



Switch Range

Manufactured from **Stainless Steel**, Bulgin's **extensive range** of vandal resistant security switches are designed with a **high resistance** to wear and tear, corrosion and harsh use in potentially hostile environments such as access control applications.

The front and rear panel mounted versions have three profiles –prominent, domed and low profile – with a choice of switching and IP66 & IP68 front panel sealing which combined together to meet the ergonomic, electrical and environmental demands of switch panel design. New additions of Black Anodised Alloy as well as Stainless Steel are now available - and where the ultimate strength of steel is not needed, there is a brass, chrome plated alternative. Low profile style switches are also now available with a latching, push on - push off, action.

The illuminated versions are available in dot and ring LED indication and a variety of illumination colours including bi-colour LED's. Newer versions also feature LED illumination driven by 6V, 12V & 24V together with rear of panel sealing, these options will add that extra dimension to control panel layouts and functionality.



Vandal Resistant
Push Button
Capacitive Switches
Piezo Switches
Rocker Switches
Toggle Switches
Refrigerator Switches
Slide Switches

3
31
42
48
54
81
86
93

Manufactured from Stainless Steel, Bulgin's extensive range of **vandal resistant security switches** are designed with a **high resistance** to wear and tear, corrosion and harsh use in potentially **hostile environments** such as access control applications.

- Front and rear panel mounted versions
- Vandal switches available in prominent, domed and low profile
- Various switching options such as latching, push on - push off, action.
- IP66, 68 front panel sealing options
- Dot and ring LED illuminated versions
- Illumination voltages 6, 12 and 24V sources,
- Variety of illumination colours and are now available with front and rear of panel sealing options.





H8300RP - - -

Key Features

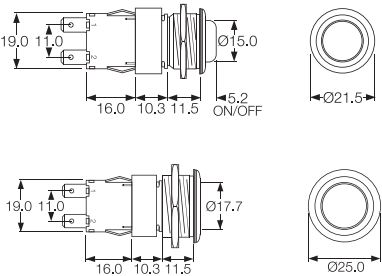
- Momentary or latching action
- Ratings up to 12(12) @ 250Vac
- Single and double Contacts
- Stainless steel button & bezel
- Vandal resistant construction
- Choice of body styles
- 19.2mm or 22.5mm mounting holes
- Front panel sealed to IP66
- Raised, flat or domed actuator options




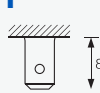


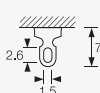




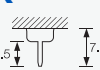

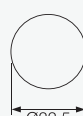
Approvals and specifications

- ⚡ 12 A GP, 250 Vac, T85
13 A GP, 250 Vac, T85
1 hp, 250 Vac, T85, 6E3/1E4
- ⚡ 12A 250Vac DP, 13A 250Vac SP
250Vac 1hp, 125Vac 1/2hp
UL 85°C, file E45221
- In house test:
10(10)A 250Vac—Indicative rating only
- 3mm contact gap.

Dimensions

8300RP (H terminals shown)



Terminal	Function	Actuator	Body Code
C 	8300 (alternate) Single Contact ON - OFF 	R (for P body only) Raised top (stainless steel) 	
H 			
K 	8301 (momentary ON) Single Contact ON - OFF 		
T 			
V 	8350 (alternate) Double Contact ON - OFF 	V Flat top (stainless steel) 	P (for R actuator only) Stainless steel, Soft profile bezel 
X 	8351 (momentary ON) Double Contact ON - OFF 		M Stainless steel 



C0911VA - - -

Key Features

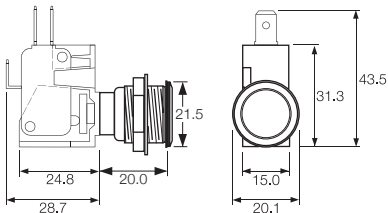
- Snap action switches
- Ratings up to 16A, 250Vac
- Round and rectangular buttons
- Single Contact C/O Switch

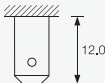


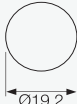
Approvals and specifications

Approvals apply to switch mechanism only.
μ contact gap.

Dimensions

C0911VA



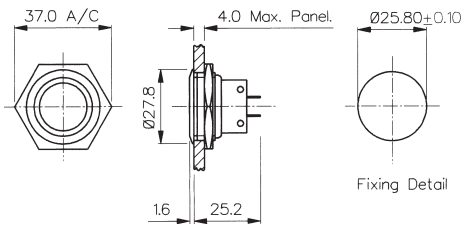
Terminal	Function	Actuator	Body Code
	<div>0911</div> <div>(momentary)</div> <div>ON - ON</div> 	<div>V</div> <div>Flat top (stainless steel)</div> 	<div>A</div> <div>Stainless steel</div> <div>Chamfer profile bezel</div>  <div>Panel cut-out</div> <div>Panel thickness up to 8.0mm</div>

Front Panel Mounting



MP0027

- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac

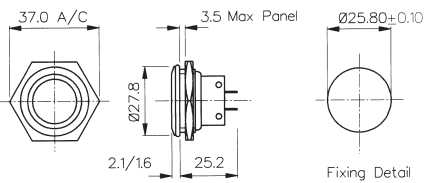


Front Panel Mounting



MP0038
Sealed to IP66

- Front Panel Sealed to IP66
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



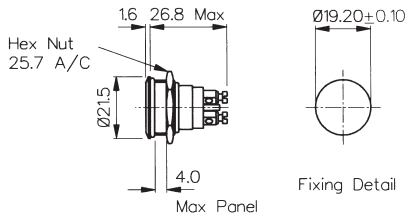
Specifications	MP0027	MP0038
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac 2A, 28Vdc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):		Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations		
Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)
Operating Pressure:	7.5N (typ)	12.5N (typ)
Rear Nut Fixing Torque:	2.5Nm	1.13Nm
Materials		
Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Fine Silver	Fine Silver
Thread size:	1.0" x 26TPI	1.0" x 26TPI
RoHS	Compliant	Compliant

Front Panel Mounting



MP0037
Sealed to IP68

- Front Panel Sealed to IP68
- 21.5mm diameter
- S.P. Push to Make
- 1A, 50Vac/dc
- Industry Standard Size

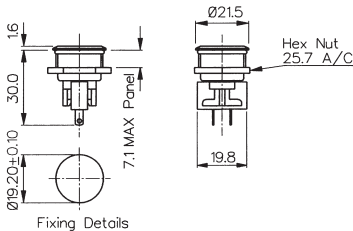


Front Panel Mounting



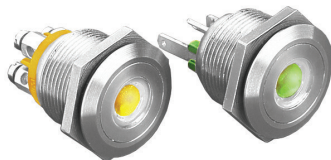
MP0031
Sealed to IP66

- Front Panel Sealed to IP66
- 21.5mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



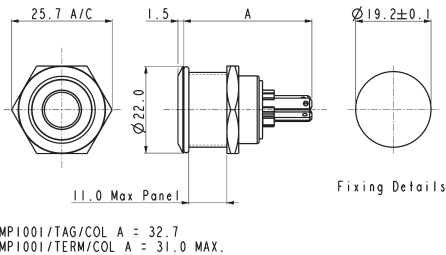
Specifications	MP0037	MP0031
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>1.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP68 EN 60529:1992+A2:2013 (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
IP68 rating 10M for 2 weeks test:	Passed	
Operations Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	30,000 (min)	35,000 (min)
Operating Pressure:	10N (typ)	4.7N (typ)
Rear Nut Fixing Torque:	0.57Nm	0.57Nm
Materials Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Silver Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Brass, Silver Plated, Silver	Fine Silver
Thread size:	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

Front Panel Mounting




MPI001- front panel seal to IP66

- Dot illumination
- 22mm diameter
- Single Contact push to make
- 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- Bright daylight LEDs
- Independent LED terminals
- Front panel seal to IP66
- Integral supply resistors
- TVS protection

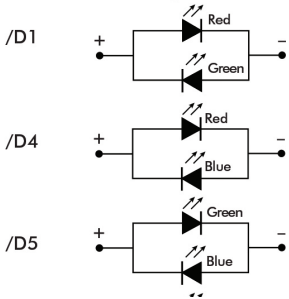


Specifications

MPI001/Termination/Colour/Voltage

Illumination style:	Dot							
Terminations:	/28 (2.8mm tabs), /TERM or /TE (screw terminals)							
Switching:	Single Contact, push to make, tactile (momentary action)							
Max. Switch Rating:	50mA, 24Vdc							
LEDs (ratings @ 20mA)								
Part No.	/RD	/GN	/AM	/BL	/WH	/D1	/D4	/D5
Colours	Red	Green	Amber	Blue	White	Red/Green	Red/Blue	Green/Blue
Luminous Intensity	900mcd	2500mcd	900mcd	1500mcd	900mcd	2500mcd/5000mcd	2000mcd/850mcd	4000mcd/2000mcd
Forward Voltage	1.85V	3.5V	2.3V	3.5V	3.6V	2.05V/3.6V	2.0V/3.6V	3.6V/3.6V
Forward Current	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA
Moulding Colour	Red	Green	Amber	Blue	White	Black	Black	Black
Illumination Voltage:	/no suffix No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above.							
	/6	6Vdc						
	/12	12Vdc						
	/24	24Vdc						
Contact Resistance:	<100mΩ							
Insulation Resistance:	>10 ³ MΩ							
Dielectric Strength:	Contact to Panel >2.0kV Contact to Contact 1500							
Operating Temp. Range:	-30°C to +70°C							
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)							
Operations								
Mechanical:	750,000 (min)							
Electrical:	35,000 (min)							
Operating Pressure:	12N							
Rear Nut Fixing Torque:	0.57Nm							
Screw Terminal Torque	0.2Nm Max							
Materials								
Switch assembly:	UL94V-0 rated Polyamide (Nylon)							
Tags:	Copper Alloy							
Terminals:	Copper Alloy							
Switch Body & Button:	Stainless Steel							
Lens and Lens Body:	Polycarbonate							
O ring:	Nitrile							
Internal seal:	Silicone							
Contact Plate:	Gold Plated							
Thread size:	18.97mm x 26TPI							
	Compliant							

Dual Colour LED Configuration

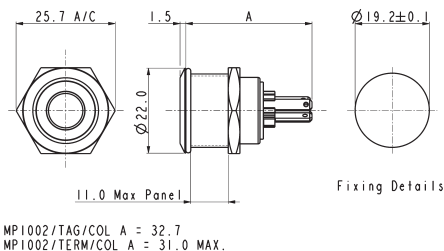


Front Panel Mounting



MPI002- front panel seal to IP66

- Ring illumination
- 22mm diameter
- Single Contact push to make
- 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- Bright daylight LEDs
- Independent LED terminals
- Front panel seal to IP66
- Integral supply resistors
- TVS protection



Specifications

MPI002/Termination/Colour/Voltage

Illumination style:	Ring
Terminations:	/28 (2.8mm tabs), /TERM or /TE (screw terminals)
Switching:	Single Contact, push to make, tactile (momentary action)
Max. Switch Rating:	50mA, 24Vdc

LEDs (ratings @ 20mA)									
Part No.	/RD	/GN	/AM	/BL	/WH	/D1	/D4	/D5	/D6
Colours	Red	Green	Amber	Blue	White	Red/Green	Red/Blue	Green/Blue	Green/White
Luminous Intensity	900mcd	2500mcd	900mcd	1500mcd	900mcd	2500mcd/5000mcd	2000mcd/850mcd	4000mcd/2000mcd	178mcd/450mcd
Forward Voltage	1.85V	3.5V	2.3V	3.5V	3.6V	2.05V/3.6V	2.0V/3.6V	3.6V/3.6V	3.4V/3.2V
Forward Current	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA
Moulding Colour	Red	Green	Amber	Blue	White	Black	Black	Black	Black

Illumination Voltage:	/no suffix No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above.
	/6 6Vdc
	/12 12Vdc
	/24 24Vdc
Contact Resistance:	<100mΩ
Insulation Resistance:	>10 ³ MΩ
Dielectric Strength:	Contact to Panel >2.0kV Contact to Contact 1500

Operating Temp. Range:	-30°C to +70°C
Sealing (Front of panel only): Operations	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)

Electrical:	35,000 (min)
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Operating Pressure:	12N
Rear Nut Fixing Torque:	0.57Nm

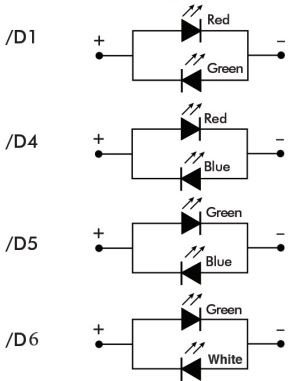
Screw Terminal Torque	0.2Nm Max
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Materials	
Switch assembly:	UL94V-0 rated Polyamide (Nylon)
Tags:	Copper Alloy
Terminals:	Copper Alloy
Switch Body & Button:	Stainless Steel
Lens and Lens Body:	Polycarbonate
O ring:	Nitrile
Internal seal:	Silicone
Contact Plate:	Gold Plated
Thread size:	18.97mm x 26TPI



Compliant

Dual Colour LED Configuration



Switches

Stainless Steel Illuminated Vandal Resistant

Rear of panel IP66 seal

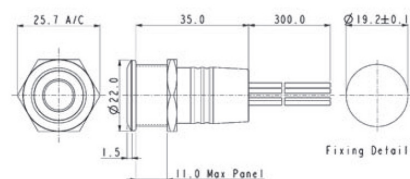


Rear Panel Sealed - Flying Leads



MPI002/FL/xx/x

- Dot or ring illumination
- 22mm diameter
- Single Contact push to make
- 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- Bright daylight LEDs
- Independent LED terminals
- Front and rear panel seal to IP66
- Integral supply resistors
- TVS protection



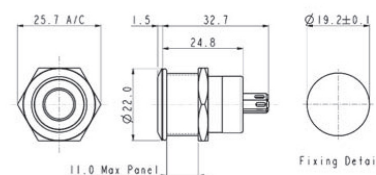
Flying lead colours: LED: red + and black -. Switch contacts: white.

Rear Panel Sealed - Solder Tags



MPI001/RP/xx/x

- Dot or ring illumination
- 22mm diameter
- Single Contact push to make
- 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue & White illumination
- Bright daylight LEDs
- Independent LED terminals
- Front and rear panel seal to IP66
- Solder tag termination
- TVS protection



LED terminals marked + and -. Switch terminals unmarked.

Specifications	MPI001/Termination/Colour/Voltage					MPI002/Termination/Colour/Voltage				
Illumination style:	Dot					Ring				
Terminations:	/FL (Flying leads) /RP (Solder tags)					/FL (Flying leads) /RP (Solder tags)				
Switching:	Single Contact, push to make, tactile (momentary action)					Single Contact, push to make, tactile (momentary action)				
Max. Switch Rating:	50mA, 24Vdc					50mA, 24Vdc				
LEDs (ratings @ 20mA)										
Part No.	/RD	/GN	/AM	/BL	/WH	/RD	/GN	/AM	/BL	/WH
Colours	Red	Green	Amber	Blue	White	Red	Green	Amber	Blue	White
Luminous Intensity	900mcd	2500mcd	900mcd	1500mcd	900mcd	900mcd	2500mcd	900mcd	1500mcd	900mcd
Forward Voltage	1.85V	3.5V	2.3V	3.5V	3.6V	1.85V	3.5V	2.3V	3.5V	3.6V
Forward Current	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA
Moulding Colour	Red	Green	Amber	Blue	White	Red	Green	Amber	Blue	White
Illumination Voltage:	/no suffix No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above.					/no suffix No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above.				
	/6	6Vdc				/6	6Vdc			
	/12	12Vdc				/12	12Vdc			
	/24	24Vdc				/24	24Vdc			
Contact Resistance:	<100mΩ					<100mΩ				
Insulation Resistance:	>10 ³ MΩ					>10 ³ MΩ				
Dielectric Strength:	Contact to Panel >2.0kV Contact to Contact 1500					Contact to Panel >2.0kV Contact to Contact 1500				
Operating Temp. Range:	-30°C to +70°C					-30°C to +70°C				
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)					Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)				
Operations										
Mechanical:	750,000 (min)					35,000 (min)				
Electrical:	35,000 (min)									
Operating Pressure:	12N					12N				
Rear Nut Fixing Torque:	0.57Nm					0.57Nm				
Materials										
Switch assembly:	UL94V-0 rated Polyamide (Nylon)					UL94V-0 rated Polyamide (Nylon)				
Tags:	Copper Alloy					Copper Alloy				
Terminals:	Copper Alloy					Copper Alloy				
Switch Body & Button:	Stainless Steel					Stainless Steel				
Lens and Lens Body:	Polycarbonate					Polycarbonate				
O ring:	Nitrile					Nitrile				
Internal seal:	Silicone					Silicone				
Contact Plate:	Gold Plated					Gold Plated				
Thread size:	18.97mm x 26TPI					18.97mm x 26TPI				
	Compliant					Compliant				

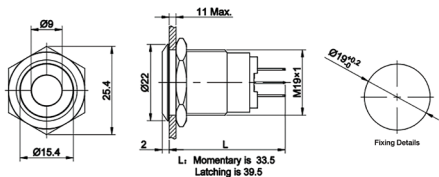


Low Profile

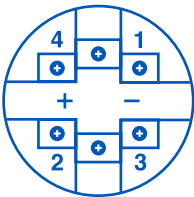


MPI005

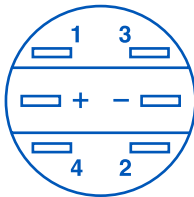
- 22mm bezel diameter
- 19.2mm \pm 0.2mm fixing hole diameter
- S.P.C.O



1, 2 are normally closed (NC)
3, 4 are normally opened (NO)
+, - are lamp terminals, the standard
LED terminals have no difference
of anode and cathode;.



Screw Layout



Plug Layout

Specifications	MPI005/Actuator/Terminal/Function/Material/Colour/Voltage
Terminations:	Plug Terminal or Screw Terminal
Switching:	S.P.C.O Momentary Action and Latching
Sealing:	IP65 (Momentary variants can be made to IP67 upon request)
Max. Rating:	5A @ 12VDC or 24 VDC 5A @ 125VAC 3A @ 250 VAC
Contact Resistance:	50mΩ max. @ 1A, 2V
Insulation Resistance:	>1000 MΩ @ 500Vdc
Dielectric Strength:	> 2.0kVac
Operating Temp. Range:	-25°C to +55°C
Operations	
Mechanical:	1,000,000 (min)
Electrical:	50,000 (min)
Rear Nut Fixing Torque:	0.8Nm
Materials	
Mouldings:	Polycarbonate
Tags/Terminations:	Brass, Gold Plated
Switch Body & Button:	Stainless Steel / Aluminium Alloy
Contacts:	Silver
RoHS	Compliant

MPI	/	005	/	X	/	X	/	X	/	X	/	X
Series		Type		Actuator Type		Terminal		Switching Type		Material		Illumination
19mm Metal Push Button		19mm Illuminated AV Switch		D = Dot Illumination R = Ring P = Illuminated Power O = Power Symbol / Ring		28 = 2.8mm Plug Terminal TE = Screw Terminal		M = Momentary L = Latching		S = Stainless Steel A = Black Anodized Aluminum		BL GN RD AM WH Others on request
												Voltage
												12 = 12VAC Others Available on request

Examples:

MPI005/D/28/L/S/BL/12 = 19mm Metal Push Button, Dot Illumination, 2.8mm Plug Terminal, Latching, Stainless Steel, Blue, 12 Volt

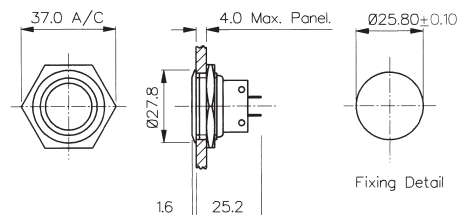
Note:

Power Symbol / Ring not available in black anodized aluminum

Front Panel Mounting


MPB038
 Sealed to IP66

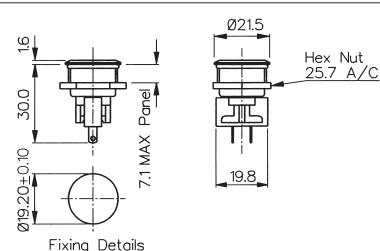
- Front Panel Sealed to IP66
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



Front Panel Mounting


MPB031
 Sealed to IP66

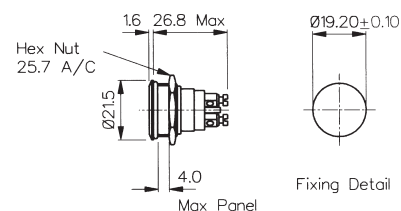
- Front Panel Sealed to IP66
- 21mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



Front Panel Mounting


MPB037
 Sealed to IP68

- Front Panel Sealed to IP68
- 21.5mm diameter
- S.P. Push to Make
- 1A, 50Vac/dc



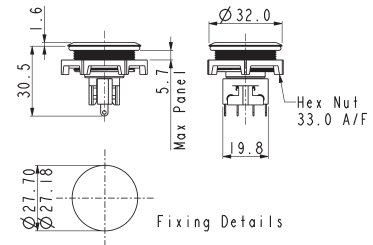
Specifications	MPB038	MPB031	MPB037
Terminations:	Solder Tags	Solder Tags	Screw Terminals
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)	S.P. Push to make Momentary action
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc	1A, 50Vac/dc
Contact Resistance:	<10mΩ	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ	>10 ⁵ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac	>1.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP68 EN60529-1:1992 + A2:2013. (Micro switch not sealed) (10m for 2 weeks)
Operations			
Mechanical:	1,000,000 (min)	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)	30,000 (min)
Operating Pressure:	12.5N (typ)	4.7N (typ)	7.5N (typ)
Rear Nut Fixing Torque:	1.13Nm	0.57Nm	0.57Nm
Materials			
Mouldings:	Glass Filled Nylon	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Brass	Brass	Brass
Contacts:	Fine Silver	Fine Silver	Brass, Silver Plated, Silver
Thread size:	1.0" x 26TPI	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant	Compliant

Front Panel Mounting - Low Profile



MP0050

- Front Panel Sealed to IP68
- Flush button
- 32.0mm diameter
- S.P.C.O. switching
- Momentary action
- 5A, 250Vac

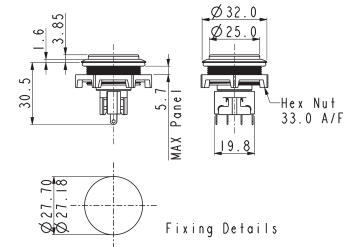


Front Panel Mounting - Protruding Profile



MP0050/2

- Front Panel Sealed to IP68
- Protruding button
- 32.0mm diameter
- S.P.C.O. switching
- Momentary action
- 5A, 250Vac



Specifications	MP0050	MP0050/2
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)
Operating Pressure:	4.7Nm	4.7N (typ)
Rear Nut Fixing Torque:	0.57Nm	0.57Nm
Materials Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Fine Silver	Fine Silver
Thread size:	M27 x 1.0-6H	M27 x 1.0-6H
RoHS	Compliant	Compliant

Switches

Stainless Steel Domed Vandal Resistant

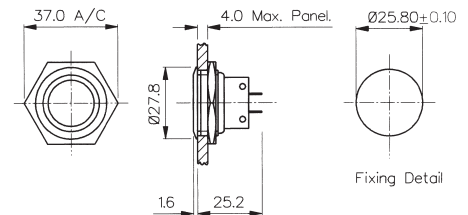


Front Panel Mounting



MP0027/3

- 28mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250Vac

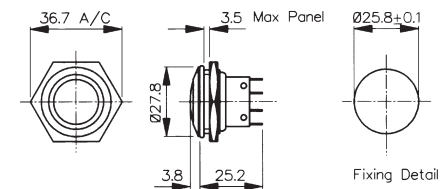


Front Panel Mounting



MP0038/3
Sealed to IP66

- Front Panel Sealed to IP66
- 28mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250Vac



