

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.



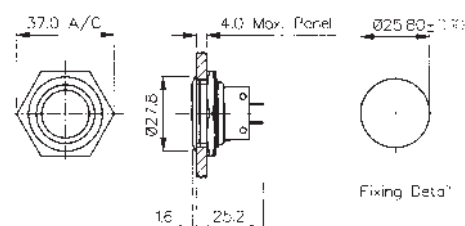
|                       |         |
|-----------------------|---------|
| Vandal Resistant      | 165-185 |
| Push Button           | 186-195 |
| Voltage Selectors     | 196     |
| Capacitive Switches   | 197-202 |
| Piezo Switches        | 203-208 |
| 12mm Switches         | 209-214 |
| Rocker Switches       | 215-241 |
| Toggle Switches       | 242-246 |
| Refrigerator Switches | 247-252 |
| Slide Switches        | 253-257 |

## Front Panel Mounting



MP0027

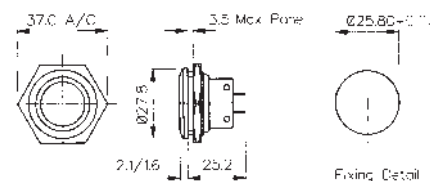
- 28mm diameter
- S.P.C.O. Microswitch
- 5A, 250Vac



## Front Panel Mounting

MP0038  
Sealed to IP66

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



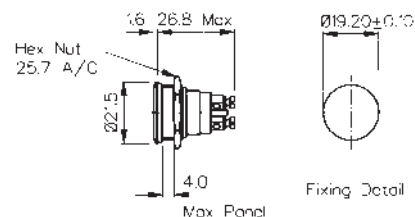
| Specifications                    | MP0027                                  | MP0038                                                                                    |
|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------|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

## Front Panel Mounting



MP0037  
Sealed to IP68

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

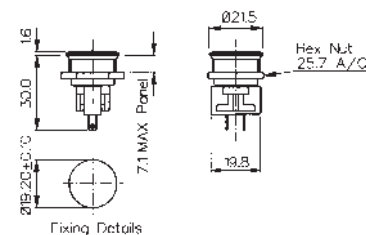


## Front Panel Mounting



MP0031  
Sealed to IP66

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



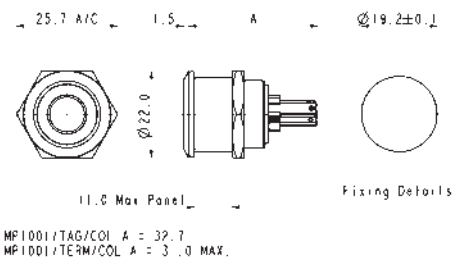
| Specifications                       | MP0037                                                                                | MP0031                                                                                    |
|--------------------------------------|---------------------------------------------------------------------------------------|---------------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

## Front Panel Mounting



MPI001 - front panel seal to IP66

- Dot illumination
- 22mm diameter
- Single 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

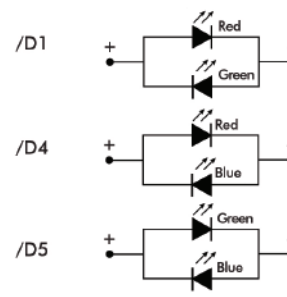
## MPI001/Termination/Colour/Voltage

|                                |                                                                                                                        |         |        |         |        |                 |                |                 |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|--------|-----------------|----------------|-----------------|
| Illumination style:            | Dot                                                                                                                    |         |        |         |        |                 |                |                 |
| Terminations:                  | /28 (2.8mm tabs),<br>/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. <b>An appropriate resistor must be series connected by the user.</b> Voltages as above. |         |        |         |        |                 |                |                 |
|                                | /6                                                                                                                     | 6Vdc    |        |         |        |                 |                |                 |
|                                | /12                                                                                                                    | 12Vdc   |        |         |        |                 |                |                 |
|                                | /24                                                                                                                    | 24Vdc   |        |         |        |                 |                |                 |
| Contact Resistance:            | <100mΩ                                                                                                                 |         |        |         |        |                 |                |                 |
| Insulation Resistance:         | >10 <sup>9</sup> MΩ                                                                                                    |         |        |         |        |                 |                |                 |
| Dielectric Strength:           | Contact to Panel >2.0kV<br>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                                                                                                        |         |        |         |        |                 |                |                 |

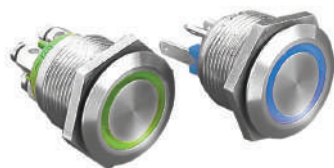


Compliant

## Dual Colour LED Configuration

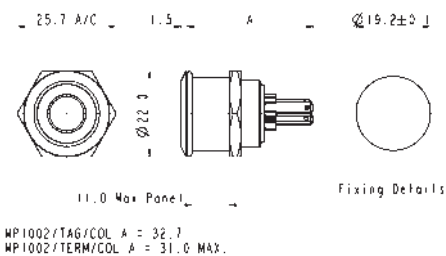


## Front Panel Mounting



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

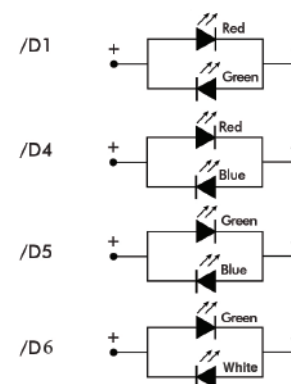
## MPI002/Termination/Colour/Voltage

|                                |                                                                                                                        |         |        |         |        |                 |                |                 |               |  |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|--------|-----------------|----------------|-----------------|---------------|--|
| Illumination style:            | Ring                                                                                                                   |         |        |         |        |                 |                |                 |               |  |
| Terminations:                  | /28 (2.8mm tabs),<br>/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             | /D6           |  |
| Colours                        | Red                                                                                                                    | Green   | Amber  | Blue    | White  | Red/Green       | Red/Blue       | Green/Blue      | Green/White   |  |
| Luminous Intensity             | 900mcd                                                                                                                 | 2500mcd | 900mcd | 1500mcd | 900mcd | 2500mcd/5000mcd | 2000mcd/850mcd | 4000mcd/2000mcd | 178mcd/450mcd |  |
| Forward Voltage                | 1.85V                                                                                                                  | 3.5V    | 2.3V   | 3.5V    | 3.6V   | 2.05V/3.6V      | 2.0V/3.6V      | 3.6V/3.6V       | 3.4V/3.2V     |  |
| Forward Current                | 20mA                                                                                                                   | 20mA    | 20mA   | 20mA    | 20mA   | 20mA            | 20mA           | 20mA            | 20mA          |  |
| Moulding Colour                | Red                                                                                                                    | Green   | Amber  | Blue    | White  | Black           | Black          | Black           | Black         |  |
| Illumination Voltage:          | /no suffix No resistor fitted. <b>An appropriate resistor must be series connected by the user.</b> Voltages as above. |         |        |         |        |                 |                |                 |               |  |
|                                | /6                                                                                                                     | 6Vdc    |        |         |        |                 |                |                 |               |  |
|                                | /12                                                                                                                    | 12Vdc   |        |         |        |                 |                |                 |               |  |
|                                | /24                                                                                                                    | 24Vdc   |        |         |        |                 |                |                 |               |  |
| Contact Resistance:            | <100mΩ                                                                                                                 |         |        |         |        |                 |                |                 |               |  |
| Insulation Resistance:         | >10 <sup>3</sup> MΩ                                                                                                    |         |        |         |        |                 |                |                 |               |  |
| Dielectric Strength:           | Contact to Panel >2.0kV<br>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

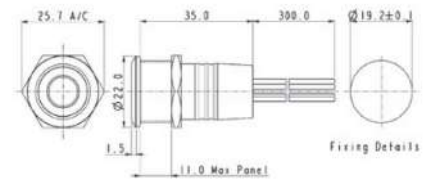


## Rear Panel Sealed - Flying Leads



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



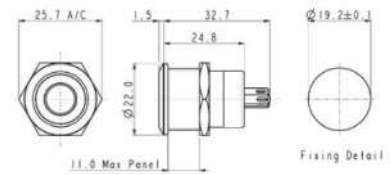
Flying lead colours: LED: red + and black -. Switch contacts: white.

