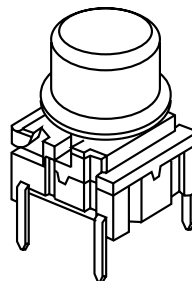


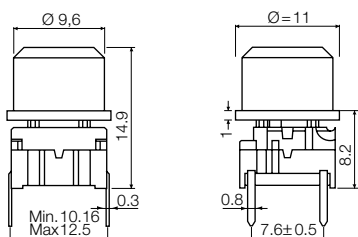
multimec® 3F + 1D/1E/1F



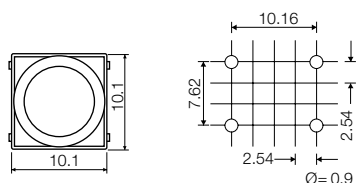
Technical Data:

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C
high temp: -40/+160°C

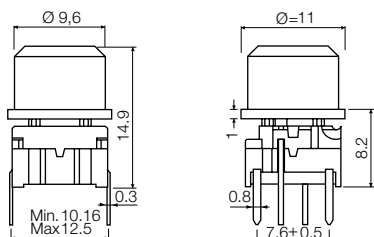
Dimensions (through-hole)



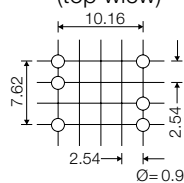
PCB layout



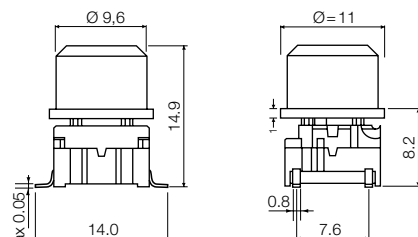
Dimensions (w/LED)



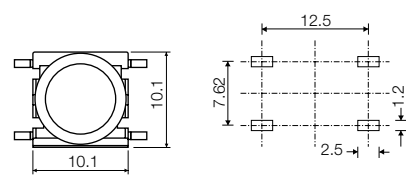
PCB layout (top view)



Dimensions (SMD)



PCB layout



HOW TO ORDER

3 F	☐	☐	1 D	☐	☐	☐
Switch	Mounting	L 6 low temp.	Cap	00 blue	30 ultra blue	50 metal dark blue
	T through-hole	H 9 high temp.		02 green	40 dusty blue	53 metal light grey
	S surface mount			03 grey	42 aqua blue	57 metal dark grey
				04 yellow	32 mint green	58 metal bordeaux
				06 white	33 tele grey	
				08 red	34 melon	
				09 black	38 noble red	

Standard versions:

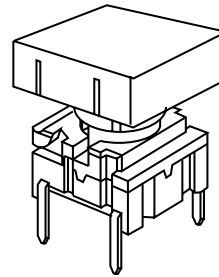
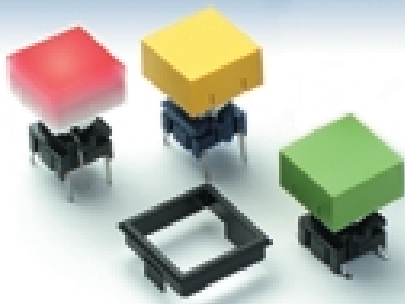
3FTL6
3FTH9
3FSH9
3FSH9R

3 F	T	☐	☐	1 1	☐
Switch	Mounting	L 6 low temp.	LED	Cap 1D	Lens
	T through-hole	H 9 high temp.	00 blue		
			20 green	Cap 1E	00 blue
			40 yellow		02 green
			80 red	Cap 1F	03 grey
			2040 green/yellow		04 yellow
			8020 red/green		06 white
			8040 red/yellow		08 red
					09 black

