

Toggle switches



Section A

ZL	Tiny, metal bushing	A 3
SMT TL	Tiny, SMT, washable	A 5
TL	Tiny, washable	A 7
S and SF	Miniature, washable	A 13
5000	Miniature, the widest range (includes 55000)	A 22
21000N	Miniature, low profile	A 55
10600	Professional miniature, bushing Ø 10 (.393)	A 60
11000	Professional miniature, bushing Ø 6.35 (1/4)	A 63
12000	Professional miniature, bushing Ø 11.9 (15/32)	A 71
12000X778	High performance miniature, bushing Ø 11.9 (15/32)	A 78
1000	Industrial, metal lever, economy range	A 85
1500	Industrial, insulated lever and bushing	A 88
1600/1700	Industrial, metal lever	A 91
4600/4400	Industrial, insulated or metal lever	A 94
600H	Industrial, metal lever	A 100
600NH	Industrial, insulated lever	A 105
660	Industrial, metal lever, four pole	A 106
3500	High performance industrial, environmentally sealed	A 108
3600NF	Industrial, sealed for outdoor applications	A 113
6000	Industrial for military applications	A 116

Selection guide

ermec@ermec.com

Toggle switches



Series	ZL	SMT TL	TL	S and SF	5000	21000N	10600	11000	12000	12000X778
Page	A-3	A-5	A-7	A-13	A-22	A-55	A-60	A-63	A-71	A-78
Poles	1	1	1,2	1,2	1,2,3,4	1,2	1,2	1,2,3,4	2,3,4	2,3,4
Maximum current	500mA 48VDC	0,4VA 20V AC/DC	0,5A 48V AC/DC	2A 250VAC 4A 30VDC	3A 250VAC 4A 30VDC	2A 250VAC 4A 30VDC	2A 250VAC 3A 24VDC	2A 250VAC 4A 30VDC	2A 250VAC 4A 30VDC	2A 250VAC 4A 30VDC
Bushing dimension										
Ø4,83 (10-48)	X									
Ø6 (.236)					X					
Ø6,35 (1/4)				X	X	X		X		
Ø10 (.393)							X			
Ø11,9 (15/32)					X				X	X
Mounting options										
Horizontal SMT		X								
Vertical right angle SMT		X								
Vertical - Through hole	X		X	X	X			X	X	X
Horizontal - Through hole			X	X	X	X		X		
Vert. right angle Through hole			X	X	X					
Panel	X			X	X	X	X	X	X	X
Terminal options										
PCB	X	X	X	X	X	X		X	X	X
Solder lugs	X			X	X		X	X	X	X
Quick-connect					X					
Wire wrap			X		X					
Sealing	No	Process sealed	Process sealed	Process sealed	Optional	No	No	Optional	Optional	IP67



Series	1000	1500	1600/1700	4600/4400	600H	600NH	660	3500	3600NF	6000
Page	A-85	A-88	A-91	A-94	A-100	A-105	A-106	A-108	A-113	A-116
Poles	1	1	1	1,2,3	1,2,3	1,2,3	4	1,2	1,2	1,2,3,4
Maximum current	3A 250VAC 6A 30VDC	6A 250VAC 5A 12VDC	4A 30VDC	4A 250VAC	15A 250VAC 10A 24VDC	15A 250VAC 10A 24VDC	5A 250VAC 10A 30VDC	16A 250VAC 15A 32VDC	6A 250VAC 15A 28VDC	5A 250VAC 6,5A 30VDC
Bushing dimension										
Ø11,9 (15/32)								X		X
Ø12 (.472)	X	X	X	X	X	X	X		X	
Mounting options										
Vertical Through hole				X						
Panel	X	X	X	X	X	X	X	X	X	X
Terminal options										
PCB				X						
Solder lugs	X	X	X	X	X	X	X	X	X	X
Quick-connect	X	X	X	X	X	X	X	X	X	X
Screw	X		X		X	X	X	X	X	X
Sealing	No	No	No	No	Optional	No	Optional	IP67, IP69K	Yes	Optional



www.ermec.com



□ Ø 4,83 mm threaded bushing

□ Solder lug and straight PC terminals

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - gold plated contacts : 0,4VA 20V max. AC or DC
 - silver plated contacts : 0,5A 48V max. AC or DC
- Minimum load : 10mA 50mV - 10µA 5VDC
- Contact resistance : 20 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength: 1.000 Vrms 50 Hz min. between terminals and frame
500 Vrms 50 Hz min. between terminals
- Electrical life at full load :

Contacts	Number of cycles	
	2 positions	3 positions
Gold plated	60.000	30.000
Silver plated	20.000	10.000

GENERAL SPECIFICATIONS

- Strength of terminals : pull-out force 10N max.
- Torque : 1 Nm max. applied between the 2 nuts
- Max. panel thickness : 1,5 mm (.059) with 2 nuts
- Operating temperature : -30°C to +85°C
- Moisture : 21 days 95 % (NFC 20-603 - IEC 8-2-3)

MATERIALS

- Case : thermoplastic UL94-V0
- Actuator : brass, nickel plated
- Bushing : zamac, tin plated
- Contacts and terminals :
 - 0 : brass, gold plated (standard)
 - 1 : brass, silver plated
 - 3 : brass, gold plated (1,27 micron gold)
- Terminal seal : epoxy

SOLDERING

- Hand soldering : 280°C max. for 5 seconds max.
- Wave soldering : 260°C max. for 5 seconds max.

ZL																																											
SERIES	Number of poles	Electrical functions	Terminals	Contact and terminal materials	Bushings																																						
3	Single pole	<table><tr><td>1</td><td>ON</td><td>-</td><td>OFF</td></tr><tr><td>6</td><td>ON</td><td>-</td><td>ON</td></tr><tr><td>9</td><td>ON</td><td>OFF</td><td>ON</td></tr><tr><td>7</td><td>MOM</td><td>OFF</td><td>MOM</td></tr><tr><td>8</td><td>ON</td><td>OFF</td><td>MOM</td></tr><tr><td>2</td><td>ON</td><td>-</td><td>MOM</td></tr></table>	1	ON	-	OFF	6	ON	-	ON	9	ON	OFF	ON	7	MOM	OFF	MOM	8	ON	OFF	MOM	2	ON	-	MOM	<table><tr><td>S0</td><td>Solder lug</td></tr><tr><td>P0</td><td>Straight PC</td></tr></table>	S0	Solder lug	P0	Straight PC	<table><tr><td>0</td><td>Brass, gold plated</td></tr><tr><td>1</td><td>Brass, silver plated</td></tr><tr><td>3</td><td>Brass, gold plated (1,27 micron gold)</td></tr></table>	0	Brass, gold plated	1	Brass, silver plated	3	Brass, gold plated (1,27 micron gold)	<table><tr><td>01</td><td>Threaded, with flat</td></tr><tr><td>02</td><td>Threaded, with keyway</td></tr></table>	01	Threaded, with flat	02	Threaded, with keyway
1	ON	-	OFF																																								
6	ON	-	ON																																								
9	ON	OFF	ON																																								
7	MOM	OFF	MOM																																								
8	ON	OFF	MOM																																								
2	ON	-	MOM																																								
S0	Solder lug																																										
P0	Straight PC																																										
0	Brass, gold plated																																										
1	Brass, silver plated																																										
3	Brass, gold plated (1,27 micron gold)																																										
01	Threaded, with flat																																										
02	Threaded, with keyway																																										

Dimensions : First dimensions are in mm while inches are shown as bracketed numbers.



Packaging unit : 100 pieces



Mounting accessories : Standard hardware supplied with all models : 2 hex nuts 7 mm (.275) across flat P/N U5731, 1 locking ring P/N U5821 (with keyway) or U5831 (with flat) and 1 lockwasher P/N U5841.



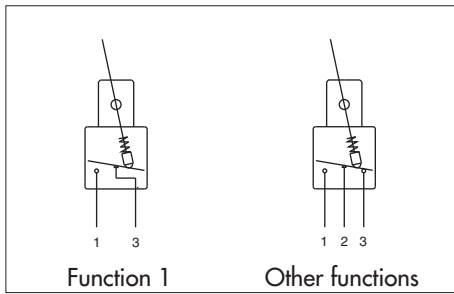
www.ermec.com

ZL series

ermec@ermec.com

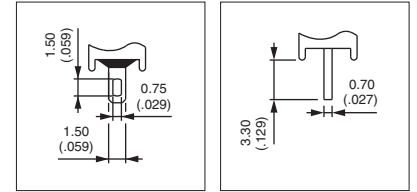
Tiny toggle switches - metal bushing

A



- Single pole
- Gold plated or silver plated contacts
- Epoxy sealed terminals

Other actuator lengths available on request.



