



# THE DATASHEET OF MP0038



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

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

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



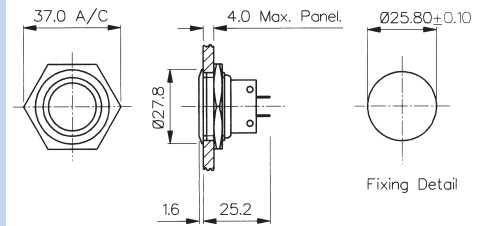
Vandal Resistant	288
Push Button	301
Voltage Selectors	320
Capacitive Switches	321
Piezo Switches	327
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Rocker Switches	339
Toggle Switches	366
Refrigerator Switches	371
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## Front Panel Mounting



MP0027

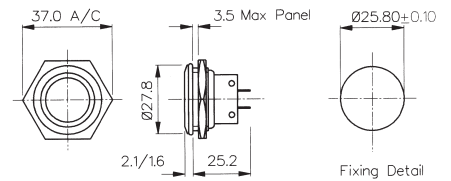
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



## Front Panel Mounting

MP0038  
Sealed to IP66

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



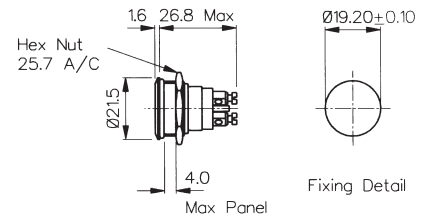
Specifications	MP0027	MP0038
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac 2A, 28Vdc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>3</sup> MΩ	>10 <sup>3</sup>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

## Front Panel Mounting



MP0037  
Sealed to IP68

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

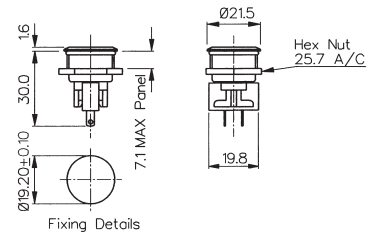


## Front Panel Mounting



MP0031  
Sealed to IP66

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



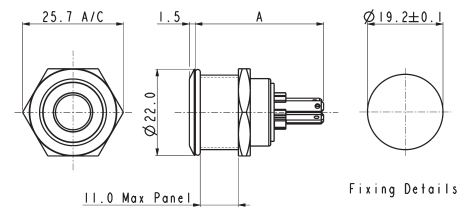
Specifications	MP0037	MP0031
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>5</sup> MΩ	>10 <sup>3</sup> MΩ
Dielectric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



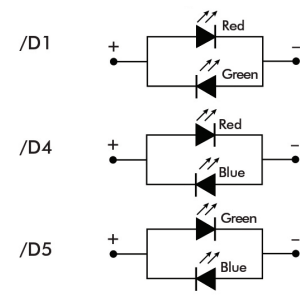
MPI001/TAG/COL A = 32.7  
MPI001/TERM/COL A = 31.0 MAX.

## Specifications

## MPI001/Termination/Colour/Voltage

Illumination style:	Dot							
Terminations:	/28 (2.8mm tabs), /TERM or /TE (screw terminals)							
Switching:	Single Contact, push to make, tactile (momentary action)							
Max. Switch Rating:	50mA, 24Vdc							
LEDs (ratings @ 20mA)								
Part No.	/RD	/GN	/AM	/BL	/WH	/D1	/D4	/D5
Colours	Red	Green	Amber	Blue	White	Red/Green	Red/Blue	Green/Blue
Luminous Intensity	900mcd	2500mcd	900mcd	1500mcd	900mcd	2500mcd/5000mcd	2000mcd/850mcd	4000mcd/2000mcd
Forward Voltage	1.85V	3.5V	2.3V	3.5V	3.6V	2.05V/3.6V	2.0V/3.6V	3.6V/3.6V
Forward Current	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA
Moulding Colour	Red	Green	Amber	Blue	White	Black	Black	Black
Illumination Voltage:	/no suffix No resistor fitted. <b>An appropriate resistor must be series connected by the user.</b> Voltages as above.							
	/6	6Vdc						
	/12	12Vdc						
	/24	24Vdc						
Contact Resistance:	<100mΩ							
Insulation Resistance:	>10 <sup>9</sup> 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							

## Dual Colour LED Configuration



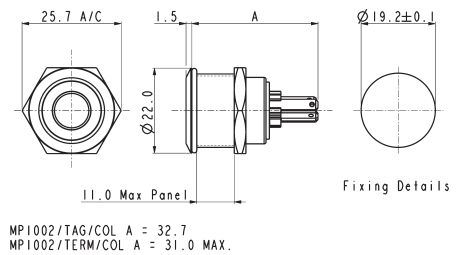
Compliant

## 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. <b>An appropriate resistor must be series connected by the user.</b> Voltages as above.									
	/6	6Vdc								
	/12	12Vdc								
	/24	24Vdc								
Contact Resistance:	<100mΩ									
Insulation Resistance:	>10 <sup>3</sup> 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									

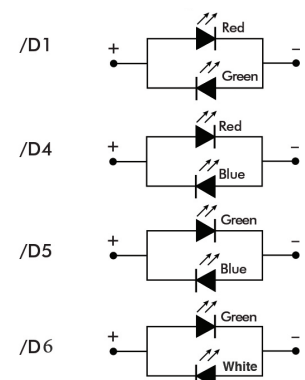
## Materials

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



# Stainless Steel Illuminated Vandal Resistant

Rear of panel IP66 seal

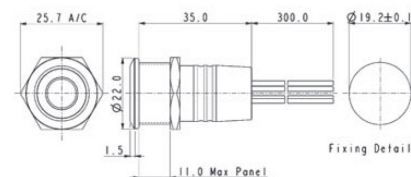


## Rear Panel Sealed - Flying Leads



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



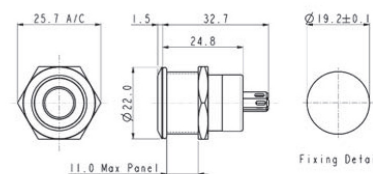
Flying lead colours: LED: red + and black - Switch contacts: white.

