

# Rockermec™

PCB mounted rocker solution • compact • modular



## DISTINCTIVE FEATURES

Front panel sealing to IP67

Low below panel height

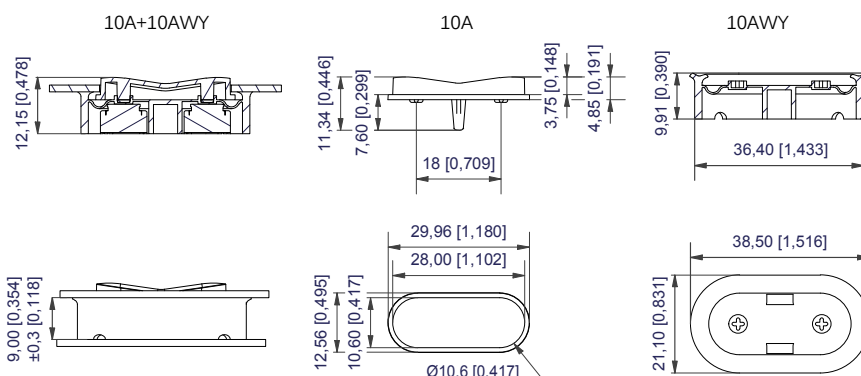
Flexible illumination - chip LEDs on PCB

Based on Multimec™ 5E switches

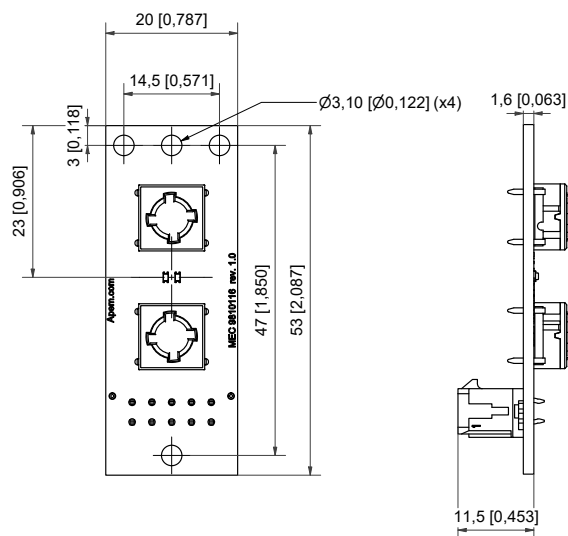
Standard sealing - custom interface

SWITCH SPECIFICATIONS : see Multimec™ 5 series.

### 5E+10A+10AWY



### ROCKERMEC - MODULE



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PCB mounted rocker solution • compact • modular



## GENERAL SPECIFICATIONS

- Front panel sealing: IP67 to IEC 60529
- Mechanical lifecycle (sealing) : 500,000 activations
- Recommended panel thickness: 1.0 mm

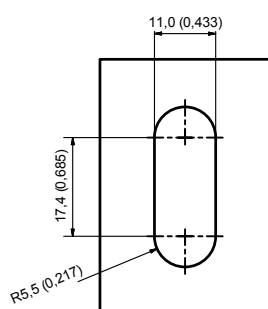


## MATERIALS

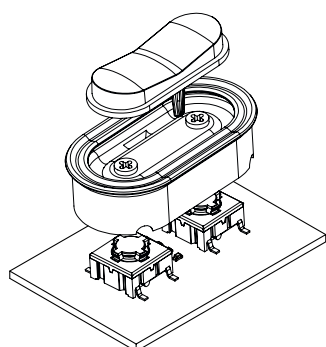
- Sealing: silicone
- Non-illuminated cap: ABS
- Illuminated cap: polycarbonate (PC)



