Series 76-94–Panel Switches for Harsh Environments
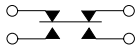
Typical Applications

– Lift trucks
– Subway door controls
– Gasoline pumps
– Railroad train intercoms

actual size

Form Z

Features

- Panel sealed
- Nonspark material
- Explosive environment protection
- Dustproof
- Splashproof
- Wide temperature range
  –40°C to +135°C (–40°F to +275°F)
- Impact resistant
- Choice of actuating buttons
- Approvals: UL, CSA

Description

Series 76-94 pushbutton switches are designed for harsh environmental applications. All exposed metal parts are made of a nonsparking zinc alloy making this switch ideal for rugged, potentially explosive environments. Four button styles are available in this momentary action switch. A lock nut and panel seal washer are supplied with each switch.

Mounting Information

The 76-94 mounts easily into panels not exceeding 0.236 in (6 mm) thickness. Front panel sealing is achieved by use of the sealing washer. The switch is held on to the panel by a zinc lock nut, tightened down by the lock nut wrench to a torque of between 15 and 30 lbs-in to achieve the correct sealing pressure. It is mounted into a 0.886 in diameter hole with a double "D" flat to prevent rotation.

It is recommended the switch cut-out be punched from front of panel.
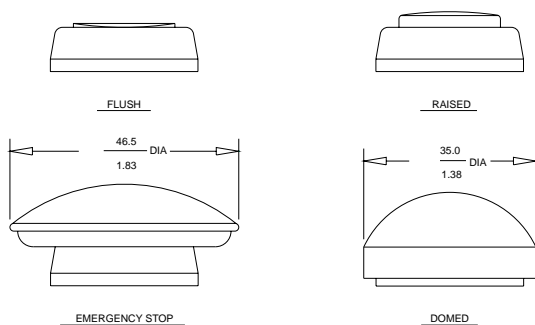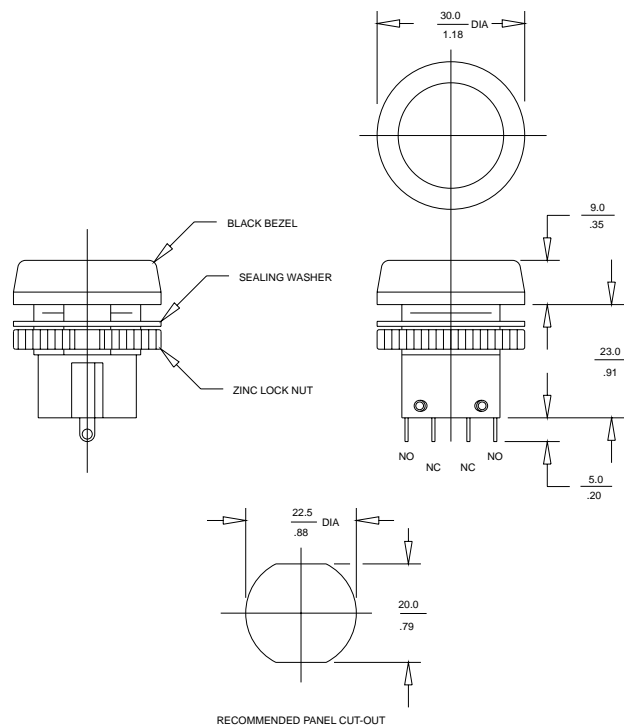
ITW **Switches**

Mechanical Characteristics

Travel: 0.098 in. (2.5 mm)

Life (nominal): 1,000,000 cycles

Operating force: 7N (approx 28 oz)

Contact bounce: 5 ms

Panel thickness (max): 0.236 in (6 mm)

Environmental and Physical Data

Shock: 50 G

Operating temp range:
−40°C to +135°C (−40°F to +275°F)

Body material: Zinc alloy

Button material: Zinc alloy

Contacts: Silver (Std)

Terminals: Solder

Electrical Data

Dielectric strength: 1,000V RMS

Insulation Resistance: 1 G Ω

Contact Resistance(Initial): 25 m Ω

Life (full load):
1,000,000 cycles at 20°C (68°F)
50,000 cycles at 70°C (158°F)

