



# Switches

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 & 68 front panel sealing that, combined together, 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, available in dot and ring indication and a variety of illumination colours, are new to the range and will add that extra dimension to control panel layouts.

Other switch types include conventional push-button and toggle switches.

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## Vandal Resistant Switches

### ENGRAVING OPTIONS

The low profile and prominent vandal resistant switches MP0025, MP0027, MP0031, MP0034, MP0038, MP0025/2, MP0027/2, MP0031/2, MP0034/2 and MP0038/2 are also available with engraved non-rotating buttons.

|    |     |     |    |    |
|----|-----|-----|----|----|
| 0  | 1   | 2   | 3  | 4  |
| 5  | 6   | 7   | 8  | 9  |
| 10 | 11  | 12  | 13 | 14 |
| 15 | 16  | 17  | 18 | 19 |
| 20 | A1* | A2* |    |    |

### How to Order

**MP00xx/1/xx**

**Switch Style** \_\_\_\_\_  
 MP0025, MP0025/2, MP0027, MP0027/2,  
 MP0031, MP0031/2, MP0034, MP0034/2,  
 MP0038, MP0038/2

**Non Rotating Button** \_\_\_\_\_

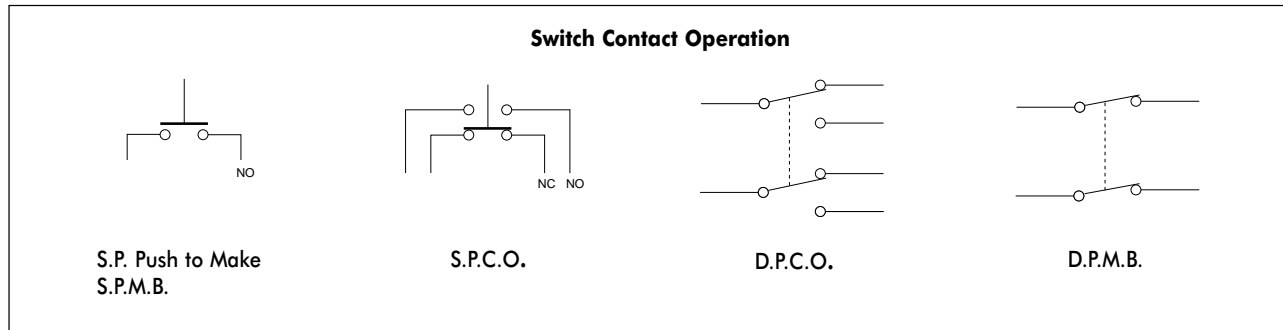
**Engraving option** \_\_\_\_\_  
 0 - 20 Numeric  
 A1 = Up Arrow  
 A2 = Down Arrow

### Examples

MP0031/1/A1 = MP0031 style switch, with non-rotating button engraved with an up arrow

MP0027/2/1/13 = MP0027/2 style switch with prominent non-rotating button engraved with numeric characters 13

### SWITCH OPERATION

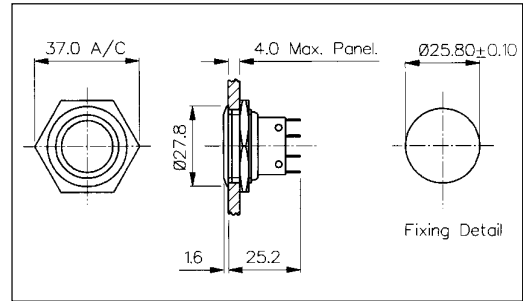


**Stainless Steel Low Profile Vandal Resistant - Momentary**

**FRONT PANEL MOUNTING**



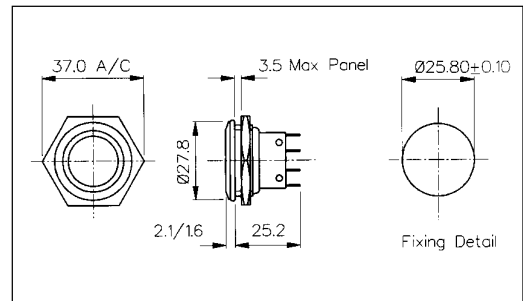
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250V a.c.



**FRONT PANEL MOUNTING**



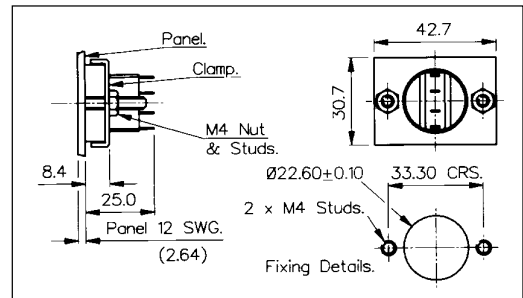
- Front Panel Sealed to IP66
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250V a.c.



**REAR PANEL MOUNTING**



- 22mm diameter
- S.P.C.O. Microswitch
- 5A, 250V a.c.



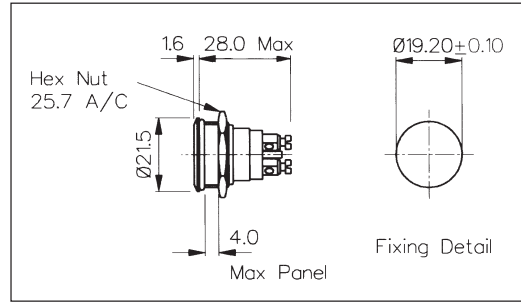
| Specification                  | MP0027   | MP0038   | MP0025   |
|--------------------------------|--|--|--|
| Terminations:                  | Solder Tags  | Solder Tags  | Solder Tags  |
| Switching:                     | S.P.C.O. Momentary Action (Microswitch)                  | S.P.C.O. Momentary Action (Microswitch)                                | S.P.C.O. Momentary Action (Microswitch)                  |
| Max. Rating:                   | 5A, 250V a.c.  | 5A, 250V a.c.  | 5A, 250V a.c.  |
| Contact Resistance:            | <10mΩ  | <10mΩ  | <10mΩ  |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ                                      | >10 <sup>3</sup> MΩ.   | >10 <sup>3</sup> MΩ                                      |
| Dielectric Strength:           | >2.0kV a.c.  | >2.0kV a.c.  | >2.0kV a.c.  |
| 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 1992 (Micro switch not sealed) |  |
| Operations                     |  |  |  |
| Mechanical:                    | 1,000,000 (min)  | 1,000,000 (min)  | 1,000,000 (min)  |
| Electrical:                    | 35,000 (min)   | 35,000 (min)   | 35,000 (min)   |
| Operating Pressure:            | 7.5N (typ)   | 12.5N (typ)  | 6.1N (typ)   |
| Rear Nut Fixing Torque:        | 2.5Nm  | 1.13Nm   | -  |
| 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:          | Stainless Steel  | Stainless Steel  | Stainless Steel  |
| Contacts:                      | Fine Silver  | Fine Silver  | Fine Silver  |
| Variants:                      | Engraved Button, Non-Rotating Button, details on request | Engraved Button, Non-Rotating Button, details on request               | Engraved Button, Non-Rotating Button, details on request |
| <b>RoHS</b>                    | Compliant  | Compliant  | Compliant  |

## Stainless Steel Low Profile Vandal Resistant - Momentary

### FRONT PANEL MOUNTING



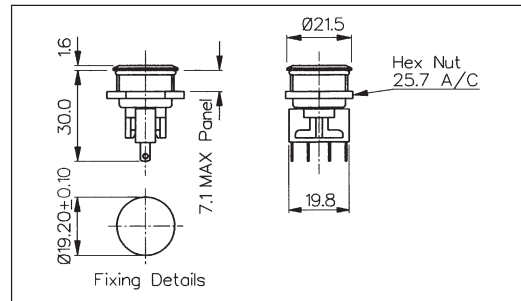
- Front Panel Sealed to IP68
- 21.5mm diameter
- S.P. Push to Make
- 1A, 50V a.c./d.c.
- Industry Standard Size



### FRONT PANEL MOUNTING



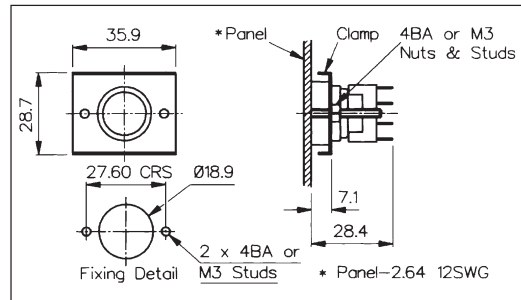
- Front Panel Sealed to IP66
- 21.5mm diameter
- S.P.C.O. Microswitch
- 5A, 250V a.c.



