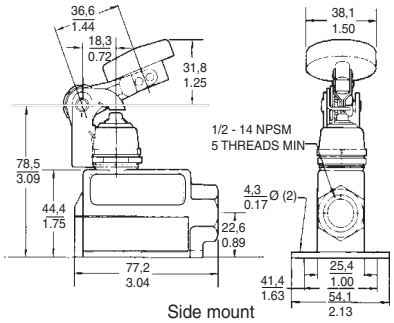
Side mount
with boot seal

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

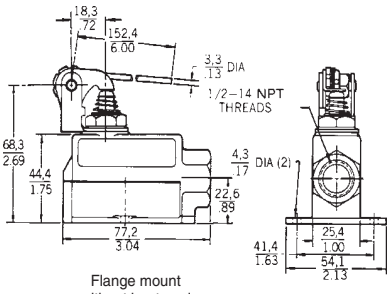
With boot seal

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)

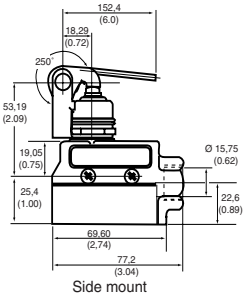
	CONTACT	ELECTRICAL RATING	REFERENCE
Flange mount	SPDT	A	BZV6-2RN4

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

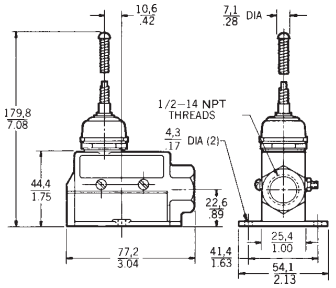
Without boot seal

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

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°

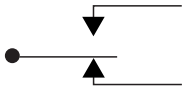
	CONTACT	ELECTRICAL RATING	REFERENCE
Side mount	SPDT	A	BZE6-2RN18
Flange mount	SPDT	A	BZV6-2RN18

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.

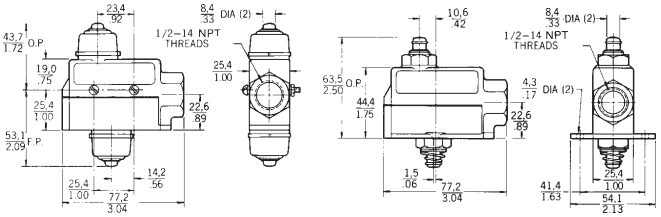
Note: The top plungers on these switches provide more accurate and uniform operation than the “reset” plungers and should be used when closely held operating characteristics are required.

Switching:
SPDT — Single Pole, Double Throw (1NC/1NO) Maintained



OPTIONS

Top pin plunger



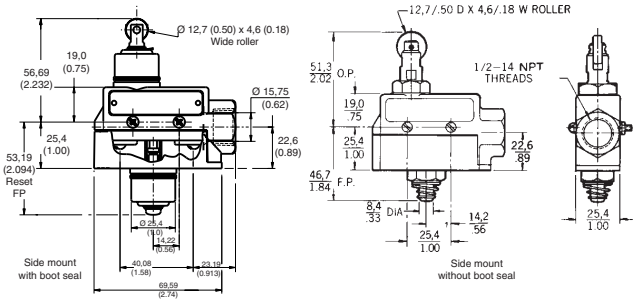
Side mount with boot seal — Flange mount without boot seal

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)

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

Top roller plunger

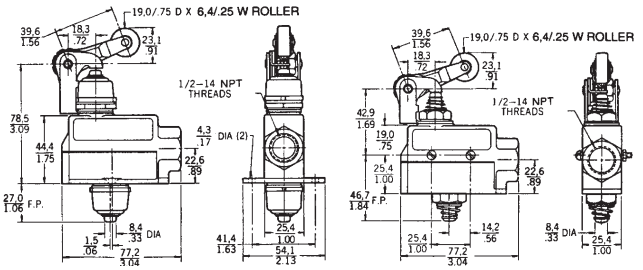


Side mount

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

Roller arm, adjustable



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)

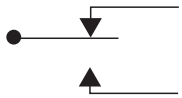
	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
With boot seal	Maintained		C	BZE6-RN2X1
Without boot seal	Maintained		C	BZE6-RQ2X2

E7 Metal standard enclosed switch

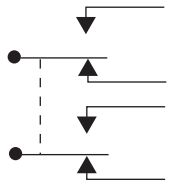
Mechanical life: 10 million
Sealing: Without boot seal — IP50 Standard
With boot seal — IP65 Sealed
Operating temperature: -30 °C to 70 °C (-22 °F to 158 °F)
Approvals: IEC 60947-5-1
EN 60947-5-1

Switching options:

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



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

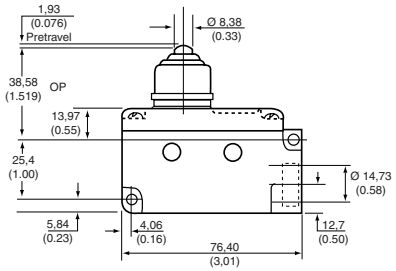


Actuators

OPTIONS

Top pin plunger

With boot seal

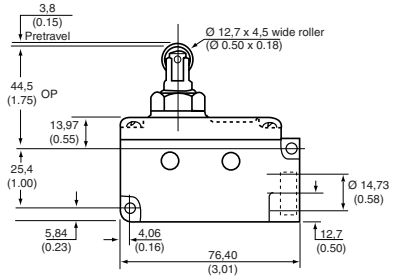


CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RN-PG
SPDT	20 mm		BZE7-2RN-C
DPDT	PG 13.5		DTE7-2RN-PG

Without boot seal

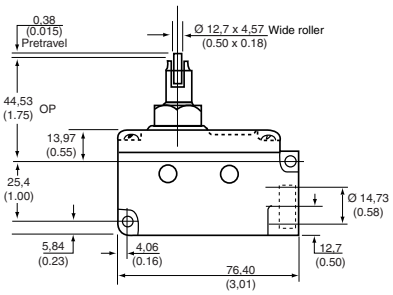
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RQ-PG

Top roller plunger, parallel, without boot seal



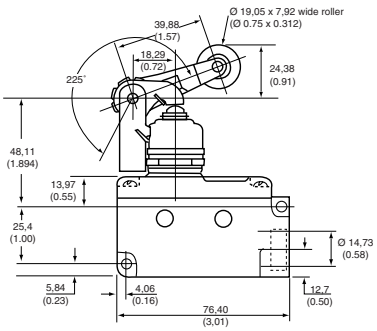
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RQ8-PG

Top roller plunger, perpendicular, without boot seal



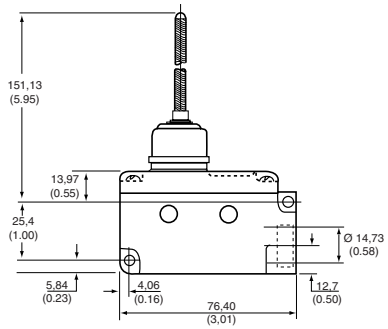
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	PG 13.5		BZE7-2RQ81-PG

Top roller lever, boot seal



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

Wobble, coil spring, boot seal



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

BAF/DTF Series High Capacity Enclosed Switches

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.

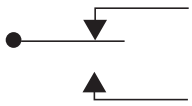
The BAF/DTF Series is suitable for use in packaging equipment, farm machinery, conveyors, overhead cranes and hoists.

Actuators

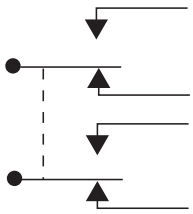
Approvals: UL, CSA
Sealing: NEMA 1, 3, 4, 13
-2RQ9 NEMA 1
Operating temperature: -32 °C to 71 °C (-25 °F to 160 °F)
Conduit: ½ in - 14 NPT
Contacts: Silver
Electrical ratings:
B UL/CSA Rating: 10 A, 125 or 250 Vac; 0.3 A, 125 Vdc; 0.15 A, 250 Vdc.
D UL/CSA Rating: 20 A, 125, 250 or 480 Vac; 1 Hp, 125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



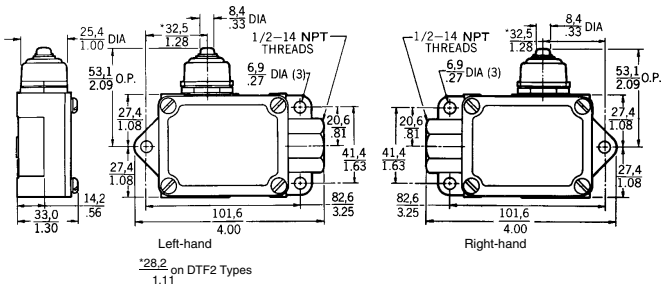
B DPDT Double Pole, Double Throw Snap action contacts (2NC/2NO)