## PANEL CUT-OUT

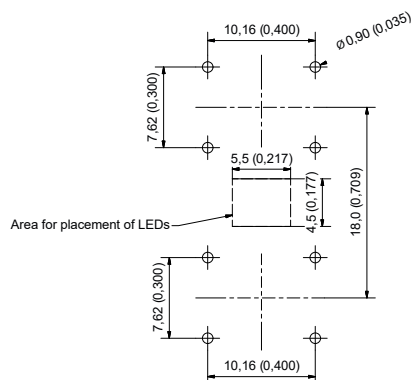


## ASSEMBLY

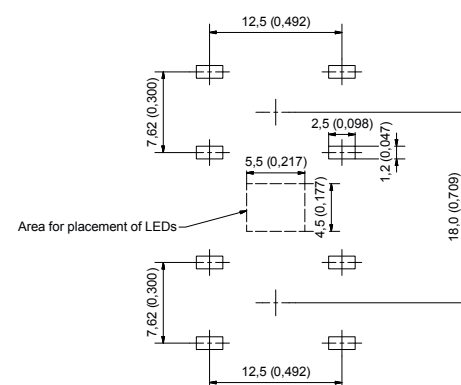


## PCB LAYOUT

### THROUGH-HOLE

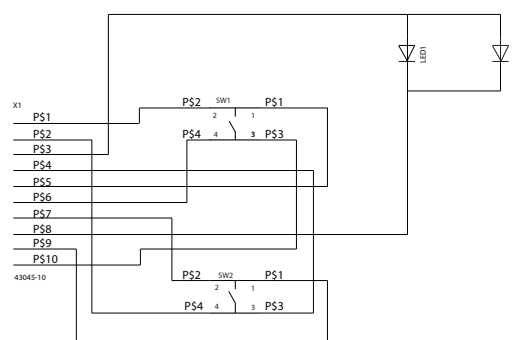


### SURFACE MOUNT



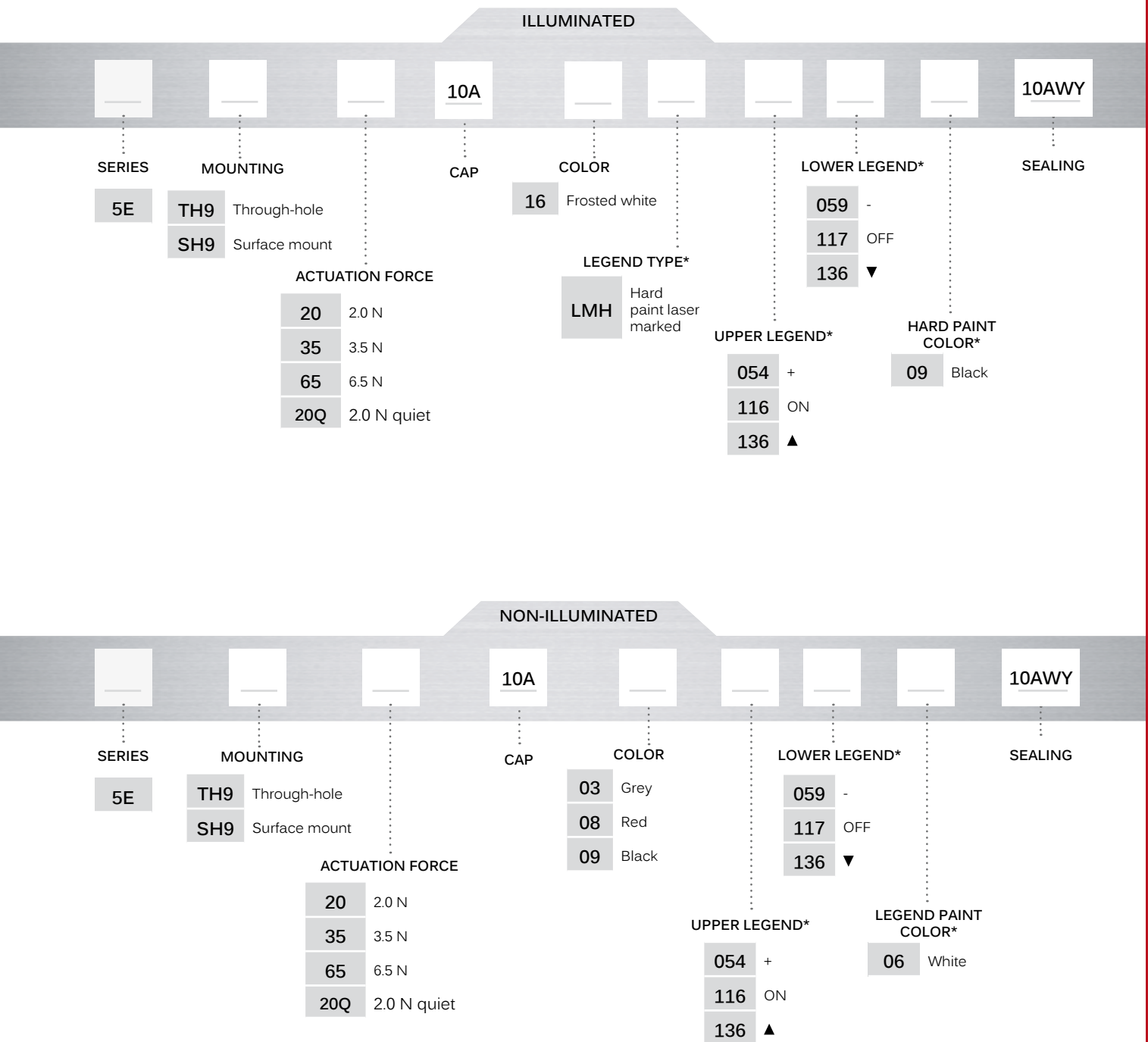
## CIRCUIT DIAGRAM MODULE

### CONNECTOR MOLEX 43045-10





## BUILD YOUR PART NUMBER



\*optional

**Notice :** Switches, cap and sealing are ordered separately.  
See more info on legends in the following pages.

# Rockermec™

PCB mounted rocker solution • compact • modular

## BUILD YOUR PART NUMBER (CONTINUED)

MODULE

95

MODULE

CAP

R

Rockermec

TYPE

A

Non-illuminated

B

Illuminated

ACTUATION FORCE

20

2.0N

35

3.5N

65

6.5N

LED\*

02

Blue

22

Green

29

High intensity green

42

Yellow

61

White

82

Red

CAP + SEALING

ordered separately

\*optional

## ABOUT THIS SERIES

 **Notice :** please note that not all combinations of above numbers are available. Contact APEM for more information.

# Legends

Available for Multimec caps



## STANDARD LEGENDS

| STANDARD LEGENDS |        |          |                       |       |             |      |      |      |                 |                         |
|------------------|--------|----------|-----------------------|-------|-------------|------|------|------|-----------------|-------------------------|
| LEGEND           | 1DS09_ | 1FS096R_ | 1ZB09D_<br>1ZB16DLMH_ | 1ZCS_ | 1Z_<br>1ZW_ | 10A_ | 10C_ | 10D_ | 10Q_<br>10QM16_ | 10R_ & 10RF_<br>10RM16_ |
| 0                | 000    | 000      |                       |       |             |      |      |      |                 |                         |
| 1                | 001    | 001      |                       |       |             |      |      |      |                 |                         |
| 2                | 002    | 002      |                       |       |             |      |      |      |                 |                         |
| 3                | 003    | 003      |                       |       |             |      |      |      |                 |                         |
| 4                | 004    | 004      |                       |       |             |      |      |      |                 |                         |
| 5                | 005    | 005      |                       |       |             |      |      |      |                 |                         |
| 6                | 006    | 006      |                       |       |             |      |      |      |                 |                         |
| 7                | 007    | 007      |                       |       |             |      |      |      |                 |                         |
| 8                | 008    | 008      |                       |       |             |      |      |      |                 |                         |
| 9                | 009    | 009      |                       |       |             |      |      |      |                 |                         |
| #                | 107    | 107      |                       |       |             |      |      |      |                 |                         |
| *                | 019    | 019      |                       |       |             |      |      |      |                 |                         |
| ←                | 033    |          |                       |       |             |      |      |      |                 |                         |
| →                | 133    |          |                       |       |             |      |      |      |                 |                         |
| ↑                | 034    |          |                       |       |             |      |      |      |                 |                         |
| ↓                | 134    |          |                       |       |             |      |      |      |                 |                         |
| ↙                | 135    | 135      |                       |       |             |      |      |      |                 |                         |
| +                |        |          |                       |       |             | 054  |      |      | 054             | 054                     |
| -                |        |          |                       |       |             | 059  |      |      | 059             | 059                     |
| ▲                |        |          | 136                   |       | 136         | 136  |      |      |                 |                         |
| ⏻                | 123    | 123      |                       | 123*  | 123         |      | 123  | 123  | 123             | 123                     |
| ON/OFF           |        |          |                       |       |             |      |      |      | 017             | 017                     |
| STOP             |        |          |                       |       |             |      |      |      | 018             | 018                     |
| START            |        |          |                       |       |             |      |      |      | 031             | 031                     |
