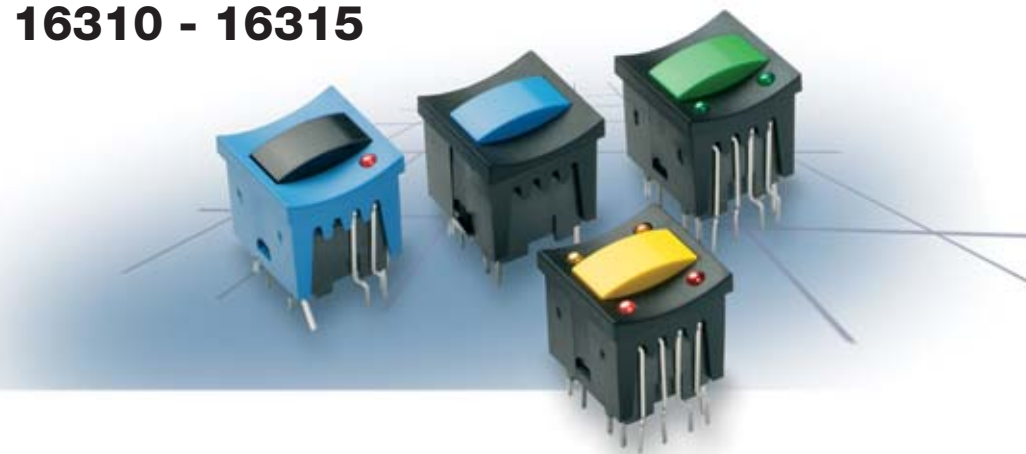


### Technical Data

- Max. 250mA/120V/9W AC/6W DC
- 2 pole
- momentary or alternate
- 8 contact functions
- temperature range:  
low temp: -40/+75°C  
high temp: -40/+160°C
- through-hole version



| Dimensions (through-hole) | Dimensions (w/LED) | Dimensions (w/LED) | Dimensions (w/4 LEDs) |
|---------------------------|--------------------|--------------------|-----------------------|
| <br>                      | <br>               | <br>               | <br>                  |

### How to order



1 5

#### Switch

15501 mom. silver  
15551 alt. silver  
15502 mom. gold  
15552 alt. gold  
15500 silent silver  
15401 mom. silver high temp.  
15402 mom. gold high temp.  
15420 silent gold high temp.  
15451 alt. silver high temp.

+

1 6 3 0 0

#### Cap

00 blue  
01 brown  
02 green  
03 grey  
04 yellow  
05 golden  
06 white  
07 orange  
08 red  
09 black

+

1 6 3 1 0

#### Bezel

00 blue  
01 brown  
02 green  
03 grey  
04 yellow  
05 golden  
06 white  
07 orange  
08 red  
09 black

#### For 16300 and 16310 only

30 ultra blue  
40 dusty blue  
42 aqua blue  
32 mint green  
33 tele grey  
34 melon  
38 noble red  
50 metal dark blue  
53 metal light grey  
57 metal dark grey  
58 metal bordeaux



1 5

#### Switch

+

1 6 3 0 0

#### Cap



+

#### Bezel 16311



#### Bezel 16312



#### Bezel 16314



#### Bezel 16315



+

1 6 9 2 1

LED 16921 02 green  
04 yellow  
08 red

+

1 6 9 2 0

LED 16920 02 green  
04 yellow  
08 red

LED 16920 1 required LED 16921 1 required

LED 16920 2 required LED 16921 2 required

Ordering example: 15501 + 1630003 + 1631408 + 1692008 + 1692108

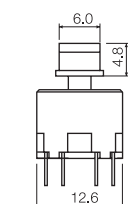
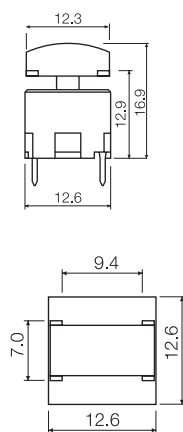
For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

### Technical Data

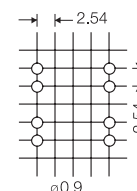
- Max. 250mA/120V/9W AC/6W DC
- 2 pole
- momentary or alternate
- 8 contact functions
- temperature range:  
low temp: -40/+75°C  
high temp: -40/+160°C
- through-hole version



