

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
Push Button
186-195
Voltage Selectors
Capacitive Switches
197-202
Piezo Switches
12mm Switches
12me Switches
1209-214
Rocker Switches
242-246
Refrigerator Switches
253-257



### Stainless Steel Low Profile Vandal Resistant

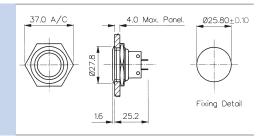


#### Front Panel Mounting



MP0027

- O 28mm diameter
- S.P.C.O. Microswitch5A, 250Vac

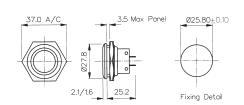


Front Panel Mounting



MP0038 Sealed to IP66

- O Front Panel Sealed to IP66
- O 28mm diameter
- S.P.C.O. Microswitch5A, 250Vac



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

#### Switches

### Stainless Steel Low Profile Vandal Resistant

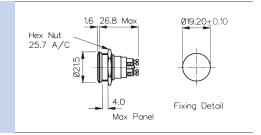
Momentary



#### Front Panel Mounting



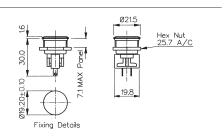
- Front Panel Sealed to IP68
- O 21.5mm diameter
- O S.P. Push to Make
- 1A, 50Vac/dc
- Industry Standard Size



#### Front Panel Mounting



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



Specifications	MP0037	MP0031
Terminations:	Screw Terminals	Solder Tags
Switching:	S.P. Push to make Momentary action	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	1A, 50Vac/dc	5A, 250Vac 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	$>10^5 \mathrm{M}\Omega$	$>10^3\mathrm{M}\Omega$
Dielectric Strength:	>1.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP68 EN 60529:1992+A2:2013 (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
IP68 rating 10M for 2 weeks test:	Passed	(more smarrier scaled)
Operations Mechanical: Electrical:	1,000,000 (min) 30,000 (min)	1,000,000 (min) 35,000 (min)
Operating Pressure:	7.5N (typ)	4.7N (typ)
Rear Nut Fixing Torque:	0.57Nm	0.57Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Glass Filled Nylon Brass, Silver Plated Stainless Steel	Glass Filled Nylon Brass, Tin Plated Stainless Steel
Contacts:	Brass, Silver Plated, Silver	Fine Silver
Thread size:	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

### Stainless Steel Illuminated Vandal Resistant

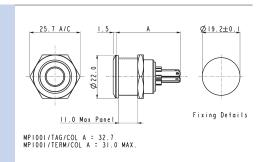


Front Panel Mounting



MPI001- front panel seal to IP66

- Dot illumination
- 22mm diameter
- Ô Single pole push to make
- 0 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- Bright daylight LEDs
- 0 Independent LED terminals
- Front panel seal to IP66
- $\Diamond$ Integral supply resistors
- TVS protection



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

Illumination style: Terminations:

/28 (2.8mm tabs),

/TERM or /TE (screw terminals)

/GN

Single pole, push to make, tactile (momentary action) Switching:

Max. Switch Rating: 50mA, 24Vdc

LEDs (ratings @ 20mA)

Part No. Colours Luminous Intensity Forward Voltage Forward Current Moulding Colour

Red 900mcd 1.85V 20mA Red

/RD

Green 2500mcd 3.5V 20mA Green

900mcd 2.3V 20mA Amber

/AM

Amber

White Blue 1500mcd 900mcd 3.5V 3.6V 20mA 20mA Blue White

/WH

Red/Green 2500mcd/5000mcd 2.05V/3.6V 20mA Black

/D1

/D4 Red/Blue 2000mcd/850mcd 2.0V/3.6V 20mA Black

/D5 Green/Blue 4000mcd/2000mcd 3.6V/3.6V 20mA

Black

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

/BL

6Vdc /12 /24 24Vdc  $<100 m\Omega$ 

Contact Resistance: Insulation Resistance: >10<sup>3</sup> MΩ

Dielectric Strength: Contact to Panel >2.0kV Contact to Contact 1500

Operating Temp. Range:

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

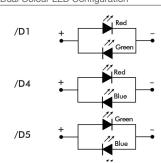
Materials

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 18.97mm x 26TPI Thread size:

Compliant

### Dual Colour LED Configuration



### Stainless Steel Illuminated Vandal Resistant

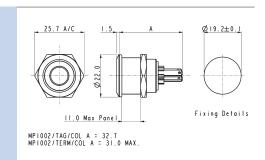


#### Front Panel Mounting



MPI002- front panel seal to IP66

- Ring illumination
- 22mm diameter
- Ô Single pole push to make
- 0 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- $\bigcirc$ Bright daylight LEDs
- 0 Independent LED terminals
- Front panel seal to IP66
- $\Diamond$ Integral supply resistors
- TVS protection



#### **Specifications** MPI002/Termination/Colour/Voltage

Ring Illumination style:

/28 (2.8mm tabs), Terminations:

/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 /BI /WH /D1 /D4 /D5 /D6 Colours Red Amber Blue White Red/Green Red/Blue Green/Blue Green/White Green Luminous Intensity 2500mcd 3.5V 900mcd 2.3V 900mcd 3.6V 2500mcd/5000mcd 2.05V/3.6V 2000mcd/850mcd 2.0V/3.6V 4000mcd/2000mcd 3.6V/3.6V 178mcd/450mcd 3.4V/3.2V 900mcd 1500mcd Forward Voltage 3.5V 1.85V Forward Current 20mA 20mA 20mA 20mA 20mA 20mA 20mA Moulding Colour Red Green Ambei Blue White Black Black Black Black

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

> /6 6Vdc /12 12V/dc /24 24Vdc  $<100 m\Omega$

-30°C to +70°C

Contact Resistance: Insulation Resistance:  $>10^3 M\Omega$ Dielectric Strength:

Contact to Panel >2.0kV

Contact to Contact 1500

Operating Temp. Range:

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

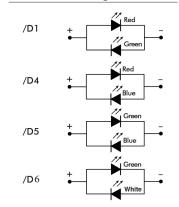
Materials

Switch assembly: UL94V-0 rated Polyamide (Nylon) Copper Alloy

Terminals: Copper Alloy Switch Body & Button: Stainless Steel Lens and Lens Body: Polycarbonate O ring: Nitrile Internal seal: Silicone Contact Plate: Gold Plated Thread size: 18.97mm x 26TPI

Compliant

#### **Dual Colour LED Configuration**



### Stainless Steel Illuminated Vandal Resistant

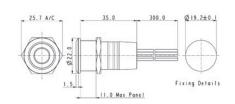


Rear Panel Sealed - Flying Leads



#### MPI002/FL/xx/x

- Dot or ring illumination
- 0 22mm diameter
- Single pole push to make
- $\bigcirc$ 50mA, 24Vdc contact rating
- Red, Green, Amber, Blue, White or dual colour illumination
- Bright daylight LEDs
- $\Diamond$ Independent LED terminals
- Ŏ Front and rear panel seal to IP66
- Integral supply resistors
- $\bigcirc$ TVS protection



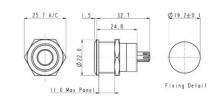
Flying lead colours: LED: red + and black -. Switch contacts: white

Rear Panel Sealed - Solder Tags



#### MPI001/RP/xx/x

- Dot or ring illumination
- 22mm diameter
- 0 Single pole push to make
- $\Diamond$ 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.