### REAR PANEL MOUNTING



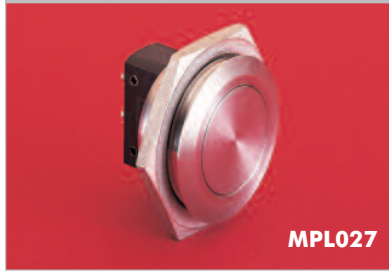
- Rear Panel Mounting
- Flush with Panel
- 19mm diameter
- S.P.C.O. Microswitch
- 5A, 250V a.c.



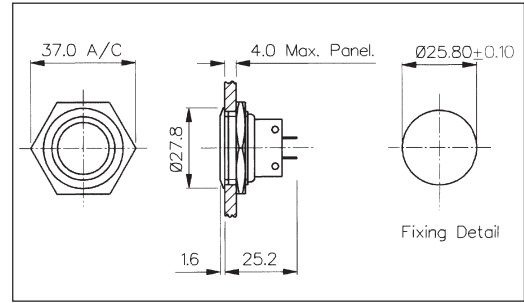
| Specification                  | MP0037   | MP0031  | MP0034  |
|--------------------------------|--|---|---|
| Terminations:                  | Screw Terminals  | Solder Tags   | Solder Tags   |
| Switching:                     | S.P. Push to make<br>Momentary action                                  | S.P.C.O. Momentary Action<br>(Microswitch)                                | S.P.C.O. Momentary Action<br>(Microswitch)                  |
| Max. Rating:                   | 1A, 50V a.c./d.c.  | 5A, 250V a.c.   | 5A, 250V a.c.   |
| Contact Resistance:            | <10mΩ  | <10mΩ   | <10mΩ   |
| Insulation Resistance:         | >10 <sup>5</sup> MΩ  | >10 <sup>3</sup> MΩ.  | >10 <sup>3</sup> MΩ   |
| Dielectric Strength:           | >1.0kV a.c.  | >2.0kV a.c.   | >2.0kV a.c.   |
| 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: IP68 EN60529<br>1992 (Terminals not sealed) | Protection Classification: IP66 EN60529<br>1992 (Micro switch not sealed) |   |
| Operations                     |  |   |   |
| Mechanical:                    | 1,000,000 (min)  | 1,000,000 (min)   | 250,000 (min)   |
| Electrical:                    | 30,000 (min)   | 35,000 (min)  | 35,000 (min)  |
| Operating Pressure:            | 7.5N (typ)   | 4.7N (typ)  | 2.7N (typ)  |
| Rear Nut Fixing Torque:        | 0.57Nm   | 0.57Nm  | -   |
| Materials                      |  |   |   |
| Mouldings:                     | Glass Filled Nylon   | Glass Filled Nylon  | Glass Filled Nylon  |
| Tags/Terminations:             | Brass, Silver Plated   | Brass, Tin Plated   | Brass, Tin Plated   |
| Switch Body & Button:          | Stainless Steel  | Stainless Steel   | Stainless Steel   |
| Contacts:                      | Brass, Silver Plated, Silver   | Fine Silver   | Fine Silver   |
| Variants:                      | -  | Engraved Button, Non-Rotating Button,<br>details on request               | Engraved Button, Non-Rotating Button,<br>details on request |
| RoHS                           | Compliant  | Compliant   | Compliant   |

Stainless Steel Low Profile Vandal Resistant - Latching

FRONT PANEL MOUNTING



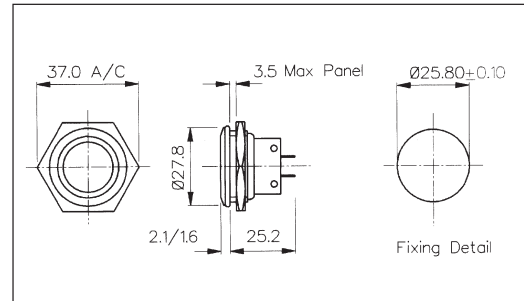
- 28mm diameter
- 2A, 50V a.c./d.c.
- Single pole push to make
- Latching switch



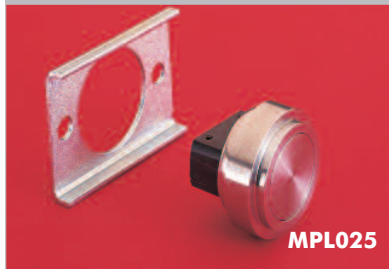
FRONT PANEL MOUNTING



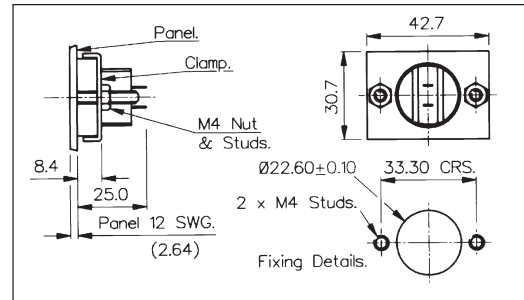
- Front Panel Sealed to IP66
- 28mm diameter
- 2A, 50V
- Single pole push to make
- Latching switch



REAR PANEL MOUNTING



- 22mm diameter
- 2A, 50V
- Single pole push to make
- Latching switch



| Specification                  | MPL027                             | MPL038   | MPL025                             |
|--------------------------------|------------------------------------|--|------------------------------------|
| Terminations:                  | Solder Tags                        | Solder Tags  | Solder Tags                        |
| Switching:                     | S.P.M.B. - Latching                | S.P.M.B. - Latching  | S.P.M.B. - Latching                |
| Max. Rating:                   | 2A, 50V a.c./d.c.                  | 2A, 50V  | 2A, 50V                            |
| Contact Resistance:            | <10mΩ                              | <10mΩ  | <10mΩ                              |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ                | >10 <sup>3</sup> MΩ.   | >10 <sup>3</sup> MΩ                |
| Dielectric Strength:           | >2.0kV a.c.                        | >2.0kV a.c.  | >2.0kV a.c.                        |
| 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 1992 (Switch not sealed) |                                    |
| Operations                     |                                    |  |                                    |
| Mechanical:                    | 8,000 (min)                        | 8,000 (min)  | 8,000 (min)                        |
| Electrical:                    | 8,000 (min)                        | 8,000 (min)  | 8,000 (min)                        |
| Operating Pressure:            | 5.5N (typ)                         | 5.5N (typ)   | 5.5N (typ)                         |
| Rear Nut Fixing Torque:        | 2.5Nm                              | 1.13Nm   | -                                  |
| 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:          | Stainless Steel                    | Stainless Steel  | Stainless Steel                    |
| Contacts:                      | Fine Silver                        | Fine Silver  | Fine Silver                        |
| Variants:                      | Engraved Button details on request | Engraved Button details on request                               | Engraved Button details on request |
| RoHS                           | Compliant                          | Compliant  | Compliant                          |