## 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

|                       |                                                       |         |        |         |        |
|-----------------------|-------------------------------------------------------|---------|--------|---------|--------|
| Illumination style:   | Dot                                                   |         |        |         |        |
| Terminations:         | /FL (Flying leads)<br>/RP (Solder tags)               |         |        |         |        |
| Switching:            | Single pole, push to make, tactile (momentary action) |         |        |         |        |
| Max. Switch Rating:   | 50mA, 24Vdc                                           |         |        |         |        |
| LEDs (ratings @ 20mA) |                                                       |         |        |         |        |
| Part No.              | /RD                                                   | /GN     | /AM    | /BL     | /WH    |
| Colours               | Red                                                   | Green   | Amber  | Blue    | White  |
| Luminous Intensity    | 900mcd                                                | 2500mcd | 900mcd | 1500mcd | 900mcd |
| Forward Voltage       | 1.85V                                                 | 3.5V    | 2.3V   | 3.5V    | 3.6V   |
| Forward Current       | 20mA                                                  | 20mA    | 20mA   | 20mA    | 20mA   |
| Moulding Colour       | 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. |
|                        | /6                                                 | 6Vdc                                                                                                 |
|                        | /12                                                | 12Vdc                                                                                                |
|                        | /24                                                | 24Vdc                                                                                                |
| Contact Resistance:    | <100mΩ                                             |                                                                                                      |
| Insulation Resistance: | >10 <sup>9</sup> MΩ                                |                                                                                                      |
| Dielectric Strength:   | Contact to Panel >2.0kV<br>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.<br>(Micro switch not sealed) |

|             |               |
|-------------|---------------|
| Operations  |               |
| Mechanical: | 750,000 (min) |
| Electrical: | 35,000 (min)  |

|                         |        |
|-------------------------|--------|
| Operating Pressure:     | 12N    |
| Rear Nut Fixing Torque: | 0.57Nm |

|                       |                                 |
|-----------------------|---------------------------------|
| 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

## MPI002/Termination/Colour/Voltage

|                                                       |         |        |         |        |
|-------------------------------------------------------|---------|--------|---------|--------|
| Ring                                                  |         |        |         |        |
| /FL (Flying leads)                                    |         |        |         |        |
| /RP (Solder tags)                                     |         |        |         |        |
| Single pole, push to make, tactile (momentary action) |         |        |         |        |
| 50mA, 24Vdc                                           |         |        |         |        |
|                                                       |         |        |         |        |
| /RD                                                   | /GN     | /AM    | /BL     | /W     |
| Red                                                   | Green   | Amber  | Blue    | White  |
| 900mcd                                                | 2500mcd | 900mcd | 1500mcd | 900mcd |
| 1.85V                                                 | 3.5V    | 2.3V   | 3.5V    | 3.6V   |
| 20mA                                                  | 20mA    | 20mA   | 20mA    | 20mA   |
| Red                                                   | Green   | Amber  | Blue    | White  |

|                     |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| /no suffix          | No resistor fitted. An appropriate resistor must be series connected by the user. Voltages as above. |
| /6                  | 6Vdc                                                                                                 |
| /12                 | 12Vdc                                                                                                |
| /24                 | 24Vdc                                                                                                |
| <100mΩ              |                                                                                                      |
| >10 <sup>3</sup> MΩ |                                                                                                      |
| 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.<br>(Micro switch not sealed) |

|             |               |
|-------------|---------------|
| Operations  |               |
| Mechanical: | 750,000 (min) |
| Electrical: | 35,000 (min)  |

|                         |        |
|-------------------------|--------|
| Operating Pressure:     | 12N    |
| Rear Nut Fixing Torque: | 0.57Nm |

|                       |                                 |
|-----------------------|---------------------------------|
| 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                 |

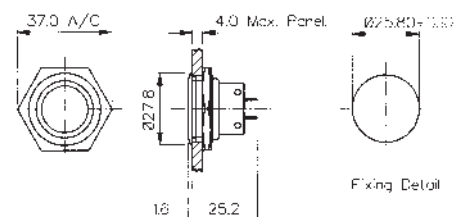
Compliant

## Front Panel Mounting



MPB038  
Sealed to IP66

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

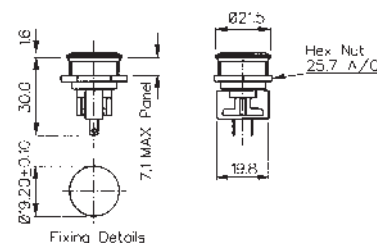


## Front Panel Mounting



MPB031  
Sealed to IP66

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

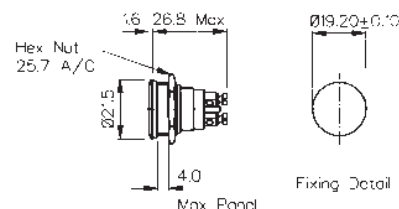


## Front Panel Mounting



MPB037  
Sealed to IP68

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



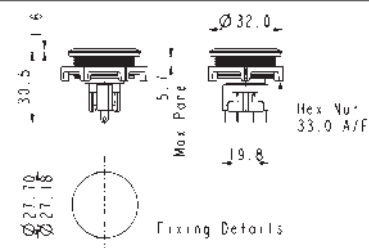
| Specifications                    | MPB038                                                                                    | MPB031                                                                                    | MPB037                                                                                                      |
|-----------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Terminations:                     | Solder Tags                                                                               | Solder Tags                                                                               | Screw Terminals                                                                                             |
| Switching:                        | S.P.C.O. Momentary Action (Microswitch)                                                   | S.P.C.O. Momentary Action (Microswitch)                                                   | S.P. Push to make Momentary action                                                                          |
| Max. Rating:                      | 5A, 250Vac.<br>2A, 28Vdc                                                                  | 5A, 250Vac.<br>2A, 28Vdc                                                                  | 1A, 50Vac/dc                                                                                                |
| Contact Resistance:               | <10mΩ                                                                                     | <10mΩ                                                                                     | <10mΩ                                                                                                       |
| Insulation Resistance:            | >10 <sup>3</sup> MΩ                                                                       | >10 <sup>3</sup> MΩ                                                                       | >10 <sup>5</sup> MΩ                                                                                         |
| Dielectric Strength:              | >2.0kVac                                                                                  | >2.0kVac                                                                                  | >1.0kVac                                                                                                    |
| Operating Temp. Range:            | -20°C to +70°C                                                                            | -20°C to +70°C                                                                            | -20°C to +70°C                                                                                              |
| Sealing<br>(Front of panel only): | Protection Classification:<br>IP66 EN60529-1:1992 + A2:2013.<br>(Micro switch not sealed) | Protection Classification:<br>IP66 EN60529-1:1992 + A2:2013.<br>(Micro switch not sealed) | Protection Classification:<br>IP68 EN60529-1:1992 + A2:2013.<br>(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

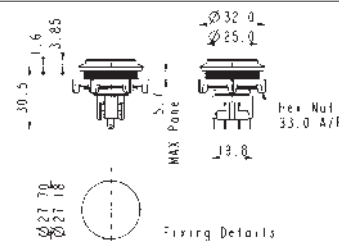


## Front Panel Mounting - Protruding Profile



MP0050/2

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



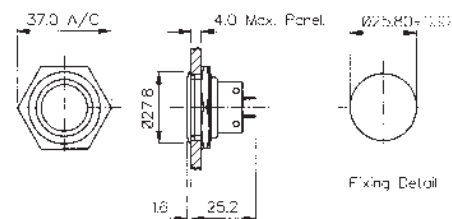
| Specifications                    | MP0050                                                                                    | MP0050/2                                                                                  |
|-----------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Terminations:                     | Solder Tags                                                                               | Solder Tags                                                                               |
| Switching:                        | S.P.C.O. Momentary Action (Microswitch)                                                   | S.P.C.O. Momentary Action (Microswitch)                                                   |
| Max. Rating:                      | 5A, 250Vac.<br>2A, 28Vdc                                                                  | 5A, 250Vac.<br>2A, 28Vdc                                                                  |
| Contact Resistance:               | <10mΩ                                                                                     | <10mΩ                                                                                     |
| Insulation Resistance:            | >10 <sup>9</sup> MΩ                                                                       | >10 <sup>9</sup> MΩ                                                                       |
| Dielectric Strength:              | >2.0kVac                                                                                  | >2.0kVac                                                                                  |
| Operating Temp. Range:            | -20°C to +70°C                                                                            | -20°C to +70°C                                                                            |
| Sealing<br>(Front of panel only): | Protection Classification:<br>IP66 EN60529-1:1992 + A2:2013.<br>(Micro switch not sealed) | Protection Classification:<br>IP66 EN60529-1:1992 + A2:2013.<br>(Micro switch not sealed) |
| Operations                        |                                                                                           |                                                                                           |
| Mechanical:                       | 1,000,000 (min)                                                                           | 1,000,000 (min)                                                                           |
| Electrical:                       | 35,000 (min)                                                                              | 35,000 (min)                                                                              |
| Operating Pressure:               | 4.7Nm                                                                                     | 4.7N (typ)                                                                                |
| Rear Nut Fixing Torque:           | 0.57Nm                                                                                    | 0.57Nm                                                                                    |
| Materials                         |                                                                                           |                                                                                           |
| Mouldings:                        | Glass Filled Nylon                                                                        | Glass Filled Nylon                                                                        |
| Tags/Terminations:                | Brass, Tin Plated                                                                         | Brass, Tin Plated                                                                         |
| Switch Body & Button:             | Stainless Steel                                                                           | Stainless Steel                                                                           |
| Contacts:                         | Fine Silver                                                                               | Fine Silver                                                                               |
| Thread size:                      | M27 x 1.0-6H                                                                              | M27 x 1.0-6H                                                                              |
| RoHS                              | Compliant                                                                                 | Compliant                                                                                 |