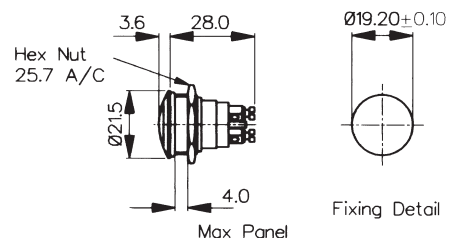
Specifications	MP0027/3	MP0038/3
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):		Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations		
Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)
Operating Pressure:	7.5N (typ)	12.5N (typ)
Rear Nut Fixing Torque:	2.5Nm	1.13Nm
Materials		
Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Fine Silver	Fine Silver
Thread size:	1.0" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

Front Panel Mounting



MP0037/3
Sealed to IP68

- ⬡ Front Panel Sealed to IP68
- ⬡ 21.5mm diameter
- ⬡ Domed Profile
- ⬡ S.P. Push to Make
- ⬡ 1A, 50Vac/dc

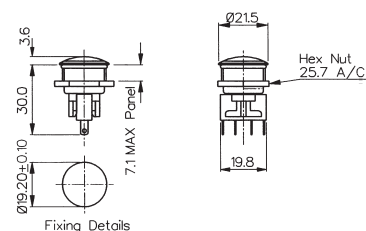


Front Panel Mounting



MP0031/3
Sealed to IP66

- ⬡ Front Panel Sealed to IP66
- ⬡ 21.5mm diameter
- ⬡ Domed Profile
- ⬡ S.P.C.O. Microswitch
- ⬡ 5A, 250Vac



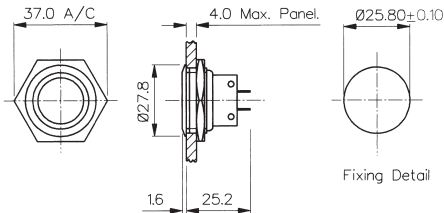
Specifications	MP0037/3	MP0031/3
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ⁵ MΩ
Dielectric Strength:	>1.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing Front of panel only):	Protection Classification: IP68 EN60529-1:1992 + A2:2013. (Micro switch not sealed) (10m for 2 weeks)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations		
Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)
Operating Pressure:	7.5N (typ)	4.7N (typ)
Rear Nut Fixing Torque:	2.5Nm	0.57Nm
Materials		
Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Brass, Silver Plated, Silver	Fine Silver
Thread size:	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

Front Panel Mounting



MP0027/2

- 28mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250Vac

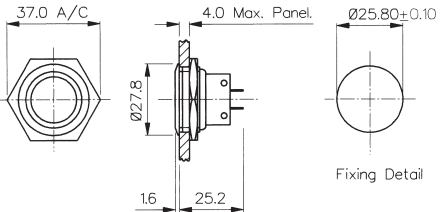


Front Panel Mounting



MP0038/2
Sealed to IP66

- Front Panel Sealed to IP66
- 28mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250Vac

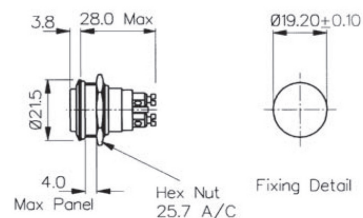


Specifications	MP0027/2	MP0038/2
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):		Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations		
Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)
Operating Pressure:	7.5N (typ)	12.5N (typ)
Rear Nut Fixing Torque:	2.5Nm	1.13Nm
Materials		
Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Fine Silver	Fine Silver
Thread size:	1.0" x 26TPI	1.0" x 26TPI
RoHS	Compliant	Compliant

Front Panel Mounting

MP0037/2
Sealed to IP68

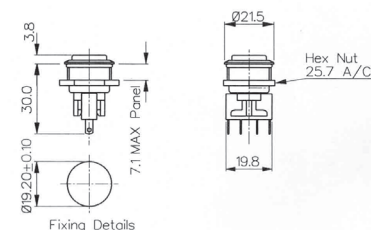
- Front Panel Sealed to IP68
- 21.5mm diameter
- Prominent Button
- S.P. Push to Make
- 1A, 50Vac/dc



Front Panel Mounting

MP0031/2
Sealed to IP66

- Front Panel Sealed to IP66
- 21.5mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250Vac



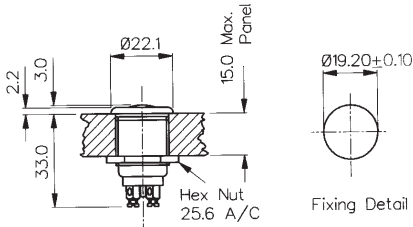
Specifications	MP0037/2	MP0031/2
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Slow momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>1.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP68 EN60529-1:1992 + A2:2013. (Micro switch not sealed) (10m for 2 weeks)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations		
Mechanical:	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)
Operating Pressure:	7.5N (typ)	4.7N (typ)
Rear Nut Fixing Torque:	0.57Nm	0.57Nm
Materials		
Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Brass, Silver Plated, Silver	Fine Silver
Thread size:	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

Front Panel Mounting



MP0013
MP0033

- Proud Fitting
- 22mm diameter
- S.P. Push to Make
- 1A, 50V
- Brass, Chrome Plated Body, Stainless Steel Button
- MP0033 Internally Sealed

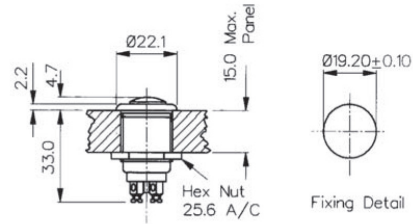


Front Panel Mounting



MP0013/2
MP0033/2

- Prominent Button
- 22mm diameter
- S.P. Push to Make
- 1A, 50V
- Brass, Chrome Plated Body, Stainless Steel Button
- MP0033/2 Internally Sealed



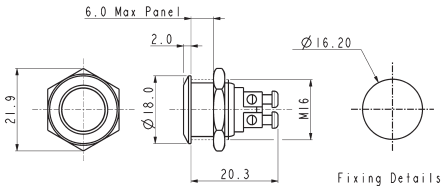
Specifications	MP0013, MP0033	MP0013/2, MP0033/2
Terminations:	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make Slow momentary action	S.P. Push to make Slow momentary action
Max. Rating:	1A, 50Vac/dc	1A, 50Vac/dc
Contact Resistance:	<15mΩ	<15mΩ
Insulation Resistance:	>10 ⁴ MΩ	>10 ⁴ MΩ
Dielectric Strength:	>2.5kVac	>2.5kVac
Operating Temp. Range:	-20°C to +85°C	-20°C to +85°C
Sealing (Front of panel only):	MP0033 only - internally sealed against ingress of water and dust. (IP68 Internal Testing)	MP0033/2 only - internally sealed against ingress of water and dust. (IP68 Internal Testing)
Materials		
Mouldings:	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Body: Brass, Chrome Plated Button: Stainless Steel	Body: Brass, Chrome Plated Button: Stainless Steel
Contacts:	Copper, Silver Plated	Copper, Silver Plated
Thread Size:	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

Flush Profile



MP0042/1

- 18mm bezel diameter
- 16mm panel hole
- S.P. Push to make
- Polished finish
- 2A, 36Vdc

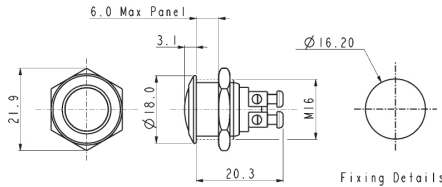


Domed Profile



MP0042/2

- 18mm bezel diameter
- 16mm panel hole
- S.P. Push to make
- Polished finish
- 2A, 36Vdc

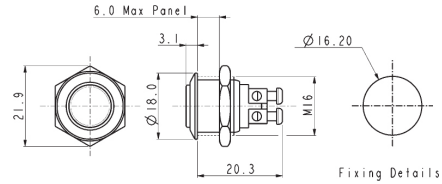


Prominent Button



MP0042/3

- 18mm bezel diameter
- 16mm panel hole
- S.P. Push to make
- Polished finish
- 2A, 36Vdc



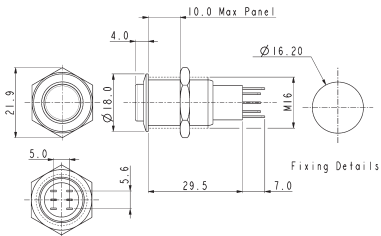
Specifications	MP0042/1	MP0042/2	MP0042/3
Terminations:	Screw Terminals	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make	S.P. Push to make	S.P. Push to make
Max. Rating:	2A, 36Vdc	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	50mΩ at 1A, 2V	50mΩ at 1A, 2V	50mΩ at 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	>2.0kVac	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C
Operations			
Mechanical:	1,000,000 (min)	1,000,000 (min)	1,000,000 (min)
Electrical:	100,000 (min)	100,000 (min)	100,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm	12Nm
Materials			
Mouldings:	Nylon	Nylon	Nylon
Tags/Terminations:	Brass, Silver Plated	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel (Polished)	Stainless Steel (Polished)	Stainless Steel (Polished)
Contacts:	Silver	Silver	Silver
Thread size:	Gold Plated Brass version available	Gold Plated Brass version available	Gold Plated Brass version available
Sealing:	IP65	IP65	IP65
Impact Rating:	IK08	IK08	IK08
RoHS	Compliant	Compliant	Compliant

Low Profile



MP0045/1D

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc

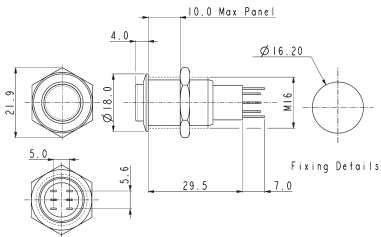


Prominent Button



MP0045/3D

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc



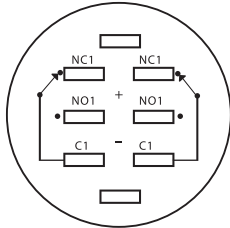
Specifications

MP0045/1D0NN000/Sealing

MP0045/3D0NN000/Sealing

Terminations:	Solder tags
Switching:	D.P.C.O Momentary Action
Sealing:	IP67 IP40
Part No.	/S BLANK
Max. Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc
Contact Resistance:	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	> 2.0kVac
Operating Temp. Range:	-20°C to +55°C
Operations	
Mechanical:	200,000 (min)
Electrical:	30,000 (min)
Rear Nut Fixing Torque:	12Nm
Materials	
Mouldings:	Nylon
Tags/Terminations:	Brass, Silver Plated
Switch Body & Button:	Stainless Steel
Contacts:	Silver
Variants:	Nickel Plated Brass version available Details on request
RoHS	Compliant

Solder tags
D.P.C.O Momentary Action
IP67 IP40
/S BLANK
1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc
50mΩ max. @ 1A, 2V
>10 ³ MΩ @ 500Vdc
> 2.0kVac
-20°C to +55°C
200,000 (min)
30,000 (min)
12Nm
Nylon
Brass, Silver Plated
Stainless Steel
Silver
Nickel Plated Brass version available Details on request
Compliant



Contact Layout

Soldering Instructions:

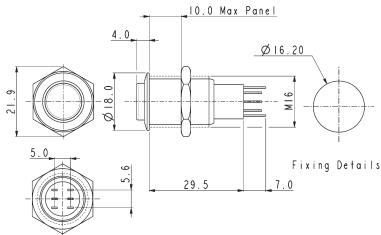
- Soldering time less than 3 seconds
- Do not push on the terminals
- Recommended cuspidal soldering iron. Temperature around 280°C

Low Profile



MP0045/1E

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O.
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc

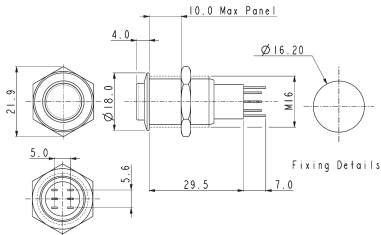


Prominent Button



MP0045/3E

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O.
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc



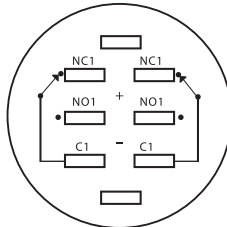
Specifications

MP0045/1E0NN000/Sealing

MP0045/3E0NN000/Sealing

Terminations:	Solder Tags
Switching:	D.P.C.O. - Latching Action
Sealing:	IP67 IP40
Part No.	/S BLANK
Max. Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc
Contact Resistance:	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	>2.0kVac
Operating Temp. Range:	-20°C to +55°C
Operations	
Mechanical:	200,000 (min)
Electrical:	30,000 (min)
Rear Nut Fixing Torque:	12Nm
Materials	
Mouldings:	Nylon
Tags/Terminations:	Brass, Tin Plated
Switch Body & Button:	Stainless Steel (Polished)
Contacts:	Silver
Thread size:	Nickel Plated Brass version Details on request
RoHS	Compliant

Terminations:	Solder Tags
Switching:	D.P.C.O. - Latching Action
Sealing:	IP67 IP40
Part No.	/S BLANK
Max. Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc
Contact Resistance:	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	>2.0kVac
Operating Temp. Range:	-20°C to +55°C
Operations	
Mechanical:	200,000 (min)
Electrical:	30,000 (min)
Rear Nut Fixing Torque:	12Nm
Materials	
Mouldings:	Nylon
Tags/Terminations:	Brass, Tin Plated
Switch Body & Button:	Stainless Steel (Polished)
Contacts:	Silver
Thread size:	Nickel Plated Brass version Details on request
RoHS	Compliant



Contact Layout

Soldering Instructions:

- Soldering time less than 3 seconds.
- Do not push on the terminals.
- Recommended cuspidal soldering iron. Temperature around 280°C.

Switches

Stainless Steel Illuminated Momentary

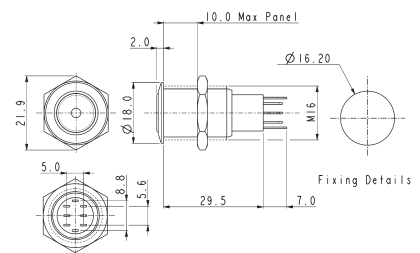


Front Panel Mounting



MP0045/1D1

- Dot Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals

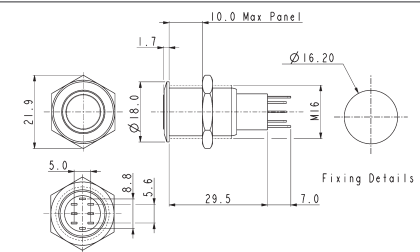


Front Panel Mounting

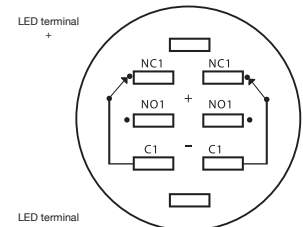


MP0045/1D2

- Ring Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals



Specifications	MP0045/1D1/Colour/Voltage/Sealing				MP0045/1D2/Colour/Voltage/Sealing			
Terminations:	Solder Tags				Solder Tags			
Illumination:	Dot				Ring			
Switching:	D.P.C.O. Momentary Action				D.P.C.O. Momentary Action			
Sealing:	IP67	IP40			IP67	IP40		
Part No.	/S	BLANK			/S	BLANK		
Max. Switch Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc				1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc			
LEDs								
Colours	Red	Green	Amber	Blue	Red	Green	Amber	Blue
Part No.	/RD	/GN	/AM	/BL	/RD	/GN	/AM	/BL
Voltage	12Vdc	220Vdc			12Vdc	220Vdc		
Part No.	/012	/220			/012	/220		
Contact Resistance:	50mΩ max. @ 1A, 2Vdc				50mΩ max. @ 1A, 2Vdc			
Insulation Resistance:	>10 ³ MΩ @ 500Vac				>10 ³ MΩ @ 500Vac			
Dielectric Strength:	>2.0kVac				>2.0kVac			
Operating Temp. Range:	−20°C to +55°C				−20°C to +55°C			
Operations								
Mechanical:	200,000 (min)				200,000 (min)			
Electrical:	30,000 (min)				30,000 (min)			
Rear Nut Fixing Torque:	12Nm				12Nm			
Materials								
Mouldings:	Nylon				Nylon			
Tags:	Brass, Silver Plated				Brass, Silver Plated			
Switch Body & Button:	Stainless Steel (Polished)				Stainless Steel (Polished)			
Variants	Prominent Button, details on request				Prominent Button, details on request			
RoHS	Compliant				Compliant			



Contact Layout

Soldering Instructions:

- Soldering time less than 3 seconds.
- Do not push on the terminals.
- Recommended cuspidal soldering iron. Temperature around 280°C.

Switches

Stainless Steel Illuminated Latching

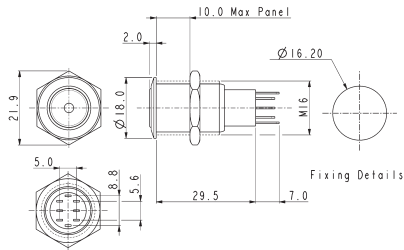


Front Panel Mounting



MP0045/1E1

- Dot Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals

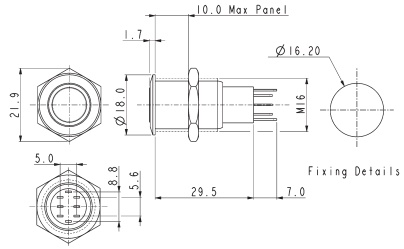


Front Panel Mounting

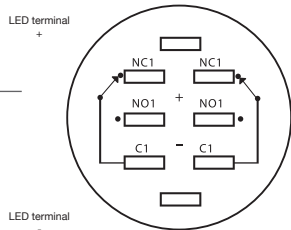


MP0045/1E2

- Ring Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 1A, 110Vac & 0.5A, 220Vac
- 1A, 12Vdc & 1A, 24Vdc
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals



Specifications	MP0045/1E1/Colour/Voltage/Sealing				MP0045/1E2/Colour/Voltage/Sealing			
Terminations:	Solder Tags				Solder Tags			
Illumination:	Dot				Ring			
Switching:	D.P.C.O. Latching Action				D.P.C.O. Latching Action			
Sealing:	IP67	IP40			IP67	IP40		
Part No.	/S	BLANK			/S	BLANK		
Max. Switch Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc				1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc			
LEDs								
Colours	Red	Green	Amber	Blue	Red	Green	Amber	Blue
Part No.	/RD	/GN	/AM	/BL	/RD	/GN	/AM	/BL
Voltage	12Vdc	220Vdc			12Vdc	220Vdc		
Part No.	/012	/220			/012	/220		
Contact Resistance:	50mΩ max. @ 1A, 2Vdc				50mΩ max. @ 1A, 2Vdc			
Insulation Resistance:	>10 ³ MΩ @ 500Vac				>10 ³ MΩ @ 500Vac			
Dielectric Strength:	>2.0kVac				>2.0kVac			
Operating Temp. Range:	-20°C to +55°C				-20°C to +55°C			
Operations								
Mechanical:	200,000 (min)				200,000 (min)			
Electrical:	30,000 (min)				30,000 (min)			
Rear Nut Fixing Torque:	12Nm				12Nm			
Materials								
Mouldings:	Nylon				Nylon			
Tags:	Brass, Silver Plated				Brass, Silver Plated			
Switch Body & Button:	Stainless Steel (Polished)				Stainless Steel (Polished)			
Variants	Prominent Button, details on request				Prominent Button, details on request			
RoHS	Compliant				Compliant			



Contact Layout

Soldering Instructions:

- Soldering time less than 3 seconds.
- Do not push on the terminals.
- Recommended cuspidal soldering iron. Temperature around 280°C.

12mm Switches
Miniature Stainless Steel Vandal Resistant
 Prominent Button / Flush Profile



MAV0120

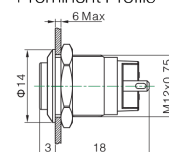


MAV0120/1

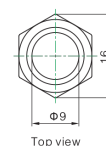
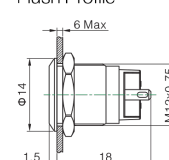
MAV0120/3

- Prominent and Flush Profile
- 12mm Diameter
- 2A, 36 dc
- IP67 (Front of Panel Only)

Prominent Profile



Flush Profile



Specification	MAV0120/1	MAV0120/3
Terminations:	P - Solder Tabs	P - Solder Tabs
Switching:	S.P. Push to make	S.P. Push to make
Max Rating:	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	≥50MΩ	≥50MΩ
Insulation Resistance:	≥1000MΩ	≥1000MΩ
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C	*-25°C ~ +55°C
Operations		
Mechanical:	500,000 (min)	500,000 (min)
Electrical:	200,000 (min)	200,000 (min)
Sealing (Front of Panel Only)	IP67	IP67
Shock Resistance	IK08	IK08
Rear Nut Fixing Torque:	0.6Nm	0.6Nm
Materials		
Mouldings:	PA	PA
Tags/Terminations:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Silver Alloy	Silver Alloy
Thread size:	M12x0.75	M12x0.75
RoHS	Compliant	Compliant



Top view

12mm Switches
Miniature Domed Metal Vandal Resistant
 None Illuminated - Metal Dome

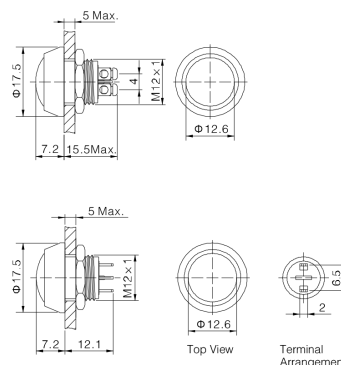


MMP0120



MMP0120

- ⬡ Raised Domed Profile
- ⬡ 12mm Diameter
- ⬡ 2A, 36Vac
- ⬡ IP65 or IP67 (Front of Panel Only)



Specification	MMP0120/S	MMP0120/N
Terminations:	P - Solder Tabs S - Screw Terminal	P - Solder Tabs S - Screw Terminal
Switching:	S.P. Push to make	S.P. Push to make
Max Rating:	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	≥50MΩ	≥50MΩ
Insulation Resistance:	≥1000MΩ	≥1000MΩ
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C	*-25°C ~ +55°C
Operations		
Mechanical:	500,000 (min)	500,000 (min)
Electrical:	200,000 (min)	200,000 (min)
Sealing (Front of Panel Only)	IP65 or IP67	IP65 or IP67
Shock Resistance	IK08	IK08
Rear Nut Fixing Torque:	0.3Nm	0.3Nm
Materials		
Mouldings:	PBT	PBT
Tags/Terminations:	Brass, Gold Plated	Brass, Gold Plated
Switch Body & Button:	/SS Stainless Steel	/N - Nickel Plated Brass
Contacts:	Silver Alloy	Silver Alloy
Thread size:	M12x1	M12x1
RoHS	Compliant	Compliant

12mm Switches
Miniature Domed PBT Pushbutton
 Non Illuminated - PBT

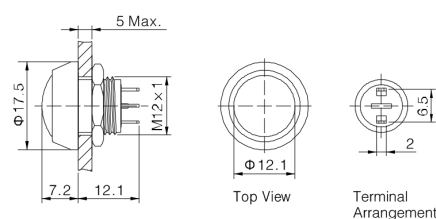
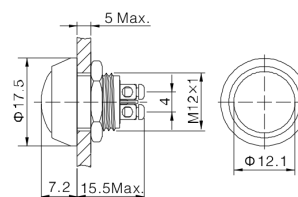


MMP0120/A



MMP0120/A

- Raised Domed Profile
- PBT Material
- 12mm Diameter
- 2A, 36Vac
- IP65 or IP67 (Front of Panel Only)



