



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.



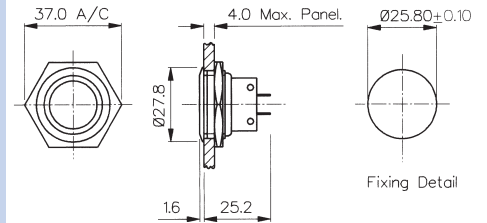
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Front Panel Mounting



MP0027

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

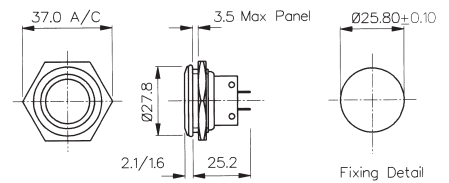


Front Panel Mounting



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

Stainless Steel Low Profile Vandal Resistant

Momentary

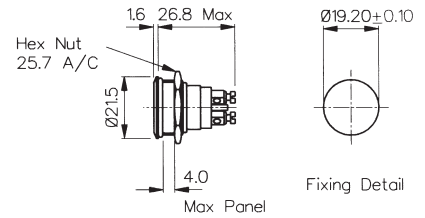


Front Panel Mounting



MP0037
Sealed to IP68

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

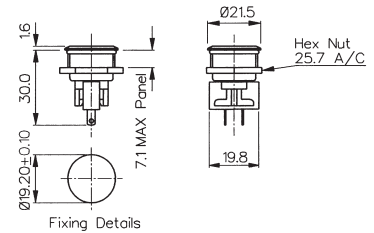


Front Panel Mounting



MP0031
Sealed to IP66

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



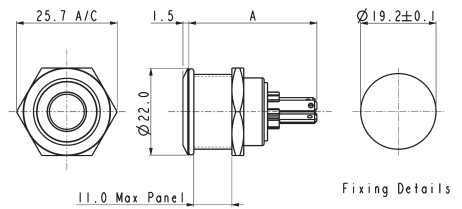
Specifications	MP0037	MP0031
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>1.0kVac	>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



MPI001/TAG/COL A = 32.7
 MPI001/TERM/COL A = 31.0 MAX.

Specifications **MPI001/Termination/Colour/Voltage**

<p>Illumination style: Dot</p> <p>Terminations: /28 (2.8mm tabs), /TERM or /TE (screw terminals)</p> <p>Switching: Single Contact, push to make, tactile (momentary action)</p> <p>Max. Switch Rating: 50mA, 24Vdc</p> <p>LEDs (ratings @ 20mA)</p> <table border="0"> <tr> <td>Part No.</td> <td>/RD</td> <td>/GN</td> <td>/AM</td> <td>/BL</td> <td>/WH</td> <td>/D1</td> <td>/D4</td> <td>/D5</td> </tr> <tr> <td>Colours</td> <td>Red</td> <td>Green</td> <td>Amber</td> <td>Blue</td> <td>White</td> <td>Red/Green</td> <td>Red/Blue</td> <td>Green/Blue</td> </tr> <tr> <td>Luminous Intensity</td> <td>900mcd</td> <td>2500mcd</td> <td>900mcd</td> <td>1500mcd</td> <td>900mcd</td> <td>2500mcd/5000mcd</td> <td>2000mcd/850mcd</td> <td>4000mcd/2000mcd</td> </tr> <tr> <td>Forward Voltage</td> <td>1.85V</td> <td>3.5V</td> <td>2.3V</td> <td>3.5V</td> <td>3.6V</td> <td>2.05V/3.6V</td> <td>2.0V/3.6V</td> <td>3.6V/3.6V</td> </tr> <tr> <td>Forward Current</td> <td>20mA</td> <td>20mA</td> <td>20mA</td> <td>20mA</td> <td>20mA</td> <td>20mA</td> <td>20mA</td> <td>20mA</td> </tr> <tr> <td>Moulding Colour</td> <td>Red</td> <td>Green</td> <td>Amber</td> <td>Blue</td> <td>White</td> <td>Black</td> <td>Black</td> <td>Black</td> </tr> </table> <p>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</p> <p>Contact Resistance: <100mΩ Insulation Resistance: >10³ MΩ Dielectric Strength: Contact to Panel >2.0kV Contact to Contact 1500</p> <p>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)</p> <p>Operations Mechanical: 750,000 (min) Electrical: 35,000 (min)</p> <p>Operating Pressure: 12N Rear Nut Fixing Torque: 0.57Nm</p> <p>Screw Terminal Torque 0.2Nm Max</p> <p>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</p>	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	<p>Dual Colour LED Configuration</p>
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																																															



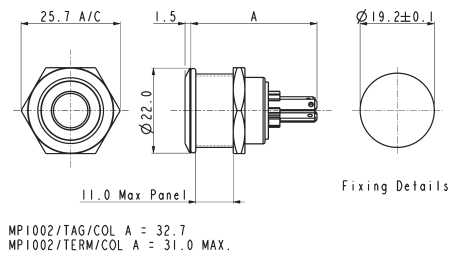
Compliant

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: >10³ 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

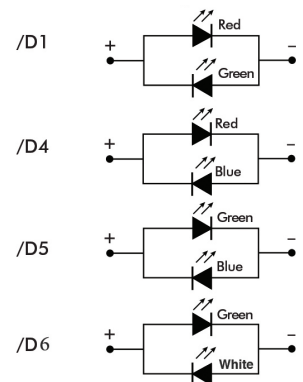
Materials

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



Switches Stainless Steel Illuminated Vandal Resistant

Rear of panel IP66 seal

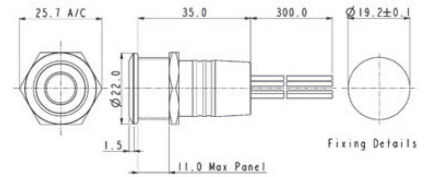


Rear Panel Sealed - Flying Leads



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



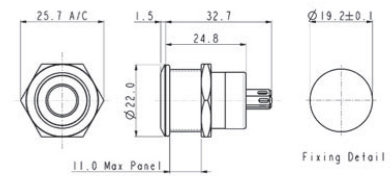
Flying lead colours: LED: red + and black -. Switch contacts: white.

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: Terminations: Switching: Max. Switch Rating: LEDs (ratings @ 20mA) Part No. Colours Luminous Intensity Forward Voltage Forward Current Moulding Colour	Dot /FL (Flying leads) /RP (Solder tags) Single Contact, push to make, tactile (momentary action) 50mA, 24Vdc /RD /GN /AM /BL /WH Red Green Amber Blue White 900mcd 2500mcd 900mcd 1500mcd 900mcd 1.85V 3.5V 2.3V 3.5V 3.6V 20mA 20mA 20mA 20mA 20mA Red Green Amber Blue White	Ring /FL (Flying leads) /RP (Solder tags) Single Contact, push to make, tactile (momentary action) 50mA, 24Vdc /RD /GN /AM /BL /WH Red Green Amber Blue White 900mcd 2500mcd 900mcd 1500mcd 900mcd 1.85V 3.5V 2.3V 3.5V 3.6V 20mA 20mA 20mA 20mA 20mA Red Green Amber Blue White
Illumination Voltage: Contact Resistance: Insulation Resistance: Dielectric Strength:	/no suffix No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above. /6 6Vdc /12 12Vdc /24 24Vdc <100mΩ >10 ⁹ MΩ Contact to Panel >2.0kV Contact to Contact 1500	/no suffix No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above. /6 6Vdc /12 12Vdc /24 24Vdc <100mΩ >10 ⁹ MΩ Contact to Panel >2.0kV Contact to Contact 1500
Operating Temp. Range: Sealing (Front of panel only): Operations Mechanical: Electrical:	-30°C to +70°C Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed) 750,000 (min) 35,000 (min)	-30°C to +70°C Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed) 750,000 (min) 35,000 (min)
Operating Pressure: Rear Nut Fixing Torque: Materials Switch assembly: Tags: Terminals: Switch Body & Button: Lens and Lens Body: O ring: Internal seal: Contact Plate: Thread size:	12N 0.57Nm UL94V-0 rated Polyamide (Nylon) Copper Alloy Copper Alloy Stainless Steel Polycarbonate Nitrile Silicone Gold Plated 18.97mm x 26TPI	12N 0.57Nm UL94V-0 rated Polyamide (Nylon) Copper Alloy Copper Alloy Stainless Steel Polycarbonate Nitrile Silicone Gold Plated 18.97mm x 26TPI
	Compliant	Compliant

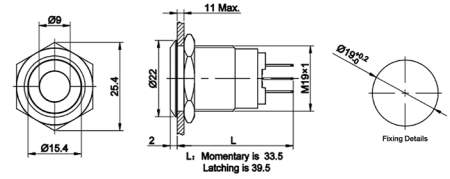


Low Profile

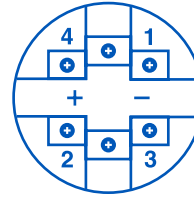


MPI005

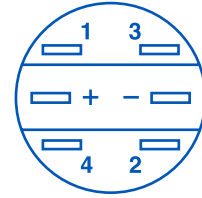
- 22mm bezel diameter
- 19.2mm ± 0.2mm fixing hole diameter
- S.P.C.O



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		Voltage
19mm Metal		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		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:

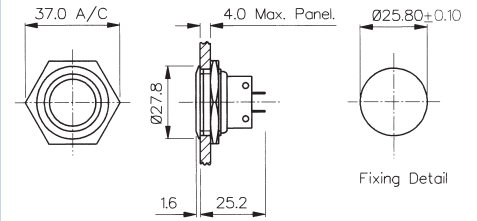
Power Symbol / Ring not available in black anodized aluminum

Front Panel Mounting



MPB038
Sealed to IP66

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

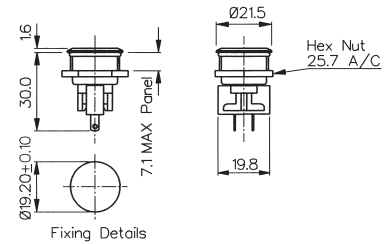


Front Panel Mounting

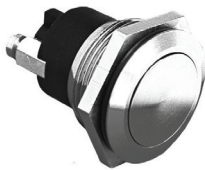


MPB031
Sealed to IP66

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

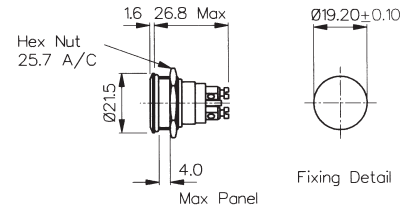


Front Panel Mounting



MPB037
Sealed to IP68

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



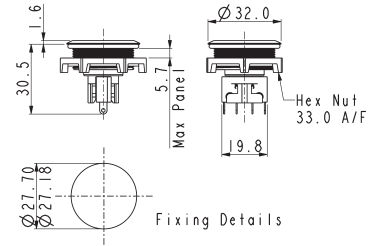
Specifications	MPB038	MPB031	MPB037
Terminations:	Solder Tags	Solder Tags	Screw Terminals
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)	S.P. Push to make Momentary action
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc	1A, 50Vac/dc
Contact Resistance:	<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

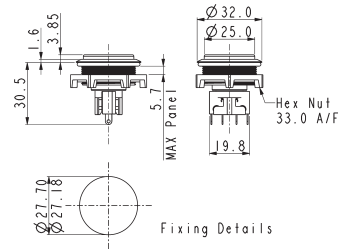


Front Panel Mounting - Protruding Profile



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

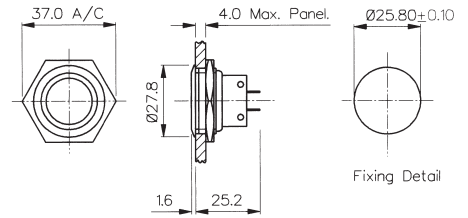


Front Panel Mounting



MP0027/3

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

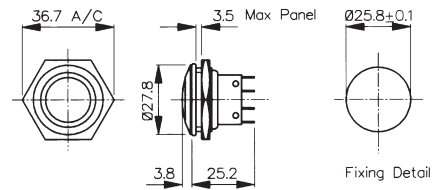


Front Panel Mounting



MP0038/3
 Sealed to IP66

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



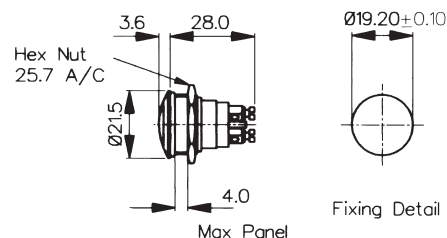
Specifications	MP0027/3	MP0038/3
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric 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

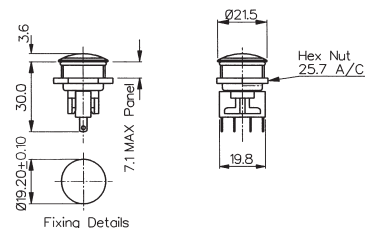


Front Panel Mounting



MP0031/3
Sealed to IP66

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



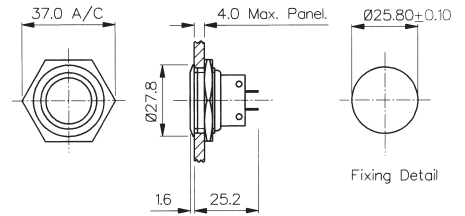
Specifications	MP0037/3	MP0031/3
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>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:	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

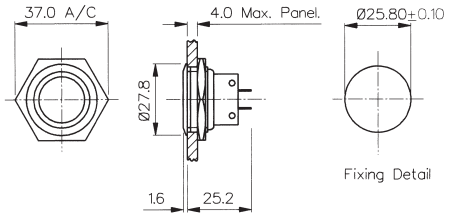


Front Panel Mounting



MP0038/2
Sealed to IP66

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



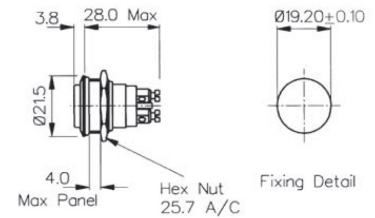
Specifications	MP0027/2	MP0038/2
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric 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

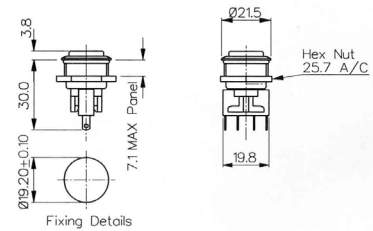


Front Panel Mounting




MP0031/2
Sealed to IP66

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



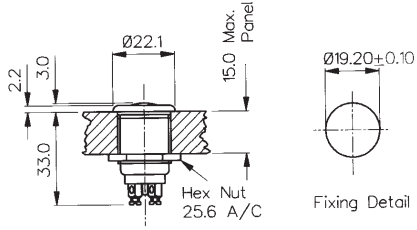
Specifications	MP0037/2	MP0031/2
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Slow momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>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