## Front Panel Mounting



MP0027/3

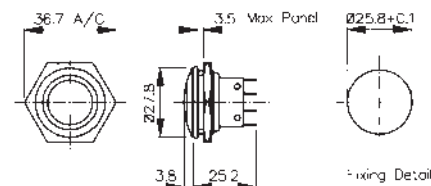
- 28mm diameter
- Domed Profile
- S.P.C.O. Microswitch
- 5A, 250Vac



## Front Panel Mounting

MP0038/3  
Sealed to IP66

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



## Specifications

## MP0027/3

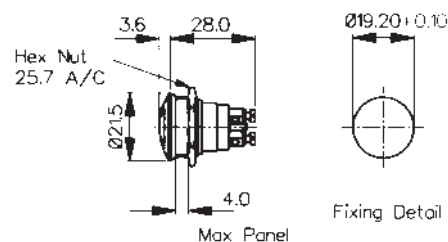
## MP0038/3

|                                   |                                         |                                                                                           |
|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------|
| Terminations:                     | Solder Tags                             | Solder Tags                                                                               |
| Switching:                        | S.P.C.O. Momentary Action (Microswitch) | S.P.C.O. Momentary Action (Microswitch)                                                   |
| Max. Rating:                      | 5A, 250Vac.<br>2A, 28Vdc                | 5A, 250Vac.<br>2A, 28Vdc                                                                  |
| Contact Resistance:               | <10mΩ                                   | <10mΩ                                                                                     |
| Insulation Resistance:            | >10 <sup>9</sup> MΩ                     | >10 <sup>9</sup> MΩ                                                                       |
| Dielectric Strength:              | >2.0kVac                                | >2.0kVac                                                                                  |
| Operating Temp. Range:            | -20°C to +70°C                          | -20°C to +70°C                                                                            |
| Sealing<br>(Front of panel only): |                                         | Protection Classification:<br>IP66 EN60529-1:1992 + A2:2013.<br>(Micro switch not sealed) |
| Operations                        |                                         |                                                                                           |
| Mechanical:                       | 1,000,000 (min)                         | 1,000,000 (min)                                                                           |
| Electrical:                       | 35,000 (min)                            | 35,000 (min)                                                                              |
| Operating Pressure:               | 7.5N (typ)                              | 12.5N (typ)                                                                               |
| Rear Nut Fixing Torque:           | 2.5Nm                                   | 1.13Nm                                                                                    |
| Materials                         |                                         |                                                                                           |
| Mouldings:                        | Glass Filled Nylon                      | Glass Filled Nylon                                                                        |
| Tags/Terminations:                | Brass, Tin Plated                       | Brass, Tin Plated                                                                         |
| Switch Body & Button:             | Stainless Steel                         | Stainless Steel                                                                           |
| Contacts:                         | Fine Silver                             | Fine Silver                                                                               |
| Thread size:                      | 1.0" x 26TPI                            | 0.747" x 26TPI                                                                            |
| RoHS                              | Compliant                               | Compliant                                                                                 |

## Front Panel Mounting

MP0037/3  
Sealed to IP68

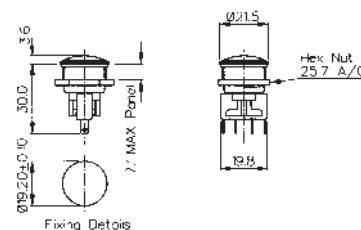
- Front Panel Sealed to IP68
- 21.5mm diameter
- Domed Profile
- S.P. Push to Make
- 1A, 50Vac/dc



## Front Panel Mounting

MP0031/3  
Sealed to IP66

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



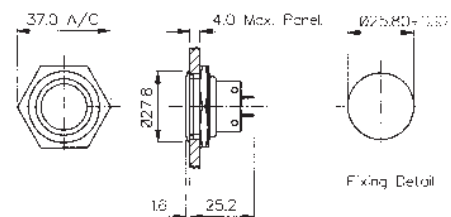
| Specifications                    | MP0037/3                                                                                                    | MP0031/3                                                                                  |
|-----------------------------------|---------------------------------------------------------------------------------------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

## Front Panel Mounting



MP0027/2

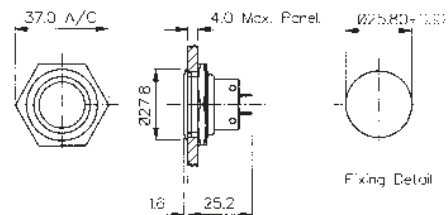
- 28mm diameter
- Prominent Button
- S.P.C.O. Microswitch
- 5A, 250Vac



## Front Panel Mounting

MP0038/2  
Sealed to IP66

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

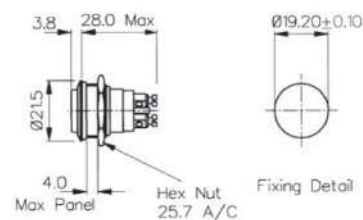


| Specifications                    | MP0027/2                                | MP0038/2                                                                                  |
|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------|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

## Front Panel Mounting

MP0037/2  
Sealed to IP68

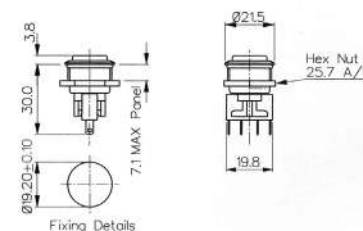
- Front Panel Sealed to IP68
- 21.5mm diameter
- Prominent Button
- S.P. Push to Make
- 1A, 50Vac/dc



## Front Panel Mounting

MP0031/2  
Sealed to IP66

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



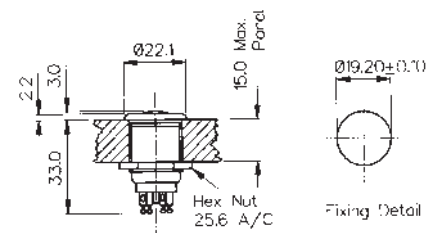
| Specifications                    | MP0037/2                                                                                                    | MP0031/2                                                                                  |
|-----------------------------------|---------------------------------------------------------------------------------------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

Front Panel Mounting



MP0013  
MP0033

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

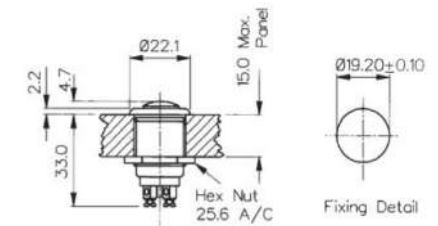


Front Panel Mounting



MP0013/2  
MP0033/2

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



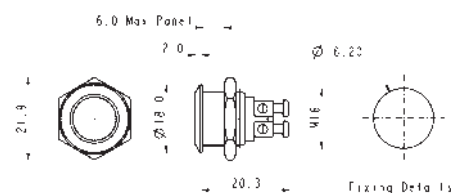
| Specifications                    | MP0013, MP0033                                                       | MP0013/2, MP0033/2                                                     |
|-----------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------|
| Terminations:                     | Screw Terminals                                                      | Screw Terminals                                                        |
| Switching:                        | S.P. Push to make<br>Slow momentary action                           | S.P. Push to make<br>Slow momentary action                             |
| Max. Rating:                      | 1A, 50Vac/dc                                                         | 1A, 50Vac/dc                                                           |
| Contact Resistance:               | <15mΩ                                                                | <15mΩ                                                                  |
| Insulation Resistance:            | >10 <sup>4</sup> MΩ                                                  | >10 <sup>4</sup> MΩ                                                    |
| Dielectric Strength:              | >2.5kVac                                                             | >2.5kVac                                                               |
| Operating Temp. Range:            | -20°C to +85°C                                                       | -20°C to +85°C                                                         |
| Sealing<br>(Front of panel only): | MP0033 only - internally sealed<br>against ingress of water and dust | MP0033/2 only - internally sealed<br>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                                                  |
| 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