3FTL600

Ordering example: 3FTL620 + 1E032

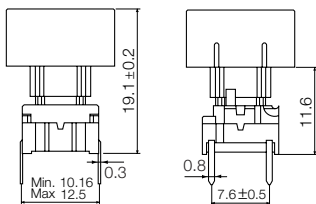
multimec® 3F + 1K + 2K



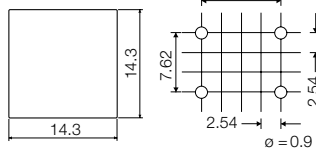
Technical Data:

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C
high temp: -40/+160°C

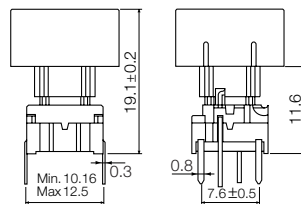
Dimensions (through-hole)



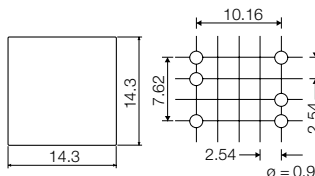
PCB layout



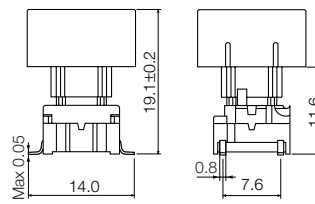
Dimensions (w/LED)



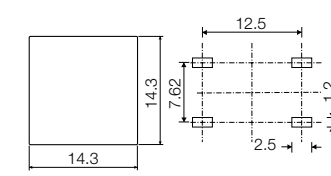
PCB layout
(top view)



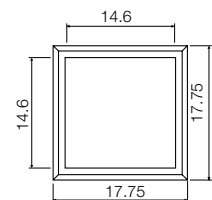
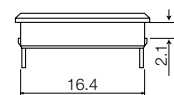
Dimensions (SMD)



PCB layout



Dimensions (Bezel) (Optional)



HOW TO ORDER

3 F	□	□ □	+	1 K 1 6	+	2 K □ □
Switch	Mounting	L 6 low temp. H 9 high temp.		Cap		Bezel
	T through-hole S surface mount			00 blue 02 green 03 grey 04 yellow 06 white 08 red 09 black		03 grey 06 white 08 red 09 black

Standard versions:

3FTL6
3FTH9
3FSH9
3FSH9R

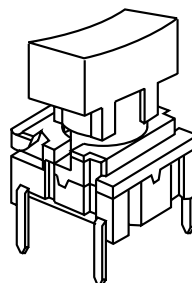
3 F	T	□ □	+	1 K 1 1 1 6	+	2 K □ □
Switch	Mounting	L 6 low temp. H 9 high temp.		Cap transparent		Bezel
	T through-hole					03 grey 06 white 08 red 09 black

Standard versions:

3FTL622
3FTL644
3FTL688

Ordering example: 3FTL688 + 1K1116

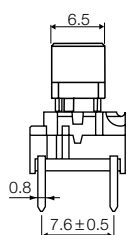
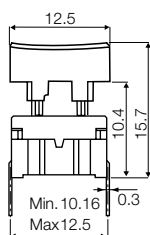
multimec® 3F + 1P/1Q/1R



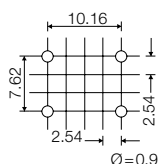
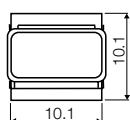
Technical Data:

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C
high temp: -40/+160°C

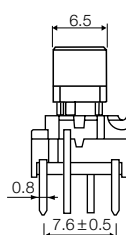
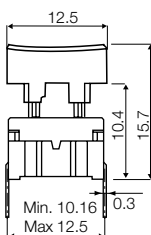
Dimensions (through-hole)



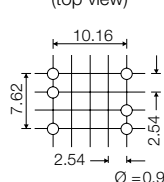
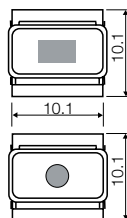
PCB layout



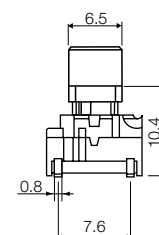
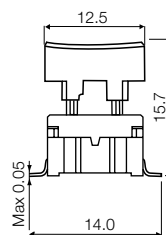
Dimensions (w/LED)



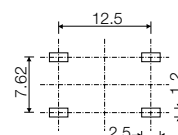
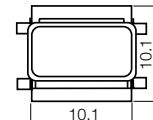
PCB layout (top view)



Dimensions (SMD)



PCB layout



How to order

3 F

Switch



Mounting

T through-hole

S surface mount



L 6 low temp.
H 9 high temp.