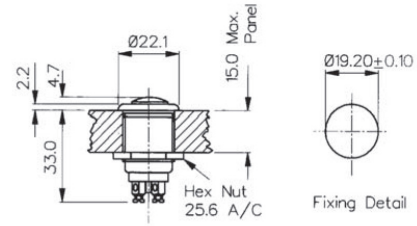


Front Panel Mounting



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



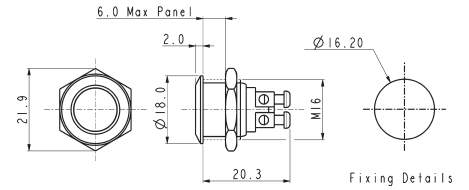
Specifications	MP0013, MP0033	MP0013/2, MP0033/2
Terminations:	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make Slow momentary action	S.P. Push to make Slow momentary action
Max. Rating:	1A, 50Vac/dc	1A, 50Vac/dc
Contact Resistance:	<15mΩ	<15mΩ
Insulation Resistance:	>10 ⁴ MΩ	>10 ⁴ MΩ
Dielectric 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

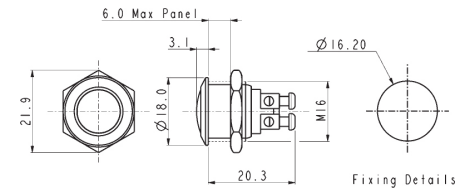


Domed Profile



MP0042/2

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

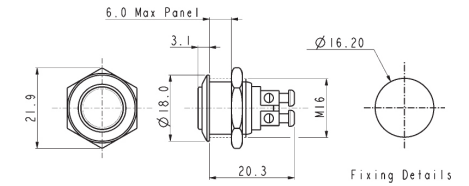


Prominent Button



MP0042/3

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



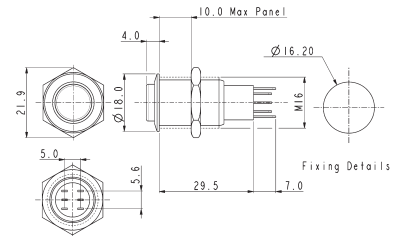
Specifications	MP0042/1	MP0042/2	MP0042/3
Terminations:	Screw Terminals	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make	S.P. Push to make	S.P. Push to make
Max. Rating:	2A, 36Vdc	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	50mΩ at 1A, 2V	50mΩ at 1A, 2V	50mΩ at 1A, 2V
Insulation Resistance:	>10 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

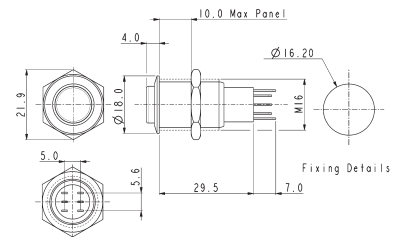


Prominent Button



MP0045/3D

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

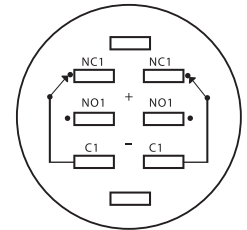


Specifications

MP0045/1D0NN000/Sealing

MP0045/3D0NN000/Sealing

Terminations:	Solder tags	Solder tags
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. Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc
Contact Resistance:	50mΩ max. @ 1A, 2V	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc
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/Terminations:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Silver	Silver
Variants:	Nickel Plated Brass version available Details on request	Nickel Plated Brass version available Details on request
RoHS	Compliant	Compliant



Contact Layout

Soldering Instructions:

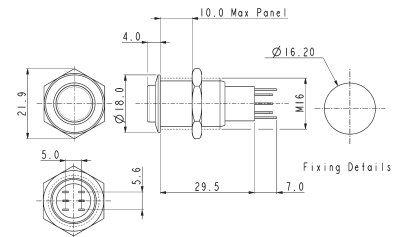
- Soldering time less than 3 seconds
- Do not push on the terminals
- Recommended cuspidal soldering iron. Temperature around 280°C

Low Profile



MP0045/1E

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

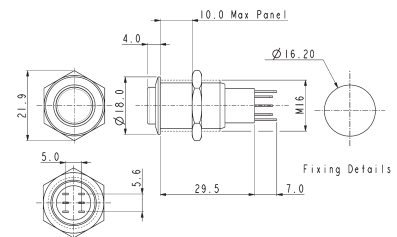


Prominent Button



MP0045/3E

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

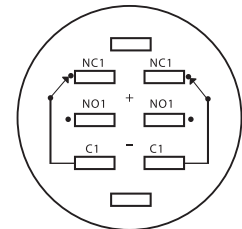


Specifications

MP0045/1E0NN000/Sealing

MP0045/3E0NN000/Sealing

Terminations:	Solder Tags	Solder Tags
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. Rating:	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc	1A, 110Vac & 0.5A, 220Vac 1A, 12Vdc & 1A, 24Vdc
Contact Resistance:	50mΩ max. @ 1A, 2V	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc
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/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel (Polished)	Stainless Steel (Polished)
Contacts:	Silver	Silver
Thread size:	Nickel Plated Brass version Details on request	Nickel Plated Brass version 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 Momentary

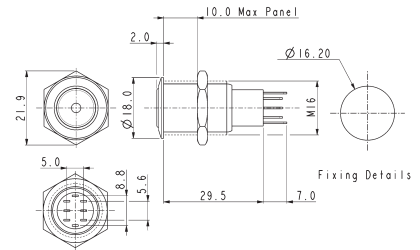


Front Panel Mounting



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

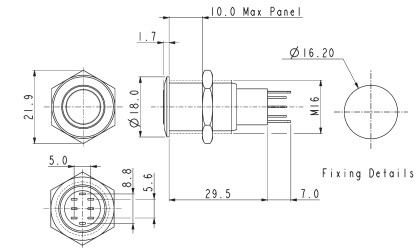


Front Panel Mounting



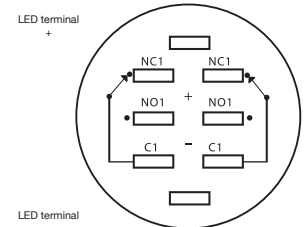
MP0045/1D2

- 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

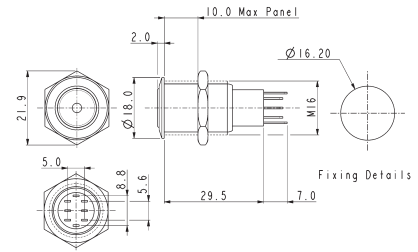


Front Panel Mounting



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

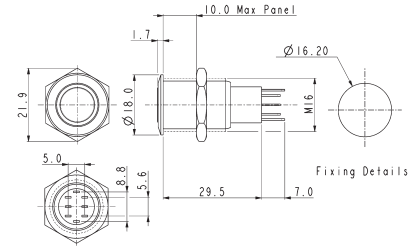


Front Panel Mounting



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

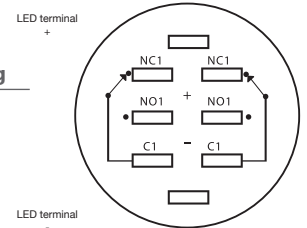


Specifications

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 ⁹ MΩ @ 500Vac	>10 ⁹ 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.

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

☑ 16(4)A 250Vac T85, 1E4 (10,000 Operations)
 12(12)A 250Vac T105, 1E4 (10,000 Operations)
 8(8)A 250Vac T105, 5E4 (50,000 Operations)
 6(6)A 250Vac T125, 5E4 (50,000 Operations)

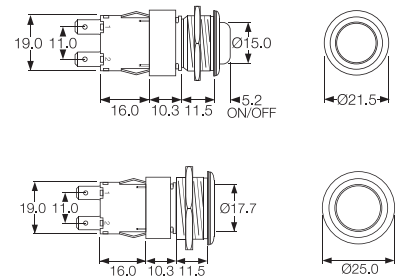
☑ 12A 250Vac DP, 13A 250Vac SP
 250Vac 1hp, 125Vac 1/2hp
 UL 85°C, file E45221, CSA file LR10990

In house test:
 10(10)A 250Vac—Indicative rating only

3mm contact gap.

Dimensions

8300RP (H terminals shown)



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

Switches
0911 Vandal Resistant Switches

Designed to IP66



C0911VA - - -

Key Features

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

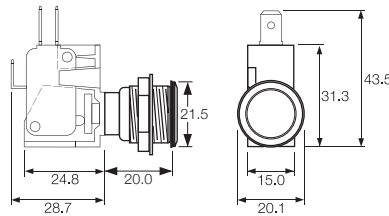
Approvals and specifications

- ⚡ 16(4)A 250Vac 5E4 T85
- ⚡ 16A 125/250Vac 3/4hp T85 50E3
 125V 1/2 HP, 250V 3/4 HP, 0.4A 125Vdc, 0.2A 250Vdc

Approvals apply to switch mechanism only.
 μ contact gap.

Dimensions

C0911VA



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

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

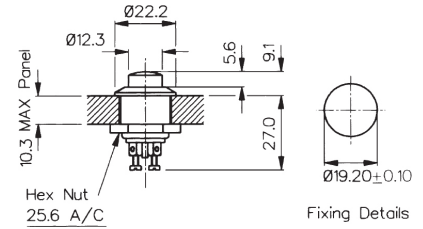


Front Panel Mounting



MP0012/Col

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

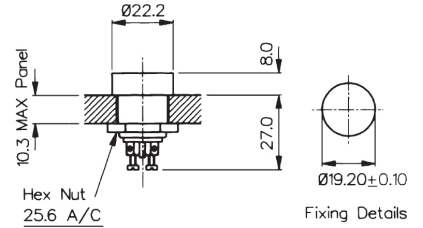


Front Panel Mounting



MP0012/1/Col

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

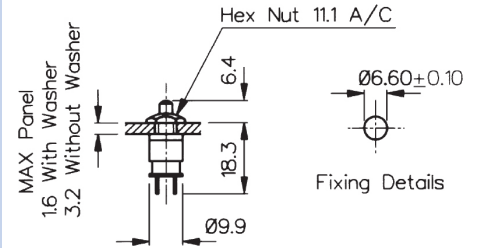


Rear Panel Mounting



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:	<15mΩ	<15mΩ	<15mΩ
Insulation Resistance:	>10 ⁴ MΩ	>10 ⁴ MΩ	>10 ⁴ MΩ
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

16(4)A 250Vac T85, 1E4 (10,000 Operations)
 12(12)A 250Vac T105, 1E4 (10,000 Operations)
 8(8)A 250Vac T105, 5E4 (50,000 Operations)
 6(6)A 250Vac T125, 5E4 (50,000 Operations)

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

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

UL 85°C, file E45221, CSA file LR10990

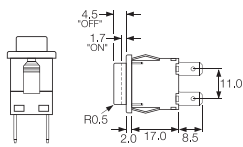
In house test:
 10(10)A 250Vac—Indicative rating only

3mm contact gap.

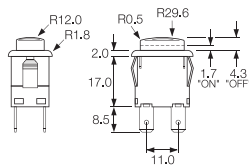
Terminal	Function	Actuator	Body Code	Body Colour
<p>C</p>	<p>1 2 3 4</p> <p>Approvals & ratings vary with function Single Contact switches use terminals 1 & 2 (& 3)</p> <p>8300 Single Contact ON - OFF</p>	<p>A Standard actuator</p>	<p>Panel cut-out ** Bezel</p> <p>B Standard body</p>	<p>B Black</p>
<p>H</p>	<p>8301 Single Contact ON - OFF (momentary ON)</p>	<p>H Slotted for custom caps</p>	<p>E Softline style body with radiused bezel</p> <p>Cut-outs must be punched in the direction of insertion</p>	<p>W White</p>
<p>A</p> <p>As "H" but right angle 4.8 x 0.8</p>	<p>8303 Single Contact ON - OFF With Light</p>	<p>Slots for snap-in buttons</p> <p>C Square actuator</p>	<p>F Small round actuator</p>	<p>D Large round actuator</p>
<p>K</p>	<p>8304 Single Contact ON - OFF (momentary ON) with light</p>	<p>E Radiused actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>
<p>T</p> <p>Solder</p>	<p>8350 Double Contact ON - OFF</p>	<p>F Small round actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>
<p>X</p>	<p>8351 Double Contact ON - OFF (momentary ON)</p>	<p>F Small round actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>
<p>V</p> <p>Dual Plug PCB (Call sales for mounting dims)</p>	<p>8353 Double Contact ON - OFF With light</p>	<p>F Small round actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>
<p>X</p>	<p>8354 Double Contact ON - OFF (momentary ON) with light</p>	<p>F Small round actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>
<p>X</p>	<p>8355 Single Contact ON - OFF Isolated light - switched C, E & M actuators only</p>	<p>F Small round actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>
<p>X</p>	<p>8356 Single Contact ON - OFF Isolated light - unswitched C, E & M actuators only</p>	<p>F Small round actuator</p>	<p>J Smooth curved actuator</p>	<p>M</p>

Dimensions

Actuator A
Body B



Actuator J
Body E



Examples



H8350AB ---
T8350AB ---




H8353JE ---
T8353JE ---



H8353EB ---
T8353EB ---

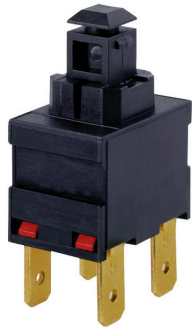


H8353CB ---
T8353CB ---

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

- ⚡ 16(4)A 250Vac T85, 1E4 (10,000 Operations)
- 12(12)A 250Vac T105, 1E4 (10,000 Operations)
- 8(8)A 250Vac T105, 5E4 (50,000 Operations)
- 6(6)A 250Vac T125, 5E4 (50,000 Operations)

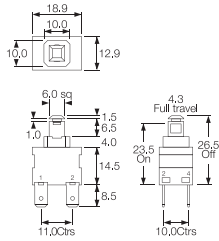
12A 250Vac
250Vac 1hp, 125Vac 1/2hp
UL 85°C, file E45221, CSA file LR10990

3mm contact gap.