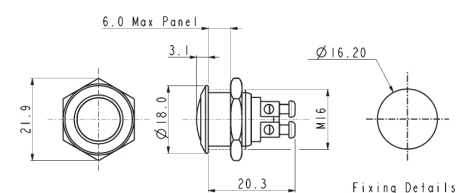


#### Domed Profile



MP0042/2

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

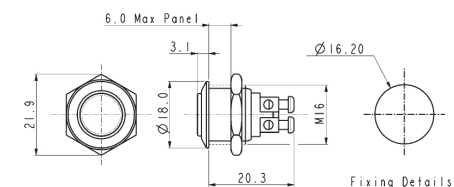


#### Prominent Button



MP0042/3

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



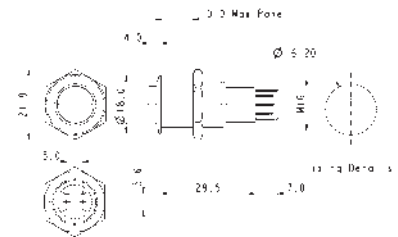
| Specifications          | MP0042/1                            | MP0042/2                            | MP0042/3                            |
|-------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Terminations:           | 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 <sup>3</sup> MΩ @ 500Vdc        | >10 <sup>3</sup> MΩ @ 500Vdc        | >10 <sup>3</sup> MΩ @ 500Vdc        |
| Dielectric Strength:    | >2.0kVac                            | >2.0kVac                            | >2.0kVac                            |
| Operating Temp. Range:  | -20°C to +55°C                      | -20°C to +55°C                      | -20°C to +55°C                      |
| Operations              |                                     |                                     |                                     |
| Mechanical:             | 1,000,000 (min)                     | 1,000,000 (min)                     | 1,000,000 (min)                     |
| Electrical:             | 100,000 (min)                       | 100,000 (min)                       | 100,000 (min)                       |
| Rear Nut Fixing Torque: | 12Nm                                | 12Nm                                | 12Nm                                |
| Materials               |                                     |                                     |                                     |
| Mouldings:              | Nylon                               | Nylon                               | Nylon                               |
| Tags/Terminations:      | Brass, Silver Plated                | Brass, Silver Plated                | Brass, Silver Plated                |
| Switch Body & Button:   | Stainless Steel (Polished)          | Stainless Steel (Polished)          | Stainless Steel (Polished)          |
| Contacts:               | Silver                              | Silver                              | Silver                              |
| Thread size:            | Gold Plated Brass version available | Gold Plated Brass version available | Gold Plated Brass version available |
| Sealing:                | IP65                                | IP65                                | IP65                                |
| Impact Rating:          | IK08                                | IK08                                | IK08                                |
| RoHS                    | Compliant                           | Compliant                           | Compliant                           |

#### Low Profile



MP0045/1D

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

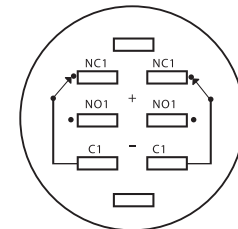
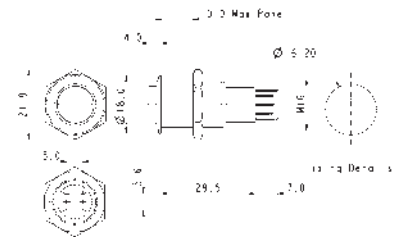


#### Prominent Button



MP0045/3D

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



Contact Layout

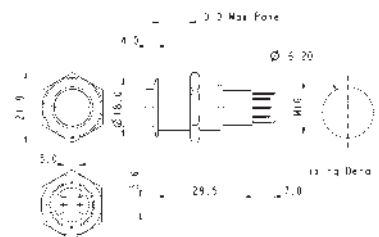
| Specifications          | MP0045/1D0NN000/Sealing                                     | MP0045/3D0NN000/Sealing                                     |
|-------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| Terminations:           | Solder tags                                                 | Solder tags                                                 |
| Switching:              | D.P.C.O Momentary Action                                    | D.P.C.O Momentary Action                                    |
| Sealing:                | 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 <sup>3</sup> MΩ @ 500Vdc                                | >10 <sup>3</sup> MΩ @ 500Vdc                                |
| Dielectric Strength:    | > 2.0kVac                                                   | > 2.0kVac                                                   |
| Operating Temp. Range:  | -20°C to +55°C                                              | -20°C to +55°C                                              |
| Operations              |                                                             |                                                             |
| Mechanical:             | 200,000 (min)                                               | 200,000 (min)                                               |
| Electrical:             | 30,000 (min)                                                | 30,000 (min)                                                |
| Rear Nut Fixing Torque: | 12Nm                                                        | 12Nm                                                        |
| Materials               |                                                             |                                                             |
| Mouldings:              | Nylon                                                       | Nylon                                                       |
| Tags/Terminations:      | Brass, Silver Plated                                        | Brass, Silver Plated                                        |
| Switch Body & Button:   | Stainless Steel                                             | Stainless Steel                                             |
| Contacts:               | Silver                                                      | Silver                                                      |
| Variants:               | Nickel Plated Brass version available<br>Details on request | Nickel Plated Brass version available<br>Details on request |
| RoHS                    | Compliant                                                   | Compliant                                                   |

## Low Profile



MP0045/1E

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

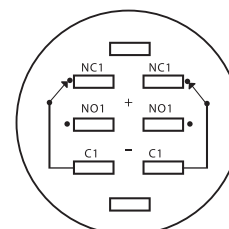
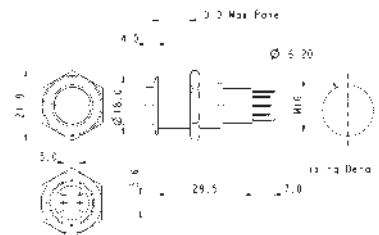


## Prominent Button



MP0045/3E

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



Contact Layout

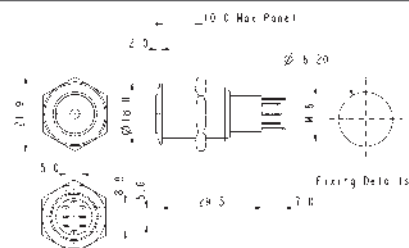
| Specifications          | MP0045/1E0NN000/Sealing                           | MP0045/3E0NN000/Sealing                           |
|-------------------------|---------------------------------------------------|---------------------------------------------------|
| Terminations:           | Solder Tags                                       | 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 <sup>3</sup> MΩ @ 500Vdc                      | >10 <sup>3</sup> MΩ @ 500Vdc                      |
| Dielectric Strength:    | >2.0kVac                                          | >2.0kVac                                          |
| Operating Temp. Range:  | -20°C to +55°C                                    | -20°C to +55°C                                    |
| Operations              |                                                   |                                                   |
| Mechanical:             | 200,000 (min)                                     | 200,000 (min)                                     |
| Electrical:             | 30,000 (min)                                      | 30,000 (min)                                      |
| Rear Nut Fixing Torque: | 12Nm                                              | 12Nm                                              |
| Materials               |                                                   |                                                   |
| Mouldings:              | Nylon                                             | Nylon                                             |
| Tags/Terminations:      | Brass, Tin Plated                                 | Brass, Tin Plated                                 |
| Switch Body & Button:   | Stainless Steel (Polished)                        | Stainless Steel (Polished)                        |
| Contacts:               | Silver                                            | Silver                                            |
| Thread size:            | Nickel Plated Brass version<br>Details on request | Nickel Plated Brass version<br>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

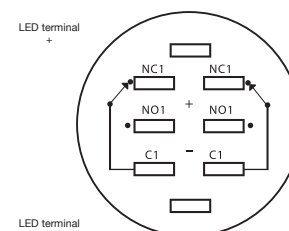
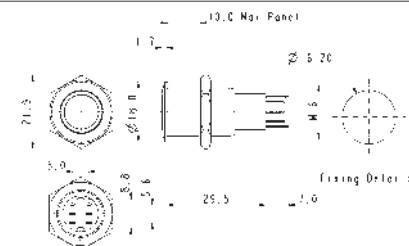


