

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.

And where the ultimate strength of steel is not needed, there is a brass, chrome plated alternative. The low profile style switches are now also 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.



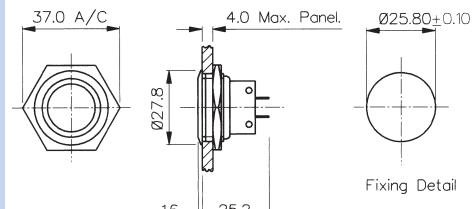
Vandal Resistant	165-185
Push Button	186-195
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Front Panel Mounting



MP0027

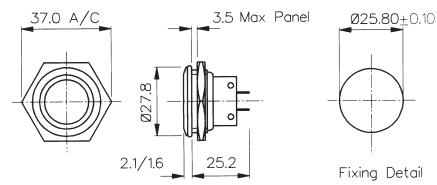
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



Front Panel Mounting

MP0038
Sealed to IP66

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

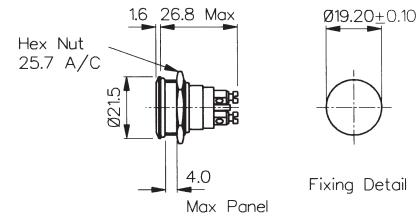
**Specifications****MP0027****MP0038**

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

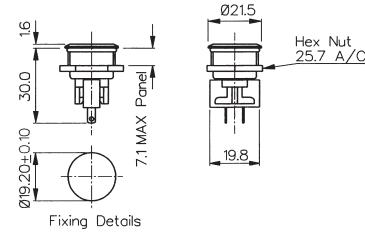


Fixing Detail

Front Panel Mounting

MP0031
Sealed to IP66

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



Fixing Details

Specifications

MP0037

MP0031

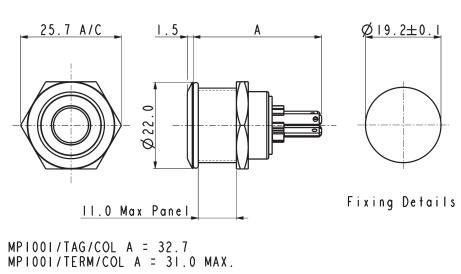
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>1.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP68 EN 60529:1992+A2:2013 (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
IP68 rating 10M for 2 weeks test:	Passed	
Operations Mechanical: Electrical:	1,000,000 (min) 30,000 (min)	1,000,000 (min) 35,000 (min)
Operating Pressure:	7.5N (typ)	4.7N (typ)
Rear Nut Fixing Torque:	0.57Nm	0.57Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Glass Filled Nylon Brass, Silver Plated Stainless Steel	Glass Filled Nylon Brass, Tin Plated 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 pole push to make
- 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- Bright daylight LEDs
- Independent LED terminals
- Front panel seal to IP66
- Integral supply resistors
- TVS protection

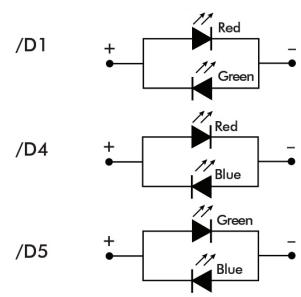


Specifications

MPI001/Termination/Colour/Voltage

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

Dual Colour LED Configuration

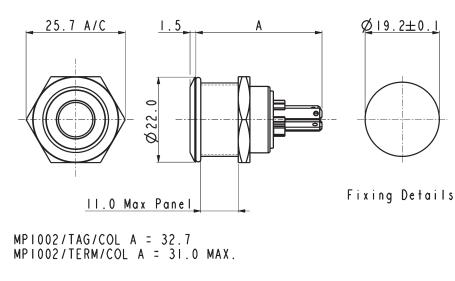


Front Panel Mounting



MPI002- front panel seal to IP66

- Ring illumination
- 22mm diameter
- Single pole 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 pole, push to make, tactile (momentary action)

Max. Switch Rating:

50mA, 24Vdc

LEDs (ratings @ 20mA)

Part No.

Colours

Luminous Intensity

Forward Voltage

Forward Current

Moulding Colour

/RD	/GN	/AM	/BL	/WH	/D1	/D4	/D5	/D6
Red	Green	Amber	Blue	White	Red/Green	Red/Blue	Green/Blue	Green/White
900mcd	2500mcd	900mcd	1500mcd	900mcd	2500mcd/5000mcd	2000mcd/850mcd	4000mcd/2000mcd	178mcd/450mcd
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
20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA	20mA
Red	Green	Amber	Blue	White	Black	Black	Black	Black

Illumination Voltage:

/no suffix No resistor fitted. **An appropriate resistor must be series connected by the user.** Voltages as above.

/6 6Vdc

/12 12Vdc

/24 24Vdc

Contact Resistance:

<100mΩ

Insulation Resistance:

>10³ MΩ

Dielectric Strength:

Contact to Panel >2.0kV

Contact to Contact 1500

Operating Temp. Range:

-30°C to +70°C

Sealing (Front of panel only):

Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)

Operations

750,000 (min)

Mechanical:

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:

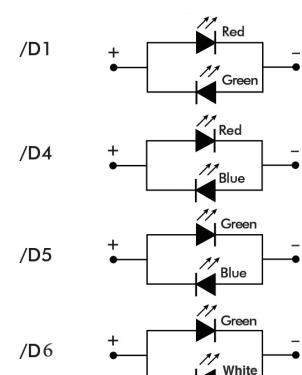
Gold Plated

Thread size:

18.97mm x 26TPI

Compliant

Dual Colour LED Configuration



Stainless Steel Illuminated Vandal Resistant

Rear of panel IP66 seal

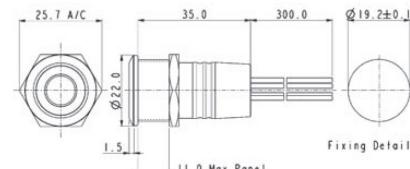


Rear Panel Sealed - Flying Leads



MPI002/FL/xx/x

- Dot or ring illumination
- 22mm diameter
- Single pole 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



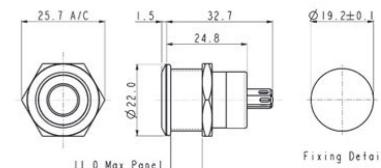
Flying lead colours: LED: red + and black -. Switch contacts: white.

Rear Panel Sealed - Solder Tags



MPI001/RP/xx/x

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



LED terminals marked + and -. Switch terminals unmarked.