Momentary contact

OPTIONS

Top pin plunger



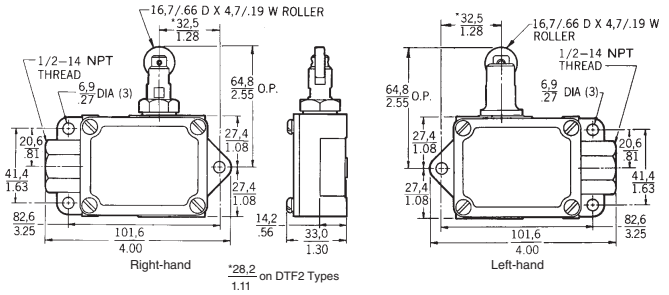
With boot seal

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



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

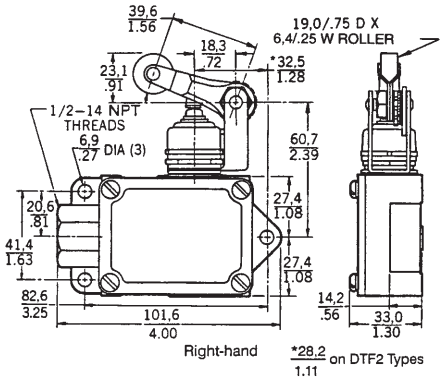
Field adjustable roller plunger

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

Roller arm, adjustable

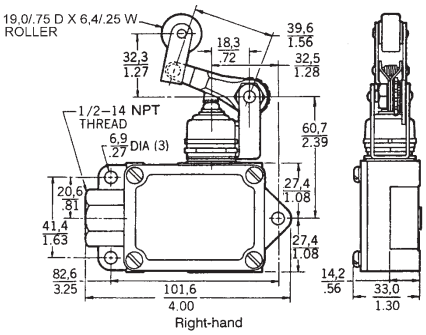


With boot seal

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
Right	DPDT	B	DTF2-2RN2-LH

One way roller lever



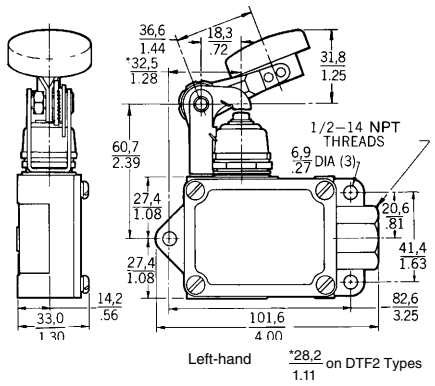
With boot seal

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

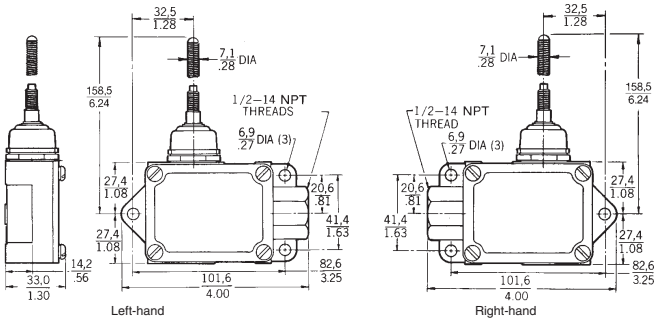


With boot seal

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

Wobble, coil spring



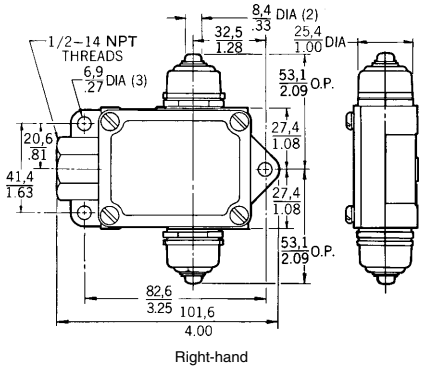
With boot seal

Pretravel max. (PT): 15°

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

Maintained contact (reset) switches

Top pin plunger

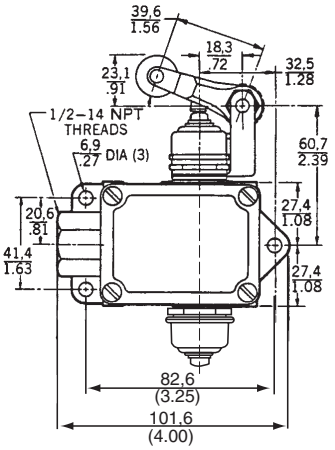


With boot seal

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

Roller arm, adjustable

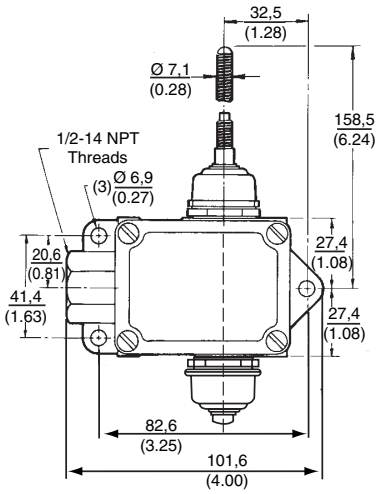


With boot seals on roller arm and plunger

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

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
LS**YAB**1A - 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 actuacted 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
LS**YAC**1A - 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), STOOW-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:
LSA1A**C** - LSA1A with 6 ft of 5 conductor STOOW-A cable
LSJ2B**M**-7N - LSJ2B-7N with 6 ft of 9 conductor STOOW-A cable
LSA1A**B** - LSA1A with 5 pin receptable
LSA1A**DD** - 4 pin micro-change connector

Actuators

Levers: Levers for side rotary types are ordered separately (see pages 69-71 for details)

Electrical ratings

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

ac Volts
Pilot duty: 600 Vac, 720 VA

		Amps at 0.35 Power Factor	
	Vac	**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 SPDT/DPDT	250 Vac or 60 Vdc, 0.050 amp max.		

dc Volts
Pilot duty: 240 Vdc, 30 watts

		Make and Break Amps	
	Vdc	**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 SPDT/DPDT	250 Vac or 60 Vdc, 0.050 amp max.		

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:																								
Fluorisilicone (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:

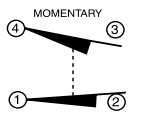
1 J Satisfactory
2 J Fair
3 J Doubtful
4 J Unsatisfactory

HDLS Series Side rotary actuated switches

Levers: Levers for side rotary types are ordered separately (see pages 69-71 for details)

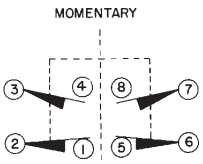
Approvals:		NEMA 1, 3, 4, 4X, 6, 6P, 12, 13 UL, CSA, CE
Operating force (Newton meters, N m/in lb):	LSA, LSL, LSM, LSM, LSP, LSU	0,45 N m max. 4 in lb max.
	LSH, LSR	0,19 N m max. 1.7 in lb max
Conduit:		½ in - 14 NPT
Contacts:	Electrical ratings A, B	Silver
	Electrical rating C	Gold
Switching options: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

SPDT



SPDT Double Break

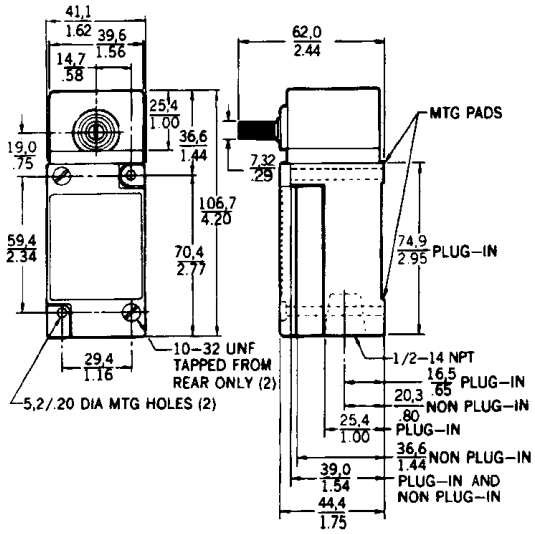
DPDT



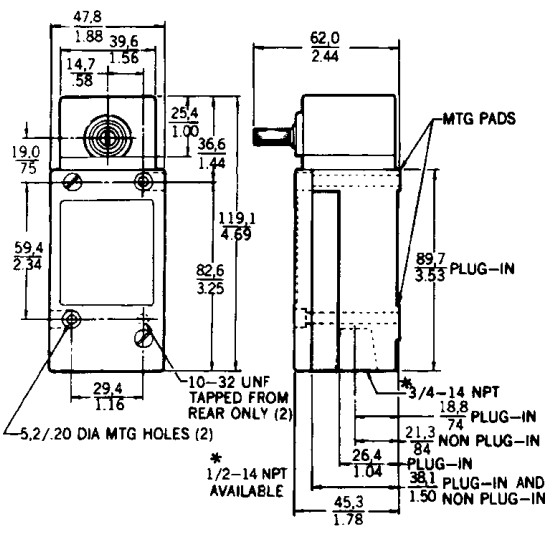
DPDT Double Break

SIDE ROTARY

Single-pole



Double-pole

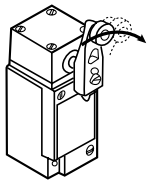


Side rotary, momentary action

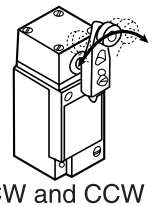
The momentary action listings shown are factory assembled with the head adjusted for both clockwise (CW) and counterclockwise (CCW) operation. The shaft of side rotary heads face the front (label side of switch).

Actuation direction

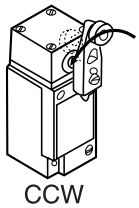
A simple field adjustment converts switch to accept actuation from one or both directions. For ready reference, adjustment instructions are cast into the internal lid of side rotary heads.



CW



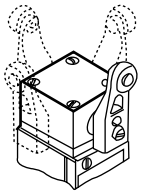
CW and CCW



CCW

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	¾ 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	¾ 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	CONDUIT	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	¾ 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	¾ in	B	LSR2B
DPDT		B	LSR6B
DPDT		C	LSR6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSR3K
DPDT	¾ 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	¾ in	B	LSH2B
DPDT		B	LSH6B
DPDT		C	LSH6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSH3K
DPDT	¾ 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	¾ in	B	LSU2B
DPDT		B	LSU6B
DPDT		C	LSU6S

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT		A	LSU3K
DPDT	¾ in	B	LSU4L

Side rotary, additional circuitry/ action

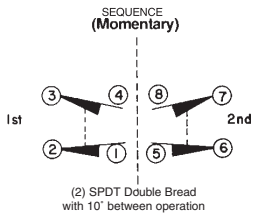
The following listings, sequential, centre neutral and maintained switches, are assembled with the operating shaft facing front. The user can position and lock the head with the shaft to rear or either side. They can also be factory assembled with the shaft to rear or either side. Contact Honeywell for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



(2) SPDT Double Bread with 10° between operation

Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¾ in	B	LSL2C
DPDT		B	LSL6C

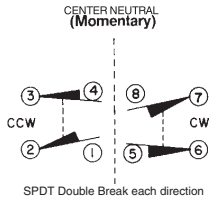
Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¾ 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:



SPDT Double Break each direction

Plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¾ in	B	LSM2D
SPDT	20 mm	B	LS4M2D
DPDT		B	LSM6D

Non plug in

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¾ in	B	LSM4N
DPDT		B	LSM7N

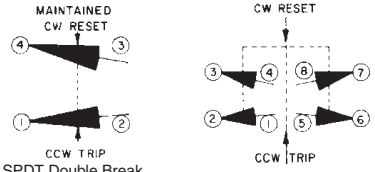
HDLS Series
Side rotary actuated switches (continued)

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



SPDT Double Break Maintained

DPDT Double Break Maintained

Plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSN1A
DPDT	B	LSN6B

Non plug in

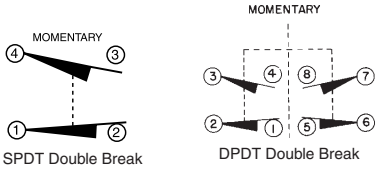
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSN3K
DPDT	B	LSN7L

