

Improving checking and control technology

Combining Honeywell's technology center with MICRO SWITCH, Honeywell's sensor and control components provide a widest range of series of sensors and switches. We also provide customer with product service of high quality.

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Honeywell serves its costumers through a worldwide network of sales offices and distributors.

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Specified agents of Honeywell switch and sensor department



SZL-WL-H Series

General Purpose Limit Switch



Honeywell

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Honeywell

SZL-WL-H Series General Purpose Limit Switch



Features

- ◆ Designed to the new IEC standard for world-wide applications
- ◆ Positive opening of normal closed contact meets IEC 947-5-1-3 standard
- ◆ UL, CCC, CE approved
- ◆ IP67 Enclosure rating
- ◆ Variety of actuators, two kinds of conduit thread available
- ◆ NO/NC contacts electrically separated
- ◆ Elliptical hole design for easy mounting
- ◆ Wide choice of actuators

Applications

- ◆ Machine tools: metal fabrication equipment, presses, transfer lines and special machinery
- ◆ Material handling equipment: conveyors, elevators, cranes and hoists
- ◆ Packaging machinery and process equipment
- ◆ Textile machinery
- ◆ Construction machinery and equipment, vehicles and lift trucks

Description

SZL-WL-H series general purpose limit switches are specially designed for world-wide applications and supported by Honeywell global resources for sales and after sales service.

SZL-WL-H series general purpose limit switches are designed to the latest IEC standard.

EN50041 limit switches are available in metal enclosures.

Standard SZL-WL-H switch circuit variations include 2 and 3-circuit versions with forced disconnect mechanism.

SZL-WL-H series includes features to make quick installation easier and safer. Customers will benefit from Honeywell's vast experience in serving world industries over many years.

SZL-WL-H switches are interchangeable with almost all other makes of EN50041 and EN50047 switches.

Standard

IEC 947-1 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 947-5-1 is part 5 of the general rules which relates to Control circuit devices and switching elements. Also within this part there is a section which considers Special Requirements For Control Switches With Positive Opening Operation. Any control switch which has this positive opening operation and conforms to these special requirements will be marked on the outside of the product with this symbol:



The Contact Element Form defines the configuration of the contacts and the number of contacts within the switch. e.g.

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 and the typical application. e.g.

AC15: Control of Electromagnetic Loads, more than 72VA

DC13: Control of electromagnets.

The contact rating Designation relates to the utilization categories and defines the conventional thermal current Ith (A), rated operational current Ie at rated operational voltages Ue and the VA rating. e.g.

A600: "A" denotes the maximum rating(AC), "600" denotes the maximum rated (AC) voltage.

Q300: "Q" denotes the maximum rating(DC), "300" denotes the maximum rated (DC) voltage.

IEC standards have been adopted by CENELEC and have been identified by replacing IEC with EN 60.

e.g. IEC 947-5-1 then becomes EN 60947-5-1. CENELEC has defined the dimensions and characteristics of two types of limit switch in the standards EN 50041 and EN 50047.

These standards relate to Low voltage switchgear and controlgear for industrial use and define the enclosure dimensions, the operating point for various head actuators, the earth terminal requirement, the terminal marking and the minimum degree of IP protection.

How to read and understand the bar chart

The following example relates to a basic switch which has a snap action and which has a roller pin plunger actuator.

When reading these bar charts follow these rules:

1. Check what type of actuator was used to test the product, this is on the drawings which show the head style available. It will be one of two types:
 - a. Vertical travel plunger
 - b. Linear cam travel

2. Start reading from top left of figure B, at the arrow labeled "A".
3. Follow the black arrows and the black strip on the chart. The black strip indicates that there is a circuit between the terminals whose numbers are shown on the left and when white there is no circuit.

All dimensions are in mm.