Specifications

MPI001/Termination/Colour/Voltage

MPI002/Termination/Colour/Voltage

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



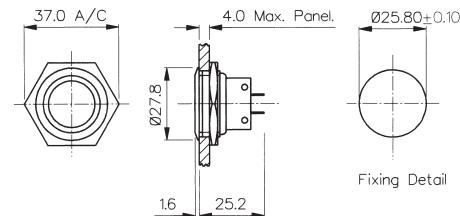
Compliant

Compliant

Front Panel Mounting

MPB038
Sealed to IP66

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

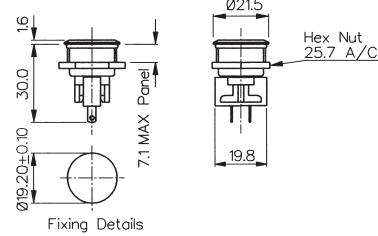


Fixing Detail

Front Panel Mounting

MPB031
Sealed to IP66

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

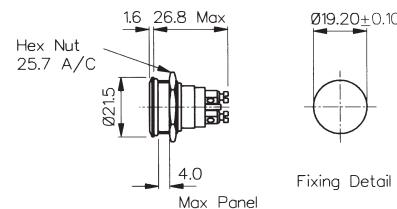


Hex Nut 25.7 A/C

Front Panel Mounting

MPB037
Sealed to IP68

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



Fixing Detail

Specifications

MPB038

MPB031

MPB037

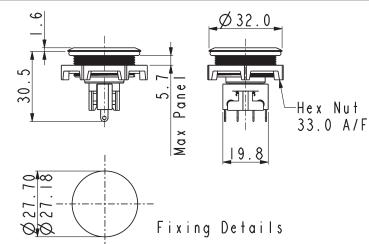
Terminations:	Solder Tags	Solder Tags	Screw Terminals
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)	S.P. Push to make Momentary action
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc	1A, 50Vac/dc
Contact Resistance:	<10mΩ	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ	>10 ⁶ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac	>1.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP68 EN60529-1:1992 + A2:2013. (Micro switch not sealed) (10m for 2 weeks)
Operations			
Mechanical:	1,000,000 (min)	1,000,000 (min)	1,000,000 (min)
Electrical:	35,000 (min)	35,000 (min)	30,000 (min)
Operating Pressure:	12.5N (typ)	4.7N (typ)	7.5N (typ)
Rear Nut Fixing Torque:	1.13Nm	0.57Nm	0.57Nm
Materials			
Mouldings:	Glass Filled Nylon	Glass Filled Nylon	Glass Filled Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Brass	Brass	Brass
Contacts:	Fine Silver	Fine Silver	Brass, Silver Plated, Silver
Thread size:	1.0" x 26TPI	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant	Compliant

Front Panel Mounting - Low Profile



MP0050

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

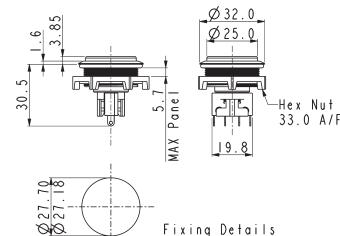


Front Panel Mounting - Protruding Profile



MP0050/2

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

**Specifications****MP0050****MP0050/2**

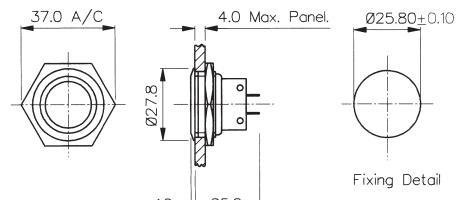
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ³ MΩ	>10 ³ MΩ
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating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

Front Panel Mounting



MP0027/3

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

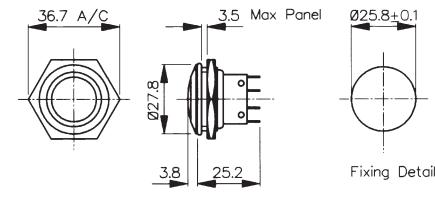


Fixing Detail

Front Panel Mounting

MP0038/3
Sealed to IP66

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



Fixing Detail

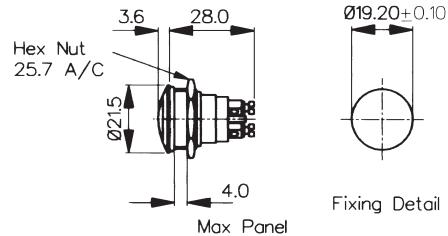
Specifications**MP0027/3****MP0038/3**

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

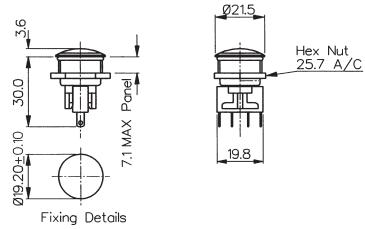


Fixing Detail

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



Fixing Details

Specifications**MP0037/3****MP0031/3**

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

RoHS

Compliant

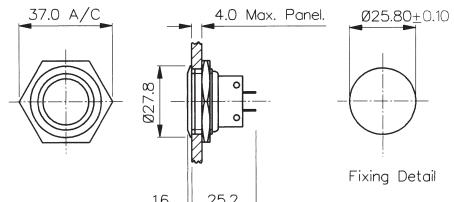
Compliant

Front Panel Mounting



MP0027/2

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

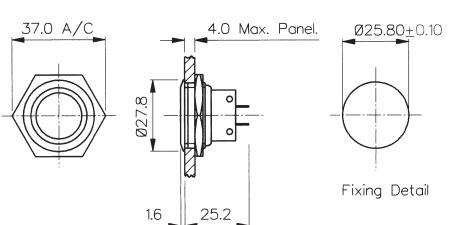


Fixing Detail

Front Panel Mounting

MP0038/2
Sealed to IP66

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



Fixing Detail

Specifications**MP0027/2****MP0038/2**

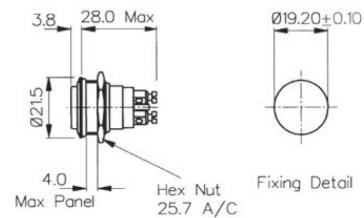
Terminations:	Solder Tags	
Switching:	S.P.C.O. Momentary Action (Microswitch)	
Max. Rating:	5A, 250Vac 2A, 28Vdc	
Contact Resistance:	<10mΩ	
Insulation Resistance:	>10 ³ MΩ	
Dielectric Strength:	>2.0kVac	
Operating Temp. Range:	-20°C to +70°C	
Sealing (Front of panel only):		
Operations		
Mechanical:	1,000,000 (min)	
Electrical:	35,000 (min)	
Operating Pressure:	7.5N (typ)	
Rear Nut Fixing Torque:	2.5Nm	
Materials		
Mouldings:	Glass Filled Nylon	
Tags/Terminations:	Brass, Tin Plated	
Switch Body & Button:	Stainless Steel	
Contacts:	Fine Silver	
Thread size:	1.0" x 26TPI	
RoHS	Compliant	

Protection Classification:
IP66 EN60529-1:1992 + A2:2013.
(Micro switch not sealed)

Front Panel Mounting

MP0037/2
Sealed to IP68

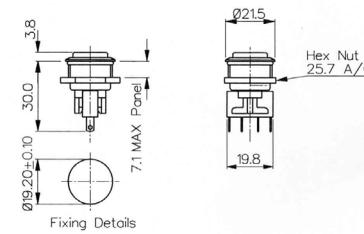
- Front Panel Sealed to IP68
- 21.5mm diameter
- Prominent Button
- S.P. Push to Make
- 1A, 50Vac/dc



Front Panel Mounting

MP0031/2
Sealed to IP66

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

**Specifications****MP0037/2****MP0031/2**

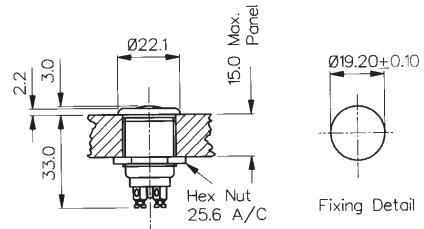
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Slow momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	>10 ⁵ MΩ	>10 ³ MΩ
Dielectric Strength:	>1.0kVac	>2.0kVac
Operating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