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



SPDT Double Break

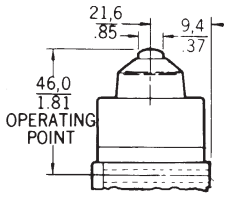
DPDT Double Break

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) min.
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

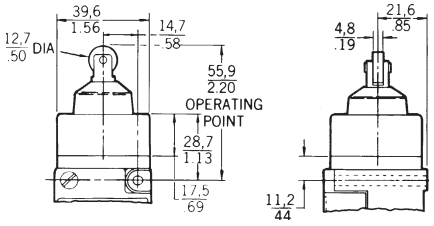
Plug in

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

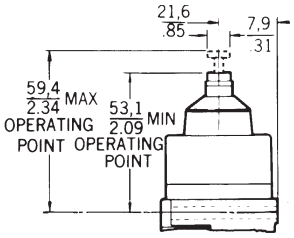
Plug in

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

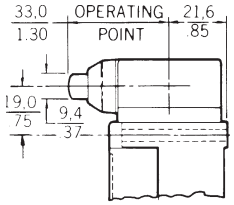
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSV3K
DPDT	B	LSV7L

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

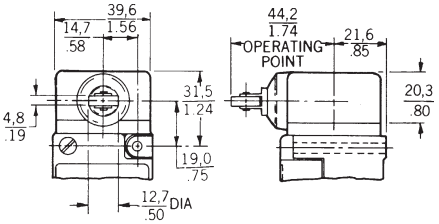
Plug in

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

Side roller plunger



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

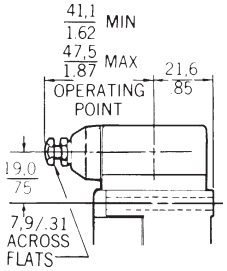
Plug in

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

Adjustable side roller plunger



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

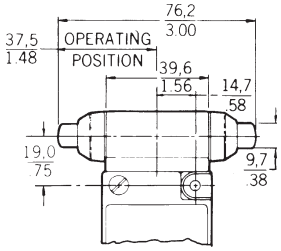
Plug in

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 plunger, maintained circuitry

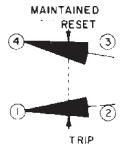


LSG contact transfer is maintained after either plunger is operated. Operation of other plunger resets switch.

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

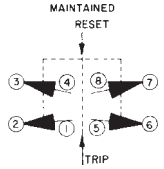
Switching options:

SPDT



SPDT Double Break

DPDT



DPDT Double Break

Plug in

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

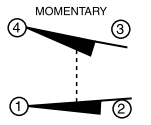
Non plug in

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSG3K
DPDT	B	LSG7L

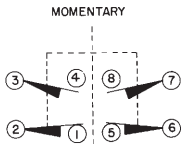
HDLS Series
Wobble actuated switches

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:
Electrical ratings A, B — Silver
Switching options: Snap action contacts
SPDT — DPDT



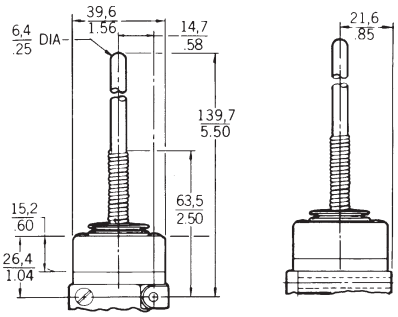
SPDT Double Break



DPDT Double Break

OPTIONS

Plastic rod



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

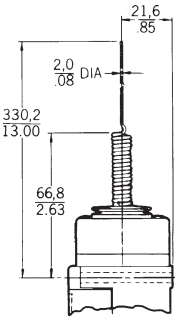
Plug in

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.

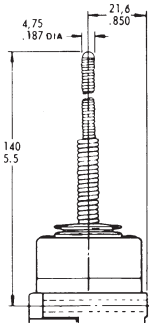
Plug in

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.

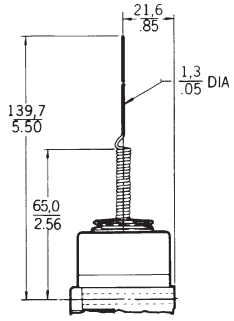
Plug in

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.

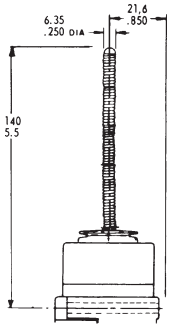
Plug in

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

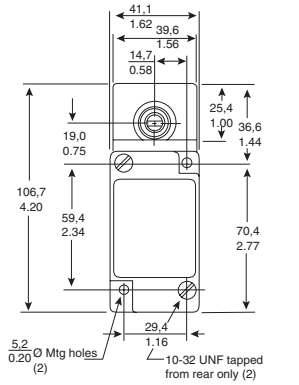
CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LSK1A-8C
DPDT	B	LSK6B-8C

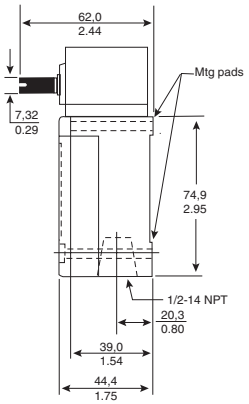
Non plug in

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 4 for temperature range and how to order.





Approvals:

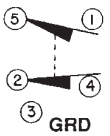
Connector	NEMA 1, 4, 6, 6P, 12, 13
Cable	NEMA 1, 4, 6, 6P, 12 UL, CSA, CE

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

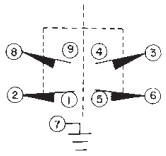
Cable length: 3,658 m (12 ft)
Contacts: Electrical ratings A, B Silver
Switching options: Snap action contacts

SPDT



SPDT Double-Break Elect. Rating: A

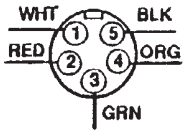
DPDT



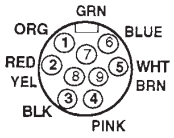
DPDT Double-Break Elect. Rating: B

Wiring diagrams: Numbers = Connectors Colours = Cables

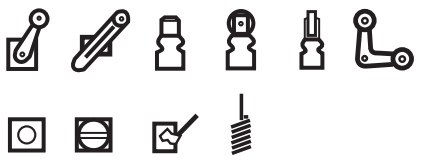
Single-Pole



Double-Pole



Actuators



Side rotary actuated switches

Levers: Levers for side rotary types are ordered separately (see pages 69-71 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

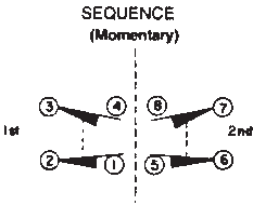
For low temperature versions substitute "Y_B" for "Y_C"

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

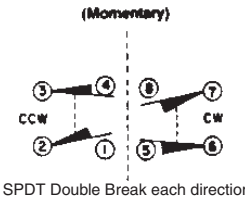


(2) SPDT Double Break with 10° between operation

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



SPDT Double Break each direction

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

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

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

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

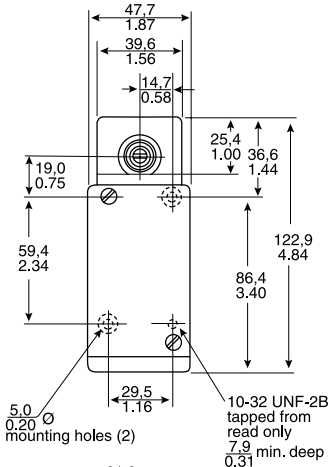
Operating temperature: -12 °C to 121 °C
10 °F to 250 °F

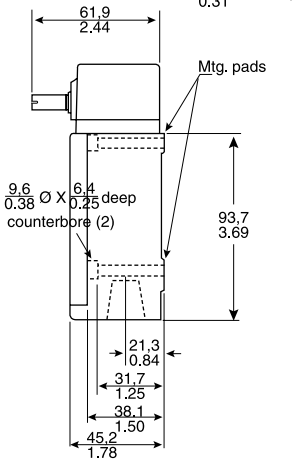
Contacts: Electrical ratings A, B Silver

Levers: Levers for side rotary types are ordered separately (see pages 69-71 for details)

Actuators

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

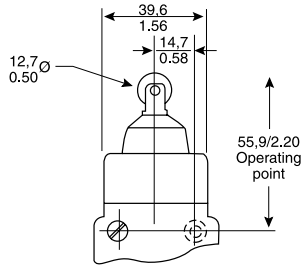
Pretravel: 18° max
Differential travel: DPDT 10° max.
Overtravel: 57° min.

CONTACT	ELECTRICAL RATING	REFERENCE
DPDT	B	LS2M4N

Plunger actuated switches

OPTIONS

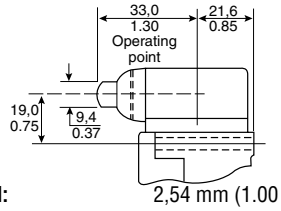
Top roller plunger



Pretravel: 1,78 mm (0.07 in) max.
Differential travel: 0,38 mm (0.015 in) max.
Overtravel: 4,83 mm (019 in) min.
Operating point: 55,9 mm ± 1,02
2.20 in ± 0.04

CONTACT	ELECTRICAL RATING	REFERENCE
SPDT	A	LS2D4K
DPDT	B	LS2D4L

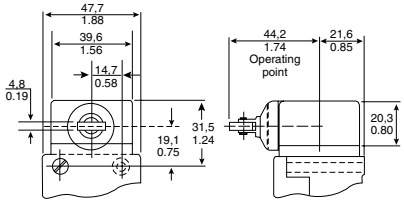
Side pin plunger



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

Explosion proof switches

Honeywell explosion proof switches are designed specifically for use in hazardous locations. To comply with explosion proof requirements, the flame path within the housing is designed to contain and cool the escaping hot gases that otherwise could cause an explosion outside the switch.

Switches are available with UL/CSA for North America. See information below and product pages for details. In Europe, the usage is governed under the European Directive on Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres (94/9/EC) commonly referred to as the ATEX Directive.

The BX, CX and GXE product families comply to the following ATEX Directive: EExd IIC T6 Category II 2 GD

The 14CE100 product family complies to the following ATEX Directive: EExd IIC T6 Category II 2 G

NEMA TYPE 7, CLASS I FLAMMABLE GASES OR VAPORS

Type 7 enclosures are for use indoors in locations classified as Class I, Groups B, C, or D by the National Electrical Code.

Group B — (only switches so noted in the order guides include this listing). Atmospheres containing hydrogen or manufactured gas.