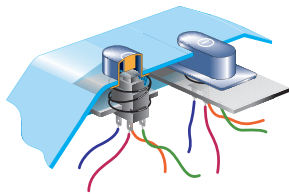
Terminal	Function	Actuator	Body Code
<p>C</p> <p>6.3 x 0.8 10.1</p>	<p>1 2 3 4</p> <p>Approvals & ratings vary with function Single Contact switches use terminals 1 & 2 (& 3)</p> <p>8200 Single Contact ON - OFF</p>	<p>A Standard actuator for snap-on custom adaptors</p> <p>8.0</p> <p>B Flat top actuator</p> <p>5.5</p> <p>C Curved top actuator</p> <p>8.0</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>4.8 x 0.8 8.5</p> <p>A</p> <p>7.6 As "H" but right angle 4.8 x 0.8</p>	<p>8201 Single Contact ON - OFF (momentary ON)</p>	<p>A Standard actuator for snap-on custom adaptors</p> <p>8.0</p> <p>B Flat top actuator</p> <p>5.5</p> <p>C Curved top actuator</p> <p>8.0</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>K</p> <p>2.8 x 0.8 8.5 2.6 1.5</p>	<p>8250 Double Contact ON - OFF</p>	<p>A Standard actuator for snap-on custom adaptors</p> <p>8.0</p> <p>B Flat top actuator</p> <p>5.5</p> <p>C Curved top actuator</p> <p>8.0</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>T</p> <p>2.6 1.5 7.0</p> <p>Solder</p> <p>V</p> <p>3.7 Ctrs 4.3</p> <p>Dual Plug PCB (Call sales for mounting dims)</p>	<p>8251 Double Contact ON - OFF (momentary ON)</p>	<p>A Standard actuator for snap-on custom adaptors</p> <p>8.0</p> <p>B Flat top actuator</p> <p>5.5</p> <p>C Curved top actuator</p> <p>8.0</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>X</p> <p>PCB 0.8 Sq 7.0</p>	<p>8251 Double Contact ON - OFF (momentary ON)</p>	<p>A Standard actuator for snap-on custom adaptors</p> <p>8.0</p> <p>B Flat top actuator</p> <p>5.5</p> <p>C Curved top actuator</p> <p>8.0</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>

Dimensions

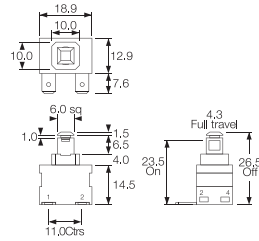
'A' body with 'H' 4.8 terminals



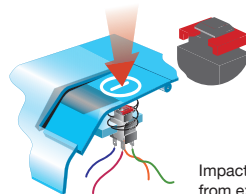
Example of possible mounting styles



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

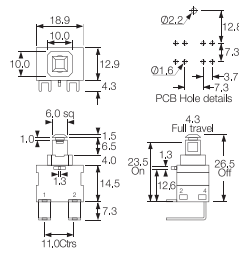


Alternative Actuator



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








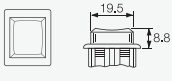

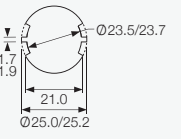
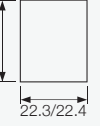


Key Features

- 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

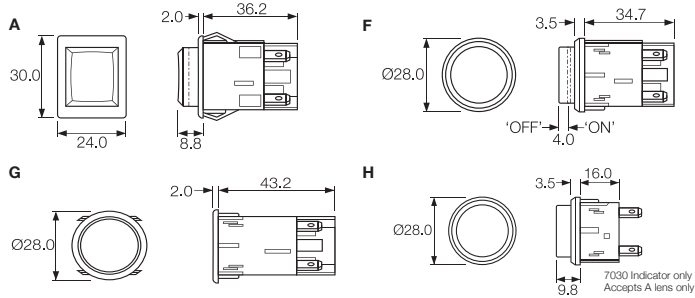
Approvals and specifications

- ⚡ 16(4)A 250Vac T85/55
8(8)A 250Vac T85/55
- UL CSA 16A Non Ind, 250Vac 1hp, 125Vac 1/2hp
UL 65°C, file no. E45221, CSA file no. LR10990
- 3mm contact gap.

Terminal	Function	Actuator	Body Code
<p>C</p>  <p>6.3 x 0.8</p> <p>H</p>  <p>4.8 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</p> <p>Body types fit either cut-out</p>  <p>25.0/25.2</p>  <p>23.5/23.7 1.7 1.9</p> <p>21.0</p> <p>25.0/25.2</p> <p>A</p>  <p>27.2 27.3</p> <p>22.3/22.4</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



C7000AF ---



C7003AF ---



C7050SA ---



C7053AG ---

Body Colour	Actuator Colour	Lamp Voltage	Legend	Legend Colour	Options
	LIT				<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>
B Black	A Amber	— None			
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

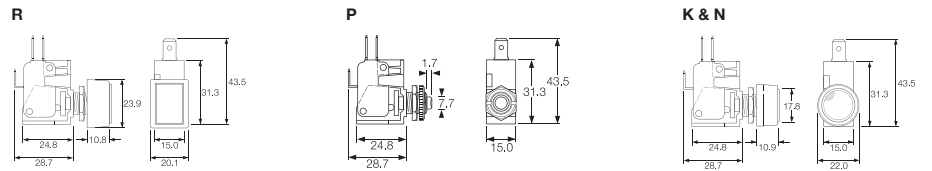
- Snap action switches
- Ratings up to 16A, 250Vac
- Round and rectangular buttons

Approvals and specifications

- ⚡ 16(4)A 250Vac 5E4 T85
- ⚡ 16A 125/250Vac 3/4hp T85 50E3
125V 1/2 HP, 250V 3/4 HP, 0.4A 125Vdc, 0.2A 250Vdc

Approvals apply to switch mechanism only.
μ contact gap.

Dimensions



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



Key Features

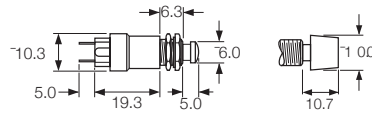
- Self wiping contacts
- Slow make & break
- Momentary action
- Choice of switch circuits
- Choice of actuators

Approvals and specifications

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

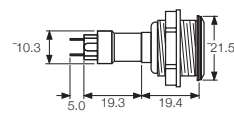
Dimensions

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

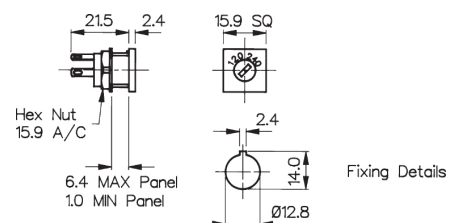
Terminal	Function	Actuator	Body Code	Options
<p>T</p>	<p>0916</p> <p>Black base SP ON - OFF (momentary)</p>	<p>S Small Actuator</p>	<p>7.1</p>	<p>Finish</p> <p>Gloss finish for L and S actuators.</p> <p>Colour</p> <p>Call sales for custom colours. A full range is available for large orders.</p>
	<p>0917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

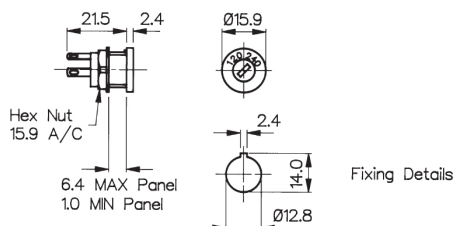


120/140V Voltage Selector

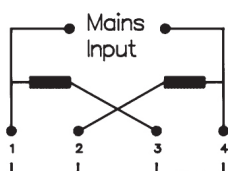


VS0002

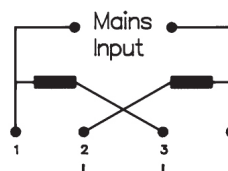
- 2.8 series tabs/Solder tags
- Round Front Bezel
- 6.3A



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.



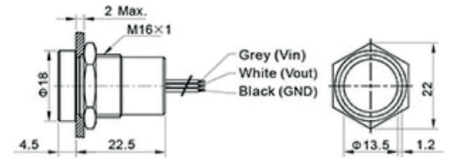
- ⊕ Sealed to IP68 and IP69K
- ⊕ Momentary or latching functions
- ⊕ Large or thin ring illumination options
- ⊕ Long life operation – 50 million of cycles
- ⊕ 16, 19, 22 or 25mm diameter options
- ⊕ Easy to use and clean
- ⊕ Extremely robust and durable – IK10 rated
- ⊕ No operating force required – 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

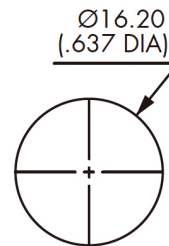


Specification

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



Panel cutout: Ø16.20 (.637 DIA)

Environmental Specification

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

Circuit Specification

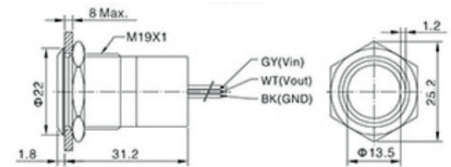
See wiring diagrams on page 41

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

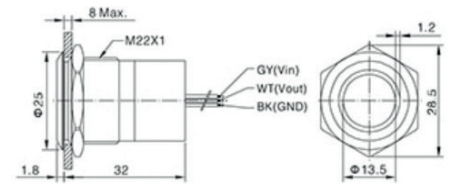
See wiring diagrams on page 41

22mm Illuminated



MC22

- ⬡ Illuminated
- ⬡ 300 mm lead

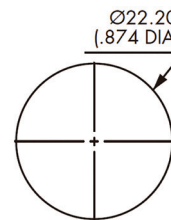


Specification

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: Ø22.20 (.874 DIA)

Environmental Specification

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

Circuit Specification

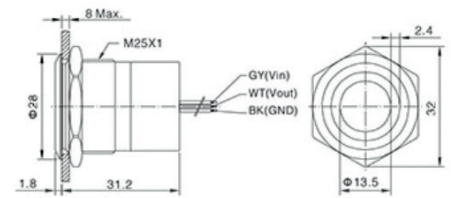
See wiring diagrams on page 41

25mm Illuminated



MC25

- ⬡ Illuminated
- ⬡ 300 mm lead

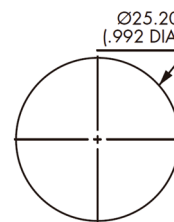


Specification

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: $\varnothing 25.20$ (.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 41

Part No System

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

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 LED	
	Output Indicator	Output Indicator	Output Indicator	
OFF-ON (momentary) Normally Open				Grey Vin Black black GND White Vout Wire colours may vary. Always refer to the label on the switch.
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.



Piezo Switches
16mm Stainless Steel

Non Illuminated

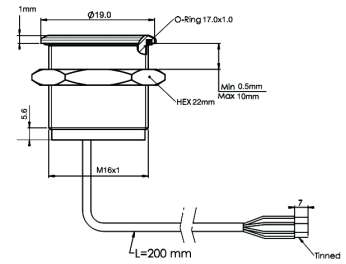


16MM Stainless Steel Non Illuminated



MPZ016

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



Specification

MPZ016

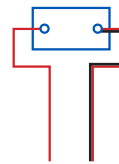
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
Actuating force,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

Environmental Specification

Sealing	IP68; IP69K
Operating temperature	-40°C to +85°C
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

Piezo Switches
19mm Stainless Steel

Illuminated and Non Illuminated

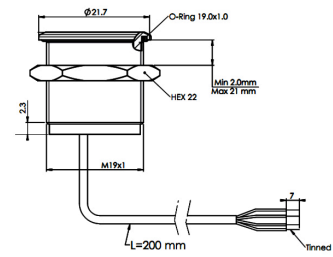


19MM Stainless Steel Illuminated

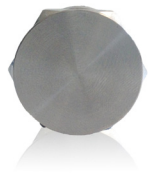


MPZI019

- Blue Illumination
- 20 cm lead
- Flathead

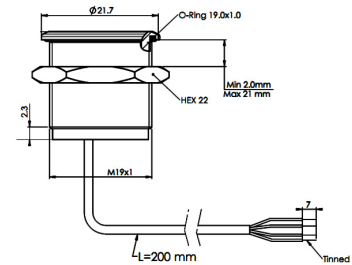


19MM Stainless Steel Non Illuminated



MPZ019

- Non Illumination
- 20 cm lead
- Flathead



Specification

MPZ019, MPZI019

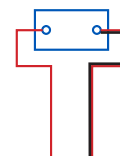
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
LED Illumination	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

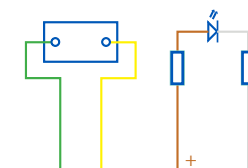
Circuit Specification

19MM Stainless Steel Non Illuminated



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

19MM Stainless Steel Illuminated

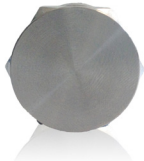




Switch voltage 24 V AC/DC
 Switch Current 1A Max
 Colour* Illuminated 24V AC/DC
 Power Supply 24V AC/DC

Piezo Switches
22mm Stainless Steel




Illuminated and Non Illuminated



<p>22MM Stainless Steel Non Illuminated</p>  <p>MPZ022</p>	<ul style="list-style-type: none"> ○ Non Illumination ○ 20 cm lead ○ Flathead 	
<p>22MM Stainless Steel Illuminated</p>  <p>MPZI022</p>	<ul style="list-style-type: none"> ○ Red or Green Illumination ○ 1 colour ○ 20 cm lead ○ Flathead 	
<p>22MM Stainless Steel Illuminated</p>  <p>MPZIO22</p>	<ul style="list-style-type: none"> ○ Red and Green Illumination ○ (2 colour) ○ 20 cm lead ○ Flathead 	

Specification	MPZ022, MPZIO22
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

Piezo Switches
22mm Stainless Steel Flathead
 Illuminated

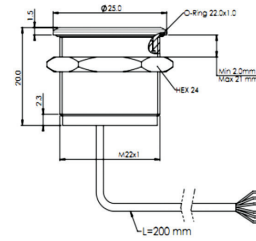


22MM Stainless Steel Illuminated



MPZI022/L

- Blue Illumination
- 1 colour
- 20 cm lead



Specification

MPZI022/L

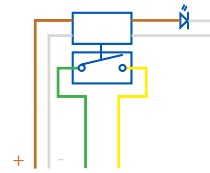
Type	Latching Toggle
Material	Stainless Steel (Aluminium upon request)
Power Supply	24V AC/DC
Switching voltage	48V AC peak/DC
Switch Resistance "ON"	<0.7Ω
Switch Resistance "OFF"	>1000MΩ
Capacitance	<90pF
Switching current	1A Max
LED Illumination	24V AC/DC
Actuating force, typically	3-5 N
Life cycle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

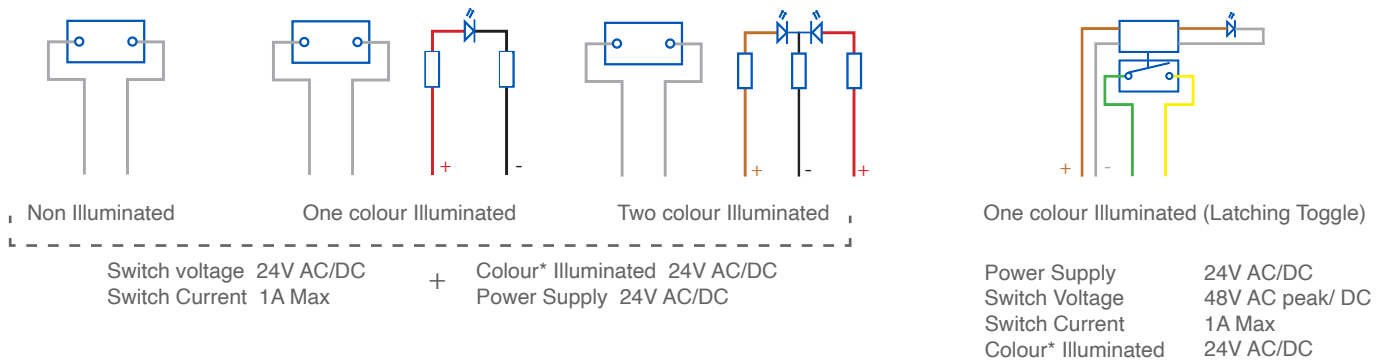
Part No System

MPZ	/	016	/	X	/	XX	/	X	/	X
Series MPZ - Non Illuminated MPZI- Illuminated		Body Diameter 016 = 16mm 019 = 19mm 022 = 22mm		Profile F = Flat Head G = Guided Profile		Colour BL = Blue RD = Red GN = Green D1 = Red and green		Led Voltage 24v		Type 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*

MAV0120

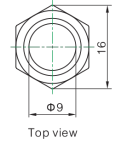
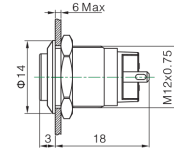