Front Panel Mounting



MP0013
MP0033

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

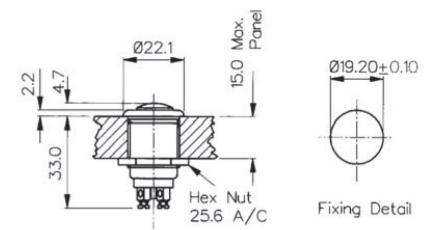


Front Panel Mounting



MP0013/2
MP0033/2

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



Specifications

MP0013, MP0033

MP0013/2, MP0033/2

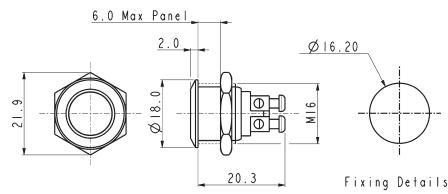
Terminations:	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make Slow momentary action	S.P. Push to make Slow momentary action
Max. Rating:	1A, 50Vac/dc	1A, 50Vac/dc
Contact Resistance:	<15mΩ	<15mΩ
Insulation Resistance:	>10 ⁴ MΩ	>10 ⁴ MΩ
Dielectric Strength:	>2.5kVac	>2.5kVac
Operating Temp.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

Flush Profile



MP0042/1

- 18mm bezel diameter
- 16mm panel hole
- S.P. Push to make
- Polished finish
- 2A, 48Vdc

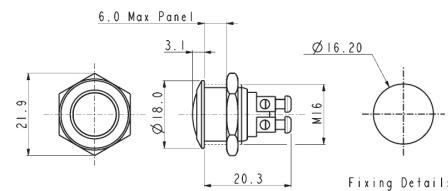


Domed Profile



MP0042/2

- 18mm bezel diameter
- 16mm panel hole
- S.P. Push to make
- Polished finish
- 2A, 48Vdc

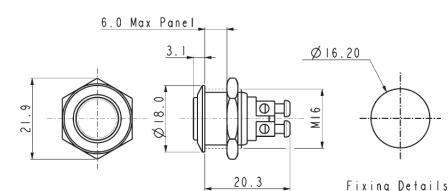


Prominent Button



MP0042/3

- 18mm bezel diameter
- 16mm panel hole
- S.P. Push to make
- Polished finish
- 2A, 48Vdc



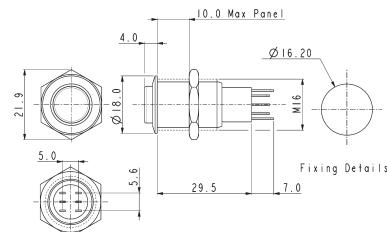
Specifications	MP0042/1	MP0042/2	MP0042/3
Terminations:	Screw Terminals	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make	S.P. Push to make	S.P. Push to make
Max. Rating:	2A, 48Vdc	2A, 48Vdc	2A, 48Vdc
Contact Resistance:	50mΩ at 1A, 2V	50mΩ at 1A, 2V	50mΩ at 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	>2.0kVac	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C
Operations			
Mechanical:	1,000,000 (min)	1,000,000 (min)	1,000,000 (min)
Electrical:	100,000 (min)	100,000 (min)	100,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm	12Nm
Materials			
Mouldings:	Nylon	Nylon	Nylon
Tags/Terminations:	Brass, Silver Plated	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel (Polished)	Stainless Steel (Polished)	Stainless Steel (Polished)
Contacts:	Silver	Silver	Silver
Thread size:	Gold Plated Brass version available	Gold Plated Brass version available	Gold Plated Brass version available
Sealing:	IP65	IP65	IP65
Impact Rating:	IK08	IK08	IK08
RoHS	Compliant	Compliant	Compliant

Low Profile



MP0045/1D

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O
- 250V ac

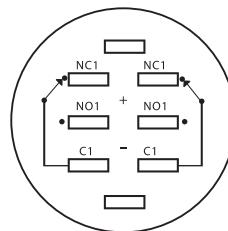
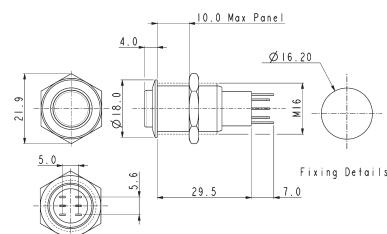


Prominent Button



MP0045/3D

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O
- 250V ac



Contact Layout

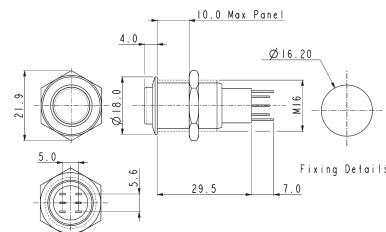
Specifications	MP0045/1D0NN000/Sealing	MP0045/3D0NN000/Sealing
Terminations:	Solder tags	Solder tags
Switching:	D.P.C.O Momentary Action	D.P.C.O Momentary Action
Sealing: Part No.	IP67 IP40 /S BLANK	IP67 IP40 /S BLANK
Max. Rating:	250V ac	250V ac
Contact Resistance:	50mΩ max. @ 1A, 2V	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	> 2.0kVac	> 2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C
Operations		
Mechanical:	200,000 (min)	200,000 (min)
Electrical:	30,000 (min)	30,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm
Materials		
Mouldings:	Nylon	Nylon
Tags/Terminations:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Silver	Silver
Variants:	Nickel Plated Brass version available Details on request	Nickel Plated Brass version available Details on request
RoHS	Compliant	Compliant

Low Profile



MP0045/1E

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O.
- 250V ac

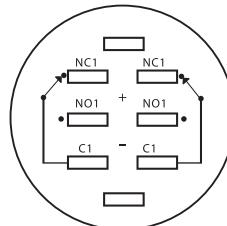
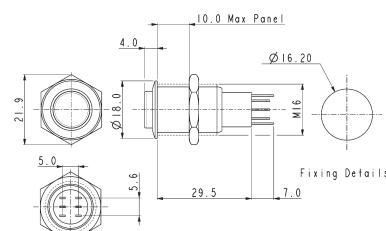


Prominent Button



MP0045/3E

- 18mm bezel diameter
- 16mm fixing hole diameter
- D.P.C.O.
- 250V ac



Contact Layout

Specifications

MP0045/1E0NN000/Sealing

MP0045/3E0NN000/Sealing

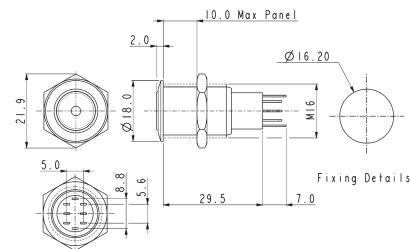
Terminations:	Solder Tags	Solder Tags
Switching:	D.P.C.O. - Latching Action	D.P.C.O. - Latching Action
Sealing:	IP67 IP40	IP67 IP40
Part No.	/S BLANK	/S BLANK
Max. Rating:	250V ac	250V ac
Contact Resistance:	50mΩ max. @ 1A, 2V	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 ³ MΩ @ 500Vdc	>10 ³ MΩ @ 500Vdc
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C
Operations		
Mechanical:	200,000 (min)	200,000 (min)
Electrical:	30,000 (min)	30,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm
Materials		
Mouldings:	Nylon	Nylon
Tags/Terminations:	Brass, Tin Plated	Brass, Tin Plated
Switch Body & Button:	Stainless Steel (Polished)	Stainless Steel (Polished)
Contacts:	Silver	Silver
Thread size:	Nickel Plated Brass version Details on request	Nickel Plated Brass version Details on request
RoHS	Compliant	Compliant

