

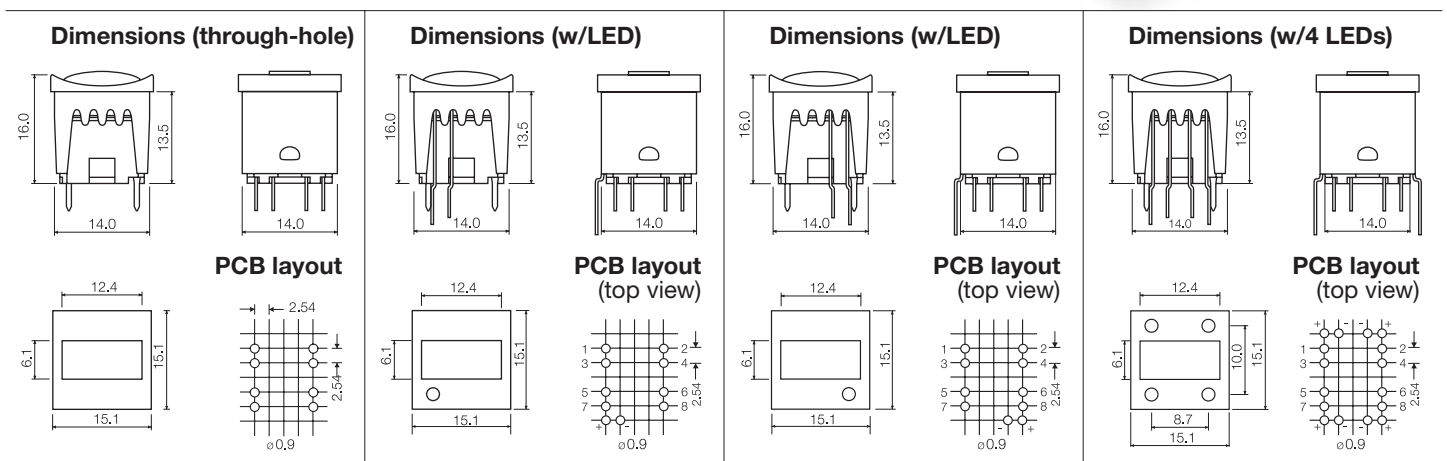
# unimec™

## 16310 - 16315





### 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



### How to order

 <p><b>1 5</b>    +    <b>1 6 3 0 0</b>    +    <b>1 6 3 1 0</b></p> <p><b>Switch</b></p> <p>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.</p> <p><b>Cap</b></p> <p>00 blue              01 brown              02 green              03 grey              04 yellow              05 golden              06 white              07 orange              08 red              09 black</p> <p><b>Bezel</b></p> <p>00 blue              01 brown              02 green              03 grey              04 yellow              05 golden              06 white              07 orange              08 red              09 black</p> <p><b>For 16300 and 16310 only</b></p> <p>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</p>
--

 <p><b>1 5</b>    +    <b>1 6 3 0 0</b>    +    [ ]    +    <b>1 6 9 2 1</b></p> <p><b>Switch</b></p> <p><b>Cap</b></p> <p><b>Bezel 16311</b></p> <p><b>Bezel 16312</b></p> <p><b>Bezel 16314</b></p> <p><b>Bezel 16315</b></p> <p><b>LED 16921</b> 02 green              04 yellow              08 red</p> <p><b>LED 16920</b> 02 green              04 yellow              08 red</p> <p><b>LED 16920</b> 1 required    <b>LED 16921</b> 1 required</p> <p><b>LED 16920</b> 2 required    <b>LED 16921</b> 2 required</p>
---

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

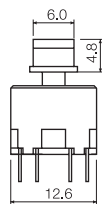
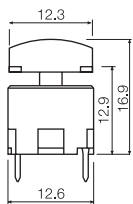
For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

## Technical Data

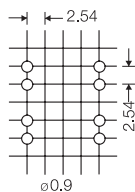
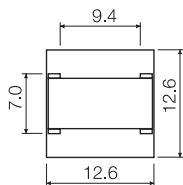
- Max. 250mA/120V/9W AC/6W DC
- 2 pole
- momentary or alternate
- 8 contact functions
- temperature range:
  - low temp: -40/+75°C
  - high temp: -40/+160°C
- through-hole version