MODEL STRUCTURE



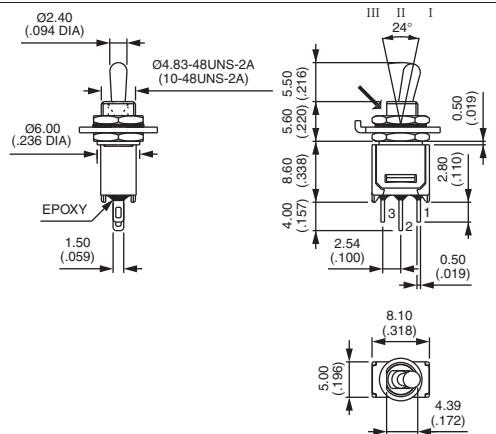
Shown with threaded bushing code 01

Solder lug terminals : ZL..S0



ZL31S0
ZL36S0
ZL39S0
ZL37S0
ZL38S0
ZL32S0

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
MOM	OFF	ON
MOM	-	ON



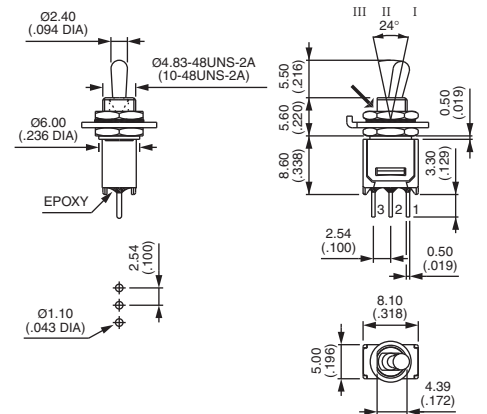
→ Flat

Straight PC terminals : ZL..P0



ZL31P0
ZL36P0
ZL39P0
ZL37P0
ZL38P0
ZL32P0

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
MOM	OFF	ON
MOM	-	ON



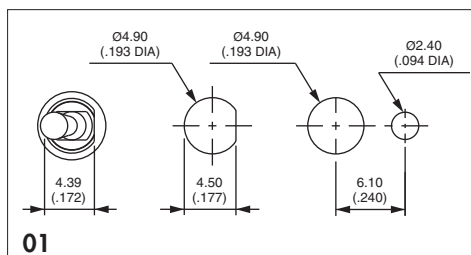
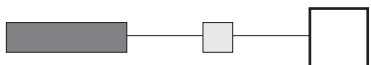
→ Flat

CONTACT & TERMINAL MATERIALS



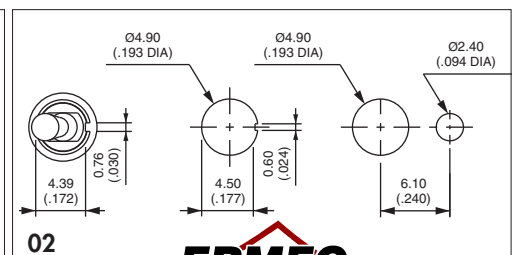
0 : Brass, gold plated (standard) - 1 : Brass, silver plated - 3 : Brass, gold plated (1,27μ gold)

BUSHINGS



01

Threaded, with flat



02

Threaded, with keyway

ERMEC
www.ermec.com

www.ermec.com

SMT TL series

Surface mount tiny washable toggle switches

Distinctive features and specifications



- ☐ Entirely designed for surface mount
- ☐ Tape and reel packaging
- ☐ Reflow solderable
 - High temperature plastic materials
 - Tin plated ground plate
 - Terminal coating : tin alloy over nickel plating
 - Terminals turned to the outside, preventing the shadow effect in infrared soldering and permitting visual inspection of solder joints
 - Distance between case and circuit : 0,55 mm (.021)
 - End stackable with 10,16 mm (.40) pitch
 - Available with positioning pins to ensure switch orientation during the reflow process and increasing switch mechanical resistance
- ☐ Protected against electrostatic discharges (ESD) up to 10 KV
- ☐ Washable

Construction withstands cleaning processes, including hot water under pressure

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 0,4VA 20V max. AC or DC
- Minimum load : 10mA 50mV or 10µA 5VDC
- Initial contact resistance : 20 mΩ max
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 1.000 Vrms. 50 Hz min. between terminals and frame
- 500 Vrms. 50 Hz min. between terminals
- Electrical life at full load :
 - 2 position switches : 60.000 cycles
 - 3 position switches : 30.000 cycles
- Static resistance : 10 KV (Schaffner equipment)

GENERAL SPECIFICATIONS

- Operating temperature : -40°C to +85°C
- Moisture resistance : 21 days per IEC 512-6 test 11c
- Vibration resistance : 10-500 Hz / 10 g per IEC 512-4 test 6d
- Shock resistance : 50 g per IEC 512-4 test 6c

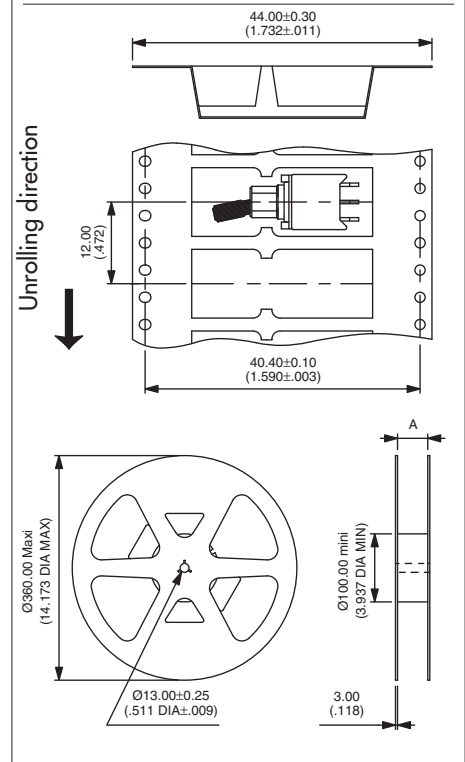
MATERIALS

- Case : high temperature plastic material UL94-V0
- Actuator : brass, nickel plated, with high temperature UL94-V0 plastic cap
- Ground plate and positioning pins : steel, tin plated
- Contacts : brass, gold plated
- Terminals : brass, with pure tin plating over nickel barrier

SOLDERING AND CLEANING

- Reflow soldering : infrared, vapor phase or infrared convection
- Washable per IEA-RS448-2 :
 - water + detergent - preferred
 - solvents
- Further information on reflow soldering : see end of catalogue.

PACKAGING



Tape width	24.00 (.944)	44.00 (1.732)
Reel (dimension A)	24.40+2.00/0.00 (.960+.078/.000)	44.40+2.00/0.00 (1.748+.078/.000)

Standard packaging unit : 700 pieces
 Tape meeting international standard IEC - Publication 286-3 (EIA481A)
 Start leader : 400 mm min.

Dimensions : First dimensions are in mm while inches are shown as bracketted numbers.



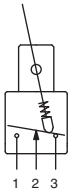
www.ermec.com

SMT TL series

Surface mount tiny washable toggle switches

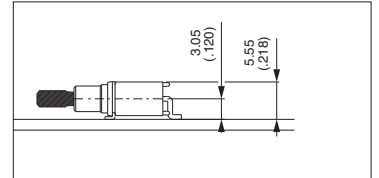
ermec@ermec.com

A



- With or without positioning pins
- Single pole

Also available for vertical mounting. On request.

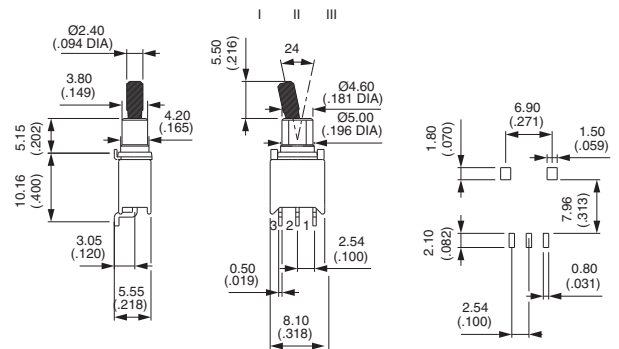


Without positioning pins



TL36WS84000
TL39WS84000
TL37WS84000
TL38WS84000
TL32WS84000

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

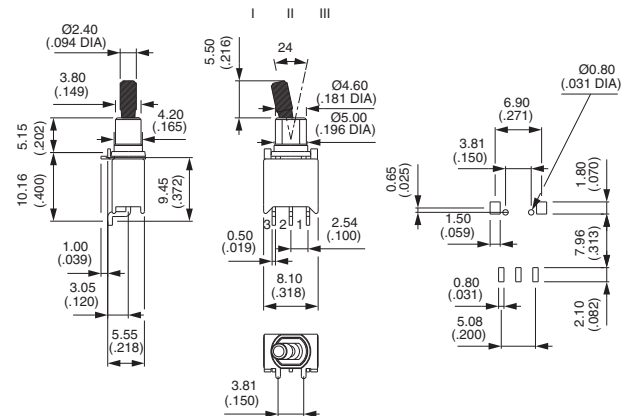


With positioning pins



TL36WS84065
TL39WS84065
TL37WS84065
TL38WS84065
TL32WS84065

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



www.ermec.com



❑ Process sealed

- Single piece case
- O-ring seal between actuator and bushing
- Epoxy sealed terminals

