

Basic module applies to all versions

Low temp.



15.500



15.501



15.502



15.551



15.552

High temp.

15.420
H15.401
E15.402
F15.451
I15.452
J

Part no:



Temperature:

5: low temp.

4: high temp.

Switch function:

0: momentary

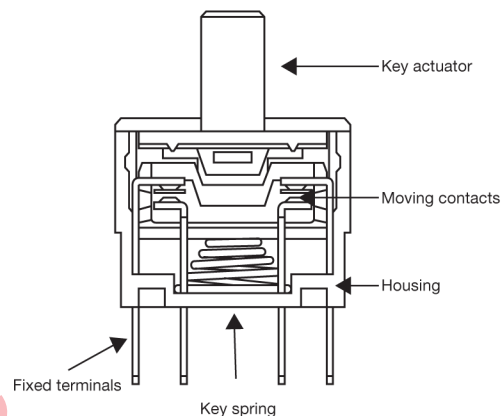
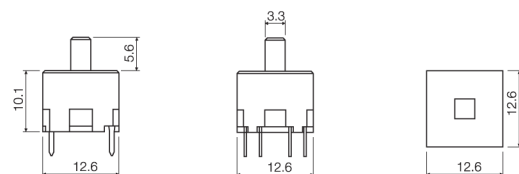
5: alternate

Terminal

1: silver

2: gold

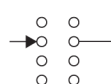
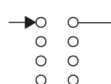
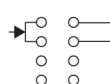
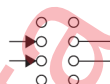
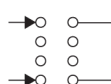
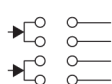
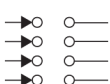
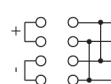
0: quiet version, silver



PCB Mounting Hole Dimensions Basic Switch	Circuit diagram (topview)	PCB Mounting Hole Dimensions (w/Extender 16250)	Functional diagram
	Without LED	With LED 16920 and 16921	With LED 16923 and 16924
	With rect. LED 16922	With LED 16923 and 16924	— up --- down

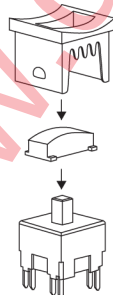
Wiring Diagram

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

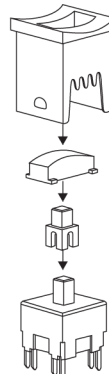
1 make
contact1 break
contact1 change
over contact2 make
contacts2 break
contacts2 change
over contacts2 make and
2 breakreverse
polarity