Front Panel Mounting



MP0045/1D1

- Dot Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 3A, 250V ac
- Red, Green, Amber or Blue illumination
- Separate LED Terminals

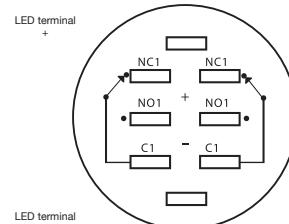
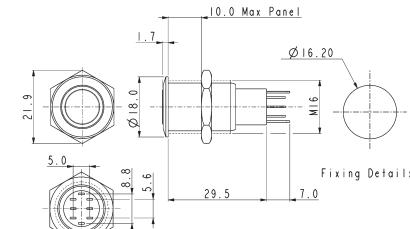


Front Panel Mounting



MP0045/1D2

- Ring Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 3A, 250V ac
- Red, Green, Amber or Blue illumination
- Separate LED Terminals



Contact Layout

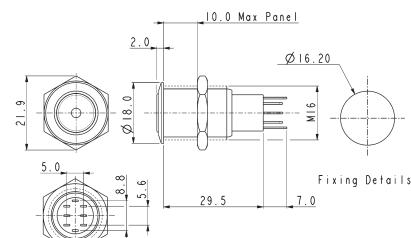
Specifications	MP0045/1D1/Colour/Voltage/Sealing	MP0045/1D2/Colour/Voltage/Sealing
Terminations:	Solder Tags	Solder Tags
Illumination:	Dot	Ring
Switching:	D.P.C.O. Momentary Action	D.P.C.O. Momentary Action
Sealing:	IP67 IP40	IP67 IP40
Part No.	/S BLANK	/S BLANK
Max. Switch Rating:	3A, 250Vac	3A, 250Vac
LEDs		
Colours	Red	Red
Part No.	/RD	/RD
	Green	Green
	/GN	/GN
	Amber	/AM
	/BL	/AM
	Blue	/BL
Voltage	12Vdc	12Vdc
Part No.	/012	/012
	220Vdc	220Vdc
	/220	/220
Contact Resistance:	50mΩ max. @ 1A, 2Vdc	50mΩ max. @ 1A, 2Vdc
Insulation Resistance:	>10 ³ MΩ @ 500Vac	>10 ³ MΩ @ 500Vac
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C
Operations		
Mechanical:	200,000 (min)	200,000 (min)
Electrical:	30,000 (min)	30,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm
Materials		
Mouldings:	Nylon	Nylon
Tags:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel (Polished)	Stainless Steel (Polished)
Variants	Prominent Button, details on request	Prominent Button, details on request
RoHS	Compliant	Compliant

Front Panel Mounting



MP0045/1E1

- Dot Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 3A, 250V ac
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals

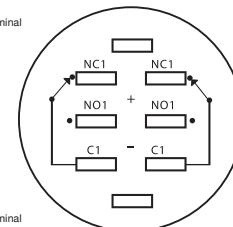
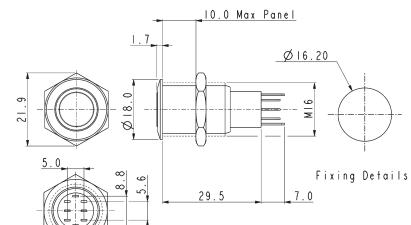


Front Panel Mounting



MP0045/1E2

- Ring Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 3A, 250V ac
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals



Contact Layout

Specifications	MP0045/1E1/Colour/Voltage/Sealing	MP0045/1E2/Colour/Voltage/Sealing
Terminations:	Solder Tags	Solder Tags
Illumination:	Dot	Ring
Switching:	D.P.C.O. Latching Action	D.P.C.O. Latching Action
Sealing:	IP67 IP40	IP67 IP40
Part No.	/S BLANK	/S BLANK
Max. Switch Rating:	3A, 250Vac	3A, 250Vac
LEDs Colours	Red /RD	Red /RD
Part No.	Green /GN	Green /GN
Amber /AM	Amber /AM	Amber /AM
Blue /BL	Blue /BL	Blue /BL
Voltage Part No.	12Vdc /012	12Vdc /012
	220Vdc /220	220Vdc /220
Contact Resistance:	50mΩ max. @ 1A, 2Vdc	50mΩ max. @ 1A, 2Vdc
Insulation Resistance:	>10 ³ MΩ @ 500Vac	>10 ³ MΩ @ 500Vac
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C
Operations Mechanical:	200,000 (min)	200,000 (min)
Electrical:	30,000 (min)	30,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm
Materials		
Mouldings:	Nylon	Nylon
Tags:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	Stainless Steel (Polished)	Stainless Steel (Polished)
Variants	Prominent Button, details on request	Prominent Button, details on request
RoHS	Compliant	Compliant

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

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





H8300RP - - -

Key Features

- Momentary or latching action
- Ratings up to 12(12) @ 250Vac
- Single and double pole
- 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)

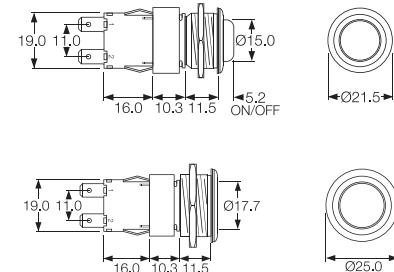
- 12A 250Vac DP, 13A 250Vac SP
- 250Vac 1hp, 125Vac 1/2hp
- UL 85°C, file E45221, CSA file LR10990

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

3mm contact gap.
Technical data on pages 4 & 5 (switches),
6 (indicators).

Dimensions

8300RP (H terminals shown)



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



C0911VA ---

Key Features

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

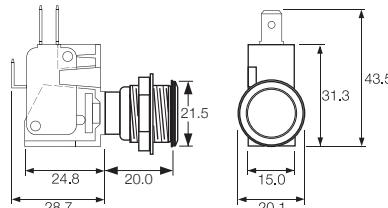
Approvals and specifications

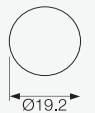
- 16(4)A 250Vac 5E4 T85
- 16A 125/250Vac 3/4hp T85 50E3
125V 1/2 HP, 250V 3/4 HP, 0.4A 125Vdc, 0.2A
250Vdc

Approvals apply to switch mechanism only.
μ contact gap.

Dimensions

C0911VA



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

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

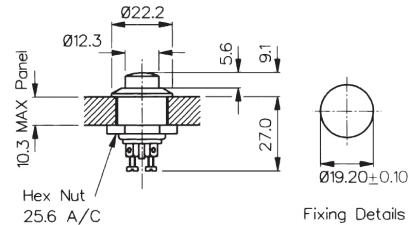


Front Panel Mounting



MP0012/Col

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



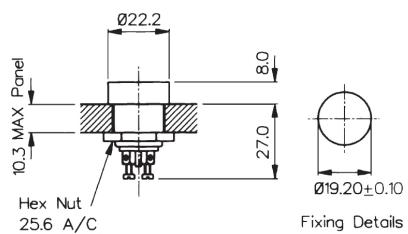
Fixing Details

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



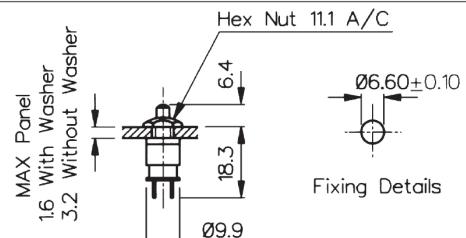
Fixing Details

Rear Panel Mounting



MP0016

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



Fixing Details

Specifications

MP0012/Colour

MP0012/1/Colour

MP0016/Colour

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

8300 Series Push Button



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 pole
- 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)

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

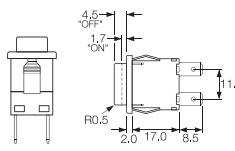
8300, 8301, 8303, 8304
13A 250Vac SP, 250Vac 1hp, 125Vac 1/2hp

UL 85°C, file E45221, CSA file LR10990

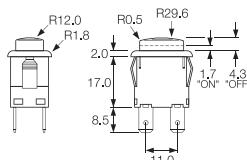
In house test:
10(10)A 250Vac—Indicative rating only
3mm contact gap.

