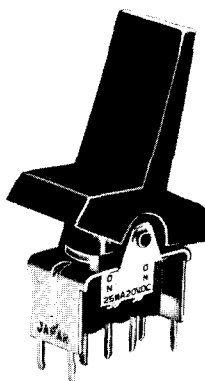
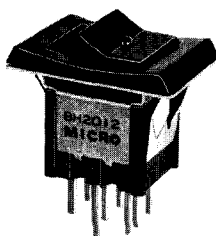


Series 8 Miniature Manual Switches



Description

Series 8 is a line of miniature toggle, rocker, paddle and pushbutton switches rated 6A-125Vac resistive, 3A-250Vac resistive or 0,5VA at 20V max for low energy circuits.

It offers a variety of circuit arrangements, number of poles, contact materials, terminals, mounting systems and coloured actuators.

Illuminated devices are available as well.

All these features add up to provide the best offering of miniature manual switches for electric and electronic equipment.

Application

Because of its electrical performance, reliability, small size and range, Series 8 is ideally suited for commercial applications having limited space for mounting but needing high quality switches.

Series 8 has a record of successful use by large international manufacturers in many industry sectors. Typical examples are :

- Computers and related peripherals
- Communication equipment
- Office machines
- Medical equipment
- Test and scientific instruments
- Process controls

Construction

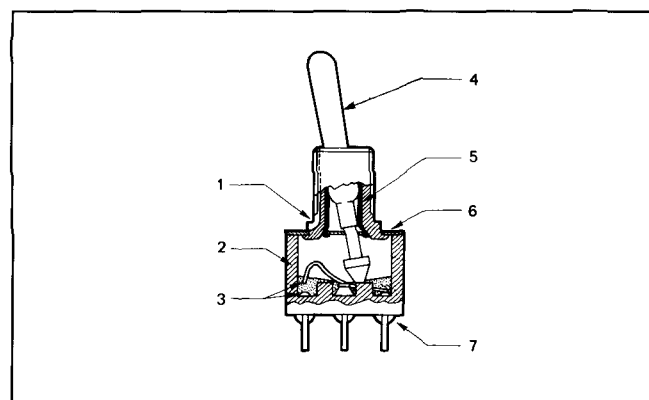
The excellent electrical and mechanical performance of Series 8 results from a combination of good design and accurate manufacturing of all parts.

Features are :

1. **High torque bushing.** Prevents toggle switch bushing from rotating or separating from case during assembly.
2. **Arc-resistant case.** Constructed of high strength plastic and designed to ensure isolation of circuits in multi-pole devices.
3. **Contacts.** Choice of fine silver, gold/nickel plated brass, or gold/

nickel plated fine silver contacts for handling a variety of electrical loads.

4. **Operators.** Choice of levers, i.e., small, large, flatted, colour tipped, short, and long levers; rocker, paddle, and pushbutton operators to provide maximum flexibility. LED illumination is available on several types.
5. **Levers stop.** Toggle switch bushings have a built-in lever stop to prevent contact transfer or switch damage should a downward force be applied to the lever.
6. **Creepage distances between live parts and earthed parts are designed to minimise dielectric failures.**
7. **Epoxy sealed terminals.** Provided on all versions to prevent ingress of flux during soldering.

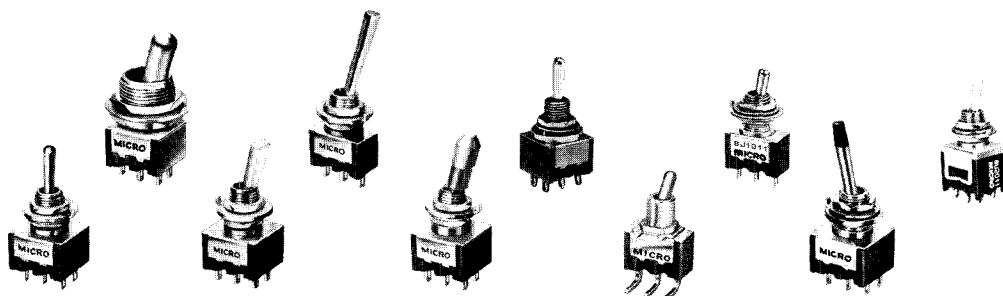


Selection

To help select and order the correct switch out of the several thousands of possible product variations, use the Selection Chart on pages 2 and 3 and associated guidelines on page 4.

Selection chart

- = Standard
 ○ = Option
 □ = Order separately



Product characteristics

	8A	8B	8C	8D	8E	8F	8G	8J	8S	8U
Rating										
0,5VA max at 20V max	●	●	●	●	●	●	●	●	●	●
6A 125Vac; 3A 250Vac resistive	●	●	●	●	●	●		●	●	●
60mA 30Vdc; 3A 125Vac										
10A 125Vac; 6A 250Vac resistive	○	○	○	○	○	○			○	
Number of poles										
1 pole	●	●	●	●	●	●	●	●	●	●
2 pole	●	●	●	●	●	●	●	●	●	●
3 or 4 pole	●	●	●	●	●	●	●	●	●	
Actuator position										
1 position (pushbuttons only)										
2 position	●	●	●	●	●	●	●	●	●	●
3 position	●	●	●	●	●	●	●	●	●	
Switch action										
Momentary	●	●	●	●	●	●	●	●	●	
Maintained	●	●	●	●	●	●	●	●	●	●
Contact material										
Fine silver (Type A)	●	●	●	●	●	●	○	●	●	●
Gold/nickel plated brass. (Type B)	●	●	●	●	●	●	●	●	●	●
Gold/nickel plated fine silver (Type C)	●	●	●	●	●	●	○	●	●	
Terminals										
Solder (Type 1)	●	●	●	●	●	●		●	●	●
P.C.B. (Straight) (Type 2)	●	●	●	●	●	●		●	●	●
Wirewrap (Type 3)	●	●	●	●	●	●		●	●	
P.C.B. (Right-angle) (Type 4)	○		○	○	○		●	○	○	
P.C.B. (Vertical-angle) (Type 5)	○		○	○	○		●	○	○	
P.C.B. (Vertical-angle) (Type 6)	○		○	○	○		●	○	○	
Longer wirewrap (Type 7)	○	○	○	○	○	○		○	○	
Actuator type										
Lever - Small diameter	●					●			●	●
Large diameter		●								
Long				●					●	
Short							●	●		
Flatted			●							
Pull-to-unlock					●					
Coloured tip					●				●	
LED illuminated										
Paddle - Small non-illuminated										
Large, non-illuminated										
Rocker - Small, non-illuminated										
Large, non-illuminated										
Lamp illuminated										
LED illuminated										
Pushbutton - non-illuminated										
LED - illuminated										
Removable actuator □										
Mounting										
On panel - 1/4" diam bushing	●		●	●	●	●		●	●	●
15/32" diam bushing		●								
Snap-in (1,5 to 2,5mm)										
3-hole										
On P.C.B. (mount plate for PCB)	○		○	○	○		●	○	○	
Sealing										
Bushing/Panel seal						●				
Accessories										
Lever plastic sleeves	●□	●□				●□				●□
Plastic bezel										□
Stand-offs □										
Water-proof rubber cap.	●□					●□				●□

Selection guide

1. Product range.

First refer to the Selection Chart on pages 2 and 3. Photos of the Series 8 actuator styles are shown to give an indication of the switch styles available. Then go through the column "product characteristics" to see if the most important features needed for the application are available with the switch style chosen.

2. Technical data.

See below and page 5 for more detailed information about the Series 8 electrical and mechanical characteristics, contact material, terminals and switch functions.

3. Mounting dimensions.

Check mounting dimensions and panel cut-outs from page 19 to 29.

4. Mounting hardware and accessories.

If separate mounting hardware is required such as nuts, locking rings, and stand-offs, see pages 12 and 30. For accessories such as plastic lever sleeves, or plastic bezels, see page 16 to 18.

5. Options.

A list of options for toggle switches is given on page 32 enabling you to order special modifications such as different toggle levers, different threads, finish and mounting hardware. Product versions that meet American and European standards are indicated on pages 5 and 32.

6. Ordering.

To order switches it is necessary to specify a complete catalogue listing. For ease of selection, two groups of ordering charts are given :

- a) all standard switches with solder terminals and fine silver contacts or switches for PCB mounting are catalogued on pages 6 and 7.

The listings shown there are for complete devices except for those rocker, paddle and pushbutton switches using removable actuators.

Make sure these actuators are ordered separately. See page 16 to 18.

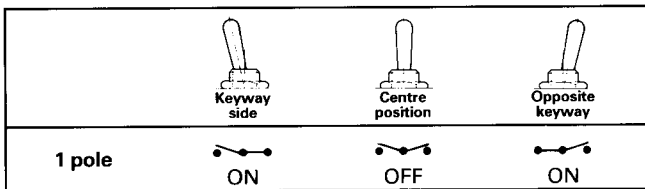
- b) For other contact/terminal combinations or special modifications, refer to pages 8 to 15 and 32 which explain how to build up a complete catalogue listing for such versions.

Should you require further information or application assistance, please contact your nearest Honeywell Sales Office, whose address is shown on the back of this data sheet.

Technical data

Circuitry

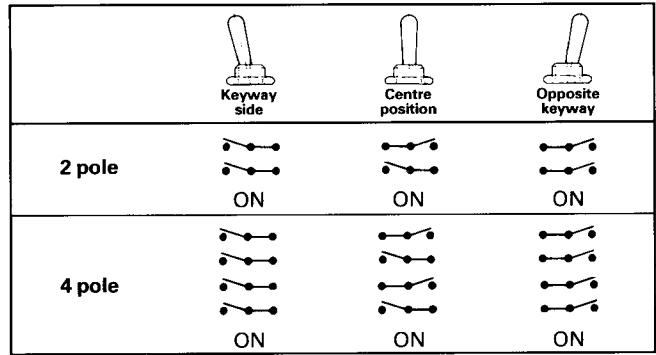
Most Series 8 switches have from 1 to 4 SPDT poles. The relationship between position of the actuator (except pushbuttons) and contact closure is shown by the drawing below :



This sequence is repeated in multiple devices.

In the following pages, rather than adopt such circuit diagram, the two symbols ON and OFF will be used to identify contact openings or closures. The same letters in brackets () will indicate momentary positions.

Among the various circuitries, there are three special versions, usually called ON-ON-ON switches, the diagrams of which are shown in the next drawing.



These switches are available with 2 and 4 poles only, see actuator types and ordering information on page 6.

Electrical characteristics

Rating

Fine silver contacts
(contact version A)

6A 125Vac resistive
3A 250Vac
10A 125Vac, 6A 250Vac resistive (double rating) is available as an option on several switch models. See option -030 at page 32.

Gold/nickel plated brass
(contact version B)

0,5VA max. at 20Volts max.

Gold/nickel plated fine silver (contact version C)

0,5VA max. at 20Volts max.

Note that contact version C may be used for either of the ratings shown above. However, when the low energy rating is exceeded, gold plating is removed from the contact surfaces and the switch is not then suitable for use at low energy levels. This feature enables one switch to be specified for both types of applications.

Initial switch resistance :

10 milliohms max. at 2 to 4Vdc, 1A resistive.

Initial dielectric strength :

100 microamps max. current leakage between mutually insulated terminals and ground, at sea level at 1000Vac.

Initial insulation resistance :

100 meg ohms min. resistance between mutually insulated terminals and ground, at 500Vdc.

Electrical life :

Maintained action

50,000 operations min. at rated load.

Momentary action

25,000 operations min. at rated load, except for 8R of which life is 50,000 operations.

Physical characteristics

Mechanical life -

100,000 switching operations; 95% survival for type 8A1.

Strength of actuator -

will withstand 3,6Kg push test in any direction.

Strength of terminals -

will withstand 2,3Kg pull in any direction.

Strength of mounting means -

for normal installation, mounting nut will withstand torque of 1,7Nm without damage to threads or switch body.

Vibration -

100-500Hz at 10G-contact separation 10 micro seconds max.

Soldering Procedures are on page 9.

Shock -	50G, 1/2 sinewave.
Seal (only for models 8F and 8P)	will withstand 1 meter head of water for 30 minutes.
Temperature - operating	-25°C to +65°C
Storage	(toggle types) : -55°C to +85°C (other types) : -35°C to +80°C

Materials and finish

Contact and terminal materials

Series 8 has three types of contact terminal materials identified by the letters A, B or C at the seventh position from left in a catalogue listing. Example :

8A1012B The letter B indicates brass contacts and terminals plated with 2,5 microns min. gold over 5 microns min. nickel

Type A Fine silver contacts – Brass or copper end terminals, silver plated. "Letter "A" is not added to each catalogue listing".

Type B Gold/nickel plated brass contacts and terminals
Both contacts and terminals are plated with
Gold : 2,5 microns minimum over
Nickel : 5 microns minimum, except type 3 to 8 terminals which have gold flash over 5 micron nickel plating.

Type C Gold/nickel plated, fine silver contacts and brass terminals.
Both contacts and terminals are plated with
Gold : 2,5 microns min. over
Nickel : 5 microns min., except type 3 to 8 terminals which have gold flash over 5 micron nickel plating.

Switch case - epoxy resin
Metal housing - cold rolled steel, zinc plated
Toggle switches - bushing - nickel plated brass
toggle lever-chrome plated brass (except for 8C which has a nickel-plated brass lever)
Coloured lever sleeves (for 8A, 8B, 8F and 8U) and vinyl coloured lever tip (8S) nylon.