How to assemble

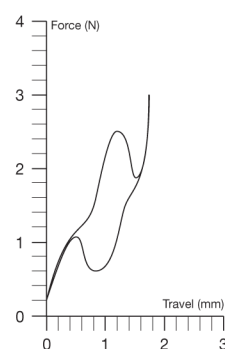
unimec™

15XXX + 16300 +
16310

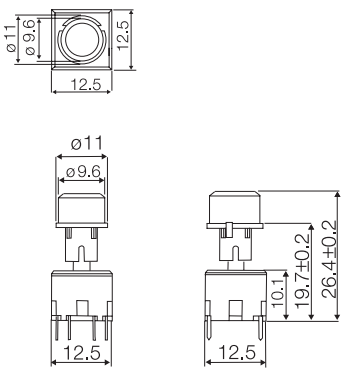
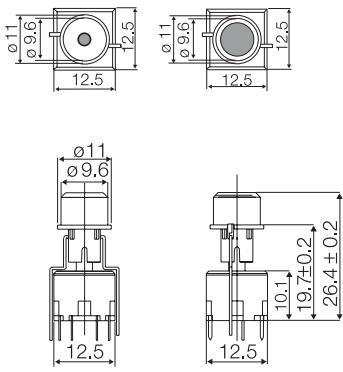
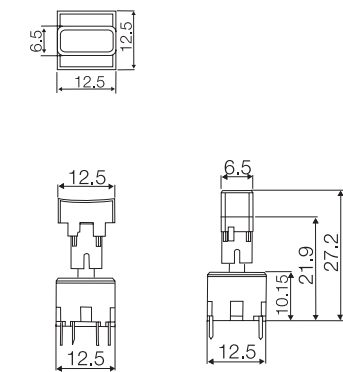
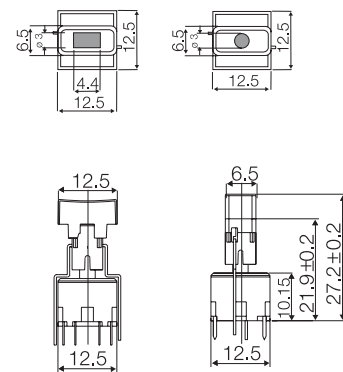
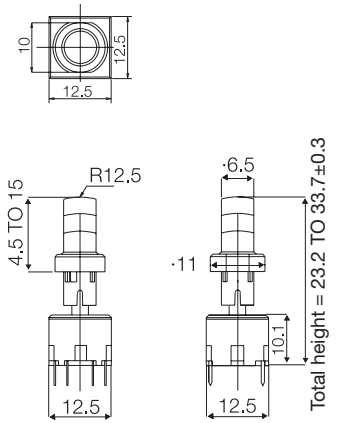
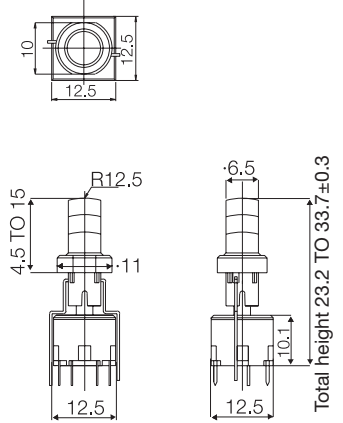
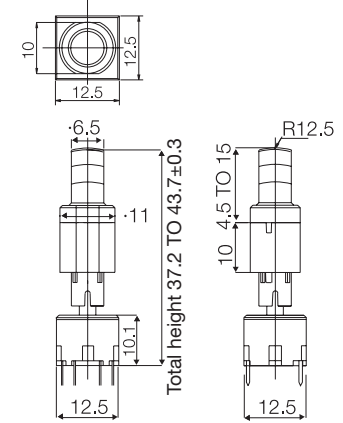
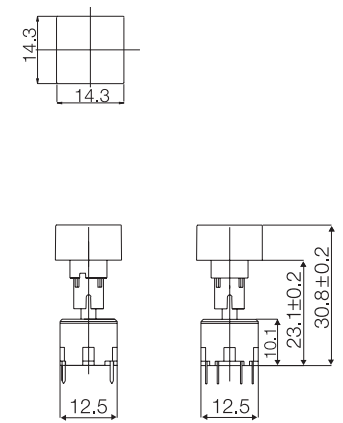
unimec™

15XXX + 16270 +
16300 + 16324

Operating Force (Typical example)



Selection guide

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

RoHS Compatible

	RB Low Temperature Versions		RA 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 ¹³ Ω		5 X 10 ¹³ 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

