IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • latching

DISTINCTIVE FEATURES

Latching action

Illuminated or non-illuminated

Compact

Flat round actuator for optional marking

Sealed to IP67

ENVIRONMENTAL SPECIFICATIONS

• Front panel sealing : IP67 according to IEC 60529

• Shock resistance : 100 g according to IEC 512-4, test 6c

• Vibration resistance : 10-500Hz - 10 g according to IEC 512-4, test 6d

• Salt spray : IEC 512-6, test 11f

• Robustness (non-illuminated) : IK06 according to EN 62262 (1 joule)

• Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)

ELECTRICAL SPECIFICATIONS

• Max. current/voltage rating with resistive load:
  4 A 12 VDC, 200,000 cycles
  1 A 48 VDC, 200,000 cycles
  2 A 48 VDC, 100,000 cycles
  3 A 48 VDC, 75,000 cycles
  1 A 72 VDC, 15,000 cycles

For W terminals, current has
to be lim ted to 400 mA.

• Initial contact resistance : 100 mΩ max.

• Insulation resistance : 1 GΩ min. at 500 VDC

• Dielectric strength : 1,500 Vrms between terminals
  1,000 Vrms between terminals and frame

LED COMPONENT SPECIFICATIONS			
LED color	Forward current	Typ. forward voltage	Max. forward voltage
Super red (L0S)	20 mA	1.95 V	1.95 V
Yellow (L0Y)	20 mA	2 V	2.05 V
Green (L0G)	20 mA	2.1 V	2.5 V
Blue (L0B)	20 mA	3.2 V	4 V

A resistor must be series-connected by the user.

$$\text{Resistor value} = \frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$$

The company reserves the right to change specifications without notice.

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GENERAL SPECIFICATIONS

- Panel thickness : 1.5 mm (.059) min.
  5.5 mm (.217) max.
- Total travel : 2.5 mm (.098) ± 0.3 mm
- Typical operating force : 10 N
- Low level/mech. life : 200.000 cycles
- Torque : 1.5 Nm max. applied to nut
- Soldering : 320 °C (608 °F) max. for 3 sec.
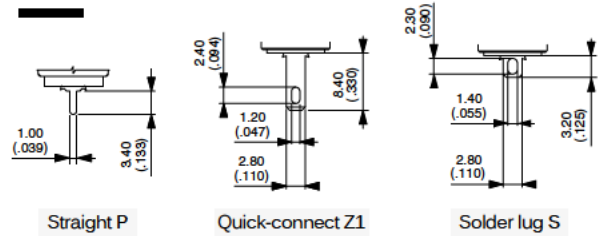
MATERIALS

- Case : thermoplastic, UL 94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : zinc die-cast (zamak), black painted
- Contacts : silver, gold plated
- Output wires (flying lead terminals) :
  F version : AWG20, section 0.6 mm²
  W version : AWG24, section 0.23 mm²
- LED wires :
  F version : AWG26, section 0.12 mm²
  W version : AWG24, section 0.23 mm²
- Lens : polycarbonate
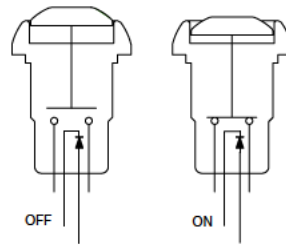- Terminal seal : epoxy

AGENCY APPROVAL

2 A 125 VAC/250 VAC
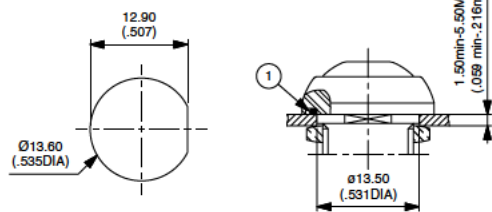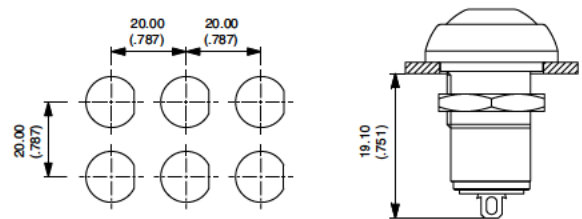File E83438
See following pages.