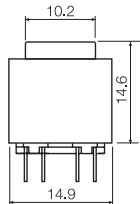
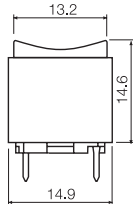
## Dimensions 16300



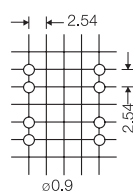
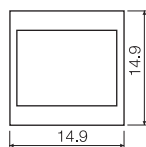
## PCB layout



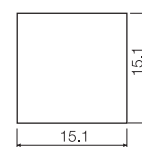
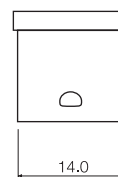
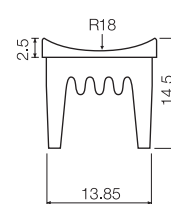
## Dimensions 16700



## PCB layout



## Dimensions 16800



Blanking Cap  
can be used with  
VARIO SUPPORT

## How to order

1 5

+

1 6 3 0 0



## 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.

## Cap



- |           |               |                     |
|-----------|---------------|---------------------|
| 00 blue   | 30 ultra blue | 50 metal dark blue  |
| 01 brown  | 40 dusty blue | 53 metal light grey |
| 02 green  | 42 aqua blue  | 57 metal dark grey  |
| 03 grey   | 32 mint green | 58 metal bordeaux   |
| 04 yellow | 33 tele grey  |                     |
| 05 golden | 34 melon      |                     |
| 06 white  | 38 noble red  |                     |
| 07 orange |               |                     |
| 08 red    |               |                     |
| 09 black  |               |                     |

1 5

+

1 6 7 0 0



## Switch

## Cap



- |           |          |
|-----------|----------|
| 00 blue   | 06 white |
| 02 green  | 08 red   |
| 03 grey   | 09 black |
| 04 yellow |          |