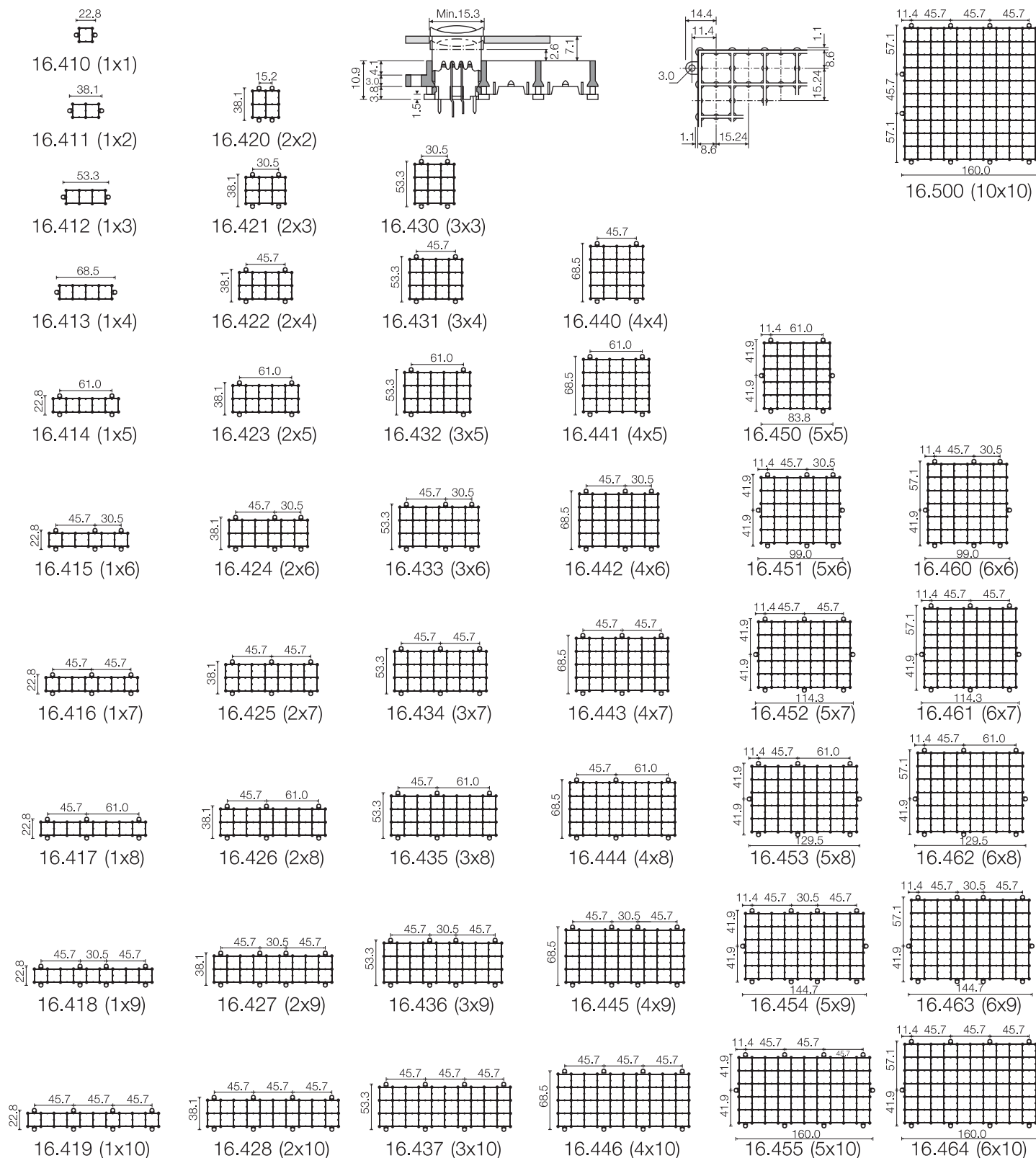
Part Nos.		16920/16921			16922			16923			16924		
Colour (G= Green, Y= Yellow, R= Red)		G	Y	R	G	Y	R	G	Y	R	G	Y	R
Colour Codes		02	04	08	02	04	08	20	40	80	23	45	88
Absolute Maximum Ratings		(Ta=25°C)											
Power	mW	100	100	100	135	135	135	70	60	60	150	130	300
Current forward	mA	30	30	30	30	30	30	20	20	20	40	40	90
Forward peak current	mA	50	50	50	90	90	90	60**	60**	60**	500	500	1000
Voltage reverse	V	5	5	5	5	5	5	3	3	3	12	12	5
Operating temperature	°C	-25 - +100			-55 - +100			-25 - +85			-55 - +100		
Storage temperature	°C	-25 - +100			-55 - +100			-30 - +100			-55 - +100		
Soldering temperature	°C	+245 for max. 3 sec.			+300 for max. 3 sec.			+260 for max. 5 sec.			+300 for max. 3 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	2.1*	2.3***	2.4***
	Max. V	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.5*	2.5***	3.8***
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	570	587	635
Spread	Ønm	10	10	10	10	10	10	40	40	40	25	45	45
Spread angle	degree	20	20	20	45	45	45	45	45	45	80	90	55
Luminous Intensity	Min. mcd	1	1	0.8	1.5	2.5	2.5	9.0	5.6	5.6	71****	71****	100****
	Typ. mcd	2	3	1.6	2.5	3.0	5.0	25	16	16	112****	112****	160****
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.