## 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.

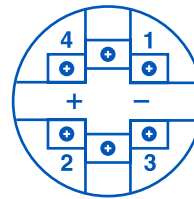
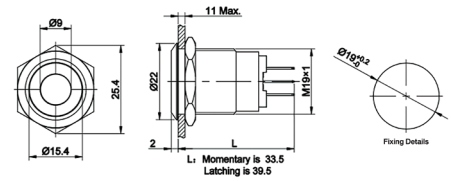
Specifications	MPI001/Termination/Colour/Voltage	MPI002/Termination/Colour/Voltage
<b>Illumination style:</b> <b>Terminations:</b> <b>Switching:</b> <b>Max. Switch Rating:</b> <b>LEDs (ratings @ 20mA)</b> Part No. Colours Luminous Intensity Forward Voltage Forward Current Moulding Colour	Dot /FL (Flying 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
<b>Illumination Voltage:</b> <b>Contact Resistance:</b> <b>Insulation Resistance:</b> <b>Dielectric Strength:</b>	/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 <sup>9</sup> 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 <sup>9</sup> MΩ Contact to Panel >2.0kV Contact to Contact 1500
<b>Operating Temp. Range:</b> <b>Sealing (Front of panel only):</b>	-30°C to +70°C Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	-30°C to +70°C Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
<b>Operations</b> <b>Mechanical:</b> <b>Electrical:</b>	750,000 (min) 35,000 (min)	750,000 (min) 35,000 (min)
<b>Operating Pressure:</b> <b>Rear Nut Fixing Torque:</b>	12N 0.57Nm	12N 0.57Nm
<b>Materials</b> <b>Switch assembly:</b> <b>Tags:</b> <b>Terminals:</b> <b>Switch Body &amp; Button:</b> <b>Lens and Lens Body:</b> <b>O ring:</b> <b>Internal seal:</b> <b>Contact Plate:</b> <b>Thread size:</b>	UL94V-0 rated Polyamide (Nylon) Copper Alloy Copper Alloy Stainless Steel Polycarbonate Nitrile Silicone Gold Plated 18.97mm x 26TPI	UL94V-0 rated Polyamide (Nylon) Copper Alloy Copper Alloy Stainless Steel Polycarbonate Nitrile Silicone Gold Plated 18.97mm x 26TPI
	Compliant	Compliant

Low Profile

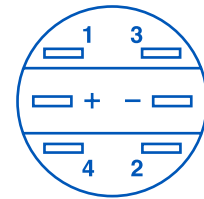


MPI005

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



Screw Layout



Plug Layout

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;.

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

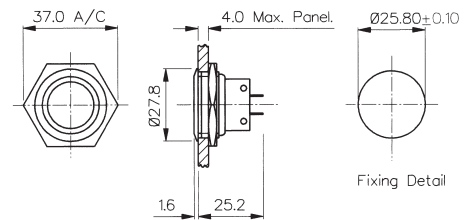
Power Symbol / Ring not available in black anodized aluminum

## Front Panel Mounting



MPB038  
Sealed to IP66

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

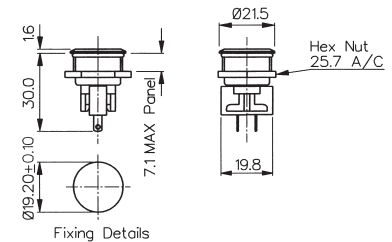


## Front Panel Mounting

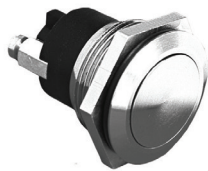


MPB031  
Sealed to IP66

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

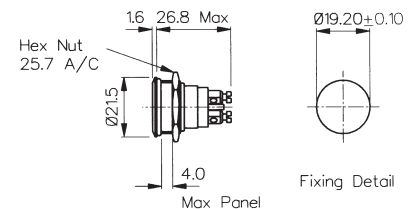


## Front Panel Mounting



MPB037  
Sealed to IP68

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



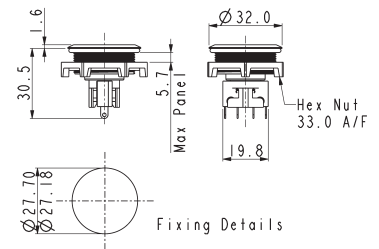
Specifications	MPB038	MPB031	MPB037
Terminations:	Solder Tags	Solder Tags	Screw Terminals
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)	S.P. Push to make Momentary action
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc	1A, 50Vac/dc
Contact Resistance:	<10mΩ	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>3</sup> MΩ	>10 <sup>3</sup> MΩ	>10 <sup>5</sup> 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

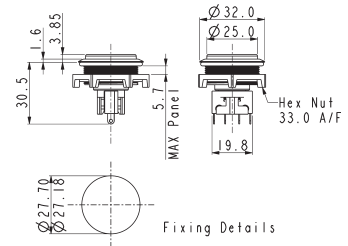


## Front Panel Mounting - Protruding Profile



MP0050/2

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



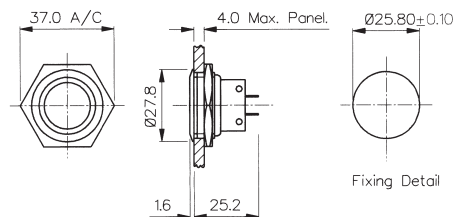
Specifications	MP0050	MP0050/2
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>3</sup> MΩ	>10 <sup>3</sup> 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
<b>RoHS</b>	Compliant	Compliant

## Front Panel Mounting



MP0027/3

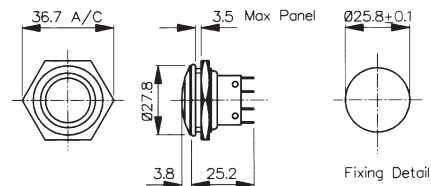
- 28mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250Vac



## 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

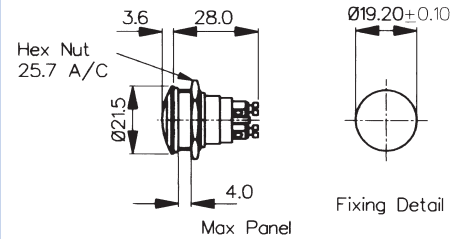
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>9</sup> MΩ	>10 <sup>9</sup> MΩ
Dielectric Strength:	>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
<b>RoHS</b>	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

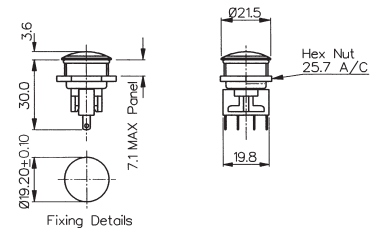


## Front Panel Mounting



MP0031/3  
Sealed to IP66

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



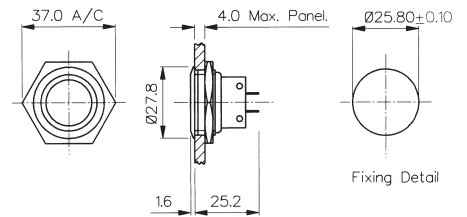
Specifications	MP0037/3	MP0031/3
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>5</sup> MΩ	>10 <sup>3</sup>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

## Front Panel Mounting



MP0027/2

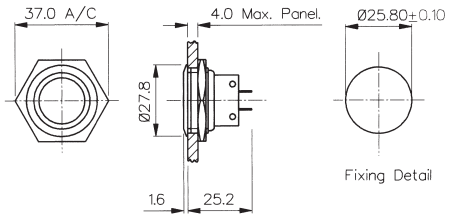
- 28mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250Vac