❑ Wide variety of contact materials

❑ Same PCB layout as TP, TR and TG tiny switches

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - gold plated contacts : 0,4VA 20V max. AC or DC
 - silver plated contacts : 0,5A 48V max. AC or DC
- Minimum load : 10mA 50mV - 10µA 5VDC
- Contact resistance : 20 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals and frame
 - 500 Vrms 50 Hz min. between terminals
- Electrical life at full load :

Contacts	Number of cycles	
	2 positions	3 positions
Gold plated	60.000	30.000
Silver plated	20.000	10.000

MATERIALS

- Case : PBT
- Actuator : brass, nickel plated
- Contacts and terminals :
 - 0 : brass, gold plated
 - 1 : brass, silver plated
 - 3 : brass, gold plated (1,27 micron gold)
 - 8 : contact brass, gold plated + tin plated terminals
 - 9 : contact brass, gold plated (1,27 micron gold) + tin plated terminals
- Terminal seal : epoxy

GENERAL SPECIFICATIONS

- Strength of terminals : pull-out force - 10N max.
- Operating temperature : -30°C to +85°C
- Moisture : 21 days 95 % (NFC 20-603 - IEC 68-2-3)
- Cleaning : solvents or water + detergent
- Wave soldering : 260°C - 5 sec.

TL series

Tiny washable toggle switches

Overview

ermec@ermec.com

MODEL
STRUCTURE

TL

SERIES

Number of poles

- 3 Single pole
- 4 Double pole

Electrical functions

6	ON	-	ON
9	ON	OFF	ON
7	MOM	OFF	MOM
8	ON	OFF	MOM
2	ON	-	MOM

Terminals

P0	Straight PC
Y0	Bracket mounting
W0	Right angle, horizontal mounting
WW	Right angle, vertical mounting
MW	Wire-wrap

OPTIONS

Contact and terminal materials

- 0 Brass, gold plated
- 1 Brass, silver plated
- 3 Brass, gold plated (1,27 micron gold)
- 8 Contact brass, gold plated + tin plated terminals
- 9 Contact brass, gold plated (1,27 micron gold) + tin plated terminals (SP only)

Lever and case styles

Lever styles :

- Short - standard
- Medium
- Long
- Cylindrical

Codes according to lever finish and case colours : see "options" pages.

Insulated levers available.

Special options

- 00 No special requirement
- 07 Trimmed terminals - length 3,2 (.125)
- 08 Extended terminals
- 18 Switch without ground plate
- 20 Ground plate with 2 pins
- 25 Trimmed terminals - length 5 (.196)
- 30 Wire-wrap on bracket mounting models
- 50 Crimped ground plate pins

ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



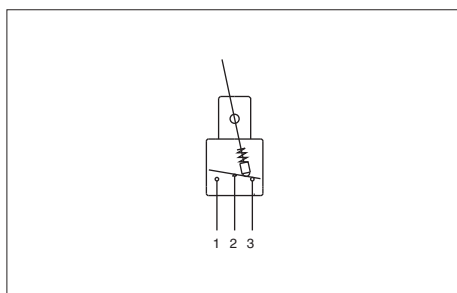
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.



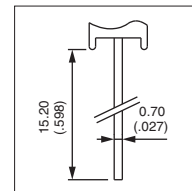
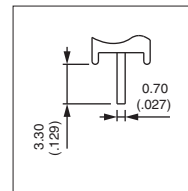
Packaging unit : 100 pieces, except for models with WW terminals (50 pieces)



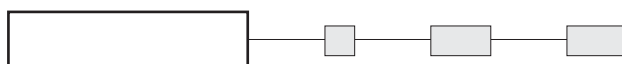
www.ermec.com



- Straight PC, right angle or wire-wrap terminals
- 1 and 2 pole configurations



MODEL
STRUCTURE



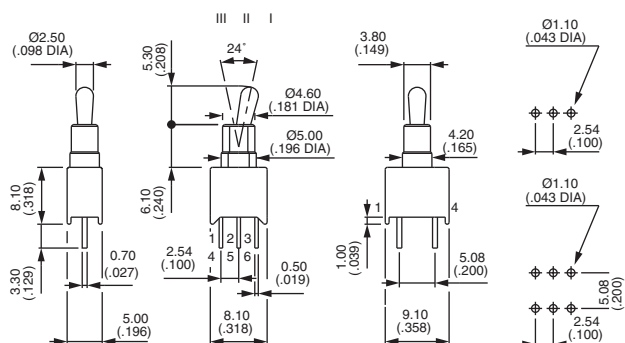
Shown with standard lever

Straight PC terminals : TL..P0



Single pole	Double pole
TL36P0	TL46P0
TL39P0	TL49P0
TL37P0	TL47P0
TL38P0	TL48P0
TL32P0	TL42P0

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

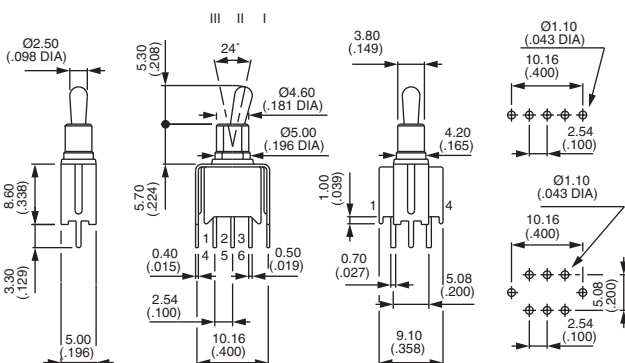


Straight PC terminals - bracket mounting : TL..Y0



Single pole	Double pole
TL36Y0	TL46Y0
TL39Y0	TL49Y0
TL37Y0	TL47Y0
TL38Y0	TL48Y0
TL32Y0	TL42Y0

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

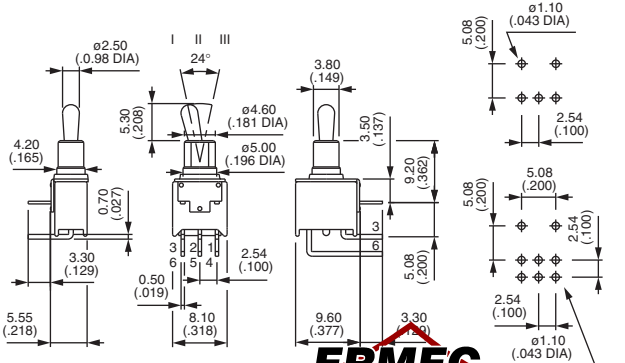


Right angle terminals - horizontal mounting : TL..W0



Single pole	Double pole
TL36W0	TL46W0
TL39W0	TL49W0
TL37W0	TL47W0
TL38W0	TL48W0
TL32W0	TL42W0

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



ERMEC
www.ermec.com

www.ermec.com

TL series

Tiny washable toggle switches

ermec@ermec.com

STRUCTURE

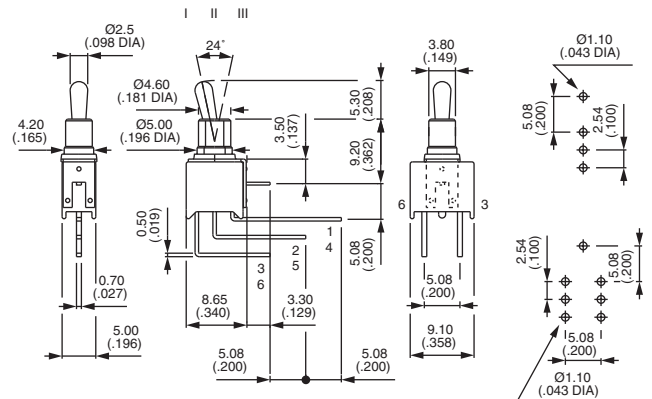
Right angle terminals - vertical mounting : TL..WW



Single pole Double pole

TL36WW TL46WW
TL39WW TL49WW
TL37WW TL47WW
TL38WW* TL48WW*
TL32WW* TL42WW*

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



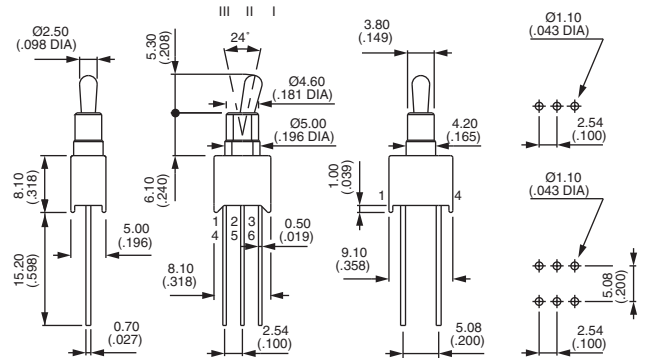
Wire-wrap terminals : TL..MW



Single pole Double pole

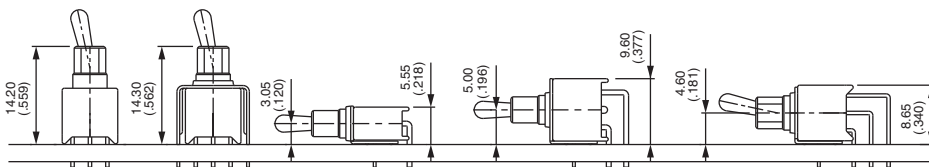
TL36MW TL46MW
TL39MW TL49MW
TL37MW TL47MW
TL38MW TL48MW
TL32MW TL42MW

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



* Functions 2 and 8 : reversed connection available. Consult factory.