Figure A

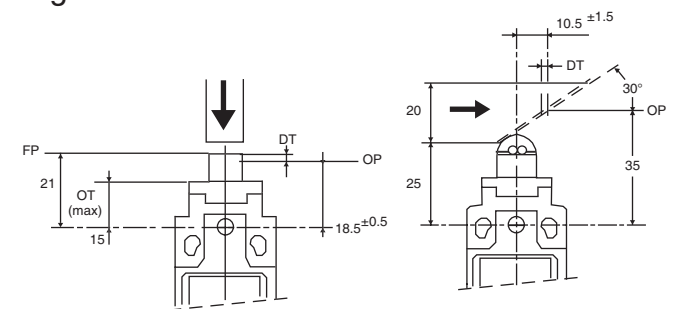
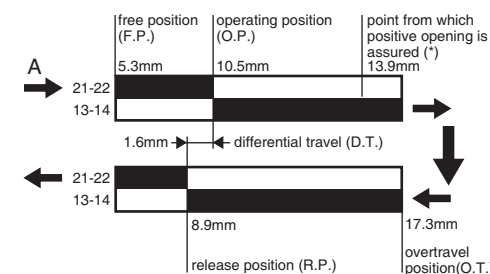


Figure B

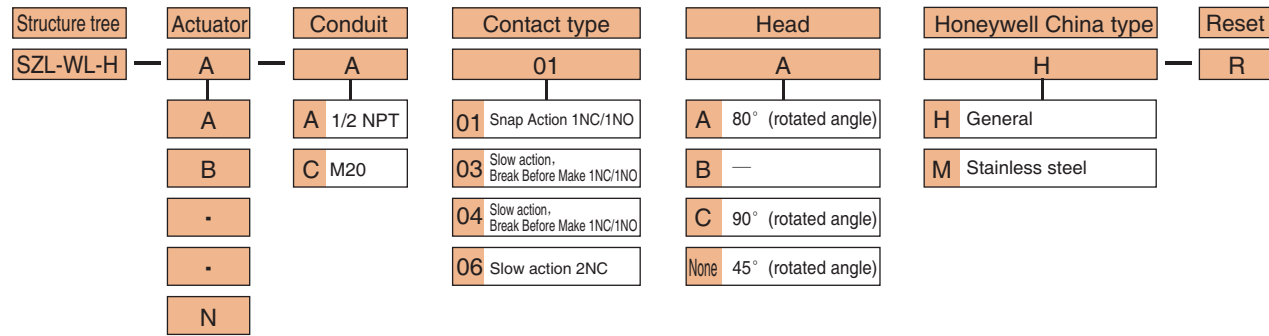


Characteristic parameters

	SZL-WL-H
Standard	EN 50041
Enclosure	metal
Operating Temperature	-25~+120°C
Operating Humidity	<95%RH
Shock/Vibration	10g/50g
Operating Speed	0.05mm~2m/s
Operating Frequency	120 ops/min
Contact Resistance	<25mΩ
Degree of Protection	IP67
Electrical Rating	AC15 A600 DC13 Q300
Dielectric Strength	2500V
Mechanical Life	10 ⁷
Electrical Life	5×10 ⁵