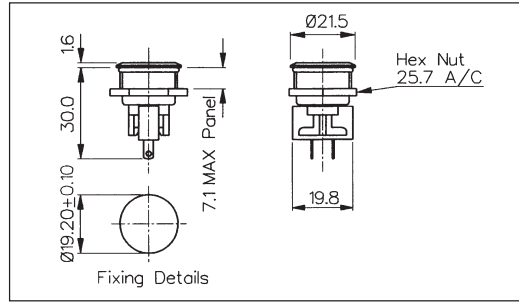
## Stainless Steel Low Profile Vandal Resistant - Latching

### FRONT PANEL MOUNTING

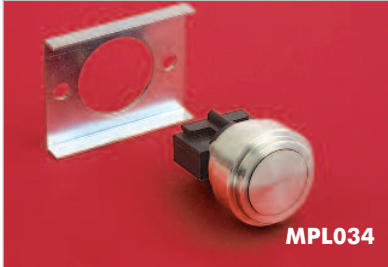


**MPL031**  
Sealed to IP66

- Front Panel Sealed to IP66
- 21.5mm diameter
- 2A, 50V a.c./d.c.
- Single pole push to make
- Latching switch

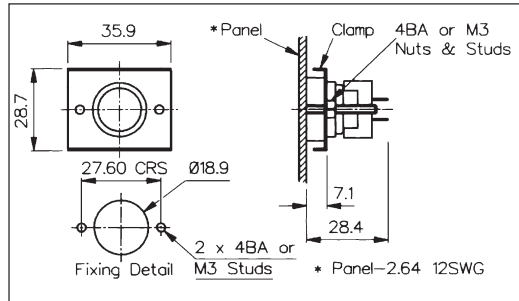


### REAR PANEL MOUNTING



**MPL034**

- Rear Panel Mounting
- Flush with Panel
- 19mm diameter
- 2A, 50V
- Single pole push to make
- Latching switch



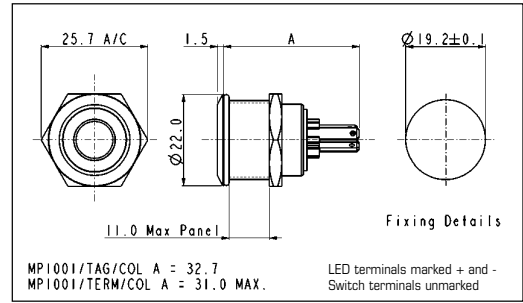
| Specification                  | MPL031   | MPL034                             |
|--------------------------------|--|------------------------------------|
| Terminations:                  | Solder Tags  | Solder Tags                        |
| Switching:                     | S.P.M.B. - Latching  | S.P.M.B. - Latching                |
| Max. Rating:                   | 2A, 50V a.c./d.c.  | 2A, 50V                            |
| Contact Resistance:            | <10mΩ  | <10mΩ                              |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ  | >10 <sup>3</sup> MΩ                |
| Dielectric Strength:           | >2.0kV a.c.  | >2.0kV a.c.                        |
| Operating Temp. Range:         | -20°C to +70°C   | -20°C to +70°C                     |
| Sealing (Front of panel only): | Protection Classification: IP66 EN60529 1992 (Switch not sealed) |                                    |
| Operations                     |  |                                    |
| Mechanical:                    | 8,000 (min)  | 8,000 (min)                        |
| Electrical:                    | 8,000 (min)  | 8,000 (min)                        |
| Operating Pressure:            | 5.5N (typ)   | 5.5N (typ)                         |
| Rear Nut Fixing Torque:        | 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                        |
| Variants:                      | Engraved Button details on request                               | Engraved Button details on request |
| <b>RoHS</b>                    | Compliant  | Compliant                          |

**Stainless Steel Illuminated Vandal Resistant**

**FRONT PANEL MOUNTING**



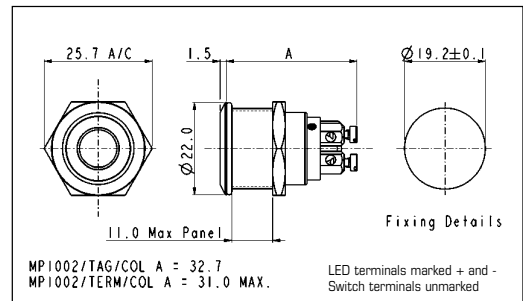
- Dot Illuminated
- 22mm diameter
- S.P. Push to Make
- 50mA, 24V dc contact rating
- Red, Green, Amber, Blue or White Illumination
- Bright Daylight LEDs
- Separate LED Terminals



**FRONT PANEL MOUNTING**



- Ring Illuminated
- 22mm diameter
- S.P. Push to Make
- 50mA, 24V dc contact rating
- Red, Green, Amber, Blue or White Illumination
- Bright Daylight LEDs
- Separate LED Terminals



| Specification                  | MPI001/Termination/Col  | MPI002/Termination/Col                              |
|--------------------------------|---|---|
| Terminations:                  | /28 (2.8mm tabs),<br>/Term (screw terminals)                  | /28 (2.8mm tabs),<br>/Term (screw terminals)        |
| Switching:                     | S.P. Push to make, tactile                                    | S.P. Push to make, tactile                          |
| Max. Switch Rating:            | 50mA, 24V d.c.  | 50mA, 24V d.c.                                      |
| LEDs (ratings @ 20mA)          |   |   |
| 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                           |
| Part No.                       | /RD /GN /AM /BL /WH   | /RD /GN /AM /BL /WH                                 |
|                                | *An appropriate resistor must be series connected by the user |   |
| Contact Resistance:            | <100mΩ  | <100mΩ  |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ   | >10 <sup>3</sup> MΩ.                                |
| Dielectric Strength:           | Contact to Panel >2.0kV<br>Contact to Contact 1500V           | Contact to Panel >2.0kV<br>Contact to Contact 1500V |
| Operating Temp. Range:         | -30°C to +70°C  | -30°C to +70°C                                      |
| Sealing (Front of panel only): | Protection Classification: IP66 EN60529 1992                  | Protection Classification: IP66 EN60529 1992        |
| 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   |
| RoHS                           | Compliant   | Compliant   |

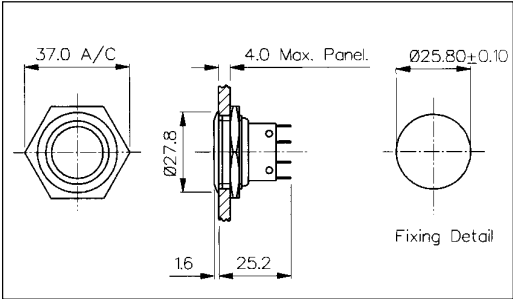
## Low Profile Brass Chrome Plated Vandal Resistant

**FRONT PANEL MOUNTING**




- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250V a.c.