## Front Panel Mounting

MP0038/2  
Sealed to IP66

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



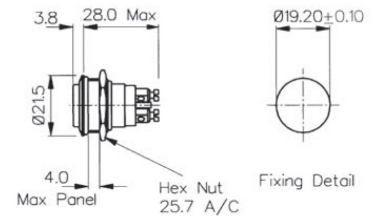
Specifications	MP0027/2	MP0038/2
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>3</sup> MΩ	>10 <sup>3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

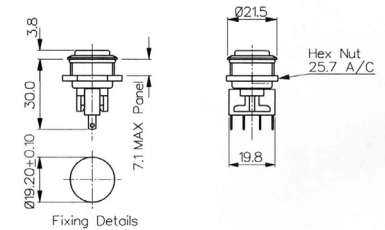


## Front Panel Mounting



MP0031/2  
Sealed to IP66

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



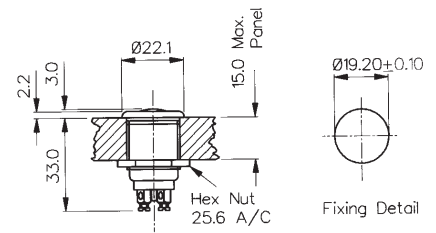
Specifications	MP0037/2	MP0031/2
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Slow momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 <sup>5</sup> MΩ	>10 <sup>3</sup>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

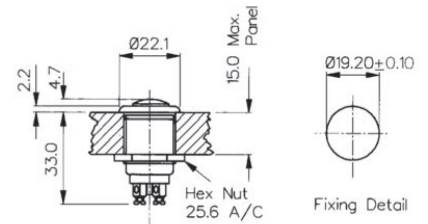


Front Panel Mounting



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



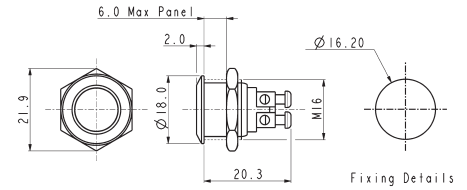
Specifications	MP0013, MP0033	MP0013/2, MP0033/2
Terminations:	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make Slow momentary action	S.P. Push to make Slow momentary action
Max. Rating:	1A, 50Vac/dc	1A, 50Vac/dc
Contact Resistance:	<15mΩ	<15mΩ
Insulation Resistance:	>10 <sup>4</sup> MΩ	>10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

Flush Profile



MP0042/1

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

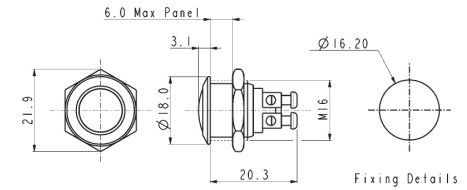


Domed Profile



MP0042/2

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

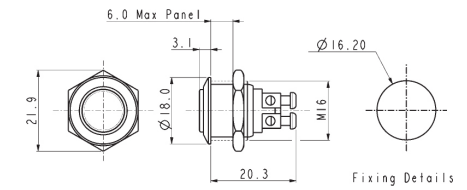


Prominent Button



MP0042/3

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



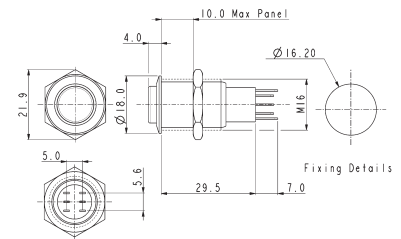
Specifications	MP0042/1	MP0042/2	MP0042/3
Terminations:	Screw Terminals	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make	S.P. Push to make	S.P. Push to make
Max. Rating:	2A, 36Vdc	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	50mΩ at 1A, 2V	50mΩ at 1A, 2V	50mΩ at 1A, 2V
Insulation Resistance:	>10 <sup>9</sup> MΩ @ 500Vdc	>10 <sup>9</sup> MΩ @ 500Vdc	>10 <sup>9</sup> 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
<b>RoHS</b>	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

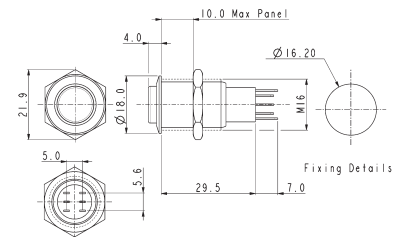


Prominent Button



MP0045/3D

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

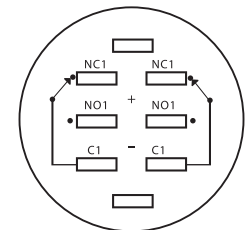


Specifications

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 <sup>3</sup> MΩ @ 500Vdc	>10 <sup>3</sup> 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:

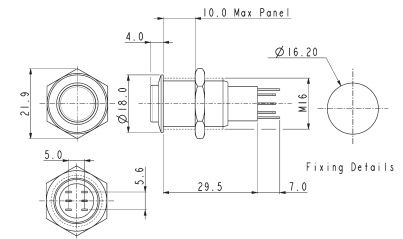
- Soldering time less than 3 seconds
- Do not push on the terminals
- Recommended cuspidal soldering iron. Temperature around 280°C

Low Profile



MP0045/1E

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

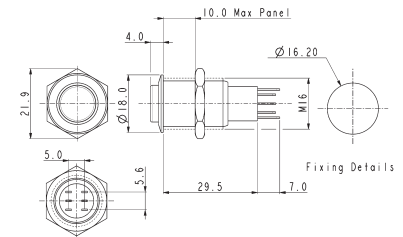


Prominent Button



MP0045/3E

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

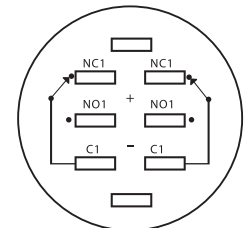


Specifications

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 <sup>3</sup> MΩ @ 500Vdc	>10 <sup>3</sup> 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:

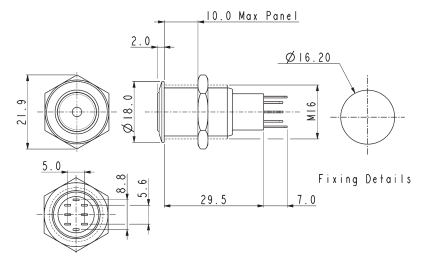
- Soldering time less than 3 seconds.
- Do not push on the terminals.
- Recommended cuspidal soldering iron. Temperature around 280°C.