Paddle and rocker switches - (To be ordered separately)
operators and bezels - polycarbonate
mounting clips and plate - stainless steel
lamp terminals (8X) - silver plated phosphor bronze
mounting plate (8Q and 8M) - cold rolled cadmium plated steel
standoffs (8Q and 8M) - nickel plated brass

Pushbuttons - buttons - nylon

Standards

UL :	All series 8 switches, except 8R, 8T, 8U, 8W, 8H-L, 8K-L, with type A and C contact and terminal materials meet the UL specification. To order switches with the UL marking, add the suffix -006 to the normal catalogue listing chosen. Example : 8A1011-006 is a one pole toggle switch with solder terminals, fine silver contacts and UL marking.
CSA :	possible on one and two pole switches only. They are identified by the suffix -011. See available models at page 32 under Options.
SEV :	possible on one and two pole switches only. Available models are listed under Options on page 32. They are identified by the suffix -020 plus the colour of the plastic sleeve; as explained at page 32. Example : 8A1011-020 Red.

Soldering procedures are on page 9.

Terminals

There are 7 different types of terminals. Each type is shown below and is identified by a number in the sixth position from left, of the catalogue listing.

Example 8A1012, the 2 identifies terminals for PCB mounting. Most Series 8 switches may be equipped with any of these 7 terminal styles. The only exceptions are :

8G models - available with terminals 4, 5 or 6 only

8V models - available with terminal 2 only

8H-L - available with terminals 1 and 2 only

8X - 8K-L - 8K-L25 - available with terminal 1 only

Check the selection and the ordering information charts for further background.

Type 1. Solder terminals



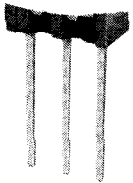
Type 2 P.C. Terminals

May be used for manual solder, wire wrap.



Type 3. Wire wrap terminals

May also be used for printed circuit termination.



Type 4. Side formed right-angle P.C. terminals

Not available for 4 pole.



Type 5. End-formed vertical-angle P.C. terminals

Not available for 4 pole.

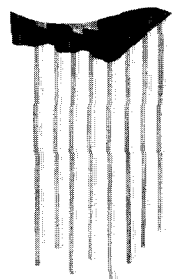


Type 6. End-formed vertical-angle P.C. terminals

Not available for 4 pole.



Type 7. Long wirewrap terminals



See page 19 to 29 for dimensions and printed circuit panel layouts.

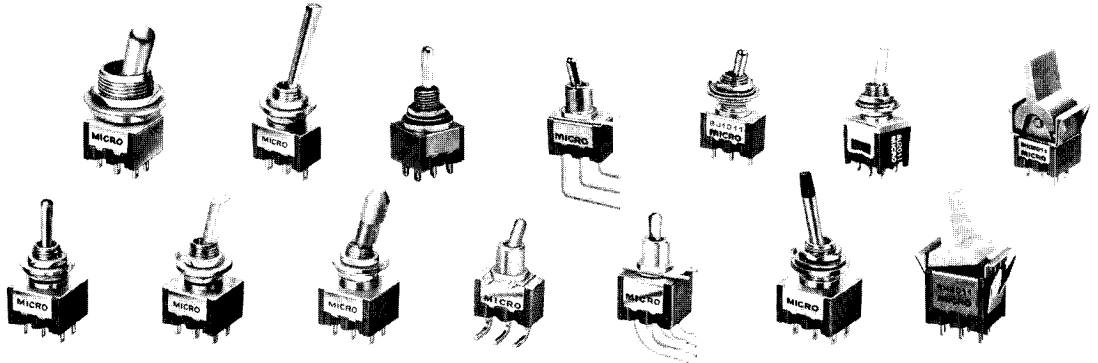
Ordering chart for standard versions

The purpose of this chart is to simplify the ordering of standard Series 8 switches.

To use the chart, identify the actuator style required from the photos in the first row, check the number of poles and switch action and read off the required part number. Finally, make sure removable actuators and mounting screws are ordered separately.

The switches that have removable actuators are the 8H, 8HD, 8X, 8N, 8M, 8Q, 8R, 8Y, 8P, 8W and 8V models.

Other listings derived from Charts on pages 8 to 15 may be subject to Minimum Order Quantity and extended lead times.

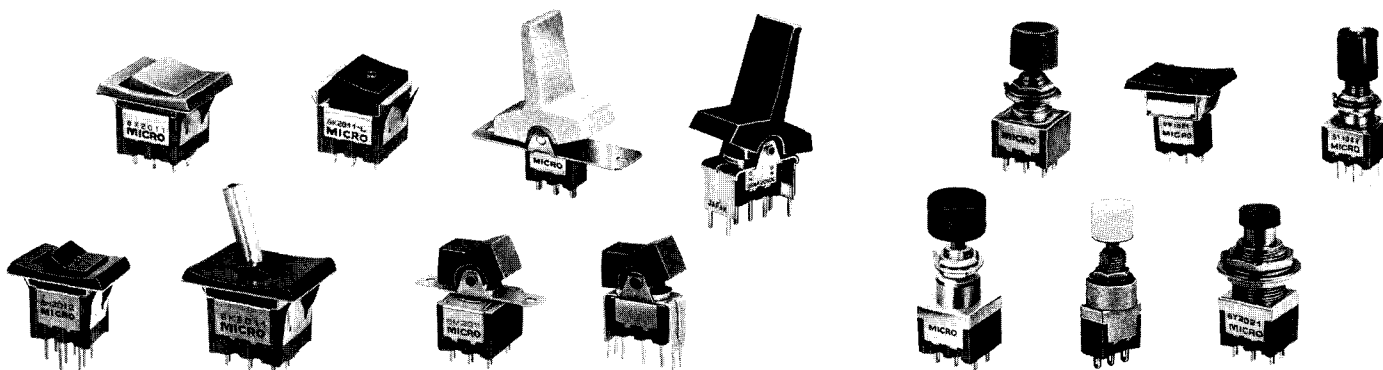


Number of poles	Lever/Circuit Action*			8A	8B	8C	8D	8E†	8F	8G	8G	8G	8J	8S	8U	8H ** ††	8HD ** ††
	Opposite Keyway	Centre	Keyway	Standard Catalogue Listing													
1	On	None	On	8A1011	8B1011	8C1011	8D1011	8E1011	8F1011	8G1014	8G1015	8G1016	8J1011	8S1011	8U1011	8H1011	8HD1011
	On	Off	On	8A1021	8B1021	8C1021	8D1021	8E1021	8F1021	8G1024	8G1025	8G1026	8J1021	8S1021		8H1021	8HD1021
	None	On	(On)	8A1031	8B1031	8C1031	8D1031	8E1031	8F1031				8J1031	8S1031			
	(On)	Off	(On)	8A1041	8B1041	8C1041	8D1041	8E1041	8F1041	8G1044	8G1045	8G1046	8J1041	8S1041		8H1041	8HD1041
	On	Off	(On)	8A1051	8B1051	8C1051	8D1051	8E1051	8F1051	8G1054	8G1055	8G1056	8J1051	8S1051		8H1051	8HD1051
	On	None	(On)	8A1061	8B1061	8C1061	8D1061	8E1061	8F1061	8G1064	8G1065	8G1066	8J1061	8S1061		8H1061	8HD1061
2	On	None	On	8A2011	8B2011	8C2011	8D2011	8E2011	8F2011	8G2014	8G2015	8G2016	8J2011	8S2011	8U2011	8H2011	8HD2011
	On	Off	On	8A2021	8B2021	8C2021	8D2021	8E2021	8F2021	8G2024	8G2025	8G2026	8J2021	8S2021		8H2021	8HD2021
	None	On	(On)	8A2031	8B2031	8C2031	8D2031	8E2031	8F2031				8J2031	8S2031			
	(On)	Off	(On)	8A2041	8B2041	8C2041	8D2041	8E2041	8F2041	8G2044	8G2045	8G2046	8J2041	8S2041		8H2041	8HD2041
	On	Off	(On)	8A2051	8B2051	8C2051	8D2051	8E2051	8F2051	8G2054	8G2055	8G2056	8J2051	8S2051		8H2051	8HD2051
	On	None	(On)	8A2061	8B2061	8C2061	8D2061	8E2061	8F2061	8G2064	8G2065	8G2066	8J2061	8S2061		8H2061	8HD2061
	On	On	On	8A2101	8B2101	8C2101	8D2101	8E2101	8F2101				8J2101	8S2101		8H2101	
	On	On	(On)	8A2111	8B2111	8C2111	8D2111	8E2111	8F2111				8J2111	8S2111		8H2111	
	(On)	On	(On)	8A2121	8B2121	8C2121	8D2121	8E2121	8F2121				8J2121	8S2121		8H2121	
3	On	None	On	8A3011	8B3011	8C3011	8D3011	8E3011	8F3011	8G3014			8J3011	8S3011			
	On	Off	On	8A3021	8B3021	8C3021	8D3021	8E3021	8F3021	8G3024			8J3021	8S3021			
	None	On	(On)	8A3031	8B3031	8C3031	8D3031	8E3031	8F3031				8J3031	8S3031			
	(On)	Off	(On)	8A3041	8B3041	8C3041	8D3041	8E3041	8F3041	8G3044			8J3041	8S3041			
	On	Off	(On)	8A3051	8B3051	8C3051	8D3051	8E3051	8F3051	8G3054			8J3051	8S3051			
	On	None	(On)	8A3061	8B3061	8C3061	8D3061	8E3061	8F3061	8G3064			8J3061	8S3061			
4	On	None	On	8A4011	8B4011	8C4011	8D4011	8E4011	8F4011				8J4011	8S4011			
	On	Off	On	8A4021	8B4021	8C4021	8D4021	8E4021	8F4021				8J4021	8S4021			
	None	On	(On)	8A4031	8B4031	8C4031	8D4031	8E4031	8F4031				8J4031	8S4031			
	(On)	Off	(On)	8A4041	8B4041	8C4041	8D4041	8E4041	8F4041				8J4041	8S4041			
	On	Off	(On)	8A4051	8B4051	8C4051	8D4051	8E4051	8F4051				8J4051	8S4051			
	On	None	(On)	8A4061	8B4061	8C4061	8D4061	8E4061	8F4061				8J4061	8S4061			
	On	On	On	8A4101	8B4101	8C4101	8D4101	8E4101	8F4101				8J4101	8S4101			
	On	On	(On)	8A4111	8B4111	8C4111	8D4111	8E4111	8F4111				8J4111	8S4111			
	(On)	On	(On)	8A4121	8B4121	8C4121	8D4121	8E4121	8F4121				8J4121	8S4121			

* () Parenthesis denote momentary position.

† Standard 8E versions are supplied with silver matte finish caps.

See page 8 for other colours.



8H-L2-R3	8X	8K-L	8K-L25	8M	8Q	8V	8V	Circuit action	8N	8R	8P	8W	8Y	8T
††	††			**	**	**	**		***	***	***	***††	***	
Standard Catalogue Listing				Standard Catalogue Listing										

8M1011	8Q1011	8V1012-M	8V1011-Q	Alternate	8N1011	8R1011	8P1011	8Y1011		
8M1021	8Q1021	8V1022-M	8V1022-Q	Momentary	8N1021	8R1021	8P1021	8W1021	8Y1021	8T1022-L2
										8T1022-L25
8M1041	8Q1041	8V1042-M	8V1042-Q							
8M1051	8Q1051	8V1052-M	8V1052-Q							
8M1061	8Q1061	8V1062-M	8V1062-Q							

8H2011-L2-R3	8X2011	8K2011-L2	8K2011-L25	8M2011	8Q2011	8V2012-M	8V2012-Q	Alternate	8N2011	8R2011	8P2011	8Y2011	
8H2021-L2-R3	8X2021	8K2021-L2	8K2021-L25	8M2021	8Q2021	8V2022-M	8V2022-Q	Momentary	8N2021	8R2021	8P2021	8W2021	8Y2021
				8M2041	8Q2041	8V2042-M	8V2042-Q						
				8M2051	8Q2051	8V2052-M	8V2052-Q						
				8M2061	8Q2061	8V2062-M	8V2062-Q						

8M3011	8Q3011	Alternate	8N3011	8P3011	8Y3011
8M3021	8Q3021	Momentary	8N3021	8P3021	8Y3021
8M3041	8Q3041				
8M3051	8Q3051				
8M3061	8Q3061				

8M4011	8Q4011	Alternate	8N4011	8P4011	8Y4011
8M4021	8Q4021	Momentary	8N4021	8P4021	8Y4021
8M4041	8Q4041				
8M4051	8Q4051				
8M4061	8Q4061				

** Order rocker or paddle actuators separately on page 16.

*** Order buttons separately on page 18.

†† Order bezels separately from page 17.

Toggle switches

Bushing and PCB mount



Type 8A
Small lever



Type 8B
Large lever



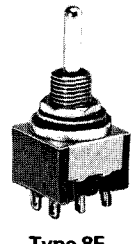
Type 8C
Flatted lever



Type 8D
Long lever



Type 8E
Lever lock



Type 8F
Panel and
bushing seal



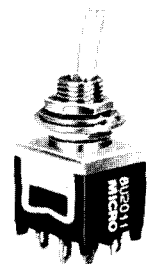
Type 8G
Short lever
side formed P.C.
terminals



Type 8J
Short lever



Type 8S
colour coded
actuator



Type 8U
Small lever
Black box

Ordering guide

Toggle switch catalogue listings are derived from the ordering guide as shown in the example below.

Mounting dimensions and panel cut-outs : see pages 19 to 21.

Soldering procedures are on page 9.