**MPB027**

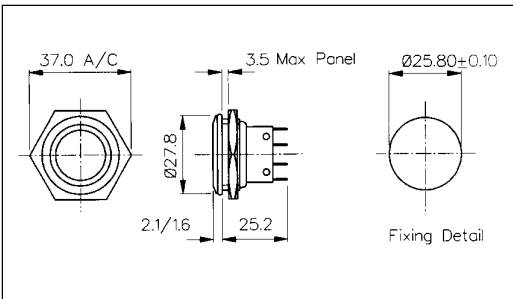


**FRONT PANEL MOUNTING**




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

**MPB038**  
Sealed to IP66

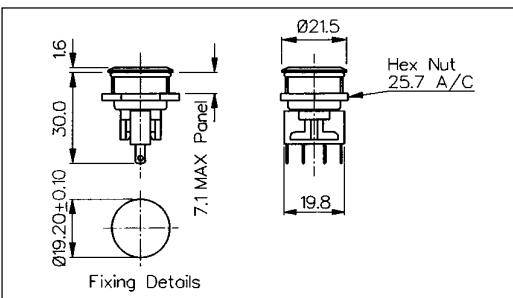


**FRONT PANEL MOUNTING**



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

**MPB031**  
Sealed to IP66



| Specification                  | MPB027                                  | MPB038   | MPB031   |
|--------------------------------|---|--|--|
| Terminations:                  | Solder Tags                             | Solder Tags  | Solder Tags  |
| Switching:                     | S.P.C.O. Momentary Action (Microswitch) | S.P.C.O. Momentary Action (Microswitch)                                | S.P.C.O. Momentary Action (Microswitch)                                |
| Max. Rating:                   | 5A, 250V a.c.                           | 5A, 250V a.c.  | 5A, 250V a.c.  |
| Contact Resistance:            | <10mΩ                                   | <10mΩ  | <10mΩ  |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ                     | >10 <sup>3</sup> MΩ.   | >10 <sup>3</sup> MΩ  |
| Dielectric Strength:           | >2.0kV a.c.                             | >2.0kV a.c.  | >2.0kV a.c.  |
| 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 1992 (Micro switch not sealed) | Protection Classification: IP66 EN60529 1992 (Micro switch not sealed) |
| Operations                     |   |  |  |
| Mechanical:                    | 1,000,000 (min)                         | 1,000,000 (min)  | 1,000,000 (min)  |
| Electrical:                    | 35,000 (min)                            | 35,000 (min)   | 35,000 (min)   |
| Operating Pressure:            | 7.5N (typ)                              | 12.5N (typ)  | 4.7N (typ)   |
| Rear Nut Fixing Torque:        | 2.5Nm                                   | 1.13Nm   | 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, Chrome Plated                    | Brass, Chrome Plated   | Brass, Chrome Plated   |
| Contacts:                      | Fine Silver                             | Fine Silver  | Fine Silver  |
| Variants:                      | Non-Rotating Button, details on request | Non-Rotating Button, details on request                                | Non-Rotating Button, details on request                                |
| <b>RoHS</b>                    | Compliant                               | Compliant  | Compliant  |

SWITCHES

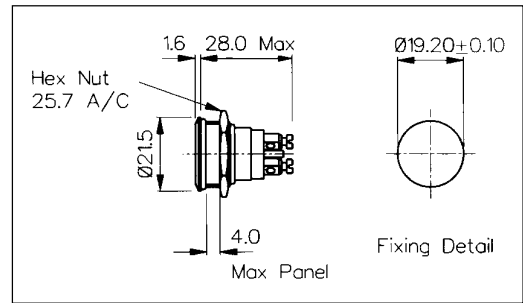


Low Profile Brass Chrome Plated Vandal Resistant

FRONT PANEL MOUNTING



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



| Specification                  | MPB037   |
|--------------------------------|--|
| Terminations:                  | Screw Terminals  |
| Switching:                     | S.P. Push to make<br>Momentary action                                  |
| Max. Rating:                   | 1A, 50V  |
| Contact Resistance:            | <10mΩ  |
| Insulation Resistance:         | >10 <sup>5</sup> MΩ  |
| Dielectric Strength:           | >1.0kV a.c.  |
| Operating Temp. Range:         | -20°C to +70°C   |
| Sealing (Front of panel only): | Protection Classification: IP68 EN60529<br>1992 (Terminals not sealed) |
| Operations                     |  |
| Mechanical:                    | 1,000,000 (min)  |
| Electrical:                    | 30,000 (min)   |
| Operating Pressure:            | 7.5N (typ)   |
| Rear Nut Fixing Torque:        | 0.57Nm   |
| Materials                      |  |
| Mouldings:                     | Glass Filled Nylon   |
| Tags/Terminations:             | Brass, Silver Plated   |
| Switch Body & Button:          | Brass, Chrome Plated   |
| Contacts:                      | Brass, Silver Plated, Silver   |
| Variants:                      |  |
| <b>RoHS</b>                    | Compliant  |

SWITCHES

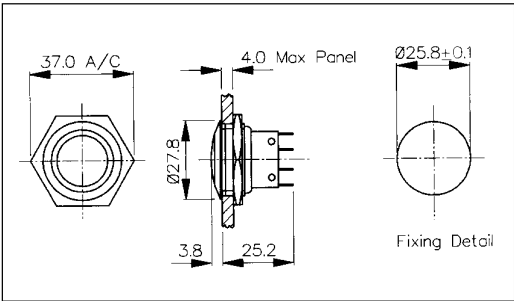
Stainless Steel Domed Vandal Resistant

**FRONT PANEL MOUNTING**



**MP0027/3**

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

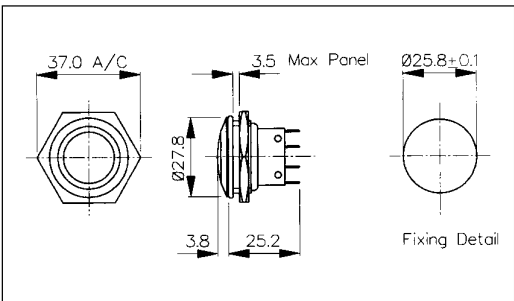


**FRONT PANEL MOUNTING**




**MP0038/3**  
Sealed to IP66

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

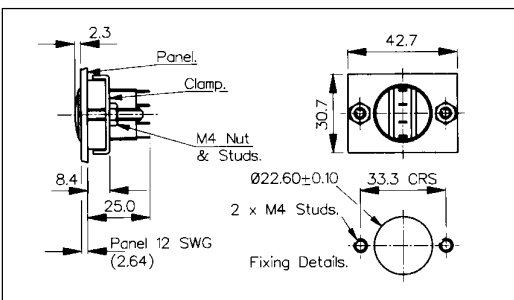


**REAR PANEL MOUNTING**



**MP0025/3**

- 22mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250V a.c.



| Specification                  | MP0027/3                                | MP0038/3   | MP0025/3                                |
|--------------------------------|---|--|---|
| Terminations:                  | Solder Tags                             | Solder Tags  | Solder Tags                             |
| Switching:                     | S.P.C.O. Momentary Action (Microswitch) | S.P.C.O. Momentary Action (Microswitch)                                | S.P.C.O. Momentary Action (Microswitch) |
| Max. Rating:                   | 5A, 250V a.c.                           | 5A, 250V a.c.  | 5A, 250V a.c.                           |
| Contact Resistance:            | <10mΩ                                   | <10mΩ  | <10mΩ                                   |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ                     | >10 <sup>3</sup> MΩ.   | >10 <sup>3</sup> MΩ                     |
| Dielectric Strength:           | >2.0kV a.c.                             | >2.0kV a.c.  | >2.0kV a.c.                             |
| 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 1992 (Micro switch not sealed) |   |
| Operations                     |   |  |   |
| Mechanical:                    | 1,000,000 (min)                         | 1,000,000 (min)  | 1,000,000 (min)                         |
| Electrical:                    | 35,000 (min)                            | 35,000 (min)   | 35,000 (min)                            |
| Operating Pressure:            | 7.5N (typ)                              | 12.5N (typ)  | 6.1N (typ)                              |
| Rear Nut Fixing Torque:        | 2.5Nm                                   | 1.13Nm   | -                                       |
| 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:          | Stainless Steel                         | Stainless Steel  | Stainless Steel                         |
| Contacts:                      | Fine Silver                             | Fine Silver  | Fine Silver                             |
| Variants:                      | Non-Rotating Button, details on request | Non-Rotating Button, details on request                                | Non-Rotating Button, details on request |
| <b>RoHS</b>                    | Compliant                               | Compliant  | Compliant                               |