Dimensions

Actuator A
Body B



Actuator J
Body E



Examples



H8350AB ---
 T8350AB ---



H8353JE ---
 T8353JE ---



H8353EB ---
 T8353EB ---



H8353CB ---
 T8353CB ---

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

8200 Series Push Button

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



Key Features

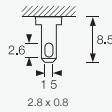
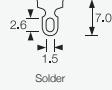
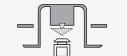
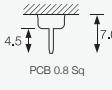
- Miniature push button
- 8A Inductive current rating
- Ratings up to 12(12)A, 250V ac (H suffix)
- Without button
- Sub panel mount
- Push on, solder or PCB terminals
- Latching and momentary

Approvals and specifications

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

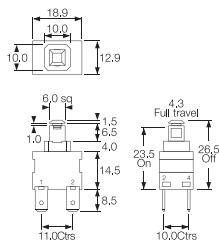
12A 250Vac
250Vac 1hp, 125Vac 1/2hp
UL 85°C, file E45221, CSA file LR10990

3mm contact gap.

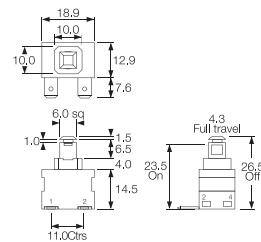
Terminal	Function	Actuator	Body Code
C 	 Approvals & ratings vary with function Single pole switches use terminals 1 & 2 (8 & 3)	8200 Single Pole ON - OFF	A Standard actuator for snap-on custom adaptors 
H  As "H" but right angle 4.8 x 0.8			A Standard body 
A 			B Flat top actuator 
K 	8201 Single Pole ON - OFF (momentary ON)	C Curved top actuator 	C As standard body but with side support peg for use with M PCB terminals  X and V PCB terminals. Additional dummy terminals may be supplied for extra support.
T  Solder	8250 Double Pole ON - OFF	 Examples of possible actuation methods Using a Snap on adaptor	
V 		 Using a Hinged Actuator 	
X  PCB 0.8 Sq	8251 Double Pole ON - OFF (momentary ON)		

Dimensions

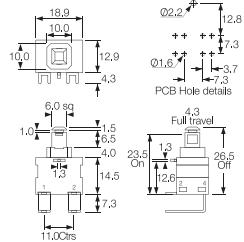
'A' body with 'H' 4.8 terminals



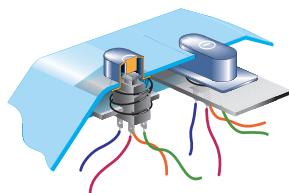
'A' body with 'A' right angle 4.8 terminals



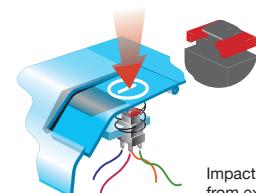
'C' body with 'M' right angle PCB terminals



Example of possible mounting styles



Alternative Actuator



Impact washer resists damage from excessive operator force

Examples



C8250AA ---
with impact washer M1226



X8201AA ---



K8200AA ---



A8200AA ---



M8200AC ---



7000 Series Push Button

16A 250Vac



Key Features

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

Approvals and specifications

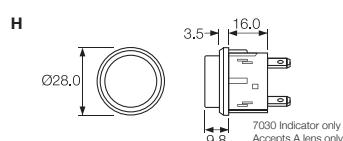
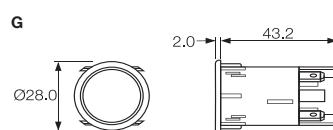
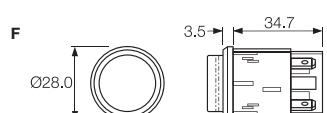
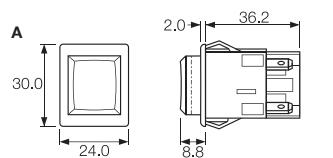
16(4)A 250Vac T125
8(8)A 250Vac T85

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
C 	<p>7000 Single Pole ON - OFF</p> <p>7001 Single Pole (momentary) ON - OFF</p> <p>7003 Single Pole (with light) ON - OFF</p> <p>7004 Single Pole (momentary) with light ON - OFF</p>		<p>F H G Body types fit either cut-out</p> <p>A</p> <p>Panel cut-outs Body types fit either cut-out</p>
H 	<p>7050 Double Pole ON - OFF</p> <p>7051 Double Pole with light ON - OFF</p> <p>7053 Double pole with light ON - OFF</p> <p>7054 Double pole (momentary ON) with light ON - OFF</p> <p>7030 Indicator UL E63363 CSA LR29381</p>		<p>A</p> <p>27.2 x 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



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

0911 Push Button Switches

0.5A 250Vac



Key Features

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

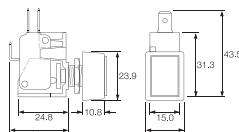
Approvals and specifications

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

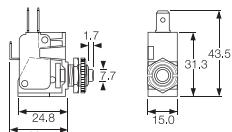
Approvals apply to switch mechanism only.
μ contact gap.

Dimensions

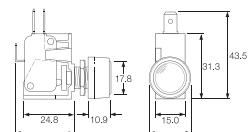
R



P



K & N



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



Key Features

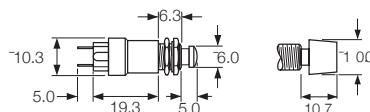
- Self wiping contacts
- Slow make & break
- Momentary action
- Choice of switch circuits
- Choice of actuators

Approvals and specifications

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

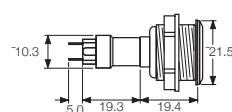
Dimensions

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

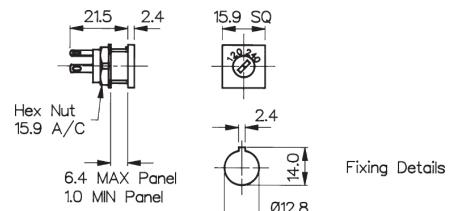
Terminal	Function	Actuator	Body Code	Options
T	<p>0916  Black base SP ON - OFF (momentary)</p> <p>0917 50V only  Brown base SP ON - OFF (momentary 1 side)</p> <p>0918  White base SP ON - OFF (momentary OFF)</p> <p>0919  Black base DP ON - OFF (momentary 1 side)</p> <p>0920  White base DP ON - OFF (momentary ON)</p>	<p>S Small Actuator </p> <p>L Large Actuator </p> <p>V Vandal Resistant IP66 Flat-top Stainless Steel </p>		Finish Gloss finish for L and S actuators.
				Colour
				Call sales for custom colours. A full range is available for large orders.