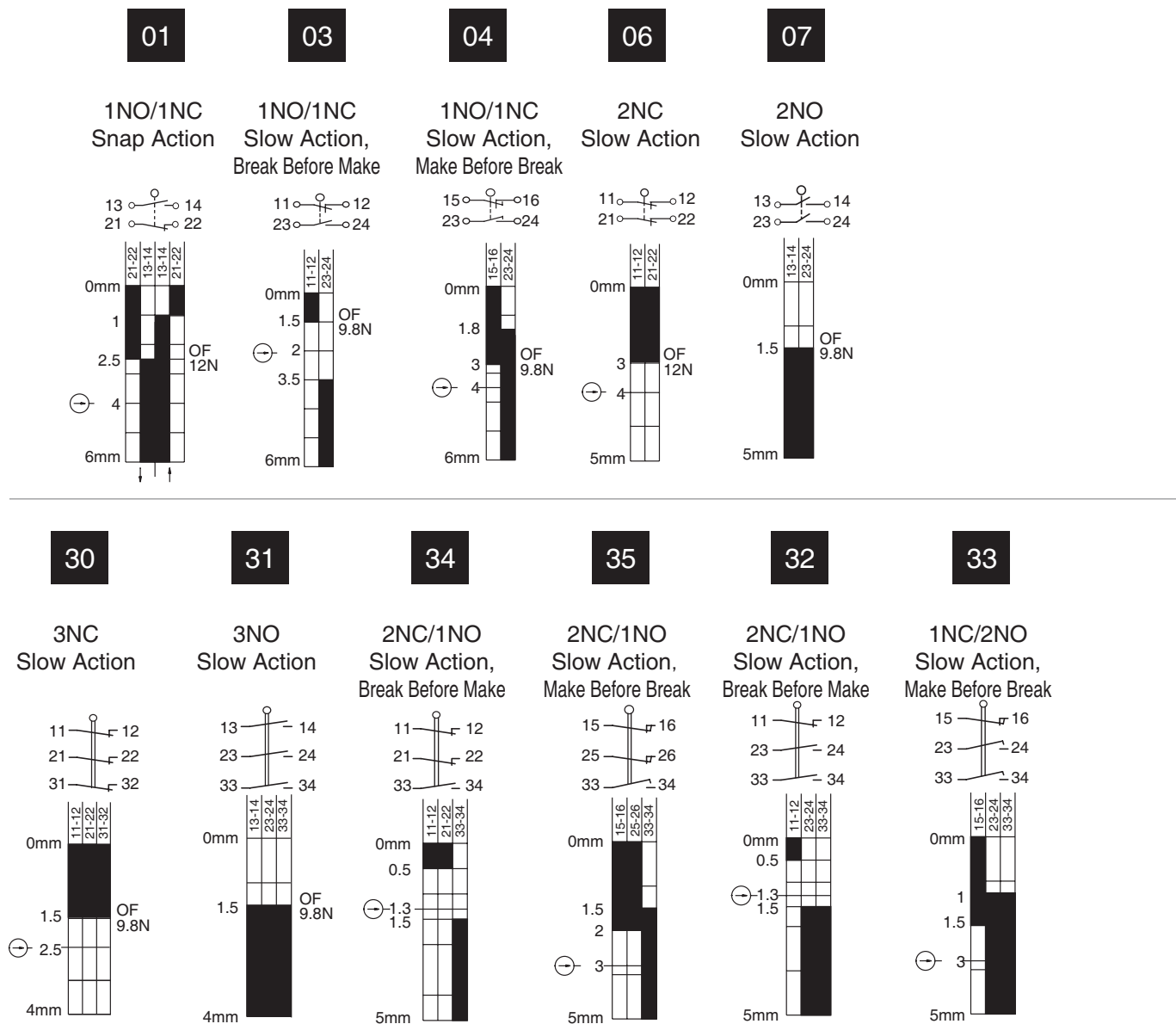
Look at Figures A and B as examples. Actuator type used for test is the linear Cam travel type as fig. A (b) shown left. The start point is at the arrow marked "A" (See fig. B). This shows the free position to be 5.3mm from the vertical center line of the unit. At this stage there is a circuit between the NO contact terminals 21-22 (indicated black) but no circuit between NC contact terminals 13-14 (indicated white). The unit can be actuated until it reaches the operating position which is 10.5 mm from the center line. At this point the circuit arrangement changes - no circuit between 21-22 but making a circuit between 13-14. If, however, the contacts of terminals 21-22 weld together and will not separate, a mechanical safety feature will take effect if the switch is travelled past the point from which positive opening is assured, 13.9 mm. Actuator can continue to travel to the end position (O.T. Overtravel Position) at total travel position 17.3mm. Then it reaches the release position as the lower half of the bar chart (arrow from right to left). As the switch returns it reaches the release position at 8.9 mm, there is no circuit between the contact terminals 21-22. The circuit will change back to the original state and the difference(1.6mm) between the operating position and the release position gives what is known as the differential travel. This is the entire process of switching operation.