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

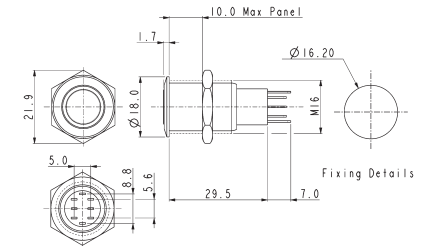


Front Panel Mounting



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

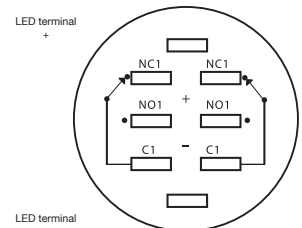


**Specifications**

**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 <sup>3</sup> MΩ @ 500Vac	>10 <sup>3</sup> 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
<b>RoHS</b>	Compliant	Compliant



Contact Layout

**Soldering Instructions:**

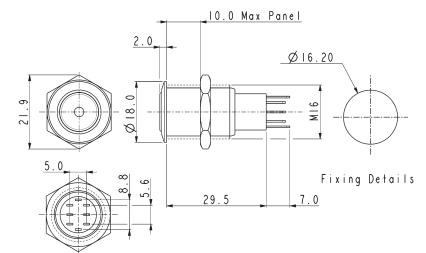
- Soldering time less than 3 seconds.
- Do not push on the terminals.
- Recommended cuspidal soldering iron. Temperature around 280°C.

## 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

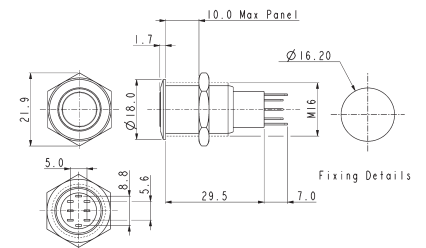


## Front Panel Mounting



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  
Part No. /S BLANKIP67 IP40  
/S BLANKMax. Switch Rating: 1A, 110Vac & 0.5A, 220Vac  
1A, 12Vdc & 1A, 24Vdc1A, 110Vac & 0.5A, 220Vac  
1A, 12Vdc & 1A, 24VdcLEDs  
Colours Red Green Amber Blue  
Part No. /RD /GN /AM /BLRed Green Amber Blue  
/RD /GN /AM /BLVoltage 12Vdc 220Vdc  
Part No. /012 /22012Vdc 220Vdc  
/012 /220

Contact Resistance: 50mΩ max. @ 1A, 2Vdc

50mΩ max. @ 1A, 2Vdc

Insulation Resistance: >10<sup>3</sup> MΩ @ 500Vac>10<sup>3</sup> MΩ @ 500Vac

Dielectric Strength: &gt;2.0kVac

&gt;2.0kVac

Operating Temp. Range: -20°C to +55°C

-20°C to +55°C

Operations  
Mechanical: 200,000 (min)  
Electrical: 30,000 (min)200,000 (min)  
30,000 (min)

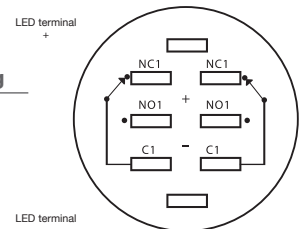
Rear Nut Fixing Torque: 12Nm

12Nm

Materials  
Mouldings: Nylon  
Tags: Brass, Silver Plated  
Switch Body & Button: Stainless Steel (Polished)  
Variants: Prominent Button, details on requestNylon  
Brass, Silver Plated  
Stainless Steel (Polished)  
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.



# Switches 8300 Vandal Resistant Switches

Designed to IP66



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)

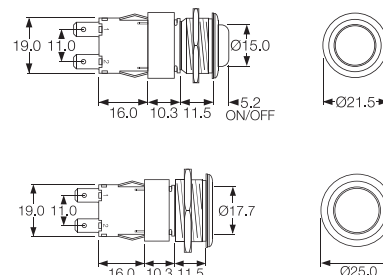
12A 250Vac DP, 13A 250Vac SP  
 250Vac 1hp, 125Vac 1/2hp  
 UL 85°C, file E45221, CSA file LR10990

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

3mm contact gap.

## Dimensions

8300RP (H terminals shown)



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



C0911VA - - -

**Key Features**

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

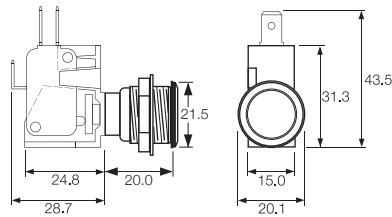
**Approvals and specifications**

- ⚡ 16(4)A 250Vac 5E4 T85
- UL Ⓢ 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><b>0911</b>                      (momentary)                      ON - ON</p>	<p><b>V</b> Flat top (stainless steel)</p>	<p><b>A</b></p> <p>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

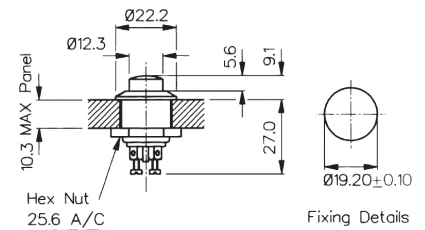


Front Panel Mounting



MP0012/Col

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

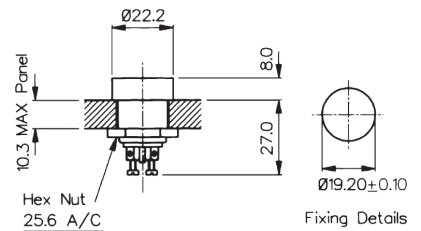


Front Panel Mounting



MP0012/1/Col

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

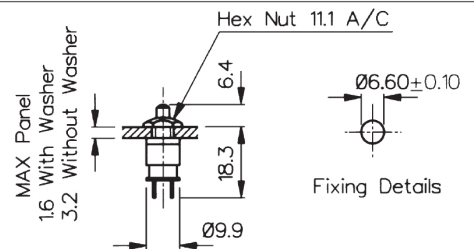


Rear Panel Mounting



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 <sup>4</sup> MΩ	>10 <sup>4</sup> MΩ	>10 <sup>4</sup> 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:	Glass Filled Nylon Brass,	Glass Filled Nylon Brass,	Glass Filled Nylon Brass,
Body:	Brass, Chrome Plated	Brass, Chrome Plated	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)
<b>RoHS</b>	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 DR, 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

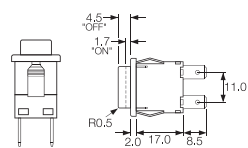
In house test:  
10(10)A 250Vac—Indicative rating only

3mm contact gap.