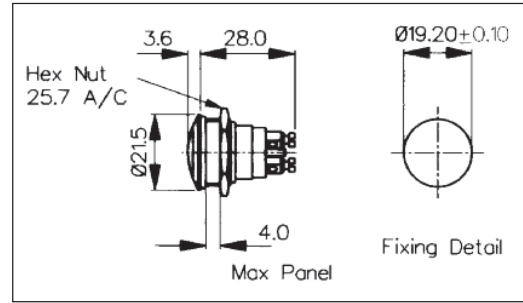
SWITCHES

**Stainless Steel Domed Vandal Resistant**

**FRONT PANEL MOUNTING**



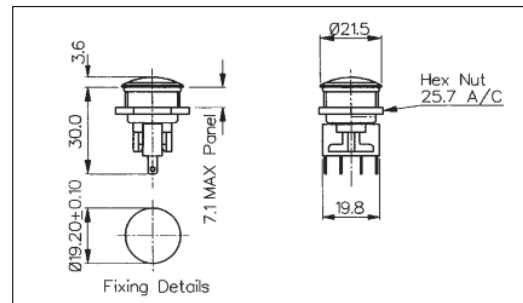
- Front Panel Sealed to IP68
- 21.5mm diameter
- Domed Profile
- S.P. Push to Make
- 1A, 50V a.c./d.c.



**FRONT PANEL MOUNTING**



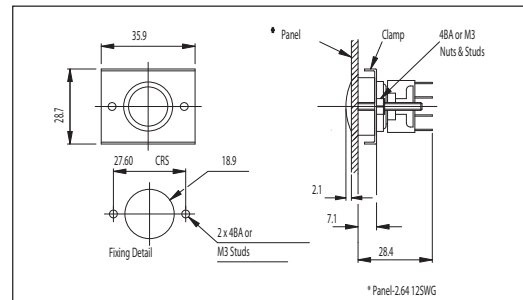
- Front Panel Sealed to IP66
- 21.5mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250V a.c.



**REAR PANEL MOUNTING**



- Rear Panel Mounting
- 19mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250V a.c.



| Specification                  | MP0037/3   | MP0031/3  | MP0034/3                                   |
|--------------------------------|--|---|--|
| Terminations:                  | Screw Terminals  | Solder Tags   | Solder Tags                                |
| Switching:                     | S.P. Push to make<br>Momentary action                                  | S.P.C.O. Momentary Action<br>(Microswitch)                                | S.P.C.O. Momentary Action<br>(Microswitch) |
| Max. Rating:                   | 1A, 50V a.c./d.c.  | 5A, 250V a.c.   | 5A, 250V a.c.                              |
| Contact Resistance:            | <10mΩ  | <10mΩ   | <10mΩ                                      |
| Insulation Resistance:         | >10 <sup>5</sup> MΩ  | >10 <sup>3</sup> MΩ.  | >10 <sup>3</sup> MΩ                        |
| Dielectric Strength:           | >1.0kV a.c.  | >2.0kV a.c.   | >2.0kV a.c.                                |
| 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: IP68 EN60529<br>1992 (Terminals not sealed) | Protection Classification: IP66 EN60529<br>1992 (Micro switch not sealed) | -  |
| Operations                     |  |   |  |
| Mechanical:                    | 1,000,000 (min)  | 1,000,000 (min)   | 250,000 (min)                              |
| Electrical:                    | 30,000 (min)   | 35,000 (min)  | 35,000 (min)                               |
| Operating Pressure:            | 7.5N (typ)   | 4.7N (typ)  | 2.7N (typ)                                 |
| Rear Nut Fixing Torque:        | 0.57Nm   | 0.57Nm  | -  |
| Materials                      |  |   |  |
| Mouldings:                     | Glass Filled Nylon   | Glass Filled Nylon  | Glass Filled Nylon                         |
| Tags/Terminations:             | Brass, Silver Plated   | Brass, Tin Plated   | Brass, Tin Plated                          |
| Switch Body & Button:          | Stainless Steel  | Stainless Steel   | Stainless Steel                            |
| Contacts:                      | Brass, Silver Plated, Silver   | Fine Silver   | Fine Silver                                |
| Variants:                      |  | Non-Rotating Button, details<br>on request                                |  |
| RoHS                           | Compliant  | Compliant   | Compliant                                  |

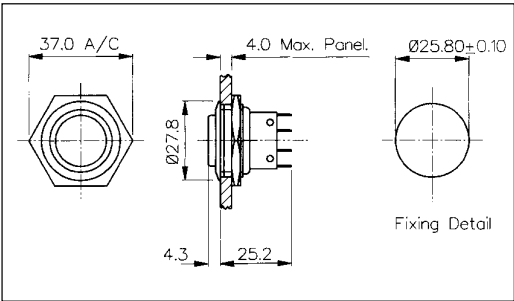
## Stainless Steel Prominent Button Vandal Resistant

**FRONT PANEL MOUNTING**



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

**MP0027/2**

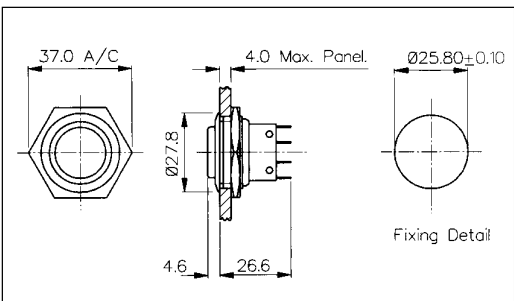


**FRONT PANEL MOUNTING**



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

**MP0038/2**  
Sealed to IP66

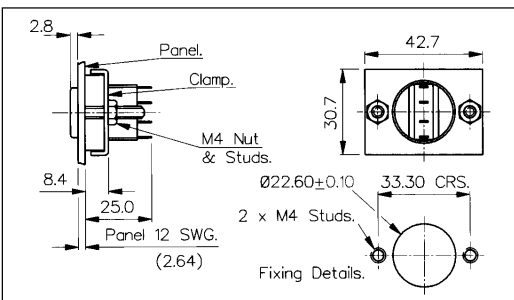


**REAR PANEL MOUNTING**



- 22mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250V a.c.