■ Selection Guide



Example: SZL - WL - A - A01AH
 SZL - WL - E - A04H
 SZL - WL - S - A03CH

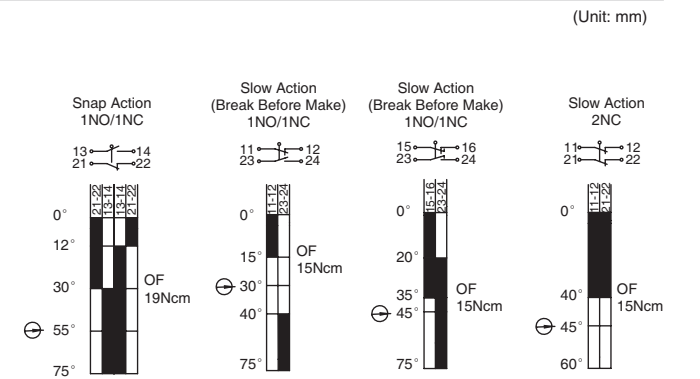
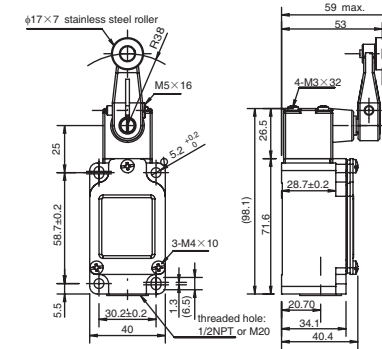
■ Contact Type



SZL-WL-H Series

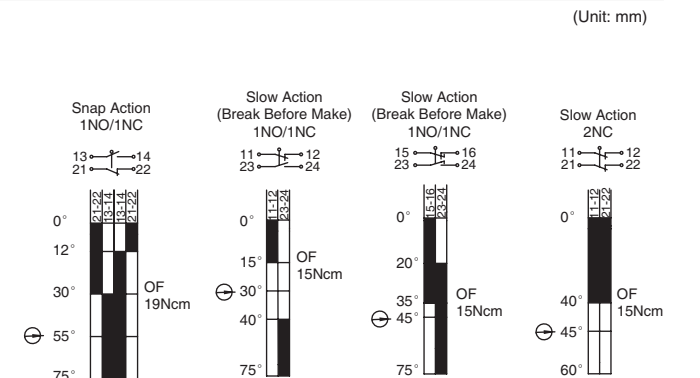
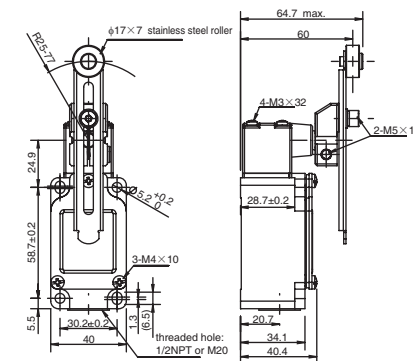
■ Actuator Selection

SZL-WL-A-□H



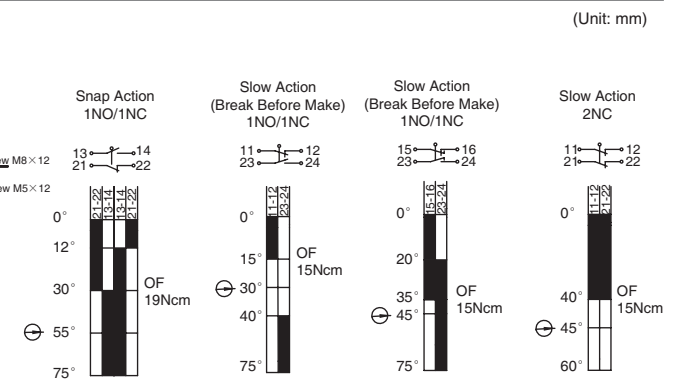
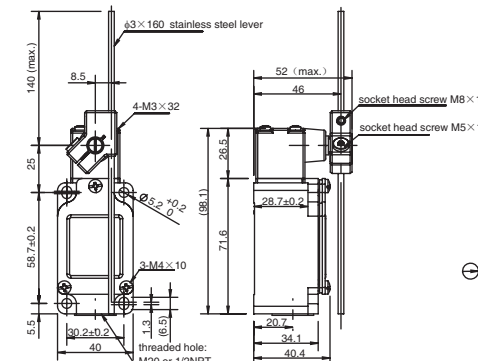
(Unit: mm)