1 6 8 0 0

## Blanking Cap

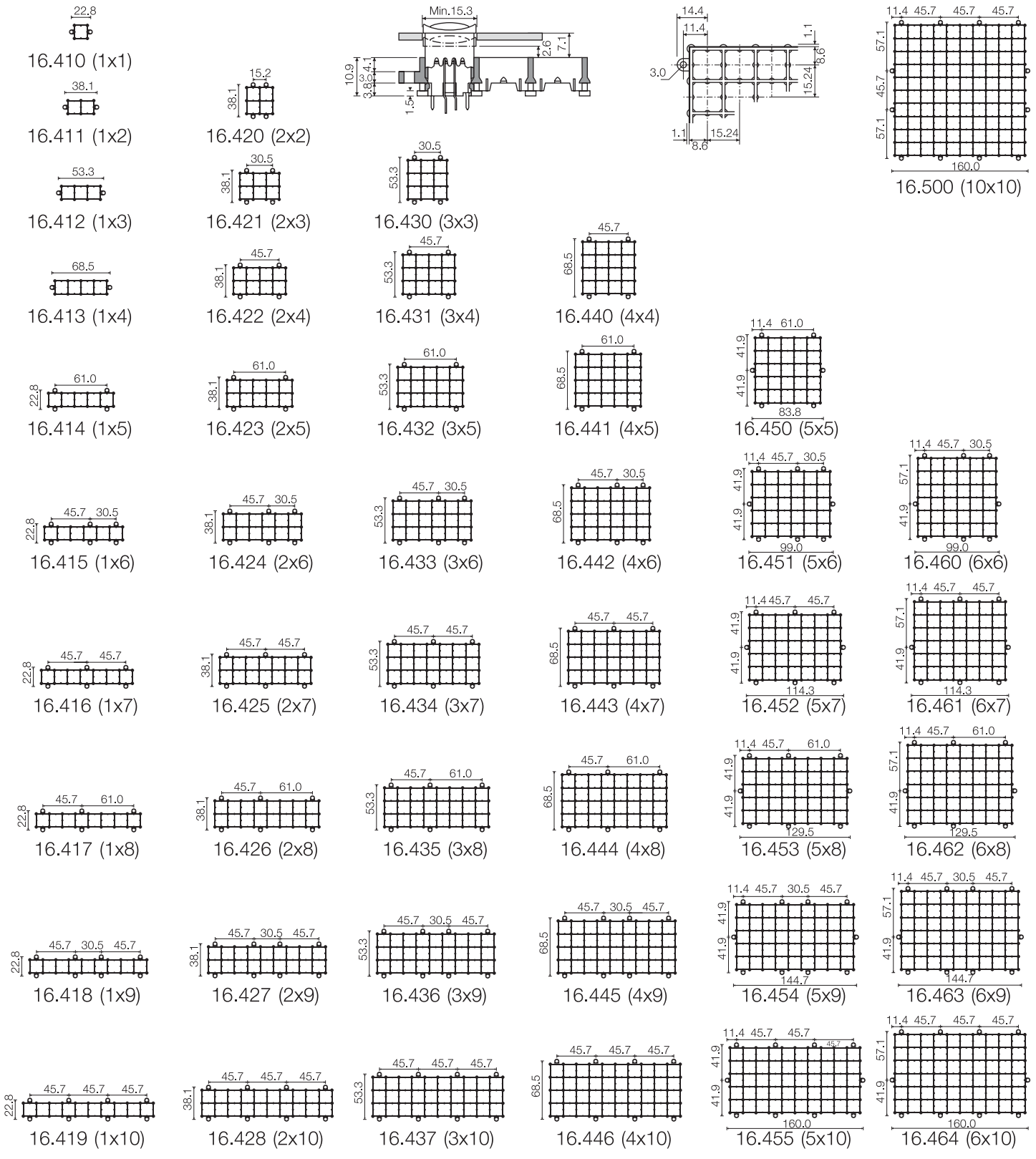


- |           |           |                       |
|-----------|-----------|-----------------------|
| 00 blue   | 06 white  | 11 transparent        |
| 01 brown  | 07 orange | 12 transparent green  |
| 02 green  | 08 red    | 14 transparent yellow |
| 03 grey   | 09 black  | 18 transparent red    |
| 04 yellow |           |                       |
| 05 golden |           |                       |

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](http://www.mec.dk)



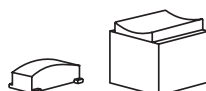
All standard legends are white on black caps.

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.

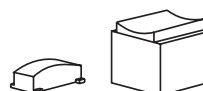
Custom legends and other colour combinations are available, please contact your local distributor.

## Standard Keycap Legends

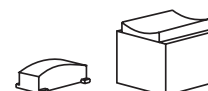
Part no.



Part no.










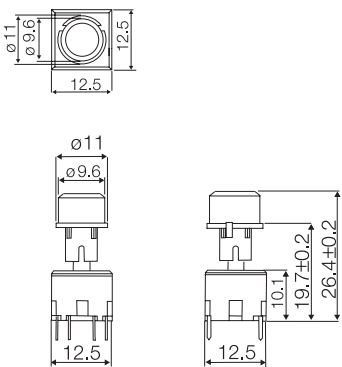
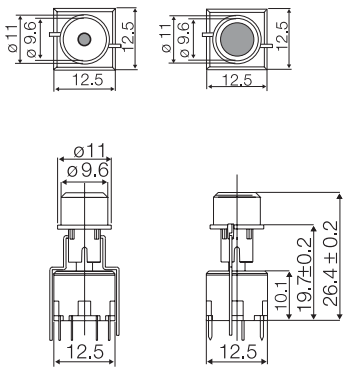
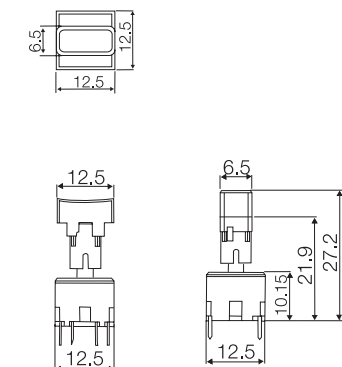
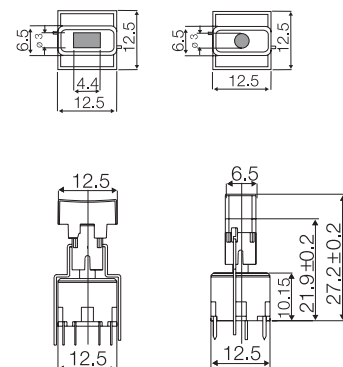