#### MPI001/Termination/Colour/Voltage

Illumination style: Dot

Terminations:

Switching: Single pole, push to make, tactile (momentary action)

Max. Switch Rating: 50mA, 24Vdc

LEDs (ratings @ 20mA)

Part No. Colours Luminous Intensity Forward Voltage Forward Current Moulding Colour

**Specifications** 

Illumination Voltage:

Contact Resistance: Insulation Resistance: Dielectric Strength:

Operating Temp. Range: Sealing (Front of panel only):

Operations Mechanical: Electrical:

Operating Pressure: Rear Nut Fixing Torque:

Materials Switch assembly:

Tags:

Terminals: Switch Body & Button: Lens and Lens Body: O rina:

Internal seal: Contact Plate: Thread size: 

/FL (Flying leads) /RP (Solder tags)

/RD

Red

1.85V

20mA

Red

/6

/GN /AM Green 900mcd 2500mcd 3.5V

2.3V 20mA 20mA Green Amber

Amber Blue 900mcd 3.5V 20mA Blue

/BL

1500mcd 900mcd 3.6V 20mA White

/WH

White

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

6Vdc 12Vdc /12 24Vdc /24 <100mΩ  $>10^3 M\Omega$ 

Contact to Panel >2.0kV Contact to Contact 1500

(Micro switch not sealed)

-30°C to +70°C Protection Classification: IP66 EN60529-1:1992 + A2:2013.

750,000 (min) 35.000 (min)

12N 0.57Nm

UL94V-0 rated Polyamide (Nylon)

Copper Alloy Copper Alloy Stainless Steel Polycarbonate Silicone Gold Plated 18.97mm x 26TPI

Compliant

MPI002/Termination/Colour/Voltage

/FL (Flying leads) /RP (Solder tags)

Single pole, push to make, tactile (momentary action)

50mA, 24Vdc

/RD /GN /AM Red Green Amber 900mcd 2500mcd 1.85V 3.5V 20mA 20mA Red

900mcd 2.3V Green

20mA 20mA Amber Blue

/BL

Blue

1500mcd

3.5V 3.6V 20mA White /no suffix No resistor fitted. An appropriate resistor must be series

/WH

White

900mcd

connected by the user. Voltages as above. 6Vdc 12Vdc /12 /24 24Vdc <100mΩ >103 MO

Contact to Panel >2.0kV Contact to Contact 1500

-30°C to +70°C

/6

Protection Classification: IP66 EN60529-1:1992 + A2:2013.

(Micro switch not sealed)

750.000 (min) 35,000 (min)

12N 0.57Nm

UL94V-0 rated Polyamide (Nylon)

Copper Allov Copper Alloy Stainless Steel Polycarbonate Nitrile Silicone Gold Plated 18.97mm x 26TPI

Compliant

RoHS

### Low Profile Brass Chrome Plated Vandal Resistant

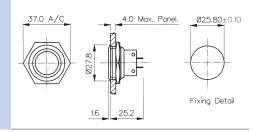


Front Panel Mounting



MPB038 Sealed to IP66

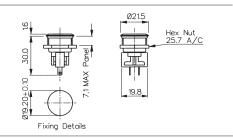
- Front Panel Sealed to IP66
- 28mm diameter
- S.P.C.O. Microswitch
- O 5A, 250Vac



Front Panel Mounting



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

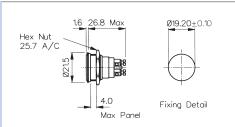


Front Panel Mounting



MPB037 Sealed to IP68

- Front Panel Sealed to IP68
- 0 21.5mm diameter
- S.P. Push to Make
- 1A, 50Vac/dc



Specifications	MPB038	MPB031	MPB037
Terminations:	Solder Tags	Solder Tags	Screw Terminals
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)	S.P. Push to make Momentary action
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc	1A, 50Vac/dc
Contact Resistance:	<10mΩ	$<10m\Omega$	<10mΩ
Insulation Resistance:	$>10^3  \text{M}\Omega$	$>10^3~\mathrm{M}\Omega$	$>10^5  \text{M}\Omega$
Dielectric Strength:	>2.0kVac	>2.0kVac	>1.0kVac
Operating Temp. Range:	-20°C to +70°C	–20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP68 EN60529-1:1992 + A2:2013. (Micro switch not sealed) (10m for 2 weeks)
Operations Mechanical: Electrical:	1,000,000 (min) 35,000 (min)	1,000,000 (min) 35,000 (min)	1,000,000 (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: Tags/Terminations: Switch Body & Button:	Glass Filled Nylon Brass, Tin Plated Brass	Glass Filled Nylon Brass, Tin Plated Brass	Glass Filled Nylon Brass, Tin Plated 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

### Stainless Steel Large Diameter Vandal Resistant

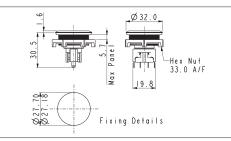


Front Panel Mounting - Low Profile



MP0050

- Front Panel Sealed to IP68
- Flush button32.0mm diameter
- O S.P.C.O. switching
- Momentary action
- O 5A, 250Vac



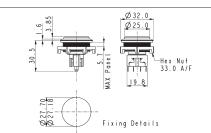
Front Panel Mounting - Protruding Profile



MP0050/2

- Front Panel Sealed to IP68

- Protruding button32.0mm diameterS.P.C.O. switching
- Momentary action5A, 250Vac



Specifications	MP0050	MP0050/2
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	$>10^3  \text{M}\Omega$	$>10^3 \mathrm{M}\Omega$
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)	Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations Mechanical: Electrical:	1,000,000 (min) 35,000 (min)	1,000,000 (min) 35,000 (min)
Operating Pressure:	4.7Nm	4.7N (typ)
Rear Nut Fixing Torque:	0.57Nm	0.57Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Glass Filled Nylon Brass, Tin Plated Stainless Steel	Glass Filled Nylon Brass, Tin Plated Stainless Steel
Contacts:	Fine Silver	Fine Silver
Thread size:	M27 x 1.0-6H	M27 x 1.0-6H
RoHS	Compliant	Compliant