Drawings and dimensions

30.0 / 1.18 DIA

BLACK BEZEL

SEALING WASHER

ZINC LOCK NUT

9.0 / .35

23.0 / .91

5.0 / .20

NO   NC   NC   NO

22.5 / .88 DIA

20.0 / .79

RECOMMENDED PANEL CUT-OUT

FLUSH

RAISED

46.5 / 1.83 DIA

35.0 / 1.38 DIA

EMERGENCY STOP

DOMED

BUTTON STYLES

Electrical Characteristics

Circuitry	Current	Voltage
SPDT	10.1 amps Res	125/250 VAC

Ordering Information

Part Number	Circuit/Action	Button Style	Button Color	Terminals	Contacts
76-9410/4044/B	SPDT/Mom	Flush	Black	Solder	Silver
76-9420/4044/R	SPDT/Mom	Raised	Red	Solder	Silver
76-9440/4044/R	SPDT/Mom	Stop	Red	Solder	Silver
76-9450/4044/R	SPDT/Mom	Domed	Red	Solder	Silver

1-800-544-3354
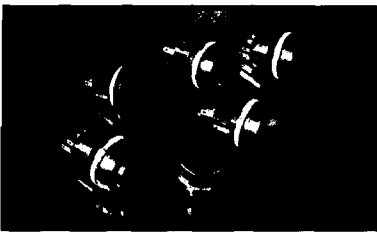
Series 76-94
PANEL SEALED RANGE

Description

The 76-94 series has been designed to cover a wide range of harsh environmental applications.

The range is available in 3 styles, push button, rotary and panel lamp.

The push button comes in 4 button styles with 3 colour options and has solder/faston terminals as standard. The rotary is a single pole, 2 position, snap action switch with green or red spot indicator on the black actuator. To complete the range an indicator version is available with red, green or amber lens.

The entire range is panel sealed to IP67 and due to the construction and the materials used, all are capable of surviving the impact of a 5kg mass dropped from 40cm (20J). All the bezels and the actuators of the pushbuttons and rotaries are made from a non-sparking zinc alloy whilst the panel lamp lens is manufactured from ploycarbonate, which maintains the specification of the range.

Non-standard options for the range include custom colours, PCB terminals, gold contacts and 2 pole variants.

The features of the series makes it ideal for robust, potentially explosive environments, such as the mining industry.

Features

- Non-spark material – To NCB 481/1965
- Explosive protection – For volatile atmospheres
- Wide temperature range – from −40°C to +125°C
- Panel sealed product – Protection against immersion
- Approved product – UL & CSA
- Impact rating – 20J

- *Choice of actuators and styles – Pushbuttons, rotary and panel lamp*

Non-standard Options:
- PCB terminals
- Gold contacts
- 2 poles available
- Colour variants
- In-filled engraving (Pushbutton only)

Specification

The pushbutton and rotary variants utilise ITW Switches' proven series 16 snap action microswitch.

Mechanical

Travel	2,5mm (PB)
Life (nom)	2×10^6 cycles (PB), 50,000 cycles (R) 1×10^5 cycles (Latched Pushbutton)
Operating force	7N (PB)
Contact bounce	5ms (PB, R)
Panel thickness (max)	6mm (PB, R, L)

Electrical

Dielectric strength	1000V RMS (PB, R)
Insulation resistance	1GΩ (PB, R)
Contact resistance (initial)	25mΩ (PB, R)
Current rating (max)	10A resistive 250VAC (PB, R)
Life	100,000 cycles 20°C (PB, R) 50,000 cycles 70°C (PB, R)
Illumination type	T1³/₄ Wedge base bulb (L)

Environmental & Physical

Ingress protection	IP67 (PB, R, L)
Impact rating	20J (PB, R, L)
Shock	50g (PB, R, L)
Operating temperature range	−40°C to +125°C (PB, R, L)
Body material	Zinc alloy (PB, R, L)
Actuator material	Zinc alloy (PB, R)
Lens material	Polycarbonate (L)
Contact material	Fine silver (PB, R)
Terminal material	5µm bright acid tin plate nickel flash undercoat (PB, R, L)