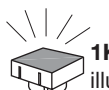
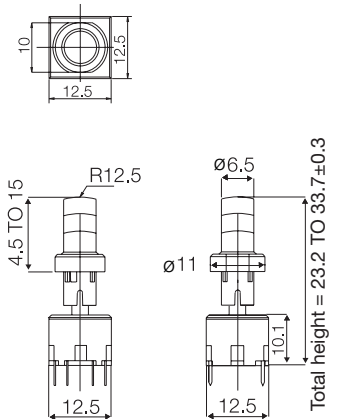
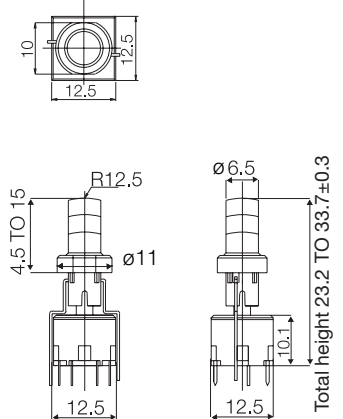
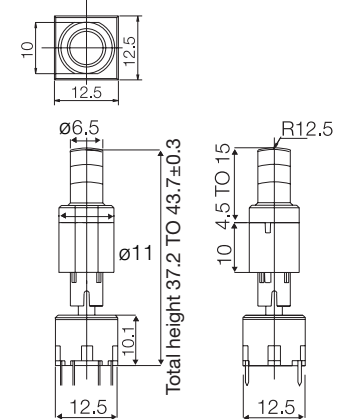
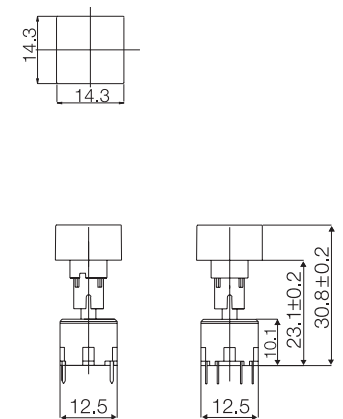











Part no.



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			

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

### Selection guide

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

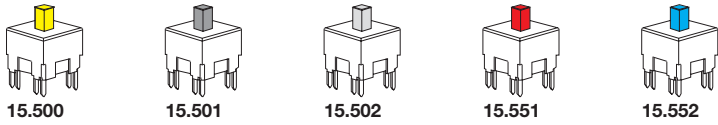
For specific dimensions, color codes, how to order and other information please refer to the pages with the keycaps on multimec® switches. For technical information on the unimec™ basic switches please see technical specifications or go to our website [www.mec.dk](http://www.mec.dk) where you will find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

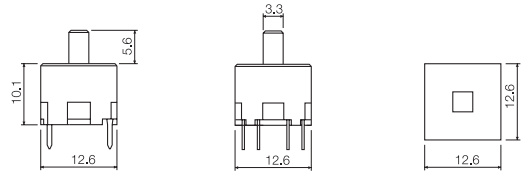
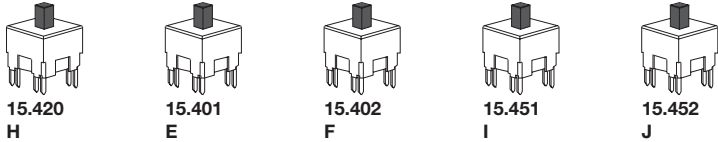
# unimec™ basic switch modules