Specification

MMP0120/A

Terminations:	P - Solder Tabs S - Screw Terminal
Switching:	S.P. Push to make
Max Rating:	2A, 36Vdc
Contact Resistance:	$\geq 50\text{M}\Omega$
Insulation Resistance:	$\geq 1000\text{M}\Omega$
Dielectric Strength:	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C
Operations	
Mechanical:	1,000,000 (min)
Electrical:	200,000 (min)
Sealing (Front of Panel Only)	IP65 or IP67
Shock Resistance	IK08
Rear Nut Fixing Torque:	0.3Nm
Materials	
Mouldings:	PBT
Tags/Terminations:	Brass, Gold Plated
Switch Body	/A Black Anodised
Switch Button:	/NB Nickel Plated Brass /RD RED PBT /GN GREEN PBT /BL BLUE PBT /BK BLACK PBT
Contacts:	Silver Alloy
Thread size:	M12x1
RoHS	Compliant

12mm Switches
Miniature Domed Illuminated Pushbutton
 Stainless Steel and PBT

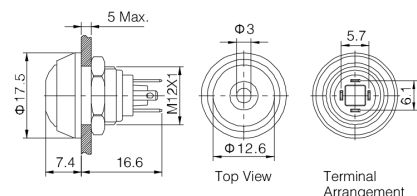


MMPI0120



MMPI0120

- Raised Domed Profile
- Dot Illumination
- Bright daylight LEDs
- 12mm Diameter
- 2A, 36Vac
- IP65 (Front of Panel Only)



Specification

MMPI0120

Terminations:	P - Solder Tabs				
Switching:	S.P. Push to make				
Max Rating:	2A, 36Vdc				
LED Ratings					
Part No.	SS-RD	SS-GN	NN-RD	ABK-RD	AG-RD
Colours	Red	Green	Red	Red	Red
Luminous Intensity					
Forward Voltage	1.8V	2.8V	1.8V	1.8V	1.8V
Forward Current					
Moulding Current	15mA	15mA	15mA	15mA	15mA
Illumination Voltage	/no suffix - No resistor fitted. An Appropriate resistor must be series connected by the user. Voltages as above				
	/12				
Contact Resistance:	≥50MΩ				
Insulation Resistance:	≥1000MΩ				
Dielectric Strength:	1500V, AC 50Hz, 5 Secs				
Operating Temp. Range:	*-25°C ~ +55°C				
Operations					
Mechanical:	1,000,000 (min)				
Electrical:	200,000 (min)				
Sealing (Front of Panel Only)	IP65				
Shock Resistance	IK08				
Rear Nut Fixing Torque:	0.3Nm				
Materials					
Mouldings:	PBT				
Tags/Terminations:	Brass, Gold Plated				
Switch Body & Button:	Stainless Steel	Stainless Steel	Nickel Plated Brass	Black Anodized Body, Black PBT Button	Black Anodized Body, Green PBT Button
Contacts:	Silver Alloy				
Thread size:	M12x1				
RoHS	Compliant				

12mm Miniature Vandal Resistant Stainless Steel Switch

MAV0120 / X / X / X / X / X						
Series MAV0120	Button 1 = Flush 3 = Prominent	Switching Type D = Momentary	Type of Illumination Blank = None 1 = Dot 2 = Ring	Illumination Colour Blank = None RD = RED GN = GREEN BL = BLUE AM = AMBER/YELLOW OR = ORANGE	Lamp Voltage Blank = None 012 = 12V 024 = 24V	

Examples:

MAV0120/3D = 12mm Prominent Actuator, Momentary, Non Illuminated
MAV0120/3D1BL024 = 12mm Prominent Actuator, Momentary, Blue Dot Illuminated, 24V
MAV0120/3D2GN012 = 12mm Prominent Actuator, Momentary, Green Ring Illuminated, 12V

12mm Miniature Metal/Plastic Domed Pushbutton Switch

MMPXXX / X / X / X / X / X / X						
Series MMP0120 = Non Illuminated MMP10120 = Illuminated	Body Material S = Stainless Steel N = Nickel Plated Brass A = Black Anodized	Button Material & Colour SS = Stainless Steel NB = Nickel Plated Brass RD = RED PBT GN = GREEN PBT BL = BLUE PBT BK = BLACK PBT	Sealing Blank = IP65 67 = IP67 IP67 (non-illuminated only)	Illumination Colour Blank = None RD = RED GN = GREEN BL = BLUE AM = AMBER/YELLOW OR = ORANGE	Lamp Voltage Blank = None 012 = 12V 024 = 24V Other voltages require external resistor	Termination S = Screw Terminals P= Solder Terminals (2.0mm x 0.5mm)

Examples:

MMP0120/SSSS = 12mm, Non Illuminated, All Stainless Steel, IP65, Screw Terminals
MMP0120/ARD67/S = 12mm, Non Illuminated, Black anodized body, Red PBT button, IP67, screw terminals
MMP10120/NNBRD012P = 12mm, Illuminated , All Nickel Plated Brass with 12V Red Dot illumination, IP65, Plug Terminals

Bulgin's broad line of pushbutton switches are available in various sizes and configurations. This includes a variety of illumination and terminal options as well as several with high inductive power ratings suitable for motor driven applications. These switches can be found in many markets including home appliances, commercial, medical, audio and security.

- Miniature, round and rectangular push button switches available
- Ratings up to 16A, 250V ac
12(12)A 250V ac rating also available
- Latching and momentary actions
- Choice of actuators
(custom option also available)
- Square and Round Mounting Styles

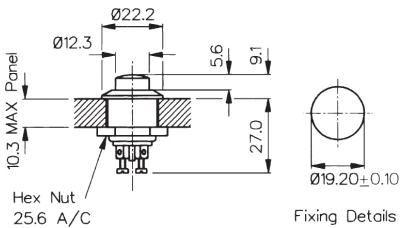


Front Panel Mounting



MP0012/Col

- 22mm diameter
- Prominent Button
- S.P. Push to Make
- Screw Terminals
- Brass, Chrome Plated Body, Glass Filled Nylon Button

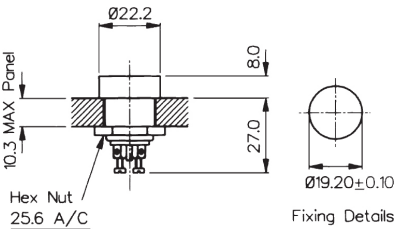


Front Panel Mounting

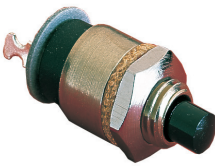


MP0012/1/Col

- 22mm diameter
- Recessed Button
- S.P. Push to Make
- Screw Terminals
- Brass, Chrome Plated Body, Glass Filled Nylon Button

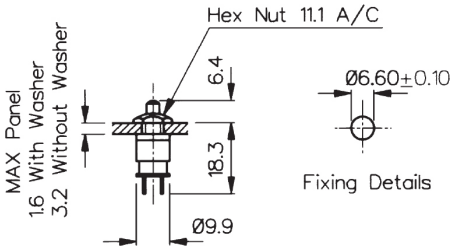


Rear Panel Mounting



MP0016

- S.P. Push to Make
- Solder Tags
- 1A, 28Vac/dc
- Brass Nickel Plated Body, Glass Filled Nylon Button



Specifications	MP0012/Colour	MP0012/1/Colour	MP0016/Colour
Terminations:	Screw Terminals	Screw Terminals	Solder Tags
Switching:	S.P. Push to Make Slow Momentary Action	S.P. Push to Make Slow Momentary Action	S.P. Push to Make Slow Momentary Action
Max. Rating:	0.25A. 250Vac, 1A. 110Vac, 2A. 12Vac/dc	0.25A. 250Vac, 1A. 110Vac, 2A. 12Vac/dc	1A 28Vac/dc (non-inductive)
Contact Resistance:	<15m Ω	<15m Ω	<15m Ω
Insulation Resistance:	>10 ⁴ M Ω	>10 ⁴ M Ω	>10 ⁴ M Ω
Dielectric Strength:	>2.5kVac	>2.5kVac	>2.0kVac
Operating Temp. Range:	-20°C to +85°C	-20°C to +85°C	-20°C to +85°C
Operation Pressure (typ):	9.18 newtons	9.18 newtons	6.22 newtons
Materials Moulding: Body:	Glass Filled Nylon Brass, Brass, Chrome Plated	Glass Filled Nylon Brass, Brass, Chrome Plated	Glass Filled Nylon Brass, Brass, Chrome Plated
Contacts/Terms:	Brass, Silver Plated	Brass, Silver Plated	Brass, Silver Plated
Variant	Button Colour: Standard - Black, /RD (Red)	Button Colour: Standard - Black, /RD (Red)	Button Colour: Standard - Black, /RD (Red)
RoHS	Compliant	Compliant	Compliant

8300 Series Push Button

8(8)A 250Vac & 12(12)A 250Vac



Key Features

- Miniature push button
- 8A Inductive current rating
- Ratings up to 12(12)A, 250V ac (H suffix)
- Illuminated and nonilluminated
- Single and double Contact
- Latching and momentary
- Slotted actuator for custom buttons
- Industry standard panel cutout
- Panel cut out: 19.3 x 12.9

Approvals and specifications

12 A GP, 250 Vac, T85
13 A GP, 250 Vac, T85
1 hp, 250 Vac, T85, 6E3/1E4

8350, 8351, 8353, 8354
12A 250Vac DP, 250Vac 1hp, 125Vac 1/2hp

8300, 8301, 8303, 8304
13A 250Vac SP, 250Vac 1hp, 125Vac 1/2hp

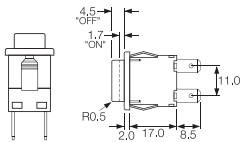
In house test:
10(10)A 250Vac—Indicative rating only
3mm contact gap.

Terminal	Function	Actuator	Body Code	Body Colour								
C 6.3 x 0.8	 Approvals & ratings vary with function Single Contact switches use terminals 1 & 2 (& 3)		Panel cut-out ** Bezel									
H 4.8 x 0.8	8300 Single Contact ON - OFF 	A Standard actuator 	B Standard body 12.9 21.0	B Black								
A 4.8 x 0.8 8.5 7.6 As "H" but right angle 4.8 x 0.8	8301 Single Contact ON - OFF (momentary ON) 	H Slotted for custom caps 	E Softline style body with radiused bezel 12.9 21.0 Cut-outs must be punched in the direction of insertion	W White								
K 2.8 x 0.8 8.5 2.6 1.5	8303 Single Contact ON - OFF With Light 	C Square actuator 										
T 2.8 x 0.8 8.5 2.6 1.5 Solder	8304 Single Contact ON - OFF (momentary ON) with light 	E Radiused actuator 	Dimensions for snap-in fixing <table><tr><th>Panel thickness</th><th>Dimension X</th></tr><tr><td>0.75-1.24</td><td>19.1/19.2</td></tr><tr><td>1.25-1.99</td><td>19.3/19.4</td></tr><tr><td>2.00-3.00</td><td>19.7/19.8</td></tr></table> X and V PCB terminals. Additional dummy terminals may be supplied for extra support.	Panel thickness	Dimension X	0.75-1.24	19.1/19.2	1.25-1.99	19.3/19.4	2.00-3.00	19.7/19.8	
Panel thickness	Dimension X											
0.75-1.24	19.1/19.2											
1.25-1.99	19.3/19.4											
2.00-3.00	19.7/19.8											
X 4.5 x 0.8 7.0 2.6 1.5	8350 Double Contact ON - OFF 	F Small round actuator 										
V 4.5 x 0.8 7.0 2.6 1.5 Dual Plug PCB (Call sales for mounting dims)	8351 Double Contact ON - OFF (momentary ON) 	J Smooth curved actuator 										
	8353 Double Contact ON - OFF With light 	M Large round actuator 										
	8354 Double Contact ON - OFF (momentary ON) with light 	D Large round actuator 										
	8355 Single Contact ON - OFF Isolated light - switched C, E & M actuators only 											
	8356 Single Contact ON - OFF Isolated light - unswitched C, E & M actuators only 											

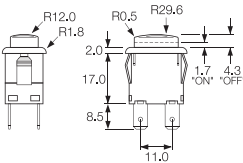
All actuators except H available lit

Dimensions

Actuator A
Body B




Actuator J
Body E



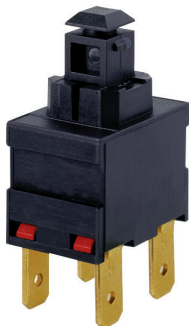
Examples



Actuator Colour	Lamp Voltage	Legend	Legend Colour	Options
LIT				
A Amber	— None			H 12(12)A 250Vac switch rating
C Clear	2 125V Neon			Finish Matt finish standard except on J and D actuators which are gloss
G Green	3 250V Neon			Colour Call sales for custom colours A full range is available for large orders
R Red	7 12V Filament			Legend printing Select from the examples or call sales for custom legends.
UNLIT	8 24V Filament			Special buttons Some of the many options are shown Call sales for the full range
B Black				L167 Protective cover  Snaps on to switch bodies fitted with "A" or "J" style actuators, this reduces panel thickness by 0.8mm
R Red				BioCote Antimicrobial Additive Moulded components have antimicrobial properties using BioCote silver ion technology.
W White				

8200 Series Push Button

8(8)A 250Vac & 12(12)A 250Vac







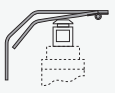





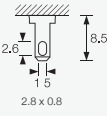


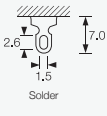
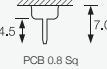



Key Features

- Miniature push button
- 8A Inductive current rating
- Ratings up to 12(12)A, 250V ac (H suffix)
- Without button
- Sub panel mount
- Push on, solder or PCB terminals
- Latching and momentary

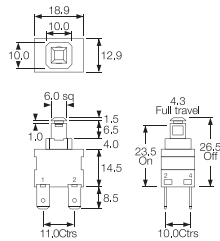
Approvals and specifications

- 12 A GP, 250 Vac, T85
- 13 A GP, 250 Vac, T85
- 1 hp, 250 Vac, T85, 6E3/1E4)
- 12A 250Vac
- 250Vac 1hp, 125Vac 1/2hp
- 3mm contact gap.

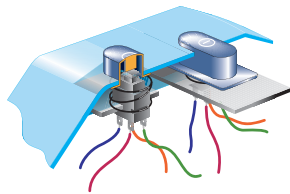
Terminal	Function	Actuator	Body Code
<p>C</p> 	<p>1 2 3 4</p> <p>Approvals & ratings vary with function Single Contact switches use terminals 1 & 2 (& 3)</p> <p>8200 Single Contact ON - OFF</p> 	<p>A Standard actuator for snap-on custom adaptors</p>  <p>B Flat top actuator</p>  <p>C Curved top actuator</p>  <p>Examples of possible actuation methods Using a Snap on adaptor</p>  <p>Using a Hinged Actuator</p> 	<p>A Standard body</p>  <p>See dimensioned drawings for details</p> <p>C As standard body but with side support peg for use with M PCB terminals</p>  <p>X and V PCB terminals. Additional dummy terminals may be supplied for extra support.</p>
<p>H</p>  <p>A</p>  <p>As "H" but right angle 4.8 x 0.8</p>	<p>8201 Single Contact ON - OFF (momentary ON)</p> 		
<p>K</p>  <p>V</p>  <p>Dual Plug PCB (Call sales for mounting dims)</p>	<p>8250 Double Contact ON - OFF</p> 		
<p>T</p>  <p>Solder</p> <p>X</p>  <p>PCB 0.8 Sq</p>	<p>8251 Double Contact ON - OFF (momentary ON)</p> 		

Dimensions

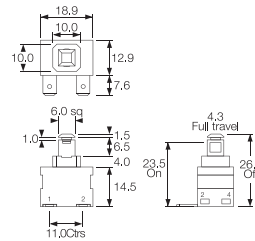
'A' body with 'H' 4.8 terminals



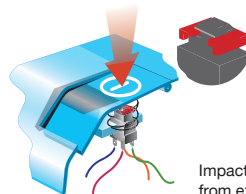
Example of possible mounting styles



'A' body with 'A' right angle 4.8 terminals

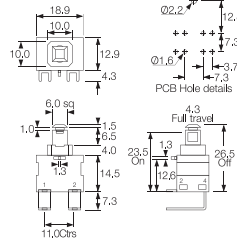


Alternative Actuator



Impact washer resists damage from excessive operator force

'C' body with 'M' right angle PCB terminals



Examples



C8250AA ---
with impact
washer M1226



X8201AA ---



K8200AA ---



A8200AA ---



M8200AC ---



Example of M8200AC

7000 Series Push Button

16A 250Vac



Key Features

- Round and rectangular push button switches
- Ratings up to 16A, 250V ac
- Latching and momentary
- Illuminated & non-illuminated
- Matching indicators
- Low profile version
- Panel cut outs: 25.0 dia 27.2 x 22.3

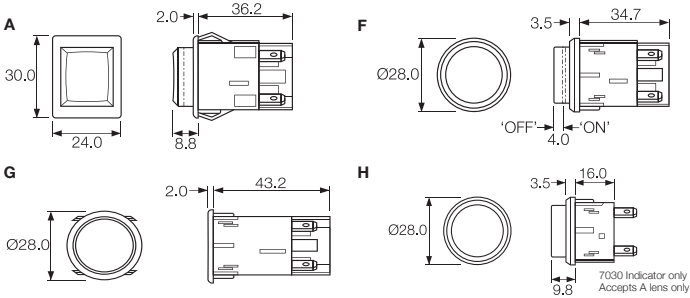
Approvals and specifications

- UL 16(4)A 250Vac T85/55
8(8)A 250Vac T85/55 (pending)
- UL CSA 16A Non Ind, 250Vac 1hp, 125Vac 1/2hp
UL 65°C, file no. E45221
- 3mm contact gap.

Terminal	Function	Actuator	Body Code
<p>C</p> <p>6.3 x 0.8</p>	<p>1 2 3 4 Approvals & ratings vary with function Single Contact switches use terminals 1 & 2 (& 3)</p> <p>7000 Single Contact ON - OFF</p> <p>7001 Single Contact (momentary) ON - OFF</p> <p>7003 Single Contact (with light) ON - OFF</p> <p>7004 Single Contact (momentary) with light ON - OFF</p> <p>7050 Double Contact ON - OFF</p> <p>7051 Double Contact with light ON - OFF</p> <p>7053 Double Contact with light ON - OFF</p> <p>7054 Double Contact (momentary ON) with light ON - OFF</p> <p>7030 Indicator UL E63363 CSA LR29381</p>	<p>A Round actuator shown in F body</p> <p>A Round actuator shown in G body</p> <p>B Round actuator - medium shown in F body</p> <p>C Round actuator - long shown in F body</p> <p>D Round actuator - sub panel mount</p> <p>S Rectangular actuator Shown in "A" body N/A for 7030</p>	<p>Panel cut-outs</p> <p>F H G Body types fit either cut-out</p> <p>A</p> <p>Cut-outs must be punched in the direction of insertion</p>

Dimensions

Panel thickness:
A - 0.8 - 2.5mm
F, G, H - 0.8 - 5.0mm



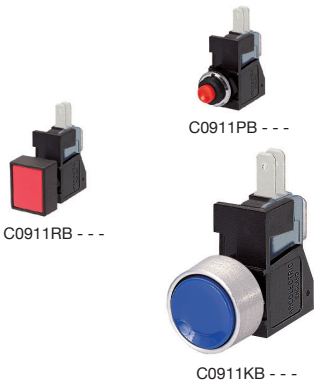
Examples



Body Colour	Actuator Colour	Lamp Voltage	Legend	Legend Colour	Options
B Black	LIT	— None			<p>Finish Matt finish is standard on bodies. Gloss finish is standard on actuators.</p> <p>Colour Call sales for custom colours. A full range is available for large orders.</p> <p>Legend printing A wide range is available or call sales for custom legends.</p> <p>Lamp voltage Call sales for details of available voltages.</p> <p>Weatherproof housing (E) Additional housing which fits round body switches with an oversize housing with a clear silicone cover designed to IP65. Mounting hole dia: 38.0mm</p>
	A Amber				
W White	C Clear	2 125V Neon			
	G Green	3 250V Neon			
	R Red	7 12V Filament			
		8 24V Filament			
	UNLIT				
	B Black				
	R Red				
	W White				

0911 Push Button Switches

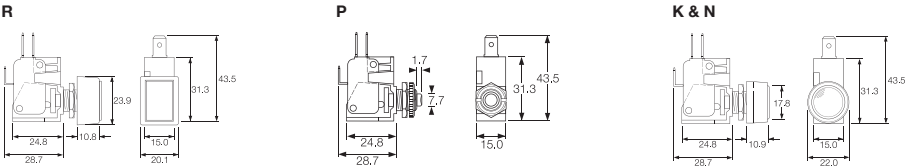
0.5A 250Vac



Key Features

- Snap action switches
- Ratings up to 16A, 250Vac
- Round and rectangular buttons

Dimensions



Terminal	Function	Actuator	Body Code	Options
	0911 (momentary) ON - ON 	R Rectangular bezel P Short K with satin chrome bezel N with nylon bezel 	<p>Panel Cut-out</p> <p>Panel thickness Both nuts 2.5mm No backnut 4.0mm</p>	Call factory for custom colours

0.5A 250Vac



Key Features

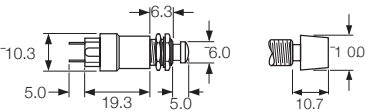
- Self wiping contacts
- Slow make & break
- Momentary action
- Choice of switch circuits
- Choice of actuators

Approvals and specifications

In house test:
0.5A 250Vac T85 — Indicative rating only

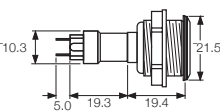
Dimensions

Dimensions (mm) Nylon S and L actuators

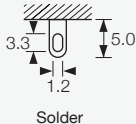






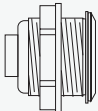
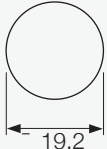




Neck thread - 40 TPI Whit. Actuator travel - 2.5 max

Stainless steel V actuator (IP66)



Neck thread - 26 TPI Whit. Actuator travel - 2.5 max

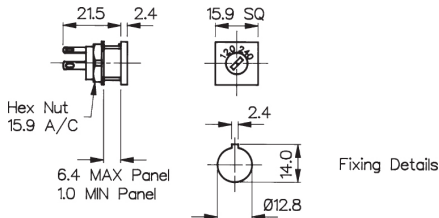
Terminal	Function	Actuator	Body Code	Options
<div>T</div>  <p>Solder</p>	<div>0916</div>  <p>Black base SP ON - OFF (momentary)</p>	<div>S</div> <p>Small Actuator</p> 	 <p>7.1</p> <p>Panel Cut-out (L & S Actuators)</p> <p>Panel thickness Both nuts - 2.5mm No Backnut - 4.0</p>	<p>Finish</p> <p>Gloss finish for L and S actuators.</p>
	<div>0917 50V only</div>  <p>Brown base SP ON - OFF (momentary 1 side)</p>	<div>L</div> <p>Large Actuator</p> 		<p>Colour</p> <p>Call sales for custom colours. A full range is available for large orders.</p>
	<div>0918</div>  <p>White base SP ON - OFF (momentary OFF)</p>	<div>V</div> <p>Vandal Resistant IP66 Flattop Stainless Steel</p> 	 <p>19.2</p> <p>Panel Cut-out (Stainles Steel V Actuator) Panel thickness - 8.0mm</p>	
	<div>0919</div>  <p>Black base DP ON - OFF (momentary 1 side)</p>			
	<div>0920</div>  <p>White base DP ON - OFF (momentary ON)</p>			

120/140V Voltage Selector



VS0001

- 2.8 series tabs/solder tags
- Square Front Bezel
- 6.3A

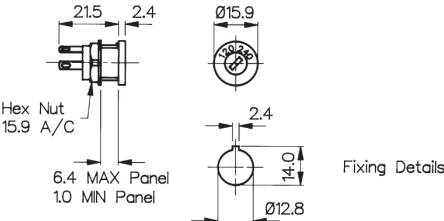


120/240V Voltage Selector

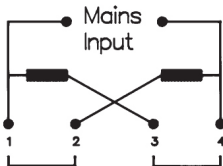


VS0002

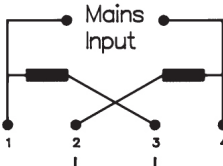
- 2.8 series tabs/Solder tags
- Round Front Bezel
- 6.3A



Connection Parallel 120V



Connection Series 240V



Specifications	VS0001	VS0002
Max. Rating:	6.3A, 120 / 240	6.3A, 120 / 240
Insulation Resistance:	>106 MΩ	>106 MΩ
Termination:	2.8 series tabs/solder tags	2.8 series tabs/solder tags
Temperature Range:	-20°C to +85°C	-20°C to +85°C
Materials:		
Mouldings:	Glass Filled Nylon UL94V-1	Glass Filled Nylon UL94V-1
Tags:	Brass, Silver Plated	Brass, Silver Plated
Contacts:	Copper Silver Alloy	Copper Silver Alloy
Variants:	Other markings, details on request	Other markings, details on request
RoHS		Compliant

Activated by the touch of a finger, our **Capacitive Switches** are ideal for many repetitive applications requiring a **rugged sealed** and **easy** to use switch solution.