Toggle & bushing	Number of poles	Circuitry			Terminal style	Contact material	TIP Colour code for	
		Opposite keyway	Centre	Keyway			8S	8E
8A 6.35 (1/4") bushing. 3 Ø × 10.5 length lever	1 One-pole	On	01 None	On	1 Solder	A Silver contacts (may be omitted catalogue listings)	1 White	Standard version supplied with silver, matte finish cap. 2 Red 3 Black 4 Grey 5 Green 6 Blue 7 Amber 8 Yellow
8B 11.9 (15/32") bushing. 6.2 Ø × 11.5 length lever	2 Two pole	On	02 Off	On	2 Printed Circuit	***	2 Red	
8C 6.35 (1/4") bushing. 5 Ø × 10.4 length flatted lever	3 Three-pole	None	03***** On	(On)	3 Wirewrap	B Gold/brass contacts ***	3 Black	
8D 6.35 (1/4") bushing. 3.3 Ø × 21.3 length lever	4* Four pole	(On)	04 Off	(On)	4 Side formed P.C.**	C Gold/silver contacts ***	4 Grey	
8E 6.35 (1/4") bushing. 5.5 Ø × 15 length Pull-to-unlock lever		On	05 Off	(On)	5 End-formed P.C.**		5 Green	
8F Panel and bushing seal. 6.35 (1/4") bushing. 3 Ø × 10.5 length lever		On	06 None	(On)	6 End-formed P.C.**		6 Blue	
8G Non-threaded 6.35 (1/4") bushing. 2.8 Ø × 6.8 length lever		On	10**** On	On	7 Long P.C./Wirewrap		7 Amber	
8H 6.35 (1/4") bushing. 2.8 Ø × 6.8 length lever		On	11**** On	(On)			8 Yellow	
8I 6.35 (1/4") bushing. 3 Ø × 15.2 length lever with colour coded plastic tip		(On)	12**** On	(On)				
8J 6.35 (1/4") bushing. 2.8 Ø × 6.8 length lever								
8K 6.35 (1/4") bushing. 3 Ø × 15.2 length lever with colour coded plastic tip								
8L 6.35 (1/4") bushing. 3 Ø × 10.8 length lever 1 and 2 pole only, terminal type 1 and 2 only and circuitry 01 only								

() Parenthesis denotes momentary position

- * Not available on 8G listings.
- ** Recommended for 8G type. Possible on 1, 2 and 3 pole devices. Not recommended for 8B and 8F.
- *** See page 5 for full description.
- **** Available only for 2 and 4 poles. Not possible on 8G.
- ***** Not available on 8G and 8U.

To build up a complete catalogue listing, select the proper character from each section of the ordering guide above.

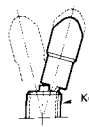
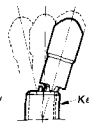
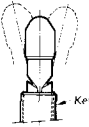
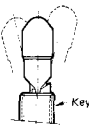
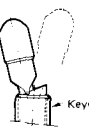
Example : **8S3021B2**

A toggle switch device with 1/4" bushing 3 Ø × 15,2 length lever. 3 pole, ON-OFF-ON circuitry, solder terminals, gold/nickel plated brass contacts and a red colour tip.

Lever lock feature for 8E

Pull-to-unlock levers are a guard against accidental lever movement. To change the position of the lever, a spring loaded to locking mechanism must be released by pulling outward on the knobbed lever.

The locking configuration of each switch function is sketched here below :

Circuitry type				
01	02, 10	04, 12	05, 11	06
				
ON - NONE - ON	ON - OFF - ON	(ON) - OFF - (ON)	ON - OFF - (ON)	ON - NONE - (ON)

Mounting hardware

See dimensions on page 30.



Type 8A, 8F and 8U switches can be fitted with rubber sealed cap, 8Z0143 to be ordered separately.



Type 8A
with 8Z0111
round tip



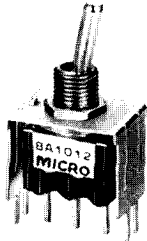
Type 8A
with 8Z0151
cone tip



Type 8B
with 8Z0131
round tip

Colourful round or cone tip caps are available for 8A, 8B, 8F and 8U switches. Colour caps must be ordered separately from page 17.

Special toggle switch with PCB mounting brackets



-040 bracket

Type 8A, 8C, 8D, 8J and 8S switches are available with type 8V style brackets for mounting on printed circuit as a special model. The special 8A switches are supplied with terminal type 2 only. See page 25 for mounting dimensions.

For ordering purpose, add the suffix number 040 to the standard device number. Eg. 8A1011-040.

PCB mounting plate

8G type mounting plate is provided with 8A, 8C, 8D and 8S switches supplied with type 4 right-angled terminals.

Soldering procedures

Use a soldering iron of 60W or less. Normal soldering time per terminal is about 3 seconds, at 370°C solder iron tip temperature.

Terminals are close together. Therefore, use caution when soldering to prevent bridging. Solder from terminal to terminal.

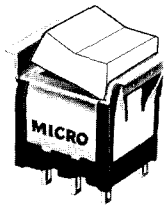
Do not bend the terminals to solder.

After soldering leads, do not apply a terminal pull force of more than 2.5kg.

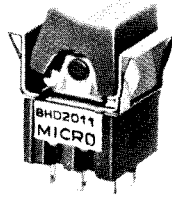
Avoid using organic solvents such as trichloroethylene on switches with plastic actuators. Use freon or alcohol for flux removal.

Rocker and paddle switches

Snap-in mount



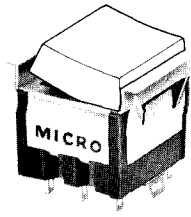
Type 8H
with rocker
operator



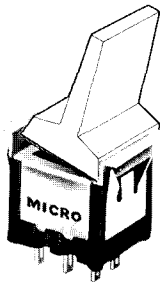
Type 8HD
with rocker
operator



Type 8H-L
with LED non-removable
rocker operator



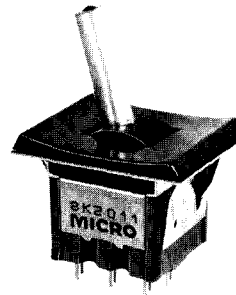
Type 8X
with lighted rocker operator



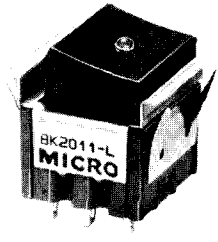
Type 8H
with paddle
operator



Type 8HD
with paddle
operator



Type 8K-L
with LED non-removable
toggle operator



Type 8K-L25
with two colour LED
non-removable rocker operator

Paddle and rocker operators used with type 8H and 8HD switches are interchangeable. Type 8HD are dust-proof switches and recommended for use in a dusty place.

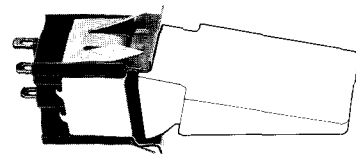
8H and 8HD switches with paddle operators provide ready indication of the switch position. Rocker operators have the advantages of toggle switch circuitry with low profile to minimize accidental operation.

Type 8H-L are used for rocker operation only and have LED illumination. Type 8X lighted switches are used with rocker operators only, whereas 8K-L switches are used for lever actuation and have black bezels for red, green or yellow LED illumination. 8K-L25 are supplied with black rocker operators and bezels and have two colour LED illumination of red and green.

The wide choice of operator colours facilitate coding of switch functions. They also provide a co-ordinated, attractive panel appearance when used in a mixed panel of Series 8 miniature toggle switches and pushbutton switches. (For information on three-hole mount switches with removable paddle rockers, refer to pages 12 and 13). To simplify user parts inventories and provide versatility in operator options, switches, paddles, and rockers are sold separately. Switches snap into panels and are held secure by spring clips on the mounting flanges. They can be mounted individually or in strips.

Operators are easily assembled to the switches by pressing them into place in the recesses of the switch operator socket. They are not intended to be easily removed.

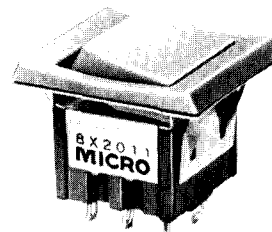
Piano-key actuators are available as well.



Bezel accessory

An optional coloured bezel accessory is available for use with individual mount units (see photo) to enhance panel appearance and identify control functions. The bezel is assembled by snapping it into the flanges on two sides of the switch. They can be removed and replaced if colour changes are necessary.

Order bezels from page 17.



8X
with bezel

Mounting dimensions and panel cut-outs : see pages 22 and 23.

Panel thickness : 1 mm min., 4 mm max.

Recommended thickness : 1,5 to 2,5mm.

Order actuators from chart on page 16.

Lamp information



8X switches feature one-lamp illumination and relamping from the front of panel. They combine the features of rocker operation with and independent light source for illuminated colour display, using a T-1 3/4 commercial grade screw base lamp.

There are a number of type T-1 3/4 subminiature screw-base lamps which will fit the socket of 8X switches.

Lamps that are rated for 28 volts or less are recommended.

Lamps which are below .8 watt or above 1.5 watts should not be used in these devices. The former will be too dim for adequate illumination of the rockers and the latter will overheat the switch. Lamps are not furnished with 8X switches but may be supplied separately :

Catalogue listing	Rated voltage	Nominal current (Amps)
GM 4509-F	6,3	.20
GM 4512-F	14,0	.08
GM 4517-F	28,0	.04

Easy to relamp

To relamp 8X switches (1) grip the rocker and remove it with an outward pull and (2) extract lamp by unscrewing or pulling out with a lamp tool. The lamp is installed by pushing it in the lamp socket.

Honeywell lamp tool, catalogue listing 15PA7, or a short length of plastic tubing (5,6mm inside Ø) can also be used for lamp removal.

LED rating

See page 31.

Ordering guide

Paddle and Rocker switches	No of poles	Circuitry			Terminal style	Contact material	LED colour 8H-L, 8K-L and 8K-L25 only	Rocker colour 8H-L only
		One extreme	Centre	Other extreme				
8H Non-lighted. Snap-in mounted switch housing*	1 1 pole (8H and 8HD only)	On	01 None	On	1 Solder	A Silver contacts (may be omitted from catalogue listing)**	L2 Red	R3 Black
8HD Non-lighted. Snap-in mounted dust-proof switch housing*	2 2 pole	(On)	02 Off	On	2 P.C.	B Gold/Brass contacts **	L5 Green	
8H-L LED illuminated Snap-in mounted switch housing		On	04 Off	(On)	3 Wirewrap	C Gold/Silver contacts **	L8 Yellow	
8X Lighted. Snap-in mounted switch housing* (For rocker actuator only)		On	05 Off	(On)			L25 Red and green (8K-L25 only)	
8K-L LED illuminated. Snap-in mounted switch housing (For lever actuator only)		On	06 None	(On)				
8K-L25 Two colour LED illumina- ted. Snap-in mounted switch housing (For rocker actuator only)		On	10*** On	On				
		On	11*** On	(On)				
		(On)	12*** On	(On)				
* Order actuators separately from chart on page 16.		() Parenthesis denotes momentary positions.			** See page 5 for full description. *** For 8H two pole only.			

Example : **8H** **1** **01** **1**

To build up a complete catalogue listing, select the proper character from each section of the ordering guide above, as shown in this example :

8H1011

designates non-lighted snap-in mounted switch housing without actuator. 1 pole, ON-NONE-ON circuitry, solder terminals, silver contacts, copper end terminals, brass centre terminals, silver plated.

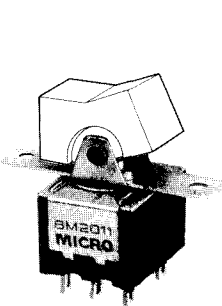
Rocker and paddle switches

3-Hole and PCB mount

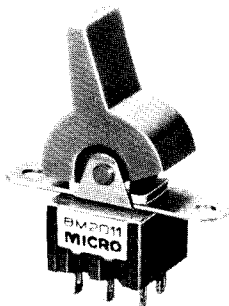
All these switches can be equipped with large or small paddles or rockers for smooth low force manual operation. As their mounting hardware is installed behind the panel, actuators only are visible from the front. This provides a very clean, modern styled panel lay-out.

All actuators are matte finish.

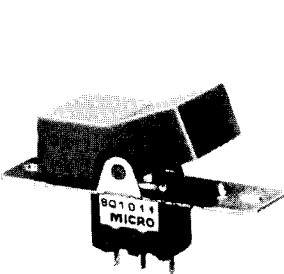
The 8M and 8Q switches are designed for panel mounting with removable rocker or paddle actuators. They are available with one, two, three and four poles. They are designed to be fitted with stand-off mounting hardware to accommodate 1/8" (3,2 mm), 3/32" (2,4mm) and 1/16" (1,6mm) panels.



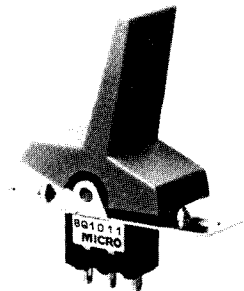
8M
Small rocker switch



8M
Small paddle switch

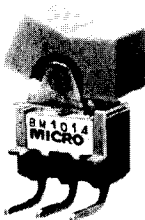


8Q
Large rocker switch



8Q
Large paddle switch

Special rocker and paddle switches with side-formed PC terminals



The 8M with 1 and 2 pole switches are available with style 4 right-angled terminals and PC mounting hooks similar to the 8G switches.

For ordering purpose, add the suffix number 041 to the standard device number : eg. 8M1014-041.

See page 25 for printed circuit board layout.