## Front Panel Mounting



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

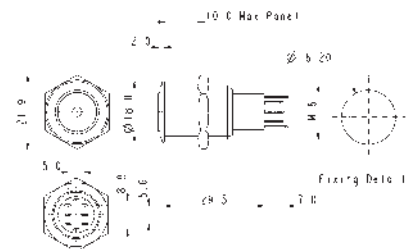
| Specifications          | MP0045/1D1/Colour/Voltage/Sealing    | MP0045/1D2/Colour/Voltage/Sealing    |
|-------------------------|--------------------------------------|--------------------------------------|
| Terminations:           | Solder Tags                          | Solder Tags                          |
| 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 Green Amber Blue                 | Red Green Amber Blue                 |
| Part No.                | /RD /GN /AM /BL                      | /RD /GN /AM /BL                      |
| Voltage                 | 12Vdc 220Vdc                         | 12Vdc 220Vdc                         |
| Part No.                | /012 /220                            | /012 /220                            |
| Contact Resistance:     | 50mΩ max. @ 1A, 2Vdc                 | 50mΩ max. @ 1A, 2Vdc                 |
| Insulation Resistance:  | >10 <sup>3</sup> MΩ @ 500Vac         | >10 <sup>3</sup> MΩ @ 500Vac         |
| Dielectric Strength:    | >2.0kVac                             | >2.0kVac                             |
| Operating Temp. Range:  | -20°C to +55°C                       | -20°C to +55°C                       |
| Operations              |                                      |                                      |
| Mechanical:             | 200,000 (min)                        | 200,000 (min)                        |
| Electrical:             | 30,000 (min)                         | 30,000 (min)                         |
| Rear Nut Fixing Torque: | 12Nm                                 | 12Nm                                 |
| Materials               |                                      |                                      |
| Mouldings:              | Nylon                                | Nylon                                |
| Tags:                   | Brass, Silver Plated                 | Brass, Silver Plated                 |
| Switch Body & Button:   | Stainless Steel (Polished)           | Stainless Steel (Polished)           |
| Variants                | Prominent Button, details on request | Prominent Button, details on request |
| 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

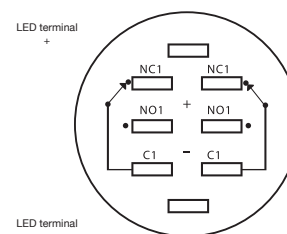
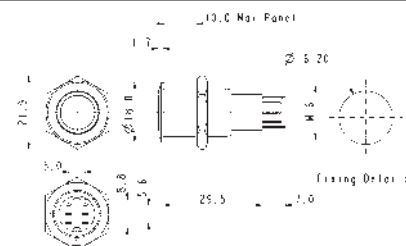


## Front Panel Mounting



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 Green Amber Blue                 | Red Green Amber Blue                 |
| Part No.                | /RD /GN /AM /BL                      | /RD /GN /AM /BL                      |
| Voltage                 | 12Vdc 220Vdc                         | 12Vdc 220Vdc                         |
| Part No.                | /012 /220                            | /012 /220                            |
| Contact Resistance:     | 50mΩ max. @ 1A, 2Vdc                 | 50mΩ max. @ 1A, 2Vdc                 |
| Insulation Resistance:  | >10 <sup>3</sup> MΩ @ 500Vac         | >10 <sup>3</sup> MΩ @ 500Vac         |
| Dielectric Strength:    | >2.0kVac                             | >2.0kVac                             |
| Operating Temp. Range:  | -20°C to +55°C                       | -20°C to +55°C                       |
| Operations              |                                      |                                      |
| Mechanical:             | 200,000 (min)                        | 200,000 (min)                        |
| Electrical:             | 30,000 (min)                         | 30,000 (min)                         |
| Rear Nut Fixing Torque: | 12Nm                                 | 12Nm                                 |
| Materials               |                                      |                                      |
| Mouldings:              | Nylon                                | Nylon                                |
| Tags:                   | Brass, Silver Plated                 | Brass, Silver Plated                 |
| Switch Body & Button:   | Stainless Steel (Polished)           | Stainless Steel (Polished)           |
| Variants                | Prominent Button, details on request | Prominent Button, details on request |
| 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)

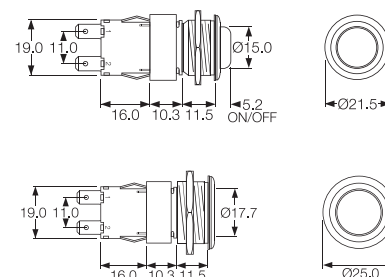
12A 250Vac DP, 13A 250Vac SP  
 250Vac 1hp, 125Vac 1/2hp  
 UL 85°C, file E45221, CSA file LR10990

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                                                                             |
|-----------------------------|--------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>C</b><br><br>10.1        | <b>8300</b><br>(alternate)<br>Single pole<br>ON - OFF<br>    | <b>R</b><br>(for P body only)<br>Raised top (stainless steel)<br> |                                                                                       |
| <b>H</b><br><br>8.5         |                                                              |                                                                   |                                                                                       |
| <b>K</b><br><br>2.6 8.5 1.5 | <b>8301</b><br>(momentary ON)<br>Single pole<br>ON - OFF<br> |                                                                   |                                                                                       |
| <b>T</b><br><br>2.6 7.0 1.5 |                                                              |                                                                   |                                                                                       |
| <b>V</b><br><br>4.3 3.7Onrs | <b>8350</b><br>(alternate)<br>Double pole<br>ON - OFF<br>    | <b>V</b><br>Flat top (stainless steel)<br>                        | <b>P</b><br>(for R actuator only)<br>Stainless steel, Soft profile bezel<br><br>Ø19.2 |
| <b>X</b><br><br>4.5 7.0     | <b>8301</b><br>(momentary ON)<br>Single pole<br>ON - OFF<br> | <b>P</b><br>Domed top (stainless steel)<br>                       | <b>M</b><br>Stainless steel<br><br>Ø22.5                                              |



C0911VA - - -

Key Features

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

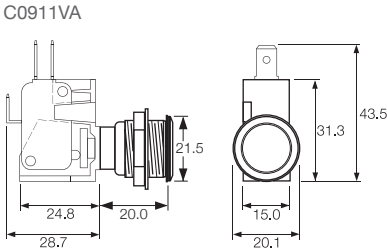
Approvals and specifications

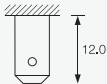
 16(4)A 250Vac 5E4 T85

 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



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

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

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

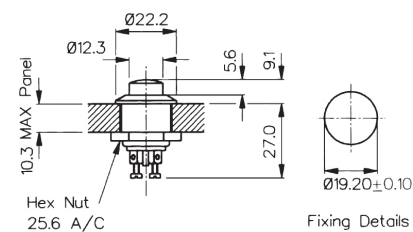


Front Panel Mounting



MP0012/Col

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

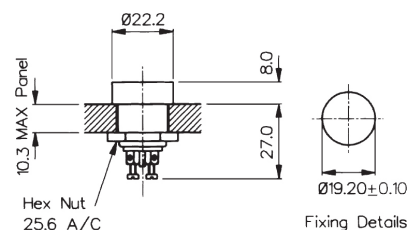


Front Panel Mounting



MP0012/1/Col

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

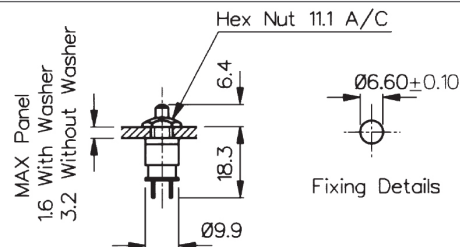


Rear Panel Mounting



MP0016

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



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

# 8300 Series Push Button

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



## Key Features

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

## Approvals and specifications

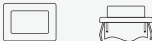
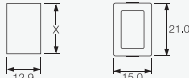
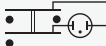
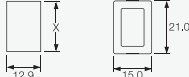
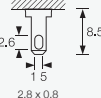
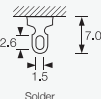
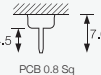
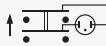
16(4)A 250Vac T85, 1E4 (10,000 Operations)  
12(12)A 250Vac T105, 1E4 (10,000 Operations)  
8(8)A 250Vac T105, 5E4 (50,000 Operations)  
6(6)A 250Vac T125, 5E4 (50,000 Operations)