PCB MOUNTING



www.ermec.com

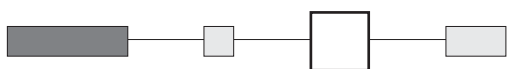


CONTACT AND TERMINAL MATERIALS



- 0 Brass, gold plated
- 1 Brass, silver plated
- 3 Brass, gold plated (1,27 micron gold)
- 8 Contact brass, gold plated + tin plated terminals
- 9 Contact brass, gold plated (1,27 micron gold) + tin plated terminals (single pole only)

LEVER AND CASE STYLES



Short - standard			
LEVER \ CASE	Blue	Black	
Nickel plated	00	50	
Matt black	01	51	

Long			
LEVER \ CASE	Blue	Black	
Nickel plated	02	52	
Matt black	03	53	

Medium			
LEVER \ CASE	Blue	Black	
Nickel plated	04	54	
Matt black	05	55	

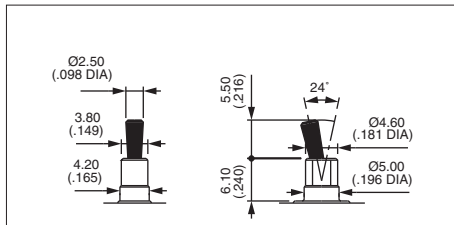
Cylindrical			
LEVER \ CASE	Blue	Black	
Nickel plated	-	56	

TL series

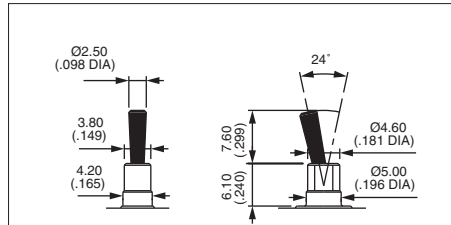
Tiny washable toggle switches

LEVER AND CASE STYLES (continued)

Insulated levers - Protected against electrostatic discharges (ESD) up to 10KV. Black colour.

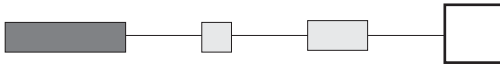


40 With blue case
94 With black case

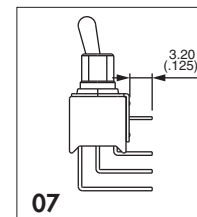


30 With blue case
90 With black case

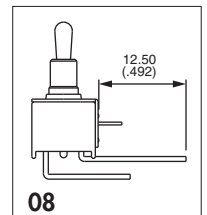
SPECIAL OPTIONS



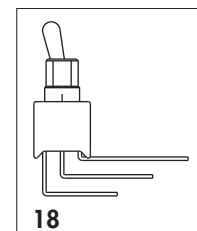
- 00** No special requirement
- 07** **Trimmed terminals** - length 3,2 mm (.125) for TL..WW models only
- 08** **Extended terminals** for TL..W0 models only
- 18** Switch **without ground plate** for TL..WW models only
- 20** **Ground plate with 2 pins** for TL..WW models only
- 25** **Trimmed terminals** - length 5 mm (.196) for all models, except TL..WW
- 30** **Wire-wrap terminals** on models with mounting **bracket**
- 50** **Crimped ground plate pins.**
Retains switch on PCB during handling and wave soldering.
For models TL..W0, TL..WW and TL..Y0 single and double pole.



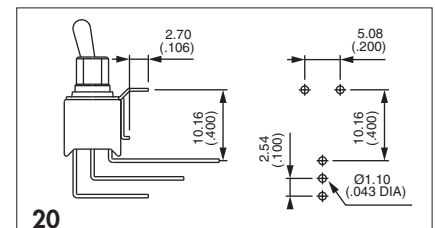
07



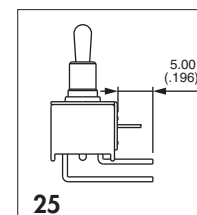
08



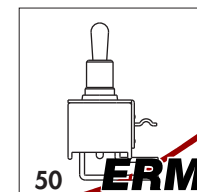
18



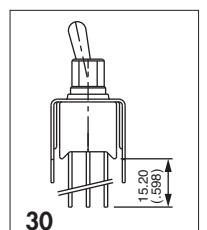
20



25



30



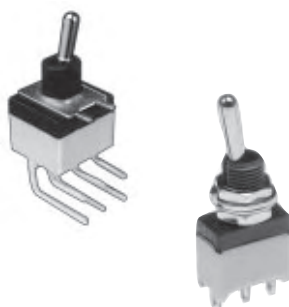
50



S and SF series

Washable miniature toggle switches

Distinctive features and specifications



☐ Sealed

- Secure assembly of the two case parts
- Internally sealed bushing
- Epoxy sealed terminals

☐ Process compatible (S series)

- Wave solderable
- Washable

☐ Optional ESD protection

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A or 1) : 2A 250VAC - 5A 125VAC - 4A 30VDC
 - gold plated brass contacts (CD or 0) : 0,4VA 20VAC or DC
 - gold plated silver contacts (AD or 2) : 2A 250VAC - 5A 125VAC - 4A 30VDC (300mA 30VDC for gold plating)
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min.
- Dielectric strength : 1.000 Vrms 50 Hz min.
- Electrical life at full load :

Contacts	Number of cycles	
	2 positions	3 positions
A or 1	40.000	40.000
CD or 0	100.000	50.000
AD or 2	40.000	40.000

MATERIALS

- Case and cover : UL94-VO, polyamide, glass filled or PES
- Actuator : brass, nickel plated
- Contacts
 - CD or 0** : brass, gold plated
 - A or 1** : silver
 - AD or 2** : silver, gold plated
- Terminal seal : epoxy

GENERAL SPECIFICATIONS

- Mechanical strength :
Terminals are strengthened by a bracket or a ground plate ensuring the rigidity of the switch on the board.
Actuator strength is 10N max.
- Operating temperature : -20°C to +85°C
- Storage temperature : -40°C to +85°C
- Moisture :
The insulating materials employed and the complete seal permit the switches to withstand a 56 days moisture test (IEC 68-2-3).
- Soldering - thermal shock (S series only) :
The switches are especially designed for flow soldering at 260°C during 5 seconds owing to high temperature polymer parts.
- Iron soldering (SF series) : 300°C 5 sec. max.
- Solderability : The switches are tested at 235°C according to IEC 68-2-20 after accelerated aging.

AGENCY APPROVALS



CECC 96201-006

Availability : consult factory for details of approved models.