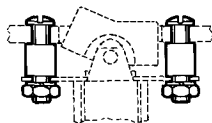
Mounting hardware for 3-hole mount paddle and rocker switches

Stand-off hardware

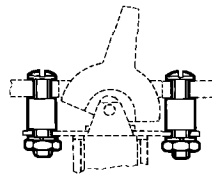
Stand-off hardware is needed to mount the 8M and 8Q paddle and rocker switches from the rear of a panel, on a three-hole cut-out. There are three different lengths to fit various panel thicknesses, as shown below :

	Panel thickness	Switch type	Actuator style	Catalogue listing
	1,58 mm (1/16")	8M 8Q 8Q	E & F G H	8Z0231 * 8Z0232 * 8Z0233 *
	2,38 mm (3/32")	8M 8Q 8Q	E & F G H	8Z0236 * 8Z0237 * 8Z0238 *
	3,175 mm (1/8")	8M 8Q 8Q	E & F G H	8Z0241 * 8Z0242 * 8Z0243 *

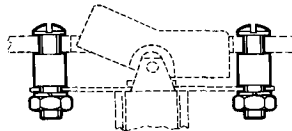
* Order separately. 8Z0241 is supplied with 8M switches at no charge.



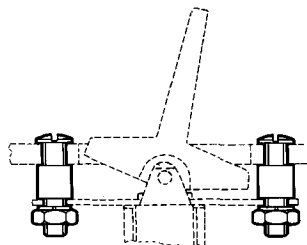
Type 8M with E actuator



Type 8M with F actuator

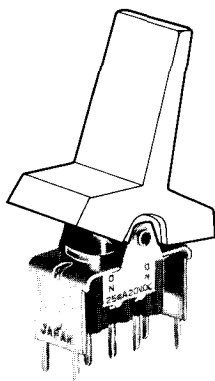


Type 8Q with G actuator

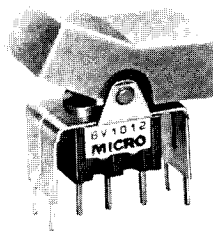


Type 8Q with H actuator

The 8V switches are designed for mounting on printed circuits and are equipped with removable actuators. The 8V switches are available in the one and two pole versions and with terminal variation 2 only.



8V-Q
Large paddle switch



8V-Q
Large rocker switch



8V-M
Small paddle switch



8V-M
Small rocker switch

Actuators can be supplied equipped with switches at an additional cost on request. Add color code of the actuator as well as the identification letter E for 8M/8V-M rocker, F for 8M/8V-M paddle, G for 8Q/8V-Q rocker or H for 8Q/8V-Q paddle.

Examples :

8M1011-E3 8V1012-M-E3

8M/8V-M switches equipped with a small black rocker.

8Q2011-H8 8V2012-Q-H8

8Q/8V-Q switches equipped with a large yellow paddle.

See page 16 for color codes.

Mounting dimensions and panel cut-outs. See page 23, 24 and 25.

Soldering procedures are on page 9.

Ordering guide

Paddle and rocker switches	No of poles	Circuitry			Terminal style	Contact material
		One extreme	Centre	Other extreme		
8M Three hole mount small rocker or paddle switch	1 One pole	On	01 None	On	1** Solder	A Silver contacts (may be omitted from cat. listing)
	2 Two pole	On	02 Off	On	2 P.C.	***
8Q* Three hole mount large rocker or paddle switch	3 Three pole for 8M & 8Q only	(On)	04 Off	(On)	3** Wirewrap	B Gold/Brass contacts
		On	05 Off	(On)	7** Long wirewrap	***
8V-M P.C. mounting small rocker or paddle switch	4 Four pole for 8M & 8Q only	On	06 None	(On)		C Gold/Silver contacts
8V-Q P.C. mounting large rocker or paddles switch						***
Rocker or paddle actuator must be ordered separately. See page 16 for full description.		* Stand-off mounting hardware must be ordered separately. See page 12 for full description. ** Not available for 8V-M, 8V-Q. *** See page 5 for full description.				

Example :

8M	1	01	1	C
8Q	3	06	1	B - M
8V	2	02	2	B - Q
8V	2	02	2	

8M 1011

Three-hole mount switch one pole, silver contacts, solder terminals, to be equipped with small rocker or paddle actuator.

8Q 3061C

Three-hole mount switch, three pole, gold/nickel plated fine silver contacts, solder terminals, to be equipped with large rocker or paddle actuator.

8V2022B-M

PCB mount switch, two pole, gold/nickel plated brass contacts, PCB terminals, to be equipped with small rocker or paddle actuator.

8V2022B-Q

Same switch as above except to be equipped with large rocker or paddle actuator.

Pushbutton switches

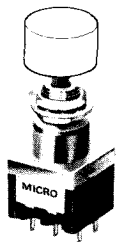
Bushing mount

Type 8N, 8P and 8R switches meet requirements for a miniaturized 1/4" diameter bushing mounted pushbutton. Concave surface buttons are available in two sizes and eight colours.

Type 8P switches have bushing and panel seals, and a "D" bushing instead of a keyway slot. 8Y switches have 15/32" diameter bushing. 8N, 8P, 8R and 8Y switches are furnished with momentary or alternate action.

The 8R switches have a snap-action mechanism which requires an actuating force of as little as 200grams. Because of the soft touch, they are ideally suited for use as reset switches or on applications requiring frequent actuation.

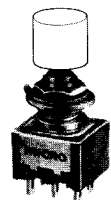
Buttons are ordered separately. They press-fit onto the switch plunger after the switch is mounted.



8N
Non
illuminated



8P
Sealed



8R
Soft touch



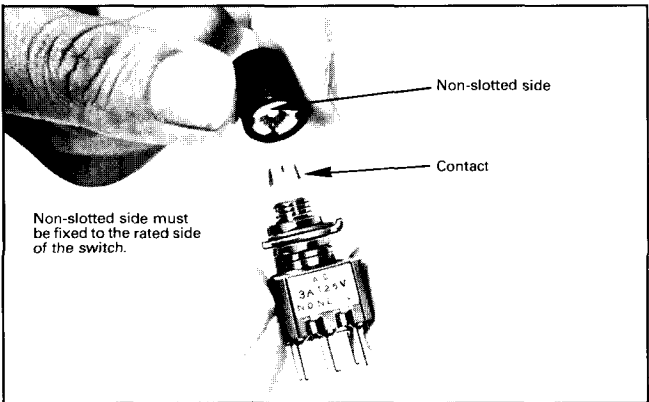
8Y
Large plunger

Type 8T LED illuminated 1/4" diameter bushing mounted pushbutton switches are available in 1 pole with momentary action only. LED illumination is available in two types; singel colour of red (type L2) and dual alternate colour of red and green (type L25). Buttons are supplied with switches.

Refer to page 31 for LED rating.



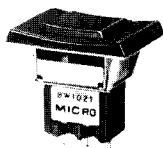
8T
LED illuminated



Frequent removal of the button is not recommended for contact protection.

Snap-in mount

Type 8W switches are designed for snap-in mounting by spring clips on the mounting flanges, to be used with colourful buttons and bezels. Buttons and bezels are removable and must be ordered separately. They can be mounted individually or in strip. 8W are furnished with momentary action only.



8W
Snap-in mount

PCB mount

8R soft-touch pushbutton are available with style 4 right-angled terminals. Type 8R1024-401 have momentary action and non-threaded bushing but with PCB mounting hooks on the switch shoulder. 8R1024-402 momentary actioned and 8R1014-403 alternate actioned switches have 1/4" diameter threaded bushing. They are rated at 1A 240Vac but capable up to 3A 125Vac.



8R1024-401



8R1014-403
8R1024-402

Contact action

When the button is depressed, alternate-action devices transfer the circuit between the centre (common) terminal (s) and the terminal (s) on one side of the switch. When the button is released, the circuit is maintained. The next operation transfers the circuit to the terminal (s) on the other side of the switch.

Momentary action switches have the normally closed terminal (s) located on the keyway side of the switch. When the button is depressed, the circuit transfers to the terminal (s) opposite the keyway. Releasing the button returns the circuit to the terminal (s) on the keyway side.

Mounting dimensions and panel cut-outs are shown on pages 26 to 28.

Soldering procedures are on page 9.

Ordering guide

Pushbutton switch	No of poles	Action	Terminal style	Contact material	8T LED colour
8N 6,35 (1/4") Bushing	1 1 pole	01**** Alternate action	1 Solder	A Silver contacts** (may be omitted from cat. listing)	L2 Red
8P 6,35 (1/4") Bushing	2 2 pole	02 Momentary action	2 PC	B Gold/Brass contacts**	L25 Red and green
8R 6,35 (1/4") Bushing soft touch	3 3 pole		3* Wirewrap	C Gold/Silver contacts**	
8T LED illuminated 6,35 (1/4") Bushing 1 pole only	4 4 pole		4*** PC side-formed		
8W Snap-in mount 1 and 2 pole only			5*** PC end-formed		
8Y 11,9 (15/32") Bushing			6*** PC end-formed		
			7* PC long wire-wrap		
* Not available for 8R. ** See page 5 for full description. *** Available for 8N and 8R only. **** Not available for 8W.					Order buttons separately from page 18.

Example : **8N** **2** **02** **1**

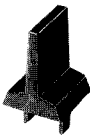




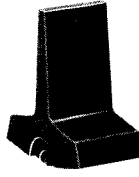




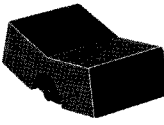
To build up a complete catalogue listing, select the proper character from each section of the ordering guide above as shown in this example.







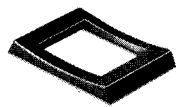
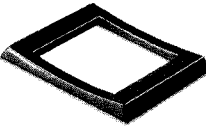
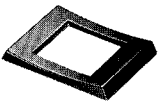
8N2021

This is a 2 pole momentary action. Non-illuminated Pushbutton switch without button. 1/4" Bushing, solder terminals, silver contacts, copper end terminals with silver plating.

Actuators and accessories





All these parts have to be ordered separately.

	Description colour code	White 1	Red 2	Black 3	Grey 4	Green 5	Blue 6	Amber 7	Yellow 8	Pink 9
	Standard paddle operator for 8H. 17 mm height	8Z0001	8Z0002	8Z0003	8Z0004	8Z0005	8Z0006	8Z0007	8Z0008	
	Short paddle operator for 8H. 14,5 mm height	8Z0491	8Z0492	8Z0493	8Z0494	8Z0495	8Z0496	8Z0497	8Z0498	
	Piano-key actuator for 8H	8Z0121	8Z0122	8Z0123	8Z0124	8Z0125	8Z0126	8Z0127	8Z0128	
	Paddle operator for 8HD	8Z0431	8Z0432	8Z0433	8Z0434	8Z0435	8Z0436	8Z0437	8Z0438	
	Paddle operator for 8M and 8V-M	8Z0011	8Z0012	8Z0013	8Z0014	8Z0015	8Z0016	8Z0017	8Z0018	
	Paddle operator for 8Q and 8V-Q	8Z0051	8Z0052	8Z0053	8Z0054	8Z0055	8Z0056	8Z0057	8Z0058	
	Rocker operator for 8H	8Z0021	8Z0022	8Z0023	8Z0024	8Z0025	8Z0026	8Z0027	8Z0028	
	Rocker operator for 8HD	8Z0441	8Z0442	8Z0443	8Z0444	8Z0445	8Z0446	8Z0447	8Z0448	
	Rocker operator for 8M and 8V-M	8Z0031	8Z0032	8Z0033	8Z0034	8Z0035	8Z0036	8Z0037	8Z0038	
	Rocker operator for 8X	8Z0501	8Z0502	—	—	8Z0505	8Z0506	8Z0507	8Z0508	
	Rocker operator for 8Q and 8V-Q	8Z0071	8Z0072	8Z0073	8Z0074	8Z0075	8Z0076	8Z0077	8Z0078	

	Description colour code	White 1	Red 2	Black 3	Grey 4	Green 5	Blue 6	Amber 7	Yellow 8	Pink 9
	Round tip lever sleeve for 8A, 8F, 8U	8Z0111	8Z0112	8Z0113	8Z0114	8Z0115	8Z0116	8Z0117	8Z0118	8Z0119
	Cone tip lever sleeve for 8A, 8F, 8U	8Z0151	8Z0152	8Z0153	8Z0154	8Z0155	8Z0156	8Z0157	8Z0158	8Z0159
	Round tip lever sleeve for 8B	8Z0131	8Z0132	8Z0133	8Z0134	8Z0135	8Z0136	8Z0137	8Z0138	
	Metal cap for 8E	(Silver) 8Z0091	8Z0092	8Z0093	—	—	8Z0096	—	—	
	8Z0091 silver cap is supplied with the switch free of charge									
	Plastic cap for 8S	8Z0511	8Z0512	8Z0513	8Z0514	8Z0515	8Z0516	8Z0517	8Z0518	
	Rubber cap for 8A, 8F, 8U	—	—	8Z0143	—	—	—	—	—	
	Plastic bezel for 8H, 8H-L	8Z0191	8Z0192	8Z0193	8Z0194	8Z0195	8Z0196	8Z0197	8Z0198	
	Plastic bezel for 8X, 8K-L25	8Z0211	8Z0212	8Z0213	8Z0214	8Z0215	8Z0216	8Z0217	8Z0218	
	Plastic bezel for 8W	8Z0471	8Z0472	8Z0473	8Z0474	8Z0475	8Z0476	8Z0477	8Z0478	

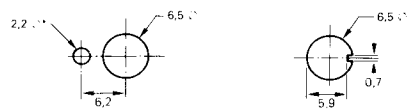
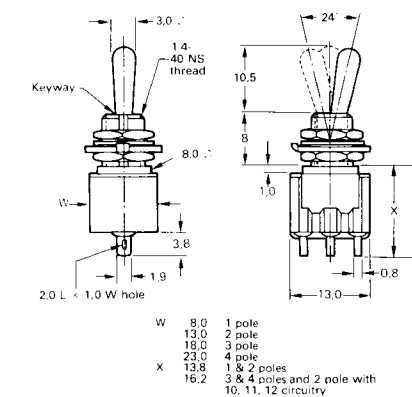
Actuators

All these parts have to be ordered separately.