Key:
PB – Pushbutton
R – Rotary
L – Panel Lamp Indicator

Ordering information

Button style

76-94 [ ][ ] /xxxxxx [ ]

Flush	1
Raised	2
Large circular (latching)	3
Large circular (momentary)	4
Domed	5
Panel lamp indicator	6
Rotary	7

Indicator colour
(No addition to the part number is
required for the indicator after this)

Pushbutton & rotary	0
Red	R
Green	G
Amber	A

Termination & No. of Poles

Solder/faston	1 pole	439088
Solder	1 pole	4044
Solder	2 poles	804

Button colour
(For rotary: standard black actuator, specify
colour of dot indicator, red & green only)

Black	B
Red	R
Green	G
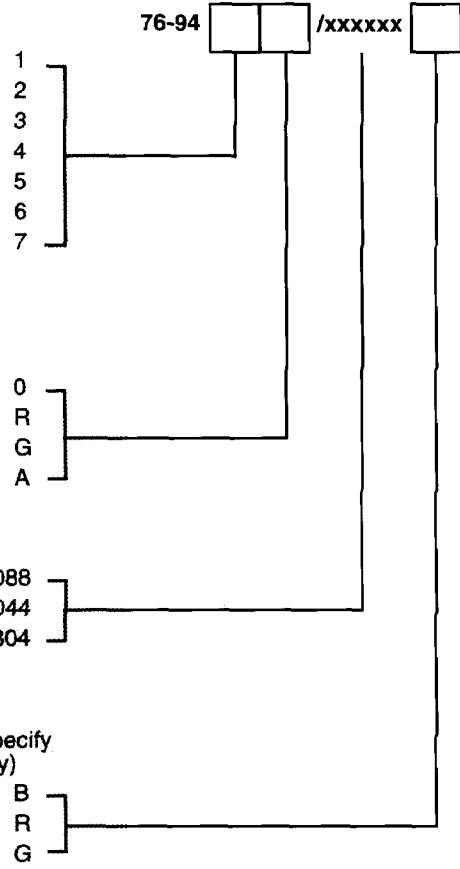
Panel mounting & construction information