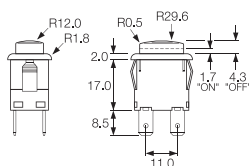
Terminal	Function	Actuator	Body Code	Body Colour								
<p><b>C</b></p>	<p>Approvals &amp; ratings vary with function Single Contact switches use terminals 1 &amp; 2 (&amp; 3)</p>		Panel cut-out ** Bezel									
	<p><b>8300</b> Single Contact ON - OFF</p>	<p><b>A</b> Standard actuator</p>	<p><b>B</b> Standard body</p>	<p><b>B</b> Black</p>								
	<p><b>8301</b> Single Contact ON - OFF (momentary ON)</p>	<p><b>H</b> Slotted for custom caps</p>	<p><b>E</b> Softline style body with radiused bezel</p>	<p><b>W</b> White</p>								
<p><b>H</b></p>	<p><b>8303</b> Single Contact ON - OFF With Light</p>	<p>Slots for snap-in buttons</p>	<p>Panel cut-outs must be punched in the direction of insertion</p>									
<p><b>A</b></p>	<p><b>8304</b> Single Contact ON - OFF (momentary ON) with light</p>	<p><b>C</b> Square actuator</p>	<p>Dimensions for snap-in fixing</p> <table border="1"> <thead> <tr> <th>Panel thickness</th> <th>Dimension X</th> </tr> </thead> <tbody> <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> </tbody> </table>	Panel thickness	Dimension X	0.75-1.24	19.1/19.2	1.25-1.99	19.3/19.4	2.00-3.00	19.7/19.8	
Panel thickness	Dimension X											
0.75-1.24	19.1/19.2											
1.25-1.99	19.3/19.4											
2.00-3.00	19.7/19.8											
	<p><b>8350</b> Double Contact ON - OFF</p>	<p><b>E</b> Radiused actuator</p>										
	<p><b>8351</b> Double Contact ON - OFF (momentary ON)</p>	<p><b>F</b> Small round actuator</p>										
<p><b>K</b></p>	<p><b>8353</b> Double Contact ON - OFF With light</p>	<p><b>J</b> Smooth curved actuator</p>										
	<p><b>8354</b> Double Contact ON - OFF (momentary ON) with light</p>	<p><b>M</b></p>										
<p><b>T</b></p>	<p><b>8355</b> Single Contact ON - OFF Isolated light - switched C, E &amp; M actuators only</p>	<p><b>D</b> Large round actuator</p>										
	<p><b>8356</b> Single Contact ON - OFF Isolated light - unswitched C, E &amp; M actuators only</p>	<p>All actuators except H available lit</p>										
<p><b>X</b></p>												
<p><b>V</b></p>												

## Dimensions

Actuator A  
Body B



Actuator J  
Body E



## Examples



☐ H8350AB ---  
☐ T8350AB ---




☐ H8353JE ---  
☐ T8353JE ---



☐ H8353EB ---  
☐ T8353EB ---

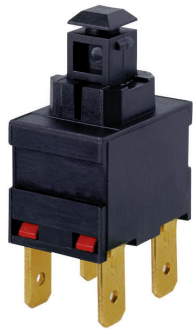


☐ H8353CB ---  
☐ T8353CB ---

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

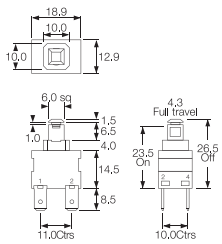
12A 250Vac  
250Vac 1hp, 125Vac 1/2hp  
 UL 85°C, file E45221, CSA file LR10990

3mm contact gap.

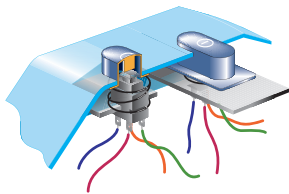
Terminal	Function	Actuator	Body Code
<p><b>C</b></p> <p>6.3 x 0.8 10.1</p>	<p>1 2 3 4</p> <p>Approvals &amp; ratings vary with function Single Contact switches use terminals 1 &amp; 2 (&amp; 3)</p> <p><b>8200</b> Single Contact ON - OFF</p>	<p><b>A</b></p> <p>Standard actuator for snap-on custom adaptors</p> <p><b>B</b></p> <p>Flat top actuator</p> <p><b>C</b></p> <p>Curved top actuator</p> <p>Examples of possible actuation methods</p> <p>Using a Snap on adaptor</p> <p>Using a Hinged Actuator</p>	<p><b>A</b></p> <p>Standard body</p> <p>See dimensioned drawings for details</p> <p><b>C</b></p> <p>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><b>H</b></p> <p>4.8 x 0.8 8.5</p> <p><b>A</b></p> <p>7.6 As "H" but right angle 4.8 x 0.8</p>	<p><b>8201</b> Single Contact ON - OFF (momentary ON)</p>	<p><b>C</b></p> <p>2.6 1.5 2.8 x 0.8 8.5</p>	<p><b>C</b></p> <p>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><b>T</b></p> <p>2.6 1.5 7.0 Solder</p> <p><b>V</b></p> <p>3.7 Ctrs 4.3 Dual Plug PCB (Call sales for mounting dims)</p>	<p><b>8250</b> Double Contact ON - OFF</p>	<p><b>C</b></p> <p>2.6 1.5 2.8 x 0.8 8.5</p>	<p><b>C</b></p> <p>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><b>X</b></p> <p>4.5 7.0 PCB 0.8 Sq</p>	<p><b>8251</b> Double Contact ON - OFF (momentary ON)</p>	<p><b>C</b></p> <p>2.6 1.5 2.8 x 0.8 8.5</p>	<p><b>C</b></p> <p>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

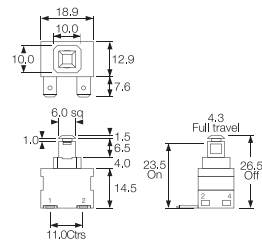
'A' body with 'H' 4.8 terminals



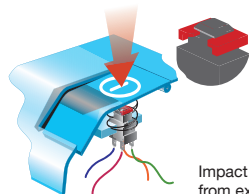
Example of possible mounting styles



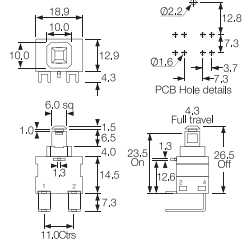
'A' body with 'A' right angle 4.8 terminals



Alternative Actuator



'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





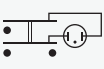
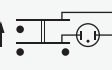


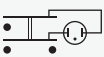
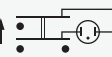

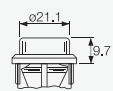

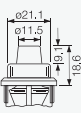
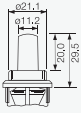



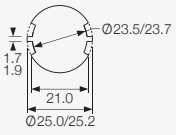
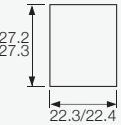