| RESET            |        |          |                       | 038   |             |      |      |      | 038             | 038                     |
| CANCEL           |        |          |                       |       |             |      |      |      | 048             | 048                     |
| ENTER            |        |          |                       |       |             |      |      |      | 105             | 105                     |
| ESC              |        |          |                       | 051   |             |      |      |      |                 |                         |
| ON               |        |          |                       |       |             | 116  |      |      |                 |                         |
| OFF              |        |          |                       |       |             | 117  |      |      |                 |                         |
| OK               |        |          |                       | 118*  | 118         |      | 118  | 118  | 118             | 118                     |
| SET              |        |          |                       | 119   |             |      |      |      |                 |                         |
| MENU             |        |          |                       | 120   |             |      |      |      |                 |                         |
| FUNC             |        |          |                       | 121   |             |      |      |      |                 |                         |
| HOME             |        |          |                       | 122   |             |      |      |      |                 |                         |

### STANDARD OPTIONS

- 1DS: pad printed
- 1FS: reverse printed
- 1ZB: pad printed / laser marked
- 1ZCS: pad printed / \*reverse printed / \*laser marked
- 1Z & 1ZW: pad printed / laser marked
- 10A: pad printed / laser marked
- 10C: pad printed / laser marked
- 10D: UV printed / laser marked
- 10R(F) & 10Q: pad printed / reverse printed
- 10RM & 10QM: metal symbol

# Legends

Available for Multimec caps

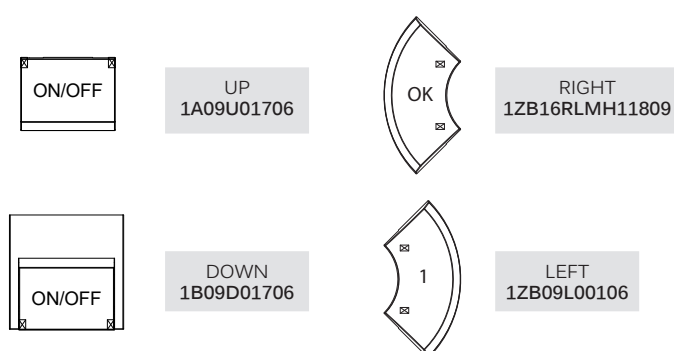


## HOW TO ORDER

### POSITIONING OF LEGENDS ON ROCKER-ACTION CAPS

When ordering legends for caps with hinge-type cap retention system, it is important to note the position of the cap. An extra letter (U, D, R or L) needs to be added to the part number to refer to the position of the hinges in relation to the legend. See samples:

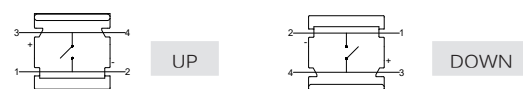
Rocker-action caps without a lens: 1A, 1B, 1M, 1ZA and 1ZB



### LEGEND ILLUMINATION

- **Option 1 - laser marked:** In case of laser marked legends an "LM" is added after the cap colour, before the legend code. We recommend using hard paint (additional "H" ) for increased lifetime of the paint. E.g. 1ZB16DLMH13609
- **Option 2 - reverse printed:** In case of reverse printed caps an "R" is added after the cap colour, before the legend code. Especially relevant when standard legends have both negative and positive print options. E.g. 1FS096R00009
- **Option 3 - metal symbol:** Only available for 10RM and 10QM (therefore the "M"). E.g. 10RM16059

### ORIENTATION OF THE SWITCH



### STANDARD AND CUSTOM LEGENDS

- Standard are only certain legends on certain caps. See the table on the previous page.
- All standard pad-printed legends are white on black caps.
- All standard reverse-printed and laser marked legends are black on frosted white cap.

### STANDARD LEGENDS

| CAP | CAP COLOR        | DIRECTION*                | TYPE*                          | LEGEND  | LEGEND COLOR* |
|-----|------------------|---------------------------|--------------------------------|---------|---------------|
| 1DS | 00 Blue          | D Down                    | UV UV printed                  | 001 1   | 00 Blue       |
| 1FS | 02 Green         | U Up                      | LM Laser marked on soft paint  | 002 2   | 02 Green      |
| ... | 03 Grey          | R Right                   | LMH Laser marked on hard paint | 003 3   | 03 Grey       |
|     | 04 Yellow        | L Left                    | R Reverse printed              | ... etc | 04 Yellow     |
|     | 06 White         | *Only for hinge-type caps |                                |         | 06 White      |
|     | 08 Red           |                           | *In case of illumination       |         | 08 Red        |
|     | 09 Black         |                           |                                |         | 09 Black      |
|     | 16 Frosted white |                           |                                |         | ... Etc       |
|     | ... Etc          |                           |                                |         |               |

\*In case of reverse printed and laser marked legends the colour of the paint

**Notice:** The size of the legends listed may not correspond to the actual size.

If you decide to use one of the standard legends without any adjustments (without a new cliché or programming) on another cap than designated in the table, then there is no cliché or programming cost, for this to apply the cap has to be black and the print white.