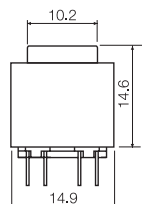
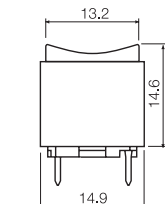
### Dimensions 16300



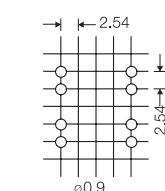
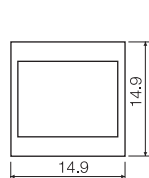
### PCB layout



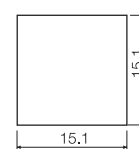
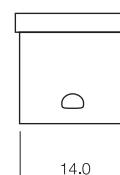
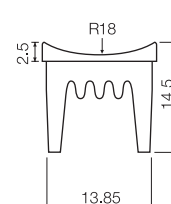
### Dimensions 16700



### PCB layout



### Dimensions 16800



Blanking Cap  
can be used with  
VARIO SUPPORT

### How to order



1 5

+

1 6 3 0 0

### Cap



### Switch

15501 mom. silver  
15551 alt. silver  
15502 mom. gold  
15552 alt. gold  
15500 silent silver  
15401 mom. silver high temp.  
15402 mom. gold high temp.  
15420 silent gold high temp.  
15451 alt. silver high temp.

00 blue  
01 brown  
02 green  
03 grey  
04 yellow  
05 golden  
06 white  
07 orange  
08 red  
09 black

30 ultra blue  
40 dusty blue  
42 aqua blue  
32 mint green  
33 tele grey  
34 melon  
38 noble red

50 metal dark blue  
53 metal light grey  
57 metal dark grey  
58 metal bordeaux



1 5

+

1 6 7 0 0

### Cap



### Switch

00 blue  
02 green  
03 grey  
04 yellow

06 white  
08 red  
09 black

1 6 8 0 0

### Blanking Cap



00 blue  
01 brown  
02 green  
03 grey  
04 yellow  
05 golden

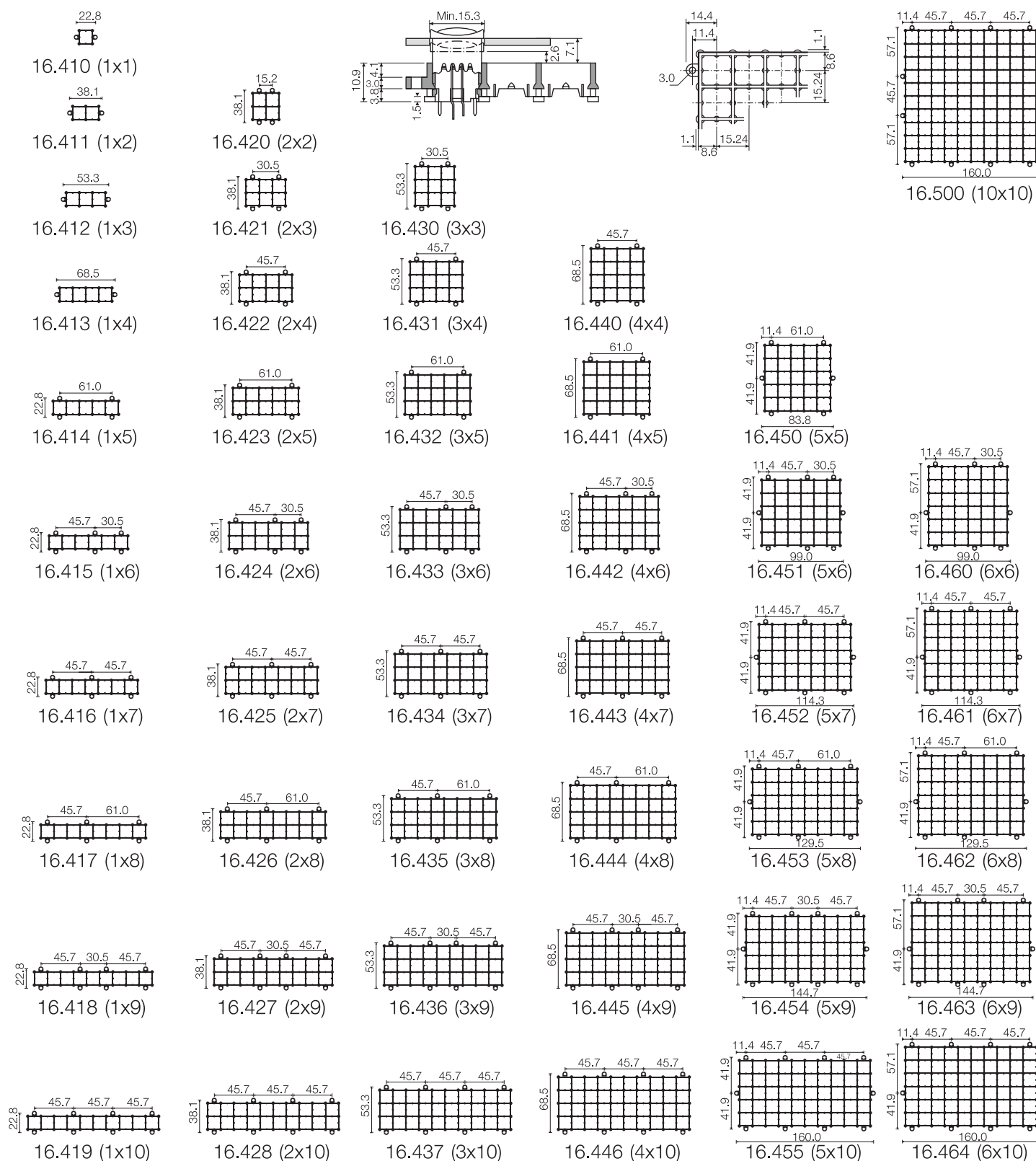
06 white  
07 orange  
08 red  
09 black

