# SERIES 49-59 – SEALED PUSHBUTTON RANGE

## FEATURES

- Fully sealed version to IP67
- LED status illumination (FL)
- 10A version panel sealed to IP67
- Wide temperature range: Up to +105°C
- Industrial standard ø16mm panel cut out
- Flame retardant UL rated material

## NON-STANDARD OPTIONS

- Custom colours
- Choice of terminations
- Gold contacts on microswitch version
- Snap-in version of both flying lead and microswitch variants

# ITW Switches

# Technical Information

## Series 49-59

ITW Switches' 49-59 Series is a range of momentary action pushbutton switches which fit a ø16mm panel cut out. The range consists of a fully sealed IP67 version with insulated flying leads (500mm length) along with a panel sealed IP67 version which is terminated by a series 16 microswitch.

Held in position by a snap fit retaining mechanism, the microswitch has a maximum current rating of 10A and the advantage of SPDT-DB contacts to cover all circuit requirements. Being double break, the contacts also provide reliable switching of DC loads.

The Series is available with a choice of round, round with status illumination (flying leads only) or square bezels and with 6 button colour variants. The body and button are made from PBT, a hard wearing thermoplastic polyester that is suitable for surface or sublimation printing or engraving.

## Mechanical

| | |
|---|---|
| Travel (nom) | 2,3mm |
| Life (min) | 1,000,000 cycles |
| Operating force | 3N (FL) |
| | 3.8 – 5.5N (MS) |
| Panel thickness | 8mm max (FL) |
| | 2,5mm max (MS w/o washer) |
| | 1,5mm max (MS with washer) |

## Electrical

| | |
|---|---|
| Dielectric strength | 1000V a.c. for 1 min |
| Insulation resistance | 1G$\Omega$ @ 500V d.c. |
| Contact resistance | 150m$\Omega$ max initial inc leads (FL) |
| | 25m$\Omega$ max initial (MS) |
| Current rating | 400mA @ 32V a.c. res (FL) |
| | 100mA @ 50V d.c. res (FL) |
| | 125mA @ 125V a.c. res (FL) |
| | 10A @ 250V a.c. res (MS) |
| Life | 500,000 cycles (FL) |
| | 50,000 cycles @ 70°C (MS) |

## Electrical – LED

| | |
|---|---|
| Typical fwd voltage (Vf at I operating) | 2,2V |
| Max fwd voltage (Vf at I operating) | 3,0V |
| Forward current (I operating) | 20mA |
| Meantime between failures | 100,000 hours |
| Luminous intensity (Iv at Iopr) | Red LED – 100mcd |
| Luminous intensity (Iv at Iopr) | Green LED – 160mcd |

## Environmental & Physical

| | |
|---|---|
| Ingress protection | IP67 |
| Vibration | DEF STD 07-55 |
| Non-illuminated | |
|     Operating temperature range | -55°C to +105°C |
| Illuminated | |
|     Operating temperature range | -35°C to +85°C |
| Body material | PBT |
| Button material | PBT |
| Contacts | Gold plated palladium nickel (FL) |
| | Silver (MS) |
| Terminals | Tin plated brass (MS) |
| Salt mist | BS2011 Part 2:1 |
| Soldering information | 320°C max for 3s |

## Key

| | |
|---|---|
| FL | Version with flying leads |
| MS | High current microswitch terminated version |

**Button Style**

| | |
|---|---|
| Round bezel | 1 |
| Square bezel | 2 |
| Round bezel – Illuminated | 3 |

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**Termination/Body Style**

| | |
|---|---|
| 500mm leads | 1 |
| 16-439088 (Non-illuminated only) | 2 |

**Button Colour**

| | |
|---|---|
| Black | 1 |
| Red | 2 |
| Green | 3 |
| White | 4 |
| Yellow | 5 |
| Blue | 6 |

(Illuminated version only available with Black, Red & Green as standard. Non-standard colours subject to MOQ's)

**LED Colour**

| | |
|---|---|
| Red | R |
| Green | G |

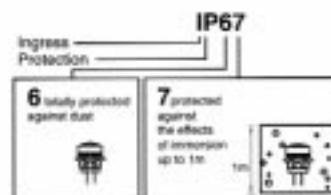(This digit is only required for illuminated switches)

**Mounting Information**

The Series 49-59 fits neatly into a ø16mm cut out panel no more than 8mm thick for the flying lead version and no more than 1,5mm thick for the microswitch version (with sealing washer). The switch body is fitted from the front of the panel and is locked down with an M16 nut using a 20mm spanner. Panel sealing is achieved by the use of a sealing washer which is placed behind the head of the bezel. To attain the correct sealing, the nut should be tightened to a recommended torque of between 1Nm and 1,5Nm not exceeding 2Nm. Whilst the flying lead version is now mounted, the microswitch still requires careful 'snapping' into its holder from behind the panel.

Each flying lead switch is supplied with 500mm 24AWG 7/32 leads which are PVC insulated and have plain unstripped ends.
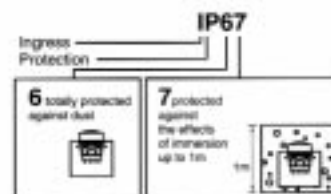
The microswitch version has 2.8mm QC terminals which also provide the option to solder.