SZL-WL-B-□H



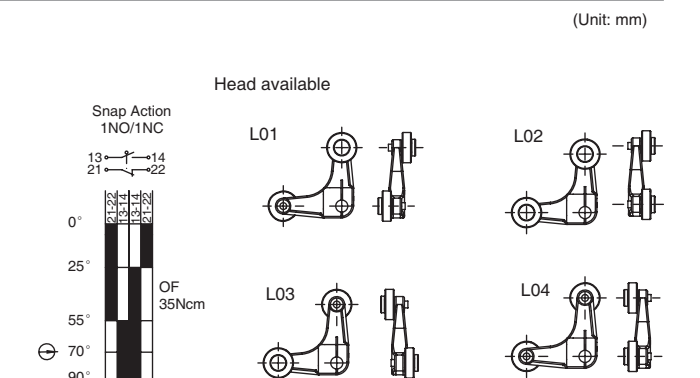
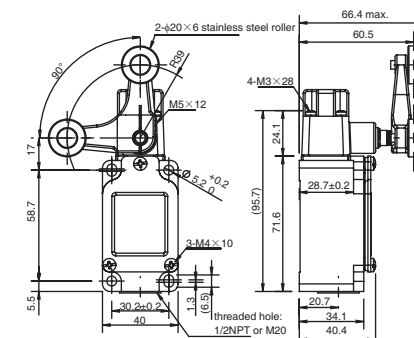
(Unit: mm)

SZL-WL-C-□H



(Unit: mm)

SZL-WL-D-□H

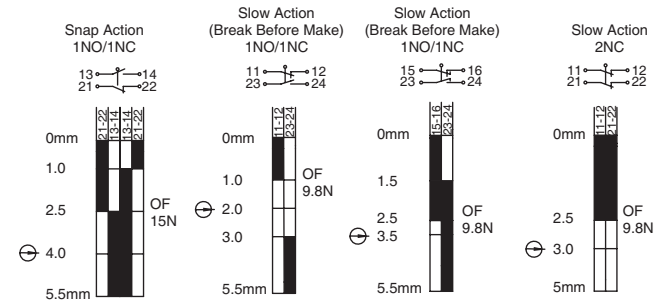
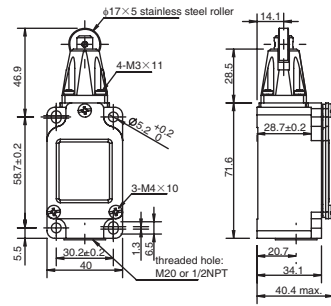


(Unit: mm)

SZL-WL-H Series

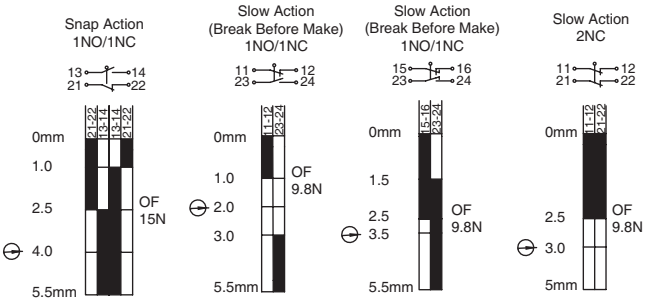
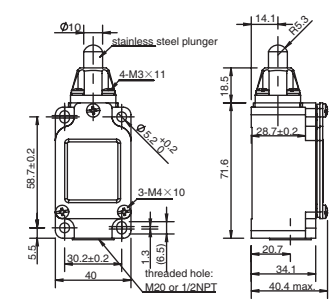
SZL-WL-E-□H