11 transparent  
12 transparent green  
14 transparent yellow  
18 transparent red

Ordering example: 15551 + 1670009

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

**For all types of UNIMEC™ switches with bezels - 16310 - 16315 and 16324 - 16326**



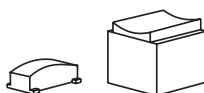
For updates of products and/or changes of specifications please see **www.mec.dk**



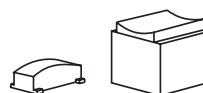
All standard legends are white on black caps.  
The size of the legends listed may not correspond to the actual size. Please ask your local distributor, if you do not find what you need on the list. New legends may have been added after this catalogue was printed.  
Custom legends and other colour combinations are available, please contact your local distributor.

## Standard Keycap Legends

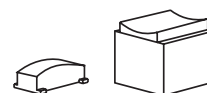
Part no.



Part no.

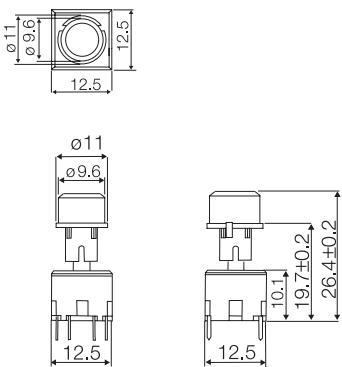
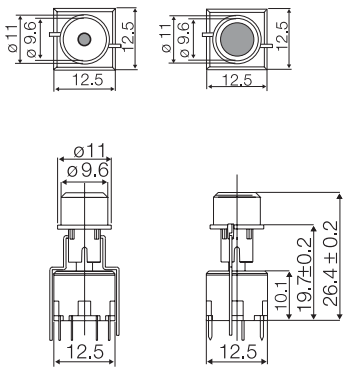
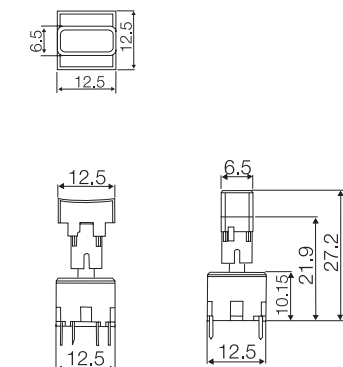
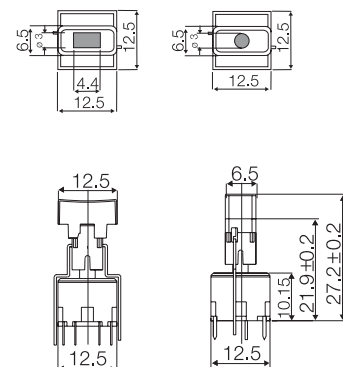
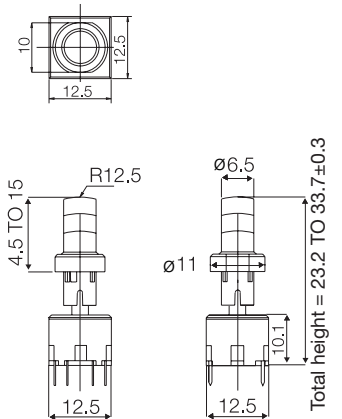
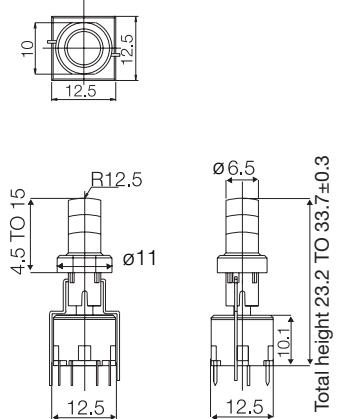
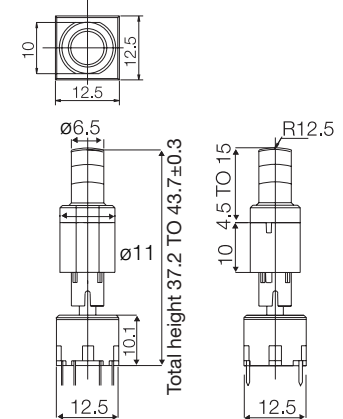
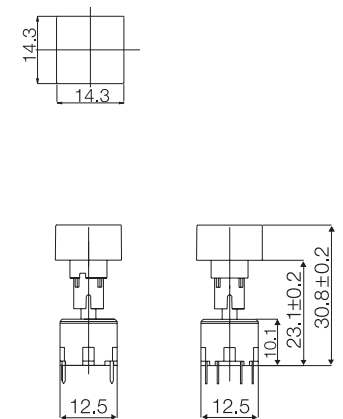


Part no.



| LEGEND | 18_ | 18_ | LEGEND | 18_ | 18_ | LEGEND | 18_ | 18_ |
|--------|-----|-----|--------|-----|-----|--------|-----|-----|
| 0      | 000 | 200 | A      | 010 | 210 | ON/OFF | 017 | 217 |
| 1      | 001 | 201 | B      | 011 | 211 | STOP   | 018 | 218 |
| 2      | 002 | 202 | C      | 012 | 212 | START  | 031 | 231 |
| 3      | 003 | 203 | D      | 013 | 213 | CLEAR  | 036 | 236 |
| 4      | 004 | 204 | E      | 014 | 214 | LOAD   | 037 | 237 |
| 5      | 005 | 205 | F      | 015 | 215 | RESET  | 038 | 238 |
| 6      | 006 | 206 | G      | 063 | 263 | CR     | 043 | 243 |