Group C — atmospheres containing diethyl ether, ethylene, or cyclopropane.

Group D — Atmospheres containing gasoline, hexane, butane, naptha, propane, acetone, toluene or isoprene.

Division 1

Locations in which hazardous agents are present under normal operating conditions.

Division 2

Locations in which hazardous agents may be present only in case of accidental rupture or breakdown.

All Honeywell listings covered in Division 1 are also covered in the same groups in Division 2.

NEMA TYPE 9, CLASS II COMBUSTIBLE DUSTS

Type 9 enclosures are for use in indoor locations classified as Class II, Groups E, F or G, as defined in the National Electrical Code.

Group E — Atmospheres containing metal dust.

Group F — Atmospheres containing carbon black, coal dust or coke dust.

Group G — Atmospheres containing flour, starch or grain dust.

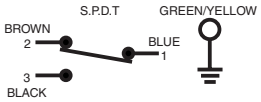
ATEX EExd

EExd	II	c	T6	Category II 2	G	D
Flameproof enclosure	Places with potentially explosive atmospheres, other than mines susceptible to fire damp	Atmosphere may contain gases from groups A, B or C from table in EN50014, Annex A	Maximum surface temperature of 85 °C (185 °F)	Areas in which an explosion proof atmosphere is likely to occur	Gas could be present	Dust could be present

14CE100 Series Miniature Enclosed, Explosion Proof Switches

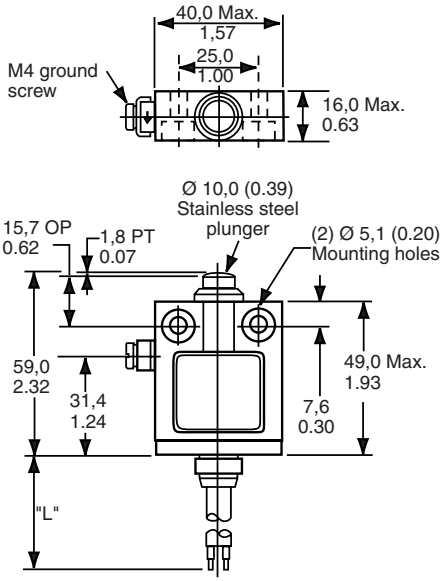
The 14CE100 Series has been designed for use in explosive environments. It is approved to meet the requirements of the Low Voltage directive and is CE marked. The prewired construction allows for ease of installation where space is at a premium and external operating conditions can be difficult.

Mechanical life:		10 million
Sealing:	Standard	IP65, NEMA 1, 3
	Boot sealed	IP67 , NEMA 1, 3, 4 12, 13
Operating temperature:		0 °C to 70 °C (32 °F to 158 °F)
Approvals:		CE, PTB 98 ATEX 1064 X EExd IIC T6 Category II 2 G
		AC14 D300
		DC13 R300
Operating force (OF):		11,8 N 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.
Contacts:	Standard	Silver
	-***G**	Gold
Connection:		Harmonised CENELEC 4 x 0,75 mm² cable
Switching options:		
SPDT		Single Pole, Double Throw
		Snap action contacts (1NC/1NO)



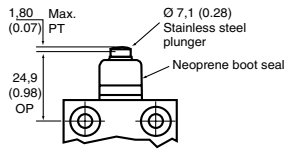
Actuators

Top pin plunger



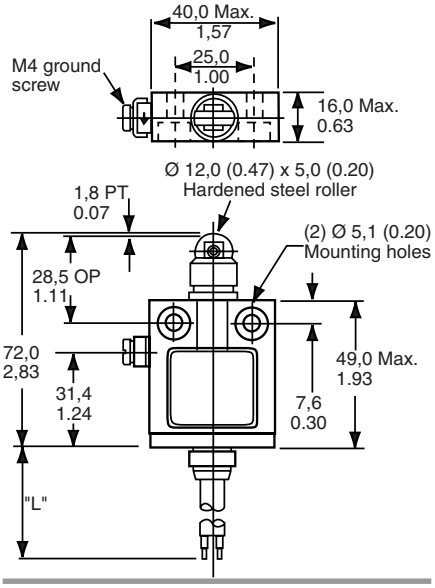
CABLE LENGTH	REFERENCE
1 m (3.3 ft)	14CE101-1
2 m (6.6 ft)	14CE101-2
3 m (9.9 ft)	14CE101-3
4 m (13.2 ft)	14CE101-4
5 m (16.5 ft)	14CE101-5
6 m (19.8 ft)	14CE101-6
10 m (33.0 ft)	14CE101-10

Boot sealed



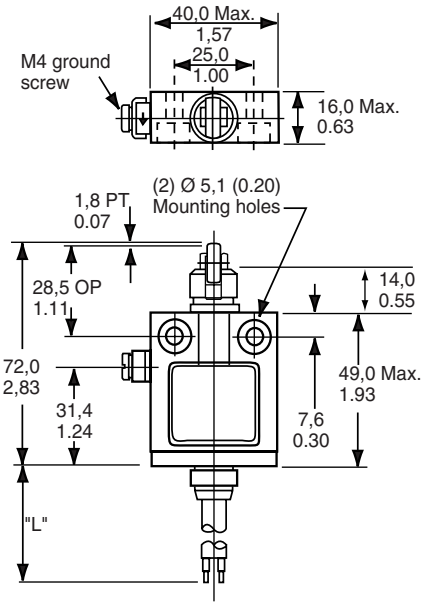
CABLE LENGTH	REFERENCE
1 m (3.3 ft)	14CE118-1
6 m (19.8 ft)	14CE118-6
10 m (33.0 ft)	14CE118-10

Top roller plunger, parallel



CABLE LENGTH		REFERENCE
1 m (3.3 ft)		14CE102-1
3 m (9.9 ft)		14CE102-3
3 m (9.9 ft)	Gold contacts	14CE102-3G
5 m (16.5 ft)		14CE102-5
6 m (19.8 ft)		14CE102-6
6 m (19.8 ft)	Gold contacts	14CE102-6G
8 m (26.4 ft)		14CE102-8
12 m (39.6 ft)		14CE102-12
15 m (49.5 ft)		14CE102-15

Top roller plunger, perpendicular



CABLE LENGTH	REFERENCE
1 m (3.3 ft)	14CE103-1
3 m (9.9 ft)	14CE103-3

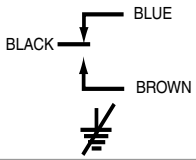
Honeywell

www.honeywell.com/sensing

GXE Series Explosion Proof Limit Switches

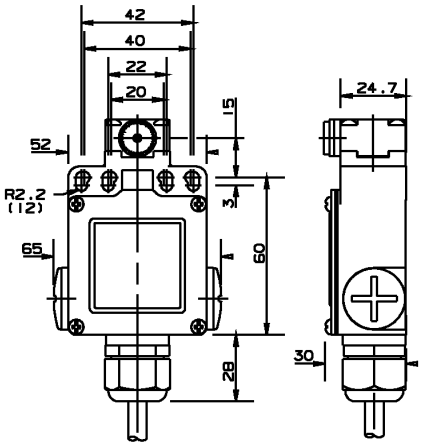
The GXE Series explosion proof limit switches are designed specifically for use in hazardous applications. The GXE enclosure is fully potted and has sealing protection of IP66/67 as per IEC/EN 60529. The entire GXE Series complies with the European Directive on Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres (94/9/EC) commonly referred to as the ATEX Directive.

Mechanical life:	2 million
Sealing:	IP66/67, EN 60529
Operating temperature:	-20 °C to 75 °C (-4 °F to 167 °F)
Approvals:	CE, EN 50014, EN 50018, EN 50281-1-1 KEMA 00 ATEX 2103 X EExd IIC T6 Category II 2 GD AC15 DC13
Contacts:	Silver
Connection:	5 metre, HO5VV-F, 3 x 0,75 mm² cable
Switching options:	
SPDT	Single Pole, Double Throw Snap action contacts (1NC/1NO)



Actuators

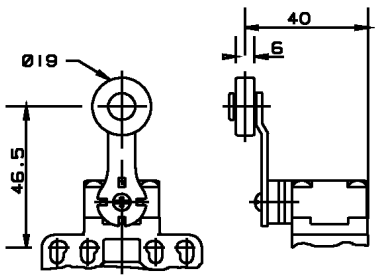
GXE Series



Operating force max. (OF): 16 N (3.6 lb)

OPTIONS

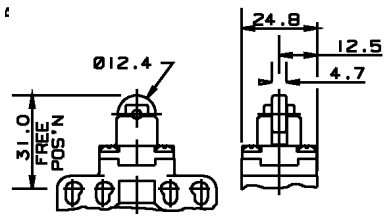
Side rotary roller lever



Overtravel min. (OT): 6,0 mm (0.0.236 in)
Differential travel max. (DT): 8°
Operating position max. (PT): 26

REFERENCE
GXE51A1B

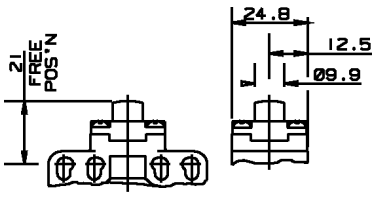
Top roller plunger, parallel



Overtravel min. (OT): 6,0 mm (0.0.236 in)
Differential travel max. (DT): 0,5mm (0.020 in)
Operating position max. (PT): 2,0 mm (0.079 in)

REFERENCE
GXE51C

Top pin plunger



Overtravel min. (OT): 6,0 mm (0.0.236 in)
Differential travel max. (DT): 0,5mm (0.020 in)
Operating position max. (PT): 2,0 mm (0.079 in)

REFERENCE
GXE51B

EX Series Standard Explosion Proof Switches

The EX Series features the smallest UL listed housings available for use in hazardous locations. Flame paths within the housing cool exploding gases below the kindling temperature before they reach the explosive gases surrounding the housing.

Options available include single or double conduit connection.

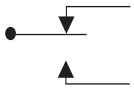
These switches are not sealed against liquids and should not be used where there will be liquid splash. If a weather sealed explosion proof switch is required please select from the CX or LSX/BX series.