MAV0120/1

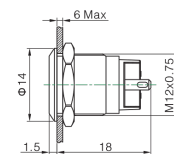
MAV0120/3

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

Prominent Profile

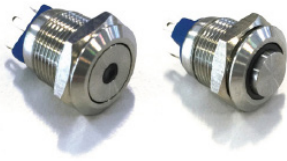


Flush Profile



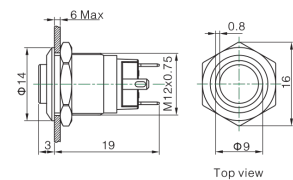
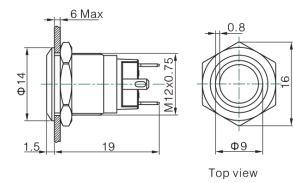
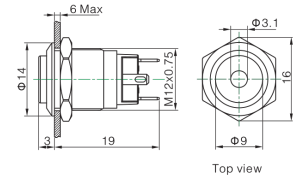
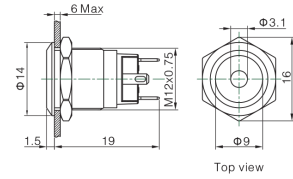
Specification	MAV0120/1	MAV0120/3
Terminations:	P - Solder Tabs	P - Solder Tabs
Switching:	S.P. Push to make	S.P. Push to make
Max Rating:	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	≥50MΩ	≥50MΩ
Insulation Resistance:	≥1000MΩ	≥1000MΩ
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating 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:	Copper, Gold Plated	Copper, Gold Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Silver Alloy	Silver Alloy
Thread size:	M12x0.75	M12x0.75
RoHS	Compliant	Compliant

MAV0120



MAV0120

- Dot and Ring Illumination
- Prominent and Flush Profile
- 12mm Diameter
- 2A, 36 dc
- Bright daylight LEDs
- IP67 (Front of Panel Only)



Specification

MAV0120

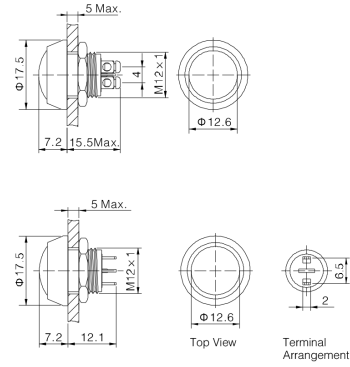
Terminations:	P - Solder Tabs				
Switching:	S.P. Push to make				
Max Rating:	2A, 36Vdc				
Profile:	Prominent /3 Flush /1				
Illumination Type	/1	Dot			
	/2	Ring			
LED Ratings					
Part No.					
Colours	/RD	/GN	/BL	/OR	/AM
Luminous Intensity	Red	Green	Blue	Orange	Yellow
Forward Voltage	1.8V	2.8V	2.8V	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	12V			
	/24	24V			
Contact Resistance:	≥50MΩ				
Insulation Resistance:	≥1000MΩ				
Dielectric Strength:	1500V, AC 50Hz, 5 Secs				
Operating Temp. Range:	*-25°C ~ +55°C				
Operations					
Mechanical:	500,000 (min)				
Electrical:	200,000 (min)				
Sealing (Front of Panel Only)	IP67				
Shock Resistance	IK08				
Rear Nut Fixing Torque:	0.6Nm				
Materials					
Mouldings:	PA				
Tags/Terminations:	Copper, Gold Plated				
Switch Body & Button:	Stainless Steel				
Contacts:	Silver Alloy				
Thread size:	M12x0.75				
RoHS	Compliant				

MMP0120



MMP0120

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



Specification

MMP0120/S

MMP0120/N

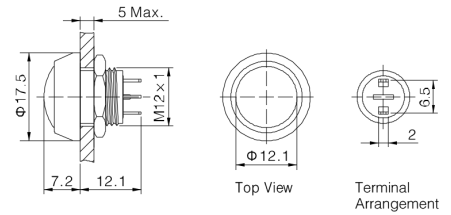
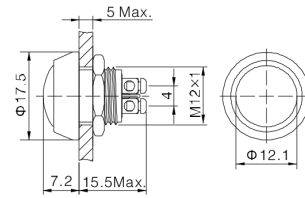
Terminations:	P - Solder Tabs S - Screw Terminal	P - Solder Tabs S - Screw Terminal
Switching:	S.P. Push to make	S.P. Push to make
Max Rating:	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	≥50MΩ	≥50MΩ
Insulation Resistance:	≥1000MΩ	≥1000MΩ
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
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, Silver Plated	Brass, Silver Plated
Switch Body & Button:	/SS Stainless Steel	/N - Nickel Plated Brass
Contacts:	Silver Alloy	Silver Alloy
Thread size:	M12x1	M12x1
RoHS	Compliant	Compliant

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:	≥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 or IP67
Shock Resistance	IK08
Rear Nut Fixing Torque:	0.3Nm
Materials	
Mouldings:	PBT
Tags/Terminations:	Brass, Silver 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

Miniature Domed Illuminated Pushbutton

Stainless Steel and PBT

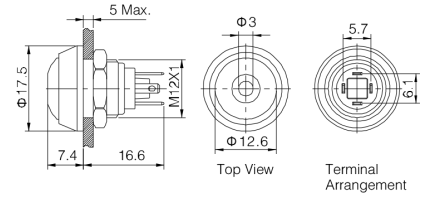


MMPI0120



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, Silver 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	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	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 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 16A, 250Vac**, 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

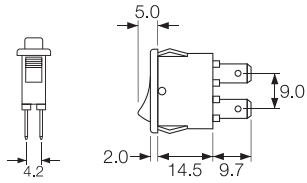
Approvals and specifications

- 10(6)A 250Vac T100 1E4 (10,000 Operations)
6(2)A 250Vac T100 5E4 (50,000 Operations)
Inrush rating 10/50A 1E4 (10,000 Operations)
 - UL CSA 15A 250Vac (Twin unit is 10A 250Vac)
UL CSA 125Vac 1/2hp
UL 100°C, file E45221, CSA file LR10990
- 3mm contact gap.

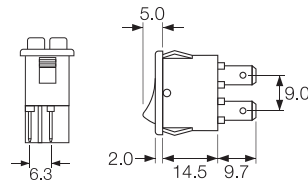
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
<p>H</p>	<p>Switches are ON when pressed over terminal 1</p> <p>8800</p> <p>ON - OFF Single contact</p>		<p>A. Single contact</p> <p>Panel Cut Bezel</p> <p>*Optional profile for orientation</p>	<p>B Black</p> <p>R Red</p> <p>W White</p>	<p>B Black</p> <p>R Red</p> <p>W White</p>
<p>T</p>	<p>Switches are ON when pressed over terminal 1 or 3</p> <p>8800</p> <p>ON - OFF Twin contact</p>		<p>B. Single contact - Twin</p> <p>Panel Cut Bezel</p> <p>*Optional profile for orientation</p> <p>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</p> <p>Cut-outs must be punched in the direction of insertion</p>		
<p>X</p>	<p>8800</p> <p>ON - OFF Twin contact</p>				

Dimensions

8800VA (H terminals shown)



8800V/8800VA (H terminals shown)



Legend

Blank

132

Legend Colour

Blank

B
Black

W
White

Options

Finish
Matt finish only.

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.

Examples



▮ X8800VA



▮ X8800VA
▮ T8800VA - - -



▮ X8800VA
▮ T8800VA - - -



▮ H8800V/H8800VA
▮ T8800V/T8800VA



▮ H8800V/H8800VA
▮ T8800V/T8800VA

8500 Rocker Switches - Miniature

10A 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

10(6)A 250Vac T125 IE4 (non lit types)
6(4)A 250Vac T125 5E4 (50,000 Operations)
10(6)A 250Vac T100 (lit types)

UL CSA 15A Non Ind 250Vac, 14A Ind 250Vac, 10A 277Vac
UL CSA 250Vac 1/2hp, 125Vac 1/4hp
UL 105°C, (non lit) file E45221, CSA file LR10990

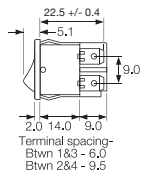
85A inrush current (in-house test)

3mm contact gap.

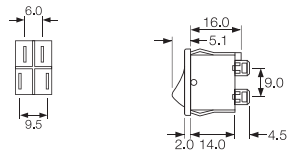
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour								
<p>H</p>	<p>ON OFF Switches are ON when pressed over terminal 1</p>	<p>H Slotted for custom caps</p>	<p>B Standard body with terminal barrier</p> <p>Panel cut out: 12.9 x 21.0</p> <p>Bezel: 15.0 x 21.0</p> <p>BC Body without terminal barrier</p> <p>Panel cut out: 12.9 x 21.0</p> <p>Bezel: 15.0 x 21.0</p> <p>Dimensions for snap-in fixing</p> <table border="1"> <tr> <td>Panel thickness</td> <td>Dim X</td> </tr> <tr> <td>0.75-1.25</td> <td>19.1/19.2</td> </tr> <tr> <td>1.25-2.00</td> <td>19.3/19.4</td> </tr> <tr> <td>2.00-3.00</td> <td>19.7/19.8</td> </tr> </table> <p>Cut-outs must be punched in the direction of insertion</p>	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	<p>B Black</p> <p>R Red</p> <p>W White</p>	<p>Un-Lit</p> <p>B Black</p> <p>R Red</p> <p>W White</p> <p>Lit</p> <p>A Amber</p> <p>G Green</p> <p>C Clear</p> <p>R Red</p>
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												
<p>K</p>	<p>8500</p> <p>ON - OFF Single contact (Uses terminals 1a & 2a)</p>	<p>R Semi-rotary (not lit)</p>											
<p>L</p> <p>Right angle version of K terminal available on 8500 only</p>	<p>8503</p> <p>ON (lit) - OFF Single contact</p>	<p>D Paddle lever (not lit)</p>											
<p>R</p>	<p>8553</p> <p>ON (lit) - OFF Double contact</p>	<p>V Curved (not lit)</p>											
<p>T</p> <p>Solder</p>	<p>8580</p> <p>Available with H terminals only</p> <p>Indicator UL/CSA E63363</p>	<p>V Curved (lit)</p>											
		<p>X Two colour (not lit)</p>											
		<p>A Softline lens</p>											
		<p>P Push button operation (8500 only) See drawing opposite</p>											

Dimensions

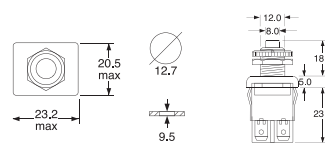
“B” body with barrier for H, T and K terminals




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

Examples



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)

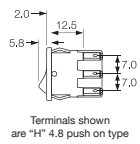
UL CSA See ratings below
UL 65°C, file E45221, CSA file LR10990

3mm contact gap except where marked μ .

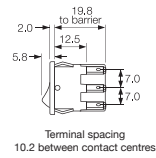
Terminal	Function		Rocker	Body	Body Colour																
<p>H</p> <p>4.8 x 0.8 7.4</p>	<p>Approvals & ratings vary with function</p>	<p>ON OFF Switches are ON when pressed over terminal 3</p>	<p>V Curved</p>	<p>B Single Contact</p> <p>Panel cut out</p> <p>Bezel</p> <p>Single Contact dimensions for snap-in fixing</p> <table border="1"> <tr> <td>Panel thickness</td> <td>Dim X</td> </tr> <tr> <td>0.75-1.25</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>	Panel thickness	Dim X	0.75-1.25	19.1/19.2	1.25-1.99	19.3/19.4	2.00-3.00	19.7/19.8	<p>B Black</p>								
Panel thickness	Dim X																				
0.75-1.25	19.1/19.2																				
1.25-1.99	19.3/19.4																				
2.00-3.00	19.7/19.8																				
<p>T</p> <p>3.5 x 0.8 Solder 6.4</p>	<p>ON - OFF (momentary ON)</p>	<p>ON - OFF (momentary ON)</p>	<p>V Curved (lit)</p>	<p>R Red</p>																	
<p>X</p> <p>PCB 0.8Sq 5.3</p>	<p>ON - OFF Lit</p>	<p>ON - OFF Lit</p>	<p>F Flat Indicator only (Single contact)</p>	<p>BC (Double Contact) w/o terminal barrier</p> <p>Panel cut out</p> <p>Bezel</p> <p>Double Contact dimensions for snap-in fixing</p> <table border="1"> <tr> <td>Panel thickness</td> <td>Dim X</td> </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> <p>Double Contact dimensions for snap-in fixing</p> <table border="1"> <tr> <td>Panel thickness</td> <td>Dim X</td> </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> <p>Cut-outs must be punched in the direction of insertion</p>	Panel thickness	Dim 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	Dim 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	<p>W White</p>
Panel thickness	Dim 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	Dim 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																				
<p>N/A</p> <p>ON - OFF Lit</p>	<p>ON - OFF Lit</p>	<p>ON - OFF Lit</p>	<p>F Flat Indicator only (Single contact)</p>	<p>B (Double Contact) with terminal barrier</p>	<p>B Black</p>																
<p>8610</p> <p>6(1)A 10A 277V 1/2HP 277V, 1/4HP 125V ON - ON</p>		<p>8660</p> <p>6(1)A 10A 277V 1/2HP 277V, 1/4HP 125V ON - ON</p>		<p>BC (Double Contact) w/o terminal barrier</p>	<p>B Black</p>																
<p>8611</p> <p>6A 277V ON - ON (momentary 1 side)</p>		<p>8661</p> <p>6A 277V ON - ON (momentary 1 side)</p>		<p>BC (Double Contact) w/o terminal barrier</p>	<p>B Black</p>																
<p>* 8611 and 8661 not covered by ENEC</p>																					
<p>8620 μ</p> <p>ON - OFF - ON</p>		<p>8670 μ</p> <p>ON - OFF - ON</p>		<p>BC (Double Contact) w/o terminal barrier</p>	<p>B Black</p>																
<p>8630</p> <p>6(1)A UL E63363 CSA LR29381 KEMA-KUER Indicators</p>		<p>N/A</p>	<p>F Flat Indicator only (Single contact)</p>	<p>BC (Double Contact) w/o terminal barrier</p>	<p>B Black</p>																


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	3 250V Neon		W White	Legend printing Select from the examples or call sales for custom legend.
Lit A Amber	7 12V Filament			Lamp voltage Call sales for details of available voltages.
G Green	8 24V Filament			Blanking plate A8634FB Dummy unit to fill unused panel holes. Single contact size only.
C Clear				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				 Single Contact options Most switches shown can have single contact switching in double contact bodies.

Examples



H8600VB ---
T8600VB ---



H8600VB ---
T8600VB ---



H8630FB ---
T8630FB ---



H8650VB ---
T8650VB ---



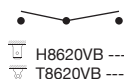
H8660VB ---
T8660VB ---



H8653VB ---
T8653VB ---

8620 & 8670 Rocker Switches

3 Positions - 10A 250Vac



Key Features

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

Approvals and specifications

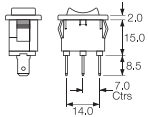
- UL 10(4)A 250Vac T90
 - UL CSA 15A 277Vac (Single Contact)
 - UL CSA 250Vac 1/2hp (Single Contact)
 - UL CSA 125Vac 1/4hp (Single Contact)
 - UL CSA 10A 277Vac (Double Contact)
 - UL CSA 277Vac 1/2hp (Single & Double Contact)
 - UL 90°C, file E45221, CSA file LR10990
- μ contact gap.

Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
<p>H</p> <p>4.8 x 0.8</p>	<p>8620</p> <p>ON - OFF - ON Single Contact</p>	<p>V</p> <p>Curved</p>	<p>B Single Contact</p> <p>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</p>	<p>B Black</p>	<p>Lit (DP)</p> <p>A Amber</p>
<p>T</p> <p>Ø2.15 Solder</p>	<p>8670</p> <p>ON - OFF - ON Double Contact</p>	<p>H</p> <p>Slotted for actuator (8620 only)</p>	<p>B Single Contact - Twin</p> <p>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</p>	<p>R Red</p> <p>W White</p>	<p>C Clear</p> <p>G Green</p> <p>R Red</p>
<p>X</p> <p>4.0 8.0</p> <p>PCB 0.8sq Double Contact switches with X terminals are supplied without terminal barriers</p>					<p>Lit (DP)</p> <p>B Black</p> <p>R Red</p> <p>W White</p>

Cut-outs must be punched in the direction of insertion

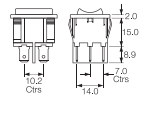
Dimensions

Single Contact



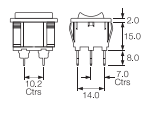
Terminals shown are "H" 4.8 push on type

Double Contact



Terminal spacing 10.2 between Contact centres

Double Contact



Terminal spacing 10.2 between Contact centres

Lamp Voltage

Blank

2

125V Neon

3

250V Neon

7

12V Filament

8

24V Filament

Legend

Blank

076

Legend Colour

Blank

B

Black

W

White

Options

Finish
Matt finish only.

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 legend.

Lamp voltage
Call sales for details of available voltages.

Blanking plate A8634FB
Dummy unit to fill unused panel holes.
Single Contact size only.

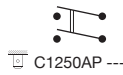
Protective covers
L167 for SP
L180 for DP
Snap on to bodies with V rocker or F lens. This reduces panel thickness by 2.2mm.



Single Contact options
Most switches shown can have single Contact switching in double Contact bodies.

1250 Rocker Switches

10A 250Vac



Key Features

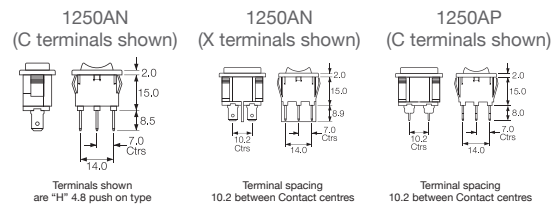
- Standard rocker switch
- Double Contact in single Contact body
- Snap in or sub panel mount
- Integral terminal barrier
- Push on or PCB terminals
- Panel cut out: 27.2 x 12.4 (snap in) 26.3 x 12.4 (sub panel mount)

Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
<p>C</p> <p>6.3 x 0.8</p>	<p>On when pressed over terminal 1</p> <p>1250</p> <p>ON - OFF Double Contact</p> <p>Contacts are 9.0mm between centres.</p>	<p>A Curved</p> <p>Shown in N body</p>	<p>N</p> <p>Panel cut-out Bezel</p> <p>Panel thickness Dim X</p> <p>0.75-1.24 26.1/26.2</p> <p>1.25-1.99 26.3/26.4</p> <p>2.00-3.00 26.7/26.8</p>	<p>B Black</p> <p>W White</p>	<p>B Black</p> <p>W White</p>
<p>X</p> <p>PCB 0.8sq (N body only)</p>	<p>On when pressed over terminal 1</p> <p>1250SP</p> <p>ON - OFF Single Contact</p>	<p>P</p> <p>Panel cut out Bezel</p> <p>Panel thickness</p> <p>0.75-3.00</p> <p><small>Cut-outs must be punched in the direction of insertion</small></p>	<p>G Grey</p>	<p>G Grey</p>	

Approvals and specifications

	10(6)A 250Vac T100
	6A 400Vac T100
	1A 30Vdc
	UL CSA 10A 250Vac
	UL CSA 16A 250Vac Resistive
	UL CSA 125Vac 1/2hp
	UL CSA 1A 30Vdc
	UL 100°C, file E45221, CSA file LR10990
	3mm contact gap

Dimensions



Legend	Legend Colour	Options
— Blank	— Blank	Finish Matt finish only.
085	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.

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

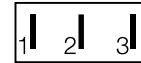
European 16(4)A 250Vac T125, 10A 400Vac T125

UL = 20A 277Vac, 1 1/2HP 250Vac 1HP 125Vac
CSA = 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.



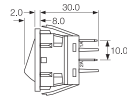
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour	Lamp Voltage
C 6.3 x 0.8 9.7	6000 ON - OFF	A Softline Matt 	L Panel cut-out ** Bezel 30.0/30.1 11.0/11.1 31.5 14.0 R2.0 Cut-outs must be punched in the direction of insertion	B Black W White	Lit (DP) A Amber	Blank
	6001 ON - OFF (momentary ON)				C Clear 2 125V Neon	
H 4.8 x 0.8 9.7	6002 ON - OFF (momentary OFF)	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	G Green R Red	3 250V Neon
	6003 ON - OFF Lit	5 12Vdc LED (P Rocker)				
S 9.7 Screw & Clamp N/A for assemblies with 3 terminals	6008 ON - OFF Lit (Unswitched neutral)	P Lit window 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 R Red W White	Lit (DP) B Black	6 24Vdc LED (P Rocker)
	6009 ON - OFF (momentary ON) Lit (Unswitched neutral)	7 12V Filament				
	6010 ON - ON	8 24Vdc Filament				
	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	<p>G74 Protective Cover</p> <p>Finish Matt is standard.</p> <p>Colour Call sales for custom colours. A full range is available for large orders.</p> <p>Legend printing Select from the examples or call sales for custom legends.</p> <p>Lamp voltage Call sales for details.</p> <p>Protective cover A snap on cover is available (add G after body code), this reduces panel thickness by 2mm.</p>  <p>Panel sealing washer W46 is available, this reduces panel thickness by 1.2mm.</p> <p>Covers are not suitable for momentary types. For all options call the factory</p>
1223	B Black	
	W White	

Examples



C6000AL ---



C6000AL ---



C6010AL ---



C6003AL ---



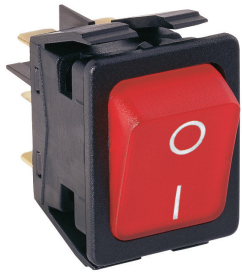
C6003PL ---



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

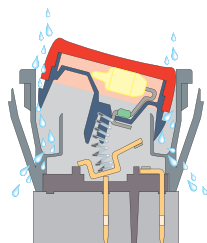
UL CSA (except 6054 & 6055 Switches)
20A 277Vac, 250Vac 11/2hp, 125Vac 1hp

UL 100°C, file E45221, CSA file LR10990

3mm contact gap with Positive Break switching.

Terminal	Function	Rocker	Body	Body Colour		
C 6.3 x 0.8 9.7	6050 ON - OFF	A Softline Matt A Softline Matt P Lit window Matt Lit window 	L Double Contact Panel cut-out ** Bezel L Twin units Contact sales for information on splash resistance and IP ratings 	Lit (DP) A Amber C Clear G Green R Red Un-Lit (DP) B Black R Red W White		
	6051 ON - OFF (momentary ON)				6060 ON - ON	6061 ON - ON (momentary 1 side)
	6052 ON - OFF (momentary OFF)				6062 2 Circuit ON - ON (In house tests only)	6066 ON - ON (Single Contact) Isolated light
	6053 ON - OFF Lit				6067 ON - ON Lit	6068 ON - ON 1 Contact ON - OFF Lit 1 Contact
	6054 ON - OFF (momentary ON) Lit				6069 ON - OFF 1 Contact ON - OFF Lit 1 Contact	6090 ON - OFF (Single Contact) Isolated light
	6055 ON - OFF (Single Contact) (momentary ON) Lit				6091 ON - OFF (momentary ON) Lit	6092 ON - OFF 1 Contact ON - ON 1 Contact Lit
	6056 ON - OFF (Single Contact) Isolated light				6099 ON - OFF (Single Contact) (momentary ON) Lit	6099 ON - OFF (Single Contact) (momentary ON) Lit
	6057 ON - OFF Isolated light				6099 ON - OFF (Single Contact) (momentary ON) Lit	6099 ON - OFF (Single Contact) (momentary ON) Lit
	6058 ON - OFF (Single Contact) Lit				6099 ON - OFF (Single Contact) (momentary ON) Lit	6099 ON - OFF (Single Contact) (momentary ON) Lit
	6059 ON - OFF (Single Contact) (momentary ON) Isolated light				6099 ON - OFF (Single Contact) (momentary ON) Lit	6099 ON - OFF (Single Contact) (momentary ON) Lit

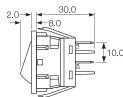
Integral Splash Resistance



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

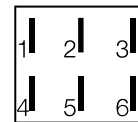
Dimensions

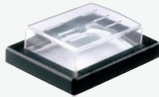


Panel thickness
 L 0.75 to 2.5mm
 ** For cut-out details on momentary switches call sales
 Terminal spacing - Contacts 10.5 between centres

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	<p>G74 Protective Cover</p> <p>Finish Matt is standard.</p> <p>Colour Call sales for custom colours. A full range is available for large orders.</p> <p>Legend printing Select from the examples or call sales for custom legends.</p> <p>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.</p>  <p>Panel sealing washer W42 is available. This reduces panel thickness by 1.00mm. Covers are not suitable for momentary types.</p> <p>IP Ratings Call the sales for details.</p> <p>Terminal Link P1067 connects the Contacts of a double Contact switch or twin unit.</p> <p># Mounting orientation may affect IP rating.</p>
R Red	2 125V Neon	1223	B Black	
W White	3 250V Neon		W White	
	5 12Vdc LED (P Rocker)			
	6 24Vdc LED (P Rocker)			
	7 12V Filament			
	8 24Vdc Filament			

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

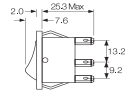
UL CSA 16A Non Ind 250Vac, (2 posn) 250Vac 1hp, 125Vac 1/2hp, (3 posn) 250Vac 1/2hp, 125Vac 1/4hp
 1330 36Vdc 14A
 1350 72 Vdc 7A
 1500 & 1510 14 Vdc 10A
 UL 85°C, file E45221, CSA file LR10990

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

1300 series 16(6)A 250Vac T125 5E4 (50,000 Ops.)
 150A Inrush to EN61058-1

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)	A Softline Matt B Splash resistant (with Arcshield) Matt H Slotted (for custom Adaptors) not momentary V Curved Matt or gloss W Splash resistant (with Arcshield) Matt X Two colour Matt ON - OFF only (not momentary)	Panel cut-out Bezel Cut-outs must be punched in the direction of insertion A 27.2/27.3 x 12.2/12.3 mm B 30.0/30.1 x 11.0/11.1 mm L 30.0/30.1 x 11.0/11.1 mm Q 28.2/28.3 x 11.5/11.6 mm R 28.5/28.6 x 14.0/14.1 mm T 28.2/28.3 x 11.5/11.6 mm	M Matt G Gloss Applies to both Rocker & Body	B Black R Red W White
H 					
K 					
T 	0430 (Indicator) HP rating N/A H terminal rated T100 only	F Flat lens Gloss (0430 only)			
U 	1484 In-house tested to 10(3)A 250Vac 3 position selective				
X 	1487 In-house tested to 10(3)A 250Vac 3 position selective	A Softline lens Matt (0430 only) as F but with raised profile			
	High Inrush 1300 ON - OFF				

Dimensions



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

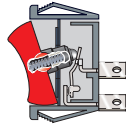
* For cut-out details on momentary switches call sales

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.

UL CSA 20A 250Vac 1hp, 125Vac 1/2hp
 UL 85°C, file E45221, CSA file LR10990

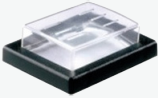
In house test:

20A 24Vdc—Indicative rating only

The 1500 & 1300 switch range are capable of reaching in excess of 300K cycles

BioCote antimicrobial additive. Independently verified to ISO22196:2007.

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					 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.
G Green					
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:

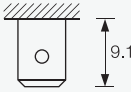




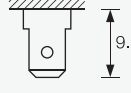




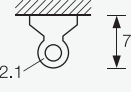











Approvals and specifications

16(4)A 250Vac T85/55
10(3)A 250Vac T100/55, (12A 250Vac T125/55 for P rocker only)

UL CSA 15A 250Vac, CSA 16A Non Ind 250Vac
UL CSA 250Vac 1hp, 125Vac 1/2hp
UL 85°C, file E45221, CSA file LR10990

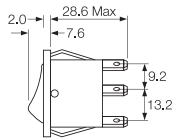
μ contact gap.

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

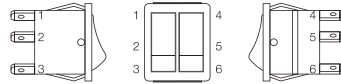
Terminal	Function	Rocker	Body	Body Colour	Rocker Colour
C  6.3 x 0.8	Approvals & ratings vary with function ON OFF Switches - ON when pressed over terminal 3 	A Softline (Matt only) 	A Panel Cut - outs  B Bezel 	B Black	Un-Lit B Black
H  4.8 x 0.8	5500 μ  ON - OFF Single Contact	P Lit window (Matt only) 	B  R Bezel 	W White	R Red W White
T  Solder	5503 μ  ON - OFF Lit Switched neutral		L  L Bezel 		Lit
	5508 μ  ON - OFF Lit Unswitched neutral		Q  Q Bezel 		A Amber C Clear
			R  R Bezel 		G Green
			T  T Bezel 		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




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>
2 125V Neon	602A	B Black	
3 250V Neon		W White	
5 12Vdc LED (P Rocker) IF = 20-30mA			
6 24Vdc LED (P Rocker) IF = 20-30mA			
7 12V Filament			
8 24Vdc Filament			

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

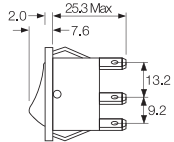
- 16(4)A 250Vac T125
- UL CSA 16A 250Vac
- UL CSA (2 posn) 250Vac 1hp, 125Vac
- 1/2hp, (3 posn) 250 Vac
- 1/2hp, 125Vac 1/4hp
- UL 85°C, file E45221, CSA file LR10990

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
<p>C</p>	<p>Approvals & ratings vary with function ON OFF Switches - ON when pressed over terminal 1 or 4</p>	<p>A</p> <p>Softline (Matt only)</p>	<p>Panel Cut - outs Bezel</p> <p>A</p> <p>Gloss or Matt</p>	<p>M</p> <p>Matt</p>	<p>B</p> <p>Black</p>	<p>Un-Lit</p> <p>B</p> <p>Black</p>
<p>H</p>	<p>1500</p> <p>ON - OFF</p>	<p>B</p> <p>Softline (Matt only)</p>	<p>B</p> <p>Matt only</p>	<p>G</p> <p>Gloss</p> <p>Applies to both Rocker & Body</p>	<p>W</p> <p>White</p>	<p>R</p> <p>Red</p>
<p>T</p> <p>Solder</p>	<p>1510 μ</p> <p>ON - ON</p>	<p>W</p> <p>Softline (Matt only)</p>	<p>L</p> <p>Matt only</p>			<p>W</p> <p>White</p>
<p>K</p>	<p>1520 μ</p> <p>ON - OFF - ON</p>	<p>X</p> <p>Softline (Matt only)</p>	<p>Q</p> <p>Gloss or matt</p>			<p>Lit</p> <p>A</p> <p>Amber</p>
<p>X</p>	<p>0430</p> <p>Indicator</p>	<p>A</p> <p>Softline (Matt only)</p>	<p>R</p> <p>Matt only</p>			<p>C</p> <p>Clear</p>
			<p>T</p> <p>Matt only</p>			<p>G</p> <p>Green</p>
						<p>R</p> <p>Red</p>

Dimensions

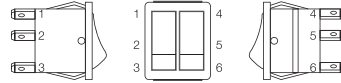
Panel thickness
A,Q 0.75 to 3.3mm
L,B,T 0.75 to 2.5mm
R 0.75 to 3.0mm



Call sales for terminal spacing details

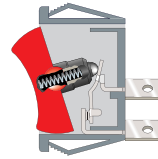
Twin units

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	<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>
R Red	2 125V Neon	602A	B Black	
W White	3 250V Neon		W White	
	5 12Vdc LED (P Rocker)			
	6 24Vdc LED (P Rocker)			
	7 12V Filament			
	8 24Vdc Filament			

Examples



C1500A/C1500AL



C1500A/C0430AL



C1500X/C1500XL



C1520A/C1510AL



C1500A/C1520AL



C0430A/C0430AL

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

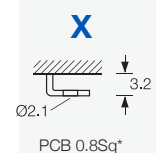
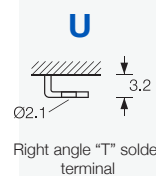
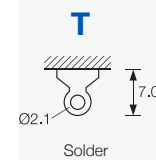
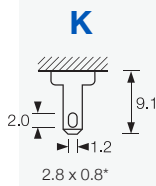
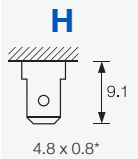
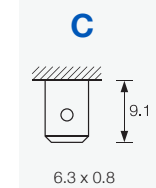
UL CSA 16A 250Vac, (2 posn) 250Vac 1hp, 125Vac 1/2hp, 1350 72 Vdc 7A (3 posn) 250 Vac 1/2hp, 125Vac 1/4hp. UL 85°C, file E45221, CSA file LR10990.