	Description colour code	White 1	Red 2	Black 3	Grey 4	Green 5	Blue 6	Amber 7	Yellow 8	Pink 9
	Round 15 mm Ø 10 mm height button for 8N, 8P, 8R	8Z0061	8Z0062	8Z0063	8Z0064	8Z0065	8Z0066	8Z0067	8Z0068	
	Round 10 mm Ø 8 mm height button for 8N, 8P, 8R	8Z0081	8Z0082	8Z0083	8Z0084	8Z0085	8Z0086	8Z0087	8Z0088	
	Round 9 mm Ø 3,5 mm height button for 8Y	8Z0421	8Z0422	8Z0423	8Z0424	8Z0425	8Z0426	8Z0427	8Z0428	
	Square button for 8W	8Z0461	8Z0462	8Z0463	8Z0464	8Z0465	8Z0466	8Z0467	8Z0468	

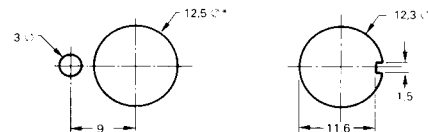
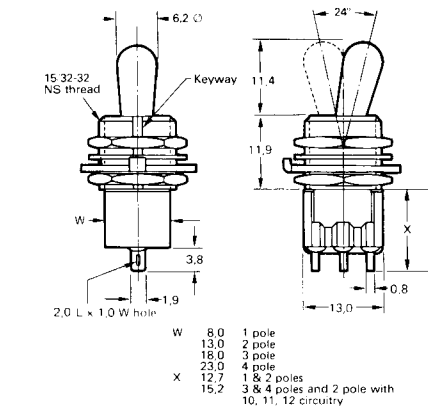
Mounting dimensions and panel cutouts

If you need different mounting hardware, see page 30.



With locking ring

Without locking ring



With locking ring

Without locking ring

8A

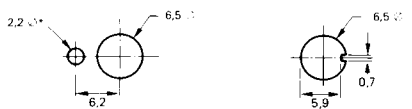
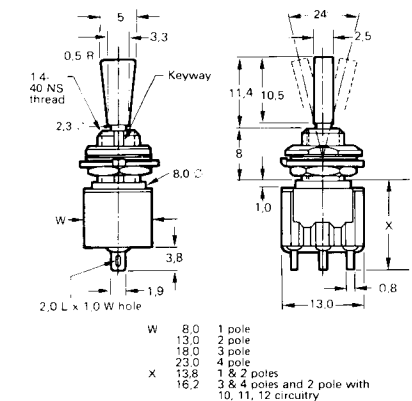
Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

8B

Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0175
One lockwasher 8Z0176
One locking ring 8Z0177



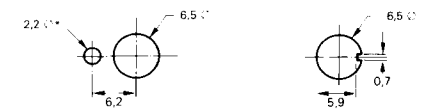
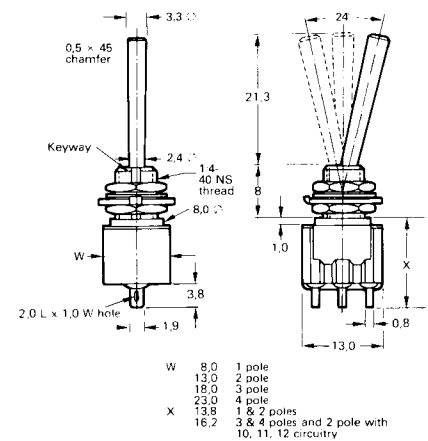
With locking ring

Without locking ring

8C

Standard mounting hardware supplied with the switch :

One dress nut 8Z0171
One hex nut 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174



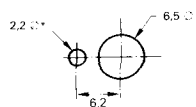
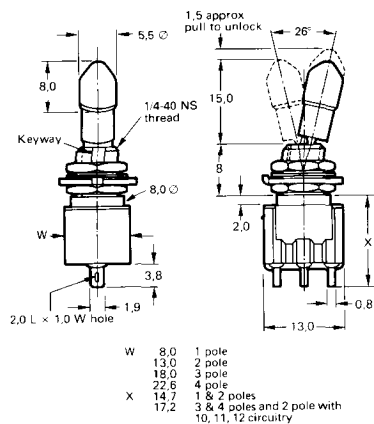
With locking ring

Without locking ring

8D

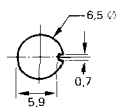
Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

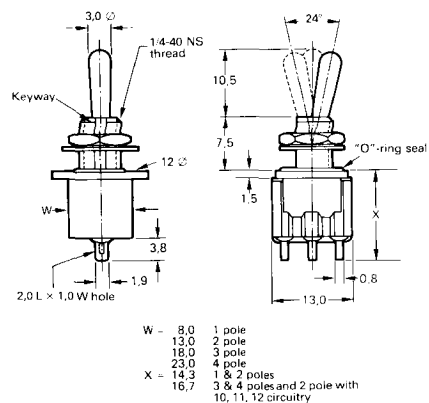


* 1.3 min deep to accommodate locking ring

With locking ring



Without locking ring



8E

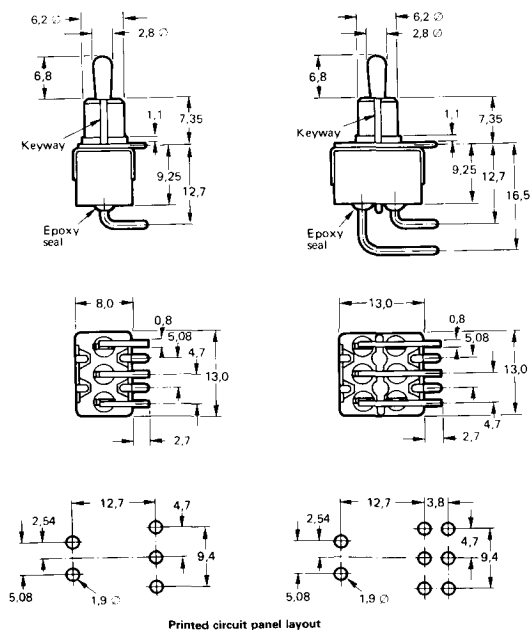
Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

8F

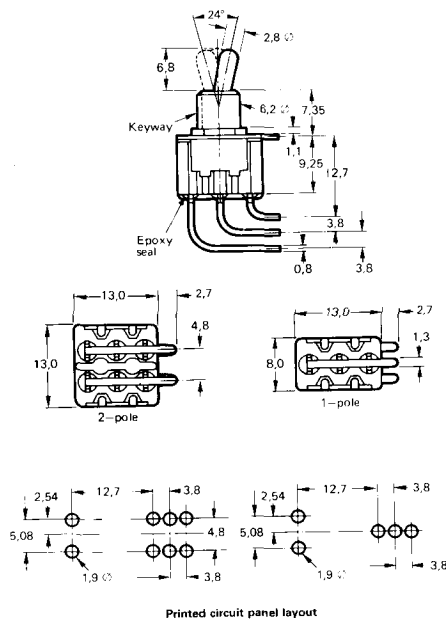
Standard mounting hardware supplied with the switch :

One hex nut 8Z0172
One lockwasher 8Z0173



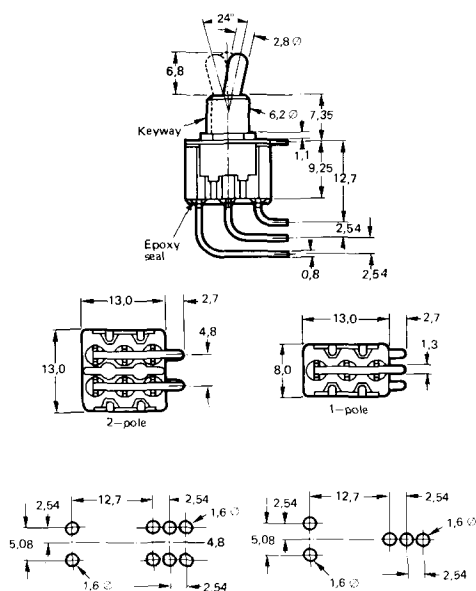
8G

with style 4 terminals
Right angle to keyway



8G

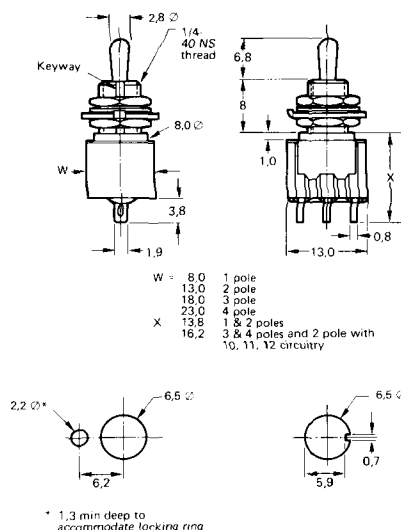
with style 5 terminals
Vertical angle to keyway



Printed circuit panel layout

8G

with style 6 terminals
Vertical angle to keyway



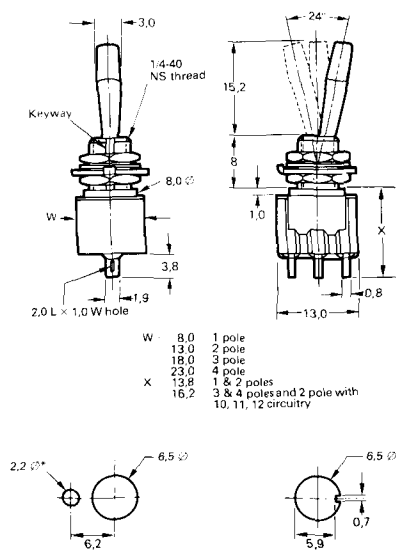
With locking ring

Without locking ring

8J

Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174



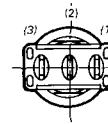
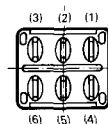
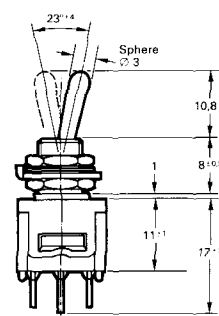
With locking ring

Without locking ring

8S

Standard mounting hardware supplied with the switch :

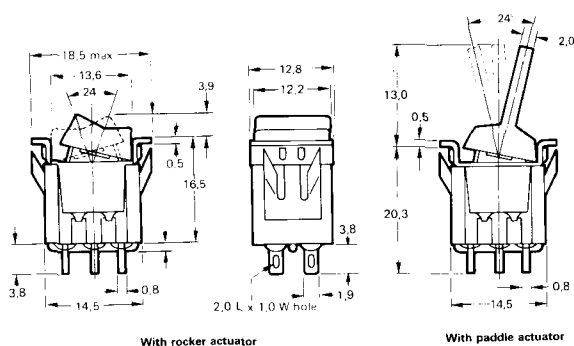
Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174



8U

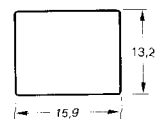
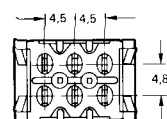
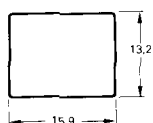
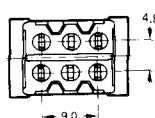
Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174



With rocker actuator

With paddle actuator



8H

Order actuator separately.

Panel thickness :

1mm min., 4mm max.

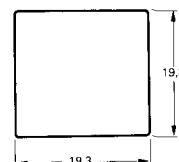
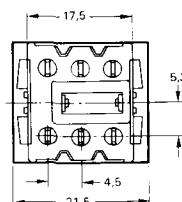
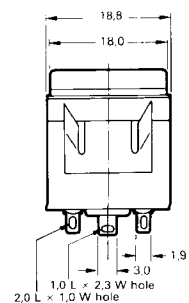
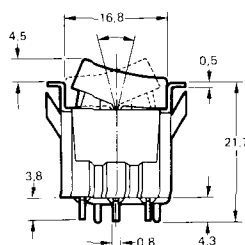
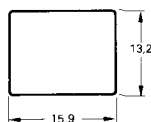
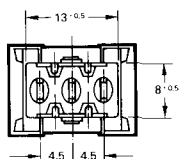
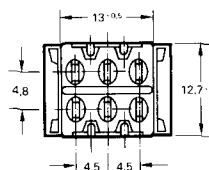
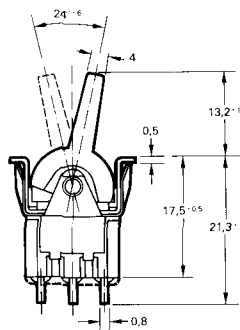
Recommended thickness : 1,5 to 2,5mm

8H-L

Panel thickness :

1mm min., 4mm max.

Recommended thickness : 1,5 to 2,5mm



8HD

Order actuator separately.

Panel thickness :

1mm min., 4mm max.