+

1 P

Cap



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

Standard versions:

3FTL6
3FTH9
3FSH9
3FSH9R

3 F

Switch

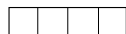


Mounting

T through-hole



L 6 low temp.
H 9 high temp.



LED

00 blue
20 green
40 yellow
80 red
2040 green/yellow
8020 red/green
8040 red/yellow

+



1Q



1R



00 blue
03 grey
08 red
09 black

1

Lens

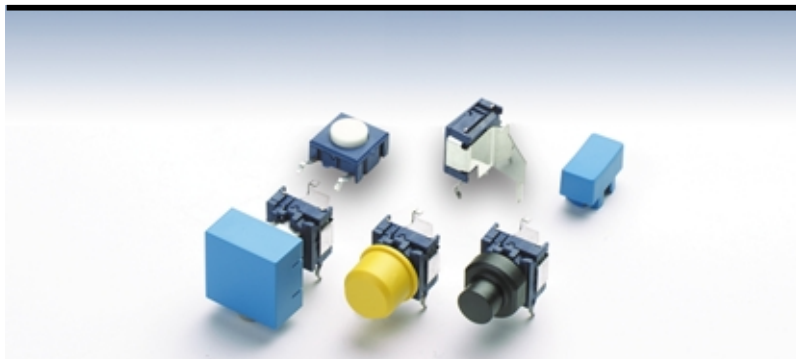
1 transparent

Standard versions:

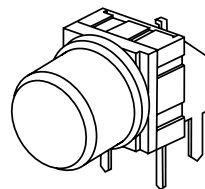
3FTL600
3FTL620
3FTL640
3FTL680
3FTL62040
3FTL68020
3FTL68040

Ordering example: 3 FTL680 + 1Q091

multimec® RAS + 1D/1K/1P/1S

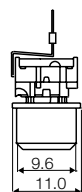
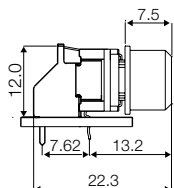
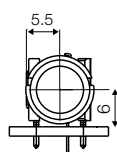


Technical Data:

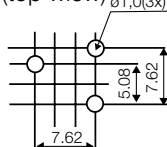


- through-hole only
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C

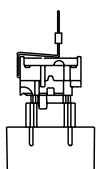
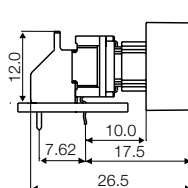
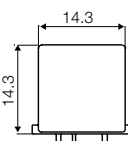
Dimensions 1D



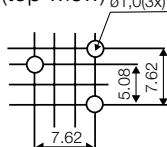
PCB layout (top view)



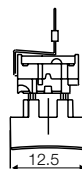
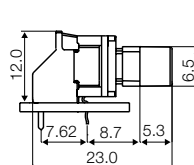
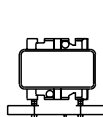
Dimensions 1K



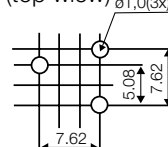
PCB layout (top view)



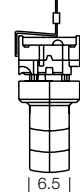
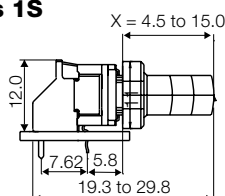
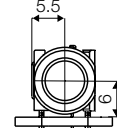
Dimensions 1P