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 T85 1E4 (10,000 Ops.)
1330 series 16(6)A 250Vac T125 5E4 (50,000 Ops.)
150A Inrush to EN61058-1.

Terminal



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



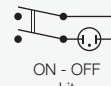
High Inrush 1350

Not W, X or B rocker



1353

Not W, X or B rocker



Rocker

A

Softline Matt

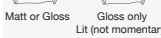


B

Splash resistant Softline

V

Curved

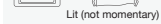


W

Splash resistant Curved

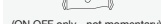
P

Lit window Matt



X

Two colour Matt



R

Round



F

Flat Lens Gloss (0480)



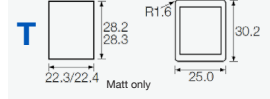
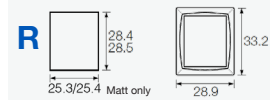
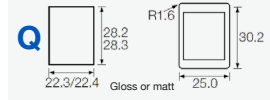
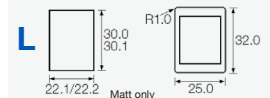
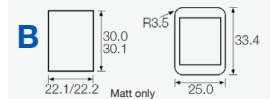
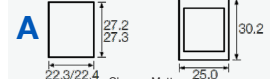
A

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



Approvals and specifications (continued)

UL UL CSA 20A 250Vac 1hp, 125Vac 1/2hp.
UL 72Vdc 7A, 36Vdc 14A.
UL 85°C, file E45221, CSA file LR10990.

In house test:

20A 24Vdc—Indicative rating only

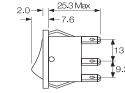
3mm contact gap except if marked μ .

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.

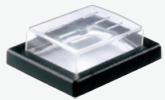
Dimensions



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	
M Matt	B Black	Un-Lit	— Blank	— Blank	— Blank	— Blank	<p>Finish Matt is standard.</p> <p>Colour Call sales for custom colours. A full range is available for large orders.</p> <p>Legend printing Select from the examples or call sales for custom legends.</p> <p>Lamp voltage Call sales for details.</p> <p>Blanking plates A0494 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 1mm.</p> 	
		B Black						
G Gloss	W White	R Red	R Red	2 125V Neon	602A	B Black		
		W White	W White	3 250V Neon				
Applies to both Rocker & Body		Lit		5 12Vdc LED (P Rocker)				W White
		A Amber		6 24Vdc LED (P Rocker)				
		G Green		7 12V Filament				
		C Clear		8 24Vdc Filament				
		R Red						

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/250Vdc



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
- UL CSA 16A 250Vac, (2 posn) 250Vac 1hp, 125Vac 1/2hp, (3 posn) 250 Vac 1/2hp, 125Vac 1/4hp. UL 85°C, file E45221, CSA file LR10990.

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

1350 Series

- UL CSA 20A 250Vac 1hp, 125Vac 1/2hp, UL 72Vdc 7A, 36Vdc 14A, UL 85°C, file E45221, CSA file LR10990.

Terminal	Function	Rocker	Body	Finish	Body Colour	Rocker Colour
C 6.3 x 0.8	Standard 1550 ON - OFF	A Softline Matt 	Panel cut-out Bezel Cut-outs must be punched in the direction of insertion B Matt only	M Matt	B Black	Un-Lit B Black
H 4.8 x 0.8*	1551 HP rating N/A ON - OFF (momentary ON)					R Red
H 4.8 x 0.8*	1552 HP rating N/A ON - OFF (momentary OFF)			G Gloss	W White	W White
H 4.8 x 0.8*	1553 Not W, X or B rocker ON - OFF Lit		L Matt only	Applies to both Rocker & Body		Lit A Amber
K 2.8 x 0.8*	1560 μ ON - ON	V Curved Matt or Gloss Gloss only Lit (not momentary)				G Green
K 2.8 x 0.8*	1561 μ HP rating N/A ON - ON (Momentary 1 Side)					C Clear
K 2.8 x 0.8*	1562 μ In house tests only ON - ON 2 Circuit					R Red
T 7.0 Solder	1570 μ 125V & 250V 1/2 HP H terminal rated T100 only H terminal rated T100 only ON - OFF - ON	P Lit window Matt Lit (not momentary)				
T 7.0 Solder	1571 μ HP rating N/A H terminal rated T100 only ON - OFF - ON (momentary 1 side)					
U 3.2 Right angle T Solder (Not DP)	1572 μ HP rating N/A H terminal rated T100 only ON - OFF - ON (momentary 2 sides)					
X 3.2 PCB 0.8Sq* *Contact sales for details on 1350 series	High Inrush 1350 Not W, X or B rocker ON - OFF					
X 3.2 PCB 0.8Sq* *Contact sales for details on 1350 series	1353 Not W, X or B rocker ON - OFF Lit					

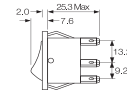
Splash Resistance

In house test:
20A 24Vdc—Indicative rating only
3mm contact gap except if marked μ .



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.

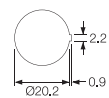
Approvals and specifications

- ☑ SP 10(4)A 250Vac T85 1E4
- ☑ DP 10(4)A 250Vac T85 1E4
- ☑ UL CSA SP 16A 125Vac & 10A 250Vac
UL CSA DP 16A 125Vac, 10A 250Vac, 10A 28Vdc
UL 85°C, file E67774(S), CSA file LR45128

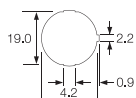
RoHS compliant
Single Contact has μ contact gap.

Special products
Are made to order and can be supplied with a range of body and rocker / lens colours, print & lamp voltage.

Dimensions

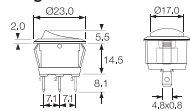


Snap fixing into 2.0 to 3.0mm panels

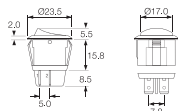


Snap fixing into 0.7 to 3.0mm panels

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





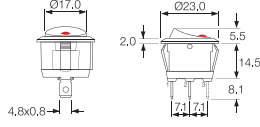







R13 112A2 ---

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

	 SP ON - OFF μ Cat no. R13 112A AAA		 SP ON - OFF μ Lit 230V Cat no. R13 112B NAC		 SP ON - OFF μ Bright colour ON signal Cat no. R13 112A2 - -	 Dimensions: Ø17.0, 4.8x0.8, Ø23.0, 2.0, 5.5, 14.5, 8.1, 7.1, 7.1
	 SP ON - OFF μ Cat no. R13 112A AAB		 SP ON - ON μ Cat no. R13 112C AAA		 SP ON - OFF μ Lit Window Cat no. R13 112B2 - -	 Dimensions: Ø17.0, 4.8x0.8, Ø23.0, 2.0, 5.5, 14.5, 8.1, 7.1, 7.1
	 SP ON - OFF μ Lit 230V Cat no. R13 112B NAA		 SP ON - OFF - ON μ Cat no. R13 112D AAA		 SP ON - OFF μ Paddle tip has red LED Lit Window Cat no. R13 112LP - -	 Dimensions: Ø15.0, 4.8x1.8, Ø23.0, 2.0, 10.0, 14.5, 8.1, 7.1, 7.1
	 SP ON - OFF μ Lit 230V Cat no. R13 112B NAB		SP ON - OFF μ (Momentary ON) Cat no. R13 208F AAA*		 Indicator light Cat no. R9 92B - - -	 Dimensions: Ø17.0, 4.8x0.8, Ø23.0, 2.0, 4.0, 14.5, 8.1, 14.2
	 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 10.5</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 Metal toggle finish is nickel plate</p>	<p>A Single Contact Thread: 15/32" x 32TPI</p> <p>17.5 10.5 17.0</p>	<p>Neck Seal M539 Actuator is visible</p> <p>Cover M1080</p>
<p>S</p> <p>10.5 Screw & Clamp</p>	<p>3901 ON - OFF (momentary ON)</p> <p>3902 ON - OFF (momentary OFF)</p> <p>3910 ON - ON</p> <p>3911 ON - ON (momentary 1 side)</p>	<p>B</p> <p>17.5 Metal toggle finish is nickel plate</p>	<p>E Panel sealed, single Contact Thread: 15/32" x 32TPI</p> <p>17.5 10.5 17.0</p>	<p>Covers have internal nylon nuts</p> <p>M1080-2</p> <p>Covers have internal metal hex nuts</p>
<p>T</p> <p>10.5 Solder</p>	<p>3910 ON - ON</p> <p>3911 ON - ON (momentary 1 side)</p> <p>3920 ON - OFF - ON</p> <p>3921 ON - OFF - ON (momentary 1 side)</p> <p>3922 ON - OFF - ON (momentary 2 sides)</p>	<p>D</p> <p>25.4 Metal toggle finish is nickel plate</p>	<p>A Double Contact, without barrier Thread: 15/32" x 32TPI</p> <p>17.5 10.0 30.6</p>	<p>Fixing nuts Nickel plated brass are supplied</p> <p>14.0 2.0 15.0 2.3</p> <p>Knurled Front nut Panel thickness 4.0 with backnut</p>
		<p>E</p> <p>38.1 Metal toggle finish is nickel plate</p>	<p>B Double Contact, with barrier Thread: 15/32" x 32TPI</p> <p>17.5 10.0 30.6</p>	<p>Plate P236 Plate SP or DP</p>
		<p>F</p> <p>17.5 Metal toggle finish is nickel plate</p>	<p>F Panel sealed, double Contact, with terminal barrier Thread: 15/32" x 32TPI</p> <p>17.5 10.0 31.1</p> <p>Switches with F toggles have double Contact bodies, regardless of circuit</p>	
		<p>G</p> <p>17.5 Metal toggle finish is nickel plate</p>	<p>G Panel sealed, double Contact, without terminal barrier Thread: 15/32" x 32TPI</p> <p>17.5 10.0 31.1</p>	

Approvals and specifications

UL/CSA Ratings 3901, 3902, 3920, 3921, 3922
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

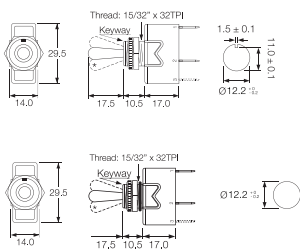
Approvals and ratings vary with function.

* CSA approval for A and B bodies only

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

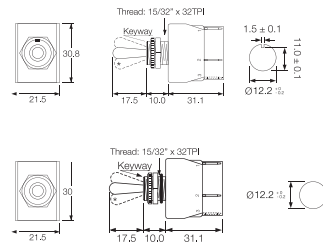
Single Contact

(C terminals shown)



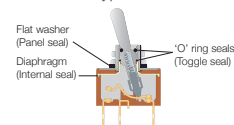
Double Contact

(C terminals shown with barrier)



Toggle Switch - sealed version

BE and BF types



Guard TG1-RED



Examples



C3900BE - - -



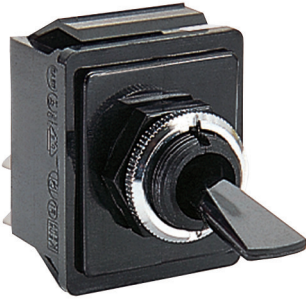
C3920BA - - -



C3950BF - - -



C3972BB - - -



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

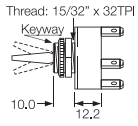
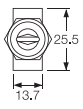
- UL 16(4)A 250Vac T85
 - UL 20A 250Vac Non Ind (Single Contact)
 - UL 16A 250Vac Non Ind (Double Contact)
 - UL CSA (2 pos types) 250Vac 1hp, 125Vac 1/2hp
 - UL CSA (3 pos types) 250Vac 1/2hp, 125Vac 1/4hp
 - CSA 16A 250Vac Non Ind
 - UL 85°C, file E45221, CSA file LR10990
 - UL and CSA N/A on momentary 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	
<p>C</p>	<p>Single Contact</p> <p>1700 ON - OFF</p>	<p>H</p>	<p>O Single Contact</p> <p>Thread: 15/32" x 32TPI</p>	<p>Neck Seal M539</p> <p>Material - Nitrile (H & R Actuators) Actuator visible</p>	
<p>H</p>	<p>Double Contact</p> <p>1750 ON - OFF</p>	<p>R</p>	<p>O Double Contact</p> <p>Thread: 15/32" x 32TPI</p>	<p>Cover M1080</p> <p>Material - EPDM (R Actuator only)</p>	
<p>K</p>	<p>1710 μ ON - ON</p>	<p>The switch is on between centre terminals (2 & 5) and the terminals over which the lever is positioned.</p>	<p>Panel hole (all types)</p> <p>Panel thickness (Max) Both nuts - 3.5mm Less backnut - 6.5mm</p>	<p>Cover M531</p> <p>Material - PVC (R Actuator only)</p>	
<p>T</p>	<p>1720 μ ON - OFF - ON</p>			<p>1770 μ ON - OFF - ON</p>	<p>Fixing nuts (Standard is M506 & T92)</p> <p>T5 Hex brass</p> <p>M506 Hex nylon</p>
<p>X</p>	<p>1721 μ ON - OFF - ON μ (momentary 1 side)</p>			<p>T92 Knurled brass - slotted</p>	
<p>1722 ON - OFF - ON μ (momentary 2 sides)</p>	<p>M279 Knurled nylon</p>				
				<p>Plate P236 Plate SP or DP</p>	

