

MP series

Two-step pushbutton switches
for harsh environments



DISTINCTIVE FEATURES

SIL 2

Easy to integrate

Sealed to IP68

UV and hydrocarbon resistant



ENVIRONMENTAL SPECIFICATIONS

- SIL 2 according to IEC 61508
- Sealing to IP68 according to IEC 60529
- Operating temperature : -20 °C to +70 °C (-4 °F to +158 °F)
- Static resistance : 10 KV



ELECTRICAL AND GENERAL SPECIFICATIONS

- Current/voltage rating : 20 mA 5 VDC max. / 3.3 VDC min.
- Idling current : 20 to 80 mA 5 VDC - 11 to 44 mA 3.3 VDC`
- NPN output signal : 20 mA with 12 VDC max. commutation voltage
- Operating force :
 - step 1 : 11.5 N ± 1.5 N
 - step 2 : 14.5 N ± 1.5 N
- Travel :
 - 1 step : 4 mm ± 0.4 mm
 - 2 steps : 6.65 mm ± 0.4 mm
- Mechanical life expectancy : 1 million cycles on each position



MATERIALS

- Case + plungers : POM
- Bezel membrane : UV and hydrocarbon resistant nitrile
- Bushing + actuator : polyamide 6/6
- Connector : disconnectable crimp-style JST SM09B-SRSS-TB

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

Note : mating connector JST09SR-3S

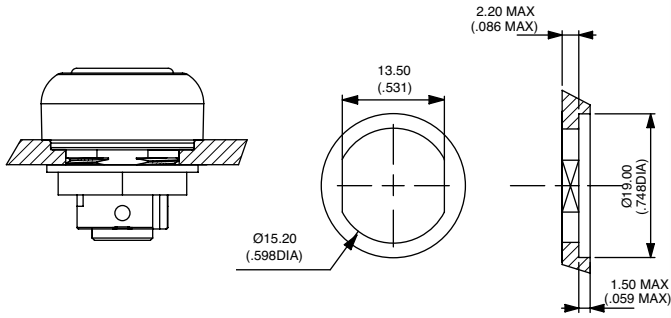
The company reserves the right to change specifications without notice.



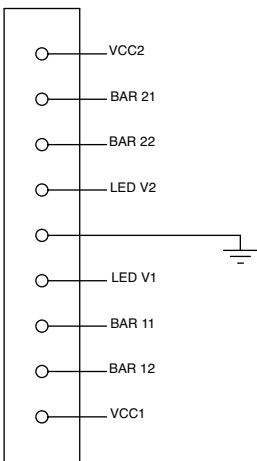
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PANEL CUT-OUT RECOMMENDED MOUNTING



WIRING DIAGRAMS FOR CONNECTOR JST SM09B-SRSS-TB



BAR 11 = output signal of step 1
 BAR 12 = output signal of step 1
 BAR 21 = output signal of step 2
 BAR 22 = output signal of step 2

VCC1 supplies the optical barriers with BAR 11 and BAR 21 outputs.
 VCC2 supplies the optical barriers with BAR 12 and BAR 22 outputs.

Optical cell inputs LED V2 and LED V1 are at zero.

ELECTRICAL FUNCTIONS

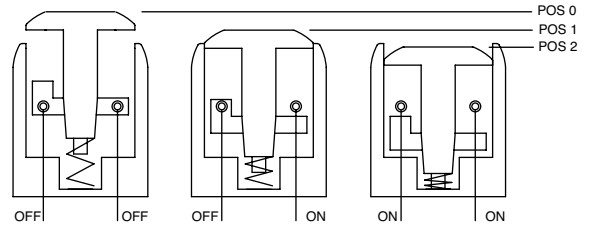
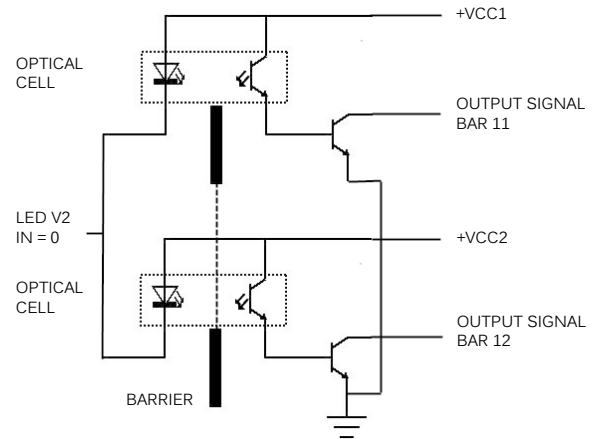