Marking : to order switches marked UL or CECC, complete appropriate box of ordering format.



www.ermec.com

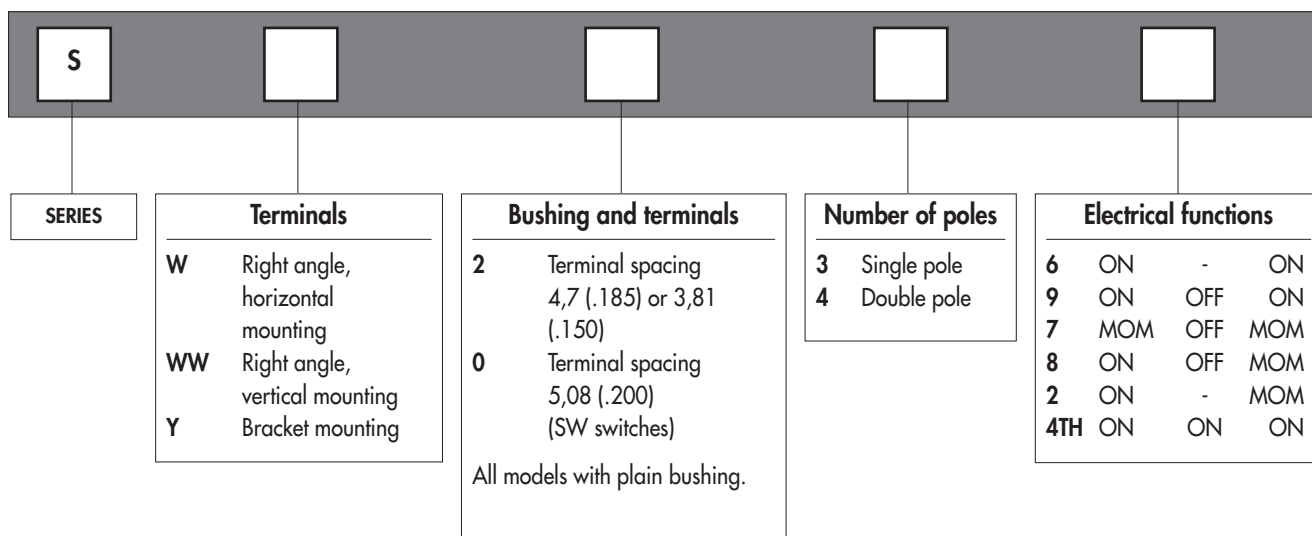
S series

ermec@ermec.com

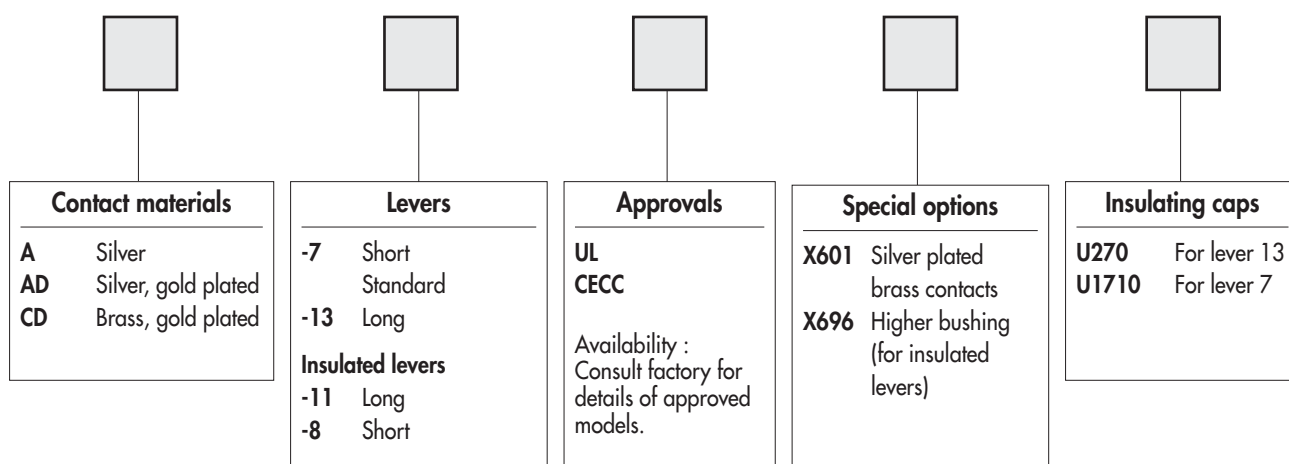
Washable toggle switches - plain bushing

Overview

MODEL
STRUCTURE



OPTIONS



ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as above

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



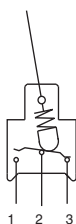
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.



Packaging unit : 50 or 25 pieces depending on model.

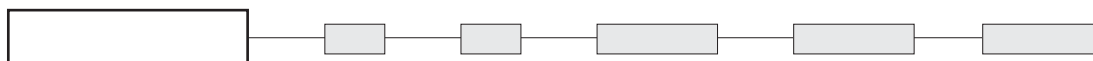


www.ermec.com



- Straight PC or right angle terminals
- Terminal spacing 4,7 (.185) or 5,08 (.200) on SW switches
- 1 and 2 pole configurations

MODEL STRUCTURE



Shown with lever (-7)

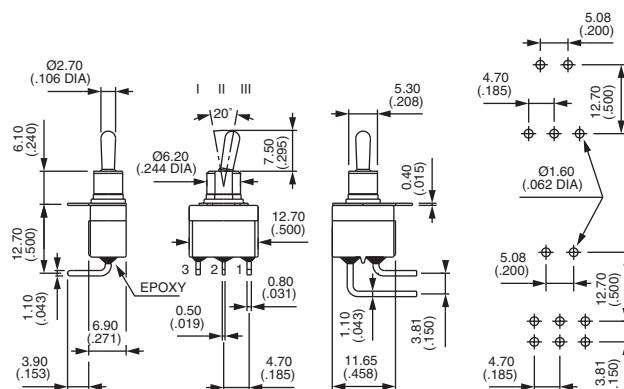
Right angle terminals - horizontal - spacing 4,7 (.185)



Single pole Double pole

SW236 SW246
SW239 SW249
SW237 SW247
SW238 SW248
SW232 SW242
SW244TH*

III	II	I
2-3		2-1
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON



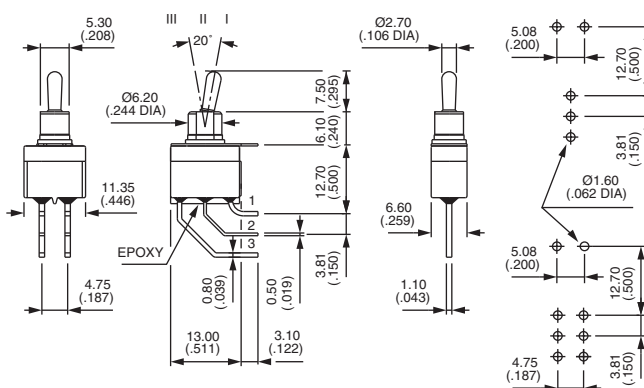
Right angle terminals - vertical



Single pole Double pole

SWW236 SWW246
SWW239 SWW249
SWW237 SWW247
SWW238 SWW248**
SWW232 SWW242**
SWW244TH*

I	II	III
2-3		2-1
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON



Bracket mounting

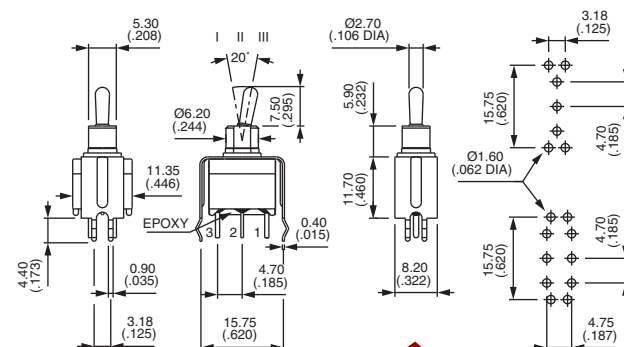


Single pole Double pole

SY236 SY246
SY239 SY249
SY237 SY247
SY238 SY248
SY232 SY242
SY244TH*

III	II	I
2-3		2-1
5-6		4-5

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON



* Function 4 : SP in DP case - TH connection, see end of catalogue.

** Functions 2 and 8 : reversed connection available. Consult factory.



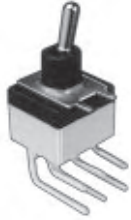
S series

Washable toggle switches - plain bushing

ermec@ermec.com

STRUCTURE

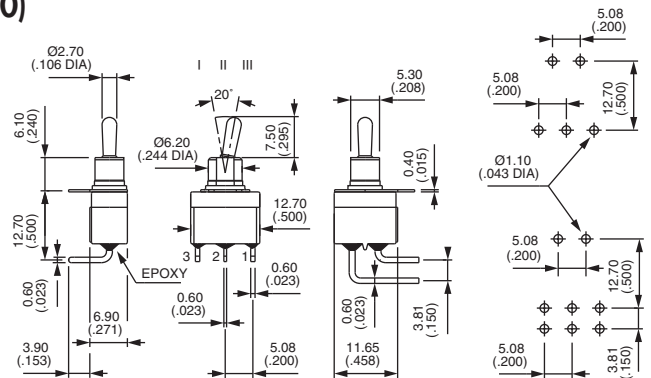
Right angle terminals - horizontal - spacing 5,08 (.200)



Single pole Double pole

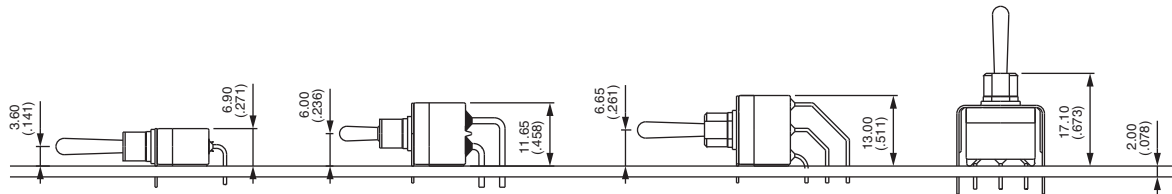
SW036 SW046
SW039 SW049
SW037 SW047
SW038 SW048
SW032 SW042
SW044TH*

III	II	I
2-3		2-1
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON



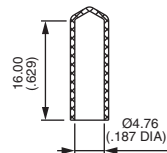
* Function 4 : SP in DP case, see end of catalogue.