### Stainless Steel Domed Vandal Resistant

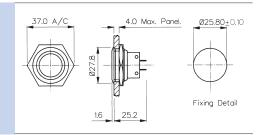


#### Front Panel Mounting



MP0027/3

- O 28mm diameter
- O Domed Profile
- S.P.C.O. Mic5A, 250Vac S.P.C.O. Microswitch

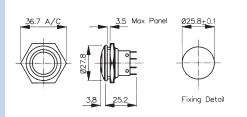


#### Front Panel Mounting



MP0038/3 Sealed to IP66

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



Specifications	MP0027/3	MP0038/3
Terminations:	Solder Tags	Solder Tags
Switching:	S.P.C.O. Momentary Action (Microswitch)	S.P.C.O. Momentary Action (Microswitch)
Max. Rating:	5A, 250Vac. 2A, 28Vdc	5A, 250Vac. 2A, 28Vdc
Contact Resistance:	<10mΩ	<10mΩ
Insulation Resistance:	$>10^3  M\Omega$	$>10^3\mathrm{M}\Omega$
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	-20°C to +70°C	-20°C to +70°C
Sealing (Front of panel only):		Protection Classification: IP66 EN60529-1:1992 + A2:2013. (Micro switch not sealed)
Operations Mechanical: Electrical:	1,000,000 (min) 35,000 (min)	1,000,000 (min) 35,000 (min)
Operating Pressure:	7.5N (typ)	12.5N (typ)
Rear Nut Fixing Torque:	2.5Nm	1.13Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Glass Filled Nylon Brass, Tin Plated Stainless Steel	Glass Filled Nylon Brass, Tin Plated Stainless Steel
Contacts:	Fine Silver	Fine Silver
Thread size:	1.0" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

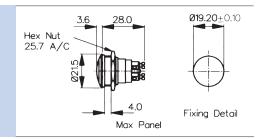
### Stainless Steel Domed Vandal Resistant



Front Panel Mounting



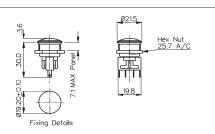
- Front Panel Sealed to IP68
- 21.5mm diameter
- O Domed Profile
- O S.P. Push to Make
- 1A, 50Vac/dc



Front Panel Mounting



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



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

### Stainless Steel Prominent Button Vandal Resistant

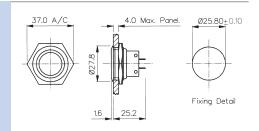


#### Front Panel Mounting



MP0027/2

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

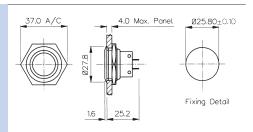


Front Panel Mounting



MP0038/2 Sealed to IP66

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



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

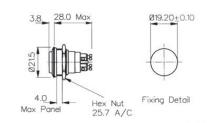
### Stainless Steel Prominent Button Vandal Resistant



Front Panel Mounting



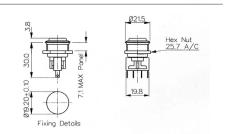
- O Front Panel Sealed to IP68
- 21.5mm diameter
- O Prominent Button
- S.P. Push to Make
- 1A, 50Vac/dc



Front Panel Mounting



- O Front Panel Sealed to IP66
- O 21.5mm diameter
- Prominent Button
- S.P.C.O. Microswitch5A, 250Vac



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

#### Switches

### **Push Button**

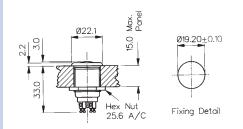


Front Panel Mounting



MP0013 MP0033

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

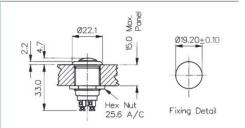


Front Panel Mounting



MP0013/2 MP0033/2

- Prominent Button
- 0000 22mm diameter
- S.P. Push to Make
- 1A, 50V
- Brass, Chrome Plated Body, Stainless Steel Button
- O MP0033/2 Internally Sealed



Specifications	MP0013, MP0033	MP0013/2, MP0033/2
Terminations:	Screw Terminals	Screw Terminals
Switching:	S.P. Push to make Slow momentary action	S.P. Push to make Slow momentary action
Max. Rating:	1A, 50Vac/dc	1A, 50Vac/dc
Contact Resistance:	<15mΩ	<15mΩ
Insulation Resistance:	$>10^4~\text{M}\Omega$	$>10^4 M\Omega$
Dielectric Strength:	>2.5kVac	>2.5kVac
Operating Temp. Range:	-20°C to +85°C	-20°C to +85°C
Sealing (Front of panel only):	MP0033 only - internally sealed against ingress of water and dust	MP0033/2 only - internally sealed against ingress of water and dust
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Glass Filled Nylon Brass, Silver Plated Body: Brass, Chrome Plated Button: Stainless Steel	Glass Filled Nylon Brass, Silver Plated Body: Brass, Chrome Plated Button: Stainless Steel
Contacts:	Copper, Silver Plated	Copper, Silver Plated
Thread Size:	0.747" x 26TPI	0.747" x 26TPI
RoHS	Compliant	Compliant

### Stainless Steel - Momentary

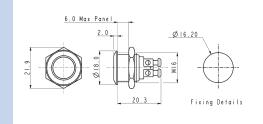


Flush Profile



#### MP0042/1

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

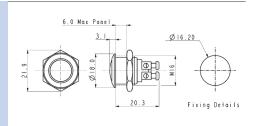






MP0042/2

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

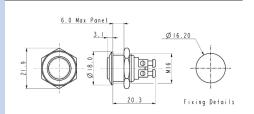


Prominent Button



MP0042/3

- 18mm bezel diameter
- 16mm panel hole
- O S.P. Push to make
- O Polished finish
- O 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:	$50m\Omega$ at 1A, 2V	50mΩ at 1A, 2V	50mΩ at 1A, 2V
Insulation Resistance:	$>10^3  \mathrm{M}\Omega$ @ 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: Electrical:	1,000,000 (min) 100,000 (min)	1,000,000 (min) 100,000 (min)	1,000,000 (min) 100,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm	12Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Nylon Brass, Silver Plated Stainless Steel (Polished)	Nylon Brass, Silver Plated Stainless Steel (Polished)	Nylon Brass, Silver Plated 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