## Key Features

- 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

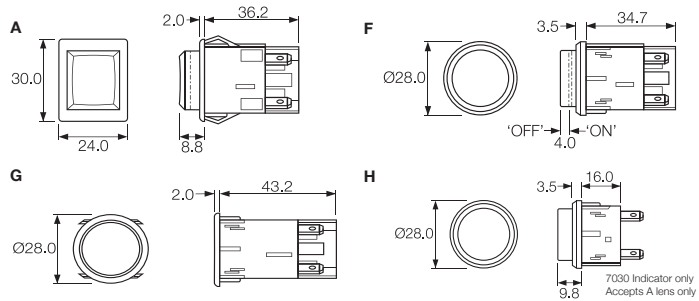
## Approvals and specifications

- CE 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><b>C</b></p>  <p>6.3 x 0.8</p> <p><b>H</b></p>  <p>4.8 x 0.8</p>	<p>1 2 3 4 Approvals &amp; ratings vary with function Single Contact switches use terminals 1 &amp; 2 (&amp; 3)</p> <p><b>7000</b> Single Contact ON - OFF</p>  <p><b>7001</b> Single Contact (momentary) ON - OFF</p>  <p><b>7003</b> Single Contact (with light) ON - OFF</p>  <p><b>7004</b> Single Contact (momentary) with light ON - OFF</p>  <p><b>7050</b> Double Contact ON - OFF</p>  <p><b>7051</b> Double Contact with light ON - OFF</p>  <p><b>7053</b> Double Contact with light ON - OFF</p>  <p><b>7054</b> Double Contact (momentary ON) with light ON - OFF</p>  <p><b>7030</b> Indicator UL E63363 CSA LR29381</p> 	<p><b>A</b> Round actuator shown in F body</p>  <p><b>A</b> Round actuator shown in G body</p>  <p><b>B</b> Round actuator - medium shown in F body</p>  <p><b>C</b> Round actuator - long shown in F body</p>  <p><b>D</b> Round actuator - sub panel mount</p>  <p><b>S</b> Rectangular actuator Shown in "A" body N/A for 7030</p> 	<p>Panel cut-outs</p> <p><b>F H G</b></p> <p>Body types fit either cut-out</p>  <p>25.0/25.2</p>  <p>21.0 23.5/23.7</p> <p><b>A</b></p>  <p>27.2 27.3 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
<b>B</b> Black	<b>A</b> Amber	— None			<p><b>Finish</b>            Matt finish is standard on bodies.            Gloss finish is standard on actuators.</p> <p><b>Colour</b>            Call sales for custom colours.            A full range is available for large orders.</p> <p><b>Legend printing</b>            A wide range is available or call sales for custom legends.</p> <p><b>Lamp voltage</b>            Call sales for details of available voltages.</p> <p><b>Weatherproof housing (E)</b>            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>W</b> White	<b>C</b> Clear	<b>2</b> 125V Neon			
	<b>G</b> Green	<b>3</b> 250V Neon			
	<b>R</b> Red	<b>7</b> 12V Filament			
		<b>8</b> 24V Filament			
	<b>B</b> Black	UNLIT			
	<b>R</b> Red				
	<b>W</b> White				

# 0911 Push Button Switches

0.5A 250Vac



## Key Features

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

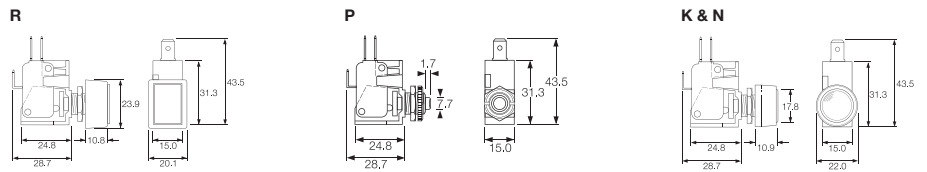
## Approvals and specifications

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><b>0911</b> (momentary) ON - ON</p>	<p><b>R</b> Rectangular bezel</p> <p><b>P</b> Short</p> <p><b>K</b> with satin chrome bezel</p> <p><b>N</b> 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

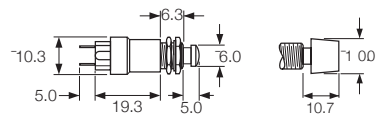
- Self wiping contacts
- Slow make & break
- Momentary action
- Choice of switch circuits
- Choice of actuators

### Approvals and specifications

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

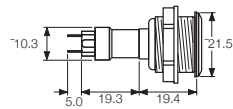
### Dimensions

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

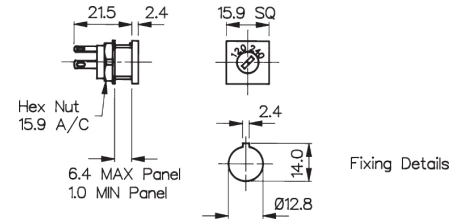
Terminal	Function	Actuator	Body Code	Options
<p><b>T</b></p>	<p><b>0916</b></p> <p>Black base SP ON - OFF (momentary)</p>	<p><b>S</b> Small Actuator</p>	<p>7.1</p>	<p>Finish</p> <p>Gloss finish for L and S actuators.</p>
	<p><b>0917</b> 50V only</p> <p>Brown base SP ON - OFF (momentary 1 side)</p>	<p>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

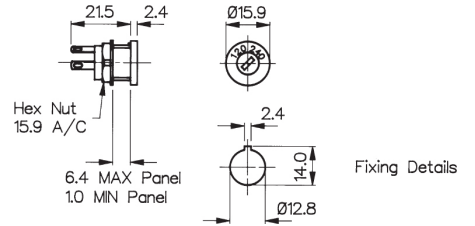


120/140V Voltage Selector

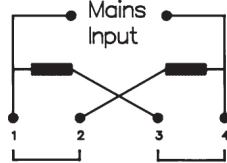


VS0002

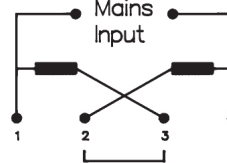
- 2.8 series tabs/Solder tags
- Round Front Bezel
- 6.3A



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
	<b>RoHS</b>	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.



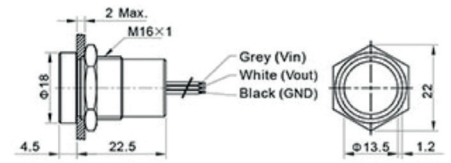
- ⊞ Sealed to IP68 and IP69K
- ⊞ Momentary or latching functions
- ⊞ Large or thin ring illumination options
- ⊞ Long life operation – 50 million of cycles
- ⊞ 16, 19, 22 or 25mm diameter options
- ⊞ Easy to use and clean
- ⊞ Extremely robust and durable – IK10 rated
- ⊞ No operating force required –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

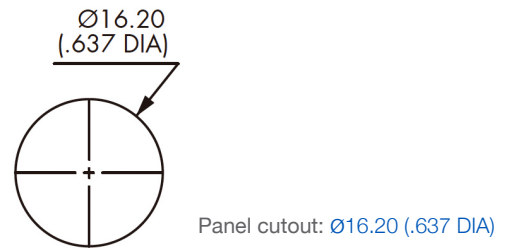


### Specification

### MC16

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

### Panel Cutout Dimensions



### Environmental Specification

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

### Circuit Specification

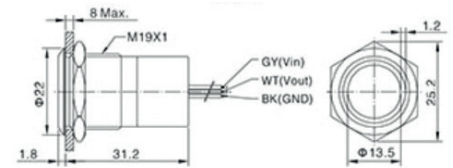
See wiring diagrams on page 326

19mm Illuminated



MC19

- Illuminated
- 300 mm lead

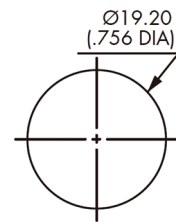


### Specification

### MC19

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel  Multi-wire leads section 0.22mm <sup>2</sup> (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
<b>RoHS</b>	Compliant