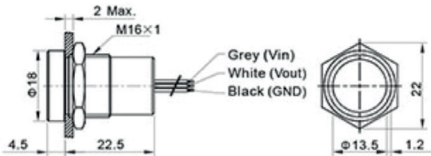
- ⬢ Sealed to IP68 and IP69K
- ⬢ Momentary or latching functions
- ⬢ Large or thin ring illumination options
- ⬢ Long life operation – 50 million of cycles
- ⬢ 16, 19, 22 or 25mm diameter options
- ⬢ Easy to use and clean
- ⬢ Extremely robust and durable – IK10 rated
- ⬢ No operating force required – ideal for repetitive applications
- ⬢ Activated by the touch of a finger – even with surgeon gloves
- ⬢ Natural, black and red anodised options as well as 316L stainless steels

16mm Illuminated



MC16

- ⬡ Illuminated
- ⬡ 300 mm lead

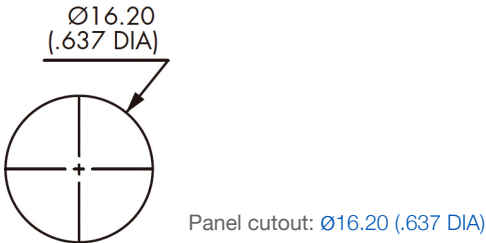


Specification

MC16

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel Multi-wire leads setion 0.22mm ² (length 300mm)
Maximum Current / Voltage Rating:	500mA at 5V, 12V or 24VDC
Supply Voltage	5, 12 or 24 VDC
Contact Resistance	20mΩ
LED state for output image option	1 LED: The LED is ON when output is closed. 2 LEDs: First colour is ON when the output is open. Second colour is ON when the output is closed.
Actuating force, typically	Zero Newton's (Touch Sensitive)
Life cycle	>50 Million

Panel Cutout Dimensions



Environmental Specification

Sealing	IP68 (2m depth for >30mins) IP69K
Operating temperature	-25°C to +55°C
RoHS	Compliant

Circuit Specification

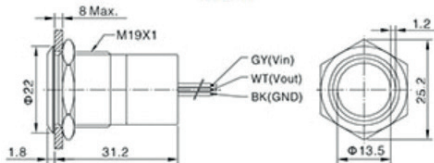
See wiring diagrams on page 47

19mm Illuminated



MC19

- ⬡ Illuminated
- ⬡ 300 mm lead

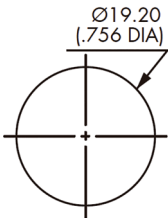


Specification

MC19

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel Multi-wire leads setion 0.22mm ² (length 300mm)
Maximum Current / Voltage Rating:	500mA at 5V, 12V or 24VDC
Supply Voltage	5, 12 or 24 VDC
Contact Resistance	20mΩ
LED state for output image option	1 LED: The LED is ON when output is closed. 2 LEDs: First colour is ON when the output is open. Second colour is ON when the output is closed.
Actuating force, typically	Zero Newton's (Touch Sensitive)
Life cycle	>50 Million

Panel Cutout Dimensions



Panel cutout: Ø19.20 (.756 DIA)

Environmental Specification

Sealing	IP68 (2m depth for >30mins) IP69K
Operating temperature	-25°C to +55°C
RoHS	Compliant

Circuit Specification

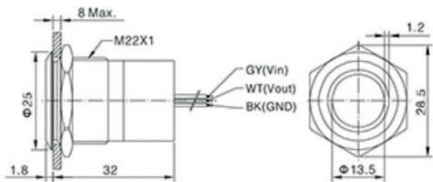
See wiring diagrams on page 47

22mm Illuminated



MC22

- ⬡ Illuminated
- ⬡ 300 mm lead

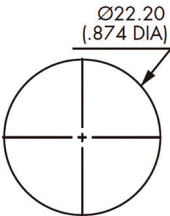


Specification

MC22

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel
	Multi-wire leads setion 0.22mm ² (length 300mm)
Maximum Current / Voltage Rating:	500mA at 5V, 12V or 24VDC
Supply Voltage	5, 12 or 24 VDC
Contact Resistance	20mΩ
LED state for output image option	1 LED: The LED is ON when output is closed.
	2 LEDs: First colour is ON when the output is open. Second colour is ON when the output is closed.
Actuating force, typically	Zero Newton's (Touch Sensitive)
Life cycle	>50 Million

Panel Cutout Dimensions



Panel cutout: 22.20 (.874 DIA)

Environmental Specification

Sealing	IP68 (2m depth for >30mins) IP69K
Operating temperature	-25°C to +55°C
RoHS	Compliant

Circuit Specification

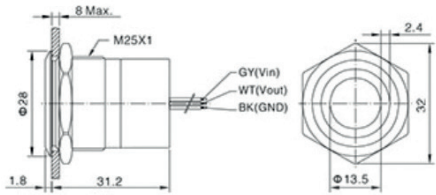
See wiring diagrams on page 47

25mm Illuminated



MC25

- ⬡ Illuminated
- ⬡ 300 mm lead

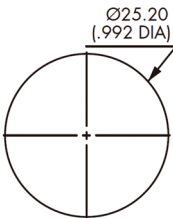


Specification

MC25

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel
	Multi-wire leads setion 0.22mm ² (length 300mm)
Maximum Current / Voltage Rating:	500mA at 5V, 12V or 24VDC
Supply Voltage	5, 12 or 24 VDC
Contact Resistance	20mΩ
LED state for output image option	1 LED: The LED is ON when output is closed.
	2 LEDs: First colour is ON when the output is open. Second colour is ON when the output is closed.
Actuating force, typically	Zero Newton's (Touch Sensitive)
Life cycle	>50 Million

Panel Cutout Dimensions



Panel cutout: 25.20 (.992 DIA)

Environmental Specification

Sealing	IP68 (2m depth for >30mins) IP69K
Operating temperature	-25°C to +55°C
RoHS	Compliant

Circuit Specification

See wiring diagrams on page 47

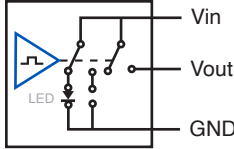
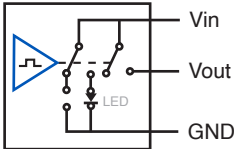
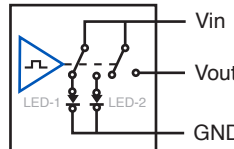
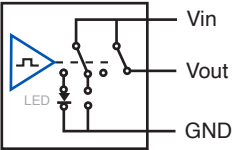
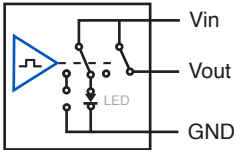
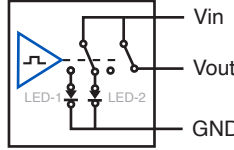
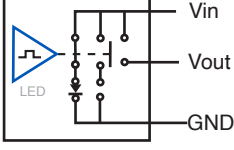
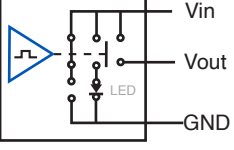
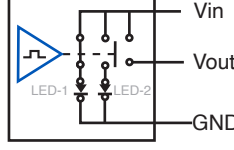
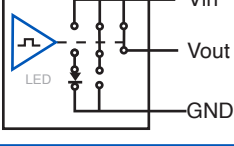
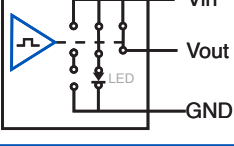
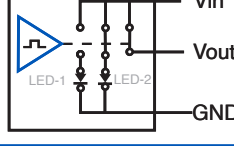
Part No System

MC	XX	X	X	X	XX	XX
Series	Switch Size	Switch Function	Switch Status	Colour / Material	LED Colours	Voltage
MC-Capacitive Switch	16 = 16mm	M = Momentary	O = Normally Open	B = Black Anodised	GN = GREEN (1 LED)	05 = 5VDC
	19 = 19mm	L = Latching	C = Normally Closed	R = Red Anodised	RD = RED (1 LED)	24 = 24VDC
	22 = 22mm			S = Stainless Steel	AM = AMBER (1 LED)	* No Suffix = 12VDC
	25 = 25mm				RG = RED + GREEN (2 LEDS)	
					GR = GREEN + RED (2 LEDS)	
					Blank = Non-Illuminated	

Note:
2 LED's option: when the output circuit open, first LED color lights. Second LED lights when the output circuit closes

Examples:
MC16MOSRD = 16mm, Stainless Steel, Momentary Normally Open, Red Illumination, 12VDC
MC22LOBRG24 = 22mm, Black Anodised, Catching Normally Open, Red and Green Illumination, 24VDC

Circuit Specifications

Wiring Diagrams				Legend
	1 LED		2 LEDS	
	Output Indicator	Output Indicator	Output Indicator	
OFF-ON (momentary) Normally Open				<p>Grey Vin Black black GND White Vout</p> <p>Wire colours may vary. Always refer to the label on the switch.</p>
ON-OFF (momentary) Normally Closed				
OFF-ON (latching) Normally Open				
ON-OFF (latching) Normally Closed				

Other switches are available upon request*

Unlike traditional switches **Piezo** switches have **no moving mechanical parts** making them **extremely durable**, withstanding millions of actuations and requiring little to no maintenance.

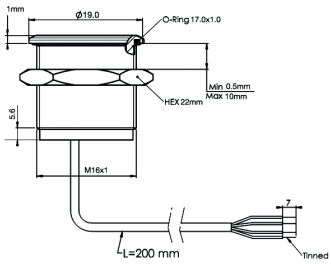


16MM Stainless Steel Non Illuminated



MPZ016

- ⬡ Non Illuminated
- ⬡ 20 cm lead
- ⬡ Flathead or Guided profile



Specification

MPZ016

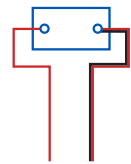
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
Actuating force, typically	3-5 N
Life cycle	>10 Million

Environmental Specification

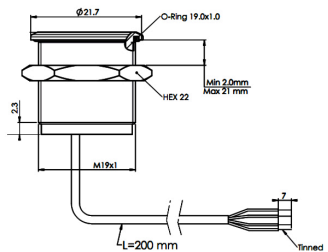
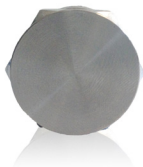
Sealing	IP68; IP69K
Operating temperature	-40°C to +85C°
Vibration resistance	5-500Hz/9.4m
Shock resistance	75g (g-force)
RoHS	Compliant

Circuit Specification

16MM Stainless Steel Non Illuminated

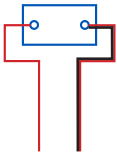
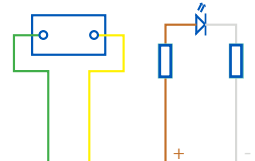


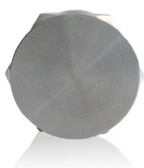
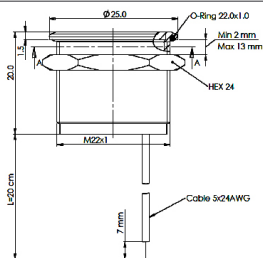


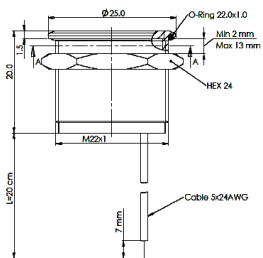


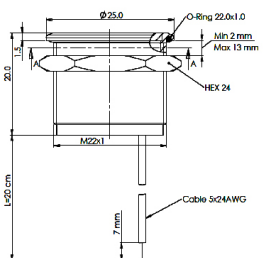
Switch voltage	24V AC/DC
Switch Current	1A Max
Power Supply	24V AC/DC

19MM Stainless Steel Illuminated	 MPZI019	<ul style="list-style-type: none">Blue Illumination20 cm leadFlathead	
19MM Stainless Steel Non Illuminated	 MPZ019	<ul style="list-style-type: none">Non Illumination20 cm leadFlathead	

Specification	MPZ019, MPZI019
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
LED Illumination	24V AC/DC
Actuating force, typically	3-5 N
Life cycle	>10 Million

Environmental Specification	
Sealing	IP68; IP69K
Operating temperature	-40°C to +85°C°
Vibration Resistances	5-500Hz/9.4m
Shock resistance	75g (g-force)
RoHS	Compliant

Circuit Specification	
19MM Stainless Steel Non Illuminated	
	Switch voltage 24V AC/DC Switch Current 1A Max Power Supply 24V AC/DC
19MM Stainless Steel Illuminated	
	Switch voltage 24 V AC/DC Switch Current 1A Max Colour* Illuminated 24V AC/DC Power Supply 24V AC/DC

22MM Stainless Steel Non Illuminated  MPZ022	<ul style="list-style-type: none"> ○ Non Illumination ○ 20 cm lead ○ Flathead 	
22MM Stainless Steel Illuminated   MPZI022	<ul style="list-style-type: none"> ○ Red or Green Illumination ○ 1 colour ○ 20 cm lead ○ Flathead 	
22MM Stainless Steel Illuminated   MPZI022	<ul style="list-style-type: none"> ○ Red and Green Illumination ○ (2 colour) ○ 20 cm lead ○ Flathead 	

Specification

MPZ022, MPZI022


Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
LED Illumination	24V AC/DC
Actuating force, typically	3-5 N
Life cycle	>10 Million

Environmental Specification


Sealing	IP68; IP69K
Operating temperature	-40°C to +85°C°
Vibration Resistances	5-500Hz/9.4m
Shock resistance	75g (g-force)
RoHS	Compliant

Circuit Specification


22MM Stainless Steel Non Illuminated

	Switch Voltage	24 AC/DC
	Switch Current	1A Max
	Power Supply	24V AC/DC

22MM Stainless Steel Illuminated 1 colour

	Switch Voltage	24V AC/DC
	Switch Current	1A Max
	Color* Illuminated	24V AC/DC
	Power Supply	24 AC/DC

22MM Stainless Steel Illuminated 2 colour

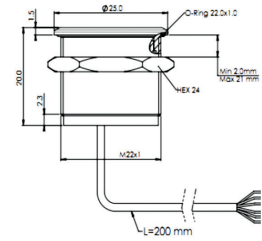
	Switch Voltage	24V AC/DC
	Switch Current	1A Max
	Color* Illuminated	24V AC/DC
	Power Supply	24 AC/DC

22MM Stainless Steel Illuminated



MPZI022/L

- Blue Illumination
- 1 colour
- 20 cm lead



Specification

MPZI022/L

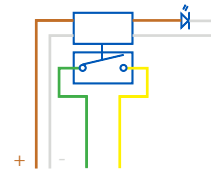
Type	Latching Toggle
Material	Stainless Steel (Aluminium upon request)
Power Supply	24V AC/DC
Switching voltage	48V AC peak/DC
Switch Resistance “ON”	<0.7Ω
Switch Resistance “OFF”	>1000MΩ
Capacitance	<90pF
Switching current	1A Max
LED Illumination	24V AC/DC
Actuating force, typically	3-5 N
Life cycle	>10 Million

Environmental specification

Sealing	IP68; IP69K
Operating temperature	-40°C to +85°C
Vibration Resistances	5-500Hz/9.4m
Shock resistance	75g (g-force)
RoHS	Compliant

Circuit Specification

22MM Stainless Steel Latching Toggle Illuminated



Power Supply	24V AC/DC
Switch Voltage	48V AC peak/ DC
Switch Current Max	1A Max
Colour* Illuminated	24V AC/DC

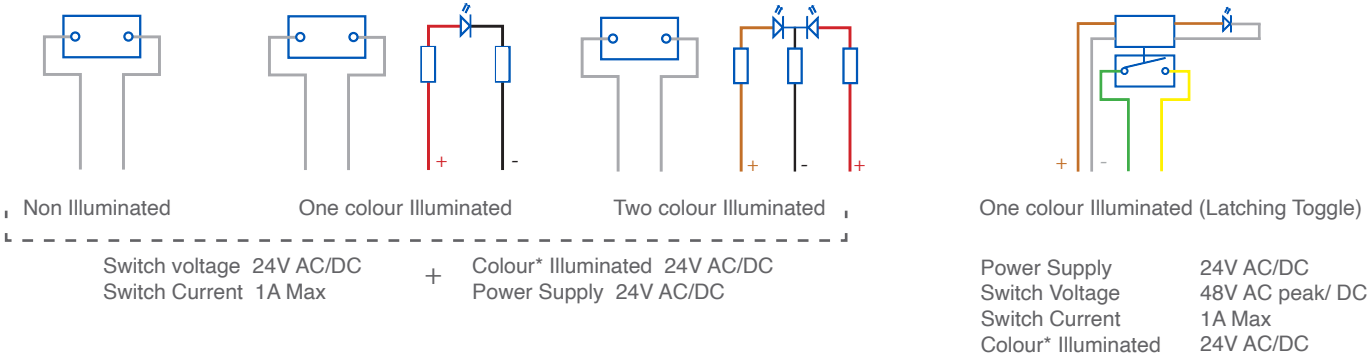
Part No System

MPZ	/	016	/	X	/	XX	/	X	/	X
Series		Body Diameter		Profile		Colour		Led Voltage		Type
MPZ - Non Illuminated MPZI- Illuminated		016 = 16mm 019 = 19mm 022 = 22mm		F = Flat Head G = Guided Profile		BL = Blue RD = Red GN = Green D1 = Red and green		24v		L = Latching Toggle (No Suffix= Momentary)

Examples:

MPZ022/F = Non Illuminated Piezo, 22mm, Flathead
MPZI022/F/RD/24 = Illuminated Piezo, 22mm, Flathead, Red Illumination, 24 volt
MPZI022/G/BL/24/L = Illuminated Piezo, 22mm, Guided Profile, Blue Illumination, 24 volt, Latching Toggle

Circuit Specifications



Other switches are available upon request*

Bulgin's range of **high quality rocker switches** includes a huge choice of **single** and **double contact** options available in various sizes, colours, terminations, actuator types and **ratings up to 20A, 277Vac**, allowing for virtually any design configuration.

- Available types: Ultra-thin, Miniature, Twin unit, Miniature round and Standard
- Rating from 10A, 250V ac up to 20A, 277V ac
- Single & double contact variants available
- Push-on, solder & PCB terminals
- Illuminated and non-illuminated options
- High in-rush (ON-OFF types)
- Matching Indicators
- Splash resistant options
- Choice of bezel styles and sizes, panel cut-outs and actuators
- Choice of switching circuits including 3 position



8800 Thinline Rocker Switches

10A 250Vac



Key Features

- Ultra thin rocker switch
- Ratings up to 15A, 250Vac
- Single and twin gang
- Panel cut out:
Single 19.3 x 6.8
Twin 19.3 x 13.4

Approvals and specifications

- 6(2) A 250 V AC 5E4 T100
10(6) A 250 V AC 1E4 T100
Inrush 10/50 A 250 V AC 1E4 T100
 - UL 15A 250Vac (Twin unit is 10A 250Vac)
UL 125Vac 1/2hp
UL 100°C, CSA file LR10990
- 3mm contact gap.

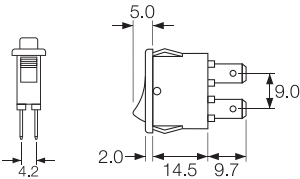
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
H 	 1a 1 Switches are ON when pressed over terminal 1		A. Single contact *Optional profile for orientation	B Black	B Black
T 	 8800 ON - OFF Single contact		B. Single contact - Twin *Optional profile for orientation	R Red	R Red
X 	 8800 ON - OFF Twin contact		 *Optional profile for orientation	W White	W White

Panel thickness Dim X
0.75-1.2 19.1/19.2
1.25-1.99 19.3/19.4
2.00-3.00 19.7/19.8

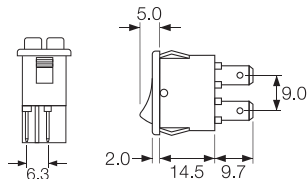
Cut-outs must be punched in the direction of insertion

Dimensions

8800VA (H terminals shown)



8800V/8800VA (H terminals shown)



Legend	Legend Colour	Options
<div><div></div><div>Blank</div></div> <div>132</div>	<div><div></div><div>Blank</div></div> <div>B</div> <div>Black</div> <div>W</div> <div>White</div>	<div>Finish</div> <div>Matt finish only.</div> <div>Colour</div> <div>Call sales for custom colours.</div> <div>A full range is available for large orders.</div> <div>Legend printing</div> <div>Select from the examples or call sales for custom legends.</div>

Examples



⌘ X8800VA



⌘ X8800VA
⌘ T8800VA - - -



⌘ X8800VA
⌘ T8800VA - - -



⌘ H8800V/H8800VA
⌘ T8800V/T8800VA



⌘ H8800V/H8800VA
⌘ T8800V/T8800VA

8500 Rocker Switches - Miniature

15A 250Vac Single & Double Contact

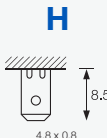


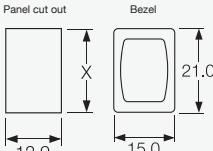
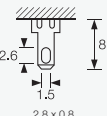

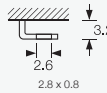

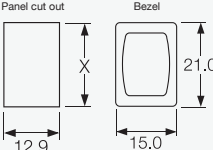
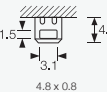

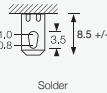






Key Features

- Miniature rocker switch
- Ratings up to 15A, 250Vac
- Single & double contact in same body size
- Illuminated & non-illuminated
- Matching indicators
- Industry standard panel cut-out
- Rotary and push button actuator options
- Panel cut out: 19.3 x 12.9

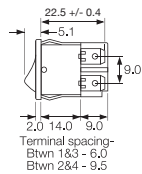
Approvals and specifications

- 6(4) A, 250 VAC, 5E4, T125
- 10(6) A, 250 VAC, T125
- 10(6) A, 250 VAC, T100
- UL 15A Non Ind 250Vac, 14A Ind 250Vac, 10A 277Vac
- UL 250Vac 1/2hp, 125Vac 1/4hp
- UL 105°C, (non lit)
- 3mm contact gap.