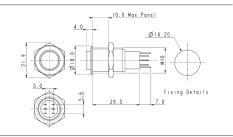
# Stainless Steel - Momentary







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

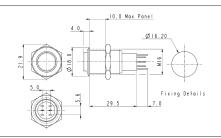


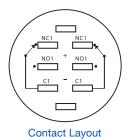
#### Prominent Button



MP0045/3D

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





Specifications	MP0045/1D0NN000/Sealing	MP0045/3D0NN000/Sealing
Terminations:	Solder tags	Solder tags
Switching:	D.P.C.O Momentary Action	D.P.C.O Momentary Action
Sealing: Part No.	IP67 IP40 /S BLANK	IP67 IP40 /S BLANK
Max. Rating:	250V ac	250V ac
Contact Resistance:	50m $Ω$ max. @ 1A, 2V	50mΩ max. @ 1A, 2V
Insulation Resistance:	>10 <sup>3</sup> MΩ @ 500Vdc	>10³ MΩ @ 500Vdc
Dielectric Strength:	> 2.0kVac	> 2.0kVac
Operating Temp. Range:	-20°C to +55°C	-20°C to +55°C
Operations Mechanical: Electrical:	200,000 (min) 30,000 (min)	200,000 (min) 30,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Nylon Brass, Silver Plated Stainless Steel	Nylon Brass, Silver Plated Stainless Steel
Contacts:	Silver	Silver
Variants:	Nickel Plated Brass version available Details on request	Nickel Plated Brass version available Details on request
RoHS	Compliant	Compliant

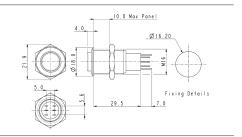
# Stainless Steel - Latching







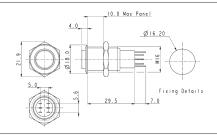
- O 18mm bezel diameter
- 16mm fixing hole diameterD.P.C.O.
- 250V ac

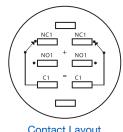


#### Prominent Button



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





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: Part No.	IP67 IP40 /S BLANK	IP67 IP40 /S BLANK
Max. Rating:	250V ac	250V ac
Contact Resistance:	50mΩ max. @ 1A, 2V	50mΩ max. @ 1A, 2V
Insulation Resistance:	$>10^3$ M $\Omega$ @ 500Vdc	>10³ MΩ @ 500Vdc
Dielectric Strength:	>2.0kVac	>2.0kVac
Operating Temp. Range:	−20°C to +55°C	-20°C to +55°C
Operations Mechanical: Electrical:	200,000 (min) 30,000 (min)	200,000 (min) 30,000 (min)
Rear Nut Fixing Torque:	12Nm	12Nm
Materials Mouldings: Tags/Terminations: Switch Body & Button:	Nylon Brass, Tin Plated Stainless Steel (Polished)	Nylon Brass, Tin Plated Stainless Steel (Polished)
Contacts:	Silver	Silver
Thread size:	Nickel Plated Brass version Details on request	Nickel Plated Brass version Details on request
RoHS	Compliant	Compliant

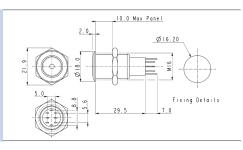
### Stainless Steel Illuminated Momentary



#### Front Panel Mounting



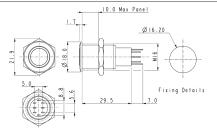
- Dot Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 3A, 250V ac
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals

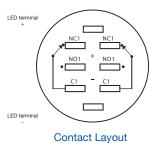


#### Front Panel Mounting



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





COI	itact	Lay
		-

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: Part No.	IP67 IP40 /S BLANK	IP67 IP40 /S BLANK	
Max. Switch Rating:	3A, 250Vac	3A, 250Vac	
LEDs Colours Part No.	Red Green Amber Blue /RD /GN /AM /BL	Red Green Amber Blue /RD /GN /AM /BL	
Voltage Part No.	12Vdc 220Vdc /012 /220	12Vdc 220Vdc /012 /220	
Contact Resistance:	50mΩ max. @ 1A, 2Vdc	50mΩ max. @ 1A, 2Vdc	
Insulation Resistance:	>10³ MΩ @ 500Vac	>10³ MΩ @ 500Vac	
Dielectric Strength:	>2.0kVac	>2.0kVac	
Operating Temp. Range:	−20°C to +55°C	-20°C to +55°C	
Operations Mechanical: Electrical:	200,000 (min) 30,000 (min)	200,000 (min) 30,000 (min)	
Rear Nut Fixing Torque:	12Nm	12Nm	
Materials Mouldings: Tags: Switch Body & Button:	Nylon Brass, Silver Plated Stainless Steel (Polished) Prominent Button, details on request	Nylon Brass, Silver Plated Stainless Steel (Polished) Prominent Button, details on request	

Compliant

Prominent Button, details on request

Compliant

Variants RoHS

Prominent Button, details on request

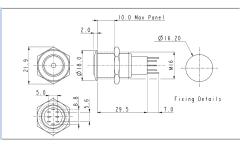
### Stainless Steel Illuminated Latching



#### Front Panel Mounting



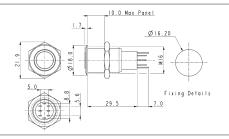
- Dot Illuminated
- 18mm bezel diameter
- D.P.C.O.
- 3A, 250V ac
- Red, Green, Amber or Blue Illumination
- Separate LED Terminals

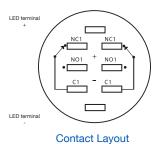


#### Front Panel Mounting



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





Specifications	MP0045/1E1/Colour/Voltage/Sealing	MP0045/1E2/Colour/Voltage/Sealing
Terminations:	Solder Tags	Solder Tags
Illumination:	Dot	Ring

Switching: D.P.C.O. Latching Action D.P.C.O. Latching Action

IP40 IP40 Sealing: IP67 IP67 BLANK BLANK Part No. /S 3A, 250Vac

Max. Switch Rating: 3A, 250Vac

**LEDs** 

Red Blue Red Green Amber Blue Colours Green Amber Part No. /RD /GN /AM /BL /RD /GN /AM /BL

Part No. /012 /220 /012 /220

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

12Vdc 220Vdc 12Vdc 220Vdc Voltage Contact Resistance: 50mΩ max. @ 1A, 2Vdc 50mΩ max. @ 1A, 2Vdc >103 MΩ @ 500Vac Insulation Resistance: >103 MΩ @ 500Vac Dielectric Strength: >2.0kVac >2.0kVac -20°C to +55°C -20°C to +55°C Operating Temp. Range: Operations Rear Nut Fixing Torque: 12Nm 12Nm Materials Mouldings: Nylon Nylon Brass, Silver Plated Brass, Silver Plated Tags: Switch Body & Button: Stainless Steel (Polished) Stainless Steel (Polished) Prominent Button, details on request Prominent Button, details on request Variants RoHS Compliant Compliant

### Vandal Resistant Switches



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

- 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.
- O IP66, 68 front panel sealing options
- O 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
- O Ratings up to 12(12) @ 250Vac
- O 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)

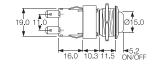
**%1** 12A 250Vac DP, 13A 250Vac SP 250Vac 1hp, 125Vac 1/2hp UL 85°C, file E45221, CSA file LR10990

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

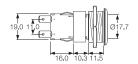
3mm contact gap.
Technical data on pages 4 & 5 (switches), 6 (indicators).