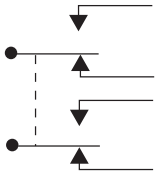
Actuators

Sealing:		NEMA 1, 7 (Class I, Division I, Groups C, D) 9, (Class II, Division I, Groups E, F, G)
Operating temperature:	Standard	-40 °C to 71 °C (-40 °F to 160 °F)
	High	100 hr @ 400 °F
Approvals:		UL, CSA
Conduit:		½ in - 14NPT
Contacts:		Silver
Electrical ratings:		
A	UL/CSA Rating:	15 A, 125, 250 or 480 Vac; 1/8 Hp, 125 Vac; ¼ Hp, 250 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc.
B	UL/CSA Rating:	20 A, 125, 250 or 480 Vac; 10 A, 125 Vac "L"; 1 Hp, 125 Vac; 2 Hp, 250 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc.
C	UL/CSA Rating:	10 A, 125 or 250 Vac; 0.3 A, 125 Vdc; 0.15 A, 250 Vdc .
D	UL/CSA Rating:	10 A, 125, 250 or 480 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc.
E	UL Rating:	1 A, 125 Vac.

Switching options:

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



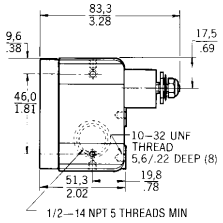


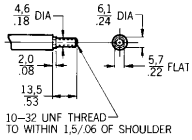
Side rotary actuated switches

OPTIONS

No lever

Note: Levers are ordered separately (see pages 69-71 for details)

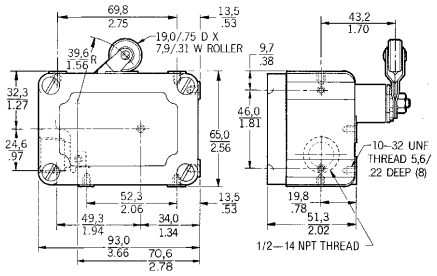




Operating force max. (OF):	
Electrical rating A	0,22 N m (31.25 in oz)
Electrical rating B	3,34 N to 8,90 N (0.75 lb to 2.0 lb)
Pretravel max. (PT):	5,56 mm (0.219 in) 8°
Overtravel max. (OT):	
Electrical rating A	90°
Electrical rating B	25°
Differential travel max. (DT):	
Electrical rating A	0,18 mm (0.007 in) 0.25°
Electrical rating B	0,3 mm (0.012 in) 4°

ACTUATION	CONTACT	ELECTRICAL RATING	REFERENCE
CW	SPDT	A	EX-AR20
CCW	SPDT	A	EX-AR230
CW	SPDT	B	EXA-AR20

Roller lever



Roller material:	Bronze
Operating force max. (OF):	
Electrical rating A	
Clockwise (CW)	2,22 N to 5,56 N (0.5 lb to 1.25 lb)
Counter clockwise (CCW)	11,1 N (2.5 lb)
Electrical rating B	3,34 N to 8,90 N (0.75 lb to 2.0 lb)
Pretravel max. (PT):	
Electrical rating A, B	
Clockwise (CW)	5,56 mm (0.219 in) 8°
Counter clockwise (CCW)	1,65 mm (0.065 in) 3.5°
Overtravel max. (OT):	
Electrical rating A	
Clockwise (CW)	90°
Counter clockwise (CCW)	25°
Electrical rating B	25°
Differential travel max. (DT):	
Electrical rating A	0,18 mm (0.007 in) 0.25°
Electrical rating B	0,3 mm (0.012 in) 4°

ACTUATION	CONTACT	ELECTRICAL RATING	REFERENCE
CW	SPDT	A	EX-AR
CCW	SPDT	A	EX-AR30
CW/Class 1 Group B	SPDT	A	EX-AR800
CCW/Class 1 Group B	SPDT	A	EX-AR830
CW/High temperature	SPDT	A	EX-AR400
CW	SPDT	B	EXA-AR
CW/No mounting bracket	SPDT	B	EXA-AR62
CW/Nylon roller	SPDT	A	EX-AR182
CW/No mounting bracket	SPDT	A	EX-AR141

CW or CCW actuation, no return spring, low operating force

Operating force max. (OF): 0,56 N (2 oz)

ACTUATION	CONTACT	ELECTRICAL RATING	REFERENCE
CW/CCW/No mounting bracket	SPDT	A	EX-AR16

Maintained contact

Operating force max. (OF):	3,34 N (0.75 lb)
Pretravel max. (PT):	5,56 mm (0.219 in) 8°
Overtravel max. (OT):	90°

ACTUATION	CONTACT	ELECTRICAL RATING	REFERENCE
CW	SPDT	A	EX-XR3

DPDT, Preleaded with 0,91 m (3 ft) leadwire

Operating force max. (OF):	
Clockwise (CW)	2,22 N to 6,67 N (0.5 lb to 1.5 lb)
Counter clockwise (CCW)	12,2 N (2.75 lb)
Pretravel max. (PT):	6,35 mm (0.250 in)
Overtravel max. (OT):	25°
Differential travel max. (DT):	2,77 mm (0.109 in) 4°
Sealing:	NEMA Class 1 Group B

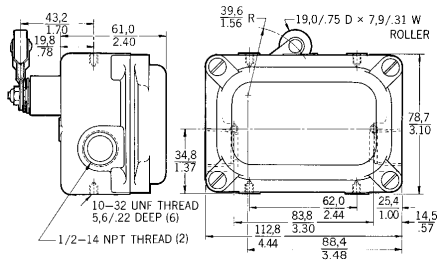
ACTUATION	CONTACT	ELECTRICAL RATING	REFERENCE
CW	DPDT	C	EXD-AR-3
CCW	DPDT	C	EXD-AR30-3

Hermetically sealed

Operating force max. (OF):	
Clockwise (CW)	2,22 N to 6,67 N (0.5 lb to 1.5 lb)
Counter clockwise (CCW)	11,1 N (2.5 lb)
Pretravel max. (PT):	
Clockwise (CW)	5,56 mm (0.219 in) 8°
Counter clockwise (CCW)	1,65 N (0.065 in) 3.5°
Overtravel max. (OT):	25°
Differential travel max. (DT):	0,64 mm (0.025 in)
Sealing:	NEMA Class 1 Group B

ACTUATION	CONTACT	ELECTRICAL RATING	REFERENCE
CW/3,2 m (10.5 ft) leadwire	SPDT	E	EXH-AR3
CCW/0,91 m (3 ft) leadwire	SPDT	E	EXH-AR33
CW/0,91 m (3 ft) leadwire	SPDT	E	EXH-AR7

2 Conduit openings

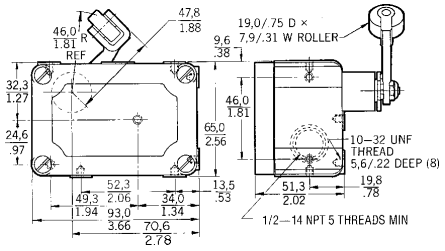


Operating force max. (OF):	
Electrical rating A	2,22 N to 5,56 N (0.5 lb to 1.25 lb)
Electrical rating B	3,61 N to 8,90 N (0.8 lb to 2 lb)
Electrical rating C	2,22 N to 6,67 N (0.5 lb to 1.5 lb)
Pretravel max. (PT):	
Electrical rating A, B	5,56 mm (0.219 in) 8°
Electrical rating C	6,35 mm (0.250 in)
Overtravel max. (OT):	
Electrical rating A	90°
Electrical rating B, C	25°
Differential travel max. (DT):	
Electrical rating A	0,18 mm (0.007 in) 0.25°
Electrical rating B	0,3 mm (0.012 in) 0.5°
Electrical rating C	2,77 mm (0.109 in) 4°

CONTACT	ELECTRICAL RATING	REFERENCE
DPDT	C	4EX1-3
SPDT	B	2EX1
SPDT	A	1EX1

EX Series
Side rotary actuated switches (continued)

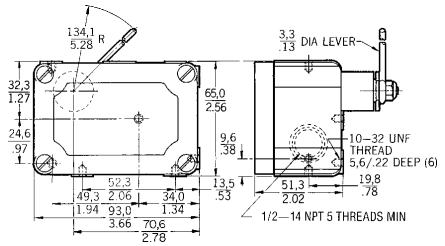
Cross roller lever, rotated 90°



Operating force max. (OF):	2,22 N to 5,56 N (0.5 lb to 1.25 lb)
Pretravel max. (PT):	5,56 mm (0.219 in) 8°
Overtravel max. (OT	90°
Differential travel max. (DT):	0,18 mm (0.007 in) 0.25°

	CONTACT	ELECTRICAL RATING	REFERENCE
CW	SPDT	A	EX-CR

Rod lever



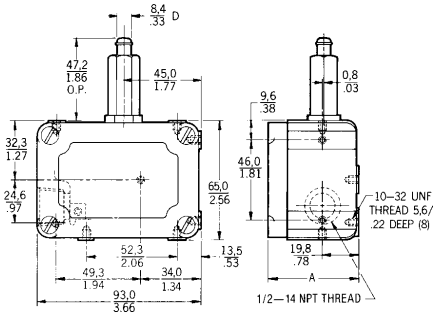
Operating force max. (OF):	0,56 N (2 oz)
Pretravel max. (PT):	18°
Overtravel min. (OT):	40°

	CONTACT	ELECTRICAL RATING	REFERENCE
CW/No mounting bracket	SPDT	A	EX-AR1613

Overtravel plunger actuated switches

OPTIONS

Top pin plunger



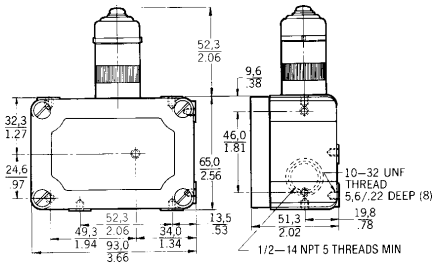
Operating force max. (OF):	
Electrical rating A, C	13,34 N (3.0 lb)
Electrical rating B	8,90 N (2 lb)
Pretravel max. (PT):	
Electrical rating A	1,98 mm (0.078 in)
Electrical rating B	1,27 mm (0.050 in)
Electrical rating C	3,96 mm (0.156 in)
Overtravel min. (OT):	
Electrical rating A	4,78 mm (0.188 in)
Electrical rating B	3,18 mm (0.125 in)
Electrical rating C	3,48 mm (0.141 in)
Differential travel max. (DT):	
Electrical rating A	0,10 mm (0.004 in)
Electrical rating B	0,23 mm (0.009 in)
Electrical rating C	1,52 mm (0.060 in)

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	EX-Q
No mounting bracket	SPDT	A	EX-Q62
High temperature	SPDT	A	EX-Q400
Low OF	SPDT	B	EXA-Q

Sealing NEMA Class 1 Group B

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	EX-Q800
Preleaded with 0,91 m (3 ft) leadwire	DPDT	C	EXD-Q-3

Boot sealed

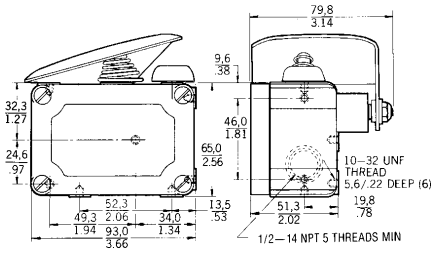


Operating force max. (OF):

Electrical rating D	13,34 N (3.0 lb)
Electrical rating B	15,57 N (3.5 lb)
Pretravel max. (PT):	
Electrical rating D	1,98 mm (0.078 in)
Electrical rating B	2,77 mm (0.109 in)
Overtravel min. (OT):	
Electrical rating D	4,78 mm (0.188 in)
Electrical rating B	3,18 mm (0.125 in)
Differential travel max. (DT):	
Electrical rating D	0,10 mm (0.004 in)
Electrical rating B	0,23 mm (0.009 in)

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	D	EX-N15
Class 1 Group B	SPDT	B	EXA-N

Manually actuated



Operating force max. (OF): 11,1 N (2.5 lb)

	CONTACT	ELECTRICAL RATING	REFERENCE
	SPDT	A	EX-AR50

CX Series Weather Sealed Explosion Proof Switches

Actuators

CX switches, as are the LSX/BX Series, are built especially for outdoor use in hazardous atmospheres. These enclosures are constructed to withstand the pressure of an internal explosion.