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

Single Contact

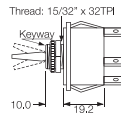
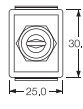
(C terminals shown)



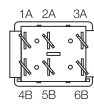
Optional
F00232PAAA
plate SP or DP

Double Contact

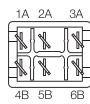
(C terminals shown)



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





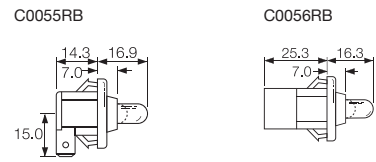
Key Features

- 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



Terminal	Function	Actuator	Body	Options				
<p>C</p> <p>6.3x0.8</p>	<p>0055</p> <p>ON - OFF (momentary OFF) 90° terminals</p>	<p>R</p>	<p>B</p> <p>Panel cut - out</p> <p>Panel thickness</p> <table border="1"> <tr> <td>0055</td> <td>1.0 - 1.6</td> </tr> <tr> <td>0056</td> <td>1.0 - 2.6</td> </tr> </table> <p>Flange</p>	0055	1.0 - 1.6	0056	1.0 - 2.6	<p>Finish Gloss finish only</p> <p>Colour White or black Call sales for custom colours.</p>
0055	1.0 - 1.6							
0056	1.0 - 2.6							
<p>H</p> <p>4.8x0.8</p>	<p>0056</p> <p>ON - OFF (momentary OFF) straight terminals</p>							

3005 Refrigerator Door Switches

Splash Resistant



C3005BL ---

C3005CB ---

Key Features

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

Approvals and specifications

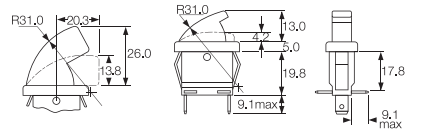
3005 25W 25T85 5E4 (50,000 Operations) 250Vac
 3006 65W 25T85 5E4 (50,000 Operations) 250Vac

UL 0.3A 250Vac (Black Versions Only)
 UL 0.2A 125Vac (Black Versions Only)

μ contact gap

Dimensions and Properties

3005



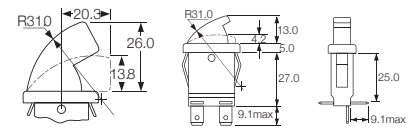
Panel thickness 1.0 - 2.5mm

B Actuator

C Actuator

R, L & B terminals

3006



Panel thickness 1.0 - 2.5mm

B Actuator

C Actuator

R, L & B terminals

Terminal	Function	Actuator	Body	Options
<p>C</p> <p>6.3x0.8</p>	<p>3005</p> <p>ON - OFF (momentary OFF) 1mm max travel to OFF position</p>	<p>B</p> <p>26.0</p>	<p>R L B</p> <p>Terminal direction (viewed from hinge end)</p> <p>Panel cut - out Bezel Bezel Profile</p> <p>Panel cut - out: 12.1/12.2, 25.4, 25.5 Bezel: 14.0, 30.2 Bezel Profile: 5.0</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>
<p>H</p> <p>4.8x0.8</p>	<p>3006</p> <p>ON - OFF (momentary ON) 3mm min travel to ON position</p>	<p>C</p> <p>13.0</p>	<p>Panel cut - out Bezel Bezel Profile</p> <p>Panel cut - out: 12.1/12.2, 25.4, 25.5 Bezel: 14.0, 30.2 Bezel Profile: 5.0</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>

3100 Refrigerator Door Switches

Splash resistant



E3111BA ---



E3102AA ---

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)

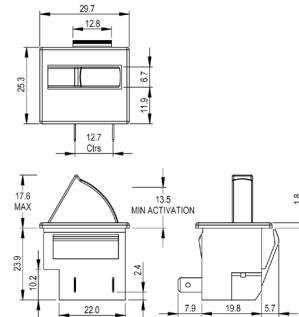
UL CSA 5A 250Vac
UL 85°C, file E45221, CSA file LR10990

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 7.9	 3101 ON - OFF (momentary CLOSED)	A 17,6 max	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.
	3102 ON - OFF (momentary OFF)	B 15,6 max			
	3111 ON - ON (momentary 1 side)	C 23,0 max			
	 17,5 max				

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 CSA 5A 250Vac (Standard location only)
 UL 85°C, file E45221, CSA file LR10990

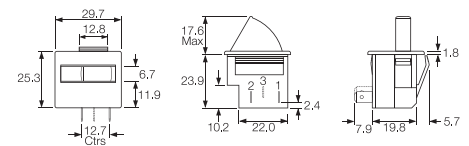
Dimensions and Properties

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 17.6 max	A 27.56, 27.31, 3.68, 2.93, 1.65, 1.14, 22.73, 22.99 Optional cut-out for orientation	W White	A Standard	EX ATEX Approved
	3102 ON - OFF (momentary OFF)	B 15.6 max		B Black		
	3111 ON - ON (momentary 1 side)	C 23.0 max		P Polar White		
		D 17.1 max		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

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

3140 Refrigerator Door Switches

Splash resistant



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)

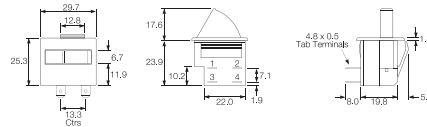
UL CSA 5A 250Vac
UL 85°C, file E45221, CSA file LR10990

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>3141</p> <p>ON - ON (momentary)</p>	<p>A</p> <p>B</p> <p>C</p> <p>D</p>	<p>A</p> <p>Optional cut-out for orientation</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>
<p>K</p> <p>2.8x0.8</p>	<p>3145</p> <p>ON - OFF (momentary OFF)</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>3146</p> <p>ON - OFF (momentary ON)</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

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

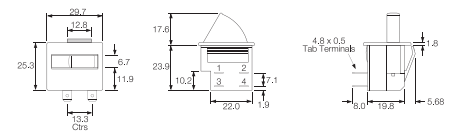
UL CSA 5A 250Vac (Standard location only)
 UL 85°C, file E45221, CSA file LR10990

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



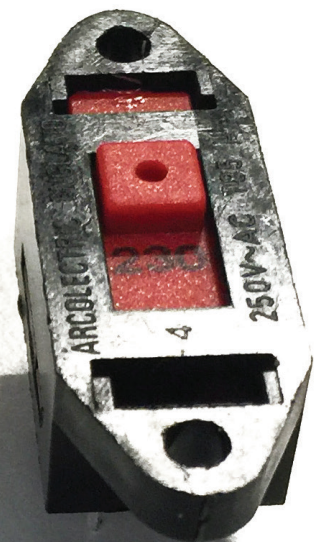
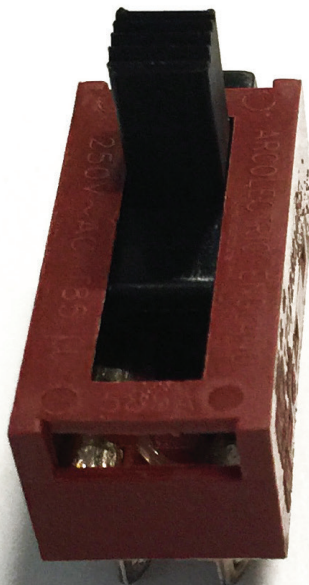
Terminal	Function	Actuator	Body	Colour	Options	Approval
H 4.8x0.8	 3141 ON - ON (momentary)	A 17.6 max B 15.6 max C 23.0 max D 17.1 max	A 27.56 27.31 3.68 2.93 1.65 1.14 Optional cut-out for orientation 22.73 22.99	W White B Black P Polar White	A Standard Call sales for plated contacts and sealed terminal options.	EX ATEX Approved
K 3141 Only 2.6 1.5 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.		

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

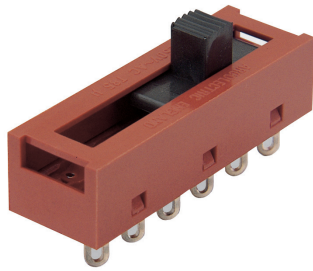
With up to 5 switching positions as well as multiple terminal, circuit and slider options, Bulgin's board mounted power slide switches can be configured to suit your needs. We also offer a wide range of voltage selector types that can be either snapped into a panel or flange mounted.

- 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

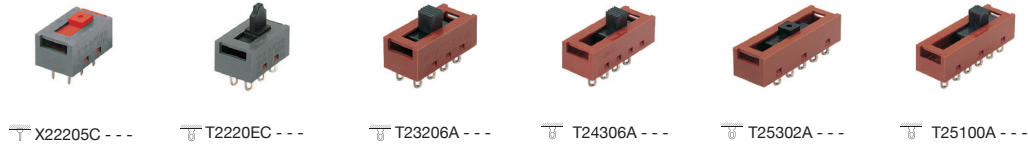
10A 250Vac T85
6(3)A 250Vac T85


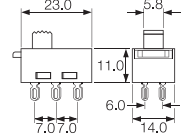
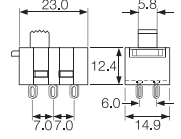
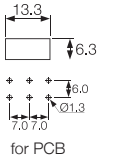

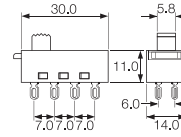
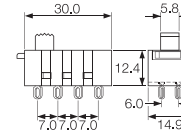
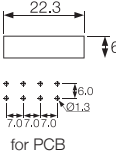
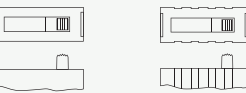
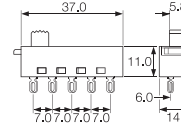
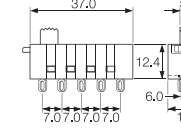
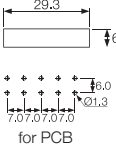

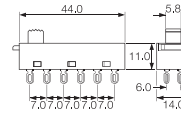
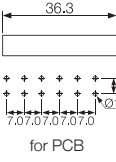
UL CSA 16A 250Vac Non Inductive
UL CSA 4A 300Vac
UL 65°C, file no. E45221, CSA file no. LR10990

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
<p>K</p> <p>2.8 x 0.8</p> <p>R</p> <p>2.8 x 0.8</p> <p>T</p> <p>Solder</p> <p>X</p> <p>PCB 0.8 Sq.</p> <p>Y</p> <p>PCB 0.8 Sq.</p> <p>For mounting stability switches have extra "support" terminals</p> <p>* Nominal - Dimension varies with body type. For exact figure call sales</p>	<p>2</p> <p>Switching positions</p> <p>3</p> <p>Switching positions</p> <p>4</p> <p>Switching positions</p> <p>5</p> <p>Switching positions</p>	<p>10</p> <p>20</p> <p>30</p> <p>40</p> <p>10</p> <p>20</p> <p>30</p> <p>40</p> <p>10</p> <p>20</p> <p>30</p> <p>40</p> <p>10</p> <p>20</p> <p>30</p> <p>40</p>	<p>0</p> <p>6</p> <p>D</p> <p>L</p> <p>1</p> <p>7</p> <p>E</p> <p>N</p> <p>2</p> <p>9</p> <p>G</p> <p>P</p> <p>3</p> <p>A</p> <p>H</p> <p>R</p> <p>4</p> <p>B</p> <p>J</p> <p>S</p> <p>5</p> <p>C</p> <p>K</p> <p>T</p>	

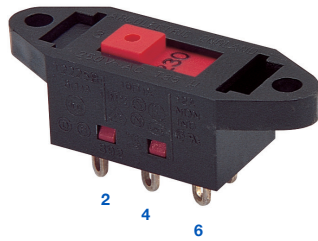
Examples



Body	Options	Dimensions		
<p>C 2 positions H 2 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>for PCB</p>
<p>A 3 positions H 3 positions</p> 		<p>A 3 positions</p> 	<p>H 3 positions</p> 	<p>Cut-out /PCB Matrix</p>  <p>for PCB</p>
<p>A 4 positions H 4 positions</p> 		<p>A 4 positions</p> 	<p>H 4 positions</p> 	<p>Cut-out /PCB Matrix</p>  <p>for PCB</p>
<p>A 5 positions</p> 		<p>A 5 positions</p> 		<p>Cut-out /PCB Matrix</p>  <p>for PCB</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

UL CSA 16A 250Vac Non Inductive
UL CSA 4A 300Vac
UL 65°C, file no. E45221, CSA file no. LR10990

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
<p>K</p> <p>2.8 x 0.8</p>	2	2 Switching positions	<p>10</p>	<p>0</p>
<p>R</p> <p>2.8 x 0.8</p>			<p>20</p>	<p>2</p>
<p>T</p> <p>Solder</p>			<p>30</p>	<p>3</p>
<p>X</p> <p>PCB 0.8 Sq. For mounting stability switches have extra "support" terminals * Nominal - Dimension varies with body type. For exact figure call sales</p>			<p>40</p>	<p>4</p>
		3 Switching positions	<p>10</p>	<p>6</p>
			<p>20</p>	<p>7</p>
			<p>30</p>	<p>8</p>
			<p>40</p>	<p>9</p>
			<p>10</p>	<p>A</p>
			<p>20</p>	<p>K</p>
			<p>30</p>	<p>T</p>
			<p>40</p>	<p>S</p>

Examples



T22208E ---



T22308E ---



T2230MF ---



T22205B ---



T22305B ---

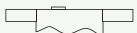


T23204B ---

Body

B

With mounting holes



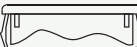
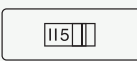
E

Snap fit



F

Snap fit
(single contact ON OFF only)



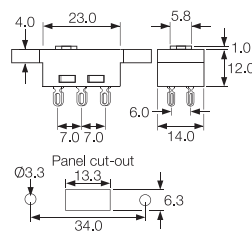
Options

Colour

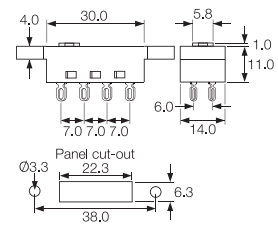
Call sales for custom colours.
A full range is available for large orders.
Standard body colour is black.

Dimensions

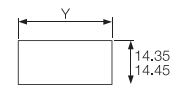
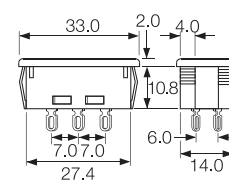
2 Pos B



3 Pos B

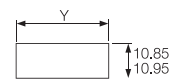
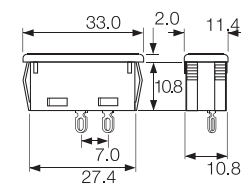


2 Pos E



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

2 Pos F



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



C1090FE ---



P1090FL ---

Key Features

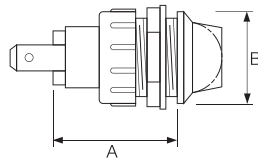
- Up to 50V
- MES or MBC bulb
- Flat and domed lens
- Brass or nylon bodies
- Red, Amber, Green, Blue and Clear lenses

Approvals and specifications

These lampholders are suitable for up to 50V max.

Colours - Red, Amber, Green, (Clear & Blue, check availability).
Brass bodies have polished chrome finish.

Dimensions and Options



F0445 MO
P.V.C. Insulating terminal cover.