#### **Dimensions**

8300RP (H terminals shown)









Terminal	Function	Actuator	Body Code
C H	8300 (alternate) Single pole ON - OFF	R (for P body only) Raised top (stainless steel)	
K T	8301 (momentary ON) Single pole ON - OFF		
2.6 T	8350 (alternate) Double pole ON - OFF	Flat top (stainless steel)	(for R actuator only) Stainless steel, Soft profile bezel
<b>X</b>	8301 (momentary ON) Single pole ON - OFF	P	M
		Domed top (stainless steel)	Stainless steel
			Ø22.5

### 0911 Vandal Resistant Switches

Designed to IP66





#### **Key Features**

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

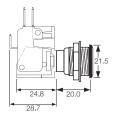
#### **Approvals and specifications**

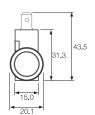
**%** 16A 125/250Vac 3/4hp T85 50E3 125V 1/2 HP, 250V 3/4 HP, 0.4A 125Vdc, 0.2A 250Vdc

Approvals apply to switch mechanism only.  $\boldsymbol{\mu}$  contact gap.

#### **Dimensions**

C0911VA





Terminal	Function	Actuator	Body Code
12.0	0911 (momentary) ON - ON	V Flat top (stainless steel)	Stainless steel Chamfer profile bezel  One of the state o

### Push Button Switches



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



### Push Button

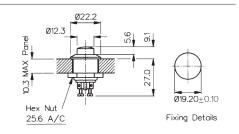


Front Panel Mounting



MP0012/Col

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

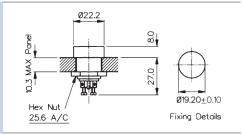






MP0012/1/Col

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

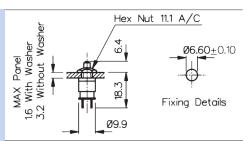


Rear Panel Mounting



MP0016

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



Specifications	MP0012/Colour	MP0012/1/Colour	MP0016/Colour
Terminations:	Screw Terminals	Screw Terminals	Solder Tags
Switching:	S.P. Push to Make Slow Momentary Action	S.P. Push to Make Slow Momentary Action	S.P. Push to Make Slow Momentary Action
/lax. Rating:	0.25A. 250Vac, 1A. 110Vac, 2A. 12Vac/dc	0.25A. 250Vac, 1A. 110Vac, 2A. 12Vac/dc	1A 28Vac/dc (non-inductive)
Contact Resistance:	<15mΩ	<15mΩ	<15mΩ
nsulation Resistance:	$>10^4  \mathrm{M}\Omega$	$>10^4 M\Omega$	$>10^4  M\Omega$
Dielectric Strength:	>2.5kVac	>2.5kVac	>2.0kVac
perating Temp. Range:	–20°C to +85°C	–20°C to +85°C	–20°C to +85°C
Operation Pressure (typ):	9.18 newtons	9.18 newtons	6.22 newtons
Materials Moulding: Body:	Glass Filled Nylon Brass, Brass, Chrome Plated	Glass Filled Nylon Brass, Brass, Chrome Plated	Glass Filled Nylon Brass, Brass, Chrome Plated
Contacts/Terms:	Brass, Silver Plated	Brass, Silver Plated	Brass, Silver Plated
ariant //	Button Colour: Standard - Black, /RD (Red)	Button Colour: Standard - Black, /RD (Red)	Button Colour: Standard - Black, /RD (Red)
RoHS	Compliant	Compliant	Compliant

### 8300 Series Push Button

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





#### **Key Features**

- Miniature push button
- O 8A Inductive current rating
- Ratings up to 12(12)A, 250V ac (H suffix)
- O Illuminated and nonillumi-
- O Single and double pole
- Latching and momentary
- Slotted actuator for custom buttons

- Industry standard panel cutout
- O 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)

**%1 8** 8350, 8351, 8353, 8354 12A 250Vac DP, 250Vac 1hp, 125Vac 1/2hp

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

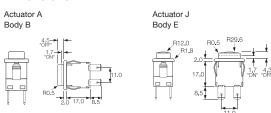
UL 85°C, file E45221, CSA file LR10990

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

Terminal	Function	Actuator	Body Code	Body Colour
С	1 2 Approvals & ratings vary with function Single pole switches use terminals 1 & 2 (& 3)		Panel cut-out ** Bezel	
6.3 x 0.8	8300 Single Pole ON - OFF	A Standard actuator	B Standard body	<b>B</b> Black
н А	8301 Single Pole ON - OFF (momentary ON)	H Slotted for custom caps	12.9	<b>W</b> White
4.8 x 0.8	8303 Single Pole ON - OFF With Light	Slots for snap-in buttons  C Square actuator	Softline style body with radiused bezel	
	8304 Single Pole ON - OFF (momentary ON) with light	E	Cut-outs must be punched in the direction of insertion	
K	8350 Double pole ON - OFF	Radiused actuator	Dimensions for snap-in fixing Panel thickness Dimension X	
1 5 2.8 x 0.8	8351 Double pole ON - OFF (momentary ON)	F Small round actuator	0.75-1.24 19.1/19.2 1.25-1.99 19.3/19.4 2.00-3.00 19.7/19.8 X and V PCB terminals.	
	8353 Double pole ON - OFF With light	J Smooth curved actuator	Additional dummy terminals may be supplied for extra support.	
2.6 7.0 - 1.5 Solder	8354 Double pole ON - OFF (momentary ON)	M		
	8355 Single pole ON - OFF			
X V 4.5	Isolated light - switched C, E & M actuators only  8356 Single pole	Large round actuator		
(Call sales for mounting dims)	ON - OFF Isolated light - unswitched C, E & M actuators only	All actuators except H available lit		



#### **Dimensions**



#### **Examples**







⊞ H8353JE - - -⊞ T8353JE - - -



⊞ H8353EB - - -⊞ T8353EB - - -



☐ H8353CB - - -☐ T8353CB - - -

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

### 8200 Series Push Button

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





#### **Key Features**

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

#### **Approvals and specifications**

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

12A 250Vac 250Vac 1hp, 125Vac 1/2hp **№** UL 85°C, file E45221, CSA file LR10990

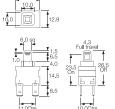
3mm contact gap.