### Circuit Specification

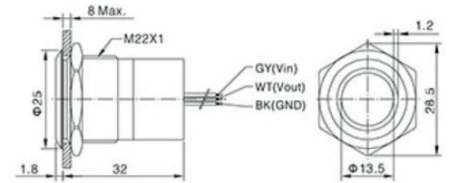
See wiring diagrams on page 326

22mm Illuminated



MC22

- Illuminated
- 300 mm lead

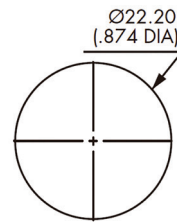


**Specification**

**MC22**

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel  Multi-wire leads section 0.22mm <sup>2</sup> (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:  $\varnothing 22.20$  (.874 DIA)

**Environmental Specification**

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

**Circuit Specification**

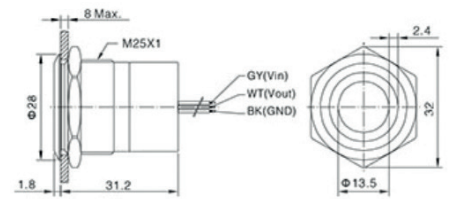
See wiring diagrams on page 326

25mm Illuminated



MC25

- Illuminated
- 300 mm lead

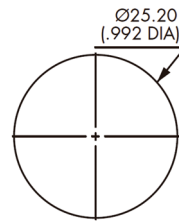


### Specification

### MC25

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel
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: Ø25.20 (.992 DIA)

### Environmental Specification

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

### Circuit Specification

See wiring diagrams on page 326

**Part No System**

MC	XX	X	X	X	XX	XX
<b>Series</b> MC-Capacitive Switch	<b>Switch Size</b> 16 = 16mm 19 = 19mm 22 = 22mm 25 = 25mm	<b>Switch Function</b> M = Momentary L = Latching	<b>Switch Status</b> O = Normally Open C = Normally Closed	<b>Colour / Material</b> B = Black Anodised R = Red Anodised S = Stainless Steel	<b>LED Colours</b> GN = GREEN (1 LED) RD = RED (1 LED) AM = AMBER (1 LED) RG = RED + GREEN (2 LEDS) GR = GREEN + RED (2 LEDS) Blank = Non-illuminated	<b>Voltage</b> 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 LEDS	
	Output Indicator	Output Indicator	Output Indicator	
<b>OFF-ON (momentary)</b> Normally Open				Grey Vin Black black GND White Vout  Wire colours may vary. Always refer to the label on the switch.
<b>ON-OFF (momentary)</b> Normally Closed				
<b>OFF-ON (latching)</b> Normally Open				
<b>ON-OFF (latching)</b> 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

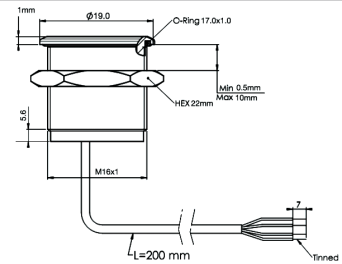


16MM Stainless Steel Non Illuminated



MPZ016

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



**Specification**

**MPZ016**

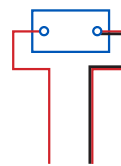
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
Actuating force,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

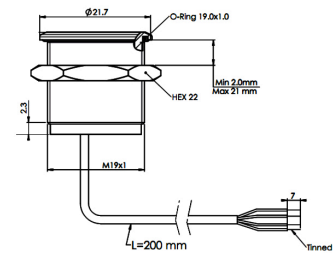


19MM Stainless Steel Illuminated



MPZI019

- Blue Illumination
- 20 cm lead
- Flathead

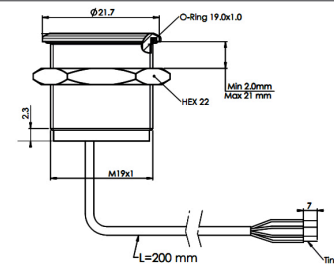


19MM Stainless Steel Non Illuminated



MPZ019

- Non Illumination
- 20 cm lead
- Flathead



**Specification**

**MPZ019, MPZI019**

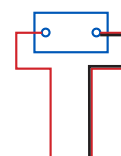
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
LED Illumination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

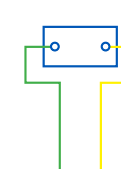
**Circuit Specification**

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

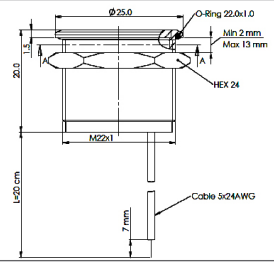


## 22MM Stainless Steel Non Illuminated



MPZ022

- Non Illumination
- 20 cm lead
- Flathead

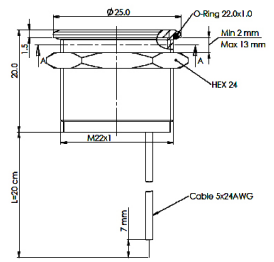


## 22MM Stainless Steel Illuminated



○ ○  
MPZI022

- Red or Green Illumination
- 1 colour
- 20 cm lead
- Flathead

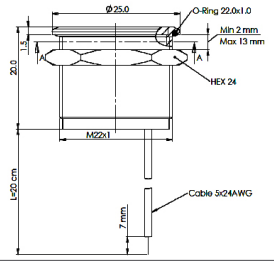


## 22MM Stainless Steel Illuminated



○ ○  
MPZI022

- Red and Green Illumination
- (2 colour)
- 20 cm lead
- Flathead



### Specification

### MPZ022, MPZI022

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

### Environmental Specification

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

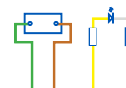
### Circuit Specification

#### 22MM Stainless Steel Non Illuminated



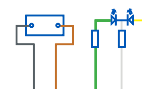
Switch Voltage 24 AC/DC  
Switch Current 1A Max  
Power Supply 24V AC/DC

#### 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

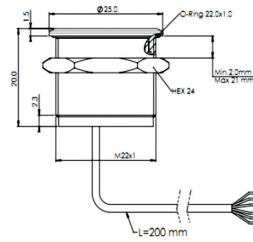


22MM Stainless Steel Illuminated



MPZI022/L

- Blue Illumination
- 1 colour
- 20 cm lead



**Specification**

**MPZI022/L**

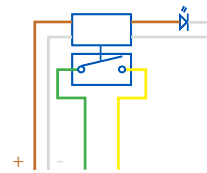
Type	Latching Toggle
Material	Stainless Steel (Aluminium upon request)
Power Supply	24V AC/DC
Switching voltage	48V AC peak/DC
Switch Resistance "ON"	<0.7Ω
Switch Resistance "OFF"	>1000MΩ
Capacitance	<90pF
Switching current	1A Max
LED Illumination	24V AC/DC
Actuating force, typically	3-5 N
Life cycle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