PCB MOUNTING



CAP FOR PCB PROCESSING

Provide additional protection during PCB processing.
Supplied mounted on the switch or separately.
Material : vinyl



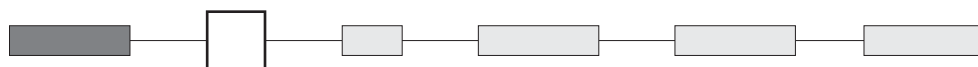
U3012



www.ermec.com

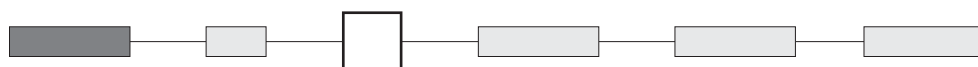


CONTACT MATERIALS

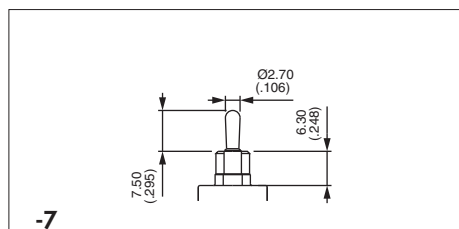


A	Silver
AD	Silver, gold plated
CD	Brass, gold plated

LEVERS

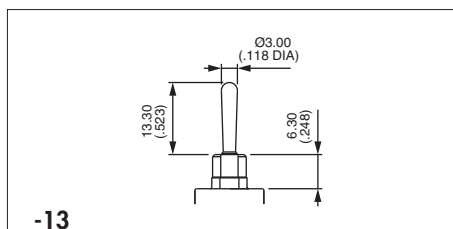


Dash compulsory before lever code.



-7

Standard



-13

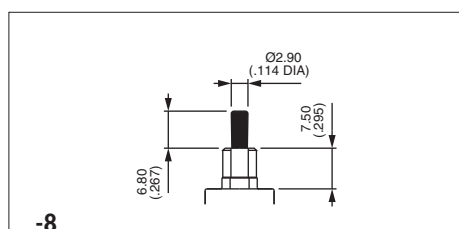
Long



If actuator not specified, we supply former default option -13.

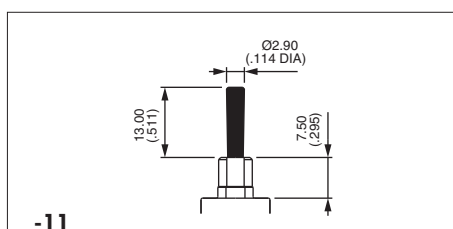
Insulated levers

Protected against electrostatic discharges (ESD) up to 12 KV. Black colour.



-8

Short



-11

Long



To combine with option X696.

SPECIAL OPTIONS



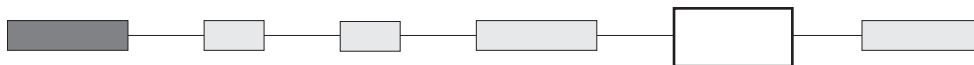
X601 Silver plated brass contacts
Lower rating - Minimum quantity : 5.000 pieces per model and shipment.

X696 Higher bushing 7,50 (.295). Compulsory for insulated levers 11 and 8.

S series

Washable toggle switches - plain bushing

AGENCY APPROVALS

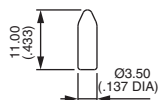
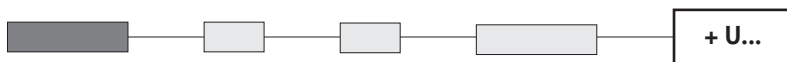


UL
CECC

Availability : consult factory for details of approved models.

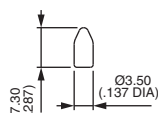
Marking : to order switches marked UL or CECC, please complete above box with desired approvals.
Blank : no agency approval required.

INSULATING CAPS



U270

For lever 13



U1710

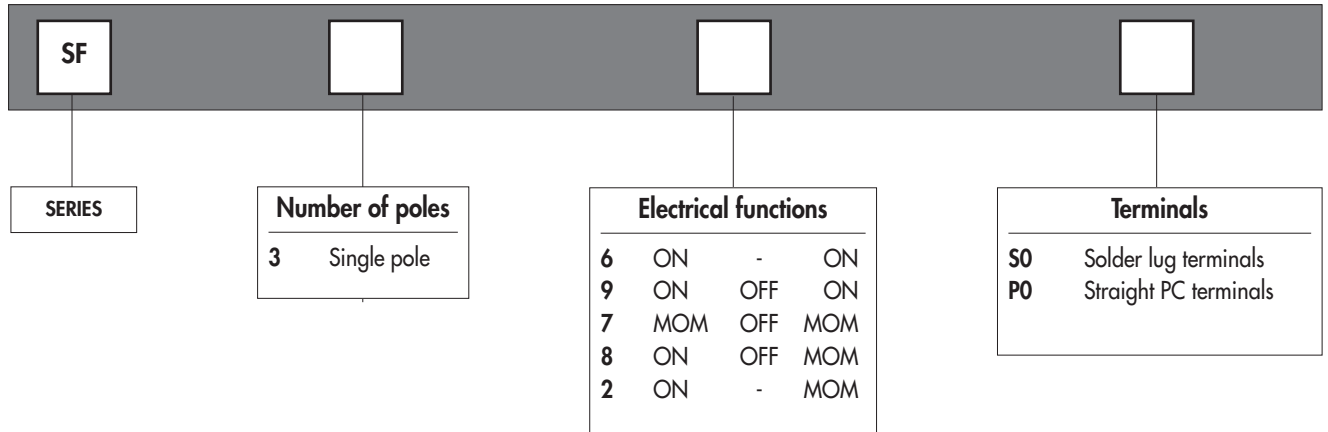
For lever 7

Cap colours

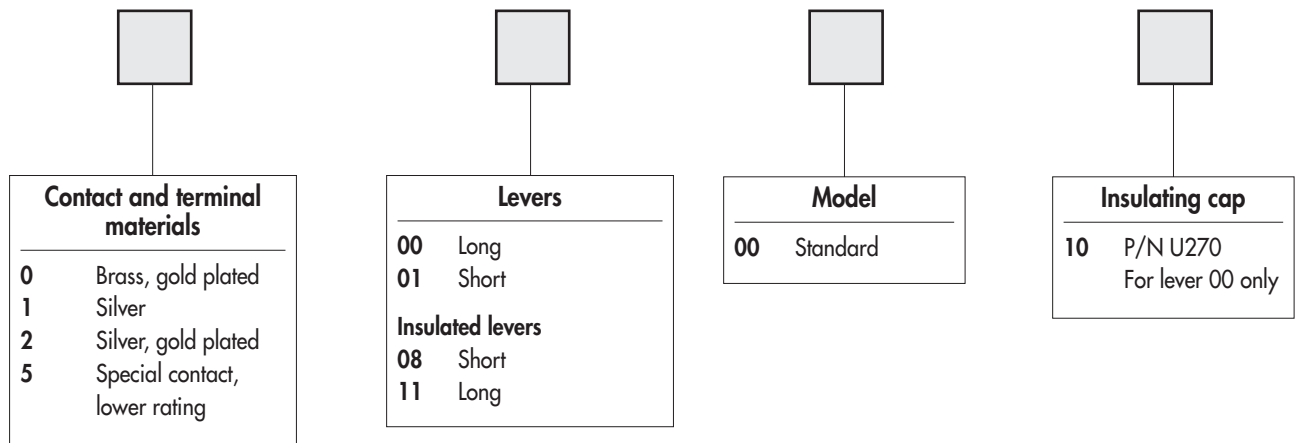
Replace "0" by number

1	blue
1/4	dark blue
2	black
3	green
4	grey
5	yellow
6	red
7/1	white
9	orange

MODEL STRUCTURE



OPTIONS



ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches

- options in the same order as above

Specifications are at the beginning of the S series.

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Mounting accessories : 2 hex nuts 8 mm (.314) across flats, 1 locking ring and 1 lockwasher
Standard and special hardware available are presented in section I.



Packaging unit : 50 to 25 pieces depending on model.