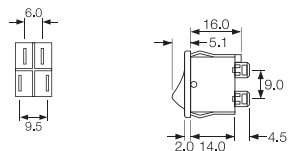
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
H 	 ON OFF Switches are ON when pressed over terminal 1	H Slotted for custom caps 	B Standard body with terminal barrier 	B Black	Un-Lit B Black
K 	8500 ON - OFF Single contact (Uses terminals 1a & 2a)	R Semi-rotary (not lit) 		R Red	R Red
L  Right angle version of K terminal available on 8500 only	8503 ON (lit) - OFF Single contact	D Paddle lever (not lit) 	BC Body without terminal barrier  Dimensions for snap-in fixing Panel thickness Dim X 0.75-1.25 19.1/19.2 1.25-2.00 19.3/19.4 2.00-3.00 19.7/19.8	W White	Lit A Amber
R 	8550 ON - OFF Double contact	V Curved (not lit) 			G Green
T  Solder	8553 ON (lit) - OFF Double contact	V Curved (lit) 			C Clear
	8580 Available with H terminals only	X Two colour (not lit) 			R Red
	 Indicator UL/CSA E63363	A Softline lens 			
		P Push button operation (8500 only) See drawing opposite			

Dimensions

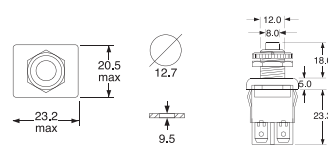
"B" body with barrier for H, T and K terminals




"BC" body w/o barrier primarily for L or R terminals (can be used for all terminals)



'PO' Actuator and body - push button function (8500 only)



Insert Colour	Lamp Voltage	Legend	Legend Colour	Options
X Rocker Only	Blank	Blank	Blank	Finish Matt finish only.
R Red	2 125V Neon	076	B Black	Colour Call sales for custom colours. A full range is available for large orders.
W White	3 250V Neon		W White	Legend printing Select from the examples or call sales for custom legends.
Blank Leave blank for other Rocker types	7 12V Filament			Lamp voltage Call sales for details of available voltages.
	8 24V Filament			Protective cover L167 Snaps on to bodies with V or X style rockers and A lens. This reduces panel thickness by 0.8mm.
				

Examples



H8500VB ---
T8500VB ---



H8550VB ---
T8550VB ---



H8550HB ---
T8550HB ---



H8550XB ---
T8550XB ---



H8550RB Semi-rotary
A splash proofing option



H8500PO ---
Pushbutton option



H8553VB ---
T8553VB ---



H8580AB ---

8600 Rocker Switches - Miniature

10A 250Vac Single & Double Contact



Key Features

- Miniature rocker switch
- Ratings up to 16A, 250Vac
- Single & double Contact
- ON/OFF, C/O, biased and centre off switching
- Push on, solder and PCB terminals
- Illuminated and non illuminated
- Matching indicators
- Panel cut out single: 19.3 x 12.9 double: 19.3 x 21.9

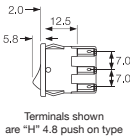
Approvals and specifications

- 10(4)A 250Vac T90 (unless noted below)
- UL See ratings below UL 65°C, file E45221
- 3mm contact gap except where marked μ .

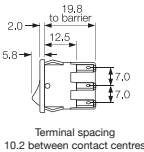
Terminal	Function	Rocker	Body	Body Colour
H 4.8 x 0.8 7.4	Approvals & ratings vary with function 8600 10(4)A 16A 250V, 10A 277V 1/2HP 277V, 1/4HP 125V ON - OFF 8650 10(4)A 10A 277V 1/2HP 277V, 1/4HP 125V ON - OFF ON OFF Switches are ON when pressed over terminal 3 	V Curved V Curved (lit) 	B Single Contact Panel cut out 12.9 Bezel 21.0 Single Contact dimensions for snap-in fixing Panel thickness 0.75-1.25 1.25-1.99 2.00-3.00 Dim X 19.1/19.2 19.3/19.4 19.7/19.8	B Black R Red W White
T 3.5 x 0.8 6.4 Solder	8601 6(1)A 16A 250V, 6A 277V ON - OFF (momentary ON) 8651 6(1)A 6A 277V ON - OFF (momentary ON) 	F Flat Indicator only (Single contact) 	B (Double Contact) with terminal barrier BC (Double Contact) w/o terminal barrier Panel cut out 21.9 Bezel 24.0 Double Contact dimensions for snap-in fixing Panel thickness 0.75-1.24 1.25-1.99 2.00-3.00 Dim X 19.1/19.2 19.3/19.4 19.7/19.8 Cut-outs must be punched in the direction of insertion	
X 3.7 0.8Sq PCB	N/A ON - OFF Lit 8602 10A 6A 277V ON - OFF (momentary OFF) 8652 10(4)A 6A 277V ON - OFF (momentary OFF) 8653 10(4)A 6A 277V ON - OFF Lit 8610 6(1)A 10A 277V 1/2HP 277V, 1/4HP 125V ON - ON 8660 6(1)A 10A 277V 1/2HP 277V, 1/4HP 125V ON - ON 8611 6A 277V ON - ON (momentary 1 side) 8661 6A 277V ON - ON (momentary 1 side) * 8611 and 8661 not covered by ENEC 8620 μ ON - OFF - ON 8670 μ ON - OFF - ON 8630 6(1)A UL E63363 CSA LR29381 N/A			
Double Contact switches with "X" terminals are supplied without terminal barriers	Indicators			





Dimensions

Single contact



Double contact



Rocker Colour	Lamp Voltage	Legend	Legend Colour	Options
Un-Lit B Black	 Blank	 Blank	 Blank	Finish Matt finish only.
R Red	2 125V Neon	076	B Black	Colour Call sales for custom colours. A full range is available for large orders.
W White				Legend printing Select from the examples or call sales for custom legend.
Lit A Amber	3 250V Neon		W White	Lamp voltage Call sales for details of available voltages.
G Green				Blanking plate A8634FB Dummy unit to fill unused panel holes. Single contact size only.
C Clear	7 12V Filament			Protective covers L167 for SP L180 for DP Snap on to bodies with V rocker or F lens. This reduces panel thickness by 2.2mm.
R Red	8 24V Filament			
				Single Contact options Most switches shown can have single contact switching in double contact bodies.

Examples



H8600VB ---
T8600VB ---



H8600VB ---
T8600VB ---



H8630FB ---
T8630FB ---



H8650VB ---
T8650VB ---



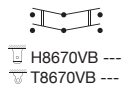
H8660VB ---
T8660VB ---



H8653VB ---
T8653VB ---

8620 & 8670 Rocker Switches

3 Positions - 10A 250Vac

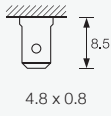



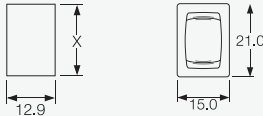
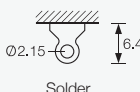

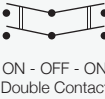

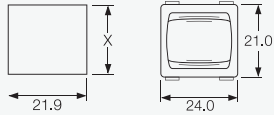




Key Features

- 3 position miniature rocker switch
- Panel cut out: single: 19.3 x 12.9 double: 19.3 x 21.9
- Ratings up to 15A, 250Vac
- Single & double Contact
- Centre off switching
- Push on, solder and PCB terminals
- Matching indicators

Approvals and specifications

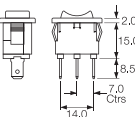
- 10(4)A 250Vac T90
- UL 15A 277Vac (Single Contact)
- UL 250Vac 1/2hp (Single Contact)
- UL 125Vac 1/4hp (Single Contact)
- UL 10A 277Vac (Double Contact)
- UL 277Vac 1/2hp (Single & Double Contact)
- UL 90°C
- μ contact gap.

Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
H 	 8620 	V  Curved	B Single Contact  Panel thickness 0.75-1.24 1.25-1.99 2.00-3.00 Dim X 19.1/19.2 19.3/19.4 19.7/19.8	B Black	Lit (DP) A Amber
T 	 8670 	H  Slotted for actuator (8620 only)	B Single Contact - Twin  Panel thickness 0.75-1.24 1.25-1.99 2.00-3.00 Dim X 19.1/19.2 19.3/19.4 19.7/19.8	R Red	C Clear
X 	 PCB 0.8sq Double Contact switches with X terminals are supplied without terminal barriers			W White	G Green
					R Red
					B Black
					R Red
					W White

Out-outs must be punched in the direction of insertion

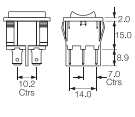
Dimensions

Single Contact



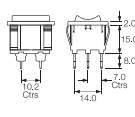
Terminals shown are "H" 4.8 push on type

Double Contact




Terminal spacing 10.2 between Contact centres

Double Contact



Terminal spacing 10.2 between Contact centres

Lamp Voltage	Legend	Legend Colour	Options
<div>Blank</div>	<div>Blank</div>	<div>Blank</div>	<div>Finish</div> <div>Matt finish only.</div>
<div>2</div> <div>125V Neon</div>	<div>076</div>	<div>B</div> <div>Black</div>	<div>Colour</div> <div>Call sales for custom colours.</div> <div>A full range is available for large orders.</div>
<div>3</div> <div>250V Neon</div>			<div>Legend printing</div> <div>Select from the examples or call sales for custom legend.</div>
<div>7</div> <div>12V Filament</div>			<div>Lamp voltage</div> <div>Call sales for details of available voltages.</div>
<div>8</div> <div>24V Filament</div>		<div>W</div> <div>White</div>	<div>Blanking plate A8634FB</div> <div>Dummy unit to fill unused panel holes.</div> <div>Single Contact size only.</div>
			<div>Protective covers</div> <div>L167 for SP</div> <div>L180 for DP</div> <div>Snap on to bodies with V rocker or F lens. This reduces panel thickness by 2.2mm.</div> <div></div>
			<div>Single Contact options</div> <div>Most switches shown can have single Contact switching in double Contact bodies.</div>

1250 Rocker Switches

10A 250Vac

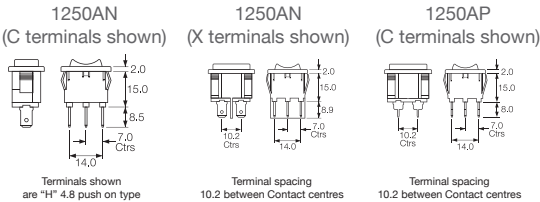


Key Features


- Standard rocker switch
- Panel cut out: 27.2 x 12.4 (snap in) 26.3 x 12.4 (sub panel mount)
- Double Contact in single Contact body
- Snap in or sub panel mount
- Integral terminal barrier
- Push on or PCB terminals

Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
C 6.3 x 0.8	 1250 ON - OFF Double Contact Contacts are 9.0mm between centres.	A Curved 	N Panel cut-out Sub-panel Facia Bezel Panel thickness 0.75-1.24 1.25-1.99 2.00-3.00 Dim X 26.1/26.2 26.3/26.4 26.7/26.8	B Black W White	B Black W White
X PCB 0.8sq (N body only)	 1250SP ON - OFF Single Contact		P Panel cut out Panel thickness 0.75-3.00 <small>Out-outs must be punched in the direction of insertion</small>		G Grey

Dimensions



Approvals and specifications

-  10(6)A 250Vac T100
6A 400Vac T100
1A 30Vdc
-  UL 10A 250Vac
UL 16A 250Vac Resistive
UL 125Vac 1/2hp
UL 1A 30Vdc
UL 100°C
3mm contact gap

Legend	Legend Colour	Options
<div>Blank</div>	<div>Blank</div>	<div>Finish Matt finish only.</div>
<div>085</div>	<div>B Black</div>	<div>Colour Call sales for custom colours. A full range is available for large orders.</div>
	<div>W White</div>	<div>Legend printing Select from the examples or call sales for custom legend.</div>

6000 SP Splash Resistant Rocker Switches

16A 250Vac



Key Features

- Ratings up to 20A, 277Vac
- Positive switch action
- Distinctive styling
- Illuminated & nonilluminated
- Single Contact
- Panel cut out: 30.1 x 11.1mm

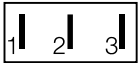
Approvals and specifications

European 16(4)A 250Vac T125, 10A 400Vac T125
 UL = 20A 277Vac, 1 1/2HP 250Vac 1HP 125Vac
 cUL = 20A 277Vac, 1HP 125Vac, 1/2HP 125Vac

3mm contact gap with Positive Break switching.
 Call factory for IP details.

Vary with Function

Approvals & ratings vary with function
 ON OFF Switches - ON when pressed
 over terminals 3.



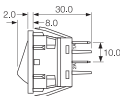
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour	Lamp Voltage
C 6.3 x 0.8	6000 ON - OFF 6001 ON - OFF (momentary ON)	A Softline Matt 	L Panel cut-out ** Bezel 30.0/30.1 11.0/11.1 31.5 14.0 R2.0 Cut-outs must be punched in the direction of insertion	B Black W White	Lit (DP) A Amber C Clear G Green R Red Lit (DP) B Black R Red W White	Blank 2 125V Neon 3 250V Neon 5 12Vdc LED (P Rocker) 6 24Vdc LED (P Rocker) 7 12V Filament 8 24Vdc Filament
H 4.8 x 0.8	6002 ON - OFF (momentary OFF) 6003 ON - OFF Lit	A Softline Matt P Lit window Matt 				
S 9.7 Screw & Clamp N/A for assemblies with 3 terminals	6008 ON - OFF Lit (Unswitched neutral) 6009 ON - OFF (momentary ON) Lit (Unswitched neutral) 6010 ON - ON 6011 ON - ON (momentary 1 side)					

Integral Splash Resistance






Current carrying parts are protected from moisture. Droplets which may enter the switch are channelled out through ports in the switch body. For IP65 see options below

Dimensions



Panel thickness
L 0.75 to 2.5mm
** For cut-out details on momentary switches call sales

Legend	Legend Colour	Options
 Blank	 Blank	G74 Protective Cover
1223	B Black	Finish Matt is standard.
		Colour Call sales for custom colours. A full range is available for large orders.
		Legend printing Select from the examples or call sales for custom legends.
	W White	Lamp voltage Call sales for details.
		Protective cover A snap on cover is available (add G after body code), this reduces panel thickness by 2mm.
		
		Panel sealing washer W46 is available, this reduces panel thickness by 1.2mm.
		Covers are not suitable for momentary types. For all options call the factory

Examples



C6000AL ---



C6000AL ---



C6010AL ---



C6003AL ---



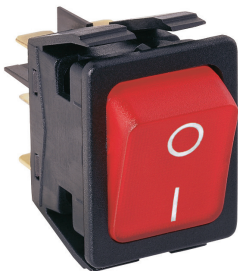
C6003PL ---



C6030AL ---

6050 DP Splash Resistant Switches

& Twin Switches - 16A 250Vac



Key Features

- Ratings up to 20A, 277V ac
- Positive switch action
- Distinctive styling
- Illuminated & non-illuminated
- Double Contact
- DC LED Illumination Available
- Panel cut out: 30.1 x 22.2mm

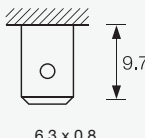























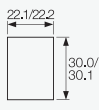
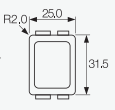
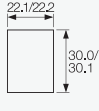
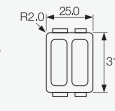
Approvals and specifications

European 16(4)A 250Vac T125, 10A 400Vac T125

UL (except 6054 & 6055 Switches) 20A 277Vac, 250Vac 11/2hp, 125Vac 1hp

UL 100°C

3mm contact gap with Positive Break switching.

Terminal	Function	Rocker	Body	Body Colour	
<div>C</div> <div></div> <div>6.3 x 0.8</div>	<div>6050</div> <div></div> <div>ON - OFF</div> <div>6051</div> <div></div> <div>ON - OFF (momentary ON)</div> <div>6052</div> <div></div> <div>ON - OFF (momentary OFF)</div> <div>6053</div> <div></div> <div>ON - OFF Lit</div> <div>6054</div> <div></div> <div>ON - OFF (momentary ON) Lit</div> <div>6055</div> <div></div> <div>ON - OFF (Single Contact) (momentary ON) Lit</div> <div>6056</div> <div></div> <div>ON - OFF (Single Contact) Isolated light</div> <div>6057</div> <div></div> <div>ON - OFF Isolated light</div> <div>6058</div> <div></div> <div>ON - OFF (Single Contact) Lit</div> <div>6059</div> <div></div> <div>ON - OFF (Single Contact) (momentary ON) Isolated light</div>	<div>6060</div> <div></div> <div>ON - ON</div> <div>6061</div> <div></div> <div>ON - ON (momentary 1 side)</div> <div>6062</div> <div></div> <div>2 Circuit ON - ON (In house tests only)</div> <div>6066</div> <div></div> <div>ON - ON (Single Contact) Isolated light</div> <div>6067</div> <div></div> <div>ON - ON Lit</div> <div>6068</div> <div></div> <div>ON - ON 1 Contact ON - OFF Lit 1 Contact</div> <div>6090</div> <div></div> <div>ON - OFF 1 Contact ON - OFF Lit 1 Contact</div> <div>6091</div> <div></div> <div>ON - OFF (momentary ON) Lit</div> <div>6092</div> <div></div> <div>ON - OFF 1 Contact ON - ON 1 Contact Lit</div> <div>Circuits are Double Contact unless described otherwise</div>	<div>A</div> <div></div> <div>Softline Matt</div> <div>A</div> <div></div> <div>Softline Matt</div> <div>P</div> <div></div> <div>Lit window Matt</div> <div></div> <div>Lit window</div>	<div>L</div> <div>Double Contact</div> <div>Panel cut-out ** Bezel</div> <div></div> <div>22.1/22.2 30.0/ 30.1</div> <div></div> <div>R2.0 25.0 31.5</div> <div>L</div> <div>Twin units</div> <div>Contact sales for information on splash resistance and IP ratings</div> <div></div> <div>22.1/22.2 30.0/ 30.1</div> <div></div> <div>R2.0 25.0 31.5</div>	<div>Lit (DP)</div> <div>A</div> <div>Amber</div> <div>C</div> <div>Clear</div> <div>G</div> <div>Green</div> <div>R</div> <div>Red</div> <div>Un-Lit (DP)</div> <div>B</div> <div>Black</div> <div>R</div> <div>Red</div> <div>W</div> <div>White</div>

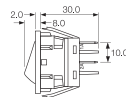
Integral Splash Resistance



Current carrying parts are protected from moisture. Droplets which may enter the switch are channelled out through ports in the switch body.

For IP65 see options below

Dimensions



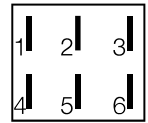
Panel thickness
L 0.75 to 2.5mm

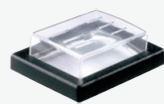
** For cut-out details on momentary switches call sales

Terminal spacing - Contacts 10.5 between centres

Vary with Function

Approvals & ratings vary with function
ON OFF Switches - ON when pressed over terminals 3 & 6.



Rocker Colour	Lamp Voltage	Legend	Legend Colour	Options
B Black	Blank	Blank	Blank	G72 Protective Cover
R Red	2 125V Neon	1223	B Black	Finish Matt is standard.
W White	3 250V Neon		W White	Colour Call sales for custom colours. A full range is available for large orders.
	5 12Vdc LED (P Rocker)			Legend printing Select from the examples or call sales for custom legends.
	6 24Vdc LED (P Rocker)			Protective cover The 6050 series is a water through design. For a higher level of sealing, a snap on cover is available (add G after body code). This reduces panel thickness by 1mm.
	7 12V Filament			
	8 24Vdc Filament			Panel sealing washer W42 is available. This reduces panel thickness by 1.00mm. Covers are not suitable for momentary types.
				IP Ratings Call the sales for details.
				Terminal Link P1067 connects the Contacts of a double Contact switch or twin unit.
				# Mounting orientation may affect IP rating.

Examples



C6050AL - - -



C6053AL - - -



C6053PL - - -



C6000A/C6000AL



C6003P/C6003PL



C6003P/C6030AL

1500 Standard & 1300 High Inrush Switches

150A to EN61058-1 and 16A 250Vac



Key Features

- Standard rocker switch
- Non-illuminated
- 150A inrush
- Choice of switching circuits including 3 position
- Choice of bezel styles
- Choice of panel cut outs
- Matching indicator
- Single Contact
- Splash resistant option
- DC LED Illumination Available for "P" Rocker
- Panel cut out 'A' style: 27.3 x 12.3mm

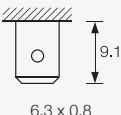







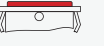

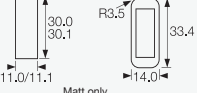


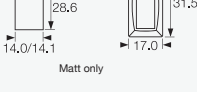

Approvals and specifications

1500 Series 16(4)A 250Vac T125 (European Approvals Pending)

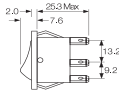
UL 16A Non Ind 250Vac, (2 posn) 250Vac 1hp, 125Vac 1/2hp, (3 posn) 250Vac 1/2hp, 125Vac 1/4hp
1330 36Vdc 14A
1350 72 Vdc 7A
1500 & 1510 14 Vdc 10A
UL 85°C

In house test:
10A 24Vdc—Indicative rating only

1300 series 16(4)A 250Vac T125 1E4 (10,000 Ops.)

Terminal	Function	Rocker	Body	Finish	Body Colour
C 	Standard 1500 ON - OFF 1501 HP rating N/A ON - OFF (momentary ON) 1502 HP rating N/A ON - OFF (momentary OFF) 1510 µ HP rating N/A ON - ON 1511 µ HP rating N/A ON - ON (momentary 1 side) 1520 µ 125V & 250V 1/2 HP H terminal rated T100 only ON - OFF - ON 1521 µ HP rating N/A H terminal rated T100 only ON - OFF - ON (momentary 1 side) 1522 µ HP rating N/A H terminal rated T100 only ON - OFF - ON (momentary 2 sides) 0430 (Indicator) HP rating N/A H terminal rated T100 only 1484 In-house tested to 10(3)A 250Vac 3 position selective 1487 In-house tested to 10(3)A 250Vac 3 position selective High Inrush 1300 ON - OFF	A  B  H  V  W  X  F  A 	Panel cut-out Cut-outs must be punched in the direction of insertion A  B  L  Q  R  T 	M Matt G Gloss Applies to both Rocker & Body	B Black R Red W White

Dimensions



Panel thickness
A,Q 0.75 to 3.3mm
L,B,T 0.75 to 2.5mm
R 0.75 to 3.0mm

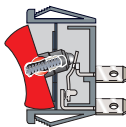
* For cut-out details on momentary switches call sales

Splash Resistance

1500 W and B splash resistant options

Feather edge seals and a close fitting collar protect current carrying parts from moisture.

B option has Hytrel collar/seals for enhanced protection.



1300 High inrush, positive break switching

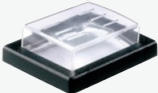
The 1300 series mechanism ensures contact welds formed at switch-on are positively separated by the plunger tube acting directly on the step in the moving contact.

150A Inrush to EN61058-1
UL 20A 250Vac 1hp, 125Vac 1/2hp
UL 85°C

In house test:

20A 24Vdc—Indicative rating only

3mm contact gap except if marked μ .

Rocker Colour	Lamp Voltage	Insert Colour	Legend	Legend Colour	Options
Un-Lit	Blank	Blank	Blank	Blank	Finish Matt is standard.
B Black	2 125V Neon	R Red	602A	B Black	Colour Call sales for custom colours. A full range is available for large orders.
R Red	3 250V Neon	W White		W White	Legend printing Select from the examples or call sales for custom legends.
W White	7 12V Filament				Lamp voltage Call sales for details.
Lit	8 24Vdc Filament				Blanking plates A0434 - - Dummy units to fill unused panel holes.
A Amber					Protective cover Snaps on to A, L, Q or T bodies (add G after body code in cat no.), this reduces panel thickness by 1mm.
C Clear					
G Green					Panel sealing washer W46 is available for the same body sizes, this reduces panel thickness by a further 0.8mm. Covers are not suitable for momentary types.
R Red					For all options call sales.