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

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

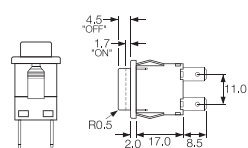
UL 85°C, file E45221, CSA file LR10990

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

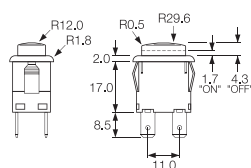
| Terminal                                                                                                                                                               | Function                                                                                                                         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

## Dimensions

Actuator A  
Body B



Actuator J  
Body E



## Examples



H8350AB ---  
T8350AB ---



H8353JE ---  
T8353JE ---



H8353EB ---  
T8353EB ---



H8353CB ---  
T8353CB ---

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

# 8200 Series Push Button

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



## Key Features

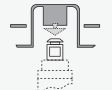
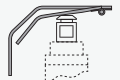
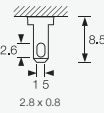
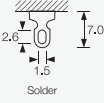
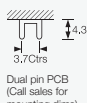
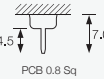
- Miniature push button
- 8A Inductive current rating
- Ratings up to 12(12)A, 250V ac (H suffix)
- Without button
- Sub panel mount
- Push on, solder or PCB terminals
- Latching and momentary

## Approvals and specifications

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

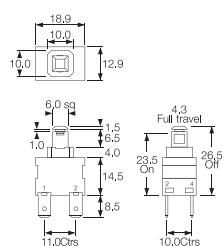
12A 250Vac  
250Vac 1hp, 125Vac 1/2hp  
UL 85°C, file E45221, CSA file LR10990

3mm contact gap.

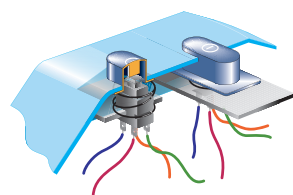
| Terminal                                                                                                                                                                                                                                                                                                  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

## Dimensions

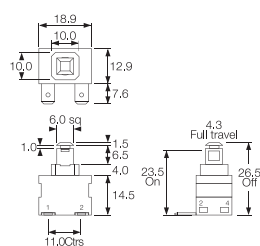
'A' body with 'H' 4.8 terminals



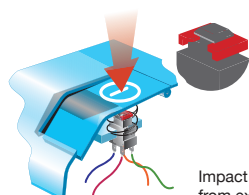
Example of possible mounting styles



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

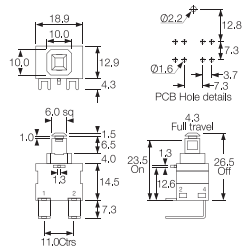


Alternative Actuator



Impact washer resists damage from excessive operator force

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



## Examples



C8250AA ---  
with impact  
washer M1226



X8201AA ---



K8200AA ---



A8200AA ---



M8200AC ---



Example of M8200AC

# 7000 Series Push Button

16A 250Vac



## Key Features

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

## Approvals and specifications

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.

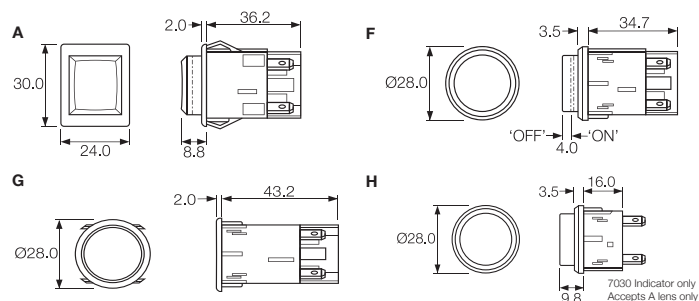
| Terminal                         | Function                                                                                                                                                                                                                                                               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

## Dimensions

Panel thickness:

A - 0.8 - 2.5mm

F, G, H - 0.8 - 5.0mm



## Examples



C7000AF ---



C7003AF ---



C7050SA ---

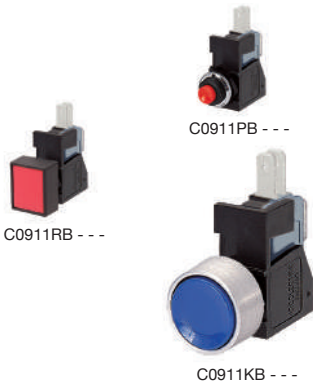


C7053AG ---

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

# 0911 Push Button Switches

0.5A 250Vac



## Key Features

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

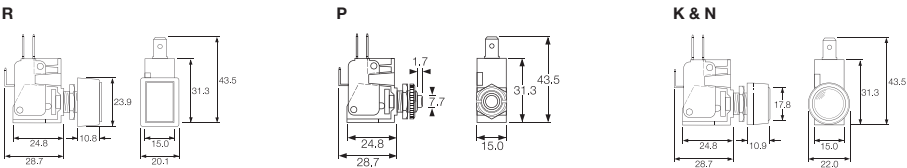
## Approvals and specifications

16(4)A 250Vac 5E4 T85

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

Approvals apply to switch mechanism only.  
μ contact gap.

## Dimensions



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



### Key Features

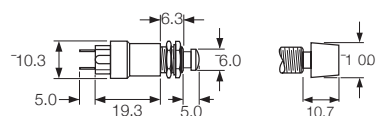
- ⬡ Self wiping contacts
- ⬡ Slow make & break
- ⬡ Momentary action
- ⬡ Choice of switch circuits
- ⬡ Choice of actuators

### Approvals and specifications

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

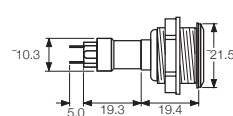
### Dimensions

Dimensions (mm) Nylon S and L actuators

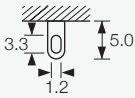
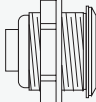
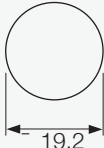


Neck thread - 40 TPI Whit. Actuator travel - 2.5 max

Stainless steel V actuator (IP66)



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

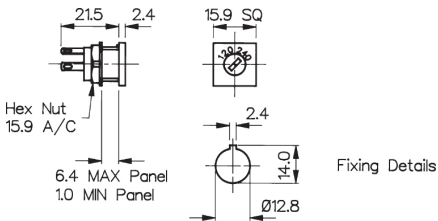
| Terminal                                                                                                      | Function                                                                                                                                                    | Actuator                    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

120/140V Voltage Selector



VS0001

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

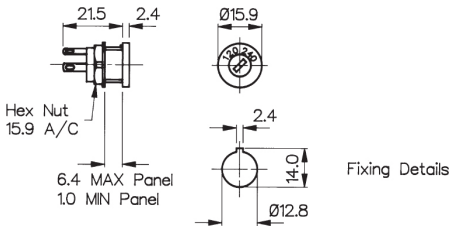


120/140V Voltage Selector

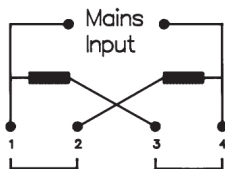


VS0002

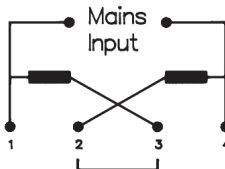
- 2.8 series tabs/Solder tags
- Round Front Bezel
- 6.3A
- CSA & VDE approvals



Connection Parallel 120V



Connection Series 240V



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

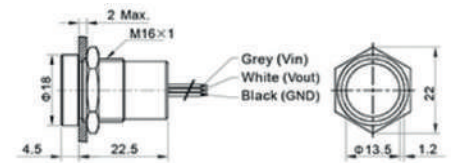
Activated by the touch of a finger, our **Capacitive Switches** are ideal for many repetitive applications requiring a **rugged sealed** and **easy** to use switch solution.