SF series

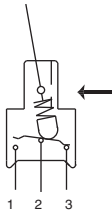
Washable toggle switches - insulated threaded bushing

Solder lug or straight PC terminals

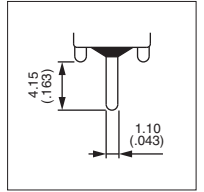
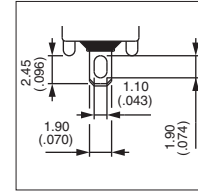
ermec@ermec.com

STRUCTURE

→ Keyway



- Single pole configurations
- Max. torque : 0,25 Nm (.184 Ft.lb)
- Iron soldering : 300°C max. 5 sec. max.
- Max. panel thickness :
2,5 mm (.098) with 2 nuts
4 mm (.157) with 1 nut



MODEL
STRUCTURE



Shown with standard lever 00

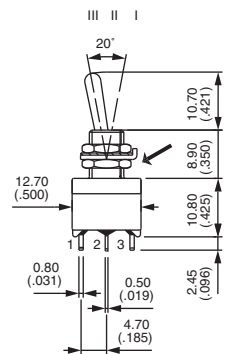
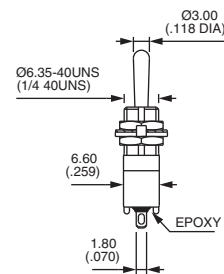
Solder lugs : SF..S0

→ Keyway



SF36S0
SF39S0
SF37S0
SF38S0
SF32S0

III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



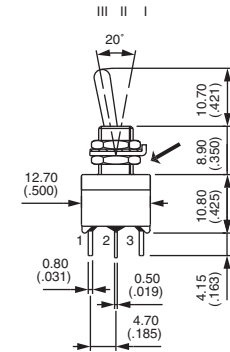
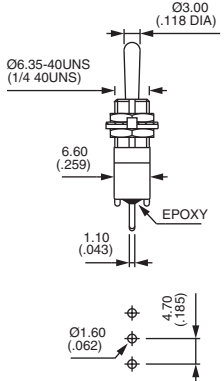
Straight PC terminals : SF..P0

→ Keyway

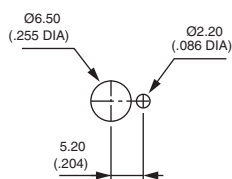


SF36P0
SF39P0
SF37P0
SF38P0
SF32P0

III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



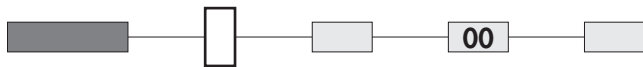
PANEL CUT-OUT



www.ermec.com

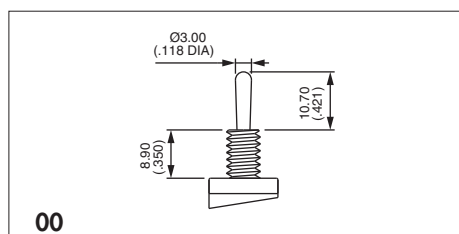


CONTACT AND TERMINAL MATERIALS



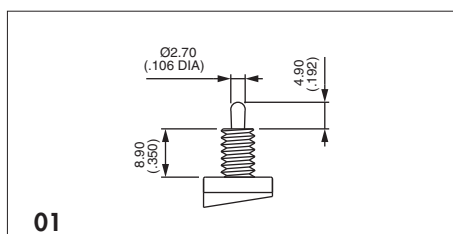
- 0** Brass, gold plated (standard)
- 1** Silver
- 2** Silver, gold plated
- 5** Special contact, lower rating, minimum quantity : consult factory.

LEVERS



00

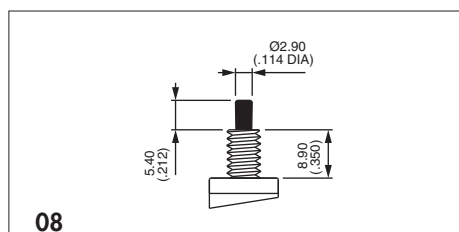
Standard



01

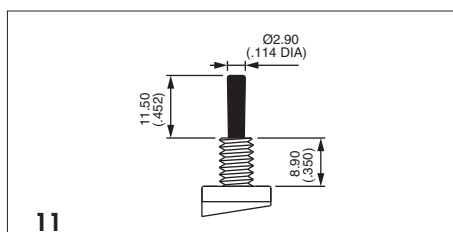
Insulated levers

Protected against electrostatic discharges (ESD) up to 12KV. Black colour.



08

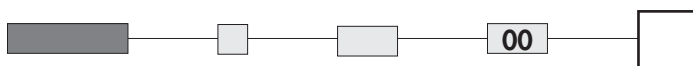
Short



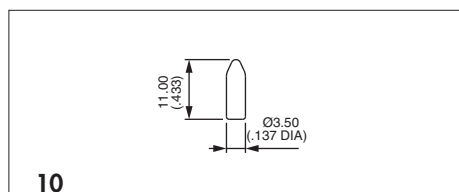
11

Long

INSULATING CAP



Blank Without cap



10

P/N U270 - For lever 00

To order cap separately, use its part number (U270).

Cap colours

Replace "0" by number

- 1** blue
- 1/4** dark blue
- 2** black
- 3** green
- 4** grey
- 5** yellow
- 6** red
- 7/1** white
- 9** orange



www.ermec.com



THE WIDEST RANGE IN MINIATURE SWITCHES

- ☐ 17 actuators including toggles, paddle levers and locking levers in different lengths.
- ☐ 5 contact materials from dry circuit to 6A 125VAC and high inrush up to 120A 2 ms.
- ☐ 8 functions including maintained and momentary versions.
- ☐ 1 to 4 pole configurations.
- ☐ 12 terminal types including 9 for PC board mounting. Other types include quick-connect and wire-wrap.
- ☐ 6 bushing styles from 6 (.236) plain to 11,9 (15/32) threaded.
- ☐ 3 types of finish including military black.
- ☐ 4 approvals (UL - CSA - VDE - CECC) and 3 listings.
- ☐ 4 types of sealing for terminal or front panel requirements.
- ☐ Numerous accessories available for actuator and bushing options.

ELECTRICAL SPECIFICATIONS

- Current/voltage rating with resistive load :

Contact	Maximum	Minimum	Level*
Silver (A)	3A 250VAC - 6A 125VAC - 4A 30VDC	50mA 10VDC	III and IV
Silver, gold plated (AD)	3A 250VAC - 6A 125 VAC - 4A 30VDC Gold plating withstands up to 100mA 30VDC	10mA 50mV 10 μ A 5V	I to IV
Brass, gold plated (CD)	0,4 VA at 20VAC or DC	10mA 50mV 10 μ A 5V	I and II

- For inductive, lamp or capacitive load, consult factory.
- Initial contact resistance : 10 m Ω max.
- Insulation resistance : 1.000 M Ω min. at 500VDC
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals
 - 1.500 Vrms 50 Hz min. between poles
 - 1.500 Vrms 50 Hz min. between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life at full load :
 - 50.000 cycles for single and double pole
 - 40.000 cycles for 3 pole
 - 30.000 cycles for 4 pole
- Low level or mechanical life : 100.000 cycles

* For details, see Technical Information, end of catalogue.

MATERIALS

- Case : diallylphthalate (DAP) or high temperature plastic material (UL94-V0)
- Actuator : brass, nickel plated
- Paddles : UL94HB polyamide
- Lever caps : vinyl
- Bushing : brass, nickel plated
- Housing : stainless steel or steel tin plated
- Contacts
 - A : silver
 - AD : silver, gold plated
 - CD : brass, gold plated
 - X814 : for peak currents, see "Special options".
- Terminal seal : epoxy

GENERAL SPECIFICATIONS

- Torque : 1,25 Nm (.922 Ft.lb) max. applied to nut
- Panel thickness : 2,5 mm (.098) with 2 nuts - 4 mm (.157) with 1 nut
- Operating temperature : -40°C to +85°C

AGENCY APPROVALS/PREFERENTIAL LIST



EN 61058-1



CECC 96201-007

For VDE, refer to 55000 series.

NATO

Availability : consult factory for details of approved models.