Examples



C1500AR - - -
T1500AR - - -



C1500AL - - -
T1500AL - - -



C1500XL - - -
T1500XL - - -



C1510AL - - -
T1510AL - - -



C1520AL - - -
T1520AL - - -



C0430AL - - -
T0430AL - - -

5500 Lit Rocker Series

10A 250Vac



Key Features

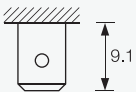




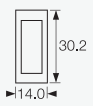
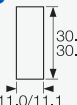
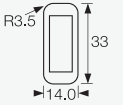
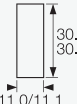
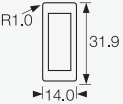
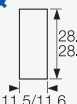
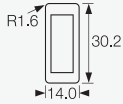
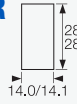
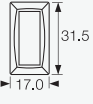
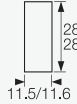
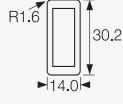
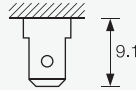

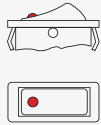
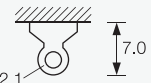

- Standard rocker switch
- Illuminated
- Choice of switching circuits
- Choice of bezel styles
- Choice of panel cut outs
- Matching indicator
- Single Contact
- Splash resistant option
- Panel cut out 'A' style:

Approvals and specifications

- 6(4) A, 250 V ac, 50/60 Hz, IP40, 1E4, T85/55, micro disconnection
- 12 A, 250 V ac, 50/60 Hz, IP40, 1E4, T125/55, micro disconnection
- UL 15A 250Vac, CSA 16A Non Ind 250Vac
- UL 250Vac 1hp, 125Vac 1/2hp
- UL 85°C

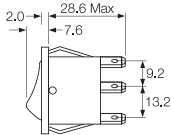
µ contact gap.

For Twin units repeat the order details for both the left and right sides.

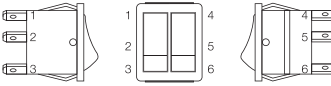
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
<div>C</div> <div></div> <div>6.3 x 0.8</div>	<div>Approvals & ratings vary with function ON OFF Switches - ON when pressed over terminal 3</div> <div></div> <div>5500 μ</div> <div></div> <div>ON - OFF Single Contact</div>	<div>A</div> <div>Softline (Matt only)</div> <div></div>	<div>A</div> <div>Panel Cut - outs</div> <div></div> <div>27.2 27.3</div> <div>12.2/12.3</div> <div>Bezel</div> <div></div> <div>30.2</div> <div>14.0</div> <div>B</div> <div></div> <div>30.0 30.1</div> <div>11.0/11.1</div> <div></div> <div>33</div> <div>14.0</div> <div>R3.5</div> <div>B</div> <div></div> <div>30.0 30.1</div> <div>11.0/11.1</div> <div></div> <div>31.9</div> <div>14.0</div> <div>R1.0</div> <div>L</div> <div></div> <div>28.2 28.3</div> <div>11.5/11.6</div> <div></div> <div>30.2</div> <div>14.0</div> <div>R1.6</div> <div>Q</div> <div></div> <div>28.5 28.6</div> <div>14.0/14.1</div> <div></div> <div>31.5</div> <div>17.0</div> <div>R</div> <div></div> <div>28.2 28.3</div> <div>11.5/11.6</div> <div></div> <div>30.2</div> <div>14.0</div> <div>R1.6</div> <div>T</div>	<div>B</div> <div>Black</div> <div>W</div> <div>White</div>	<div>Un-Lit</div> <div>B</div> <div>Black</div> <div>R</div> <div>Red</div> <div>W</div> <div>White</div> <div>Lit</div> <div>A</div> <div>Amber</div> <div>C</div> <div>Clear</div> <div>G</div> <div>Green</div> <div>R</div> <div>Red</div>
<div>H</div> <div></div> <div>4.8 x 0.8</div>	<div>5503 μ</div> <div></div> <div>ON - OFF Lit Switched neutral</div>	<div>P</div> <div>Lit window (Matt only)</div> <div></div>			
<div>T</div> <div></div> <div>Ø2.1</div> <div>Solder</div>	<div>5508 μ</div> <div></div> <div>ON - OFF Lit Unswitched neutral</div>				

Dimensions

Panel thickness
A,Q 0.75 to 3.3mm
L,B,T 0.75 to 2.5mm
R 0.75 to 3.0mm




Twin units
 Two single switches or a switch and an indicator light can be assembled side by side in one double Contact body.
 For 5500 range panel cut-out details (L, B and T) call sales.



Terminal spacing -
 Contacts 10.8 between centres (twin units)

For twin units the first set of order format details refer to the left hand unit, when looking at the front of the assembly.
 (This has terminal numbers 1, 2 & 3)

Lamp Voltage	Legend	Legend Colour	Options
Blank	Blank	Blank	<p>Finish Matt is standard.</p> <p>Colour Call factory for custom colours. A full range is available for large orders.</p> <p>Legend printing Select from the examples or call factory for custom legends.</p> <p>Lamp voltage Call factory for details.</p> <p>Blanking plate A0434 - - (SP) A0494 - - (DP) Dummy units to fill unused panel holes.</p> <p>Protective cover Snaps on to A, L, Q or T bodies (add G after body in cat no.), this reduces panel thickness by 1.00mm.</p>  <p>Panel sealing washers W46 (Single Contact) and W42 (Double Contact) are available for these body types, this reduces panel thickness by 2mm.</p> <p>For all options call the factory.</p>
<p>2 125V Neon</p> <p>3 250V Neon</p> <p>5 12Vdc LED (P Rocker) IF = 20-30mA</p> <p>6 24Vdc LED (P Rocker) IF = 20-30mA</p> <p>7 12V Filament</p> <p>8 24Vdc Filament</p>	<p>602A</p>	<p>B Black</p> <p>W White</p>	

Examples



C5503AL - - -



C5500AL - - -



C5503PL - - -



C5503A/C5430AL



C5503A/C5503AL



C5503P/C5503PL

1500 Twin Units Switches and Indicators

16A 250Vac



Key Features









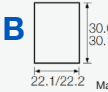









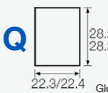








- Twin unit rocker switch
- Choice of switching circuits including 3 position
- Push-on, solder and PCB terminals
- Choice of bezel styles
- Choice of panel cut outs
- Matching indicator
- Single Contact switches
- Splash resistant option
- Panel cut out 'A' style: 27.2 x 22.3mm

Approvals and Specifications

16(4)A 250Vac T125 (Pending)

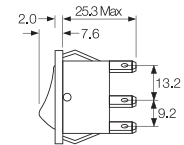
UL 16A 250Vac
UL (2 posn) 250Vac 1hp, 125Vac 1/2hp, (3 posn) 250 Vac
1/2hp, 125Vac 1/4hp
UL 85°C

For versions with High Inrush or for 50,000 operations,
3mm contact gap except where marked μ .

Terminal	Function	Rocker	Body	Finish	Body Colour	Rocker Colour
C 	Approvals & ratings vary with function ON OFF Switches - ON when pressed over terminal 1 or 4 	A Softline (Matt only) 	Panel Cut - outs Bezel A  22.3/22.4 27.2/27.3 Gloss or Matt B  25.0 30.2	M Matt	B Black	Un-Lit B Black
H 	1500  ON - OFF	B Softline (Matt only) 	B  22.1/22.2 30.0/30.1 Matt only B  25.0 33.4	G Gloss Applies to both Rocker & Body	W White	R Red
T 	1510 μ  ON - ON	W Softline (Matt only) 	L  22.1/22.2 30.0/30.1 Matt only L  25.0 32.0			W White
K 	1520 μ  ON - OFF - ON	X Softline (Matt only) 	Q  22.3/22.4 28.2/28.3 Gloss or matt Q  25.0 30.2			Lit A Amber
X 	0430  Indicator	A Softline (Matt only) 	R  25.3/25.4 28.4/28.5 Matt only R  28.9 33.2			C Clear
			T  22.3/22.4 28.2/28.3 Matt only T  25.0 30.2			G Green
						R Red

Dimensions

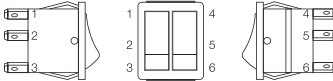
Panel thickness
A,Q 0.75 to 3.3mm
L,B,T 0.75 to 2.5mm
R 0.75 to 3.0mm



Call sales for terminal spacing details

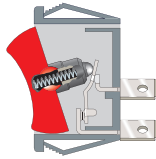
Twin units

Two single switches or a switch and an indicator light can be assembled side by side in one double Contact body.



For twin units the first set of order format details refer to the left hand unit, when looking at the front of the assembly.
 (This has terminal numbers 1, 2 & 3)

Splash Resistant



Feather edge seals and a close fitting collar protect current carrying parts from moisture.

B option has Hytrel collar/seals for enhanced protection.

Insert Colour	Lamp Voltage	Legend	Legend Colour	Options
Blank	Blank	Blank	Blank	Finish Matt is standard.
R Red	2 125V Neon	602A	B Black	Colour Call factory for custom colours. A full range is available for large orders.
W White	3 250V Neon		W White	Legend printing Select from the examples or call factory for custom legends.
	5 12Vdc LED (P Rocker)			Lamp voltage Call factory for details.
	6 24Vdc LED (P Rocker)			
	7 12V Filament			
	8 24Vdc Filament			

Examples



1550 Standard and 1350 High Inrush

150A to EN61058-1 and 16A 250Vac



Key Features

- Standard rocker switch
- 1350/53 high inrush
- Choice of switching circuits including 3 position
- Push-on, solder and PCB terminals
- Choice of bezel styles
- Choice of panel cut outs
- Matching indicator
- Double Contact
- Splash resistant option
- Panel cut out 'A' style: 27.2 x 22.3mm

Approvals and specifications

1550 Series 16(4)A 250Vac T125 (Pending)

UL 16A 250Vac, (2 posn) 250Vac 1hp, 125Vac 1/2hp, 1350 72 Vdc 7A (3 posn) 250 Vac 1/2hp, 125Vac 1/4hp. UL 85°C

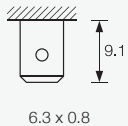
In house test:

10A 24Vdc—Indicative rating only. NB Types fitted with Neon will not illuminate for low DC voltage applications.

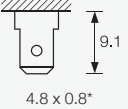
1350 series 16(4)A 250Vac T125 1E4 (10,000 Ops.)
1330 series 16(6)A 250Vac T125 1E4 (10,000 Ops.)
150A Inrush to EN61058-1.

Terminal

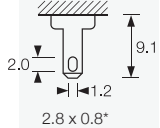
C



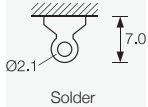
H



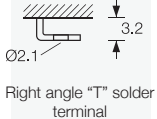
K



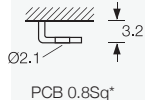
T



U



X



Function

Standard 1550

1551
HP rating N/A

1552
HP rating N/A

1553
Not W, X or B rocker

1560 μ

1561 μ
HP rating N/A

1562 μ
In house tests only

1570 μ
125V & 250V 1/2 HP
H terminal rated T100 only H terminal rated T100 only

1571 μ
HP rating N/A
H terminal rated T100 only

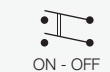
1572 μ
HP rating N/A
H terminal rated T100 only



0480
X terminal N/A



High Inrush 1350
Not W, X or B rocker



1353
Not W, X or B rocker



High Inrush 1300
ON - OFF

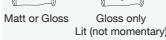
Rocker

A
Softline Matt



B
Splash resistant Softline

V
Curved
Matt or Gloss



W
Splash resistant Curved

P
Lit window Matt



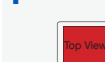
X
Two colour Matt



R
Round



F
Flat Lens Gloss (0480)



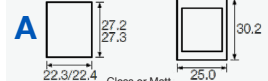
A
Softline lens Matt (0480 only) as F but with raised profile



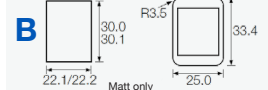
Body

Panel cut-out Bezel
Cut-outs must be punched in the direction of insertion

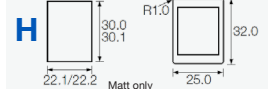
A



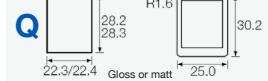
B



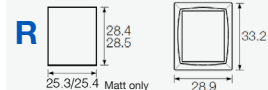
H



Q




R



T



Approvals and specifications (continued)

 **UL 20A 250Vac 1hp, 125Vac 1/2hp.**
UL 72Vdc 7A, 36Vdc 14A.
UL 85°C.

In house test:
 20A 24Vdc—Indicative rating only

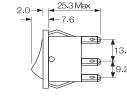
3mm contact gap except if marked μ .

Splash Resistance



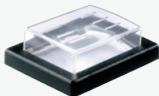
1300 High inrush, positive break switching
 The 1300 series mechanism ensures contact welds formed at switch-on are positively separated by the plunger tube acting directly on the step in the moving contact.

Dimensions




Panel thickness
 A,Q 0.75 to 3.3mm
 L,B,T 0.75 to 2.5mm
 R 0.75 to 3.0mm

* For cut-out details on momentary switches call sales

Finish	Body Colour	Rocker Colour	Insert Colour	Lamp Voltage	Legend	Legend Colour	Options
<div>M</div> <div>Matt</div>	<div>B</div> <div>Black</div>	<div>Un-Lit</div> <div>B</div> <div>Black</div> <div>R</div> <div>Red</div> <div>W</div> <div>White</div> <div>Lit</div> <div>A</div> <div>Amber</div> <div>G</div> <div>Green</div> <div>C</div> <div>Clear</div> <div>R</div> <div>Red</div>	<div>—</div> <div>Blank</div> <div>R</div> <div>Red</div> <div>W</div> <div>White</div>	<div>—</div> <div>Blank</div> <div>2</div> <div>125V Neon</div> <div>3</div> <div>250V Neon</div> <div>5</div> <div>12Vdc LED (P Rocker)</div> <div>6</div> <div>24Vdc LED (P Rocker)</div> <div>7</div> <div>12V Filament</div> <div>8</div> <div>24Vdc Filament</div>	<div>—</div> <div>Blank</div> <div>602A</div>	<div>—</div> <div>Blank</div> <div>B</div> <div>Black</div> <div>W</div> <div>White</div>	<div>Finish</div> <div>Matt is standard.</div> <div>Colour</div> <div>Call sales for custom colours.</div> <div>A full range is available for large orders.</div> <div>Legend printing</div> <div>Select from the examples or call sales for custom legends.</div> <div>Lamp voltage</div> <div>Call sales for details.</div> <div>Blanking plates A0494</div> <div>Dummy units to fill unused panel holes.</div> <div>Protective cover</div> <div>Snaps on to A, L, Q or T bodies (add G after body in cat no). This reduces panel thickness by 1mm.</div> <div></div>
<div>Examples</div>							

Examples




 C1350AL ---




 C1550XL ---



 C1553PL ---



 C1553RA ---
 Shown with M614
 bezel cover




Optional snap-in
 M441 barrier



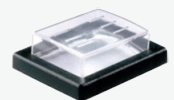
C1553AA with M616
 guard Cut-out
 22.0/22.1 x 29.4/29.5
 Guard accepts "A"
 body only



 C0480RA ---
 Shown with
 M614 bezel
 cover



 C0480AL ---



Panel sealing washer W42 is available for the above body sizes. This reduces panel thickness by a further 1.00mm. Covers are not suitable for momentary types.

For all options call sales.

1550 Standard & 1350 High Inrush Switches

150A to EN61058-1 and 16A 250Vac/250Vac

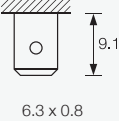

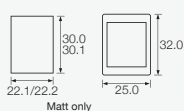
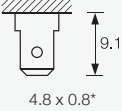

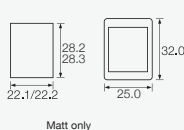
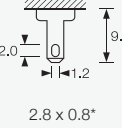

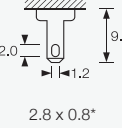

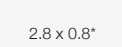

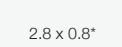

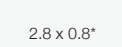
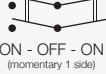
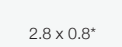


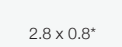
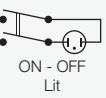


Key Features

- Standard rocker switch
- 1350/53 high inrush
- Choice of switching circuits including 3 position
- Push-on, solder and PCB terminals
- Choice of bezel styles
- Choice of panel cut outs
- Matching indicator
- Double Contact
- Option with guard & cover
- DC LED Illumination Available for "P" Rocker
- Bezel size 'G' style 32.0 x 25.0


Approvals and specifications

- UL 1550 Series 16(4)A 250Vac T125 (Pending)
- UL 16A 250Vac, (2 posn) 250Vac 1hp, 125Vac 1/2hp, (3 posn) 250 Vac 1/2hp, 125Vac 1/4hp. UL 85°C.
- 1350 series 16(4)A 250Vac T125 1E4 (10,000 Ops.)
- 1330 series 16(6)A 250Vac T125 1E4 (10,000 Ops.)
- 150A Inrush to EN61058-1.

Terminal	Function	Rocker	Body	Finish	Body Colour	Rocker Colour
C 	Standard 1550 1551 HP rating N/A	A Softline Matt 	Panel cut-out Cut-outs must be punched in the direction of insertion H 	M Matt	B Black	Un-Lit B Black
H 	1552 HP rating N/A		G 	G Gloss	W White	R Red
K 	1553 Not W, X or B rocker		V Curved Matt or Gloss Gloss only Lit (not momentary)	Applies to both Rocker & Body		W White
T 	1560 μ 1561 μ HP rating N/A					A Amber
U 	1562 μ In house tests only					G Green
X 	1570 μ 125V & 250V 1/2 HP H terminal rated T100 only H terminal rated T100 only		P Lit window Matt Lit (not momentary)			C Clear
Y 	1571 μ HP rating N/A H terminal rated T100 only					R Red
Z 	1572 μ HP rating N/A H terminal rated T100 only					
Right angle T Solder (Not DP)	High Inrush 1350 Not W, X or B rocker					
X 	1353 Not W, X or B rocker					
PCB 0.8Sq* *Contact sales for details on 1350 series	High Inrush 1300 ON - OFF					

Approvals and specifications cont..

In house test:
10A 24Vdc—Indicative rating only

 **UL 20A 250Vac 1hp, 125Vac 1/2hp.**
UL 72Vdc 7A, 36Vdc 14A, UL 85°C.

In house test:
20A 24Vdc—Indicative rating only

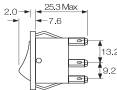
3mm contact gap except if marked μ

Splash Resistance



1350 High inrush, positive break switching
The 1350 series mechanism ensures contact welds formed at switch-on are positively separated by the plunger tube acting directly on the step in the moving contact.

Dimensions



Panel thickness
G, H 0.75 to 2.5mm

Terminal spacing - Contacts 10.2 between centres
* For cut-out details on momentary switches call sales

Insert Colour	Lamp Voltage	Legend	Legend Colour	Options
Blank	Blank	Blank	Blank	Finish Matt is standard.
R Red	2 125V Neon	602A	B Black	Colour Call sales for custom colours. A full range is available for large orders.
W White	3 250V Neon			Legend printing Select from the examples or call sales for custom legends.
	5 12Vdc LED (P Rocker)			Lamp voltage Call sales for details.
	6 24Vdc LED (P Rocker)			
	7 12V Filament			
	8 24Vdc Filament			

Examples



 C1553AH ---



 C1550AH ---

R13 Round Rocker Switches

10A 250Vac



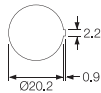
Key Features

- Miniature round rocker switch
- Ratings up to 10A, 250Vac
- Single & double Contact
- Illuminated & nonilluminated, neon andLED
- Choice of actuators
- Matching indicator
- Panel cut out: 20.2 dia.

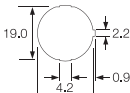
Approvals and specifications

- RoHS compliant**
Single Contact has μ contact gap.
- Special products**
Are made to order and can be supplied with a range of body and rocker / lens colours, print & lamp voltage.

Dimensions

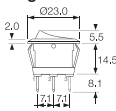


Snap fixing into 2.0 to 3.0mm panels

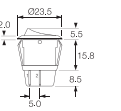


Snap fixing into 0.7 to 3.0mm panels

Single Contact



Double Contact

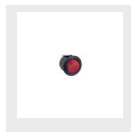


Protective cover L188



Snap on to bodies (not R13 211 or R13 112LP), this reduces maximum acceptable panel thickness to 2.4mm.

Examples



R13 112B NAA



R13 112A AAA



R13 112A2 ---

R13 / 112 / A / B / B / 3 / 2 / 602A / W / L188

Series Type Function Body Colour Rocker Colour Insert Colour Lamp Voltage Legend Legend Colour Legend Colour

Product details



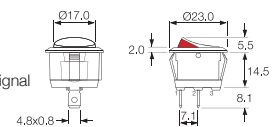
1 2
SP ON - OFF μ
Cat no.
R13 112A AAA



1 2 3
SP ON - OFF μ
Lit 230V
Cat no.
R13 112B NAC



1 2
SP ON - OFF μ
Bright colour ON signal
Cat no.
R13 112A2 - -



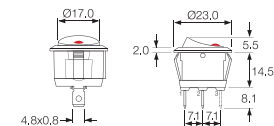
1 2
SP ON - OFF μ
Cat no.
R13 112A AAB



1 2 3
SP ON - ON μ
Cat no.
R13 112C AAA



1 2 3
SP ON - OFF μ
Lit Window
Cat no.
R13 112B2 - -



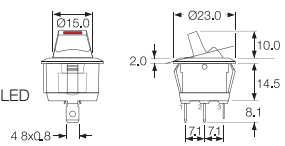
1 2 3
SP ON - OFF μ
Lit 230V
Cat no.
R13 112B NAA



1 2 3
SP ON - OFF - ON μ
Cat no.
R13 112D AAA



12 3- 3+
SP ON - OFF μ
Paddle tip has red LED
Cat no.
R13 112LP - -



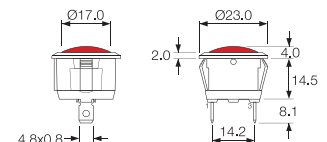
1 2 3
SP ON - OFF μ
Lit 230V
Cat no.
R13 112B NAB



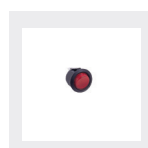
SP ON - OFF μ
(Momentary ON)
Cat no.
R13 208F AAA*



1 3
Indicator light
Cat no.
R9 92B - - -



DP ON - OFF
Lit 230V
Cat no.
R13 244A AAA



DP ON - OFF
Lit 230V
Cat no.
R13 244B NAA

Well known for their quality and reliability, **Bulgin's toggle switches** are **cost effective** solutions to many existing applications. These switches offer features at an attractive price point often well below that of the existing competition.