O-ring seals make the enclosure weatherproof but are outside of required flame paths so explosion proof requirements are maintained.

As factory assembled, all basic switches operate on clockwise and counterclockwise rotation. The actuating mechanism can be field adjusted for CW or CCW operation only.

Analog output, 4 mA to 20 mA, is available.

Basic switches operate nearly simultaneously in multiple switch devices.

Shafts of devices without shaft restoring force can be rotated through 360°.

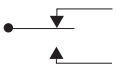
Sealing:		
NEMA		1, 3, 4, 4X, 6, 6P, 7, 9 and 13
UL listed		Class I, Div. 1, Groups B (16CX, 24CX, 26CX, and 84CX only), C and D; and Class II, Div. 1, Groups E, F and G
CSA certified		Class I, Div. 1, Groups B (16CX, 24CX, 26CX, and 84CX only), C and D; and Class II, Groups E, F and G
Operating temperature:		–25 °C to 85 °C (–13 °F to 185 °F)
Approvals:		UL, CSA
	CX-E only	ATEX EExd IIC T6 Category II 2 GD
Housing:		Aluminium
	80CX	Bronze
Conduit:		¾ in - 14NPT
Contacts:	A, C, D	Silver
	F	Gold

Electrical Ratings:

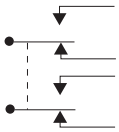
A	UL/CSA Rating: L96	15 A, 120, 240 or 480 Vac, ind. and res 1/8 Hp, 120 Vac; ¼ Hp, 240 Vac 0.5 A, 125 Vdc, 0.25 A, 250 Vdc, res
C	UL/CSA Rating: L59	10 A, 120 or 240 Vax, ind. and res 0.3 A, 125 Vdc, 0.15 A, 250 Vdc, res
D	UL/CSA Rating: L22	1 A, 120 Vax, ind. and res
F	UL/CSA Rating: L22	1 A, 125 Vac
G	Analog Current Output (4 mA to 20 mA)	12.5 Vdc to 40 Vdc

Switching options:

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



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



Analog position sensing specifications (Electrical rating "G")

Current output:	4 mA to 20 mA
Voltage compliance range:	12.5 Vdc to 40 Vdc
Maximum load resistance:	RL, Max., $\frac{\text{–V Supply - 12.5}}{\text{20 mA}}$
Current signal output:	4 mA to 20 mA
Span:	Adjustable from 15° to 90° of angular rotation
Null:	4 mA position may be set at any angular position

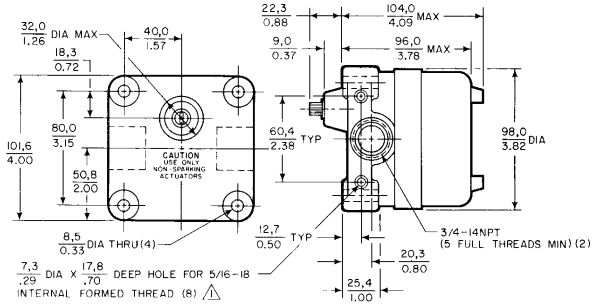
Operating characteristics

Basic Switch Type	BZ	BA	DT	HS
Pretravel (max.)*	15°	15°	30°	30°
Differential Travel (max.)	10°	10°	25°	20°
Overtravel (min.)*	90°	90°	75°	75°
Operating Torque (max.)	11.1 in lb/1,25 N m			

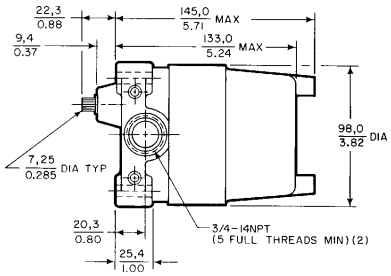
* May be modified in field to suit application requirements.

Note: Levers are ordered separately (see pages 69-71 for details)

Short housing



Standard housing



Notes:

Add the letter "A" to listings with side mounting holes tapped 5/16 (8).
Example: 11CX2**A**

Add the letter "B" to listings with thru mounting holes tapped 3/8-24 (4).
Example: 11CX2**B**

Add the letter "C" to listings for low temperature (-40 °C/°F) applications.
Example: 11CX2**C**

Add "D01" to specify a "direct-couple" listing with 3/8 in. dia by 3/4 in. long flatted shaft.
Example: 11CX2-**D01**

Add the letter "E" to listings for European Atex approvals.
Example: 11CX2**E**

For Replacement Basic Switch Assemblies, change the first number in the listing to "9".
Example: 11CX2 becomes **9**1CX2

OPTIONS

HOUSING SIZE	BASIC SWITCHES	CONTACT	ELECTRICAL RATING	SHAFT RESTORING FORCE TO CENTRE	REFERENCE
Short	BZ (2)	SPDT	A	With	11CX2
Short	BZ (2)	SPDT	A	Without	11CX12
Short	BZ (2)	SPDT	A	With	11CX2E
Short	BZ (2)	SPDT	A	Without	11CX12E
Short	BZ (2)	SPDT	F	With	1172CX2
Short	BZ (2)	SPDT	F	Without	1172CX12
Standard	BZ (4)	SPDT	A	With	21CX4
Standard	BZ (4)	SPDT	A	Without	21CX14

UL listed for Class I, Group B (hydrogen atmospheres)

HOUSING SIZE	BASIC SWITCHES	CONTACT	ELECTRICAL RATING	SHAFT RESTORING FORCE TO CENTRE	REFERENCE
Standard	DT (2)	DPDT	C	With	24CX2
Standard	DT (2)	DPDT	C	Without	24CX12
Short	HS (2)	SPDT	D	With	16CX2
Short	HS (2)	SPDT	D	Without	16CX12
Standard	HS (4)	SPDT	D	With	26CX4

Analog output, 4 mA to 20 mA

HOUSING SIZE	BASIC SWITCHES	CONTACT	ELECTRICAL RATING	SHAFT RESTORING FORCE TO CENTRE	REFERENCE
Short	None	N/A	G	With	18CX0
Short	None	N/A	G	Without	18CX10
Short	None	N/A	G	Without	18CX10E
Standard	BZ (2)	SPDT	A, G	With	281CX2
Standard	BZ (2)	SPDT	A, G	Without	281CX12

Bronze housing for use in corrosive environments

80CX switches have rugged bronze housings which are resistant to salt water and other corrosive environments. They comply with the NEMA 4X requirement for protection against corrosion, in addition to NEMA enclosure standards met by other CX switches. O-ring seals make the enclosure weather-proof, but are outside of required flame paths, maintaining explosion-proof requirements.

HOUSING SIZE	BASIC SWITCHES	CONTACT	ELECTRICAL RATING	SHAFT RESTORING FORCE TO CENTRE	REFERENCE
Standard	BZ (2)	SPDT	A	With	81CX2
Standard	BZ (4)	SPDT	A	With	81CX4
Standard	BZ (4)	SPDT	A	Without	81CX14
Standard	DT (2)	DPDT	C	With	84CX2

LSX/BX Series Weather sealed explosion proof switches

LSX/BX Series weather sealed, explosion proof limit switches are for use either indoor or outdoors in hazardous atmospheres. They are completely sealed and designed for use in explosive gas/dust environments.

LSX/BX products meet the sealing standards of NEMA 1, 3, 4, 6, 7, 9 and 13. BX products are also sealed to IP67 standard and are ATEX approved (see specifications below).

All heads are field adjustable at 90° increments. Heads with side rotary actuators can be adjusted for clockwise and counter clockwise operation.

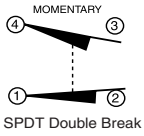
Actuators

Sealing:

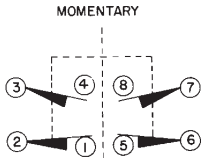
LSX	NEMA 1, 3, 4, 6, 7 (Class 1, Division 1, Groups B, C, D), 9 (Class 2, Division 1, Groups E, F, G), 13
BX	IP67, NEMA 1, 3, 4, 6, 13
Approvals:	
LSX/BX	UL, CSA*
BX only	EExd IIC T6 category II 2 GD, SIRA 00ATEX 1037X
Contacts:	
Electrical ratings A, B	Silver
Electrical rating C	Gold

Switching options:

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



SPDT Double Break



DPDT Double Break

* Applies only to listings with ½ in NPT or ¾ in NPT

Electrical ratings

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

ac Volts

Pilot duty: 600 Vac, 720 VA

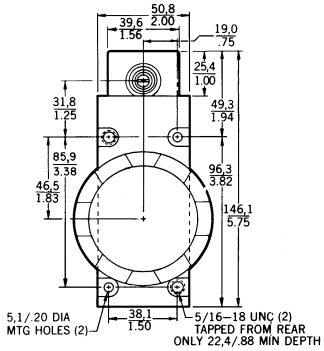
		Amps at 0.35 Power Factor	
	Vac	**Make**	**Break**
A	120	60	6
SPDT	240	30	3
NEMA	480	15	1.5
A600	600	12	1.2
B	120	30	3
DPDT	240	15	1.5
NEMA	480	7.5	0.75
B600	600	6	0.60
C SPDT/DPDT	250 Vac or 60 Vdc, 0.050 amp max.		

dc Volts

Pilot duty: 240 Vdc, 30 watts

		Make and Break Amps	
	Vdc	**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 SPDT/DPDT	250 Vac or 60 Vdc, 0.050 amp max.		