120/140V Voltage Selector



VS0001

- 2.8 series tabs/solder tags
- Square Front Bezel
- 6.3A
- CSA & VDE approvals



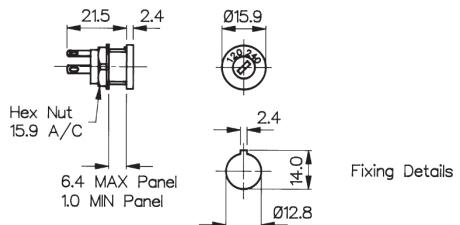
Fixing Details

120/140V Voltage Selector



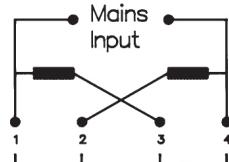
VS0002

- 2.8 series tabs/Solder tags
- Round Front Bezel
- 6.3A
- CSA & VDE approvals

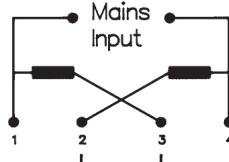


Fixing Details

Connection Parallel 120V



Connection Series 240V



Specifications

VS0001

VS0002

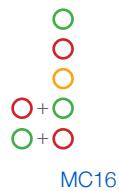
Max. Rating:	6.3A, 120 / 240	6.3A, 120 / 240
Insulation Resistance:	>106 MΩ	>106 MΩ
Termination:	2.8 series tabs/solder tags	2.8 series tabs/solder tags
Temperature Range:	-20°C to +85°C	-20°C to +85°C
Materials:		
Mouldings:	Glass Filled Nylon UL94V-1	
Tags:	Brass, Silver Plated	
Contacts:	Copper Silver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

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

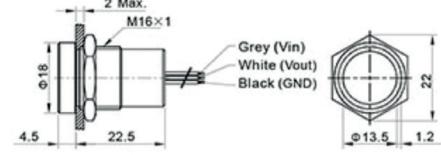


- ◊ Sealed to IP68 and IP69K
- ◊ Momentary or latching functions
- ◊ Large or thin ring illumination options
- ◊ Long life operation – 50 million of cycles
- ◊ 16, 19, 22 or 25mm diameter options
- ◊ Easy to use and clean
- ◊ Extremely robust and durable – IK10 rated
- ◊ No operating force required –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

16mm Illuminated



Illuminated
 300 mm lead



Specification

MC16

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel
Maximum Current / Voltage Rating:	Multi-wire leads section 0.22mm ² (length 300mm)
Supply Voltage	10mA 12 VDC
Contact Resistance	12 VDC
LED state for output image option	20mΩ
Actuating force, typically	1 LED: The LED is ON when output is closed.
Life cycle	2 LEDS: First colour is ON when the output is open. Second colour is ON when the output is closed.
	Zero Newton's (Touch Sensitive)
	>50 Million

Panel Cutout Dimensions



Panel cutout: Ø16.20 (.637 DIA)

Environmental Specification

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

Circuit Specification

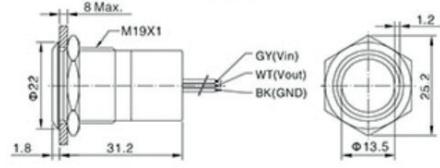
See wiring diagrams on Part No System page

19mm Illuminated



○ Illuminated
○ 300 mm lead
○ **○**
○ **○**
MC19

○ Illuminated
○ 300 mm lead



Specification

MC19

Type	Momentary / Latching
Materials	Case: Aluminium, Anodised and Stainless Steel
Maximum Current / Voltage Rating:	10mA 12 VDC
Supply Voltage	12 VDC
Contact Resistance	20mΩ
LED state for output image option	1 LED: The LED is ON when output is closed. 2 LEDS: First colour is ON when the output is open. Second colour is ON when the output is closed.
Actuating force, typically	Zero Newton's (Touch Sensitive)
Life cycle	>50 Million

Panel Cutout Dimensions



Panel cutout: Ø16.20 (.637 DIA)

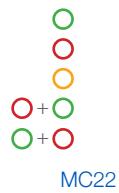
Environmental Specification

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

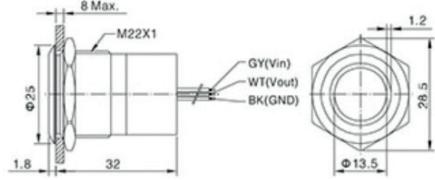
Circuit Specification

See wiring diagrams on Part No System page

22mm Illuminated



Illuminated
 300 mm lead



Specification

MC22

Type Momentary / Latching

Materials Case: Aluminium, Anodised and Stainless Steel

Multi-wire leads section 0.22mm² (length 300mm)

Maximum Current / Voltage Rating: 10mA 12 VDC

Supply Voltage 12 VDC

Contact Resistance 20mΩ

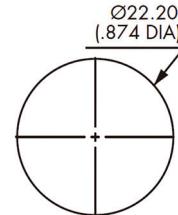
LED state for output image option 1 LED: The LED is ON when output is closed.

2 LEDS: First colour is ON when the output is open. Second colour is ON when the output is closed.

Actuating force, typically Zero Newton's (Touch Sensitive)

Life cycle >50 Million

Panel Cutout Dimensions



Panel cutout: Ø16.20 (.637 DIA)

Environmental Specification

Sealing

IP68 (2m depth for >30mins)
IP69K

Operating temperature

-25°C to +55°C

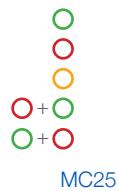
RoHS

Compliant

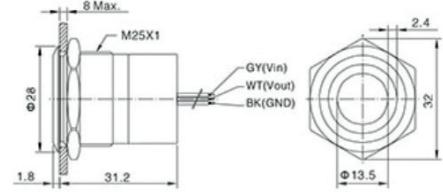
Circuit Specification

See wiring diagrams on Part No System page

25mm Illuminated



○ Illuminated
○ 300 mm lead



Specification

MC25

Type Momentary / Latching

Materials Case: Aluminium, Anodised and Stainless Steel

Multi-wire leads section 0.22mm² (length 300mm)

Maximum Current / Voltage Rating: 10mA 12 VDC

Supply Voltage 12 VDC

Contact Resistance 20mΩ

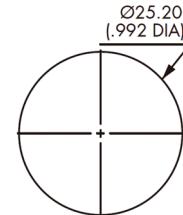
LED state for output image option 1 LED: The LED is ON when output is closed.

2 LEDS: First colour is ON when the output is open. Second colour is ON when the output is closed.

Actuating force, typically Zero Newton's (Touch Sensitive)

Life cycle >50 Million

Panel Cutout Dimensions



Panel cutout: Ø16.20 (.637 DIA)

Environmental Specification

Sealing

IP68 (2m depth for >30mins)
IP69K

Operating temperature

-25°C to +55°C

RoHS

Compliant

Circuit Specification

See wiring diagrams on Part No System page

Part No System

MC	/	XX	/	X	/	X	/	X	
Series MC-Capacitive Switch		Switch Size 16 = 16mm 19 = 19mm 22 = 22mm 25 = 25mm		Switch Function M = Momentary L = Latching		Switch Status O = Normally Open C = Normally Closed		Colour / Material B = Black Anodised R = Red Anodised S = Stainless Steel	

LED Colours
 GN = GREEN
 RD = RED
 AM = AMBER
 RG = RED + GREEN
 GR = GREEN + RED
 Blank = Non-illuminated

Examples:

MC16MOSRD = 16mm, Stainless Steel, Momentary Normally Open, Red Illumination
 MC22LOBRG = 22mm, Black Anodised, Latching Normally Open, Red and Green Illumination