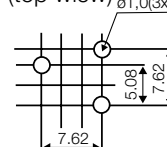
PCB layout (top view)



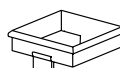
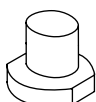
Dimensions 1S



PCB layout (top view)



HOW TO ORDER

3 F	T	L 6	R A S +	1 D	Cap	00 blue	30 ultra blue	50 metal dark blue
Switch	Mounting	L 6 low temp.	Right angle support			02 green	40 dusty blue	53 metal light grey
	T through-hole					03 grey	42 aqua blue	57 metal dark grey
						04 yellow	32 mint green	58 metal bordeaux
						06 white	33 tele grey	
						08 red	34 melon	
						09 black	38 noble red	
				1 P	Cap	00 blue		
						03 grey		
						08 red		
						09 black		
				1 K 1 6 + 2 K	Cap	00 blue	Bezel	03 grey
						02 green		06 white
						03 grey		08 red
						04 yellow		09 black
						06 white		
						08 red		
						09 black		
				1 S 0 9 - .	Cap black	H	X *	
						16.0	8.5	
						19.0	11.5	
						22.5	15.0	

Standard versions:

3FTL6RAS, 3CTL6RAS,

*Any cap height X from 8.5 to 15.0 mm is available. Please order 1S09-H, where H = X+7.5 mm
Min. order Qty for custom heights is 2.000 pcs. A start-up charge will apply.
3CTL6 also available as right angle switch 3CTL6RAS. Please see multimec basic switch modules.

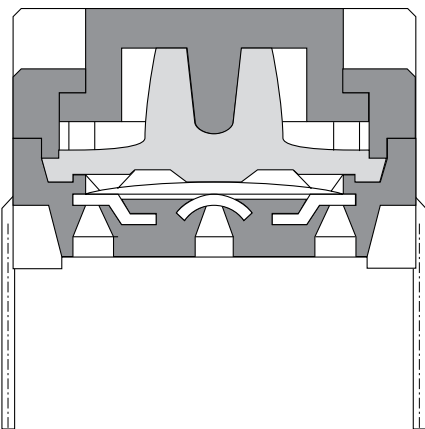
Ordering example: 3FTL6RAS + 1K0016 + 2K03

Through-hole Version						
3A		3C	3E	3F		
For 1A/1B/1M	w/LED for 1C/1H			For 1D/1K/1N/1P/1S/1T/1U/1V/1X/1GA/1GC	w/LED for 1E/1F/1N/1Q/1R/1S/1X	w/LED for 1K1116/1T/1U/1V
Standard Versions						
3ATL6 3ATH9	3ATL600/20/40/80	3CTL6/3CTL9 3CTH9	3ETL9-H* 3ETH9-H*	3FTL6 3FTH9	3FTL600/20/40/80/ 2040/8020/8040	3FTL623/44/88
* 3E available in 6 standard heights: 08.0, 09.5, 10.4, 11.0, 12.0, 15.0 mm Other heights between 08.0 and 15.0 mm are available upon request						
Specials: Gold contacts, quiet version and actuation force other than 3.0N						

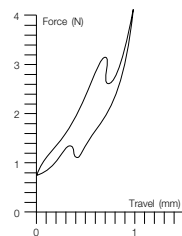
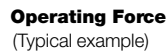
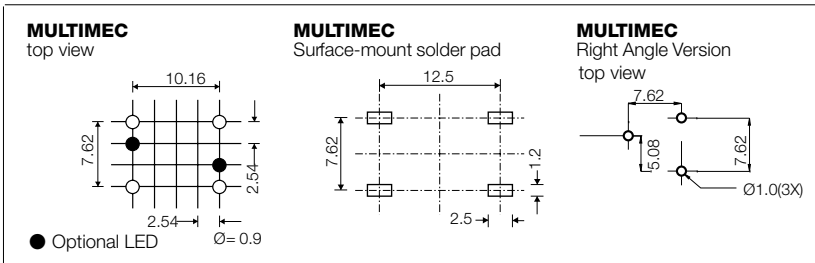
Surface Mount Versions			
3A	3C	3E	3F
3ASH9/3ASH9R	3CSH9/3CSH9R	3ESH9/3ESH9R	3FSH9 / 3FSH9R
For 1A/1B/1M			For 1D/1K/1N/1P/1S/1T/ 1U/1V/1X/1GA/1GC