- Nylon and Metal switch variants
- Multiple Lever Options
- Ratings up to 20A, 250V ac - 277V ac
- IP67 panel seal versions, supplied complete with gaskets (3900 Series – All Variants)
- Single and double Contact
- Choice of circuit options including 3 position and momentary
- Mounting hole: 12.2mm diameter.
- Sealing accessories available
- Quick Connect, Solder, Screw and PCB Termination Options



3900 Metal Toggle Switches

16A 250Vac - IP67 Sealed Versions



Key Features

- Metal toggle switches
- Ratings up to 20A, 277V ac
- Single and double Contact
- Choice of circuits including 3 position and momentary
- Sealed version supplied complete with gaskets
- Panel seal version to IP67
- 6.3mm terminals
- Guard option

Terminal	Function	Actuator	Body	Options
<p>C</p> <p>6.3 x 0.8</p>	<p> Single Contact</p> <p>3900 ON - OFF</p> <p>3901 ON - OFF (momentary ON)</p> <p>3902 ON - OFF (momentary OFF)</p>	<p>A</p> <p>10.0</p> <p>Metal toggle finish is nickel plate</p>	<p>A Single Contact Thread: 15/32" x 32TPI</p> <p>E Panel sealed, single Contact Thread: 15/32" x 32TPI</p> <p>A Double Contact, without barrier Thread: 15/32" x 32TPI</p> <p>B Double Contact, with barrier Thread: 15/32" x 32TPI</p> <p>F Panel sealed, double Contact, with terminal barrier Thread: 15/32" x 32TPI</p> <p>G Panel sealed, double Contact, without terminal barrier Thread: 15/32" x 32TPI</p>	<p>Neck Seal M539 Actuator is visible</p> <p>Cover M1080</p> <p>Covers have internal nylon nuts M1080-2</p> <p>Covers have internal metal hex nuts</p> <p>Fixing nuts Nickel plated brass are supplied</p> <p>Knurled Front nut Panel thickness 4.0 with backnut</p> <p>Plate P236 Plate SP or DP</p>
<p>S</p> <p>10.5</p> <p>Screw & Clamp</p>	<p> Double Contact</p> <p>3950 ON - OFF</p> <p>3951 ON - OFF (momentary ON)</p> <p>3952 ON - OFF (momentary OFF)</p>	<p>B</p> <p>17.5</p> <p>Metal toggle finish is nickel plate</p>		
<p>T</p> <p>10.5</p> <p>Solder</p>	<p>3910 ON - ON</p> <p>3911 ON - ON (momentary 1 side)</p> <p>3920 ON - OFF - ON μ</p> <p>3921 ON - OFF - ON μ (momentary 1 side)</p> <p>3922 ON - OFF - ON μ (momentary 2 sides)</p>	<p>D</p> <p>25.4</p> <p>Metal toggle finish is nickel plate</p>		
		<p>E</p> <p>38.1</p> <p>Metal toggle finish is nickel plate</p>		
		<p>F</p> <p>17.5</p> <p>Metal toggle finish is nickel plate</p>		

Approvals and specifications

ENEC approval currently pending
16A, 277Vac
1 HP, 250Vac

7A, 72Vdc
14A, 36Vdc

3910, 3901, 3952, 3960, 3961, 3970, 3971, 3972
16A, 277Vac
1 HP, 250Vac
1/2 HP, 125Vac
7A, 72Vdc
14A, 36Vdc

3900, 3950
20A, 277Vac
1 HP, 250Vac
1/2 HP, 125Vac
7A, 72Vdc
14A, 36Vdc

ENEC Ratings
3900, 3901, 3902, 3950, 3952, 3960, 3961
16(4)A 250Vac

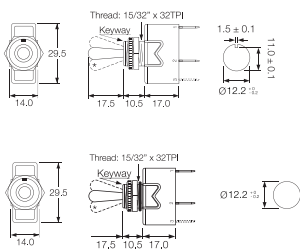
3910, 3911, 3920, 3921, 3922, 3951, 3970, 3972
10 4)A 250Vac

Approvals and ratings vary with function.
3mm contact gap except where marked μ .

Dimensions mm) * Indicates ON position (for ON - OFF switches)

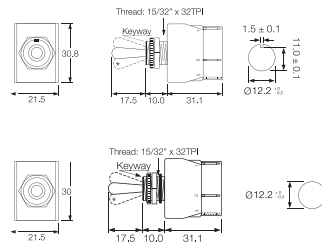
Single Contact

(C terminals shown)



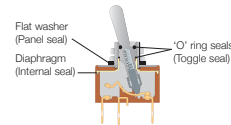
Double Contact

(C terminals shown with barrier)



Toggle Switch - sealed version

BE and BF types

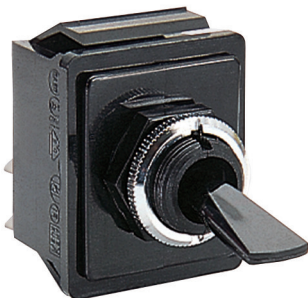


Guard TG1-RED



Examples



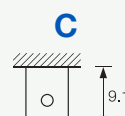


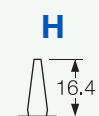
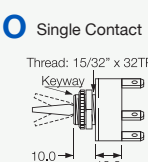

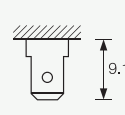


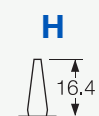
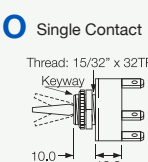

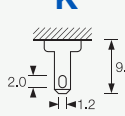

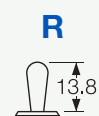
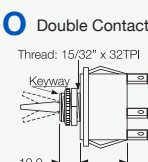

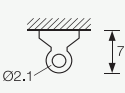

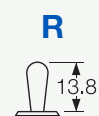
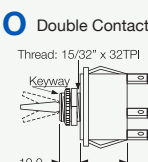
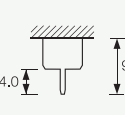

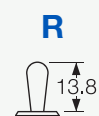
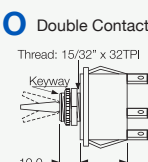

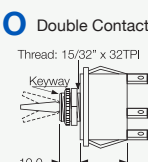

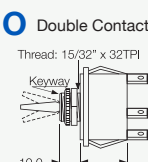

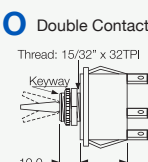

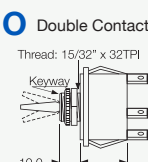



Key Features

- Nylon toggle switches
- Ratings up to 20A, 250V ac
- Single and double Contact
- Wide choice of terminals
- Choice of circuit options including 3 position
- Flat & round actuator options

Approvals and specifications

- CE 16(4)A 250Vac T85 (ENEC approval pending)
 - UL 20A 250Vac Non Ind (Single Contact)
 - UL 16A 250Vac Non Ind (Double Contact)
 - UL (2 pos types) 250Vac 1hp, 125Vac 1/2hp
 - UL (3 pos types) 250Vac 1/2hp, 125Vac 1/4hp
 - UL 85°C
 - UL N/A on momentary types
- Selective “A, B, C” and “OFF, A, A+B” circuits at 5 amp also available.
3mm contact gap except where marked μ .

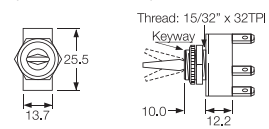
Terminal	Function	Actuator	Body	Options
 C	 Single Contact 1700 ON - OFF 	 H	 O Single Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2	Neck Seal M539  Material - Nitrile (H & R Actuators) Actuator visible
 H	 Double Contact 1750 ON - OFF 	 H	 O Single Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2	Cover M1080  Material - EPDM (R Actuator only)
 K	1710 μ ON - ON 	 R	 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	Cover M531  Material - PVC (R Actuator only)
 T	1720 μ ON - OFF - ON 	 R	 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	Covers have internal nylon nuts
 X	1721 μ ON - OFF - ON μ (momentary 1 side) 	 R	 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	Fixing nuts (Standard is M506 & T92)
	1722 ON - OFF - ON μ (momentary 2 sides) 		 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	T5 Hex brass M506 Hex nylon 
			 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	T92 Knurled brass - slotted 
			 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	M279 Knurled nylon 
			 O Double Contact Thread: 15/32" x 32TPI Keyway 10.0 12.2 1.5 \pm 0.1 1.0 \pm 0.1 Ø12.2 \pm 0.1	Plate P236 Plate SP or DP 

The switch is on between centre terminals (2 & 5) and the terminals over which the lever is positioned.

Dimensions mm) * Indicates ON position (for ON - OFF switches)

Single Contact

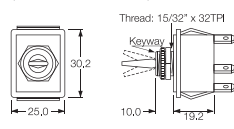
(C terminals shown)



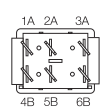
Optional
F00232PAAA
plate SP or DP

Double Contact

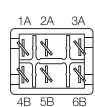
(C terminals shown)



Without barrier



With barrier



Examples



C1700R - -



C1700H - -



C1760R - -



C1750H - -

Long recognised as a leader in refrigerator door switches, Bulgin's wide range of types and configurations will suit almost any need. With both double contact and single contact options, our switches are not only ideal for traditional refrigerator and freezer applications but can and have been used in a variety of door applications as well.

- Door switches
- Switch rating from 0.2A, 250V ac up to 5A, 250Vac
- Splash resistant variants
- Choice of actuators
- Momentary on and momentary off switching





Key Features

- Ratings up to 0.2A, 250V ac
- High temperature rating up to 125°C
- Long overtravel
- Choice of terminal orientation

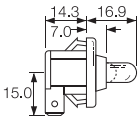
Approvals and specifications

0055 & 0056
0.2(0.2)A 250Vac 25T125 5E4
(50,000 operations)

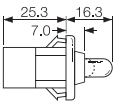
μ contact gap

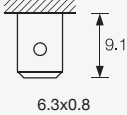


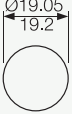
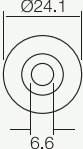
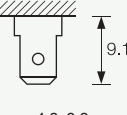

Dimensions and Properties

C0055RB



C0056RB



Terminal	Function	Actuator	Body	Options
C  6.3x0.8	0055  ON - OFF (momentary OFF) 90° terminals	R 	B Panel cut - out  Panel thickness 0055 1.0 - 1.6 0056 1.0 - 2.6 Flange 	Finish Gloss finish only Colour White or black Call sales for custom colours.
H  4.8x0.8	0056  ON - OFF (momentary OFF) straight terminals			

3005 Refrigerator Door Switches

Splash Resistant



Key Features

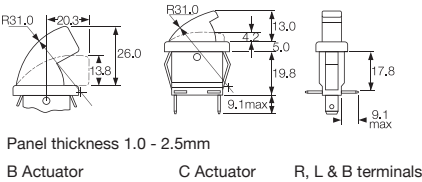
- Door switches
- Momentary on and momentary off switching
- Splash resistant
- Choice of terminal orientation
- Choice of actuators

Approvals and specifications

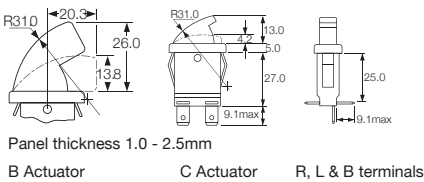
- 3005 25W 25T85 5E4 (50,000 Operations) 250Vac
- 3006 65W 25T85 5E4 (50,000 Operations) 250Vac (ENEC approval pending)
- UL 0.3A 250Vac (Black Versions Only)
- UL 0.2A 125Vac (Black Versions Only)
- μ contact gap

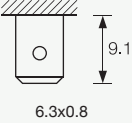

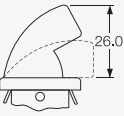

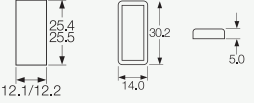
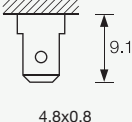

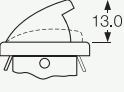
Dimensions and Properties

3005



3006



Terminal	Function	Actuator	Body	Options
C 	3005  ON - OFF (momentary OFF) 1mm max travel to OFF position	B 	R L B  Terminal direction (viewed from hinge end) Panel cut - out Bezel Bezel Profile 	Finish Gloss finish only Colour White or black Call sales for custom colours. A full range is available for large orders.
H 	3006  ON - OFF (momentary ON) 3mm min travel to ON position	C 		

3100 Refrigerator Door Switches

Splash resistant



Key Features

- Door switches
- Ratings up to 5A, 250V ac
- Splash resistant
- Changeover, momentary ON and momentary OFF
- Choice of actuators

Approvals and specifications

5A 250Vac 25T85 5E4 (50,000 Operations)

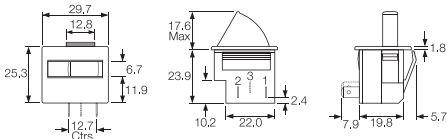
UL 5A 250Vac
UL 85°C, file E45221

μ contact gap.
Sealed terminals option available.

Dimensions and Properties

3101 uses terminals 1,2
3102 uses terminals 1,2
3111 uses terminals 1,2,3

For details of actuator travel and switching angles call sales.



Terminal	Function	Actuator	Body	Colour	Options
E 4.8x0.5 QC	 3101 ON - OFF (momentary CLOSED)	A B C D 	A 	W White B Black PW Polar White	Finish Gloss finish only Colour White or black Call sales for custom colours. A full range is available for large orders.

3100 ATEX Refrigerator Door Switches



Key Features

- ATEX Rated up to 2.5A, 250Vac
- Splash resistant
- Changeover, momentary ON and momentary OFF
- Choice of actuators & colours

Approvals and specifications

Ex ATEX Approved for hazardous locations
2.5A 250Vac
Complies with:
EN IEC 60079-0 & 60079-15
Ex II 3 G & Ex nC IIA Gc
Type Examination Certificate no. UL 22 ATEX 2897U

UL 5A 250Vac (Standard location only)
25T85 5E4 (50,000 Operations)

UL 5A 250Vac (Standard location only)
UL 85°C

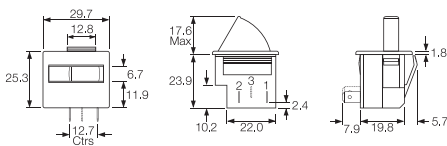
Dimensions and Properties

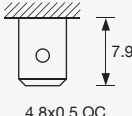
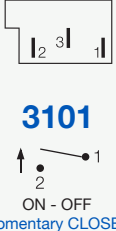
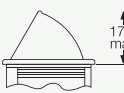
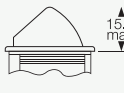

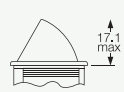
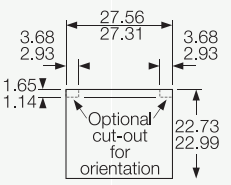
3101 uses terminals 1,2
3102 uses terminals 1,2
3111 uses terminals 1,2,3

μ contact gap.

For details of actuator travel and switching angles call sales.

Finish: Gloss finish only



Terminal	Function	Actuator	Body	Colour	Options	Approval
E  4.8x0.5 QC	 3101 ON - OFF (momentary CLOSED)	A  B  C  D 	A 	W White B Black P Polar White Call sales for custom colours. A full range is available for large orders.	A Standard Call sales for plated contacts and sealed terminal options.	EX ATEX Approved

Part Code System

E	31XX	X	A	X	X	X
Terminal	Function	Actuator Type	Body	Colour	Options	Approval
E	3101 3102 3111	A B C D	A	W B P	A	EX



HK3141AA - - -



H3145AA - - -

Key Features

- ⬢ Door switches
- ⬢ Ratings up to 5A, 250V ac
- ⬢ Splash resistant
- ⬢ Momentary action
- ⬢ Choice of actuators
- ⬢ 2 circuit switch

Approvals and specifications

- 5A 250Vac 25T85 5E4 (50,000 Operations)



3141, μ contact gap.
3145 and 3146, 3mm contact gap.

Sealed terminals option available.

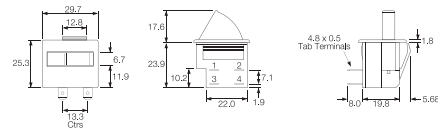
Dimensions and Properties

3141 uses terminals

1,2,3,4

3145 uses terminals 3,4

3146 uses terminals 1,2



Terminal	Function	Actuator	Body	Colour	Options
<p>H</p> <p>4.8x0.8</p> <p>K</p> <p>2.8x0.8</p> <p>Standard format is H terminals in positions 1 & 2 and K terminals in positions 3 & 4 For sealed terminals call sales</p>	<p>3141</p> <p>ON - ON (momentary)</p> <p>3145</p> <p>ON - OFF (momentary OFF)</p> <p>3146</p> <p>ON - OFF (momentary ON)</p>	<p>A</p> <p>B</p> <p>C</p> <p>D</p>	<p>A</p>	<p>W</p> <p>White</p> <p>B</p> <p>Black</p> <p>PW</p> <p>Polar White</p>	<p>Finish Gloss finish only</p> <p>Colour White or black Call sales for custom colours. A full range is available for large orders.</p>

3140 ATEX Refrigerator Door Switches



Key Features

- ATEX Rated up to 2.5A, 250Vac
- Splash resistant
- Momentary action
- Choice of actuators & colours
- 2 circuit switch

Approvals and specifications

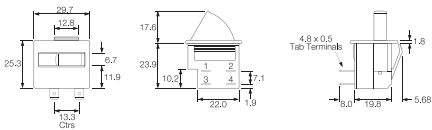
- Ex** ATEX Approved for hazardous locations
2.5A 250Vac
Complies with:
EN IEC 60079-0 & 60079-15
Ex II 3 G & Ex nC IIA Gc
Type Examination Certificate no. UL 22 ATEX 2897U
- UL** 5A 250Vac (Standard location only)
25T85 5E4 (50,000 Operations)
- UL** 5A 250Vac (Standard location only)
UL 85°C


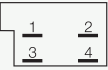
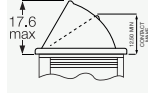
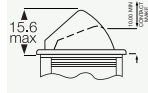
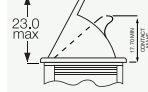
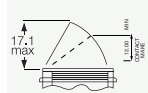
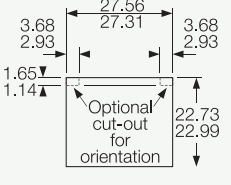
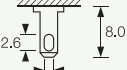


Dimensions and Properties

3141 uses terminals 1,2,3,4
3145 uses terminals 3,4
3146 uses terminals 1,2

3141, μ contact gap.
3145 and 3146, 3mm contact gap.

Finish: Gloss finish only



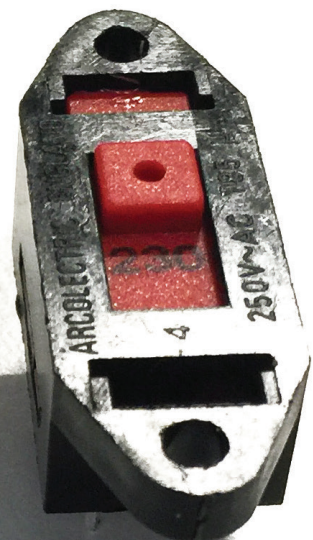
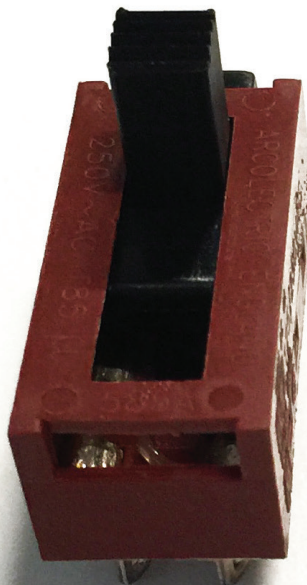
Terminal	Function	Actuator	Body	Colour	Options	Approval
H  4.8x0.8	 3141 ON - ON (momentary)	A  B  C  D 	A 	W White B Black P Polar White	A Standard	EX ATEX Approved
K 3141 Only  2.8x0.8	 3145 ON - OFF (momentary OFF)					
Standard format is H terminals in positions 1 & 2 and K terminals in positions 3 & 4 (HK3141)	 3146 ON - OFF (momentary ON)			Call sales for custom colours. A full range is available for large orders.	Call sales for plated contacts and sealed terminal options.	

Part Code System

X	314X	X	A	X	X	X
Terminal	Function	Actuator Type	Body	Colour	Options	Approval
HK (3141 only) H	3141 3145 3146	A B C D	A	W B P	A	EX

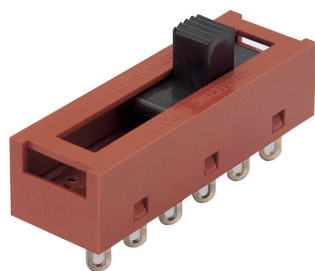
With up to 5 switching positions as well as multiple terminal, circuit and slider options, Bulgin's board mounted power slide switches can be configured to suit your needs. We also offer a wide range of voltage selector types that can be either snapped into a panel or flange mounted.

- Ratings up to 16A, 250V ac
- PCB and solder terminals
- Voltage Selector Models
- Snap in and flange mounting
- 2, 3, 4 and 5 position
- Choice of circuits
- Choice of actuators



2000 Slide Switches - up to 5 position

10A 250Vac



Key Features

- Slide switches
- Ratings up to 16A, 250V ac
- PCB and solder terminals
- 2, 3, 4 and 5 position
- Choice of circuits
- Choice of actuators

Approvals and specifications

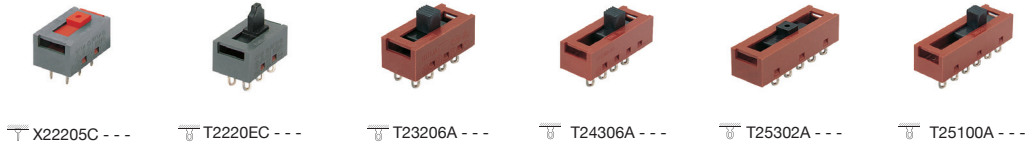
10A 250Vac T85
6(3)A 250Vac T85 (ENEC approval pending)








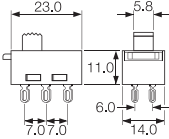
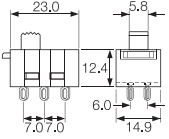
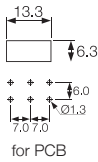
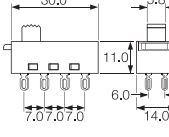
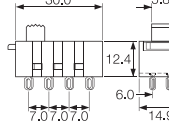
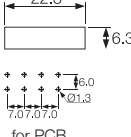
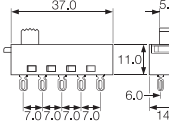
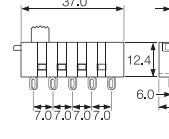
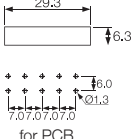
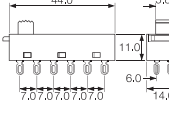
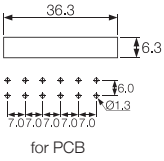
UL 16A 250Vac Non Inductive
UL 4A 300Vac
UL 65°C

μ contact gap
Please specify: Standard action (SP116) or Light action (SP118).
2000 series lubrication is inorganic and does not degrade plastics.

Terminal	Series	Position	Circuit	Slider
K 2.8 x 0.8	2	2 Switching positions	10 	
R 2.8 x 0.8			20 	
T Solder		3 Switching positions	30 	
X PCB 0.8 Sq.			40 	
Y PCB 0.8 Sq. For mounting stability switches have extra "support" terminals * Nominal - Dimension varies with body type. For exact figure call sales		4 Switching positions	10 	
			20 	
			30 	
			40 	
			10 	
	5	5 Switching positions	20 	
			30 	
			40 	

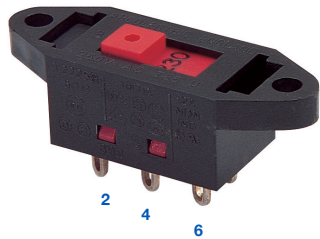
Examples



Body		Options	Dimensions		
<p>C 2 positions H 2 positions</p>   <p>A 3 positions H 3 positions</p>   <p>A 4 positions H 4 positions</p>   <p>A 5 positions</p> 		<p>Colour Call sales for custom colours. A full range is available for large orders.</p> <p>Legend printing A wide range is available For all options call sales</p>	<p>C 2 positions</p> 	<p>H 2 positions</p> 	<p>Cut-out /PCB Matrix</p> 
			<p>A 3 positions</p> 	<p>H 3 positions</p> 	<p>Cut-out /PCB Matrix</p> 
			<p>A 4 positions</p> 	<p>H 4 positions</p> 	<p>Cut-out /PCB Matrix</p> 
			<p>A 5 positions</p> 		<p>Cut-out /PCB Matrix</p> 

2000 Slide Switches - Snap fit and panel mount

10A 250Vac



115/230 is preferred legend

Key Features

- 2 way 'voltage selector'
- Ratings up to 16A, 250V ac
- Snap fit and panel mount
- PCB & solder terminals
- 2 and 3 position
- Choice of circuits
- Choice of actuators

Approvals and specifications

10A 250Vac T85
6(3)A 250Vac T85 (ENEC approval pending)

UL 16A 250Vac Non Inductive
UL 4A 300Vac
UL 65°C

μ contact gap
Please specify: Standard action (SP116) or Light action (SP118).
2000 series lubrication is inorganic and does not degrade plastics.