For further information on legends please contact your local distributor or MEC.

# Solid colors

Available for Multimec™ caps

|                    |                                                                                     | Colour / RAL<br>Code | Blue / 5012                                                                       | green / 6018                                                                      | Grey / 7004                                                                       | Yellow / 1023                                                                     | White / 9010                                                                      | Red / 3000                                                                        | Black / 9004                                                                      | Ultra blue / 5002                                                                 | Mint green / 6029                                                                 | Tele grey / 7046                                                                  | Melon / 1028                                                                      | Signal white / 9003                                                               | Noble red / 3002                                                                   | Dusty blue / 5014                                                                   | Aqua blue / 5021                                                                    | Metal dark blue /<br>No ral code                                                    | Metal light grey /<br>No ral code                                                   | Metal dark grey /<br>No ral code                                                    |
|--------------------|-------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    |                                                                                     |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CAP                | CODE                                                                                | 00                   | 02                                                                                | 03                                                                                | 04                                                                                | 06                                                                                | 08                                                                                | 09                                                                                |                                                                                   | 30                                                                                | 32                                                                                | 33                                                                                | 34                                                                                | 36                                                                                | 38                                                                                 | 40                                                                                  | 42                                                                                  | 50                                                                                  | 53                                                                                  | 57                                                                                  |
| 1A                 |    | •                    | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1B                 |    | •                    | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1DS                |    | •                    | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                  | •                                                                                   | •                                                                                   |                                                                                     | •                                                                                   | •                                                                                   |
| 1ES/1FS            |    |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1GAS               |    | •                    | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1GCS               |    |                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1H                 |    |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1JS                |  |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1KS                |  | •                    | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1LS                |  |                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1M                 |  |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1NS                |  |                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1PS                |  |                      |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1QS                |  |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1RS                |  |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1SS                |  | •                    | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1TS/1US/1VS        |  | •                    |                                                                                   | •                                                                                 |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1WAS/<br>1WDS/1WPS |  |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1XS                |  |                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1ZA                |  |                      |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 1ZB                |  |                      |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | •                                                                                   |                                                                                     |                                                                                     | •                                                                                   |                                                                                     |
| 1ZCS               |  |                      |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | •                                                                                   |                                                                                     |                                                                                     | •                                                                                   |                                                                                     |
| 1Z/1ZW             |  |                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 10A                |  |                      |                                                                                   | •                                                                                 |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 10C                |  |                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 10D                |  |                      |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 10R/10RF +<br>10Q  |  |                      | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

The RAL Codes mentioned are the codes nearest to the solid colors in the multimec™ range.

# Cap & Bezel Specifications

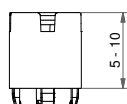
Multimec™ caps

| ACCESSORY SPECIFICATIONS |                                                                                                                                                                                                                                                 |                          |           |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------|
| MATERIAL                 | PARTS                                                                                                                                                                                                                                           | TEMP. LIMIT              | UL RATING |
| ABS                      | Solid color 1A, 1B, 1DS, 1ES, 1FS, 1H, 1JS, 1KS, 1LS, 1M, 1NS, 1PS, 1QS, 1RS, 1TS, 1US, 1VS, 1WAS, 1WDS, 1WPS, 1XS, 1Z, 1ZA, 1ZB, 1ZCS, 1ZW, 10A, 10C, 10Q, 10R, 10RF and AQCS<br>Bezels 2C, 2D and 2K, reflectors for 1KBS, 1KCS, 1YS and 1YAS | Max 65 °C<br>Max 149 °F  | UL94HB    |
| Polycarbonate            | All lenses and transparent colour caps, lids for 1KBS & 1KCS                                                                                                                                                                                    | Max 85 °C<br>Max 185 °F  | UL94HB    |
| Polyamide                | 1GAS, 1GCS, 1SS and 2SS                                                                                                                                                                                                                         | Max 160 °C<br>Max 320 °F | UL94V2    |
| Legends adhesion         | DS/EN ISO 2409 Class 1 & ASTM D3359 Class 4B                                                                                                                                                                                                    |                          |           |

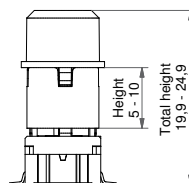
## EXTENDERS



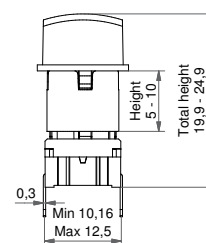
5 mm, 6 mm,  
7 mm, 8 mm,  
9 mm, 10 mm



2SS

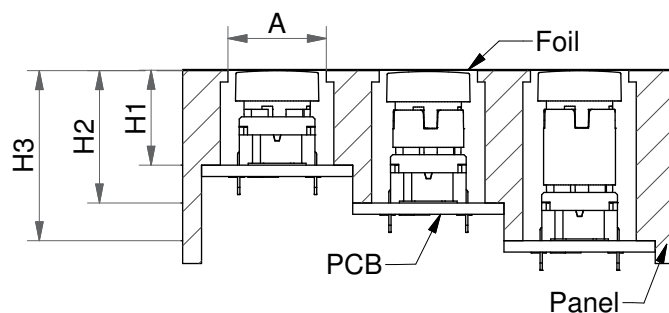


SMD + 2SS+1DS



TH+2SS+1TS

HOW TO USE 1GAS/1GCS + 2SS UNDER FOIL



- A=We recommend space for travel of the foil and leave the area free from adhesive.
- H=We recommend you to calculate this dimension from the top of the PCB to the inner top of the panel.