Recommended thickness : 1,5 to 2,5mm

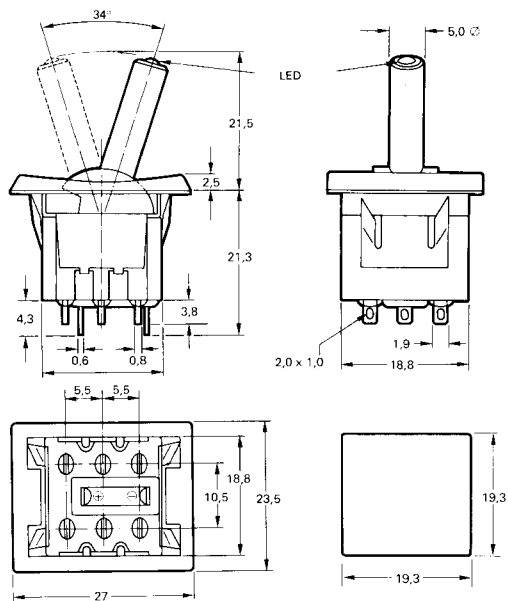
8X

Order actuator separately.

Panel thickness :

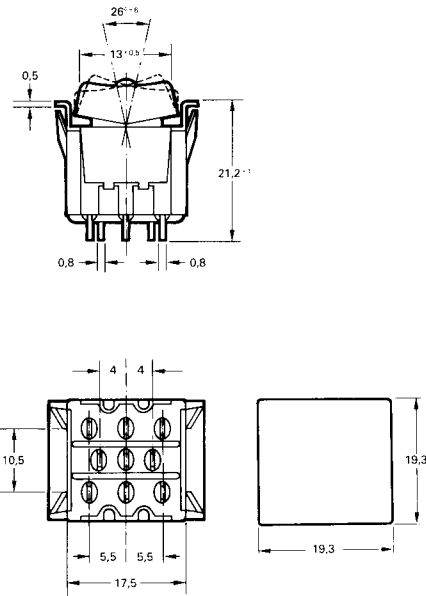
1mm min., 4mm max.

Recommended thickness : 1,5 to 2,5mm



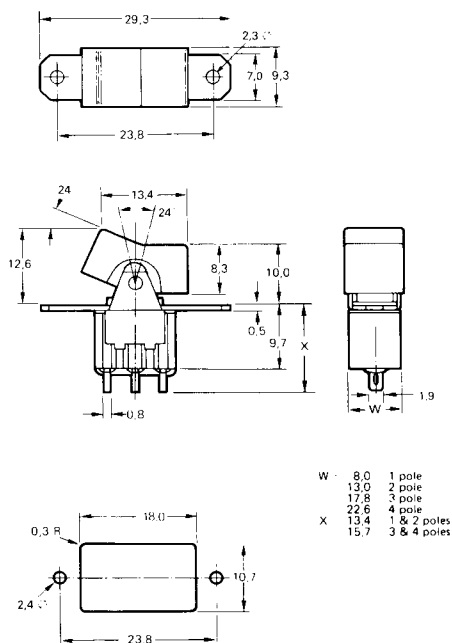
8K-L

Panel thickness :
1 mm min., 4 mm max.
Recommended thickness : 1,5 to 2,5 mm



8K-L25

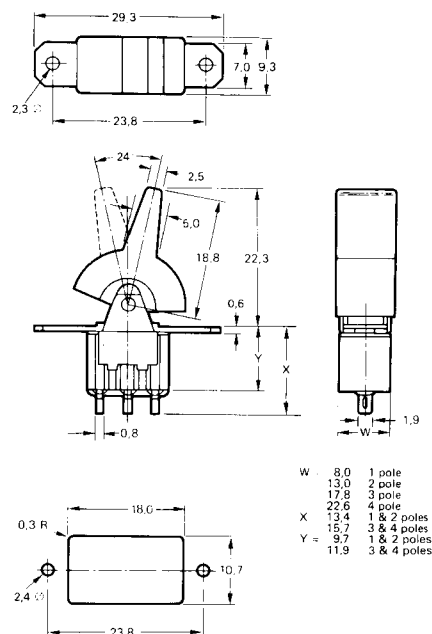
Panel thickness :
1 mm min., 4 mm max.
Recommended thickness : 1,5 to 2,5 mm



8M

Rocker actuator type

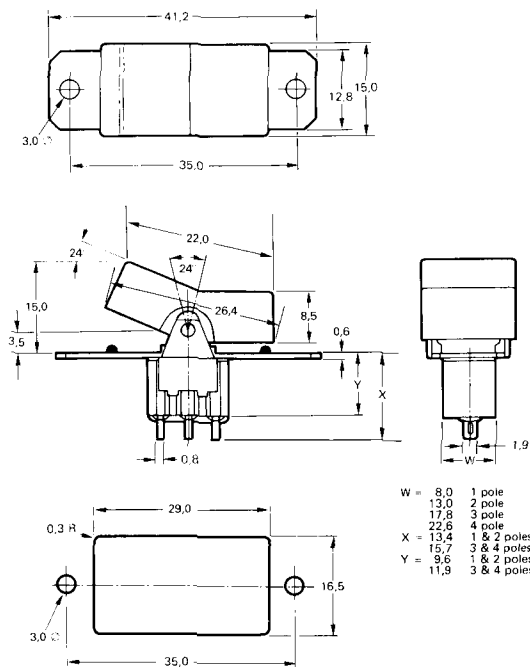
Stand-offs 8Z0241
Special mounting hardware to be separately ordered.
See details on page 12.
Order actuator separately.



8M

Paddle actuator type

Stand-offs 8Z0241
Special mounting hardware to be separately ordered.
See details on page 12.
Order actuator separately.

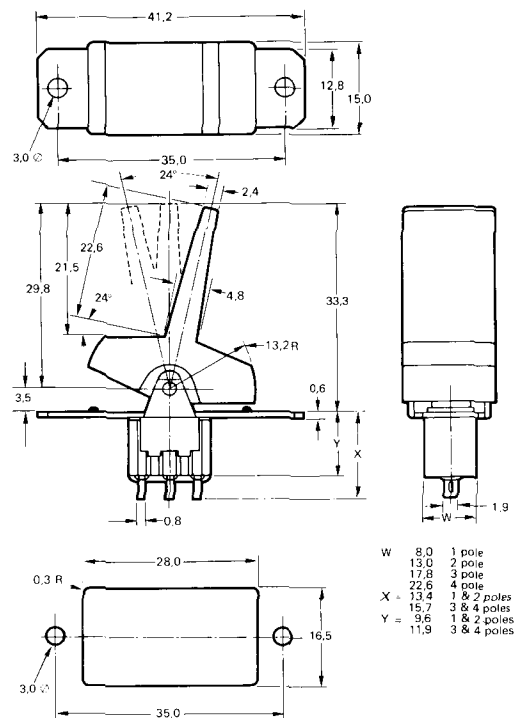


8Q

Rocker actuator type

Mounting hardware to be separately ordered.
See details on page 12.

Order actuator separately.

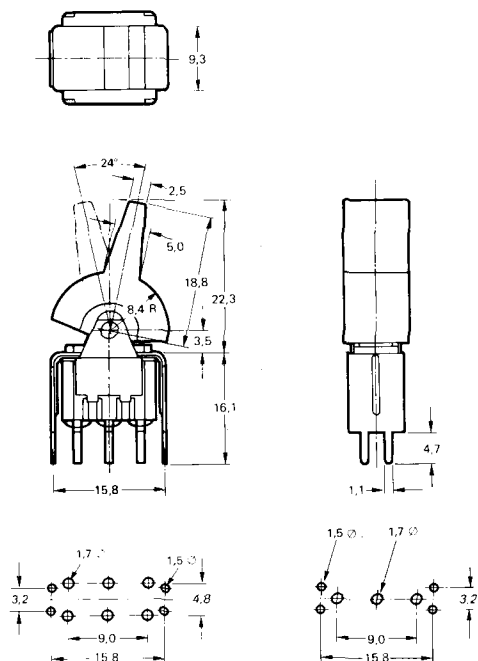


8Q

Paddle actuator type

Mounting hardware to be separately ordered.
See details on page 12.

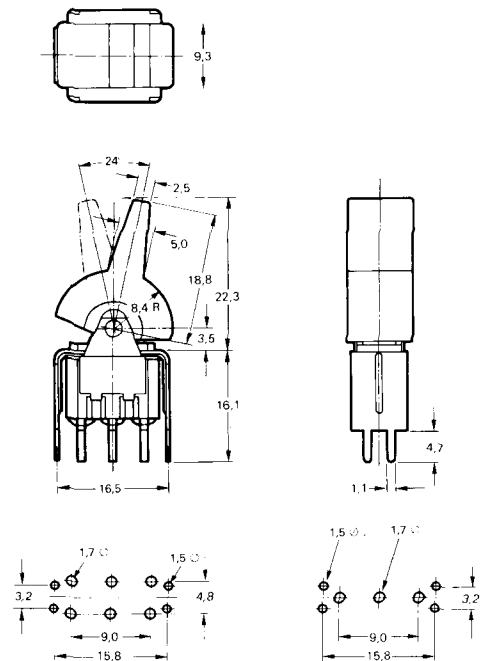
Order actuator separately.



8V-M

Small paddle actuator type

Order actuator separately.

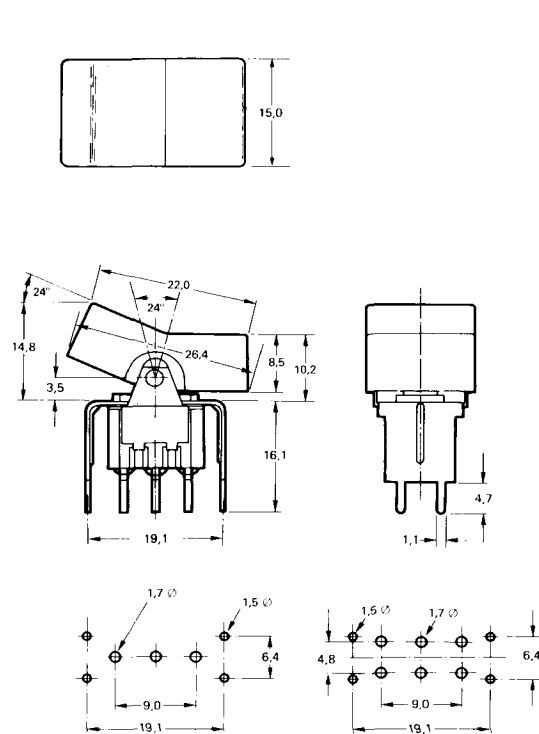


8V-M

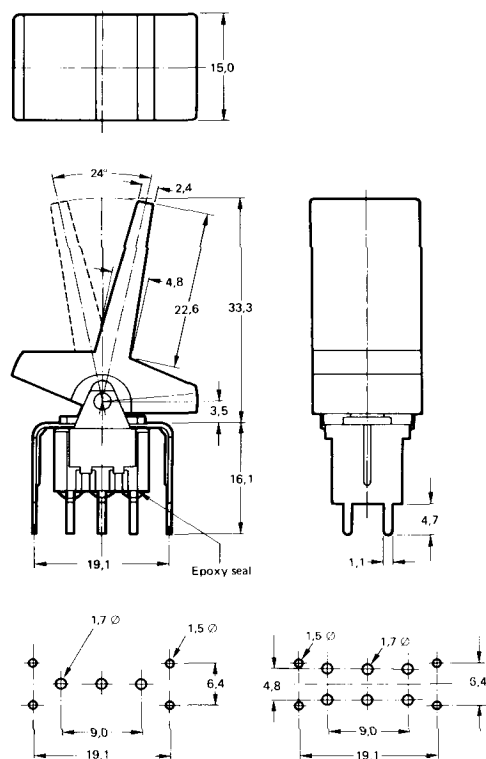
Small paddle actuator type

Order actuator separately.

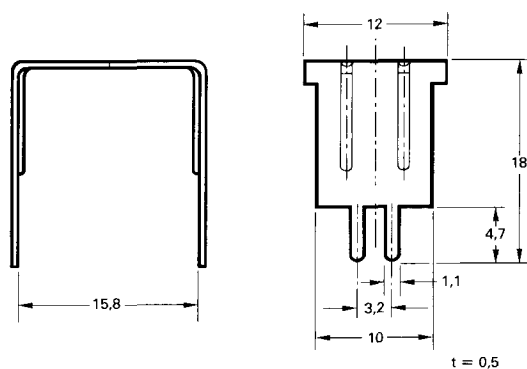
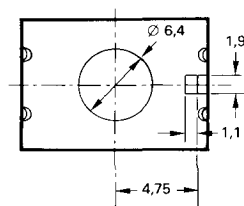
Dimensions shown in mm are for reference only.



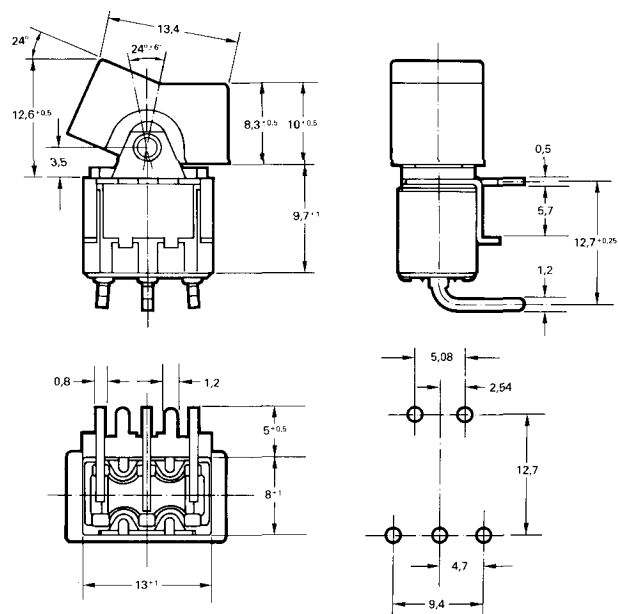
8V-Q
Large rocker actuator type
Order actuator separately.