Terminal	Function	Actuator	Body Code
C 10.1 0.1	Approvals & ratings vary with function Single pole switches use terminals 1 & 2 (& 3)  8200 Single Pole ON - OFF	A Standard actuator for snap-on custom adaptors	A Standard body
A 4.8 x 0.8	8201	Flat top actuator	C As standard body but with side support peg for use with M PCB terminals
2.6 0.8 8.5 2.8 × 0.8	Single Pole ON - OFF (momentary ON)	Examples of possible actuation methods Using a Snap on adaptor	X and V PCB terminals. Additional dummy terminals may be supplied for extra support.
7.0	8250 Double Pole ON - OFF	Using a Hinged Actuator	
4.5 T7.0	8251 Double Pole ON - OFF (momentary ON)		



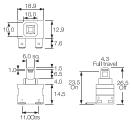
#### **Dimensions**

'A' body with 'H' 4.8 terminals

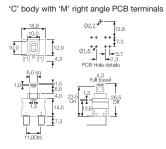


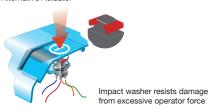


'A' body with 'A' right angle 4.8 terminals



Alternative Actuator





#### **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
- O 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

**NL®** UL CSA 16A Non Ind, 250Vac 1hp, 125Vac 1/2hp UL 65°C, file no. E45221, CSA file no. LR10990

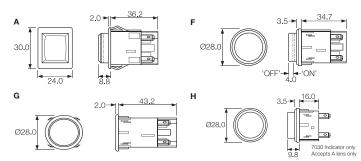
3mm contact gap.

		25.0 dia 27.2 x 22.3	3	
Terminal	Function		Actuator	Body Code
C  (6.3 x 0.8)  H  (	7003 Single Pole (with light) ON - OFF  7004 Single Pole (momentary) with light ON - OFF  7050 Double Pole ON - OFF  7051 Double Pole with light ON - OFF  7053 Double pole with light ON - OFF  7054 Double pole (momentary ON) with light ON - OFF	2 1 1 4 3 3 2 1 1 4 2 2 1 1	A Round actuator shown in F body  A Round actuator - medium shown in G body  C Round actuator - one garden in F body  D Round actuator - sub panel mount  S Rectangular actuator Shown in "A" body NA for 7030	Panel cut-outs  F H G  Body types fit either cut-out  25.0/25.2  A  27.3  22.3/22.4  Cut-outs must be punched in the direction of insertion
	CSA LR29381			



#### **Dimensions**

Panel thickness: A - 0.8 - 2.5mm F, G, H - 0.8 - 5.0mm



#### **Examples**









C7000AF - - -

C7050SA - - -

C7053AG - - -

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

# 0911 Push Button Switches 0.5A 250Vac





#### **Key Features**

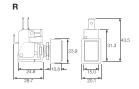
- Snap action switches
- Ratings up to 16A, 250Vac
- O Round and rectangular buttons

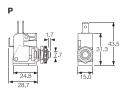
#### **Approvals and specifications**

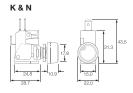
**%** 16A 125/250Vac 3/4hp T85 50E3 125V 1/2 HP, 250V 3/4 HP, 0.4A 125Vdc, 0.2A 250Vdc

Approvals apply to switch mechanism only. μ contact gap.

#### **Dimensions**







Terminal	Function	Actuator	<b>Body Code</b>	Options
12.0	0911 (momentary) ON - ON	R Rectangular bezel  P Short	Panel Cut-out Panel thickness Both nuts 2.5mm No backnut 4.0mm	Call factory for custom colours
		K with satin chrome bezel		
		N with nylon bezel		







#### **Key Features**

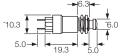
- O Self wiping contacts
- O Slow make & break
- Momentary action
- O Choice of switch circuits
- Choice of actuators

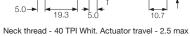
#### **Approvals and specifications**

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

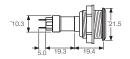
#### **Dimensions**

Dimensions (mm) Nylon S and L actuators





Stainless steel V actuator (IP66)



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

Terminal	Function	Actuator	Body Code	Options
3.3 5.0 1.2 Solder	O916  Black base SP ON - OFF (momentary)  O917 50V only  Brown base SP ON - OFF (momentary 1 side)  O918  White base SP ON - OFF (momentary OFF)  O919  Black base DP ON - OFF (momentary 1 side)  O920  White base DP ON - OFF (momentary 0 side)	S Small Actuator  L Large Actuator  V Vandal Resistant IP66 Flattop Stainless Steel	Panel Cut-out (L & S Actuators)  Panel thickness Both nuts - 2.5mm No Backnut - 4.0  Panel Cut-out (Stainles Steel V Actuator) Panel thickness - 8.0mm	Finish Gloss finish for L and S actuators.  Colour Call sales for custom colours. A full range is available for large orders.

## Voltage Selectors

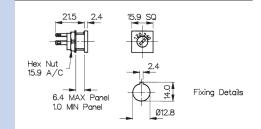


120/140V Voltage Selector



VS0001

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

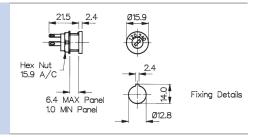


120/140V Voltage Selector

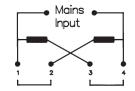


VS0002

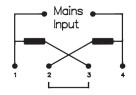
- O 2.8 series tabs/Solder tags
- O Roun
  O 6.3A Round Front Bezel
- CSA & VDE approvals



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: Tags:	Glass Filled Nylon UL94V-1 Brass, Silver Plated	Glass Filled Nylon UL94V-1 Brass, Silver Plated
Contacts:	Copper Silver Alloy	Copper Silver Alloy
Approvals:	<b>®</b>	<b>⚠ ⑤</b>
Variants:	Other markings, details on request	Other markings, details on request
RoHS		Compliant

### Capacitive Switches



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.



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

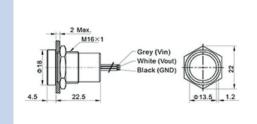
### Capacitive Switches - 16mm







- O Illuminated
- 300 mm lead



#### **Specification**

#### Туре

Materials

Maximum Current / Voltage Rating:

Supply Voltage

Contact Resistance

LED state for output image option

Actuating force, typically

Life cycle

#### **MC16**

Momentary / Latching

Case: Aluminium, Anodised and Stainless Steel

Multi-wire leads setion 0.22mm<sup>2</sup> (length 300mm)

10mA 12 VDC

12 VDC

 $20 \text{m}\Omega$ 

1 LED: The LED is ON when output is closed.

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

Zero Newton's (Touch Sensitive)

>50 Million

#### **Panel Cutout Dimensions**



Panel cutout: Ø16.20 (.637 DIA)