2SS CAN BE USED WITH ALL 5G-TYPE SNAP-ON CAPS

All 2SS extenders are stackable giving the possibility to match most overall heights.

| CAP SERIES     | ORIGINAL HEIGHT (H1) | HEIGHT WITH A SINGLE EXTENDER (H2,H3) |
|----------------|----------------------|---------------------------------------|
| 1DS/1ES/1FS    | 14.9                 | 19.9-24.9                             |
| 1GAS/1GCS      | 12.5                 | 17.5-22.5                             |
| 1KS/1KBS/1KCS  | 19.1 ; 20.2 ; 20.1   | 24.1; 25.2; 25.1-29.1; 30.2; 30.1     |
| 1NS            | 14.9                 | 19.9-24.9                             |
| 1TS/1US/1VS    | 14.9                 | 19.9-24.9                             |
| 1WAS/1WDS/1WPS | 15.7                 | 20.7-25.7                             |
| 1XS            | 18.5                 | 23.5-28.5                             |
| 1ZCS           | 11.7                 | 16.7-21.7                             |
| 10C            | 13.7                 | 18.7-23.7                             |
| 10D            | 12.0                 | 17.0-22.0                             |

# Cap & Bezel Specifications

Multimec™ caps



## HOW TO ORDER

EXTENDERS

|                                                                                   |                                                                                   |                                                                                   |                                                                                                                  |   |                                                                                     |                                                                                            |                                                                                     |    |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|
|  |  |  |                                 | + |  | 2SS09-  |  | .0 |
| SWITCH                                                                            | MOUNTING                                                                          | ACTUATION FORCE                                                                   | LED (OPTIONAL)                                                                                                   |   | CAP                                                                                 | EXTENDER 2SS HEIGHT                                                                        |                                                                                     |    |
| 5G                                                                                | TH9 Through-hole<br>SH9 Surface mount                                             | 20<br>35<br>65                                                                    | 02 blue<br>22 green<br>42 yellow<br>61 white<br>82 red<br>2242 green/yellow<br>8222 red/green<br>8242 red/yellow |   | See the table on the previous page                                                  | 05<br>06<br>07<br>08<br>09<br>10                                                           |                                                                                     |    |

# Multimec™ 5E

High performance tactile switches •  
MIL-PRF-28855H



## DISTINCTIVE FEATURES

Momentary switches with NO or NC/NO function

Sealed to IP67

Robust

Anti-rotation thanks to snap-on cap retention system

3 standard actuation forces: 2.0, 3.5 and 6.5 N



## ENVIRONMENTAL SPECIFICATIONS

- Sealing : IP67 according to IEC 60529
- Working and storage temperature : -40 °C/+160 °C (-40 °F to +320 °F)
- Soldering :
  - through-hole : IEC 60068-2-20 8
  - surface mount : JEDEC J-STD-020E



## ELECTRICAL SPECIFICATIONS

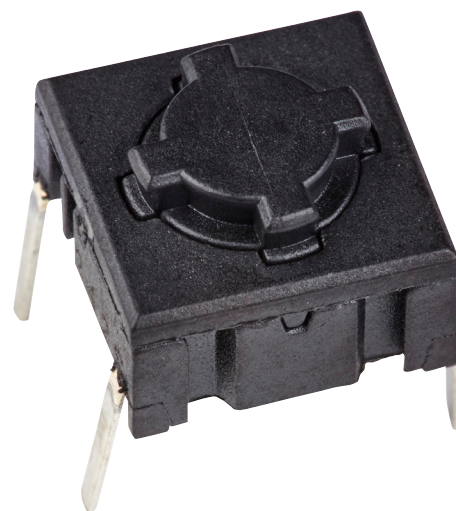
- Recommended load :
  - Gold contacts : 0.5µ-50 mA 24 VDC
  - Silver contacts : 0.5-50 mA 24 VDC
- Contact resistance : <30 mΩ - typically 10 mΩ
- Insulation resistance : >10 MΩ
- Contact bounce : <2 mS - typically 0.5 mS



## MECHANICAL SPECIFICATIONS

- Standard actuation force :
  - momentary NO : 2.0 N, 3.5 N, 6.5 N
  - quiet version : 2.0 N
  - NC/NO function : 3.5 N
- Max. actuation force :
  - momentary : 115 N for 60 sec (according to MIL-PRF-22885H)
  - NC/NO : 100 N for 10 sec
- Travel : 1 mm
- Lifetime :
  - NO : >10,000,000 cycles
  - NC/NO : >1,000,000 cycles

The company reserves the right to change specifications without notice.



## MATERIALS

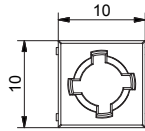
- Housing : PPS UL94V0
- Actuator : PPS UL94V0
- Sealing : Silicone rubber
- Contacts spring : Stainless steel
  - Silver : +3 µAg
  - Gold : +1 µAu
- Fixed contacts :
  - Silver : SnCu + 2 µNi + 3 µAg
  - Gold : SnCu + 2 µNi + 1 µAu
- Terminals : SnCu + 2 µNi + 3 µSn100

All tolerance if not otherwise specified ±0.2 mm.