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



- Illuminated
- 300 mm lead



## 198 Switches

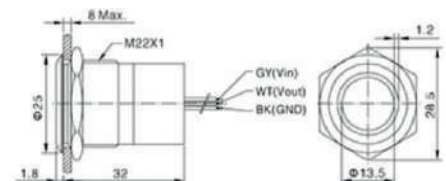


22mm Illuminated



MC22

Illuminated  
300 mm lead

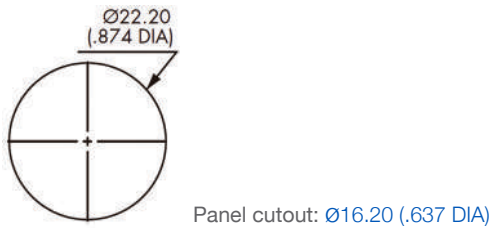


Specification

MC22

|                                   |                                                                                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                              | Momentary / Latching                                                                                                                                  |
| Materials                         | Case: Aluminium, Anodised and Stainless Steel                                                                                                         |
|                                   | Multi-wire leads setion 0.22mm <sup>2</sup> (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.<br><br>2 LEDs: First colour is ON when the output is open. Second colour is ON when the output is closed. |
| Actuating force, typically        | Zero Newton's (Touch Sensitive)                                                                                                                       |
| Life cycle                        | >50 Million                                                                                                                                           |

Panel Cutout Dimensions



Environmental Specification

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

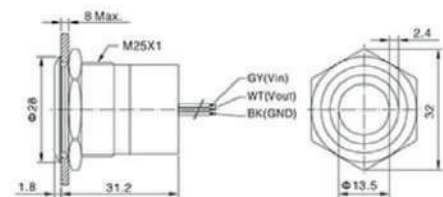
Circuit Specification

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 setion 0.22mm <sup>2</sup> (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.<br><br>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)<br>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                   | / | X                       |
|----------------------|---|-------------|---|-----------------|---|---------------------|---|---------------------|---|-------------------------|
| Series               |   | Switch Size |   | Switch Function |   | Switch Status       |   | Colour / Material   |   | LED Colours             |
| MC-Capacitive Switch |   | 16 = 16mm   |   | M = Momentary   |   | O = Normally Open   |   | B = Black Anodised  |   | GN = GREEN              |
|                      |   | 19 = 19mm   |   | L = Latching    |   | C = Normally Closed |   | R = Red Anodised    |   | RD = RED                |
|                      |   | 22 = 22mm   |   |                 |   |                     |   | S = Stainless Steel |   | AM = AMBER              |
|                      |   | 25 = 25mm   |   |                 |   |                     |   |                     |   | RG = RED + GREEN        |
|                      |   |             |   |                 |   |                     |   |                     |   | GR = GREEN + RED        |
|                      |   |             |   |                 |   |                     |   |                     |   | Blank = Non-illuminated |

**Examples:**  
MC16MOSRD = 16mm, Stainless Steel, Momentary Normally Open, Red Illumination  
MC22LOBRG = 22mm, Black Anodised, Catching Normally Open, Red and Green Illumination

Circuit Specifications

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

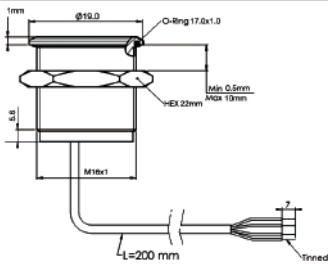


16MM Stainless Steel Non Illuminated



MPZ016

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



Specification

MPZ016

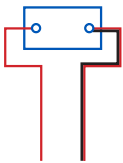
|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Type                                | Momentary                                   |
| Material                            | Stainless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

Environmental Specification

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

Circuit Specification

16MM Stainless Steel Non Illuminated



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

Piezo Switches  
**19mm Stainless Steel**  
 Illuminated and Non Illuminated

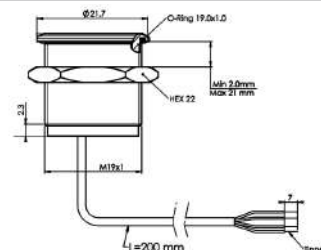


19MM Stainless Steel Illuminated



MPZI019

- Blue Illumination
- 20 cm lead
- Flathead

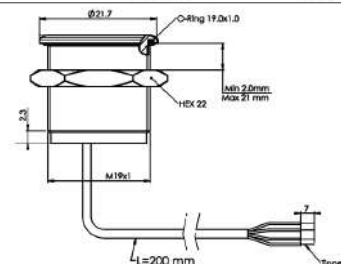


19MM Stainless Steel Non Illuminated



MPZ019

- Non Illumination
- 20 cm lead
- Flathead



**Specification**

**MPZ019, MPZI019**

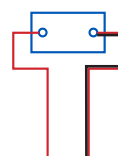
|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Type                                | Momentary                                   |
| Material                            | Stainless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

**Environmental Specification**

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

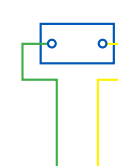
**Circuit Specification**

19MM Stainless Steel Non Illuminated



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

19MM Stainless Steel Illuminated



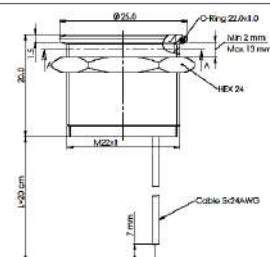
|                     |            |
|---------------------|------------|
| Switch voltage      | 24 V AC/DC |
| Switch Current      | 1A Max     |
| Colour* Illuminated | 24V AC/DC  |
| Power Supply        | 24V AC/DC  |

## 22MM Stainless Steel Non Illuminated



MPZ022

- Non Illumination
- 20 cm lead
- Flathead

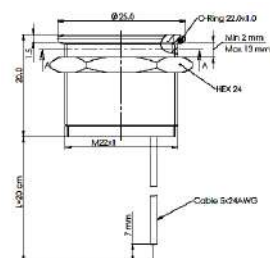


## 22MM Stainless Steel Illuminated



MPZI022

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

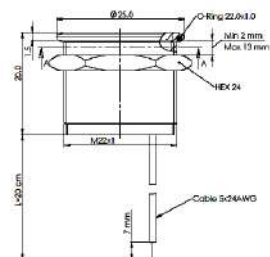


## 22MM Stainless Steel Illuminated



MPZI022

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



## Specification

**MPZ022, MPZI022**

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

## Environmental Specification

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

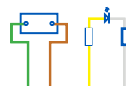
### Circuit Specification

## 22MM Stainless Steel Non Illuminated



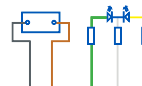
|                |           |
|----------------|-----------|
| Switch Voltage | 24 AC/DC  |
| Switch Current | 1A Max    |
| Power Supply   | 24V AC/DC |

22MM Stainless Steel Illuminated 1 colour



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

22MM Stainless Steel Illuminated 2 colour



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

Piezo Switches

# 22mm Stainless Steel Flathead

Illuminated

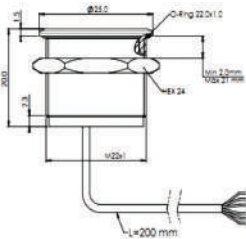


22MM Stainless Steel Illuminated



MPZI022/L

- Blue Illumination
- 1 colour
- 20 cm lead



Specification

MPZI022/L

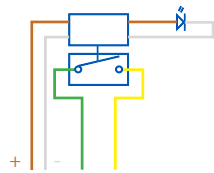
|                            |                                             |
|----------------------------|---------------------------------------------|
| Type                       | Latching Toggle                             |
| Material                   | Stainless Steel<br>(Aluminium upon request) |
| 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 +85C° |
| Vibration Resistances | 5-500Hz/9.4m   |
| Shock resistance      | 75g (g-force)  |
| RoHS                  | Compliant      |

Circuit Specification

22MM Stainless Steel Latching Toggle Illuminated



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

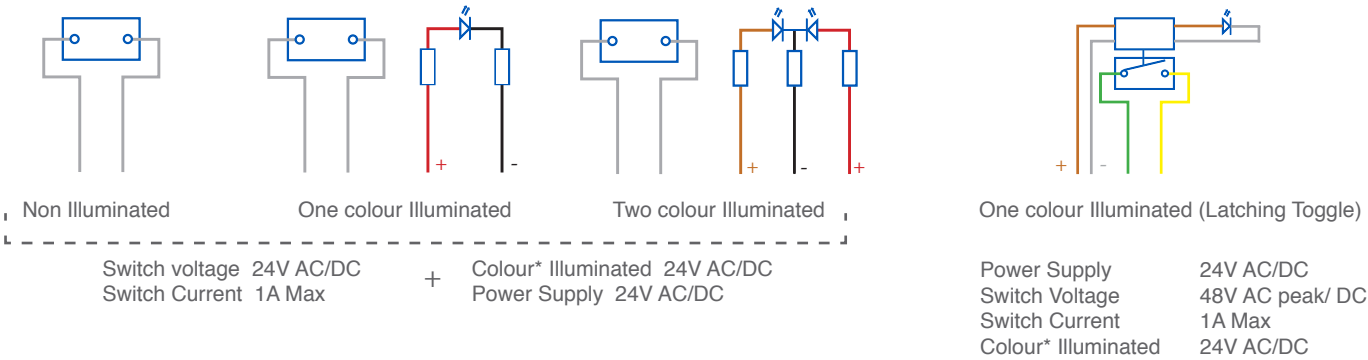
Part No System

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

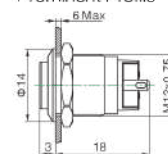
MAV0120



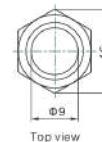
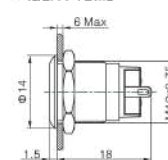
MAV0120