Terminal	Type	Colour	Options	Panel	Lens																																			
C 6.3 x 0.8	1090 MES (E10)	R Red	C Chrome Bezel Finish	1090 (MES lamps) <table border="1"> <thead> <tr> <th></th> <th>Panel Hole Dia</th> <th>Body Material</th> <th>Dim A</th> <th>Dim B</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>19.0</td> <td>Brass</td> <td>35.0</td> <td>22.0</td> </tr> <tr> <td>D</td> <td>19.0</td> <td>Brass</td> <td>30.2</td> <td>22.0</td> </tr> <tr> <td>E</td> <td>19.0</td> <td>Nylon with chrome bezel</td> <td>30.2</td> <td>22.8</td> </tr> <tr> <td>G</td> <td>19.0</td> <td>Brass</td> <td>24.6</td> <td>22.0</td> </tr> <tr> <td>H</td> <td>19.0</td> <td>Nylon with chrome bezel</td> <td>24.6</td> <td>22.8</td> </tr> <tr> <td>L</td> <td>25.4</td> <td>Brass</td> <td>26.0</td> <td>31.5</td> </tr> </tbody> </table>		Panel Hole Dia	Body Material	Dim A	Dim B	A	19.0	Brass	35.0	22.0	D	19.0	Brass	30.2	22.0	E	19.0	Nylon with chrome bezel	30.2	22.8	G	19.0	Brass	24.6	22.0	H	19.0	Nylon with chrome bezel	24.6	22.8	L	25.4	Brass	26.0	31.5	F Flat
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H	19.0	Nylon with chrome bezel	24.6	22.8																																				
L	25.4	Brass	26.0	31.5																																				
Y Yellow	G Green	B Blue	V MES (E10) 																																					
H Solder	1091 MBC (BA9s) (C and S Terminals only)	B Blue	C Clear	1091 (MBC lamps) <table border="1"> <thead> <tr> <th></th> <th>Panel Hole Dia</th> <th>Body Material</th> <th>Dim A</th> <th>Dim B</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>19.0</td> <td>Brass</td> <td>36.0</td> <td>22.0</td> </tr> <tr> <td>C</td> <td>19.0</td> <td>Nylon</td> <td>36.6</td> <td>22.0</td> </tr> <tr> <td>Q</td> <td>19.0</td> <td>Nylon (Chrome twin)</td> <td>36.6</td> <td>22.8</td> </tr> <tr> <td>M</td> <td>25.4</td> <td>Brass</td> <td>38.1</td> <td>31.5</td> </tr> </tbody> </table>		Panel Hole Dia	Body Material	Dim A	Dim B	B	19.0	Brass	36.0	22.0	C	19.0	Nylon	36.6	22.0	Q	19.0	Nylon (Chrome twin)	36.6	22.8	M	25.4	Brass	38.1	31.5	L No lens										
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C Clear	S Screw and Clamp 																																							

LED Lamps and LED Lampholders

LED Lampholders can be supplied with or without LEDs



Key Features

- LED lampholders
- Supplied with or without LEDs
- Black or Chrome finish

Colours and voltages:

Colours: Red, Yellow, Green and Blue LEDs
(High Intensity is standard. Option of extra super bright).

Voltages: LEDs are available for direct connection to 2.0/2.2V or 12VDC

For other voltages contact sales.

Terminal	Type	Body Colour	LED Colour	Voltage	Panel Cutout	Approval	Dimensions
W LED fitted A LED not fitted L LED & Wires fitted	(W) 1047 00	B Black C Chrome	R Red Y Yellow G Green B Blue	1 LED No Resistor 4 6VDC LED 5 12VDC LED 6 24VDC LED	 6.3 6.3max T105 T105		 12.7 1.5 14.5 (+/-0.36) Ø7.6
W LED fitted A LED not fitted L LED & Wires fitted	(L) 1048 00				 8.0 5.5max T105 T105		 10.0 2.0 14.5 Ø9.5
W LED fitted A LED not fitted L LED & Wires fitted	(W)1050 00				 8.0 7.0max T105 T105	 	 12.4 2.9 16.9 Ø10.0
W LED fitted L LED & Wires fitted	(L) 1035 0A				 4.5 0.9-1.6 T105 T105	 	 4.30 20.0 1.0 200.0 1.50 5.08
W LED fitted L LED & Wires fitted	(L) 1036 0A				 6.0 0.9-1.6 T105 T105	 	 5.85 20.0 1.0 200.0 4.0 7.9
W LED fitted L LED & Wires fitted	(L) 1037 0A				 6.35 0.9-1.6 T105 T105	 	 6.15 20.0 1.0 200.0 4.0 7.9

LED Lamps and LED Lampholders - Sealed to IP67









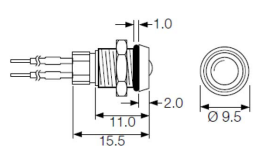






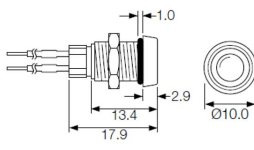










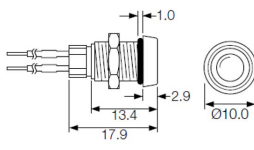




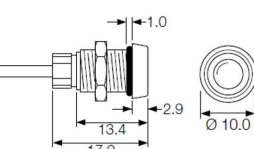
Key Features

- IP67 front bezel sealing
- LED lampholders
- Supplied with or without LEDs
- Black or Chrome finish

Colours and voltages:

Colours:
Red, Yellow Green and Blue LEDs.
(High Intensity is standard. Option of extra super bright).

Voltages:
LEDs are available for direct connection to 2.0/2.2V or 12VDC.
For other voltages contact sales.

Terminal	Type	Body Colour	LED Colour	Voltage	Panel	Approval	Dimensions
L LED & Wires fitted 	(L) 1048 OA 	B Black C Chrome	R Red LED No Resistor	1 8.0  8.0  5.5max  T105		(L) 1048 OA 	
			Y Yellow 6VDC LED	4 11.0  11.0  15.5			
W LED fitted 	(W) 1048 OA 	G Green B Blue	5 12VDC LED		(L) 1050 OA 		
			6 24VDC LED			7.0max 13.4  7.0max  17.9  T105	
A LED not fitted 	(L) 1050 OA 		8.0 7.0max  8.0  7.0max  T105		(L) 1050 OA 		
			8.0 7.0max  8.0  7.0max  T105				(W) 1050 OA 

Properties

Sealing

O-ring sealing equivalent to IP67, of both the LED to bezel, and bezel to panel is available where shown.

Polarity

The nylon base mouldings are polarity marked.

Body Material and Finish

Chromed brass or Black oxide coated brass.

Lampholders only

Items prefixed 'A' are supplied without LEDs.

LED wires or PVC covered wire leads

125mm min length wires, 6.3mm standard strip. Alternative colours, length and strip available.

Key Features

- IP67 Panel Sealing
- Supplied complete with gaskets/'O' rings
- Neon, LED, mains LED or filament lamp
- Bezel sizes from 7.6 to 22.9mm diameter
- Red, amber, green, blue and clear lenses
- Red, yellow, green, blue and white LEDs
- Wide choice of styles

Colours and voltages:

NEON



Available with Red, Amber, Green or Clear lenses
100/130V (marked 110V), 200/250V (marked 230V)

DC LED



Red, Yellow, Green, Blue, White
2.0/2.2V Resistors for other voltages available.

AC MAINS LED



Red, Yellow, Green, Blue, White
110-230V AC operation.

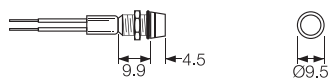
FILAMENT



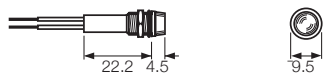
Available with Red, Amber, Green, Clear or Blue lenses
6V, 12/14V, 24/28V.

Terminal	Type	Sealed	Illumination	Colour	Voltage	Option	Panel Cutout	Approval
L	(L) 1041 OS	S Sealed	N	R	1	C Chrome Bezel Finish	6.3	KEMA KEUR
			L	A	LED No Resistor		5.3max	
L	(L) 0245 OS		M	G	2		7.1	KEMA KEUR
			F	B	125V Neon		4.6max	
L	(C) 0275 OS		L	C	3		10.0	KEMA KEUR
			M		250V Neon		11.15max	
K 2.8	H 4.8	C 6.3	F	LED	4		10.0	KEMA KEUR
					5		6VDC LED	
L	(C) 0277 OS		N	R	6		10.0	KEMA KEUR
					L		LED	
K 2.8	H 4.8	C 6.3	M	Y	7		12.7	KEMA KEUR
					F		24VDC LED	
L	(C) 0177 OS		N	G	8		11.15max	KEMA KEUR
					L		LED	
K 2.8	H 4.8	C 6.3	M	B	9		11.15max	KEMA KEUR
					F		24/ 28V Filament	
L	(L) 1041 OS		N	W	9		11.15max	KEMA KEUR
					L		LED	
K 2.8	H 4.8	C 6.3	M	Blue				KEMA KEUR
					F		White	

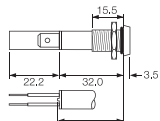
(L) 1041 OS



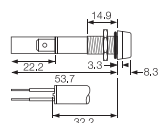
(L) 0245 OS



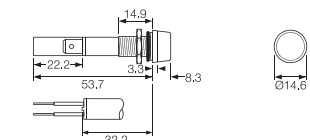
(C) 0275 OS



(C) 0277 OS



(C) 0177 OS



Terms and Conditions of Sale

All orders are accepted subject to our Standard Terms & Conditions.

Health & Safety

Bulgin proprietary components are designed, manufactured, assessed and tested to comply with good commercial quality and engineering standards. They are safe and reliable in use within the vast majority of normal environments. In the interest of safety, application in certain extreme destructive or unsuitable environments must be avoided.

The following restrictions are given as guidance:

- External or wet areas (exposed to rain or spray), except where designated "Sealed".
- Atmospheres designated as "explosive", except where designated "Gas Tight" or "Explosion Proof".
- Highly corrosive atmospheres or subject to contamination by corrosive chemicals.
(Avoid the use of corrosive acid soldering flux. Use an approved Electrical Grade).
- Atmospheres containing a high density of abrasive dust (mechanically operated components).
- Contamination with Silicone or Silicone Compounds (switches).
- Areas or levels unprotected from severe impact by heavy bodies moving in close proximity - (panel mounted components).
- Extremes of temperatures, beyond the specified limits.
- Electric supply voltage or load current above the published maximum ratings.

General

To ensure electrical safety as far as is reasonably practical, these products should be properly applied, installed and maintained by or under the supervision of competent persons in accordance with good engineering practice.

Dimensions

All dimensions are in millimetres (mm) unless otherwise stated.

The CE Marking Directive

Equipment bearing the CE mark is allowed free circulation throughout Europe. The products in this catalogue, when installed correctly, comply with the CE requirements where it relates to them.

The Low Voltage Directive

The Low Voltage Directive 2014/35/EU seeks to ensure that electrical equipment within certain limits both provides a high level of protection for European citizens and enjoys a single market in the European Union. Where applicable, Bulgin products comply with the requirements of this directive.

RoHS

These European Directives introduced environmental responsibilities for electrical and electronics equipment manufacturers. The RoHS (Restriction of use of certain Hazardous Substances) regulation (Directive 2002/95/EC) came into force July 2006. The WEEE (Waste Electrical and Electronic Equipment) regulation (Directive 2002/96/EC), came into force January 2007. The RoHS directive effectively bans the use of certain chemicals, these are defined as:

- Lead
- Cadmium
- Mercury
- Hexavalent Chromium
- Polybrominated Biphenyl (PBB) – flame retardant
- Polybrominated Diphenyl Ether (PBDE) – flame retardant (including Deca BDE)

Action has been taken to ensure all standard products meet the requirements of this directive. All packing carries RoHS compliance information as conformation.

REACH

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) is the new system for controlling chemicals in Europe and became law in the UK on 1 June 2007. Bulgin as a manufacturer of articles, are reliant on our supply chain to ensure that the substances/articles we use, are in compliance with the EC1907/2006, REACH Regulations.

Our articles and their packaging, based on our knowledge at this point, do not contain any of the 15 substances on the SVHC Candidate List, dated 28th October 2008, nor any of the 14 substances added to the SVHC Candidate List, dated 13th January 2010, nor Acrylamide added to the SVHC Candidate List, dated 30th March 2010, according to article 59 (1, 10) of Regulation (EC) No. 1907/2006 (REACH), in a concentration above 0.1% weight by weight.

If this situation changes we confirm that this information will be passed through the supply chain in a timely manner.

United Kingdom



Denmark



South Africa



BS EN ISO 9001:2000



Europe



Sweden



Austria



Finland



Switzerland



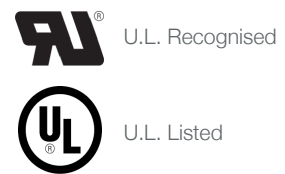
Australia



Germany



U.S.A.



Belgium



Holland



Russia



Canada



Italy



China



Norway



Comparison Chart

Metric to AWG wire sizes







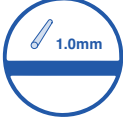
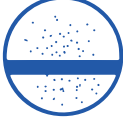

AWG	Cross Sectional Area in mm ²	Closest standard equivalent in mm ²
30	0.0503	0.05
29	0.0646	-
28	0.0804	-
27	0.102	0.1
26	0.128	0.14
25	0.163	-
24	0.205	0.2
23	0.259	0.25
22	0.325	-
21	0.412	-
20	0.519	0.5
19	0.653	-
18	0.823	0.75
17	1.04	1
16	1.31	-
15	1.65	1.5
14	2.08	-
13	2.63	2.5
12	3.13	-
11	4.15	4
10	5.27	-
9	6.62	6
8	8.35	-
7	10.6	10
6	13.3	-
5	16.8	16
4	21.2	-
3	26.7	25
2	33.6	35
1	42.4	-
0	53.4	50
2/0	67.5	70
3/0	85	95
4/0	107.2	120
5/0	135.1	150

IP Ratings Guide

The IP classification system designates the degree of protection provide by an enclosure against **solid objects** or **water ingress**.
 Table I shows degrees of protection against solid objects.
 Table II shows degrees of protection against water.



Table 1 (1st characteristic numeral)
 Degree of Protection against solid objects

	Digit
	0 Non-protected
	1 Protected against a solid object greater than 50mm, such as a hand.
	2 Protected against a solid object greater than 12.5mm, such as a finger.
	3 Protected against a solid object greater than 2.5mm, such as wire or a tool.
	4 Protected against a solid object greater than 1.0mm, such as wire or thin strips.
	5 Dust-protected. Prevents ingress of dust sufficient to cause harm.
	6 Dust tight. No ingress of dust.

Degree of protection to - DIN 40050-9

Table 2 (2nd characteristic numeral)
 Degree of Protection against water

	Digit
	0 Non-protected
	1 Protected against dripping water.
	2 Protected against dripping water when tilted up to 15°.
	3 Protected against spraying water at an angle of up to 60°.
	4 Protected against splashing water from any direction.
	5 Protected against jets of water from any direction.
	6 Protected against heavy seas or powerful jets of water. Prevents ingress sufficient to cause harm.
	7 Protected against the effects of temporary immersion in water.
	8 Protected against the effects of continuous immersion in water.
	69K Protected against very high pressure, high temperature wash-down test.