# Multimec™ 5E

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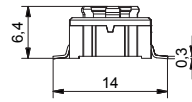
5E



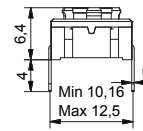
- SMD, TH or right angle TH
- NO or NC/NO

All tolerances unless otherwise noted :  $\pm 0.2$  mm

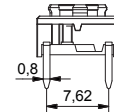
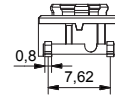
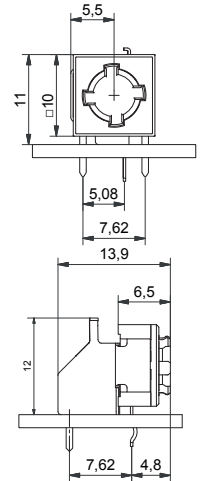
SMD



TH

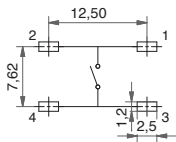


RAS

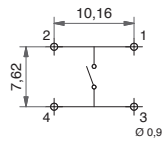


## PCB LAYOUT & CIRCUIT DIAGRAM

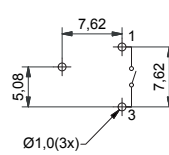
SMD



TH

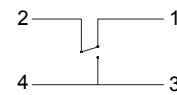


RAS



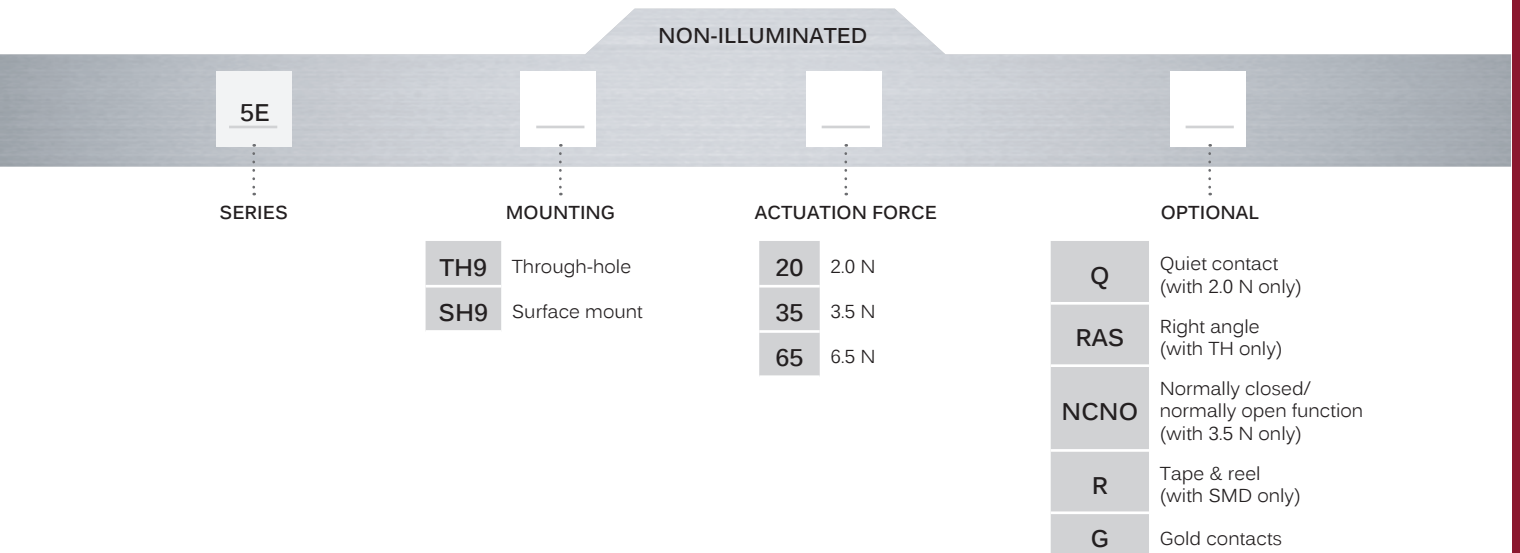
NC/NO function

\*not for sale in Japan





## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

- Laser marking on the switch for identification : WWYS, WW=week, Y=year, S=suffix for the type of switch, e.g. P=2.0 N and silver contacts, S=3.5 N and silver contacts, E6.5 N and silver contacts
- Caps : see [www.apem.com](http://www.apem.com) for more information.

# Multimec™ 5E

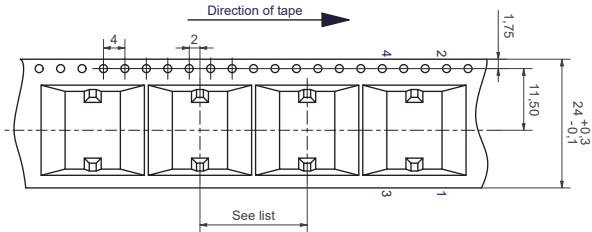
High performance tactile switches •  
MIL-PRF-28855H



## TAPE & REEL

Tape and reel is available for the parts listed and has the following specifications

- Reel diameter: Ø330 mm
- Tape width: 24 mm
- Pitch: see list
- Tape and reel material: antistatic or better
- Quantity per reel: see list