(Unit: mm)



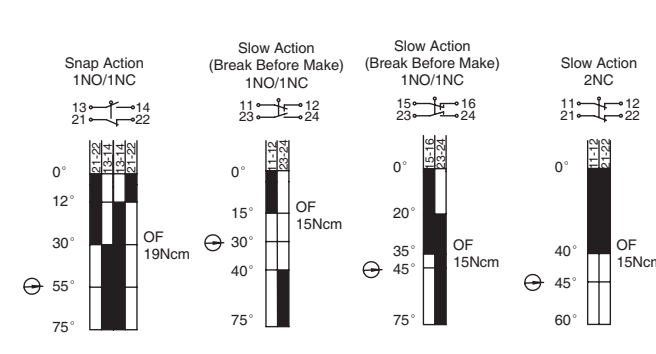
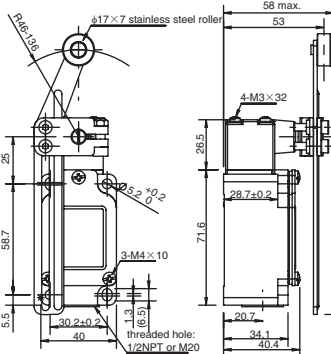
SZL-WL-F-□H

(Unit: mm)



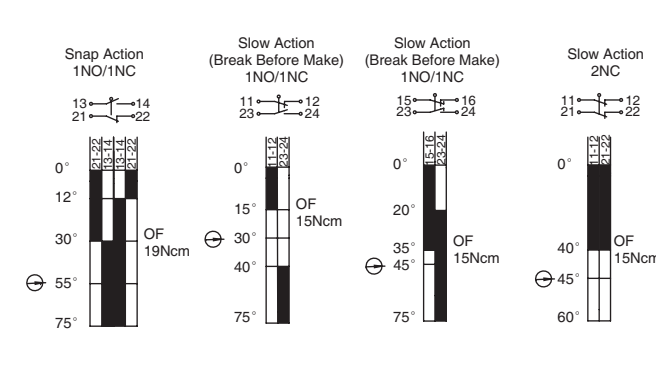
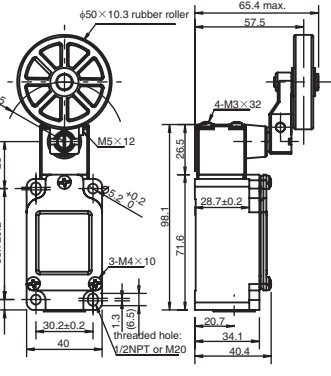
SZL-WL-S-□H

(Unit: mm)



SZL-WL-O-□H

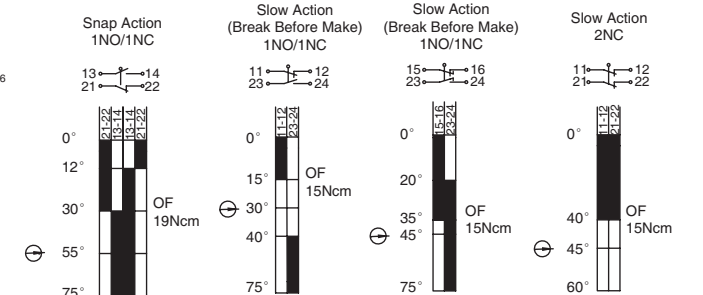
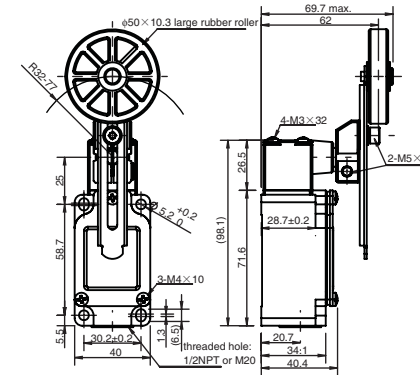
(Unit: mm)