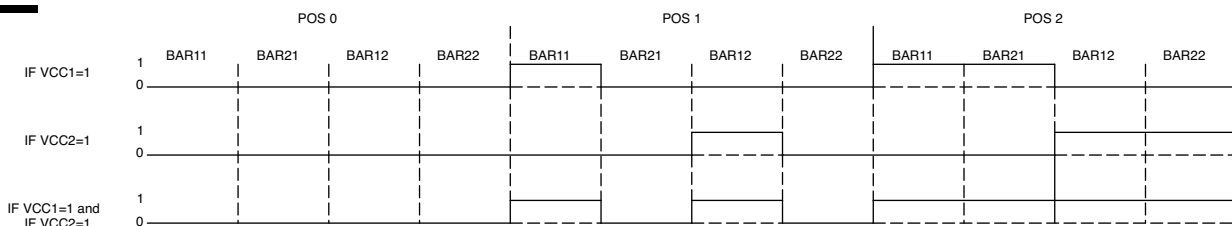
DIAGRAM OF AN OPTICAL BARRIER REDUNDANT IN POSITION 1



- MP pushbutton switches feature two active positions.
- Each position is activated by redundant optical contacts.
- The redundant barriers have separate power supplies. The output signal is equivalent to a NPN output signal.

⚠ The load should be connected between VCC and Output Signal Bar

ACTIVATION STATE OF OPTICAL CELLS



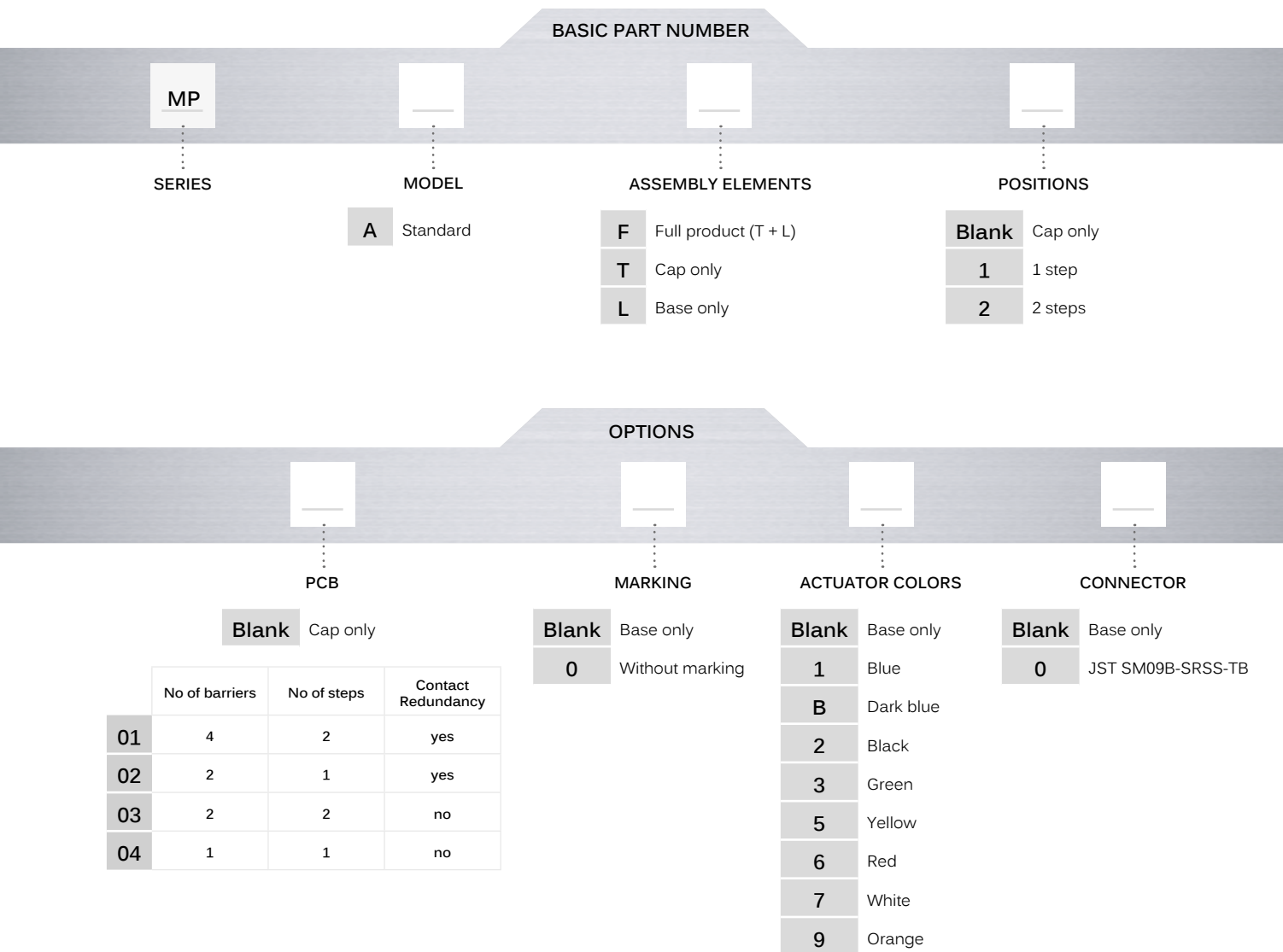
Note : MP pushbutton switches can be used in low power mode. Please contact APEM.