#### **Environmental Specification**

Sealing IP68 (2m depth for >30mins) IP69K

Operating temperature -25°C to +55°C

RoHS Compliant

#### **Circuit Specification**

See wiring diagrams on Part No System page

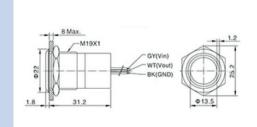
### Capacitive Switches - 19mm



19mm Illuminated



- Illuminated
- 300 mm lead



#### **Specification**

#### Туре

Materials

Maximum Current / Voltage Rating:

Supply Voltage

Contact Resistance

LED state for output image option

Actuating force, typically

Life cycle

#### MC19

Momentary / Latching

Case: Aluminium, Anodised and Stainless Steel

Multi-wire leads setion 0.22mm<sup>2</sup> (length 300mm)

10mA 12 VDC

12 VDC

 $20 \text{m}\Omega$ 

1 LED: The LED is ON when output is closed.

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

Zero Newton's (Touch Sensitive)

>50 Million

#### **Panel Cutout Dimensions**



Panel cutout: Ø16.20 (.637 DIA)

#### **Environmental Specification**

Sealing IP68 (2m depth for >30mins) IP69K

Operating temperature -25°C to +55°C

RoHS Compliant

#### **Circuit Specification**

See wiring diagrams on Part No System page

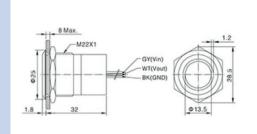
### Capacitive Switches - 22mm



22mm Illuminated



Illuminated300 mm lead



#### **Specification**

#### Туре

Materials

Maximum Current / Voltage Rating:

Supply Voltage

Contact Resistance

LED state for output image option

Actuating force, typically

Life cycle

#### **MC22**

Momentary / Latching

Case: Aluminium, Anodised and Stainless Steel

Multi-wire leads setion 0.22mm<sup>2</sup> (length 300mm)

10mA 12 VDC

12 VDC

 $20 \text{m}\Omega$ 

1 LED: The LED is ON when output is closed.

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

Zero Newton's (Touch Sensitive)

>50 Million

#### **Panel Cutout Dimensions**



Panel cutout: Ø16.20 (.637 DIA)

#### **Environmental Specification**

Sealing IP68 (2m depth for >30mins) IP69K

Operating temperature -25°C to +55°C

RoHS Compliant

#### **Circuit Specification**

See wiring diagrams on Part No System page

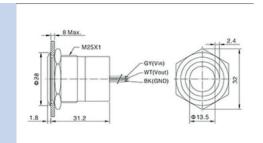
## Capacitive Switches - 25mm







- O Illuminated
- 300 mm lead



#### **Specification**

#### Туре

Materials

Maximum Current / Voltage Rating:

Supply Voltage

Contact Resistance

LED state for output image option

Actuating force, typically

Life cycle

#### **MC25**

Momentary / Latching

Case: Aluminium, Anodised and Stainless Steel

Multi-wire leads setion 0.22mm<sup>2</sup> (length 300mm)

10mA 12 VDC

12 VDC

 $20 \text{m}\Omega$ 

1 LED: The LED is ON when output is closed.

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

Zero Newton's (Touch Sensitive)

>50 Million

#### **Panel Cutout Dimensions**



Panel cutout: Ø16.20 (.637 DIA)

#### **Environmental Specification**

Sealing IP68 (2m depth for >30mins) IP69K

Operating temperature -25°C to +55°C

RoHS Compliant

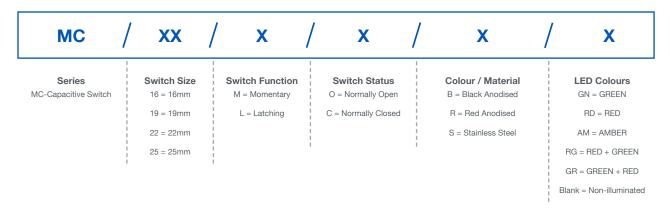
### **Circuit Specification**

See wiring diagrams on Part No System page

# Capacitive Switches - Part No System



### **Part No System**



#### **Examples:**

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

### **Circuit Specifications**

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

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.

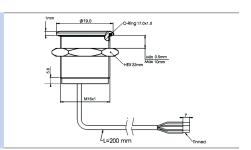


## 16mm Stainless Steel





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



### **Specification**

#### **MPZ016**

Туре

Material

Stainless Steel

(Aluminium upon request)

Maximum Voltage

Switch Resistance "ON"

Switch Resistance "OFF"

Capacitance

100pF

Switching current

(momentary)

1A Max

Switching current

(prolonged)

300 mA

Switching pulse time

(momentary)

Actuating force, typically

Life cycle

Momentary

24V AC/DC

<1Ω

5ΜΩ

up to 0.3 sec

3-5 N

>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 Switch Current Power Supply

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

# Piezo Switches 19mm Stainless Steel

Illuminated and Non Illuminated





#### **Specification MPZ019, MPZI019**

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

### **Environmental Specification**

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

### **Circuit Specification**

19MM Stainless Steel Non Illuminated



19MM Stainless Steel Illuminated



# Piezo Switches 22mm Stainless Steel





Specification	MD7022	MDZI022

Type Momentary

Material

Maximum Voltage

Switch Resistance "ON"

Switch Resistance "OFF"

Capacitance 100pF

Switching current (momentary)

Switching current (prolonged)

Switching pulse time

(momentary)

LED Illumination

Actuating force, typically

Life cycle

MPZI022

Stainless Steel

(Aluminium upon request)

24V AC/DC

<1Ω

 $5M\Omega$ 

1A Max

300 mA

up to 0.3 sec

24V AC/DC

3-5 N

>10 Million

**Environmental Specification** 

Sealing

Operating temperature

Vibration Resistances

Shock resistance

RoHS

IP68; IP69K

-40°C to +85C°

5-500Hz/9.4m

75g (g-force)

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 24V AC/DC Color\* Illuminated Power Supply 24 AC/DC

22MM Stainless Steel Illuminated 2 colour



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

24V AC/DC 24 AC/DC

### Piezo Switches

## 22mm Stainless Steel Flathead

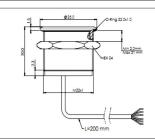


22MM Stainless Steel Illuminated



MPZI022/L

- O Blue Illumination
- 1 colour
- O 20 cm lead



#### **Specification** MPZI022/L

Туре Latching Toggle

Material Stainless Steel (Aluminium upon request)

Power Supply 24V AC/DC

48V AC peak/DC Switching voltage

<0.7Ω

Switch Resistance "ON"

Switch Resistance "OFF"  ${>}1000M\Omega$ 

Capacitance <90pF

Switching current 1A Max

24V AC/DC LED Illumination

Actuating force, typically 3-5 N

Life cycle >10 Million **Environmental specification** 

IP68; IP69K Sealing

Operating temperature -40°C to +85C°

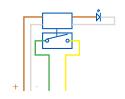
Vibration Resistances 5-500Hz/9.4m

Shock resistance 75g (g-force)