SZL-WL-H Series

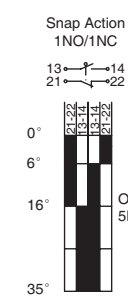
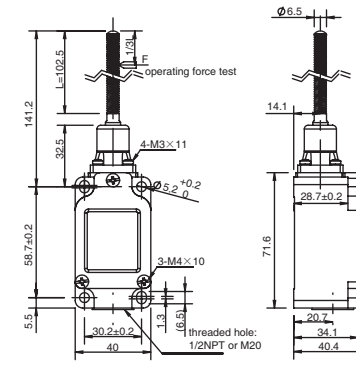
SZL-WL-T-□H

(Unit: mm)



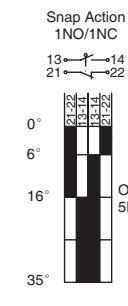
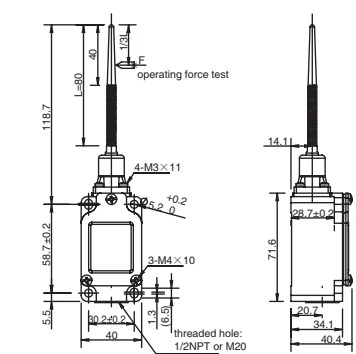
SZL-WL-K-□H

(Unit: mm)



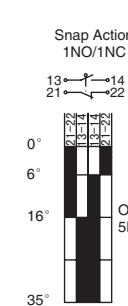
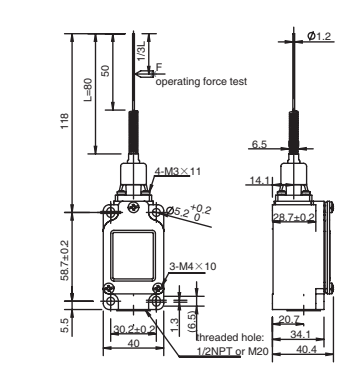
SZL-WL-M-□H

(Unit: mm)



SZL-WL-L-□H

(Unit: mm)



SZL-WL-H Series

Operating Characteristics of 1NO/1NC Snap Action Type

	SZL-WL-A-A01AH SZL-WL-A-C01AH	SZL-WL-B-A01AH SZL-WL-B-C01AH	SZL-WL-C-A01AH SZL-WL-C-C01AH	SZL-WL-D-A01AH SZL-WL-D-C01AH	SZL-WL-E-A01AH SZL-WL-E-C01AH	SZL-WL-F-A01AH SZL-WL-F-C01AH	SZL-WL-L-A01AH SZL-WL-L-C01AH
OF(max)	19Ncm	19Ncm	19Ncm	5Ncm	15N	15N	5N
RF(min)	5Ncm	5Ncm	5Ncm	---	3N	3N	---
PT(max)	30°	30°	30°	55°	2.5mm	2.5mm	16°
OT(min)	45°	45°	45°	35°	3mm	3mm	---
MD(max)	18°	18°	18°	---	1.5mm	1.5mm	10°
TT(min)	75°	75°	75°	90°	5.5mm	5.5mm	---
OP TTP(max)							
	SZL-WL-K-A01AH SZL-WL-K-C01AH	SZL-WL-M-A01AH SZL-WL-M-C01AH	SZL-WL-O-A01AH SZL-WL-O-C01AH	SZL-WL-S-A01AH SZL-WL-S-C01AH	SZL-WL-T-A01AH SZL-WL-T-C01AH		
OF(max)	5N	5N	19Ncm	19Ncm	19Ncm		
RF(min)	---	---	5Ncm	5Ncm	5Ncm		
PT(max)	16°	16°	30°	30°	30°		
OT(min)	---	---	45°	45°	45°		
MD(max)	10°	10°	18°	18°	18°		
TT(min)	---	---	75°	75°	75°		
OP TTP(max)							