| 7      | 007 | 207 | H      | 064 | 264 | MANUAL | 044 | 244 |
| 8      | 008 | 208 | I      | 065 | 265 | END    | 047 | 247 |
| 9      | 009 | 209 | J      | 066 | 266 | CANCEL | 048 | 248 |
| 10     | 020 | 220 | K      | 067 | 267 | CTRL   | 050 | 250 |
| 11     | 021 | 221 | L      | 068 | 268 | ESC    | 051 | 251 |
| 12     | 022 | 222 | M      | 069 | 269 | DSP    | 053 | 253 |
| 13     | 023 | 223 | N      | 070 | 270 | ENTER  | 105 | 305 |
| 14     | 024 | 224 | P      | 072 | 272 | SHIFT  | 106 | 306 |
| 15     | 025 | 225 | S      | 075 | 275 | ON     | 116 | 316 |
| 16     | 026 | 226 | T      | 076 | 276 | OFF    | 117 | 317 |
|        |     |     | U      | 077 | 277 |        |     |     |
|        |     |     | V      | 078 | 278 |        |     |     |
|        |     |     | W      | 079 | 279 |        |     |     |
|        |     |     | #      | 107 | 307 |        |     |     |
|        |     |     | *      | 019 | 219 |        |     |     |
|        |     |     | ☐      | 016 | 216 |        |     |     |
|        |     |     | →      | 033 | 233 |        |     |     |
|        |     |     | ←      | 133 | 333 |        |     |     |
|        |     |     | ↑      | 034 | 234 |        |     |     |
|        |     |     | ↓      | 134 | 334 |        |     |     |
|        |     |     | ↶      | 135 | 335 |        |     |     |
|        |     |     | ↷      | 115 | 315 |        |     |     |
|        |     |     | ↔      | 041 | 241 |        |     |     |
|        |     |     | +      | 054 | 254 |        |     |     |
|        |     |     | —      | 059 | 259 |        |     |     |
|        |     |     | •      | 056 | 256 |        |     |     |
|        |     |     | :      | 055 | 255 |        |     |     |
|        |     |     |        |     |     |        |     |     |