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

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



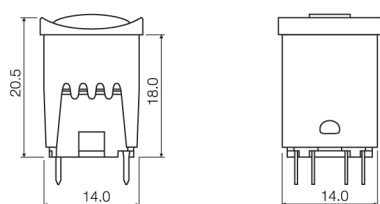
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Technical Data

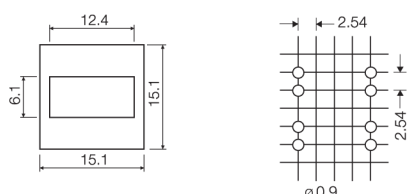
- Max. 250mA/120V/9W AC/6W DC
- 2 pole
- momentary or alternate
- 8 contact functions
- temperature range:
 - low temp: -40/+75°C
 - high temp: -40/+160°C
- through-hole version



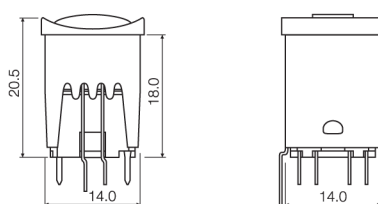
Dimensions



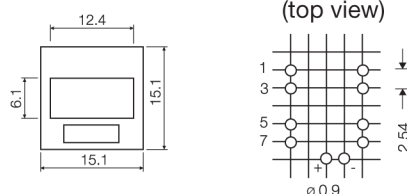
PCB layout



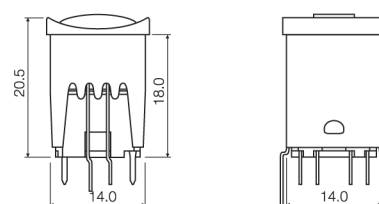
Dimensions (w/LED)



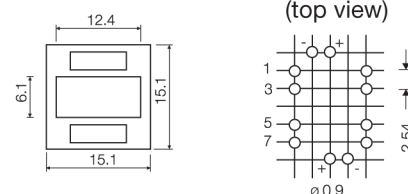
PCB layout (top view)



Dimensions (w/2 LEDs)



PCB layout (top view)