TERMINALS

Straight P   Quick-connect Z1   Solder lug S

ELECTRICAL FUNCTION

OFF   ON

MOUNTING

PANEL CUT-OUT

12.90 (.507)

Ø13.60 (.535DIA)

ø13.50 (.531DIA)

1.50min-5.50Max (.059 min-.216max)

① - Flat seal

MATRIX MOUNTING - BACK OF PANEL SPACE REQUIREMENT

20.00 (.787)   20.00 (.787)

20.00 (.787)

19.10 (.751)

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⚙ BUILD YOUR PART NUMBER

BASIC PART NUMBER

SERIES	ACTUATOR SHAPES	ELECTRICAL FUNCTION	TERMINALS	CONTACTS
IP	**C** Square	**1** OFF - ON	**S** Solder lugs	**AD** Silver, gold plated
	R Round, curved		**F** Flying leads, standard	
	P Round, flat		**W** Flying leads, thin	
			Z1 Quick-connect	
			P Straight PC	

Actuator marking available on round flat models (symbol 10 mm max.). On request.

OPTIONS

ACTUATOR COLORS	LED COLORS	OPTIONS	APPROVAL
1 Blue	**Blank** Non-illuminated.	**100** Satin chrome bezel	**UL** Consult factory for detail of approved models.
B Dark blue	**L0S** Super red	**101** Bright chrome bezel (round only)	
2 Black	**L0Y** Yellow	**104** High actuator (non-illum. round models only)	
3 Green	**L0G** Green		
4 Grey	**L0B** Blue		
5 Yellow			
6 Red			
7/1 White			
8 Bright chrome			
9 Orange			
A Satin chrome			

⚡ ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

⚠ **Notice** : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

💧 A **sealing boot** is available to protect the switches against frost and sand (P/N U5125). See "Sealing Boots" section of website.

🔧 **Mounting accessories** : Standard hardware supplied : 1 hex nut 14 mm (.551) across flats and 1 O-Ring.

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ILLUMINATED - SQUARE MODELS

Solder lug terminals
| IPC1SAD | OFF - ON |

Flying lead terminals
| IPC1FAD | OFF - ON |

For THIN flying leads, replace F with W.
Also available with straight PC : IPC1PAD or quick-connect terminals : IPC1Z1AD.
Wire colors : black : contact, red : LED anode(+), blue : LED cathode(-)

ILLUMINATED - ROUND MODELS

Solder lug terminals
| IPR1SAD | OFF - ON |

Flying lead terminals
| IPR1FAD | OFF - ON |

For THIN flying leads, replace F with W.
Also available with straight PC : IPR1PAD or quick-connect terminals : IPR1Z1AD.
Wire colors : black : contact, red : LED anode(+), blue : LED cathode(-)

NON-ILLLUMINATED - SQUARE MODELS

Solder lug terminals
| IPC1SAD | OFF - ON |

Flying lead terminals
| IPC1FAD | OFF - ON |

For THIN flying leads, replace F with W.
Also available with straight PC : IPR1PAD or quick-connect terminals : IPC1Z1AD.

NON-ILLUMINATED - ROUND MODELS

CURVED ACTUATOR
| Solder lug terminals | IPR1SAD | OFF - ON |
| Flying lead terminals | IPR1FAD | OFF - ON |

FLAT ACTUATOR
| Solder lug terminals | IPP1SAD | OFF - ON |
| Flying lead terminals | IPP1FAD | OFF - ON |