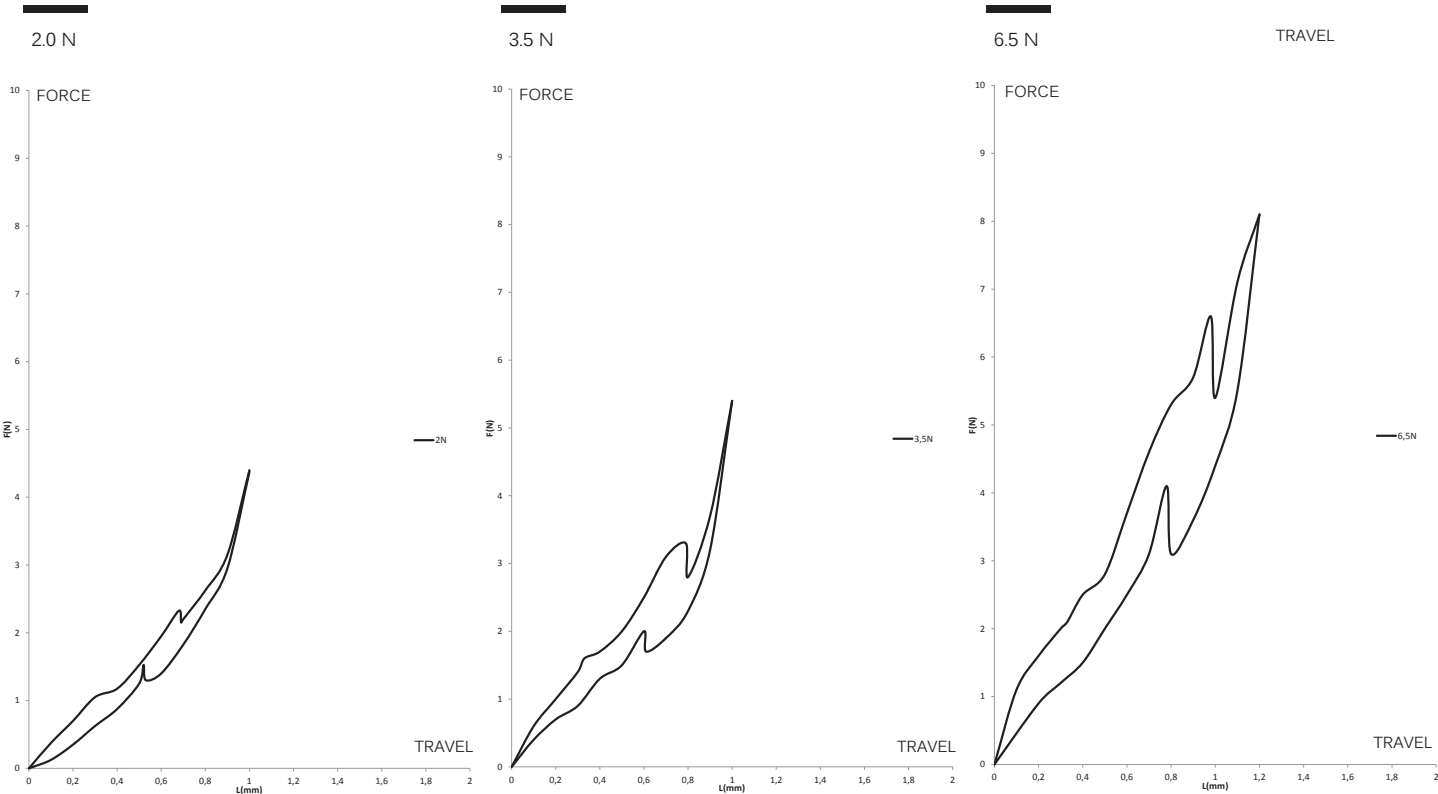


| PART NO.          | ORDERING CODE      | PITCH | QUANTITY PER REEL |
|-------------------|--------------------|-------|-------------------|
| 5ESH9XX           | 5ESH9XXR           | 16    | 500               |
| 5ESH9XX1SSXX-08.0 | 5ESH9XXR1SSXX-08.0 | 20    | 250               |
| 5ESH9XX1SSXX-09.5 | 5ESH9XXR1SSXX-09.5 | 20    | 250               |
| 5ESH9XX1SSXX-10.4 | 5ESH9XXR1SSXX-10.4 | 20    | 250               |
| 5ESH9XX1SSXX-11.0 | 5ESH9XXR1SSXX-11.0 | 20    | 250               |
| 5ESH9XX1SSXX-12.0 | 5ESH9XXR1SSXX-12.0 | 20    | 250               |



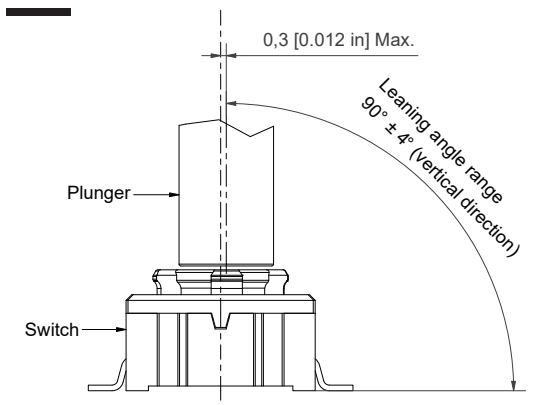
## OPERATING FORCE

TRAVEL





## RECOMMENDED OPERATING CONDITIONS

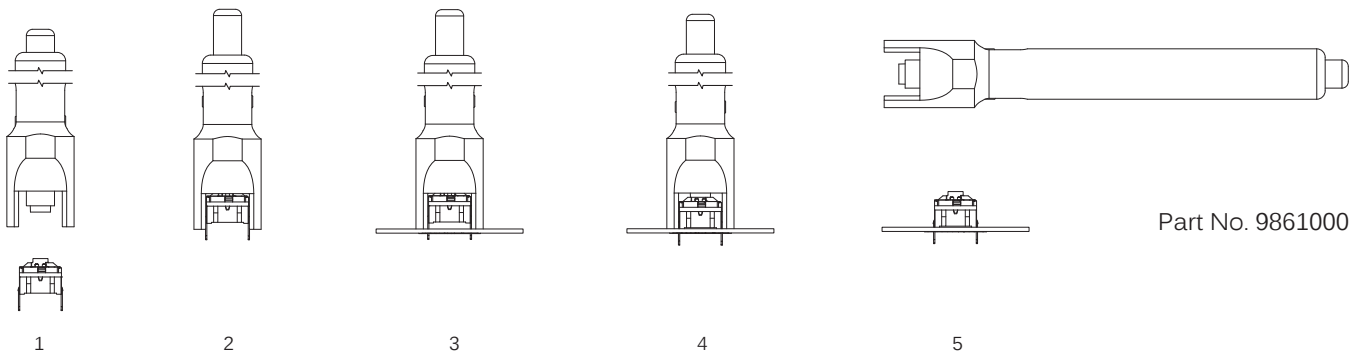


For the optimal performance of the switch use the recommended operating conditions.