8V-Q
Large paddle actuator type
Order actuator separately.

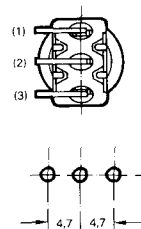
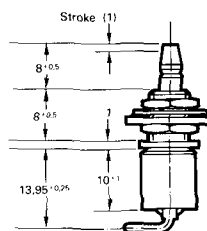
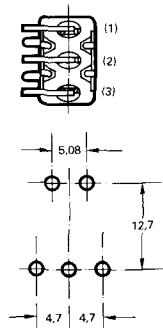
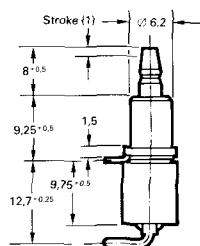


-040 bracket



-041 switches
Order actuator separately.

Dimensions shown in mm are for reference only.



8R1024-401

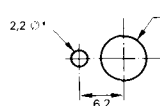
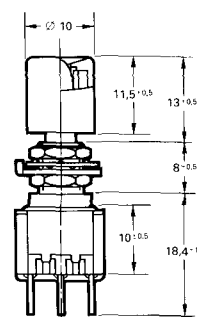
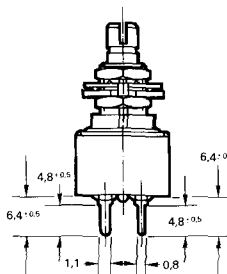
Order button separately.

8R1024-402 & 8R1014-403

Standard mounting hardware supplied with the switch :

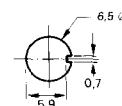
Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

Order button separately.

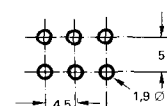
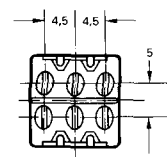


* 1,3 mm deep to accommodate locking ring

With locking ring



Without locking ring

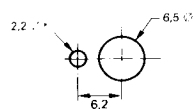
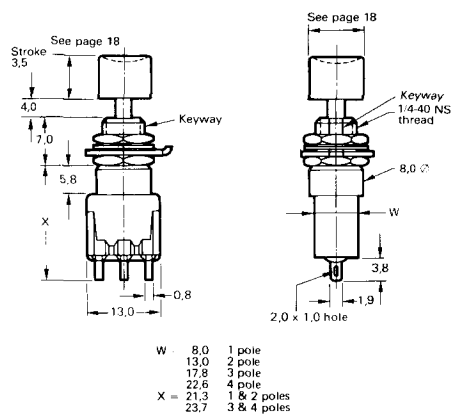


8T

Standard mounting hardware supplied with the switch :

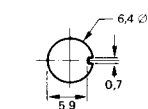
Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

Dimensions shown in mm are for reference only.



* 1.3 min deep to accommodate locking ring

With locking ring



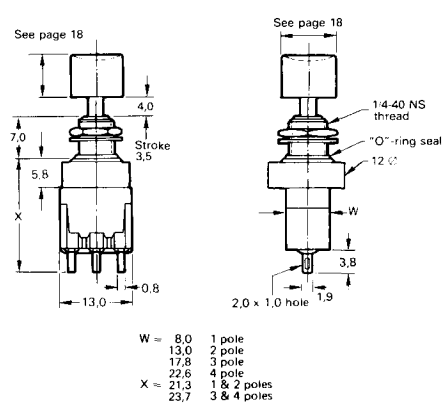
Without locking ring

8N

Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

Order button separately.

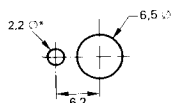
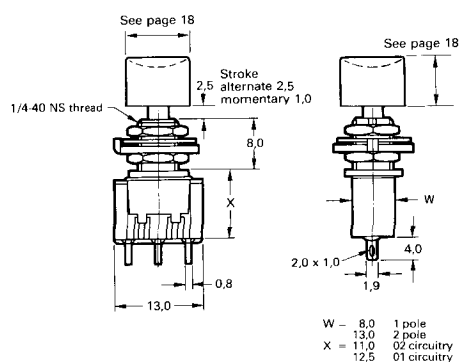


8P

Standard mounting hardware supplied with the switch :

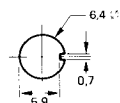
One hex nut 8Z0172
One lockwasher 8Z0173

Order button separately.



* 1.3 min deep to accommodate locking ring

With locking ring



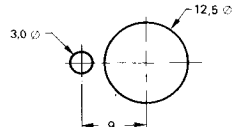
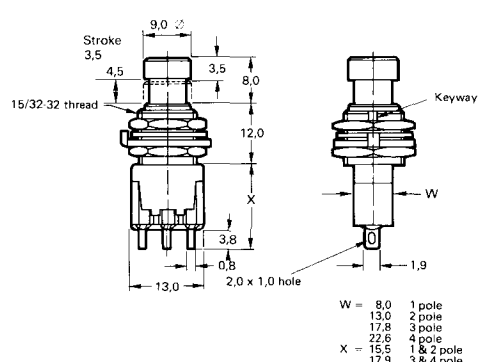
Without locking ring

8R

Standard mounting hardware supplied with the switch :

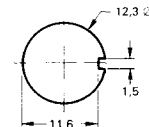
Two hex nuts 8Z0172
One lockwasher 8Z0173
One locking ring 8Z0174

Order button separately.



* 1.5 min deep to accommodate locking ring

With locking ring



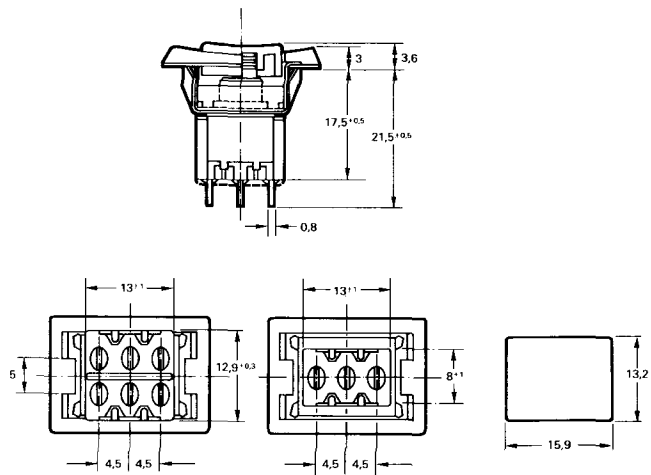
Without locking ring

8Y

Standard mounting hardware supplied with the switch :

Two hex nuts 8Z0175
One lockwasher 8Z0176
One locking ring 8Z0177

Order button separately.



8W

Order button separately.

Panel thickness :

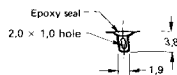
1 mm min., 4 mm max.

Recommended thickness :

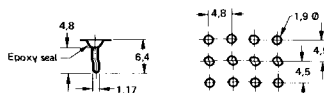
1,5 to 2,5 mm.

Terminals and printed circuit layout

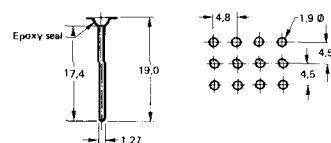
Type 1.
Except for 8R and 8W



Type 2.

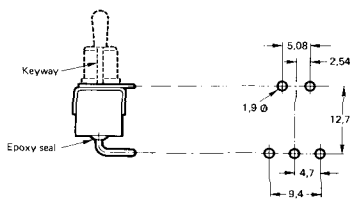


Type 3.

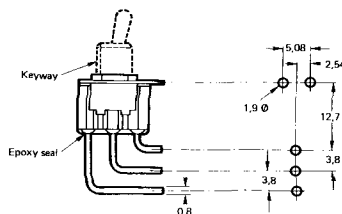


1 pole

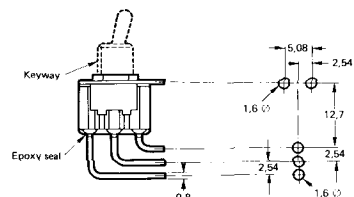
Type 4.



Type 5.

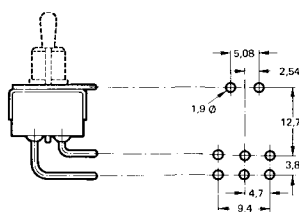


Type 6.

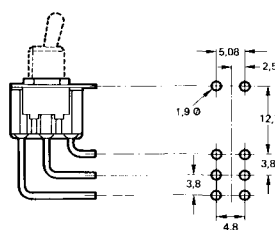


2 pole

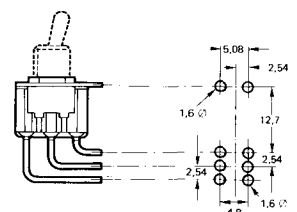
Type 4.



Type 5.

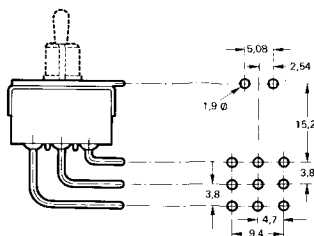


Type 6.

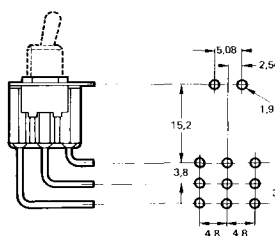


3 pole

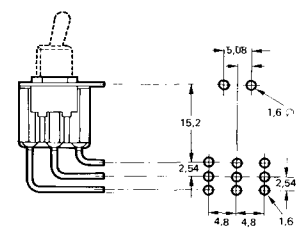
Type 4.



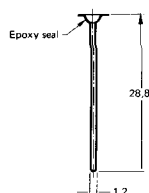
Type 5.



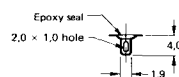
Type 6.



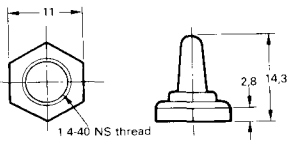
Type 7.



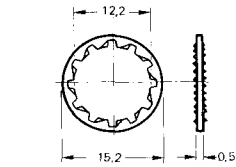
Type 1
(8R and 8W)



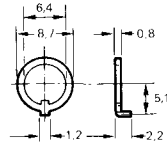
Mounting hardware for toggle switches and pushbuttons



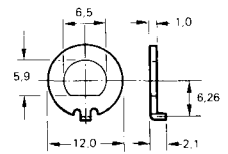
Waterproof seal cap 8Z0143
Rubber, brass



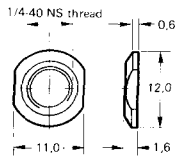
Lockwasher 8Z0176
Steel, zinc plated



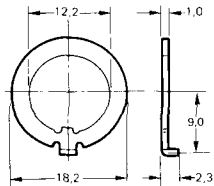
Locking ring 8Z0182
Brass, nickel plated



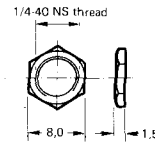
Locking ring 8Z0188
(For "D" bushint)
Brass, nickel plated



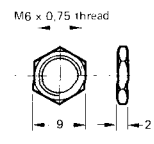
Dress nut 8Z0171
Brass, nickel plated



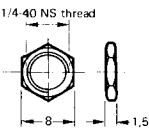
Locking ring 8Z0177
Brass, nickel plated



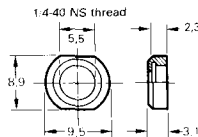
Hex nut 8Z0183
(Chamfer on one side)
Brass, nickel plated



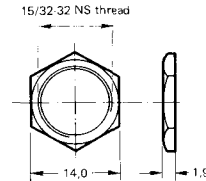
Hex nut 8Z0400
(For option -007)
Brass, nickel plated



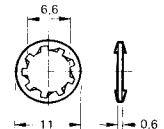
Hex nut 8Z0172
Brass, nickel plated



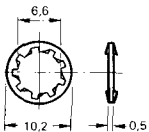
Panel dress nut 8Z0178
(Blind thread)
Brass, nickel plated



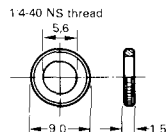
Hex nut 8Z0184
(Chamfer on one side)
Brass, nickel plated



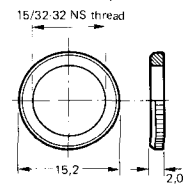
Lockwasher 8Z0401
(For option -007)
Steel, zinc plated



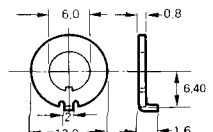
Lockwasher 8Z0173
Steel, zinc plated



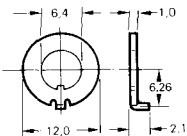
Knurled face nut 8Z0179
Brass, chrome plated



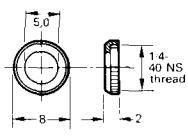
Knurled nut 8Z0185
(Chamfer on one side)
Brass, chrome plated



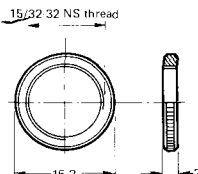
Locking ring 8Z0402
(For option -007)
Brass, nickel plated



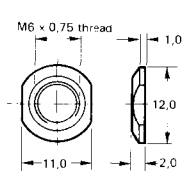
Locking ring 8Z0174
Brass, nickel plated



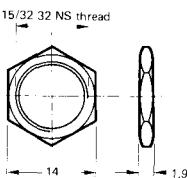
Knurled nut 8Z0180
(Blind thread)
Brass, chrome plated



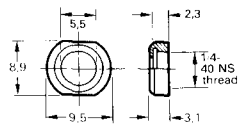
Knurled nut 8Z0186
(Chamfer on two side)
Brass, chrome plated



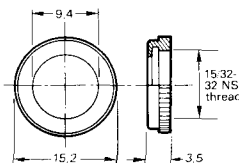
Dress nut 8Z0403
(For option -007)
Brass, nickel plated



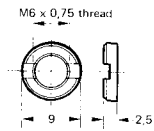
Hex nut 8Z0175
Brass, nickel plated



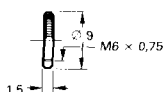
Panel dress nut 8Z0181
(Blind thread)
Brass, satin



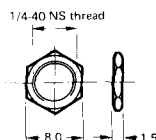
Knurled nut 8Z0187
(Blind thread)
Brass, chrome plated



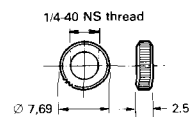
Dress nut 8Z0404
(For option -007)



Knurled nut 8Z0405
(For option -007)



Knurled nut 8Z0410
8N/8R



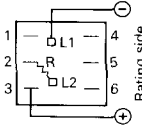
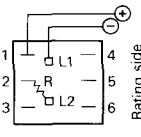
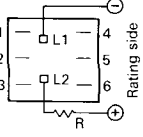


Knurled nut 8Z0179-234
Brass, nickel plated
Dimensions shown in mm are for reference only.