For THIN flying leads, replace F with W.
Also available with straight PC: IP•1PAD or quick-connect terminals: IP•1Z1AD
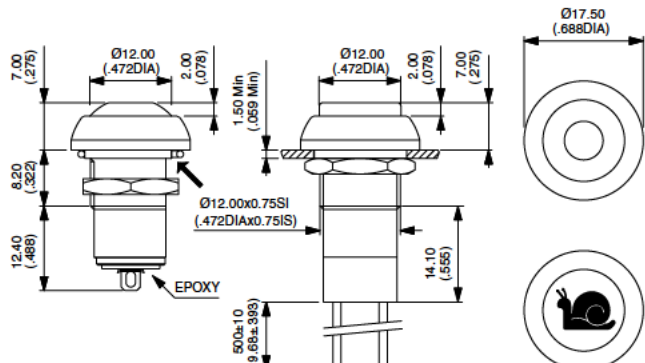
All drawings with standard flying lead terminals.
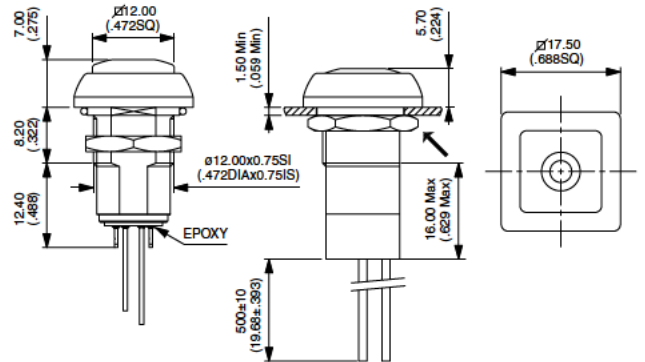
→ FLAT
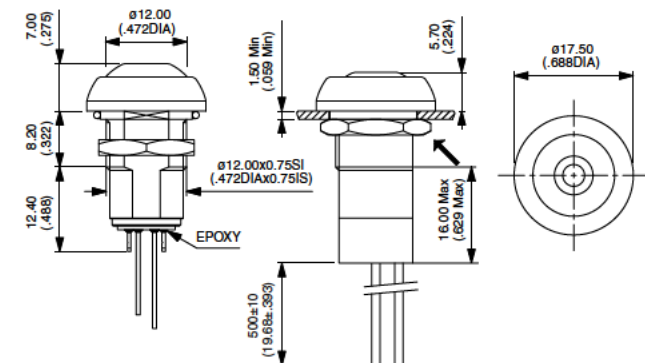
→ FLAT
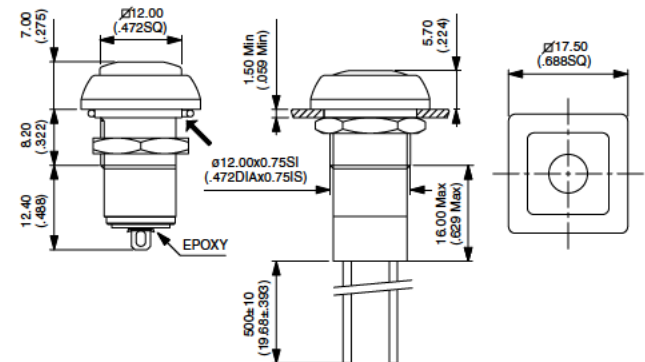
→ FLAT
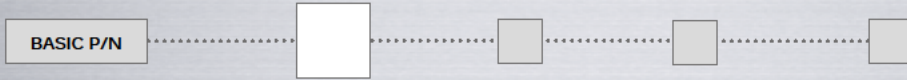
→ FLAT

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ACTUATOR COLORS

| BASIC P/N | | | | |

1	Blue	6	Red
B	Dark blue	7/1	White
2	Black	8	Bright chrome
3	Green	9	Orange
4	Grey	A	Satin chrome
5	Yellow		

LED COLORS

| BASIC P/N | | | | |

Blank	Non-illuminated
L0S	Super red
L0Y	Yellow
L0G	Green
L0B	Blue

OPTIONS

| BASIC P/N | | | | |

100	Satin chrome bezel
101	Bright chrome bezel (round only)
104	High actuator - For round, non-illuminated only

Ø12.00 (.472DIA)   4.70 (.185)

Ø12.00 (.472DIA)   4.70 (.185)
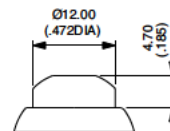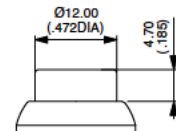
104 IPR

104 IPP

AGENCY APPROVAL

| BASIC P/N | | | | |

UL
Consult factory for details of approved models.
To order switches marked UL, complete above box with "UL".