### Selection guide

|                                                                                                                                                                 |                                                                                                                                                                                         |                                                                                                                                                                              |                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  A 16250 extender is needed when mounting multimec® keycaps on unimec™ switches |                                                                                                                                                                                         |                                                                                                                                                                              |                                                                                                                                                                                                             |
| <b>Cap</b><br> <b>1D</b>                                                       |  <b>1E</b>  <b>1F</b> |  <b>1P</b>                                                                                  |  <b>1Q</b>  <b>1R</b>                 |
| <b>Dimensions</b><br>                                                           |                                                                                                        |                                                                                            |                                                                                                                          |
| <b>LED</b>                                                                                                                                                      | <b>16923XX</b><br> <b>00</b> blue<br><b>20</b> green<br><b>40</b> yellow<br><b>80</b> red              |                                                                                                                                                                              | <b>16923XX</b><br> <b>00</b> blue<br><b>20</b> green<br><b>40</b> yellow<br><b>80</b> red                                |
| <b>Cap</b><br> <b>1S</b>                                                     |  <b>1S</b> illuminated                                                                               |  <b>1S + 2S</b>                                                                          |  <b>1K</b>  <b>1K</b> illuminated |
| <b>Dimensions</b><br>                                                         |                                                                                                      |                                                                                          |                                                                                                                        |
| <b>LED</b>                                                                                                                                                      | <b>16923XX</b><br> <b>00</b> blue<br><b>20</b> green<br><b>40</b> yellow<br><b>80</b> red            | <b>16923XX</b><br> <b>00</b> blue<br><b>20</b> green<br><b>40</b> yellow<br><b>80</b> red | <b>16924XX</b><br> <b>23</b> green<br><b>45</b> yellow<br><b>88</b> red                                                |

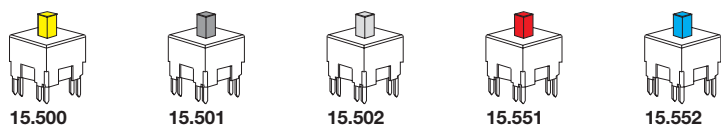
For specific dimensions, color codes, how to order and other information please refer to the pages with the keycaps on multimec® switches. For technical information on the unimec™ basic switches please see technical specifications or go to our website [www.mec.dk](http://www.mec.dk) where you will find a page for each option.

The multimec® keycaps 1N, 1T, 1U, 1V, 1WA, 1WD, 1WP and 1X can also be used on unimec™ switches. Please ask for technical drawings on dimensions.