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

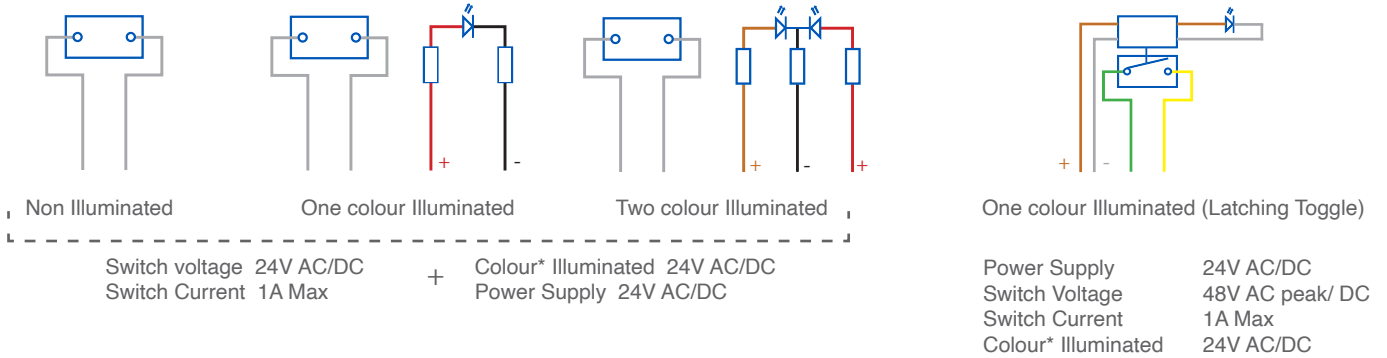
**Examples:**

MPZ022/F = Non Illuminated Piezo, 22mm, Flathead

MPZI022/F/RD/24 = Illuminated Piezo, 22mm, Flathead, Red Illumination, 24 volt

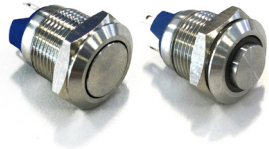
MPZI022/G/BL/24/L = Illuminated Piezo, 22mm, Guided Profile, Blue Illumination, 24 volt, Latching Toggle

**Circuit Specifications**



Other switches are available upon request\*

MAV0120

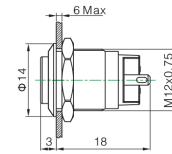


MAV0120/1

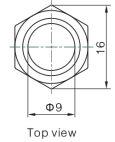
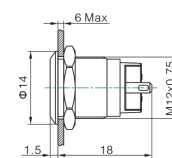
MAV0120/3

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

Prominent Profile



Flush Profile



## Specification

### MAV0120/1

### MAV0120/3

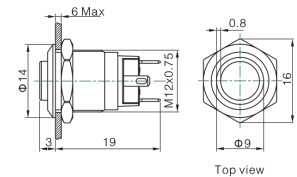
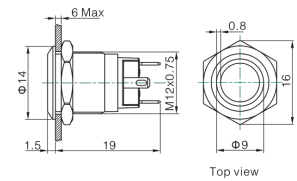
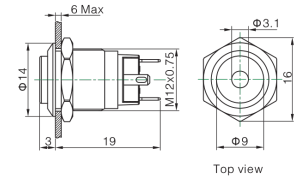
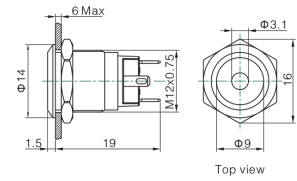
Terminations:	P - Solder Tabs	P - Solder Tabs
Switching:	S.P. Push to make	S.P. Push to make
Max Rating:	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	≥50MΩ	≥50MΩ
Insulation Resistance:	≥1000MΩ	≥1000MΩ
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C	*-25°C ~ +55°C
<b>Operations</b>		
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
<b>Materials</b>		
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

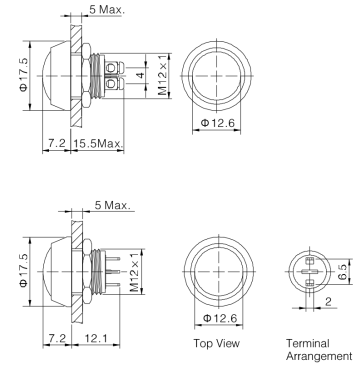
Terminations:	P - Solder Tabs				
Switching:	S.P. Push to make				
Max Rating:	2A, 36Vdc				
Profile:	Prominent /3 Flush /1				
Illumination Type	/1	Dot			
	/2	Ring			
LED Ratings					
Part No.					
Colours	/RD	/GN	/BL	/OR	/AM
Luminous Intensity	Red	Green	Blue	Orange	Yellow
Forward Voltage	1.8V	2.8V	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**

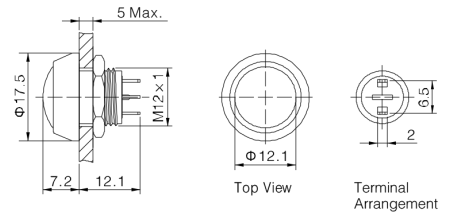
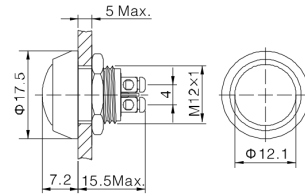
Terminations:	P - Solder Tabs S - Screw Terminal	P - Solder Tabs S - Screw Terminal
Switching:	S.P. Push to make	S.P. Push to make
Max Rating:	2A, 36Vdc	2A, 36Vdc
Contact Resistance:	$\geq 50M\Omega$	$\geq 50M\Omega$
Insulation Resistance:	$\geq 1000M\Omega$	$\geq 1000M\Omega$
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C	*-25°C ~ +55°C
<b>Operations</b>		
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
<b>Materials</b>		
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

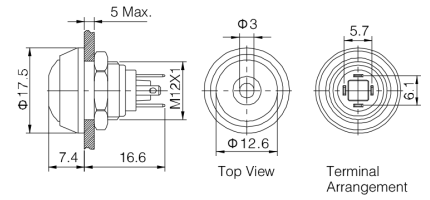
Terminations:	P - Solder Tabs S - Screw Terminal
Switching:	S.P. Push to make
Max Rating:	2A, 36Vdc
Contact Resistance:	≥50MΩ
Insulation Resistance:	≥1000MΩ
Dielectric Strength:	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C
<b>Operations</b>	
Mechanical:	1,000,000 (min)
Electrical:	200,000 (min)
Sealing (Front of Panel Only)	IP65 or IP67
Shock Resistance	IK08
Rear Nut Fixing Torque:	0.3Nm
<b>Materials</b>	
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

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

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

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





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