## Basic module applies to all versions

### Low temp.



### High temp.



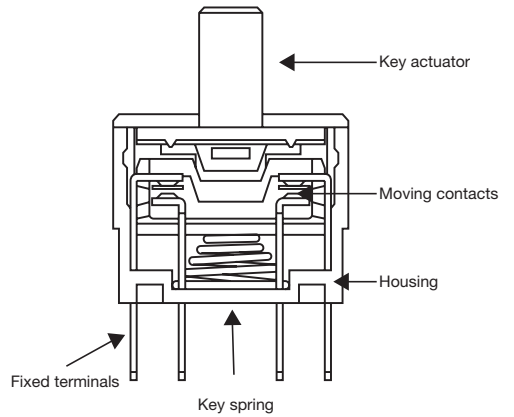
Part no:



**Temperature:**  
 5: low temp.  
 4: high temp.

**Switch function:**  
 0: momentary  
 5: alternate

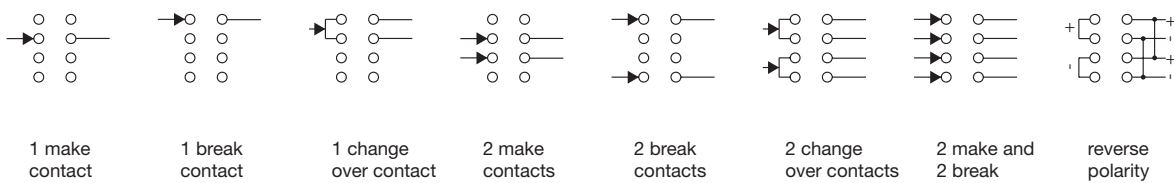
**Terminal**  
 1: silver  
 2: gold  
 0: quiet version, silver



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

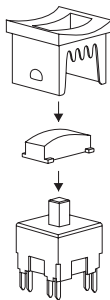
### Wiring Diagram

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

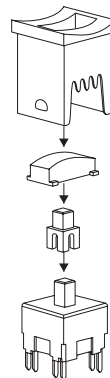


### How to assemble

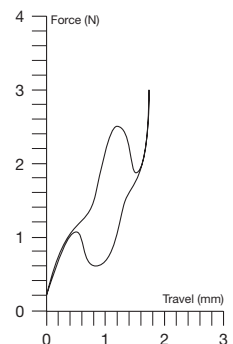
unimec™  
 15XXX + 16300 +  
 16310



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 Low Temperature Versions		RA High Temperature Versions	
	Silver	Gold	Silver	Gold
<b>Electrical Specifications</b>				
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. 0.5 μA	Min. 0.5 mA	Min. 0.5 μA
	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	
<b>Mechanical Specifications</b>				
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 Alternate 500.000 cycles		Momentary >10.000.000 cycles Alternate 5.000.000 cycles	
<b>Temperature Range</b>				
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	
<b>Soldering IEC 68-2-20</b>				
	Wave - max 260°C for max. 10 sec., please refer to usage guidelines Soldering iron - max. 350°C for max. 3 sec. Flux tight.			
<b>Environmental Endurance IEC 68-2-3</b>				
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)			
<b>Material Specifications - Switches</b>				
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
<b>Terminals</b>				
Contact lubricant	SnCu + 2μNi + 3μSn100		SnCu + 2μNi + 3μSn100	
	Special protective lubricant Klüber Barrierta I EL Fluid			
<b>Material Specifications - All Caps &amp; Bezels</b>				
	ABS (standard) UL94HB		ABS (standard) UL94HB	
Temperature limit	Max. +65°C		Max. +65°C	
<b>Tampon Printing</b>				
	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			
	G	Y	R	G	Y	R	G	Y	R	G	Y	R	
Colour (G= Green, Y= Yellow, R= Red)													
Colour Codes	02	04	08	02	04	08	20	40	80	24	45	89	
<b>Absolute Maximum Ratings</b> (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.		
<b>Electrical-Optical Characteristics</b> (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
<b>Luminous Intensity</b>	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, \*\*\*/F= 50mA, \*\*\*\*Luminous Flux mlm

Specifications are subject to change without notice.

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