Operating Characteristics of 1NO/1NC Slow Action, Break Before Make Type

	SZL-WL-A-A03AH SZL-WL-A-C03AH	SZL-WL-B-A03AH SZL-WL-B-C03AH	SZL-WL-C-A03AH SZL-WL-C-C03AH	SZL-WL-E-A03AH SZL-WL-E-C03AH	SZL-WL-F-A03AH SZL-WL-F-C03AH	SZL-WL-O-A03AH SZL-WL-O-C03AH	SZL-WL-S-A03AH SZL-WL-S-C03AH
OF(max)	15Ncm	15Ncm	15Ncm	9.8N	9.8N	15Ncm	15Ncm
RF(min)	5Ncm	5Ncm	5Ncm	3N	3N	5Ncm	5Ncm
PT1 * (max)	15°	15°	15°	1mm	1mm	15°	15°
PT2 * (max)	40°	40°	40°	3mm	3mm	40°	40°
TT(min)	75°	75°	75°	5.5mm	5.5mm	75°	75°
OP TTP(max)							
	SZL-WL-T-A03AH SZL-WL-T-C03AH						
OF(max)	15Ncm						
RF(min)	5Ncm						
PT1 * (max)	15°						
PT2 * (max)	40°						
TT(min)	75°						
OP TTP(max)							

Note: * PT1 is NC contact pretravel; PT2 is NO contact pretravel.

Operating Characteristics of 1NO/1NC Slow Action, Make Before Break Type

	SZL-WL-A-A04AH SZL-WL-A-C04AH	SZL-WL-B-A04AH SZL-WL-B-C04AH	SZL-WL-C-A04AH SZL-WL-C-C04AH	SZL-WL-E-A04AH SZL-WL-E-C04AH	SZL-WL-F-A04AH SZL-WL-F-C04AH	SZL-WL-O-A04AH SZL-WL-O-C04AH	SZL-WL-S-A04AH SZL-WL-S-C04AH
OF(max)	15Ncm	15Ncm	15Ncm	9.8N	9.8N	15Ncm	15Ncm
RF(min)	5Ncm	5Ncm	5Ncm	3N	3N	5Ncm	5Ncm
PT1 * (max)	35°	35°	35°	2.5mm	2.5mm	35°	35°
PT2 * (max)	20°	20°	20°	1.5mm	1.5mm	20°	20°
TT(min)	75°	75°	75°	5.5mm	5.5mm	75°	75°
OP TTP(max)							
	SZL-WL-T-A04AH SZL-WL-T-C04AH						
OF(max)	15Ncm						
RF(min)	5Ncm						
PT1 * (max)	35°						
PT2 * (max)	20°						
TT(min)	75°						
OP TTP(max)							

Note: * PT1 is NC contact pretravel; PT2 is NO contact pretravel.

Operating Characteristics of 2NC Slow Action Type

	SZL-WL-A-A06AH SZL-WL-A-C06AH	SZL-WL-B-A06AH SZL-WL-B-C06AH	SZL-WL-C-A06AH SZL-WL-C-C06AH	SZL-WL-E-A06AH SZL-WL-E-C06AH	SZL-WL-F-A06AH SZL-WL-F-C06AH	SZL-WL-O-A06AH SZL-WL-O-C06AH	SZL-WL-S-A06AH SZL-WL-S-C06AH
OF(max)	15Ncm	15Ncm	15Ncm	9.8N	9.8N	15Ncm	15Ncm
RF(min)	5Ncm	5Ncm	5Ncm	3N	3N	5Ncm	5Ncm
PT(max)	40°	40°	40°	2.5mm	2.5mm	40°	40°
MD(max)	4°	4°	4°	0.4mm	0.4mm	4°	4°
TT(min)	60°	60°	60°	5mm	5mm	60°	60°
OP TTP(max)							
	SZL-WL-T-A06AH SZL-WL-T-C06AH						
OF(max)	15Ncm						
RF(min)	5Ncm						
PT(max)	40°						
MD(max)	4°						
TT(min)	60°						
OP TTP(max)							