Terminal	Series	Position	Circuit	Slider
K 2.8 x 0.8	2	2 Switching positions	10 	0
R Ø1.2, 3.6, 2.8 x 0.8			20 	2
T Solder			30 	3
X PCB 0.8 Sq. For mounting stability switches have extra "support" terminals * Nominal - Dimension varies with body type. For exact figure call sales		3 Switching positions	40 	4
			10 	5
			20 	6
			30 	7
			40 	8
				9
				A
				S
				T
				C
				D
				E
				H
				K
				L
				M
				N
				P
				R

Examples



T22208E ---



T22308E ---



T2230MF ---



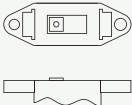
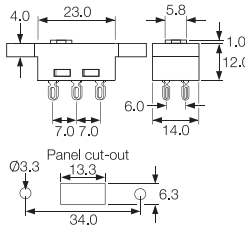
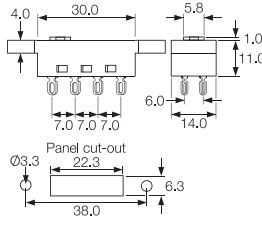
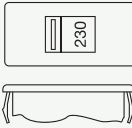
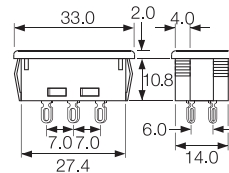
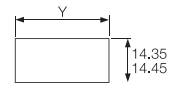
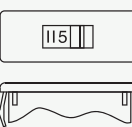
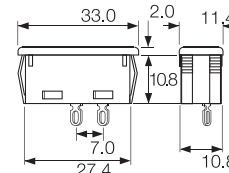
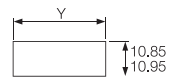
T22205B ---



T22305B ---



T23204B ---

Body	Options	Dimensions											
<p>B</p> <p>With mounting holes</p> 	<p>Colour</p> <p>Call sales for custom colours. A full range is available for large orders. Standard body colour is black.</p>	<p>2 Pos B</p> 	<p>3 Pos B</p> 										
<p>E</p> <p>Snap fit</p> 		<p>2 Pos E</p> 	 <table><tr><th>Panel thickness</th><th>Dim. Y</th></tr><tr><td>0.8-1.2</td><td>29.75/29.85</td></tr><tr><td>1.63</td><td>30.15/30.25</td></tr><tr><td>2.0</td><td>30.35/30.45</td></tr><tr><td>2.5</td><td>30.55/30.65</td></tr></table>	Panel thickness	Dim. Y	0.8-1.2	29.75/29.85	1.63	30.15/30.25	2.0	30.35/30.45	2.5	30.55/30.65
Panel thickness	Dim. Y												
0.8-1.2	29.75/29.85												
1.63	30.15/30.25												
2.0	30.35/30.45												
2.5	30.55/30.65												
<p>F</p> <p>Snap fit (single contact ON OFF only)</p> 		<p>2 Pos F</p> 	 <table><tr><th>Panel thickness</th><th>Dim. Y</th></tr><tr><td>0.8-1.2</td><td>29.75/29.85</td></tr><tr><td>1.63</td><td>30.15/30.25</td></tr><tr><td>2.0</td><td>30.35/30.45</td></tr><tr><td>2.5</td><td>30.55/30.65</td></tr></table>	Panel thickness	Dim. Y	0.8-1.2	29.75/29.85	1.63	30.15/30.25	2.0	30.35/30.45	2.5	30.55/30.65
Panel thickness	Dim. Y												
0.8-1.2	29.75/29.85												
1.63	30.15/30.25												
2.0	30.35/30.45												
2.5	30.55/30.65												

Manufactured from quality moulding and metal components to ensure a secure and reliable connection, Bulgin's battery holder range caters for battery sizes AAA(R03), AA(R6), C(R14), D(R20) and PP3(6R61), accommodating 1, 2, 3 or 4 cells.



There's a choice of fixing styles including screw and flange panel fixing, PCB and base mounting versions.

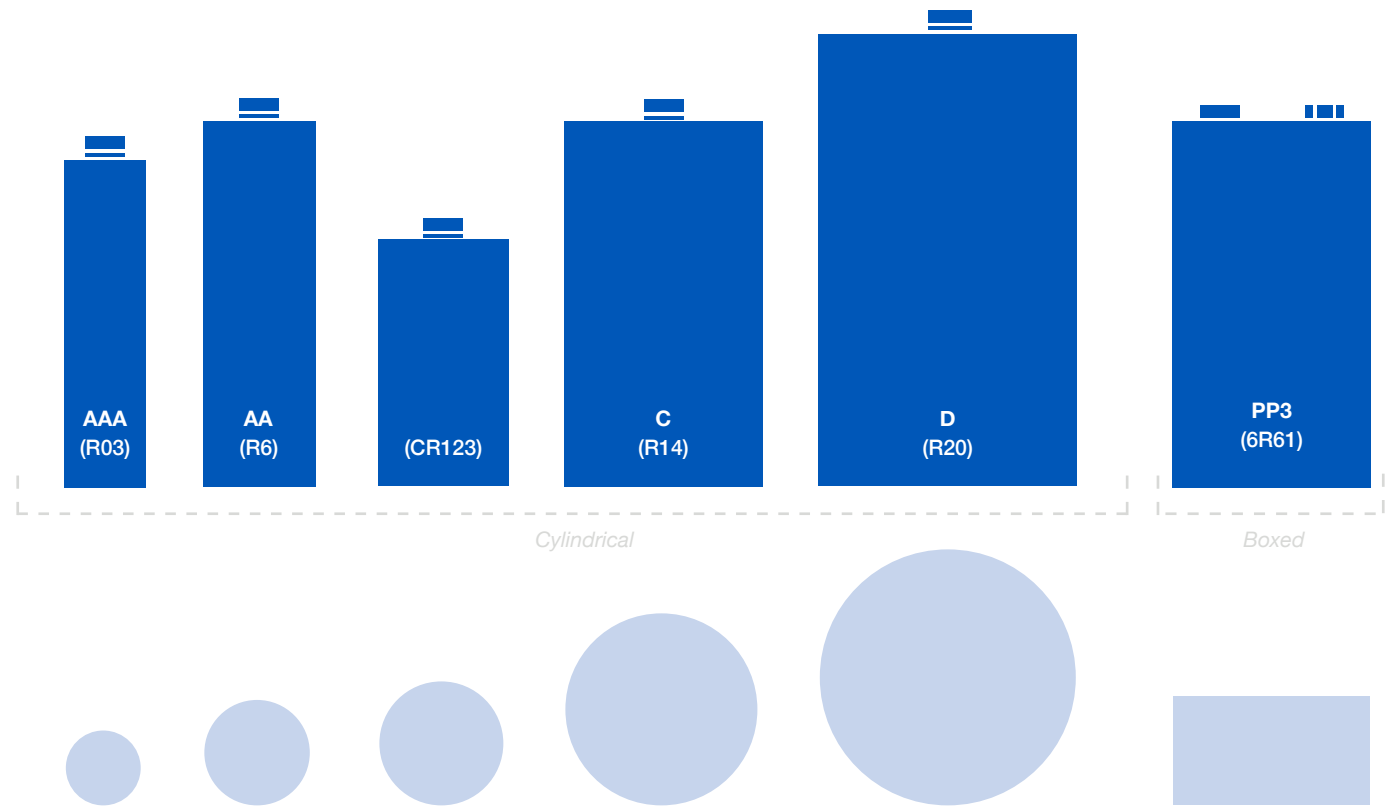
The panel mounting versions are now available in two styles; standard fixing and front panel sealed to IP67, extending the applications into harsher external environments where dust or water would inhibit equipment operation.

The open frame styles are designed to be either PCB or base mounted and most have an interlocking facility to join adjacent holders together.

Principle applications include portable equipment and memory back-up.

Front panel sealed to IP67	100
Panel Mounting	101
PCB/Base Mounting	103

Battery size	Battery Dimensions	No. of Cells	Mounting	Part No.
AAA (R03)	Ø10.5 x 44.5	1	PCB/Base	BX0034
AA (R6)	Ø14.5 x 50.5	1	PCB/Base	BX0035
		1	Panel	BX0011/1
		2	Panel	BX0012/1
		3	Panel	BX0013/1
		4	Panel	BX0027
		1	Panel Sealed	BXS011/1
		2	Panel Sealed Panel	BXS012/1
		3	Sealed	BXS013/1
CR123	Ø17.0 x 34.5	1	PCB/Base	BX0123
C (R14)	Ø26.2 x 50	1	PCB/Base	BX0036
		1	Panel	BX0001/1
		2	Panel	BX0002/1
		3	Panel	BX0003/1
		1	Panel Sealed	BXS001/1
		2	Panel Sealed	BXS002/1
		3	Panel Sealed	BXS003/1
D (R20)	Ø34.2 x 61.5	1	PCB/Base	BX0037
		1	Panel	BX0016
		2	Panel	BX0017
		3	Panel	BX0018
		1	Panel Sealed	BXS016
		2	Panel Sealed	BXS017
		3	Panel Sealed	BXS018
PP3 (6R61)	W26.5 x D17.5 x H48.5	1	PCB/Base	BX0033
		1	Panel	BX0023
		1	Panel	BX0023/GY
		2	Panel	BX0026



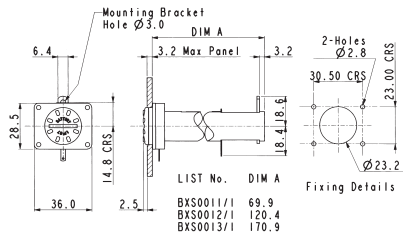
As batteries from different manufacturers may vary slightly in size, Dimensions & Drawings are approximate only.
All Bulgin Battery Holders have polarity clearly marked.

AA SIZE BATTERY HOLDER



BXS011/1

- 1, 2 or 3 Cells
- Flanged Panel Mount
- Bayonet with finger/coin slot release
- Supplied with gasket and sealing grommets for screws

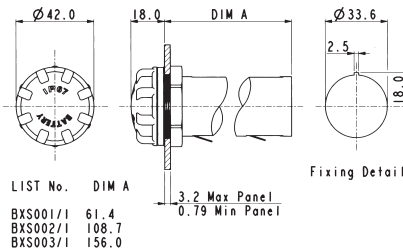


C SIZE BATTERY HOLDER



BXS001/1

- 1, 2 or 3 Cells
- Panel Mount
- Screw Cap/Hand release
- Supplied with gasket

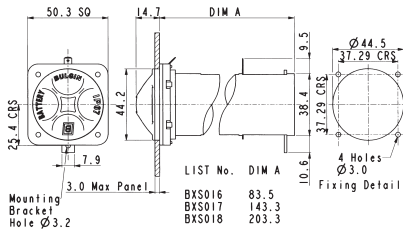


D SIZE BATTERY HOLDER



BXS016

- 1, 2 or 3 Cells
- Flanged Panel Mount
- Bayonet/finger release
- Supplied with flange gasket and sealing grommets for screws



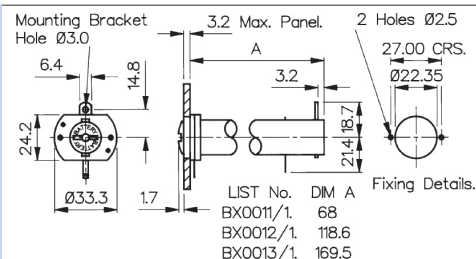
Specification	BXS011/1, BXS012/1, BXS013/1	BXS001/1, BXS002/1, BXS003/1	BXS016, BXS017, BXS018
Battery/Cell Type:	AA (R6)	C (R14)	D (R20)
No. Cells:	BXS011/1 - 1 cell BXS012/1 - 2 cells BXS013/1 - 3 cells	BXS001/1 - 1 cell BXS002/1 - 2 cells BXS003/1 - 3 cells	BXS016 - 1 cell BXS017 - 2 cells BXS018 - 3 cells
Terminations:	2.8 series tabs/solder tags	2.8 series tabs/solder tags	4.8 series tabs/solder tags
Operating Temperature:	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C
Mouldings:	Nylon Glass filled Polyester Polycarbonate	Nylon Glass filled Polyester	Nylon Glass filled Polyester
Flammability Rating:	UL94V-0	UL94V-0	UL94V-0
Contacts:	Brass, Tin Plated - rear contact Nickel Silver, clean - front contact and cap contact plate	Brass, Tin Plated - front and rear contacts Nickel Silver, clean - cap contact plate	Brass, Nickel Plated - front and rear contacts and cap contact plate
Features:	Bayonet cap with finger grip and coin slot Rear support bracket	Screw on cap with finger grip Recommended torque for panel ring 1.13-1.7Nm (10-15lbf.in)	Bayonet cap with finger grip Rear support bracket
Sealing (front of panel):	Protection classification IP67, EN60529:1992+A2:2013	Protection classification IP67, EN60529:1992+A2:2013	Protection classification IP67, EN60529:1992+A2:2013
Notes:	Recommend 2 & 3 cell versions are supported by rear bracket		Recommend 2 & 3 cell versions are supported by rear bracket
RoHS	Compliant	Compliant	Compliant
Dim A (depending on number of cells):	BXS011/1 = 69.9 BXS012/1 = 120.4 BXS013/1 = 170.9	BXS001/1 = 61.4 BXS002/1 = 108.7 BXS003/1 = 156.0	BXS016 = 83.5 BXS017 = 143.3 BXS018 = 203.3

AA SIZE BATTERY HOLDER

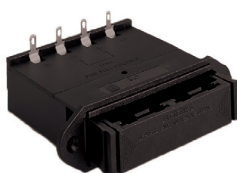


BX0011/1

- 1, 2 or 3 Cells
- Flanged Panel Mount
- Bayonet/Screwdriver release

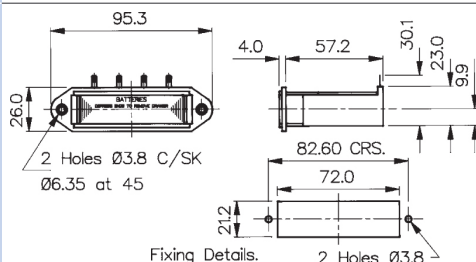


AA SIZE BATTERY HOLDER



BX0027

- 4 Cells
- Flanged Panel Mount
- Drawer function

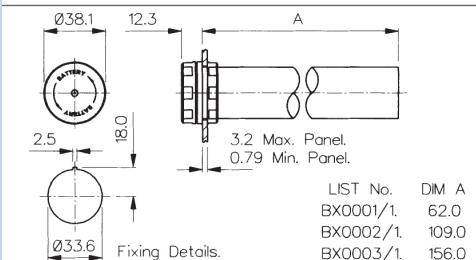


C SIZE BATTERY HOLDER



BX0001/1

- 1, 2 or 3 Cells
- Panel Mount
- Screw Cap/Hand release



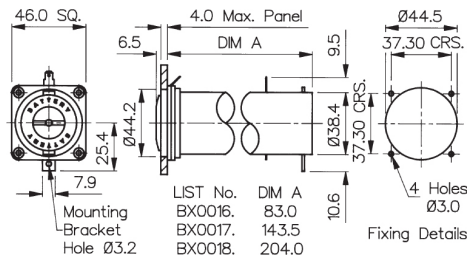
Specification	BX0011/1, BX0012/1, BX0013/1	BX0027	BX0001/1, BX0002/1, BX0003/1
Battery/Cell Type:	AA (R6)	AA (R6)	C (R14)
No. Cells:	BX0011/1 - 1 cell BX0012/1 - 2 cells BX0013/1 - 3 cells	4 cells	BX0001/1 - 1 cell BX0002/1 - 2 cells BX0003/1 - 3 cells
Terminations:	2.8 series tabs/solder tags	4 solder tags (can be wired in series or in pairs)	2.8 series tabs/solder tags
Operating Temperature:	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C
Flammability Rating:	UL94V-0	UL94HB	UL94V-0 (Cap = UL94HB)
Mouldings:	Glass Filled Nylon & Polyester	Glass Filled Nylon	Nylon & Glass Filled Nylon
Contacts:	Brass, Tin Plated Nickel Silver, clean	Phosphor Bronze, Tin Plated Nickel Silver, clean	Nickel Silver, clean Brass, Tin Plated
Features:	Bayonet cap with coin slot Rear support bracket	Removable loading/latching drawer	Screw on cap. Recommended torque for panel ring 1.13-1.7Nm (10-15lbf.in)
Notes:	Recommend 2 & 3 cell versions are supported by rear bracket		
RoHS	Compliant	Compliant	Compliant
Dim A (depending on number of cells):	BX0011/1 = 68 BX0012/1 = 118.6 BX0013/1 = 169.5		BX0001/1 = 62.0 BX0002/1 = 109.0 BX0003/1 = 156.0

D SIZE BATTERY HOLDER



BX0016

- 1, 2 or 3 Cells
- Flanged Panel Mount
- Bayonet/Screwdriver release

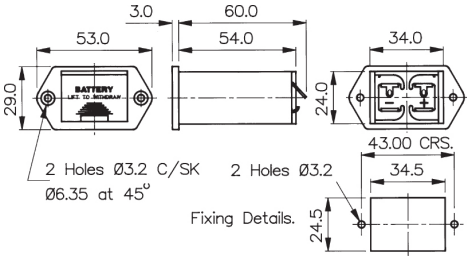


PP3 SIZE BATTERY HOLDER



BX0023
BX0023/GY

- 1 Cell
- Flanged Panel Mount
- Drawer function
- Grey version available (BX0023/GY)

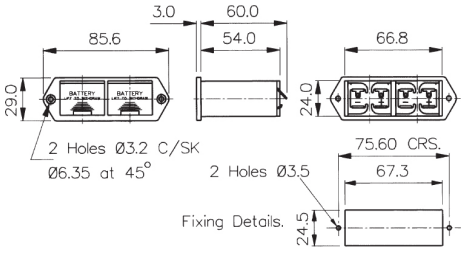


PP3 SIZE BATTERY HOLDER



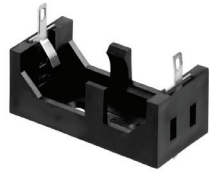
BX0026

- 2 Cell
- Panel Mount
- Screw Cap/Hand release



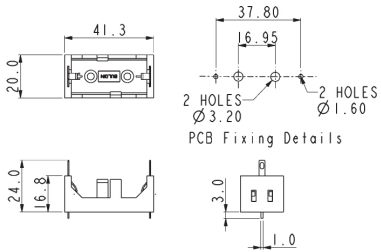
Specification	BX0016, BX0017, BX0018	BX0023, BX0023/GY	BX0026
Battery/Cell Type:	D (R20)	PP3 (6R61)	PP3 (6R61)
No. Cells:	BX0016 -1 cell BX0017 - 2 cells BX0018 - 3 cells	BX0023 - 1 cell BX0023/GY - 1 cell (grey version)	2 cells
Terminations:	4.8 series tabs/solder tags	Solder tag	Solder tags
Operating Temperature:	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C
Flammability Rating:	UL94V-0 (Cap = UL94HB)	UL94HB	UL94HB
Mouldings:	Nylon & Polycarbonate	Glass Filled Nylon	Glass Filled Nylon
Contacts:	Brass, Nickel Plated	Phosphor Bronze, Tin Plated	Phosphor Bronze, Tin Plated
Features:	Bayonet cap with coin slot Rear support bracket	Removable loading drawer	Removable loading drawer
Notes:	Recommend 2 & 3 cell versions are supported by rear bracket		
RoHS	Compliant	Compliant	Compliant
Dim A (depending on number of cells):	BX0016 = 83.0 BX0017 = 143.5 BX0018 = 204.0		

CR123 SIZE BATTERY HOLDER



BX0123

- 1 Cell
- PCB/Base Mount
- Open style

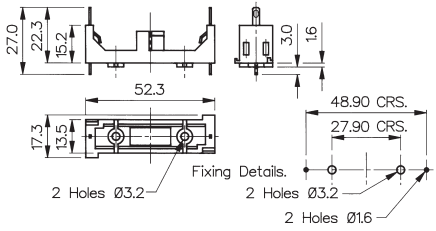


AAA SIZE BATTERY HOLDER

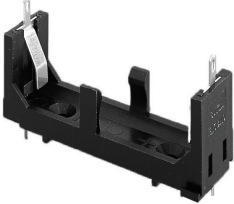


BX0034

- 1 Cell
- PCB/Base Mount
- Open style

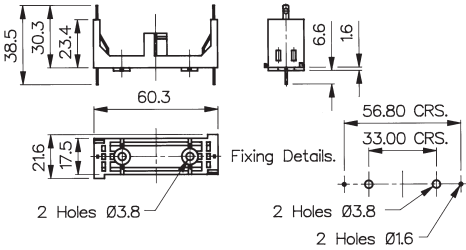


AA SIZE BATTERY HOLDER



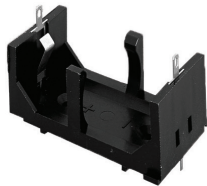
BX0035

- 1 Cell
- PCB/Base Mount
- Open style



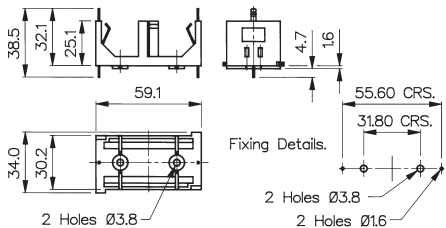
Specification	BX0123	BX0034	BX0035
Battery/Cell Type:	CR123	AAA (R03)	AA (R6)
No. Cells:	1 cell	1 cell	1 cell
Terminations:	Dual connections, PCB spills & 2.8 series tabs/solder tags. (PCB spills may be removed if required)	Dual connections, PCB spills & 2.8 series tabs/solder tags. (PCB spills may be removed if required)	Dual connections, PCB spills & 2.8 series tabs/solder tags. (PCB spills may be removed if required)
Operating Temperature:	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C
Flammability Rating:	UL94HB	UL94HB	UL94HB
Mouldings:	Glass Filled Nylon	Glass Filled Nylon	Nylon & Glass Filled Nylon
Contacts:	Nickel Silver, clean	Nickel Silver, clean	Nickel Silver, clean
Features:		Interlocking for multiple assemblies	Interlocking for multiple assemblies
RoHS	Compliant	Compliant	Compliant

C SIZE BATTERY HOLDER



BX0036

- 1 Cell
- PCB/Base Mount
- Open style

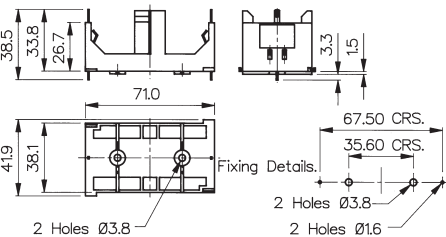


D SIZE BATTERY HOLDER



BX0037

- 1 Cell
- PCB/Base Mount
- Open style

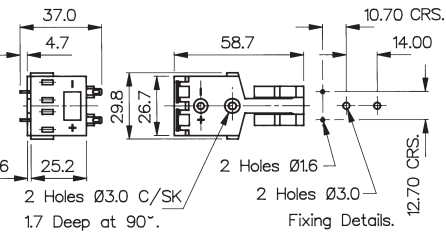


PP3 SIZE BATTERY HOLDER



BX0033

- 1 Cell
- PCB/Base Mount
- Open style



Specification

BX0036

BX0037

BX0033

Battery/Cell Type:

C (R14)

D (R20)

PP3 (6R61)

No. Cells:

1 cell

1 cell

1 cell

Terminations:

Dual connections, PCB spills & 2.8 series tabs/solder tags. (PCB spills may be removed if required)

Dual connections, PCB spills & 2.8 series tabs/solder tags. (PCB spills may be removed if required)

Dual connections, PCB spills & 2.8 series tabs/solder tags. (PCB spills may be removed if required)

Operating Temperature:

-30°C to +70°C

-30°C to +70°C

-30°C to +70°C

Flammability Rating:

UL94HB

UL94HB

UL94V-2

Mouldings:

Glass Filled Nylon

Glass Filled Nylon

Nylon & Glass Filled Nylon

Contacts:

Nickel Silver, clean

Nickel Silver, clean

Nickel Silver, clean

Features:

Interlocking for multiple assemblies

Interlocking for multiple assemblies

Interlocking for multiple assemblies

RoHS

Compliant

Compliant

Compliant