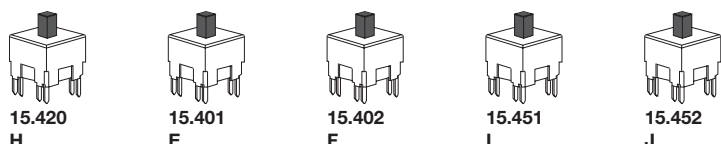
# unimec™ basic switch modules

## Basic module applies to all versions

### Low temp.



### High temp.



### Part no:



### Temperature:

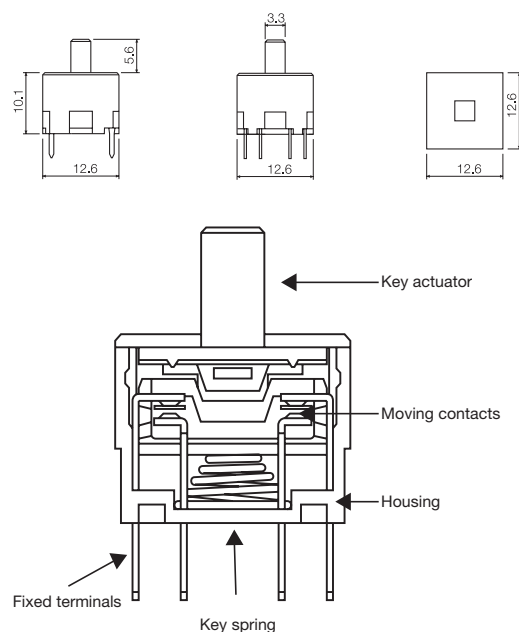
5: low temp.  
4: high temp.

### Switch function:

0: momentary  
5: alternate

### Terminal

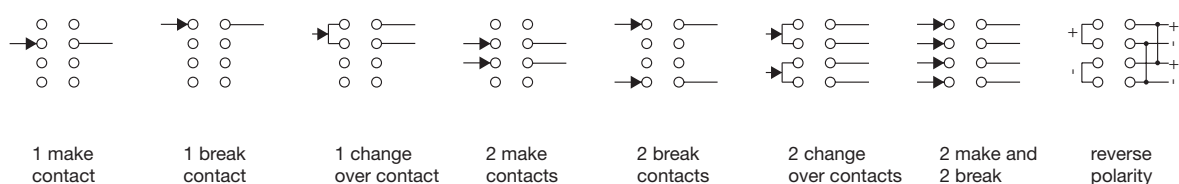
1: silver  
2: gold  
0: quiet version, silver



| PCB Mounting Hole Dimensions<br>Basic Switch | Circuit diagram<br>(topview) | PCB Mounting Hole Dimensions<br>(w/Extender 16250) | Functional diagram |
|----------------------------------------------|------------------------------|----------------------------------------------------|--------------------|
|                                              |                              |                                                    |                    |
|                                              | Without LED                  | With LED 16923 and 16924                           | — up<br>--- down   |