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 2 7 0

Extender



Cap



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 6 3 2 4

Bezel



01 brown
03 grey
06 white
09 black



1 5

Switch

+

1 6 2 7 0

Extender



+

1 6 3 0 0

Cap



+

1 6 3 2 7

16325



16326



+

1 6 3 2 7

Lens



+

1 6 9 2 2

Lens

02 green
04 yellow
08 red

+

1 6 9 2 2

LED



LED 16922

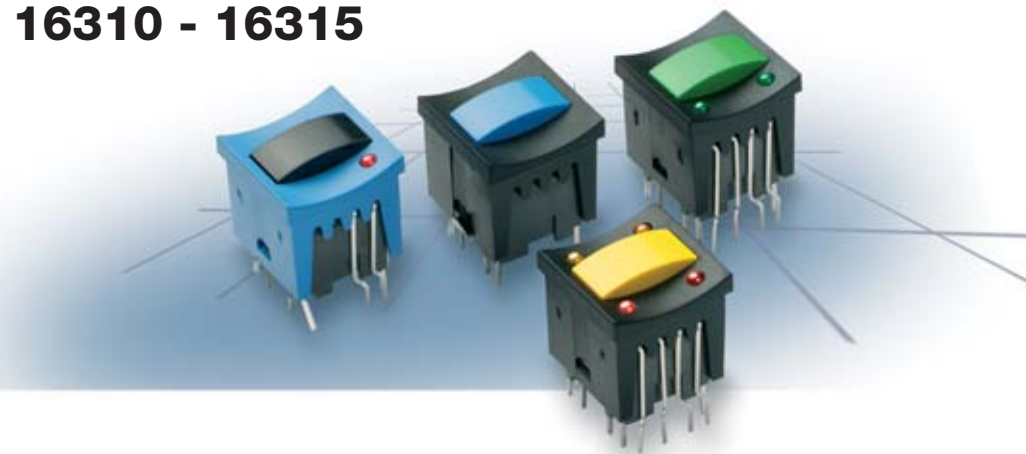
2 required

Ordering example: 15501 + 16270 + 1630008 + 1632509 + 1632708 + 1692208

For updates of products and/or changes of specifications please see 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 (through-hole)	Dimensions (w/LED)	Dimensions (w/LED)	Dimensions (w/4 LEDs)

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

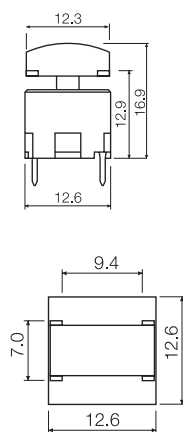
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Technical Data

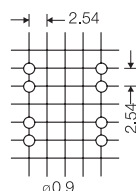
- Max. 250mA/120V/9W AC/6W DC
- 2 pole
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- 8 contact functions
- temperature range:
 - low temp: -40/+75°C
 - high temp: -40/+160°C
- through-hole version



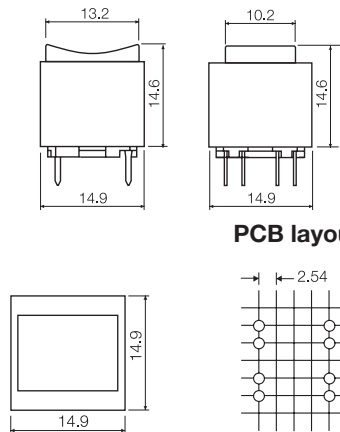
Dimensions 16300



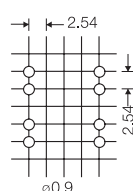
PCB layout



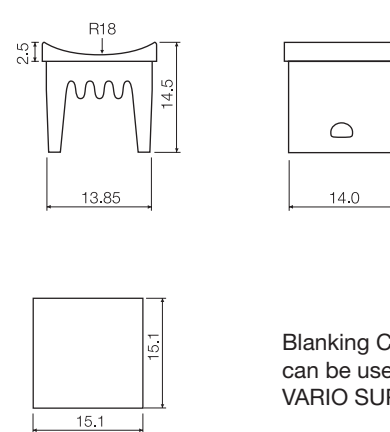
Dimensions 16700



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
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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



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Manufacturer of man-machine interfaces since 1952

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Unimec RB15501-RB15502

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Distinctive features

Specifications:

- max 250mA/ 120V/ 9W AC/ 6W DC
- 2 pole
- momentary
- 8 contact functions
- through-hole version
- 1.8mm travel
- 2.5N actuation force
- silver or gold terminals
- temperature range -40/+75°C



Unimec™ is a compact and reliable switch with a **unique contact concept** - switch is capable of producing eight different contact functions depending on the PC board layout. unimec™ switches are known for their **crisp, audible, tactile feel**.

RB15501-RB15502 are low temperature momentary switches with standard silver contacts(1) or gold contacts (2) for low level switching. RB in front of the part number means that the unimec switch materials are RoHS compatible but the processes are not.

See more information in the brochure.

Typical Applications

Complementary products



[RB15551-RB15552](#)



[RA15420](#)



[Unimec 16300](#)



[Unimec 16310-15](#)

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