Double 'D' flats are provided to prevent rotation of the switch in the panel.

**Ingress Protection Rating Key**



For flying lead version
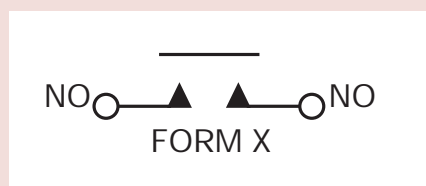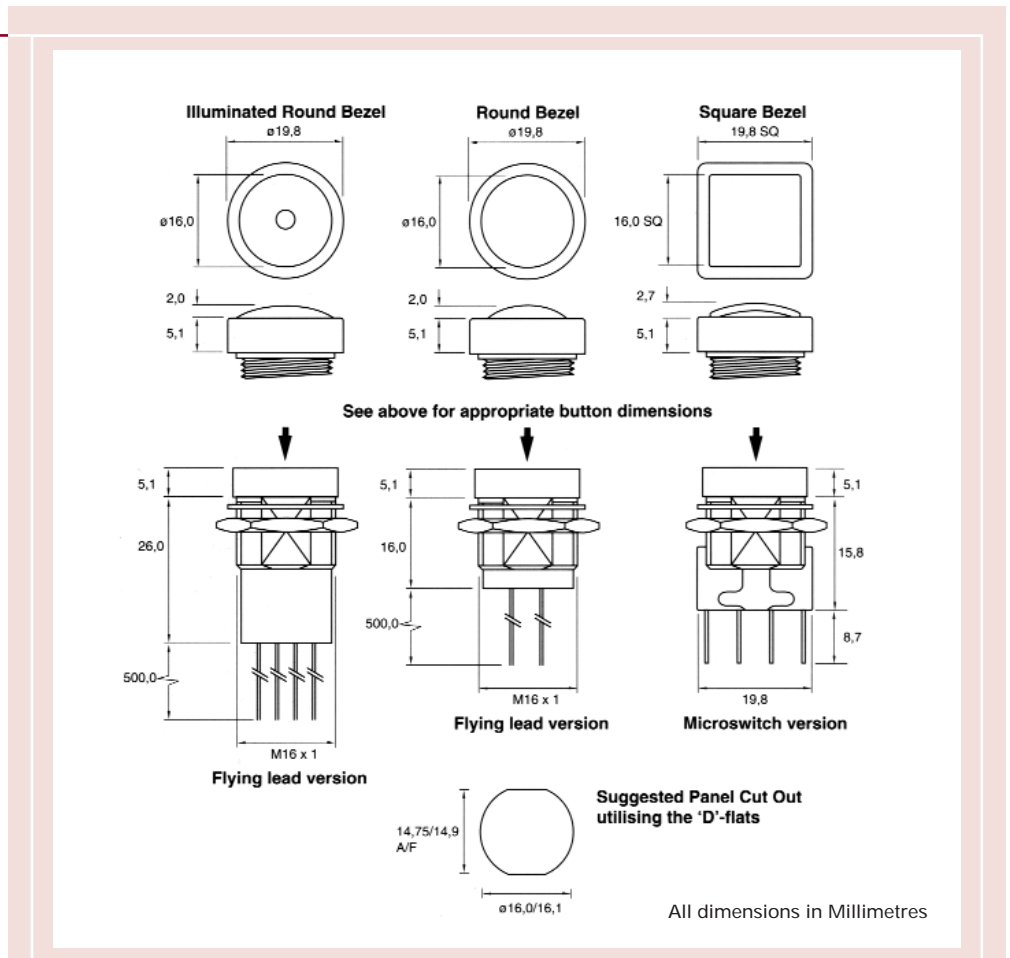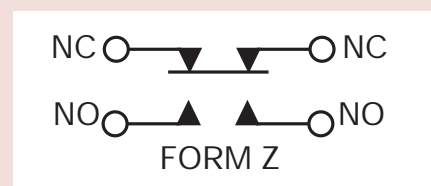


For microswitch version

# SERIES 49-59
# Sealed Pushbutton Range

## Technical Information

**Product Drawings**



**Illuminated Round Bezel** ø19,8 · ø16,0 · 2,0 · 5,1

**Round Bezel** ø19,8 · ø16,0 · 2,0 · 5,1

**Square Bezel** 19,8 SQ · 16,0 SQ · 2,7 · 5,1

See above for appropriate button dimensions

5,1 · 26,0 · 500,0 · M16 x 1 · **Flying lead version**

5,1 · 16,0 · 500,0 · M16 x 1 · **Flying lead version**

5,1 · 15,8 · 8,7 · 19,8 · **Microswitch version**

**Suggested Panel Cut Out utilising the 'D'-flats**

14,75/14,9 A/F · ø16,0/16,1

All dimensions in Millimetres

NO —▲ ▲— NO
**FORM X**
Circuit for flying lead version

NC —▼ ▼— NC
NO —▲ ▲— NO
**FORM Z**
Circuit for microswitch version

**Application References**

• Communications
• Instrumentation
• Data processing
• Military environments

• Environmentally demanding keypads
• Mass transport controls
• Dry circuit switching

**Further Information**

For further information on our complete range of switch products, visit our website – www.itwswitchcon.com or contact our Sales Office.

## ITW Switches