**MP0025/2**



| Specification                  | MP0027/2   | MP0038/2   | MP0025/2   |
|--------------------------------|--|--|--|
| Terminations:                  | Solder Tags  | Solder Tags  | Solder Tags  |
| Switching:                     | S.P.C.O. Momentary Action (Microswitch)                  | S.P.C.O. Momentary Action (Microswitch)                                | S.P.C.O. Momentary Action (Microswitch)                  |
| Max. Rating:                   | 5A, 250V a.c.  | 5A, 250V a.c.  | 5A, 250V a.c.  |
| Contact Resistance:            | <10mΩ  | <10mΩ  | <10mΩ  |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ                                      | >10 <sup>3</sup> MΩ.   | >10 <sup>3</sup> MΩ                                      |
| Dielectric Strength:           | >2.0kV a.c.  | >2.0kV a.c.  | >2.0kV a.c.  |
| 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 1992 (Micro switch not sealed) | -  |
| Operations                     |  |  |  |
| Mechanical:                    | 1,000,000 (min)  | 1,000,000 (min)  | 1,000,000 (min)  |
| Electrical:                    | 35,000 (min)   | 35,000 (min)   | 35,000 (min)   |
| Operating Pressure:            | 7.5N (typ)   | 12.5N (typ)  | 6.1N (typ)   |
| Rear Nut Fixing Torque:        | 2.5Nm  | 1.13Nm   | -  |
| 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:          | Stainless Steel  | Stainless Steel  | Stainless Steel  |
| Contacts:                      | Fine Silver  | Fine Silver  | Fine Silver  |
| Variants:                      | Engraved Button, Non-Rotating Button, details on request | Engraved Button, Non-Rotating Button, details on request               | Engraved Button, Non-Rotating Button, details on request |
| RoHS                           | Compliant  | Compliant  | Compliant  |

SWITCHES

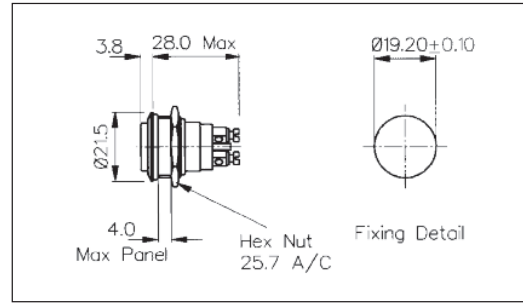
**Stainless Steel Prominent Button Vandal Resistant**

**FRONT PANEL MOUNTING**



**MP0037/2**  
**Sealed to IP68**

- Front Panel Sealed to IP68
- 21.5mm diameter
- Prominent Button
- S.P. Push to Make
- 1A, 50V a.c./d.c.

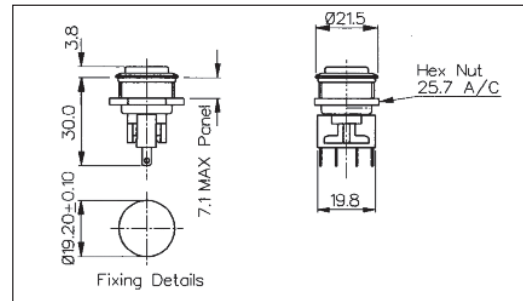


**FRONT PANEL MOUNTING**



**MP0031/2**  
**Sealed to IP66**

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

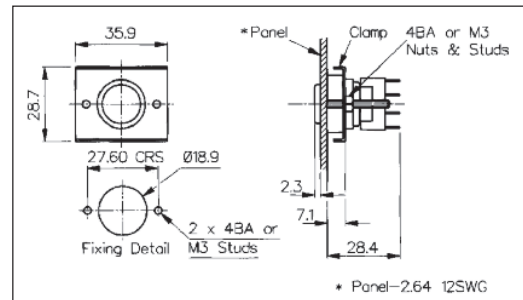


**REAR PANEL MOUNTING**



**MP0034/2**

- 19mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250V a.c.



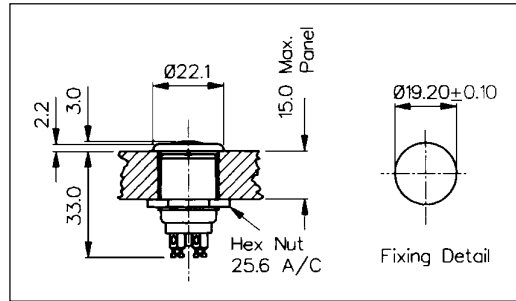
| Specification                  | MP0037/2   | MP0031/2  | MP0034/2  |
|--------------------------------|--|---|---|
| Terminations:                  | Screw Terminals  | Solder Tags   | Solder Tags   |
| Switching:                     | S.P. Push to make<br>Slow momentary action                             | S.P.C.O. Momentary Action<br>(Microswitch)                                | S.P.C.O. Momentary Action<br>(Microswitch)                  |
| Max. Rating:                   | 1A, 50V a.c./d.c.  | 5A, 250V a.c.   | 5A, 250V a.c.   |
| Contact Resistance:            | <10mΩ  | <10mΩ   | <10mΩ   |
| Insulation Resistance:         | >10 <sup>5</sup> MΩ  | >10 <sup>3</sup> MΩ.  | >10 <sup>3</sup> MΩ   |
| Dielectric Strength:           | >1.0kV a.c.  | >2.0kV a.c.   | >2.0kV a.c.   |
| 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: IP68 EN60529<br>1992 (Terminals not sealed) | Protection Classification: IP66 EN60529<br>1992 (Micro switch not sealed) | -   |
| Operations                     |  |   |   |
| Mechanical:                    | 1,000,000 (min)  | 1,000,000 (min)   | 250,000 (min)   |
| Electrical:                    | 30,000 (min)   | 35,000 (min)  | 35,000 (min)  |
| Operating Pressure:            | 7.5N (typ)   | 4.7N (typ)  | 2.7N (typ)  |
| Rear Nut Fixing Torque:        | 0.57Nm   | 0.57Nm  | -   |
| Materials                      |  |   |   |
| Mouldings:                     | Glass Filled Nylon   | Glass Filled Nylon  | Glass Filled Nylon  |
| Tags/Terminations:             | Brass, Silver Plated   | Brass, Tin Plated   | Brass, Tin Plated   |
| Switch Body & Button:          | Stainless Steel  | Stainless Steel   | Stainless Steel   |
| Contacts:                      | Brass, Silver Plated, Silver   | Fine Silver   | Fine Silver   |
| Variants:                      | -  | Engraved Button, Non-Rotating Button,<br>details on request               | Engraved Button, Non-Rotating Button,<br>details on request |
| RoHS                           | Compliant  | Compliant   | Compliant   |

## Push Button

### FRONT PANEL MOUNTING



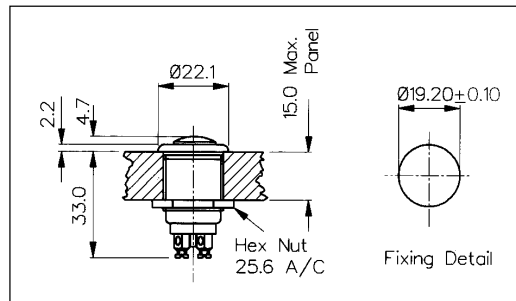
- Proud Fitting
- 22mm diameter
- S.P. Push to Make
- 1A, 50V
- Brass, Chrome Plated Body, Stainless Steel Button
- MP0033 Internally Sealed



### FRONT PANEL MOUNTING



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



| Specification                  | MP0013, MP0033  | MP0013/2, MP0033/2  |
|--------------------------------|---|---|
| Terminations:                  | Screw Terminals   | Screw Terminals   |
| Switching:                     | S.P. Push to make<br>Slow momentary action                        | S.P. Push to make<br>Slow momentary action                          |
| Max. Rating:                   | 1A, 50V a.c.  | 1A, 50V a.c.  |
| Contact Resistance:            | <15mΩ   | <15mΩ   |
| Insulation Resistance:         | >10 <sup>4</sup> MΩ   | >10 <sup>4</sup> MΩ   |
| Dielectric Strength:           | >2.5kV a.c.   | >2.5kV a.c.   |
| 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<br>Button: Stainless Steel             | Body: Brass, Chrome Plated<br>Button: Stainless Steel               |
| Contacts:                      | Copper, Silver Plated   | Copper, Silver Plated   |
| Variants:                      |   |   |
| <b>RoHS</b>                    | Compliant   | Compliant   |