LED information

8H-L switches

Type	Colour	Reverse Voltage (V _R)	Forward Current (I _F)	Forward Voltage (V _F)	
				Nom.	Max.
L2	Red	3V	10mA	2.0V	2.4V
L5	Green	3V	20mA	2.1V	2.8V
L8	Yellow	3V	20mA	2.1V	2.8V

Rocker position for LED lighting			Lighted regardless of actuation
Wiring diagram			
Switch terminal connection	5-6	4-5	

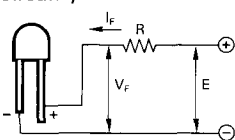
Ballast resistor is externally connected to LED in series for 10 to 25mA direct current when the LED is lighted regardless of rocker actuation.

Value of the resistor must be calculated by the below mentioned formula so that the applied current to LED becomes less than the above specified forward voltage V_F.

Formula :

Circuitry :

$$R = \frac{E - V_F}{I_F}$$



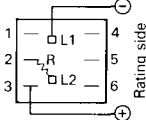
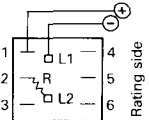
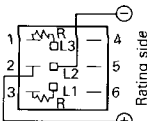
Example : When E = 6V, I_F = 10mA and V_F = 2.1V, resistance is 390 ohms.

$$R = \frac{6 - 2.1}{0.01} = 390\Omega$$

8K-L switches

Type	Reverse Colour (V _R)	Forward Voltage (V _F)	Current Nom.	Forward Voltage (V _F)	
				Max.	
L2	Red	3V	10mA	2.0V	2.4V
L5	Green	3V	20mA	2.1V	2.8V
L8	Yellow	3V	20mA	2.1V	2.8V
L25	Red	5V	30mA	2.05V	2.8V
	Green				

LED connection diagram

8K1022-L2 toggle						8K2011-L25 rocker			
Connection			Connection			Connection			
	Lighting Position	LED		Lighting Position	LED		Lighting Position	Red	Green
	Connecting terminals	5-6		Connecting terminals	4-5		Connecting terminals	5-6	4-5
						L1 ⊕ red L2 ⊖ common L3 ⊕ green			

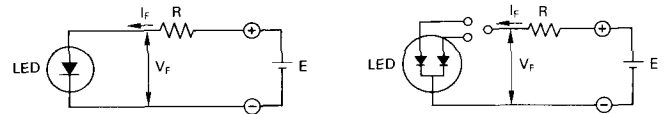
LED lighting position is as viewed from rating side. Resistor to be externally mounted.

8T-L switches

Type	Colour	Reverse Voltage (V _R)	Forward Current (I _F)	Forward Voltage (V _F)	
				Nom.	Max.
L2	Red	4V	30mA	2.1V	2.5V
L25	Red	5V	30mA	2.05V	2.8V
	Green				

LED circuit

Calculate the resistance R by the following formula so that the current flowing to the LED will be less than the forward current I_F listed in the LED specifications for the switch to be used.

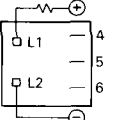
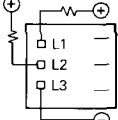


Calculation example : E = 6V, I_F = 10mA

$$R = \frac{E - V_F}{I_F} = \frac{6 - 2.1}{0.01} = 390\Omega$$

When V_F = 2.1V

LED wiring diagram

8T-L2	8T-L25	
		L1 ⊕ red L2 ⊕ green L3 ⊖ common

LED circuit

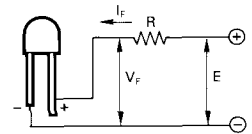
Calculate the resistance R by the formula so that the current flowing to the LED will be less than the forward current I_F listed in the LED specifications.

Calculation example :

E = 6V, I_F = 10mA

$$R = \frac{E - V_F}{I_F} = \frac{6 - 2.1}{0.01} = 390\Omega$$

When V_F = 2.1V



Options

For variations in mounting hardware, metric threads, special finish, UL-CSA or SEV approved switches and other special requirements, refer to the list of possible modifications below and add the suffix number to the standard device to be modified.

Example the 8A1011-007 is a toggle switch, single pole ON-NONE-ON with fine silver contacts, solder terminals but with a metric M6 \times 0.75 threaded bushing, instead of the standard 1/4"-40 UNS threaded bushing.

Note that switches with optional features may be subject to minimum order quantities and extended lead times.

Suffix number	Modification description	Applicable switches
-001	"D" bushings	8A, 8C, 8D, 8E, 8J, 8N, 8S
-002	Black finish on bushing and hardware	8A, 8C, 8D, 8E, 8F, 8J, 8N, 8P, 8S
-003	Black finish on toggle lever, bushing and mounting nut	8A, 8C, 8D, 8E, 8J, 8N, 8P, 8S, 8F
-004	8Z0178 dress nut in place of 8Z0171 8Z0178 dress nut in place of 8Z0172	8C 8A, 8D, 8J, 8S, 8F, 8N, 8P
-005	8Z0182 locking ring in place of 8Z0174	8A, 8C, 8D, 8E, 8J, 8N, 8S
-006	UL listing stamped on switch with type A and C contact/terminal materials	All models except 8H-L, 8K-L, 8R, 8T, 8U, 8W
-007	Metric thread for 1/4" bushing	8A, 8C, 8D, 8E, 8F, 8J, 8S, 8N, 8P
-008	"D" shaped bushing (5,2 long) with black finish. Lever with black finish. Hardware to consist of : a) 8Z0179-234 knurled nut with black finish (one) b) 8Z0173 washer (one) 8Z0111 white lever cap	8A
-009	"D" shaped bushing (5,2 long) with black finish. Lever with black finish. Hardware to consist of : a) 8Z0179-234 knurled nut with black finish (one) b) 8Z0173 washer (one)	8A
-010	"D" shaped bushing (5,2 long). Lever with chrome plate. Hardware to consist of : a) 8Z0179-234 knurled nut with chrome plate b) 8Z0173 washer (one)	8A
-011	CSA listing stamped on 1 pole and 2 pole devices. 2-pole device in a 3-pole case, and centre terminal holes epoxy filled. Standard hardware.	All models except 8H-L, 8K-L, 8R, 8T, 8U, 8W
-012	One 8Z0171 dress nut in place of one 8Z0172 hex nut.	8A, 8D, 8E, 8J, 8N, 8S, 8F, 8P
-013	"D" bushing with standard length 8.12 (0.32 inch) 8Z0179-234 (one), 8Z0173 (one) 8Z0172 (one) No locking ring (8Z0174)	8A, 8B, 8C, 8D, 8E, 8F, 8J, 8S, 8N, 8P

Suffix number	Modification description	Applicable switches
-015	All switches to have : M6 \times 0.75mm metric thread 2,5 micron gold plating min. Toggle switches. 13mm long lever instead of the standard 10,5mm lever Pushbuttons. 8N with momentary action have the normally open (NO) contact on the keyway side. 8Z0111 to 8Z0114 buttons have 14mm height instead of 10mm.	8A, 8N 8A 8N
-016	Black finish on toggle lever, bushing and mounting nut. One 8Z0171 dress nut (black finish) in place or one 8Z0172 hex nut.	8A, 8B, 8C, 8D, 8E, 8F, 8J, 8S, 8N, 8P
-017	No hardware except : one piece of 8Z0172 hex nut bulk packed in unit container with switches.	8A, 8D, 8J, 8F, 8S, 8N, 8P
-018	No mounting hardware furnished with switch (minimum order 10,000 pcs)	8A, 8B, 8C, 8D, 8E, 8F, 8J, 8S, 8N, 8P, 8R
-019	Applied to 1 and 2 pole devices with 01 and 02 circuitry only. 1mm shoulder on bushing. No hardware except one 8Z0172 hex nut bulk packed in unit container with switches	8E
-020	SEV one and two pole switches : 2A 250V ac resistive load only. All switches have SEV marking. Two pole devices are in a three-pole case and have centre terminal holes epoxy filled. 8H are available in 1 pole only. 8Y are supplied with glued cap.	8A, 8B, 8F, 8X, 8M, 8Q, 8P, 8Y, 8H
-021	All switches to have : M6 \times 0.75mm metric thread black finish on bushing toggle lever or plunger. Black hardware to consist of : one 8Z0404 round nut one "O" ring - one 8Z0173 washer	8F, 8P
-027	8A type toggle lever, length 12.8mm \pm 0.7 - diameter 3mm \pm 0.1	8G
-030	10A 125V ac; 6 A 250V ac resistive 1 and 2 pole switches with 01 Type circuitry. 2 pole device in 3 pole case and center terminal holes epoxy sealed. Type A contact and terminal materials only. 8H are available in 1 pole only.	8A, 8B, 8C, 8D, 8E, 8F, 8S, 8M, 8Q, 8H
-031	UL listing stamped on switch with dual rating 6A 125V ac 3A 250V ac.	All models except 8R, 8T, 8U, 8W, 8H-L, 8K-L
-032	No hardware except one piece of 8Z0173 lockwasher bulk packed in unit container with switches.	8A, 8C, 8D, 8E, 8F, 8J, 8S, 8N, 8P, 8R
-034	Applied to 1 and 2 pole devices only. UL and CSA marks stamped on switch with dual rating of 6A 125V ac and 3A 250V ac. 2 pole devices are in a 3 pole case.	All models except 8R, 8T, 8U, 8W, 8H-L, 8K-L
-035	Gold plated internal parts.	8K-L25
-036	Applied to 1 and 2 pole devices. 2 pole devices are supplied in 3 pole case. UL and SEV marks stamped on switch with dual rating of 6A 125V ac and 2A 250V ac. 8H is available in 1 pole only. 8Y are supplied with glued cap.	8A, 8B, 8F, 8X, 8M, 8Q, 8P, 8Y, 8H
-037	UL and CSA marks stamped on switch. 1 and 2 pole only. 2 pole switches are supplied in 3 pole case.	All models except 8R, 8T, 8U, 8W, 8H-L, 8K-L
-040	8V type PCB mounting bracket.	8A, 8C, 8D, 8J, 8S
-041	Style 4 terminals and PC mounting hooks	8M

Honeywell Europe S.A.
Components Group
Avenue Henri Matisse 14
1140 Brussels
Belgium
tel. : (02) 243 16 11

Austria
Honeywell-Austria Ges. m.b.H.
Edelsinnstrasse 7-11
1121 Wien
tel. : (0222) 85 030

Belgium
Honeywell S.A./N.V.
Avenue du Bourget 1
1140 Bruxelles/Brussel
tel. : (02) 243 12 11

Denmark
Honeywell A/S
Hejrevej 26
2400 København, NV
tel. : (01) 34 77 22

France
Honeywell S.A.
4, Ave Ampère
78180 Montigny le Bretonneux
tel. : (01) 30 58 80 00

Photoelectric controls only :
Cometa S.A.
Chemin du Vieux Chêne
38240 Meylan
tel. : (76) 900 607

Finland
Honeywell OY
Ruukintie 8
02320 Espoo 32
tel. : (0) 80 101

Germany
Honeywell GmbH
Kaiserleistrasse 55
6050 Offenbach/Main
tel. : (069) 80641

Italy
Honeywell S.p.A.
Via Vittor Pisani 13
20124 Milano
tel. : (02) 67 731

Netherlands
Honeywell B.V.
Rijswijkstraat 175
1062 EV Amsterdam
tel. : (020) 510 39 11

Norway
Honeywell A/S
Askerveien 61 - P.O. Box 263
1371 Asker
tel. : (02) 79 59 60

Spain
Honeywell S.A.
Pradillo 48 - P.O. Box 2010
Madrid 28002
tel. : (01) 416 01 00

Sweden
Honeywell AB
Storsåtrågränd 5
12786 Skärholmen
tel. : (08) 775 55 00

Switzerland
Honeywell A.G.
Dolderstrasse 16
8030 Zürich
tel. : (01) 256 81 11

United Kingdom
Honeywell Control
Systems Ltd.
Charles Square
Bracknell,
Berkshire RG12 1EB
tel. : (0344) 424 555

Orphanage Road
Erdington
Birmingham B249HZ
tel. : (021) 373 8144

Station Road
Cheadle Hulme
Cheshire SK8 7AZ
tel. : (061) 485 6116