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BUILD YOUR PART NUMBER



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.

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CAP ONLY



MPAT

Add desired actuator color (see options).

SWITCH BASE ONLY



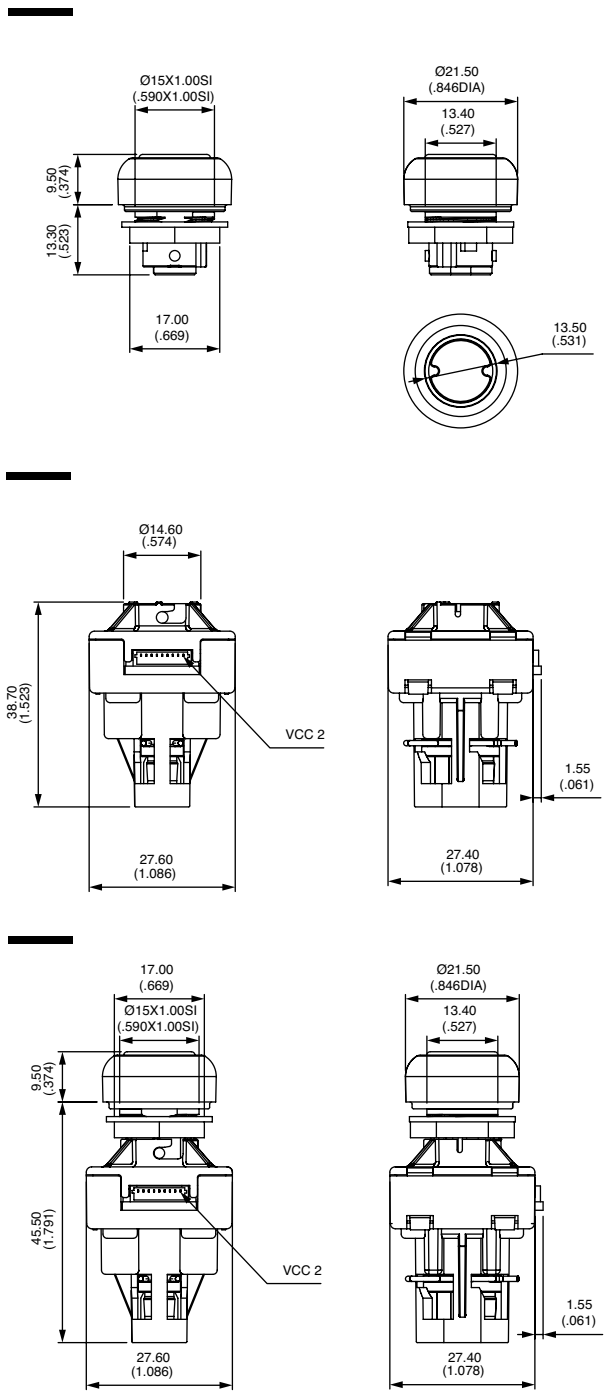
MPAL

Add desired PCB (see options).

FULL PRODUCT



- One-step switch
 - MPAF1 OFF MOM
- Two-step switch
 - MPAF2 OFF MOM MOM



PCB

BASIC P/N

Blank Cap only

	No of barriers	No of steps	Contact Redundancy
01	4	2	yes
02	2	1	yes
03	2	2	no
04	1	1	no

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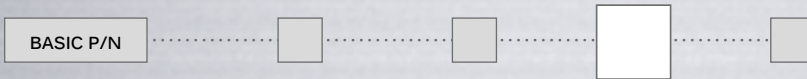
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MARKING



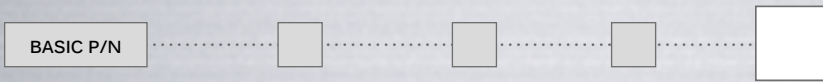
- Blank** Base only
- 0 Without marking

ACTUATOR COLORS



- Blank** Base only
- 1 Blue
- B** Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7 White
- 9 Orange

CONNECTOR



- Blank** Cap only
- 0 JST SM09B-SRSS-TB