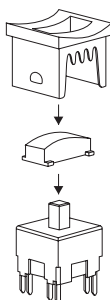
## Wiring Diagram

Select the contact function you desire - and design your PC board accordingly

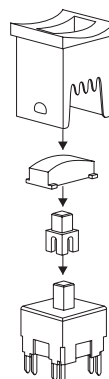


## How to assemble

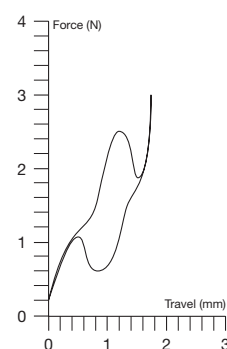
unimec™  
15XXX + 16300 +  
16310



unimec™  
15XXX + 16270 +  
16300 + 16324



## Operating Force (Typical example)



For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

### RoHS Compatible

|                                                 | RB<br>Low Temperature Versions                                      |                             | RA<br>High Temperature Versions                          |                             |
|-------------------------------------------------|---------------------------------------------------------------------|-----------------------------|----------------------------------------------------------|-----------------------------|
|                                                 | Silver                                                              | Gold                        | Silver                                                   | Gold                        |
| Electrical Specifications                       |                                                                     |                             |                                                          |                             |
| Contact resistance                              | Max. 100 m Ω (initially)                                            |                             | Max. 100 m Ω (initially)                                 |                             |
| Insulation resistance                           | >10 M Ω                                                             |                             | >10 M Ω                                                  |                             |
| Recommended load                                | Min. 0.5 mA                                                         | Min. 0.5μ A                 | Min. 0.5 mA                                              | Min. 0.5μ A                 |
|                                                 | Max. 250 mA - 120 V - 9W AC - 6W DC                                 |                             | Max. 250 mA - 120 V - 9W AC - 6W DC                      |                             |
| Max. current in non switching state             | 0.5 A                                                               |                             | 0.5 A                                                    |                             |
| Contact bounce                                  | Max. 10 ms                                                          |                             | Max. 10 ms                                               |                             |
| Dielectric strength between adjacent contacts   | 1000 V for 2 min.                                                   |                             | 1000 V for 2 min.                                        |                             |
| Insulation resistance between adjacent contacts | 5 X 10 <sup>13</sup> Ω                                              |                             | 5 X 10 <sup>13</sup> Ω                                   |                             |
| Capacitance between adjacent contacts           | 0.5 pF                                                              |                             | 0.5 pF                                                   |                             |
| Mechanical Specifications                       |                                                                     |                             |                                                          |                             |
| Standard actuation force (switch)               | typ 2.5N                                                            |                             | typ 2.5N                                                 |                             |
| Max. actuation force without cap                | 100N for 10 sec.                                                    |                             | 100N for 10 sec.                                         |                             |
| Key travel (switch)                             | 1.8 mm                                                              |                             | 1.8 mm                                                   |                             |
| Life time                                       | Momentary 1.500.000 cycles                                          |                             | Momentary >10.000.000 cycles                             |                             |
|                                                 | Alternate 500.000 cycles                                            |                             | Alternate 5.000.000 cycles                               |                             |
| Temperature Range                               |                                                                     |                             |                                                          |                             |
| Working temperature                             | Min. -40°C Max. +75°C                                               |                             | Min. -40°C Max. +160°C                                   |                             |
| Storage temperature                             | Min. -65°C Max. +85°C                                               |                             | Min. -65°C Max. +160°C                                   |                             |
| Soldering IEC 68-2-20                           |                                                                     |                             |                                                          |                             |
|                                                 | Wave - max 260°C for max. 10 sec., please refer to usage guidelines |                             |                                                          |                             |
|                                                 | Soldering iron - max. 350°C for max. 3 sec. Flux tight.             |                             |                                                          |                             |
| Environmental Endurance IEC 68-2-3              |                                                                     |                             |                                                          |                             |
| Temperature                                     | +40°C                                                               |                             | +40°C                                                    |                             |
| Humidity                                        | 93% RH                                                              |                             | 93% RH                                                   |                             |
| Duration                                        | 56 Days                                                             |                             | 56 Days                                                  |                             |
| Sealing IEC 529                                 | IP-54                                                               |                             | IP-54                                                    |                             |
| Cleaning                                        | Standard methods such as water and soap (not immersed)              |                             | Standard methods such as water and soap (not immersed)   |                             |
| Material Specifications - Switches              |                                                                     |                             |                                                          |                             |
| Housing and actuator                            | Glass fiber filled Polycarbonate UL94V1                             |                             | LCP UL94V0                                               |                             |
| Switch spring                                   | Stainless steel                                                     |                             | Stainless steel                                          |                             |
| Key spring                                      | Stainless steel                                                     |                             | Stainless steel                                          |                             |
| Latch pin                                       | Stainless steel                                                     |                             | Stainless steel                                          |                             |
| Fixed contact                                   | SnCu + 2μNi + 3μAg                                                  | SnCu + 2μNi + 3μAu          | SnCu + 2μNi + 3μAg                                       | SnCu + 2μNi + 3μAu          |
| Moving contact                                  | Stainless steel + 3μAg                                              | Stainless steel + 3μAg+1μAu | Stainless steel +3μAg                                    | Stainless steel + 3μAg+1μAu |
| Terminals                                       |                                                                     |                             |                                                          |                             |
| Contact lubricant                               | SnCu + 2μNi + 3μSn100                                               |                             | SnCu + 2μNi + 3μSn100                                    |                             |
| Material Specifications - All Caps & Bezels     |                                                                     |                             |                                                          |                             |
|                                                 | Special protective lubricant Klüber Barrierta I EL Fluid            |                             | Special protective lubricant Klüber Barrierta I EL Fluid |                             |
|                                                 | ABS (standard) UL94HB                                               |                             | ABS (standard) UL94HB                                    |                             |
| Temperature limit                               | Max. +65°C                                                          |                             | Max. +65°C                                               |                             |
| Tampon Printing                                 |                                                                     |                             |                                                          |                             |
|                                                 | According to ISO Class: 1/ASTM Class.: 4B                           |                             | According to ISO Class: 1/ASTM Class.: 4B                |                             |