Right Angle Versions	
3C	3F
3CTL6RAS	3FTL6RAS
	For 1D/1K/1P/1S

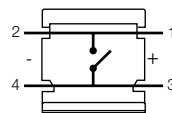
multimec® Cross Section



Recommended PCB layout



Circuit diagram



DIMENSIONS (mm) Unless otherwise specified, all tolerances ± 0.2

multimec® technical specifications

	Low Temperature Versions		High Temperature Versions	
	Silver	Gold	Silver	Gold
Electrical Specifications				
Contact resistance	<30 m Ω - typically 10m Ω			
Insulation resistance	>10M Ω			
Recommended load	0.5-50mA 24VDC	0.5μ-50mA 24VDC	0.5-50mA 24VDC	0.5μ-50mA 24VDC
Contact bounce	<2mS - typically 0.5mS			
Mechanical Specifications				
Standard actuation force (switch)	3.0N typ.			
Max. actuation force without cap	100N for 10 sec.			
Key travel (switch)	1 mm			
Life time (switch)	>10.000.000 cycles			
Temperature Range				
Working temperature	Min. -40°C Max. +115°C		Min. -40°C Max. +160°C	
Storage temperature	Min. -40°C Max. +115°C		Min. -40°C Max. +160°C	
Soldering IEC 68-2-20	Wave -max. 260°C for max. 10 sec., please refer to usage guidelines		Infrared, vapour phase, wave - max. 260°C for max. 30 sec.	
	Soldering iron - max. 350°C for max. 3 sec. Flux tight.		Soldering iron - max. 350°C for max. 3 sec. Flux tight.	
Environmental Endurance IEC-68-2-3				
Temperature	+40°C			
Humidity	93% RH			
Duration	56 Days			
Temperature Cycling IEC 68-2-14				
Temperature limit	Min. -55°C - Max. +85°C			
Number of cycles	200			
Exposure time at each temperature	10 min.			
Recovery time before measurements	16 hrs.			
Sealing IEC 529	IP-67			
Cleaning	Standard methods such as freon and water			
Material Specifications - Switches				
Housing	PBT UL94VO		PPS UL94VO	
Actuator	PBT UL94VO		PPS UL94VO	
Sealing + spring	Silicone rubber			
Contact spring	Stainless steel + 3μAg	Stainless steel + 3μAg + 1μAu	Stainless steel + 3μAg	Stainless steel + 3μAg + 1μAu
Fixed Contacts	SnCu + 2μNI + 3μAg	SnCu + 2μNI + 3μAg+1μAu	SnCu + 2μNI + 3μAg	SnCu + 2μNI + 3μAg +1μAu
Terminals	SnCu + 2μNI + 3μSnPb	SnCu + 2μNI + 3μSnPb	SnCu + 2μNI + 3μSnPb	SnCu + 2μNI + 3μSnPb
Material Specifications - Caps & Bezels				
Material	Parts	Temp limit	UL rating	
ABS Standard	Standard parts except the below mentioned	Max 65°C	UL94HB	
Polycarbonate	All lenses	Max. 85°C	UL94V1	
LCP	Actuator of 3E	Max. 160°C	UL94VO	
PPS	1S, 2S	Max. 160°C	UL94VO	
Polyamide	Actuator of Varimec, 1GA/ 1GC	Max. 160°C	UL94VO	
Legends Adhesion	ISO Class.: 1/ ASTM Class.: 4B			
	DIN EN ISO 2409			

Specifications are subject to change without notice