Rotary actuated switches

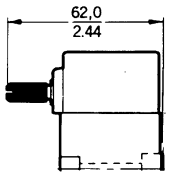


Operating torque max.:	Standard	0,45 N m (4.0 in lb)
	Low	0,19 Nm (1.7 in lb)
Pretravel max. (PT):	Standard	15°
	Low	9°
Overtravel min. (OT):	Standard	60°
	Low	66°
Differential travel max. (DT):		
	Standard SPDT	5°
	Standard DPDT	7°
	Low SPDT	3°
	Low DPDT	4°

Note: Levers are ordered separately (see pages 69-71 for details)

OPTIONS

Side rotary



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

LSX

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
	SPDT	½ in - 14NPT	A	LSXA3K
	SPDT	20 mm	A	LSX4A3K
	SPDT	¾ in - 14NPT	A	LSXA4K
	SPDT	½ in - 14NPT	C	LSXA3E
	DPDT	¾ in - 14NPT	B	LSXA4L
	DPDT	20 mm	B	LSX4A4L
	DPDT	½ in - 14NPT	B	LSXA7L
Low DT	SPDT	½ in - 14NPT	A	LSXP3K

BX

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
	SPDT	½ in - 14NPT	A	BXA3K
	SPDT	20 mm	A	BX4A3K
	DPDT	¾ in - 14NPT	B	BXA4L

Operating temperature: -1 °C to 121 °C (30 °F to 250 °F)

LSX

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
Low DT/Low torque	SPDT	½ in - 14NPT	A	LSXH3K
Low DT/Low torque	DPDT	¾ in - 14NPT	B	LSXH4L
Low torque	SPDT	½ in - 14NPT	A	LSXR3K
Low torque	DPDT	¾ in - 14NPT	B	LSXR4L

BX

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
Low torque	SPDT	½ in - 14NPT	A	BXR3K
Low torque	SPDT	½ in - 14NPT	C	BXR3E
Low torque	DPDT	¾ in - 14NPT	C	BXR4S

Centre neutral

Operating torque max. : 0,45 N m (4.0 in lb)
Pretravel max. (PT): 18°
Overtravel min. (OT): 57°
Differential travel max. (DT): 10°
Operating temperature: -1 °C to 121 °C (30 °F to 250 °F)

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
DPDT	¾ in - 14NPT	B	LSXM4N
DPDT	20 mm	B	LSX4M4N

Maintained contact

Operating torque max.: 0,45 N m (4.0 in lb)
Pretravel max. (PT): 65°
Overtravel min. (OT): 20°
Differential travel max. (DT): SPDT 30°
DPDT 35°
Operating temperature: -1 °C to 121 °C (30 °F to 250 °F)

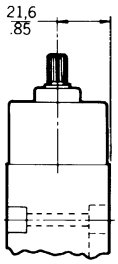
LSX

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
Maintained	SPDT	½ in - 14NPT	A	LSXN3K
Maintained	DPDT	¾ in - 14NPT	B	LSXN4L
Maintained	DPDT	½ in - 14NPT	B	LSXN7L

BX

	CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
Maintained	SPDT	½ in - 14NPT	A	BXN3K
Maintained	DPDT	¾ in - 14NPT	B	BXN4L

Top rotary



Operating torque max.: 0,28 N m (2.5 in lb)
Pretravel max. (PT): 25°
Overtravel min. (OT): 100°
Differential travel max. (DT): SPDT 10°
DPDT 12°
Operating temperature: -1 °C to 121 °C (30 °F to 250 °F)

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXB3K
DPDT	¾ in - 14NPT	B	LSXB4L

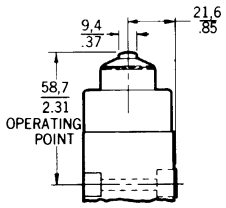
LSX/BX Series (continued)
Plunger actuated switches

Top plungers

Operating force max. (OF):	17,79 N (4 lb)
Pretravel max. (PT):	1,78 mm (0.07 in)
Overtravel min. (OT):	4,83 mm (0.19 in)
Differential travel max. (DT):	
SPDT	0,38 mm (0.015 in)
DPDT	0,51 mm (0.02 in)
Operating temperature:	-12 °C to 93 °C (10 °F to 200 °F)

OPTIONS

Top pin plunger



Operating point: 58,5 mm ± 0,76 mm (2.305 in ± 0.03 in)

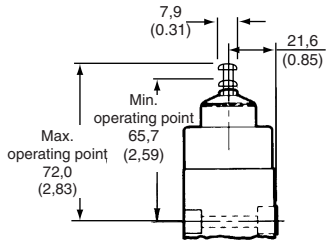
LSX

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXC3K
SPDT	20 mm	A	LSX4C3K
DPDT	¾ in - 14NPT	B	LSXC4L

BX

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	20 mm	A	BX4C3K
DPDT	¾ in - 14NPT	B	BXC4L
DPDT	20 mm	B	BX4C4L

Top pin plunger, adjustable

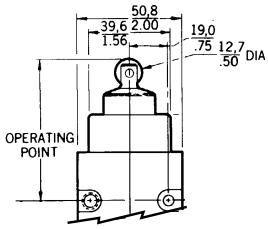


Operating point: 65,66 mm to 72,01 mm (2.585 in to 2.835 in)

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXV3K

Top roller plunger

Head can be set at 90° increments for cam or slide actuation



Operating point: 68,6 mm ± 1.00 mm (2.700 in ± 0.04 in)

LSX

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXD3K
SPDT	20 mm	A	LSX4D3K
DPDT	¾ in - 14NPT	B	LSXD4L

BX

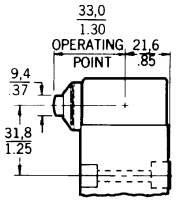
CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	20 mm	A	BX4D3K

Side plungers

Operating force max. (OF): 26,69 N (6 lb)
Pretravel max. (PT): 2,54 mm (0.10 in)
Overtravel min. (OT): 4,83 mm (0.19 in)
Differential travel max. (DT): 1,14 mm (0.045)
Operating temperature: -12 °C to 93 °C (10 °F to 200 °F)

OPTIONS

Side pin plunger

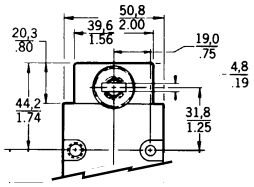


Operating point: 33,0 mm (1.30 in)

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXE3K
DPDT	¾ in - 14NPT	B	LSXE4L

Side roller plunger

Roller may be set in vertical or horizontal position for cam or slide actuation



Operating point: 44,1 mm (1.735 in)

LSX

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXF3K

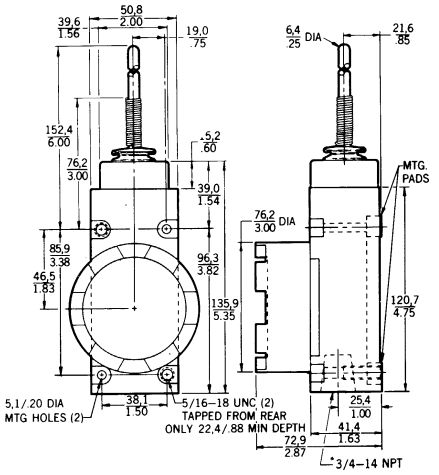
BX

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	BXF3K

Wobble actuated switches

OPTIONS

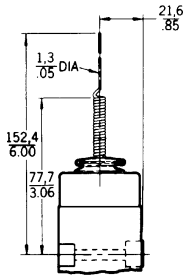
Plastic rod



Operating force max. (OF): 2,78 N (10 oz)
Pretravel max. (PT): 25,4 mm (1.0 in)
Operating temperature: -12 °C to 93 °C (10 °F to 200 °F)

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXJ3K-7A
DPDT	¾ in - 14NPT	B	LSXJ4L-7A

Cat whisker



Operating force max. (OF): 1,39 N (5 oz)
Pretravel max. (PT): 50,8 mm (2.0 in)
Operating temperature: -12 °C to 93 °C (10 °F to 200 °F)

CONTACT	CONDUIT	ELECTRICAL RATING	REFERENCE
SPDT	½ in - 14NPT	A	LSXK3K-8A

Levers

Separate levers must be ordered with side rotary types. The table provides a cross reference between product families and the lever order/ reference numbers. The following pages describe the levers. Illustrations are for reference only. Exact mounting drawings and dimensions are available from your local sales office or from the website below.

Levers lock in any position, 360° around the shaft. Rollers may be mounted on the front or back of the lever.

All levers are supplied with cap screws.

Explosion proof switches

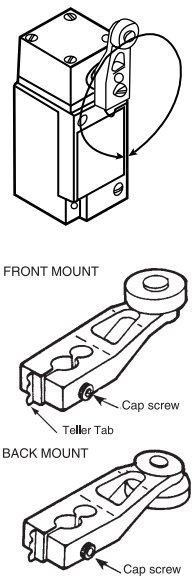
Because of explosion proof requirements, only nylon rollers or other non sparking material should be selected. BX/LSX, CX and EX plunger and cat whisker types are of non sparking material. **Do not mix or substitute.**

Specification (unless stated otherwise)

Lever radius/length:	1.5 in (38,1 mm)
Roller Diameter:	0.75 in (19,1 mm)
Roller Width:	0.25 in (6,35 mm)
-EX	0.312 in (7,92 mm)

Note:

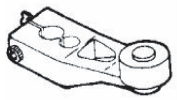
Not all levers are compatible with all switches