RoHS Compliant

**Circuit Specification** 

22MM Stainless Steel Latching Toggle Illuminated

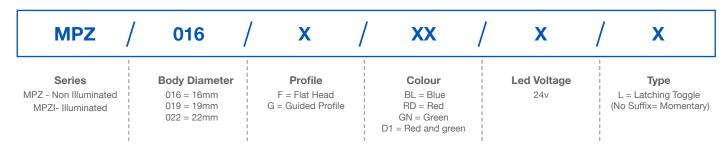


Power Supply Switch Voltage Switch Current Max Colour\* Illuminated

24V AC/DC 48V AC peak/ DC 1A Max 24V AC/DC



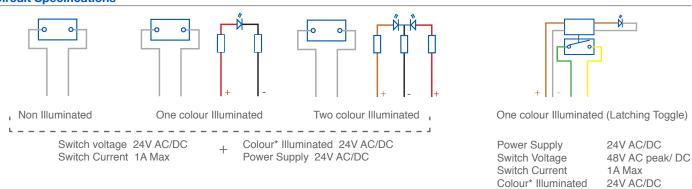
#### **Part No System**



#### **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\*

## Miniature Stainless Steel Vandal Resistant

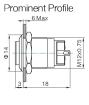


MAV0120



MAV0120

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





#### **Specification** MAV0120/3 MAV0120/1

P - Solder Tabs P - Solder Tabs Terminations: Switching: S.P. Push to make S.P. Push to make Max Rating: 2A, 36Vdc 2A, 36Vdc Contact Resistance: ≥50MΩ ≥50MΩ Insulation Resistance: ≥1000 $M\Omega$ ≥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: PΑ PΑ

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

### Miniature Stainless Steel Illuminated Vandal Resistant



#### MAV0120



MAV0120

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

## **MAV0120**

Terminations:

**Specification** 

Switching:

Max Rating:

Profile:

Illumination Type

**LED Ratings** Part No. Colours

Luminous Intensity Forward Voltage Forward Current Moulding Current

Illumination Voltage

Contact Resistance:

Insulation Resistance: Dielectric Strength:

Operating Temp. Range:

Operations

500,000 (min)

Sealing (Front of Panel Only) IP67

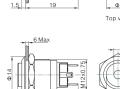
Shock Resistance IK08

0.6Nm

Copper, Gold Plated Switch Body & Button: Stainless Steel

Silver Alloy

Thread size: M12x0.75 RoHS Compliant

















P - Solder Tabs

S.P. Push to make

2A, 36Vdc

Prominent /3 Flush /1

/1 Dot /2 Ring

/RD /GN /BL /OR /AM Yellow Red Orange Green Blue 1.8V 2.8V 2.8V 1.8V 1.8V

15mA 15mA 15mA 15mA 15mA

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

12V /12 /24 24V

≥50MΩ ≥1000MΩ

1500V, AC 50Hz, 5 Secs

\*-25°C ~ +55°C

Mechanical: Electrical:

200,000 (min)

Rear Nut Fixing Torque:

Materials

Mouldings:

Tags/Terminations:

Contacts:

## Miniature Domed Metal Vandal Resistant



MMP0120

**Specification** 

Operations



O Raised Domed Profile

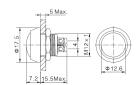
○ 12mm Diameter

○ 2A, 36Vac

○ IP65 or IP67 (Front of Panel Only)

MMP0120/N

S.P. Push to make









P - Solder Tabs P - Solder Tabs Terminations: S - Screw Terminal S - Screw Terminal

MMP0120/S

MMP0120

Switching: 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

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

## Miniature Domed PBT Pushbutton

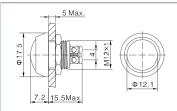
Non Illuminated - PB7

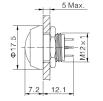


#### MMP0120/A



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









### **Specification**

### MMP0120/A

MMP0120/A

Terminations: P - Solder Tabs S - Screw Terminal

Switching: S.P. Push to make

 Max Rating:
 2A, 36Vdc

 Contact Resistance:
 ≥50MΩ

Insulation Resistance:  $\ge 1000 M\Omega$ 

Dielectric Strength: 1500V, AC 50Hz, 5 Secs

Operating Temp Range: \*-25°C ~ +55°C

Operations

 Mechanical:
 1,000,000 (min)

 Electrical:
 200,000 (min)

Sealing (Front of Panel Only) IP65 or IP67

Shock Resistance IK08

Rear Nut Fixing Torque: 0.3Nm

Materials

Mouldings: PBT

Tags/Terminations: Brass, Silver Plated

Switch Body /A Black Anodised

Switch Button: /NB Nickel Plated Brass

/RD RED PBT
/GN GREEN PBT
/BL BLUE PBT
/BK BLACK PBT

Compliant

Contacts: Silver Alloy
Thread size: M12x1

RoHS

### Miniature Domed Illuminated Pushbutton



MMPI0120



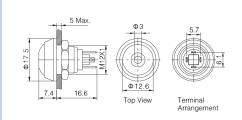
Bright daylight LEDs

○ Raised Domed Profile O Dot Illumination

○ 12mm Diameter

O 2A, 36Vac

O IP65 (Front of Panel Only)



MMPI0120

#### **Specification MMPI0120**

P - Solder Tabs Terminations:

Switching: S.P. Push to make Max Rating: 2A, 36Vdc

**LED Ratings** 

Part No. SS-RD SS-GN NN-RD ABK-RD AG-RD Colours Red Green Red Red Red Luminous Intensity Forward Voltage 1.8V 2.8V 1.8V 1.8V 1.8V Forward Current Moulding Current 15mA 15mA 15mA 15mA 15mA

Illumination Voltage /no suffix - No resistor fitted. An Appropriate resistor must be series connected by the user.

Voltages as above

/12

Contact Resistance: ≥50MΩ Insulation Resistance: ≥1000M $\Omega$ 

1500V, AC 50Hz, 5 Secs Dielectric Strength:

Operating Temp. Range: \*-25°C ~ +55°C

Operations

Mechanical: 1,000,000 (min) Electrical: 200,000 (min)

Sealing (Front of Panel Only) IP65

IK08 Shock Resistance

Rear Nut Fixing Torque: 0.3Nm

Materials

Thread size:

RoHS

Mouldings:

Tags/Terminations: Brass, Silver Plated

M12x1

Compliant

Switch Body & Button: Stainless Steel Stainless Steel Nickel Plated Brass Black Anodized Black Anodized Body, Green PBT

Body, Black PBT Button Button

Contacts: Silver Alloy

# Part No System



### 12mm Miniature Vandal Resistant Stainless Steel Switch

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

#### **Examples:**

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

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

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

#### Examples:

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

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