The 76-94 mounts easily into panels not exceeding 6mm thickness. Front panel sealing to IP67 is achieved by use of the sealing washer which is fitted to the switch before it is inserted into the panel hole cut out. It is held into the panel by means of a zinc lock nut, tightened down by the tool part number 76-T1 to a torque of between 1,5Nm to 2,85Nm to achieve the correct sealing pressure.
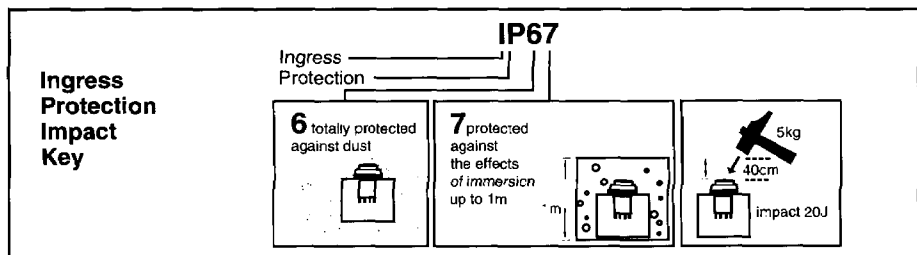
It is mounted into a standard 22,5mm diameter hole and a double 'D' flat is provided to prevent rotation if required.
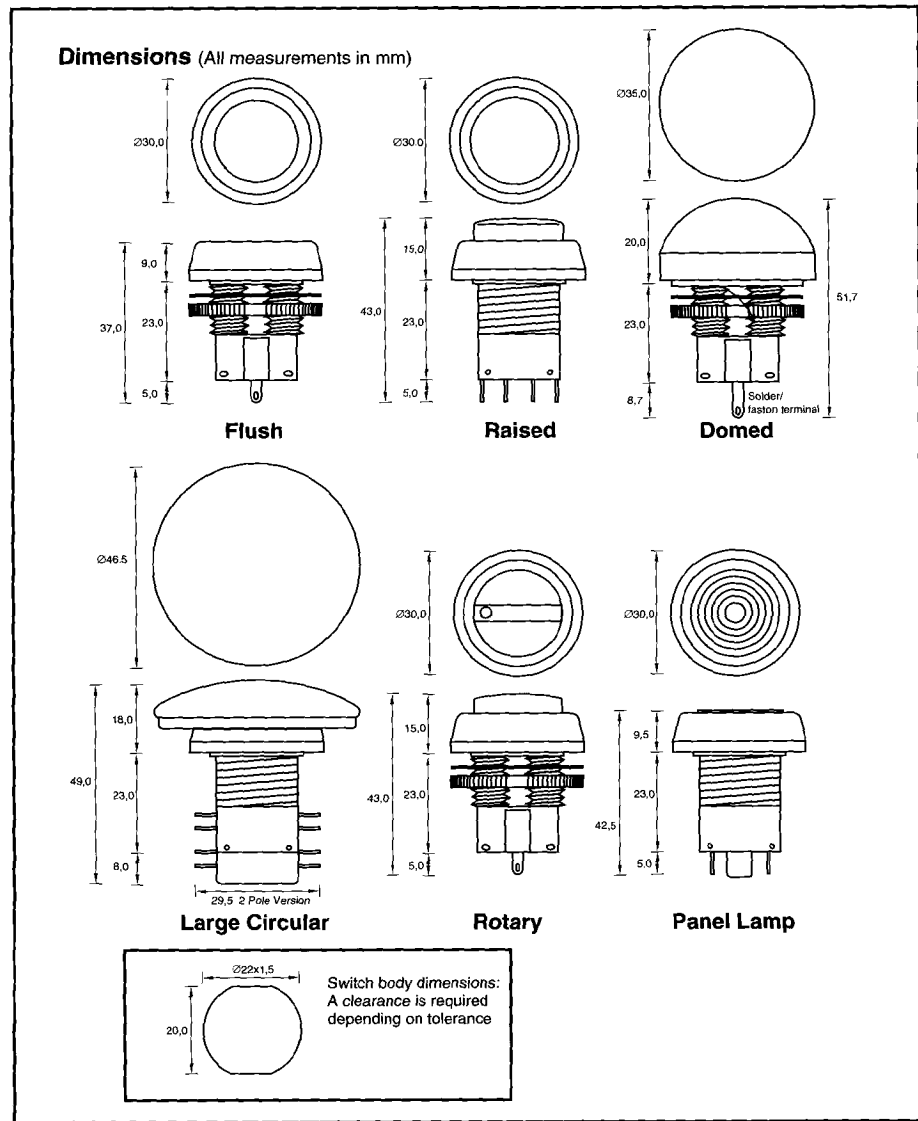
Lamp construction & multi-pole information

The 76-94 panel lamp variant is supplied with a quick release bulb holder that will accept a T1³/₄ wedge base filament lamp. Because of the wide range of illumination available (different voltage lamps, multi chip LED's etc.), we do not supply a bulb as standard although we are prepared to do so if required.

The pushbutton and rotary versions have a non-standard option of 2 poles. The 2 pole switch is provided separate to the switch body and must be fitted, via a spring clip, after the switch body has been mounted in the panel.

For more information, please contact the Sales Office.

IP67

Ingress ——
Protection ——

Ingress Protection Impact Key

6 totally protected against dust

7 protected against the effects of immersion up to 1m

5kg
40cm
impact 20J

Product drawings

Dimensions (All measurements in mm)

Flush   **Raised**   **Domed**

Large Circular   **Rotary**   **Panel Lamp**

Switch body dimensions:
A clearance is required
depending on tolerance

Ø22x1,5
20,0

Circuit form

NC —▼— ▼— NC

NO —▲— ▲— NO

FORM Z

Application references

- Military environments
- Robust industrial
- Vandal resistant requirements
- Mining industry

- Petrochemical
- Process control
- Material handling

For information on our complete range of switch products,
please contact the Sales Office.

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