Circuit Specifications

Wiring Diagrams						Legend
	1 LED		2 LEDs		Output Indicator	Legend
	Output Indicator	Output Indicator	Output Indicator	Output Indicator		
OFF-ON (momentary)						Grey Vin Black GND White Vout
ON-OFF (momentary)						Wire colours may vary. Always refer to the label on the switch.
OFF-ON (latching)						
ON-OFF (latching)						

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

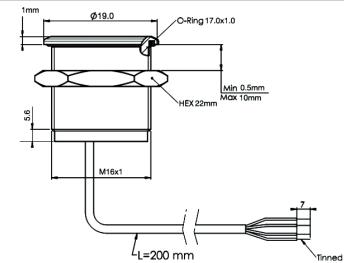


16MM Stainless Steel Non Illuminated



MPZ016

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



Specification	MPZ016	Environmental Specification	
Type	Momentary	Sealing	IP68; IP69K
Material	Stainless Steel (Aluminium upon request)	Operating temperature	-40°C to +85°C
Maximum Voltage	24V AC/DC	Vibration resistance	5-500Hz/9.4m
Switch Resistance "ON"	<1Ω	Shock resistance	75g (g-force)
Switch Resistance "OFF"	5MΩ	RoHS	Compliant
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		
Circuit Specification			
16MM Stainless Steel Non Illuminated			
Switch voltage 24V AC/DC Switch Current 1A Max Power Supply 24V AC/DC			

Piezo Switches 19mm Stainless Steel

Illuminated and Non Illuminated

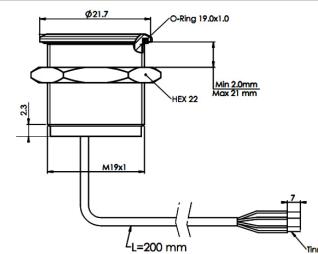


19MM Stainless Steel Illuminated



MPZI019

- Blue Illumination
- 20 cm lead
- Flathead

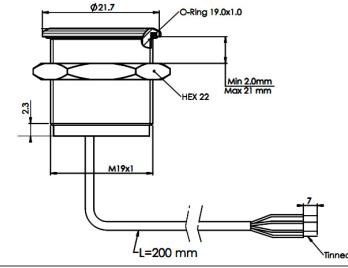


19MM Stainless Steel Non Illuminated



MPZ019

- Non Illumination
- 20 cm lead
- Flathead



Specification

MPZ019, MPZI019

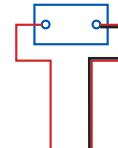
Type	Momentary
Material	Stainless Steel (Aluminium upon request)
Maximum Voltage	24V AC/DC
Switch Resistance "ON"	<1Ω
Switch Resistance "OFF"	5MΩ
Capacitance	100pF
Switching current (momentary)	1A Max
Switching current (prolonged)	300 mA
Switching pulse time (momentary)	up to 0.3 sec
LED Illumination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

Environmental Specification

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

Circuit Specification

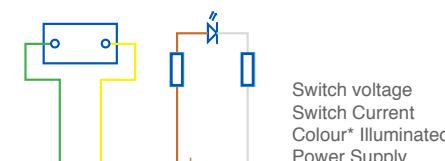
19MM Stainless Steel Non Illuminated



Switch voltage
Switch Current
Power Supply

24V AC/DC
1A Max
24V AC/DC

19MM Stainless Steel Illuminated



Switch voltage
Switch Current
Colour* Illuminated
Power Supply

24 V AC/DC
1A Max
24V AC/DC
24V AC/DC

Piezo Switches 22mm Stainless Steel

Illuminated and Non Illuminated

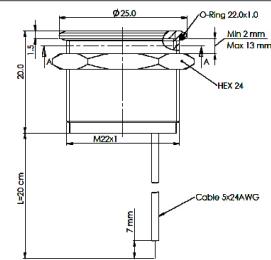


22MM Stainless Steel Non Illuminated



MPZ022

- Non Illumination
- 20 cm lead
- Flathead

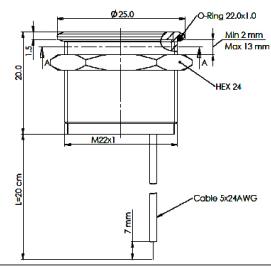


22MM Stainless Steel Illuminated



OO
MPZI022

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

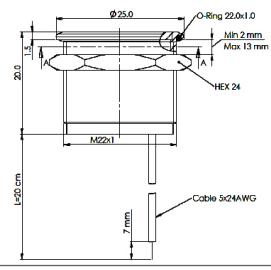


22MM Stainless Steel Illuminated



OO
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)
RoHS	Compliant

Circuit Specification

22MM Stainless Steel Non Illuminated



Switch Voltage 24V 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 24V AC/DC

22MM Stainless Steel Illuminated 2 colour



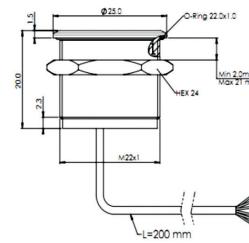
Switch Voltage 24V AC/DC
Switch Current 1A Max
Color* Illuminated 24V AC/DC
Power Supply 24V AC/DC

22MM Stainless Steel Illuminated



MPZI022/L

- Blue Illumination
- 1 colour
- 20 cm lead

**Specification**

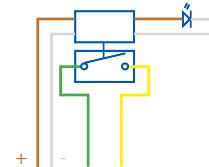
	MPZI022/L
Type	Latching Toggle
Material	Stainless Steel (Aluminium upon request)
Power Supply	24V AC/DC
Switching voltage	48V AC peak/DC
Switch Resistance "ON"	<0.7Ω
Switch Resistance "OFF"	>1000MΩ
Capacitance	<90pF
Switching current	1A Max
LED Illumination	24V AC/DC
Actuating force, typically	3-5 N
Life cycle	>10 Million

Environmental specification

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

Circuit Specification

22MM Stainless Steel Latching Toggle Illuminated



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

Part No System

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

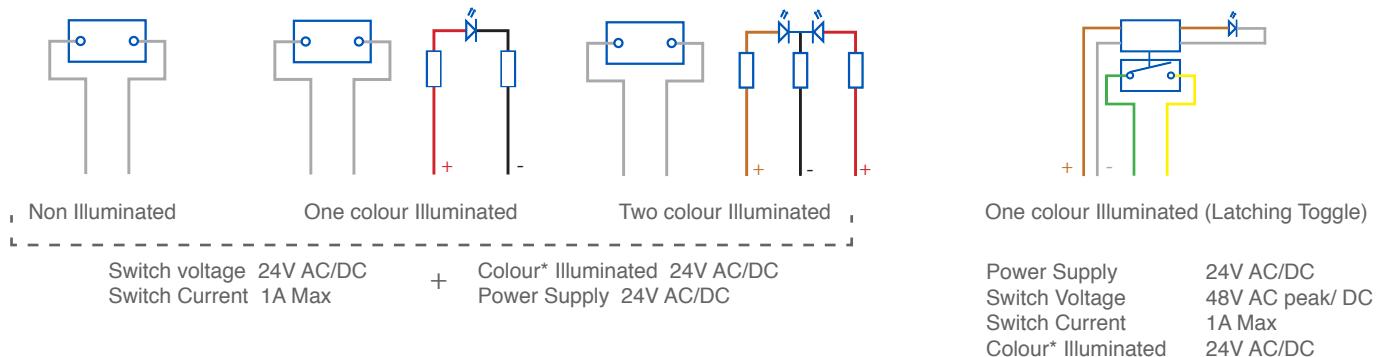
Examples:

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

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

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

Circuit Specifications



Other switches are available upon request*

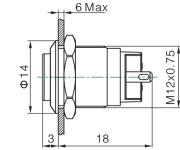
MAV0120



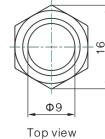
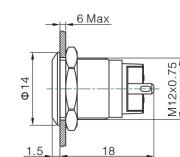
MAV0120

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

Prominent Profile



Flush Profile



Top view

Specification	MAV0120/3	MAV0120/1
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:	$\geq 50\text{M}\Omega$	$\geq 50\text{M}\Omega$
Insulation Resistance:	$\geq 1000\text{M}\Omega$	$\geq 1000\text{M}\Omega$
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C	*-25°C ~ +55°C
Operations		
Mechanical:	500,000 (min)	500,000 (min)
Electrical:	200,000 (min)	200,000 (min)
Sealing (Front of Panel Only)	IP67	IP67
Shock Resistance	IK08	IK08
Rear Nut Fixing Torque:	0.6Nm	0.6Nm
Materials		
Mouldings:	PA	PA
Tags/Terminations:	Copper, Gold Plated	Copper, Gold Plated
Switch Body & Button:	Stainless Steel	Stainless Steel
Contacts:	Silver Alloy	Silver Alloy
Thread size:	M12x0.75	M12x0.75
RoHS	Compliant	Compliant

MAV0120



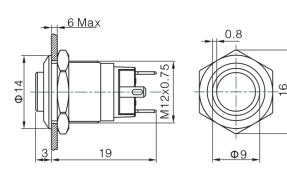
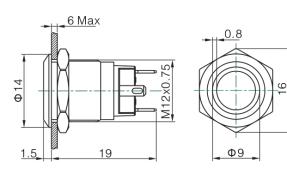
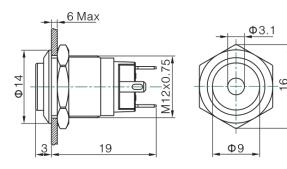
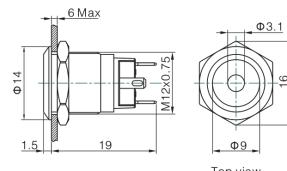
MAV0120

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

Specification

MAV0120

Terminations:	P - Solder Tabs
Switching:	S.P. Push to make
Max Rating:	2A, 36Vdc
Profile:	Prominent /3 Flush /1
Illumination Type	/1 Dot /2 Ring
LED Ratings	
Part No.	
Colours	
Luminous Intensity	/RD Red
Forward Voltage	/GN Green
Forward Current	/BL Blue
Moulding Current	/OR Orange
	/AM Yellow
	1.8V
	2.8V
	2.8V
	1.8V
	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:	$\geq 50\Omega$
Insulation Resistance:	$\geq 1000M\Omega$
Dielectric Strength:	1500V, AC 50Hz, 5 Secs
Operating Temp. Range:	$^{*}-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$
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



12mm Switches

Miniature Domed Metal Vandal Resistant

None Illuminated - Metal Dome

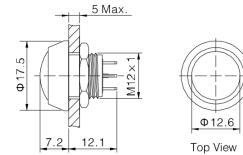
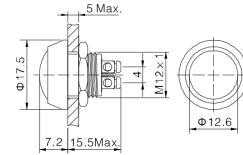


MMP0120



MMP0120

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



Top View



Terminal Arrangement

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:	$\geq 50\text{M}\Omega$	$\geq 50\text{M}\Omega$
Insulation Resistance:	$\geq 1000\text{M}\Omega$	$\geq 1000\text{M}\Omega$
Dielectric Strength:	1500V, AC 50Hz, 5 Secs	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C	*-25°C ~ +55°C
Operations		
Mechanical:	500,000 (min)	500,000 (min)
Electrical:	200,000 (min)	200,000 (min)
Sealing (Front of Panel Only)	IP65 or IP67	IP65 or IP67
Shock Resistance	IK08	IK08
Rear Nut Fixing Torque:	0.3Nm	0.3Nm
Materials		
Mouldings:	PBT	PBT
Tags/Terminations:	Brass, Silver Plated	Brass, Silver Plated
Switch Body & Button:	/SS Stainless Steel	/N - Nickel Plated Brass
Contacts:	Silver Alloy	Silver Alloy
Thread size:	M12x1	M12x1
RoHS	Compliant	Compliant

12mm Switches

Miniature Domed PBT Pushbutton

Non Illuminated - PBT

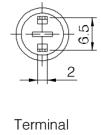
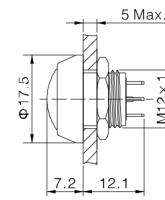
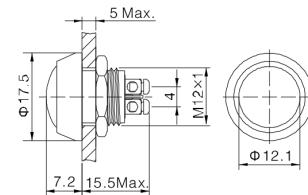


MMP0120/A



MMP0120/A

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



Terminal Arrangement

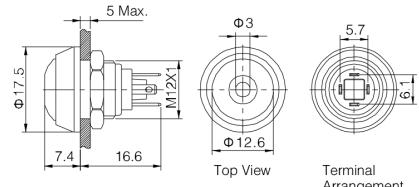
Specification	MMP0120/A
Terminations:	P - Solder Tabs S - Screw Terminal
Switching:	S.P. Push to make
Max Rating:	2A, 36Vdc
Contact Resistance:	$\geq 50\text{M}\Omega$
Insulation Resistance:	$\geq 1000\text{M}\Omega$
Dielectric Strength:	1500V, AC 50Hz, 5 Secs
Operating Temp Range:	*-25°C ~ +55°C
Operations	
Mechanical:	1,000,000 (min)
Electrical:	200,000 (min)
Sealing (Front of Panel Only)	IP65 or IP67
Shock Resistance	IK08
Rear Nut Fixing Torque:	0.3Nm
Materials	
Mouldings:	PBT
Tags/Terminations:	Brass, 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)



Terminal Arrangement

12mm Miniature Vandal Resistant Stainless Steel Switch

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

Examples:

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

12mm Miniature Metal/Plastic Domed Pushbutton Switch

MMPXXX	X	X	X	X	X	X	X
Series MMP0120 = Non Illuminated MMPI0120 = Illuminated	Body Material S = Stainless Steel N = Nickel Plated Brass A = Black Anodized	Button Material & Colour SS = Nickel Plated Brass RD = RED PBT GN = GREEN PBT BL = BLUE PBT BK = BLACK PBT	Sealing Blank = IP65 67 = IP67 IP67 (non-illuminated only)	Illumination Colour Blank = None RD = RED GN = GREEN BL = BLUE AM = AMBER/YELLOW OR = ORANGE	Lamp Voltage Blank = None 012 = 12V 024 = 24V Other voltages require external resistor	Termination S = Screw Terminals P = Solder Terminals (2.0mm x 0.5mm)	

Examples:

MMP0120/SSSS = 12mm, Non Illuminated, All Stainless Steel, IP65, Screw Terminals
MMP0120/ARD67/S = 12mm, Non Illuminated, Black anodized body, Red PBT button, IP67, screw terminals
MMPI0120/NNBRD012P = 12mm, Illuminated, All Nickel Plated Brass with 12V Red Dot illumination, IP65, Pin Terminals

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