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

Prominent Profile



Flush Profile



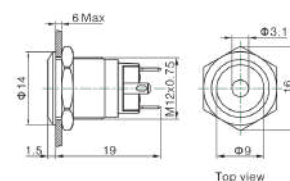
| Specification                 | MAV0120/3              | MAV0120/1              |
|-------------------------------|------------------------|------------------------|
| Terminations:                 | P - Solder Tabs        | P - Solder Tabs        |
| Switching:                    | S.P. Push to make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

MAV0120

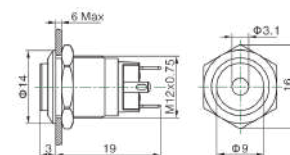


MAV0120

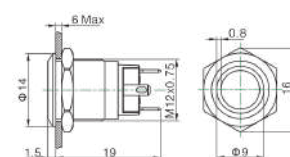
- Dot and Ring Illumination
- Prominent and Flush Profile
- 12mm Diameter
- 2A, 36 dc
- Bright daylight LEDs
- IP67 (Front of Panel Only)



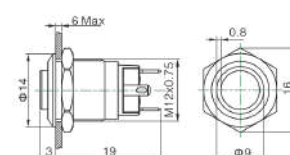
Top view



Top view



Top view



Top view

## Specification

## MAV0120

|                               |                                                                                                                  |       |      |        |        |
|-------------------------------|------------------------------------------------------------------------------------------------------------------|-------|------|--------|--------|
| Terminations:                 | P - Solder Tabs                                                                                                  |       |      |        |        |
| Switching:                    | S.P. Push to make                                                                                                |       |      |        |        |
| Max Rating:                   | 2A, 36Vdc                                                                                                        |       |      |        |        |
| Profile:                      | Prominent /3<br>Flush /1                                                                                         |       |      |        |        |
| Illumination Type             | /1                                                                                                               | Dot   |      |        |        |
|                               | /2                                                                                                               | Ring  |      |        |        |
| LED Ratings                   |                                                                                                                  |       |      |        |        |
| Part No.                      |                                                                                                                  |       |      |        |        |
| Colours                       | /RD                                                                                                              | /GN   | /BL  | /OR    | /AM    |
| Luminous Intensity            | Red                                                                                                              | Green | Blue | Orange | Yellow |
| Forward Voltage               | 1.8V                                                                                                             | 2.8V  | 2.8V | 1.8V   | 1.8V   |
| Forward Current               |                                                                                                                  |       |      |        |        |
| Moulding Current              | 15mA                                                                                                             | 15mA  | 15mA | 15mA   | 15mA   |
| Illumination Voltage          | /no suffix - No resistor fitted. An Appropriate resistor must be series connected by the user. Voltages as above |       |      |        |        |
|                               | /12                                                                                                              | 12V   |      |        |        |
|                               | /24                                                                                                              | 24V   |      |        |        |
| Contact Resistance:           | ≥50MΩ                                                                                                            |       |      |        |        |
| Insulation Resistance:        | ≥1000MΩ                                                                                                          |       |      |        |        |
| Dielectric Strength:          | 1500V, AC 50Hz, 5 Secs                                                                                           |       |      |        |        |
| Operating Temp. Range:        | *-25°C ~ +55°C                                                                                                   |       |      |        |        |
| Operations                    |                                                                                                                  |       |      |        |        |
| Mechanical:                   | 500,000 (min)                                                                                                    |       |      |        |        |
| Electrical:                   | 200,000 (min)                                                                                                    |       |      |        |        |
| Sealing (Front of Panel Only) | IP67                                                                                                             |       |      |        |        |
| Shock Resistance              | IK08                                                                                                             |       |      |        |        |
| Rear Nut Fixing Torque:       | 0.6Nm                                                                                                            |       |      |        |        |
| Materials                     |                                                                                                                  |       |      |        |        |
| Mouldings:                    | PA                                                                                                               |       |      |        |        |
| Tags/Terminations:            | Copper, Gold Plated                                                                                              |       |      |        |        |
| Switch Body & Button:         | Stainless Steel                                                                                                  |       |      |        |        |
| Contacts:                     | Silver Alloy                                                                                                     |       |      |        |        |
| Thread size:                  | M12x0.75                                                                                                         |       |      |        |        |
| RoHS                          | Compliant                                                                                                        |       |      |        |        |

# 12mm Switches

## Miniature Domed Metal Vandal Resistant

None Illuminated - Metal Dome

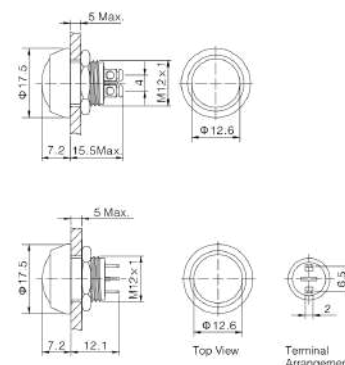


MMP0120



MMP0120

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



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

# 12mm Switches

## Miniature Domed PBT Pushbutton

Non Illuminated - PBT

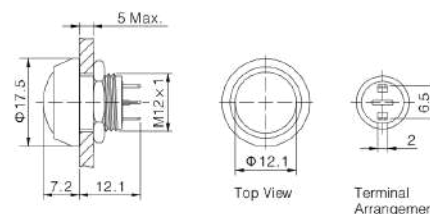
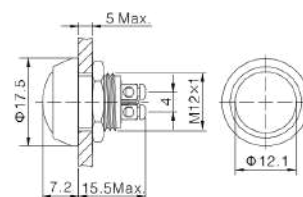


MMP0120/A



MMP0120/A

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



### Specification

### MMP0120/A

|                               |                                                                                                                   |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Terminations:                 | P - Solder Tabs<br>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<br>/RD      RED PBT<br>/GN      GREEN PBT<br>/BL      BLUE PBT<br>/BK      BLACK PBT |
| Contacts:                     | Silver Alloy                                                                                                      |
| Thread size:                  | M12x1                                                                                                             |
| RoHS                          | Compliant                                                                                                         |

12mm Switches  
**Miniature Domed Illuminated Pushbutton**  
 Stainless Steel and PBT

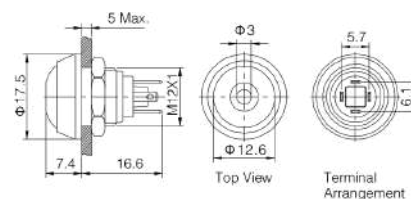


MMPI0120



MMPI0120

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



**Specification**

**MMPI0120**

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

#### 12mm Miniature Vandal Resistant Stainless Steel Switch

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

#### Examples:

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

#### 12mm Miniature Metal/Plastic Domed Pushbutton Switch

| MMPXXX / X / X / X / X / X / X                                |                                                                      |                                                                                               |                                                             |                                                                                         |                                                                                       |                                                               |
|---------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Series                                                        | Body Material                                                        | Button Material & Colour                                                                      | Sealing                                                     | Illumination Colour                                                                     | Lamp Voltage                                                                          | Termination                                                   |
| MMP0120 =<br>Non Illuminated<br><br>MMPi0120 =<br>Illuminated | S = Stainless Steel<br>N = Nickel Plated Brass<br>A = Black Anodized | SS = Nickel Plated Brass<br>RD = RED PBT<br>GN = GREEN PBT<br>BL = BLUE PBT<br>BK = BLACK PBT | Blank = IP65<br>67 = IP67<br>IP67<br>(non-illuminated only) | Blank = None<br>RD = RED<br>GN = GREEN<br>BL = BLUE<br>AM = AMBER/YELLOW<br>OR = ORANGE | Blank = None<br>012 = 12V<br>024 = 24V<br>Other voltages require<br>external resistor | S = Screw Terminals<br>P= Solder Terminals<br>(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