REFERENCE	ROLLER MATERIAL	LIMIT SWITCH SERIES				EXPLOSION PROOF SERIES		
		GLA	HDLS	LS2	LS	BX/LSX	CX	EX
6PA57	Aluminium				❖			
6PA63	Stainless steel				❖			
6PA69	Spring rod				❖			
6PA80	Steel				❖			
6PA82	Steel				❖			
6PA102	Nylon				❖			
6PA144	Ball bearing				❖			
GLZ51A	Nylon	❖						
GLZ51B	Steel	❖						
GLZ52A	Nylon	❖						
GLZ52B	Steel	❖						
GLZ54J	Aluminium	❖						
GLZ55B	Steel	❖						
LSZ51	N/A		❖			❖	❖	
LSZ51A	Nylon		❖		❖	❖	❖	
LSZ51B	Steel		❖		❖			
LSZ51C	Nylon		❖			❖	❖	
LSZ51D	Steel		❖					
LSZ51W	Rubber		❖					
LSZ51Y	Rubber		❖					
LSZ52	N/A		❖					
LSZ52A	Nylon		❖			❖		
LSZ52B	Steel		❖					
LSZ52C	Nylon		❖		❖	❖	❖	
LSZ52D	Steel		❖		❖			
LSZ52J	Nylon		❖		❖	❖	❖	
LSZ52K	Nylon		❖		❖	❖	❖	
LSZ52M	Nylon		❖		❖	❖		
LSZ52N	Nylon		❖			❖		
LSZ52W	Rubber		❖					
LSZ52Y	Rubber		❖					
LSZ53A	Nylon		❖					
LSZ53B	Steel		❖					
LSZ53D	Steel		❖					
LSZ53E	Nylon		❖			❖	❖	
LSZ53P	Steel		❖					
LSZ53S	Nylon		❖			❖	❖	
LSZ53U	Steel		❖					
LSZ54	N/A		❖			❖	❖	
LSZ54M	Aluminium		❖		❖	❖	❖	
LSZ54N	Stainless steel		❖					
LSZ54R	Spring wire		❖					
LSZ54V	Cable		❖					
LSZ55	N/A		❖			❖	❖	
LSZ55A	Nylon		❖			❖	❖	
LSZ55B	Steel		❖					
LSZ55C	Nylon		❖			❖		
LSZ55D	Steel		❖					
LSZ55W	Rubber		❖					
LSZ55Y	Rubber		❖					
LSZ61	Nylatron		❖					
LSZ67AA	Rubber		❖					
LSZ68	Delrin		❖					
6PA5-EX	Bronze							❖
6PA127-EX	Nylon							❖
6PA130-EX	Bronze							❖
6PA131-EX	Bronze							❖
6PA136-EX	Aluminium							❖
6PA138-EX	Nylon							❖
6PA142-EX	Bronze							❖
6PA204-EX	Nylon							❖
Stainless steel levers								
LS2Z51A	Nylon		❖	❖			❖	
LS2Z51B	Steel		❖	❖				
LS2Z52A	Nylon		❖	❖			❖	
LS2Z52B	Steel		❖	❖				
LS2Z54N	Steel		❖	❖				

OPTIONS * denotes lever suitable for Explosion Proof Series switches

Standard fixed lever

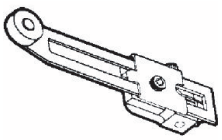


	MOUNTED ON	REFERENCE
Without roller		LSZ51*
Nylon roller	Front	LSZ51A*
Metal roller	Front	LSZ51B
Nylon roller	Back	LSZ51C*
Metal roller	Back	LSZ51D
Nylon roller	Front	GLZ51A
Metal roller	Front	GLZ51B
Bronze roller	Front	6PA5-EX*
Nylon roller	Front	6PA127-EX*
Ball bearing roller	Front	6PA144

Offset fixed lever

	MOUNTED ON	REFERENCE
Without roller		LSZ55*
Nylon roller	Back	LSZ55A*
Metal roller	Back	LSZ55B
Nylon roller	Front	LSZ55C*
Metal roller	Front	LSZ55D
Metal roller	Front	GLZ55B

Adjustable lever

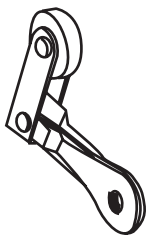


Operating radius/length: 1.5 in to 3.5 in (38,1 mm to 88,9 mm)

-EX 1.69 in to 3.0 in (42,9 mm to 76,2 mm)

	MOUNTED ON	REFERENCE
Adjustable lever, without roller		LSZ52
Nylon roller	Back	LSZ52A*
Metal roller	Back	LSZ52B
Nylon roller	Front	LSZ52C*
Metal roller	Front	LSZ52D
Nylon roller, Ø 1.0 in (25,4) x 0.5 in (12,7 mm)	Front	LSZ52J*
Nylon roller, Ø 1.5 in (38,1)	Front	LSZ52K*
Nylon roller, Ø 2.0 in (50,8)	Front	LSZ52M*
Nylon roller, 0.5 in wide (12,7 mm)	Front	LSZ52N*
Nylon roller	Back	GLZ52A
Metal roller	Back	GLZ52B
Nylon roller, Ø 1.0 in (25,4) x 0.5 in (12,7 mm)	Front	6PA138-EX*

One way roller lever

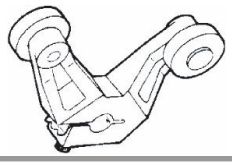


	RADIUS/LENGTH	REFERENCE
Bronze roller, clockwise	1.56 in (39,6 mm)	6PA130-EX*
Bronze roller, counter clockwise	1.56 in (39,6 mm)	6PA142-EX*

Perpendicular (cross) roller lever

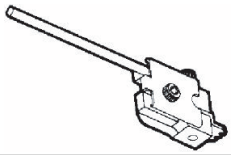
	RADIUS/LENGTH	REFERENCE
Bronze roller	1.81 in (46,0 mm)	6PA131-EX*

Yoke lever



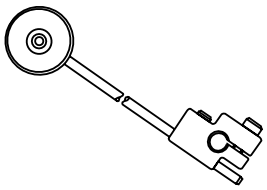
	MOUNTED ON	REFERENCE
Nylon roller	Front/Back	LSZ53A
Metal roller	Front/Back	LSZ53B
Metal roller	Front/Front	LSZ53D
Nylon roller	Back/Front	LSZ53E*
Metal roller	Back/Back	LSZ53P
Nylon roller	Back/Back	LSZ53S*
Metal roller	Back/Front	LSZ53U
Metal roller	Front/Back	6PA80
Metal roller	Front/Front	6PA82
Nylon roller	Front/Front	6PA102

Adjustable rod



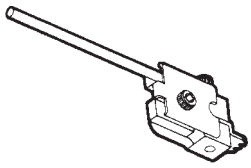
	RADIUS/LENGTH	REFERENCE
Hub only		LSZ54*
Aluminium rod	5.5 in (139,7 mm)	LSZ54M*
Stainless steel rod	13.0 in (330,2 mm)	LSZ54N
Aluminium, spring only	12.0 in (305 mm)	LSZ54R
Aluminium, flexible cable	4.8 in (122 mm)	LSZ54V
Aluminium rod	7.9 in (200 mm)	GLZ54J
Stainless steel rod	13.0 in (330,2 mm)	6PA63
Aluminium rod	5.3 in (134,1 mm)	6PA136-EX*

Adjustable rod, nylon roller



	RADIUS/LENGTH	REFERENCE
Aluminium rod, nylon roler	12.5 in (317,5 mm)	6PA204-EX*

Spring rod



	RADIUS/LENGTH	REFERENCE
Ø 0.25 in (6,35 mm)	12.0 in (305 mm)	LSZ68
Ø 0.17 in (4,32 mm)	7.4 in (188 mm)	6PA69

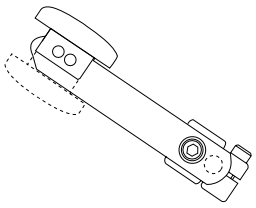
Note: Not all levers are compatible with all switches

** denotes lever suitable for Explosion Proof Series switches*

Flexible loop

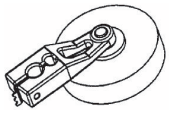
	RADIUS/LENGTH	REFERENCE
Flexible loop	6.0 in (152 mm)	LSZ61

Hand operated button



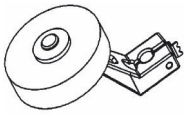
	REFERENCE
Ø 1.5 in (38,1 mm)	6PA57

***Large rubber roller, fixed lever*



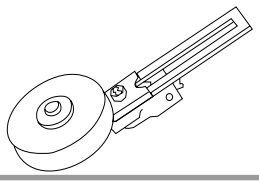
	REFERENCE
Ø 1.6 in X 0.50 in wide roller (40,6 mm X 12,7 mm)	LSZ51W
Ø 2 in X 0.50 in wide roller (50,8 mm X 12,7 mm)	LSZ51Y

***Large rubber roller, fixed offset lever*



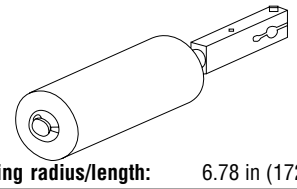
	REFERENCE
Ø 1.6 in X 0.50 in wide roller (40,6 mm X 12,7 mm)	LSZ55W
Ø 2 in X 0.50 in wide roller (50,8 mm X 12,7 mm)	LSZ55Y

***Large rubber roller, adjustable lever*



	REFERENCE
Ø 1.6 in X 0.50 in wide roller (40,6 mm X 12,7 mm)	LSZ52W
Ø 2 in X 0.50 in wide roller (50,8 mm X 12,7 mm)	LSZ52Y

***Conveyor roller arm*



Operating radius/length: 6.78 in (172,2 mm)

	REFERENCE
Plastic roller, 1.5 in Ø X 3.8 in long (38,1 mm X 96,5 mm)	LSZ67AA

NOTICE **

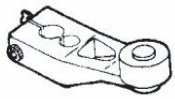
Large rubber rollers and conveyor roller arm
Because of the lever's mass, the limit switch should be mounted with the lever facing down. This will enable gravity to help restore the switch to the free position.

Stainless steel levers

Roller Diameter: 0.75 in (19,1 mm)
Roller Width: 0.25 in (6,35 mm)

OPTIONS

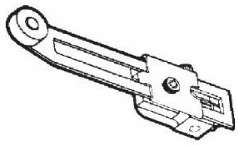
Standard fixed lever



Operating radius/length: 1.5 in (38,1 mm)

	MOUNTED ON	REFERENCE
Nylon roller	Front	LS2Z51A*
Stainless steel roller	Front	LS2Z51B

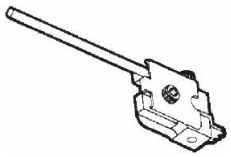
Adjustable lever



Operating radius/length: 1.5 in to 3.5 in (38,1 mm to 88,9 mm)

	MOUNTED ON	REFERENCE
Nylon roller	Back	LS2Z52A*
Stainless steel roller	Back	LS2Z52B

Adjustable rod



Operating radius/length: 13 in (330,2 mm)

REFERENCE
LS2Z54N

Note: Not all levers are compatible with all switches