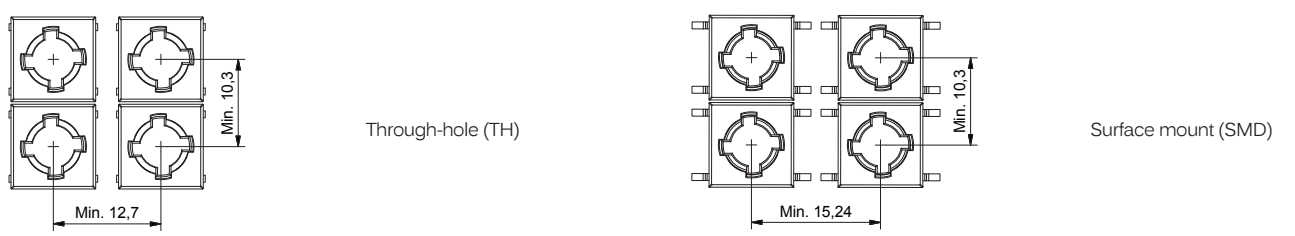


## MOUNTING

MOUNTING TOOLS FOR MULTIMEC™ THROUGH-HOLE SWITCHES



SPACE REQUIREMENT - MATRIX MOUNTING



| CAP SERIES | RECOMMENDED MIN.SWITCH SPACING AxB | NOMINAL CAP DIMENSION WxH | RECOMMENDED MIN. PANEL CUT-CUT |
|------------|------------------------------------|---------------------------|--------------------------------|
| 1PS        | 12.7x10.3                          | 6.5x12.5                  | 7.0x13.0, R max. 1.0           |
| 1SS        | 12.7x10.3                          | Ø6.5                      | Ø7.0                           |
| 1YS/1YAS   | 15.3x15.3                          | 15.0x15.0                 | 16.0x16.0                      |
| 1Z/1ZW     | 35.5x35.5; 41.6x41.6               | Ø29.5                     | Ø30.3                          |
| 10A+10AWY  | 22.0x40.0                          | R=5.3; 10.6x28.0          | R=5.5; 11.0x28.4               |

# Multimec™ 5E

High performance tactile switches •  
MIL-PRF-28855H



## USAGE GUIDELINES

### HOW TO GET THE BEST RESULTS WITH MEC SWITCHES ?

These guidelines are offered to users of MEC Switches as an aid to ensure successful and reliable switch operation. Please see the technical specifications for details on operating and storage temperatures and soldering guidelines to make sure you select the best switch for your application. When reflow soldering is taking place, MEC strongly recommend that the temperature profile is analyzed and compared with the temperature rating of the switch. It is also important to monitor the accumulated heat buildup from both the pre-heat zones and the solder zone.

Most standard accessories for multimec™ 5 series switches are made from ABS plastic with a maximum operating temperature of 65 °C. It is strongly recommended that accessories are mounted after soldering of the switch. If this is not possible care must be taken not to overheat the accessories during the soldering process. The 1SS caps are, however, made of high temperature materials and will meet the same temperature specifications as the switches. For accessories made from other plastic materials please see multimec™ 5 series cap & bezel specifications.

### MOUNTING AND DISMOUNTING

If switches are to be mounted in rows it is essential that the recommendations regarding spacing are followed. PC board thickness should be 1.4 ±0.2 mm and terminal hole diameter should be 0.9 mm.

All multimec™ 5 series caps are easily snapped onto the switch modules and can be changed at a later time.

A mounting tool is available for through hole multimec™ 5 series switches.

### SOLDERING AND CLEANING MULTIMEC™ SERIES

Multimec™ 5 series switches are fully sealed to IP67 specifications to minimize solder flux and aqueous based cleaning solutions from entering the switch and contaminating the contacts. The switches can be placed on the PC board with other components and reflow soldered. Multimec™ 5 series offers a high level of sealing, however, with aqueous solvent solutions care must be taken to avoid the worst case situation with water jets, complete immersion into a liquid with a temperature below the board or surface tension reducing additives.

Recommended cleaning methods are demineralized water. Any surface tension reducing agents, such as soap, must not be used as they risk causing a potential leakage of the switch.

### SOLDERING - THROUGH HOLE VERSIONS

**Hand soldering:** max. 350 °C for max. 3 sec

**Wave soldering:** heat built up in the switch during pre-heating and soldering must not exceed the maximum operating temperature of the switch. Peak temperature must not exceed 260 °C, and soldering time is max 10 sec. (IEC 600-68-2-20 8)

### SOLDERING - SURFACE MOUNT VERSIONS

For all methods - infrared, convection and vapor phase. The upper limit 240 °C/40 sec must be observed. The soldering temperature profile must have moderate temperature gradients. (JEDEC J-STD-020E)

### ROHS COMPLIANCE

As of 1 July 2006 MEC has completed the conversion to RoHS compliance. For more info please see our homepage [www.apem.com](http://www.apem.com)

### TEMPERATURE LIMITS:

|             |              |
|-------------|--------------|
| Switch      | 160 °C       |
| Accessories | 65/85/160 °C |

### PACKAGING

Multimec™ 5 series switches are packed in rigid tubes of 50 pieces each.

A box contains 1.000 pcs.

The surface mount versions of multimec™ 5E series switches with a height up to 12.5 mm can also be delivered on tape/reel.  
Each reel contains 250/500 pcs.

Right angle switches are packed into trays.  
Each tray contains 100 pcs.