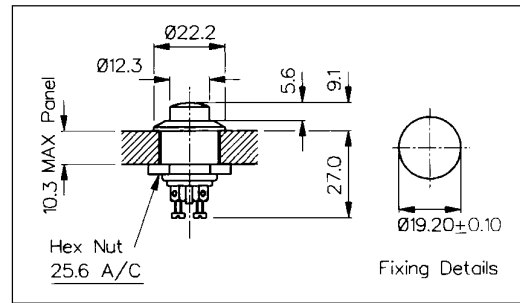
**Push Button**

**FRONT PANEL MOUNTING**



**MP0012/Co**

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

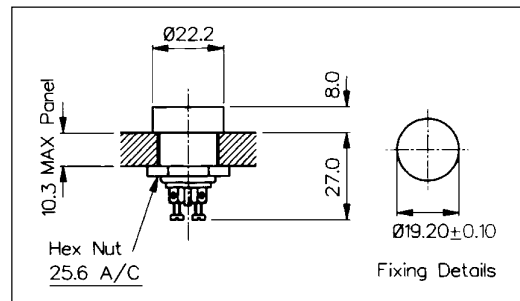


**FRONT PANEL MOUNTING**



**MP0012/1/Co**

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

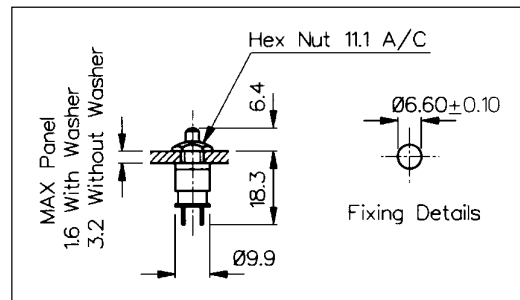


**REAR PANEL MOUNTING**



**MP0016**

- S.P. Push to Make
- Solder Tags
- 1A, 28V a.c./d.c.
- Brass Nickel Plated Body, Glass Filled Nylon Button




| Specification             | MP0012/Colour   | MP0012/1/Colour                                       | MP0016/Colour                                 |
|---------------------------|---|---|---|
| Terminations:             | Screw Terminals                                       | Screw Terminals                                       | Solder Tags                                   |
| Switching:                | S.P. Push to Make<br>Slow Momentary Action            | S.P. Push to Make<br>Slow Momentary Action            | S.P. Push to Make<br>Slow Momentary Action    |
| Max. Rating:              | 0.25A. 250V a.c., 1A. 110V a.c.,<br>2A. 12V a.c./d.c. | 0.25A. 250V a.c., 1A. 110V a.c.,<br>2A. 12V a.c./d.c. | 1A 28V a.c./d.c. (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:      | >2.5kV a.c.   | >2.5kV a.c.   | >2.0kV a.c.                                   |
| Operating Temp. Range:    | -20°C to +85°C  | -20°C to +85°C  | -20°C to +85°C                                |
| Operating Pressure (typ): | 936gms (33ozs)  | 936gms (33ozs)  | 634gms (22ozs)                                |
| Materials:                |   |   |   |
| Moulding:                 | Glass Filled Nylon                                    | Glass Filled Nylon                                    | Glass Filled Nylon                            |
| Body:                     | Brass, Chrome Plated                                  | Brass, Chrome Plated                                  | Brass, Chrome Plated                          |
| Contacts/Terms:           | Brass, Silver Plated                                  | Brass, Silver Plated                                  | Brass, Silver Plated                          |
| Variants:                 | Button Colour: Standard - Black,<br>/RD (Red)         | Button Colour: Standard - Black,<br>/RD (Red)         | Button Colour: Standard - Black,<br>/RD (Red) |
| <b>RoHS</b>               | Compliant   | Compliant   | Compliant                                     |

**SWITCHES**

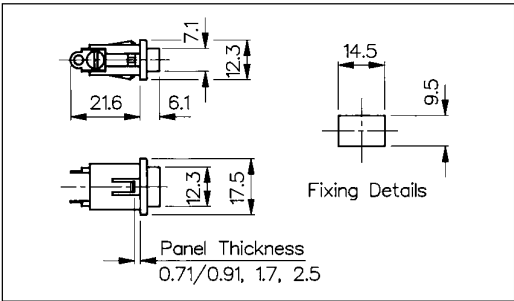
## Push Button

**FRONT PANEL MOUNTING**



- S.P. Push to Make
- Solder Tags
- Nylon Body & Button

**MP0022/Col**

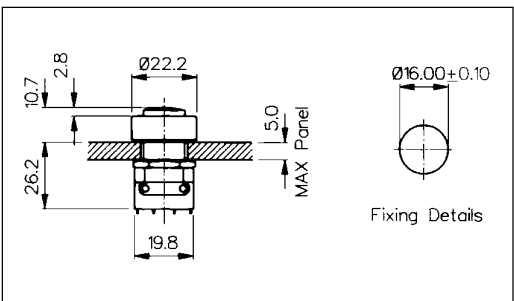


**FRONT PANEL MOUNTING**



- Front Panel Sealed to IP66
- S.P.C.O. Microswitch
- Solder Tags
- 5A, 250V a.c.
- Black Anodised Aluminium Body
- Black, red or green Buttons

**SX0904/Col  
(Sealed to IP66)**



| Specification          | MP0022/Colour  | SX0904/Colour   |
|------------------------|--|---|
| Terminations:          | Solder Tags  | Solder Tags   |
| Switching:             | S.P. Push to Make<br>Slow Momentary Action   | S.P.C.O. Momentary Action<br>(Microswitch)                              |
| Max. Rating:           | 0.25A. 250V a.c., 0.5A. 110V a.c.,<br>1A. 0.1 to 28V a.c./d.c.                               | 5A. 250V a.c.   |
| Contact Resistance:    | <15mΩ  | <10mΩ   |
| Insulation Resistance: | >10 <sup>4</sup> MΩ  | >10 <sup>3</sup> MΩ.  |
| Dielectric Strength:   | >2.5kV a.c.  | >2.0kV a.c.   |
| Operating Temp. Range: | -20°C to +70°C   | -20°C to +70°C  |
| Sealing:               |  | Protection Classification IP66 EN60529<br>1992 (Microswitch not sealed) |
| Materials:             |  |   |
| Moulding:              | Nylon  | Glass Filled Nylon  |
| Tags:                  | Brass, Silver Plated   | Brass, Tin Plated   |
| Body:                  | Nylon  | Black anodised aluminium  |
| Contacts/Terms:        | Brass, Silver Plated   | Fine Silver   |
| Variants:              | Button Colours: Standard - Black,<br>/WH (White) and /RD (Red).<br>/TERM - (Screw terminals) | Button Colours: Standard - Black,<br>/RD (Red) and /GN (Green).         |
| <b>RoHS</b>            | Compliant  | Compliant   |

SWITCHES

Downloaded from [Elcodis.com](http://Elcodis.com) electronic components distributor

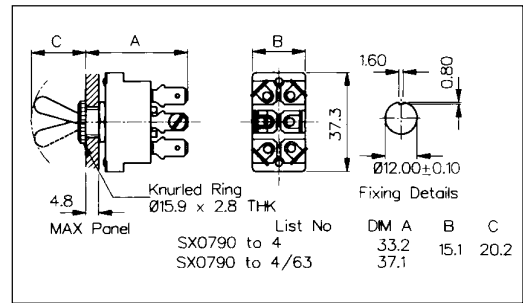


**Toggle**

**SINGLE POLE**



- 6.3mm tabs or Screw Terminals
- 10A, 250V a.c.