### unimec™ LEDs

| Part Nos.                            |                                                          | 16920/16921          |     |     | 16922                |     |     | 16923                |      |      | 16924                 |         |         |
|--------------------------------------|----------------------------------------------------------|----------------------|-----|-----|----------------------|-----|-----|----------------------|------|------|-----------------------|---------|---------|
| Colour (G= Green, Y= Yellow, R= Red) |                                                          | G                    | Y   | R   | G                    | Y   | R   | G                    | Y    | R    | G                     | Y       | R       |
| Colour Codes                         |                                                          | 02                   | 04  | 08  | 02                   | 04  | 08  | 20                   | 40   | 80   | 24                    | 45      | 89      |
| Absolute Maximum Ratings             |                                                          | (Ta=25°C)            |     |     |                      |     |     |                      |      |      |                       |         |         |
| Power                                | mW                                                       | 100                  | 100 | 100 | 135                  | 135 | 135 | 70                   | 60   | 60   | 60                    | 130     | 80      |
| Current forward                      | mA                                                       | 30                   | 30  | 30  | 30                   | 30  | 30  | 20                   | 20   | 20   | 25                    | 40      | 30      |
| Forward peak current                 | mA                                                       | 50                   | 50  | 50  | 90                   | 90  | 90  | 60**                 | 60** | 60** | N/A                   | 500     | 1000    |
| Voltage reverse                      | V                                                        | 5                    | 5   | 5   | 5                    | 5   | 5   | 3                    | 3    | 3    | 5                     | 12      | 12      |
| Operating temperature                | °C                                                       | -25 - +100           |     |     | -55 - +100           |     |     | -25 - +85            |      |      | -40 - +85 -55 - +100  |         |         |
| Storage temperature                  | °C                                                       | -25 - +100           |     |     | -55 - +100           |     |     | -30 - +100           |      |      | -40 - +100 -55 - +100 |         |         |
| Soldering temperature                | °C                                                       | +245 for max. 3 sec. |     |     | +300 for max. 3 sec. |     |     | +260 for max. 5 sec. |      |      | +260 for max. 5 sec.  |         |         |
| Electrical-Optical Characteristics   |                                                          | (Ta=25°C)            |     |     |                      |     |     |                      |      |      |                       |         |         |
| Voltage Forward                      | Typ. V                                                   | 2.0                  | 2.0 | 2.0 | 2.1                  | 2.2 | 2.3 | 2.1                  | 2.1  | 2.0  | 2.0*                  | 2.3***  | 2.0***  |
|                                      | Max. V                                                   | 3.0                  | 3.0 | 3.0 | 3.0                  | 3.0 | 3.0 | 3.0                  | 3.0  | 3.0  | 2.4*                  | 2.5***  | 2.3***  |
| Current reverse                      | µA                                                       | 100                  | 100 | 100 | 100                  | 100 | 100 | 10                   | 10   | 10   | 10                    | 10      | 10      |
| Wave length                          | nm                                                       | 560                  | 590 | 660 | 565                  | 585 | 635 | 563                  | 585  | 650  | 573                   | 587     | 633     |
| Spread                               | Ønm                                                      | 10                   | 10  | 10  | 10                   | 10  | 10  | 40                   | 40   | 40   | 20                    | 45      | 16      |
| Spread angle                         | degree                                                   | 20                   | 20  | 20  | 45                   | 45  | 45  | 45                   | 45   | 45   | 100                   | 90      | 85      |
| Luminous Intensity                   | Min. mcd                                                 | 1                    | 1   | 0.8 | 1.5                  | 2.5 | 2.5 | 9.0                  | 5.6  | 5.6  | 10****                | 71****  | 180**** |
|                                      | Typ. mcd                                                 | 2                    | 3   | 1.6 | 2.5                  | 3.0 | 5.0 | 25                   | 16   | 16   | 20****                | 112**** | 355**** |
| Orientation                          | The longer pin is the anode, the shorter is the cathode. |                      |     |     |                      |     |     |                      |      |      |                       |         |         |

\*If = 20mA, \*\*Pulse width 1ms Duty cycle 1:5, \*\*\*If = 50mA, \*\*\*\*Luminous Flux mlm

Specifications are subject to change without notice.

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