| Single Pole List No. | Description  | 1   | 2   | 3  |
|----------------------|--|-----|-----|----|
| SX0790               | Change-over. Centre off                            | ON  | OFF | ON |
| SX0791               | Change-over. Centre off<br>One position biased off | ON  | OFF | ON |
| SX0792               | Change-over. Centre off<br>Two position biased off | ON  | OFF | ON |
| SX0793               | Change-over<br>Two positions only                  | ON  | -   | ON |
| SX0794               | ON/OFF<br>Two positions only                       | OFF | -   | ON |

| Specification          | SX0790 Series   |
|------------------------|---|
| Terminations:          | Screw Terminals   |
| Switching:             | See table for types<br>Slow Make, Slow Break              |
| Max. Rating:           | 10A, 250V a.c.<br>10A, 0-28V d.c. (non-reactive circuits) |
| Contact Resistance:    | <10mΩ   |
| Insulation Resistance: | >10 <sup>3</sup> MΩ                                       |
| Dielectric Strength:   | >2.5kV a.c.   |
| Operating Temp. Range: | -20°C to +85°C  |
| Materials:             |   |
| Mouldings:             | Glass Filled Polyester                                    |
| Tags:                  | Brass, Silver Plated                                      |
| Contacts:              | Copper with Silver face                                   |
| Variants:              | /63 (6.3mm tabs) - (except SX0791)                        |
| Accessories:           | SX0550 (see page 195)                                     |
| <b>RoHS</b>            | Compliant   |

**SWITCHES**

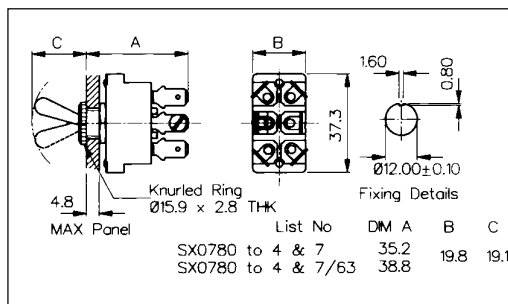
## Toggle




**DOUBLE POLE**



- 6.3mm tabs or Screw Terminals
- 10A, 250V a.c.

**SX0780**



| Double Pole List No. | Description   | 1  | 2  | 3  |
|----------------------|---|--|---|---|
| SX0780               | Change-over. Centre off                                   | ON   | OFF   | ON  |
| SX0782               | Change-over. Centre off<br>Two position biased off        | ON   | OFF   | ON  |
| SX0783               | Change-over<br>Two positions only                         | ON   | -   | ON  |
| SX0784               | ON/OFF<br>Two positions only                              | OFF  | -   | ON  |
| SX0787               | Change-over. Two positions only<br>biased to one position | ON   | -   | ON  |

| Specification          | SX0780 Series   |
|------------------------|---|
| Terminations:          | Screw Terminals   |
| Switching:             | See table for types<br>Slow Make, Slow Break              |
| Max. Rating:           | 10A, 250V a.c.<br>10A, 0-28V d.c. (non-reactive circuits) |
| Contact Resistance:    | <10mΩ   |
| Insulation Resistance: | >10 <sup>3</sup> MΩ                                       |
| Dielectric Strength:   | >2.5kV a.c.   |
| Operating Temp. Range: | -20°C to +85°C  |
| Materials:             |   |
| Mouldings:             | Glass Filled Polyester                                    |
| Tags:                  | Brass, Silver Plated                                      |
| Contacts/Terms:        | Copper with Silver face                                   |
| Variants:              | /63 (6.3mm tabs)  |
| Accessories:           | SX0550 (see page 195)                                     |
| <b>RoHS</b>            | Compliant   |

SWITCHES

PVC BOOT



- PVC Boot
- Water and Dust Resistant
- Glass Filled Nylon or Brass, Nickel Plated Insert
- For use with all BulginToggle Switches

**SX0550**

SILICON RUBBER BOOT



- Completely Covers Toggle
- Brass, Nickel Plated Insert

**NX1030**

SILICON RUBBER BOOT



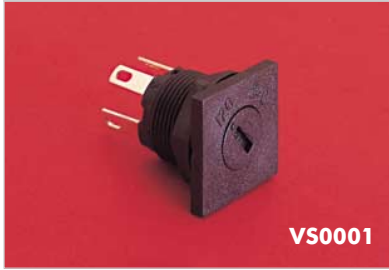
- Switch Toggle Protrudes
- Brass, Nickel Plated Insert

**NX1030/B**

| Specification          | SX0550, SX0550/Brass  | NX1030, NX1030/B  |
|------------------------|---|---|
|                        | Water and dust resistant Black PVC cover for use with all Bulgin /PD switches | NX1030 Completely covers toggle<br>NX1030/B Switch toggle protrudes |
| Thread:                | 15/32" x 32 TPI. Whit Form, BS84  | 15/32" - 32NS - 2B  |
| Operating Temperature: | 0°C to +60°C  | -70° to +205°C  |
| Materials:             |   |   |
| Boot:                  | Black PVC   | Silicone rubber   |
| Inserts:               | Glass Filled Nylon<br>SX0550/BRASS: Brass, Nickel Plated                      | Brass, Nickel Plated  |
| <b>RoHS</b>            | Compliant   | Compliant - 4th qtr 2005  |

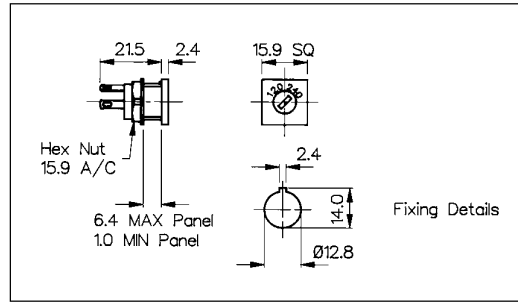
## Voltage Selectors

### 120/240V VOLTAGE SELECTOR



**VS0001**

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

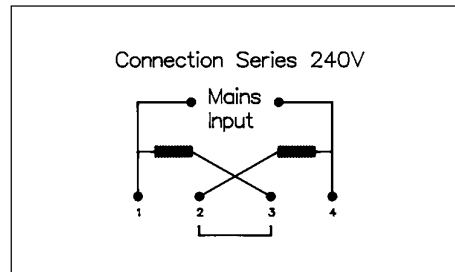
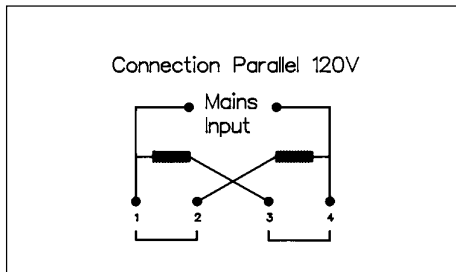
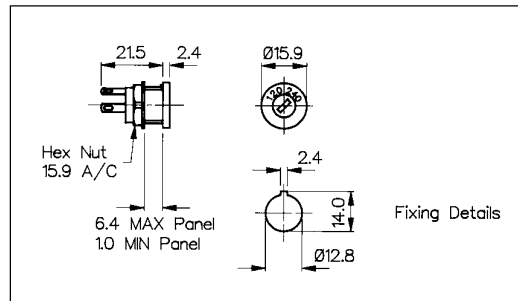


### 120/240V VOLTAGE SELECTOR



**VS0002**

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



| Specification          | VS0001                             | VS0002                             |
|------------------------|------------------------------------|------------------------------------|
| Max. Rating:           | 6.3A, 120/240V                     | 6.3A, 120/240V                     |
| Insulation Resistance: | >10 <sup>6</sup> MΩ                | >10 <sup>6</sup> 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                |
| Approvals:             |                                    |                                    |
| Variants:              | Other markings, details on request | Other markings, details on request |
| <b>RoHS</b>            | Compliant                          | Compliant                          |