Marking : to order switches marked UL, CSA or CECC, complete appropriate box of ordering format. The preferential list does not appear on the switches.



www.ermec.com

5000 series

Toggle switches

Overview

ermec@ermec.com

MODEL
STRUCTURE

5

SERIES

Number of poles

- 3 Single pole
- 4 Double pole
- 5 Three pole
- 6 Four pole

Terminals

- Blank** Solder lugs or straight PC depending on model
- M** Solder lugs with Ø 11,9 (15/32) bushing (5600 switches)
- MIWR** Wire wrap (for 5200 switches only)
- W** Right angle, horizontal mounting (5200 - 5400 switches)
- WW** Right angle, vertical mounting (5200 - 5400 switches)
- Y**]
- Y4**] Bracket mounting (5200 switches)
- Y6**]
- Y7**]
- Z** Quick connect (5200 - 5100 - 5900 switches)

Terminals and bushing

- 0** Straight PC terminals, 5,08 (.200) terminal spacing, **with Ø 6,35 (1/4)** threaded bushing
- 1** Straight PC or quick-connect terminals, 4,70 (.185) terminal spacing, **with Ø 6 (.236)** threaded bushing.
- 2** Straight PC terminals, 4,70 (.185) terminal spacing, right angle, quick-connect or wire wrap terminals, **with 6,35 (1/4)** threaded bushing
- 3** Straight PC terminals, 4 (.157) terminal spacing, **with Ø 6 (.236)** threaded bushing
- 4** Straight PC terminals, 4 (.157) terminal spacing or right angle terminals, **with Ø 6,35 (1/4)** threaded bushing
- 5** Solder lug terminals, **with Ø 6 (.236)** threaded bushing.
- 6** Solder lug terminals, **with Ø 6,35 (1/4) or Ø 11,9 (15/32)** threaded bushing.
- 7** Solder lug terminals, with Ø 6,35 (1/4) **flatted** bushing.
- 9** Straight PC or quick-connect terminals, with Ø 6,35 (1/4) **flatted** bushing, 4,70 (.185) terminal spacing.

Electrical functions

6	ON	-	ON
9	ON	OFF	ON
7	MOM	OFF	MOM
8	ON	OFF	MOM
2	ON	-	MOM
4	ON	ON	ON
	ON	ON	MOM ▲
	MOM	ON	MOM ▲

Function 4

Must not have blank in "connections" box.
▲ Must not have blank in "momentary" box.

Connections for function 4

- TH** Standard
 - CT** Reversed
- See wiring diagrams end of catalogue.
. For functions 4, 4-1R, 4-2R (leave blank for all other functions).

Momentary for function 4

- 1R** ON ON MOM
- 2R** MOM ON MOM

Leave blank for other functions.

ABOUT THIS SERIES

- On the following pages, you will find successively :
- model structure of switches with threaded bushing
 - model structure of switches with plain bushing
 - options in the same order as in above chart

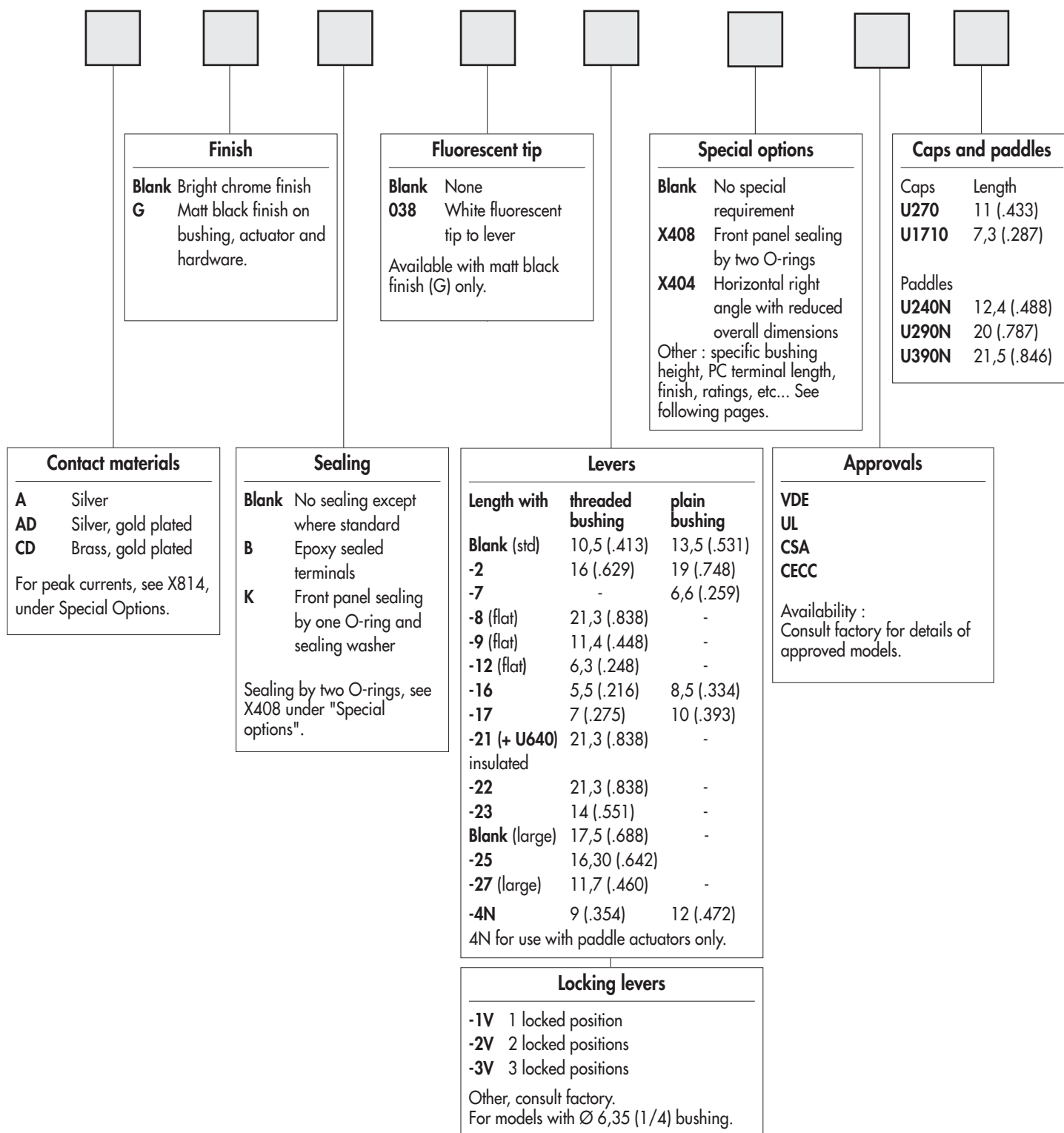
Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.



www.ermec.com



Sealing boots are available. They are presented in section H.



Mounting accessories : standard hardware supplied with all models with Ø 6,35 (1/4) or Ø 6 (.236) threaded bushing : 2 hex nuts 8 mm (.314) across flats, 1 locking ring and 1 lockwasher.
Standard and special hardware available are presented in section I.



Packaging unit : 25 pieces or 50 pieces depending on models.



5000 series

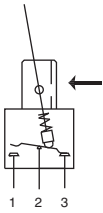
Toggle switches - solder lug terminals

Threaded bushing $\varnothing 6,35$ (1/4) : 5600

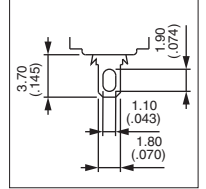
ermec@ermec.com

STRUCTURE

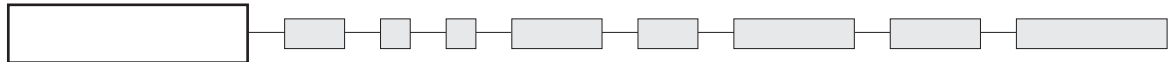
→ Keyway



• 1, 2, 3 and 4 pole configurations



MODEL
STRUCTURE



Shown with standard lever

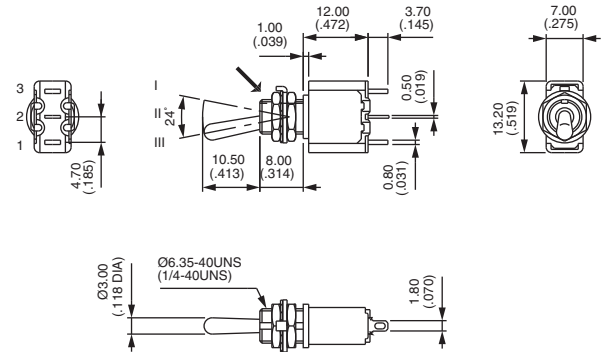
Single pole



5636
5639
5637
5638
5632

III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



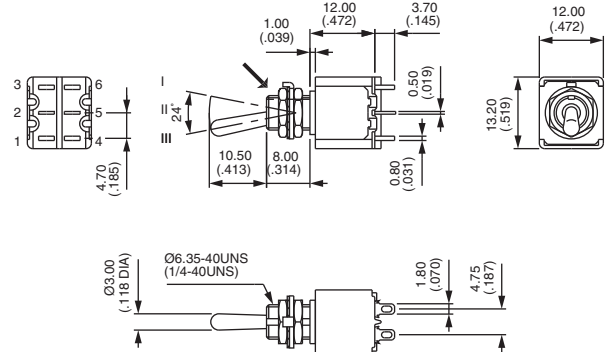
Double pole



5646
5649
5647
5648
5642
5644*
5644 1R*
5644 2R*

III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

→ Keyway



* Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

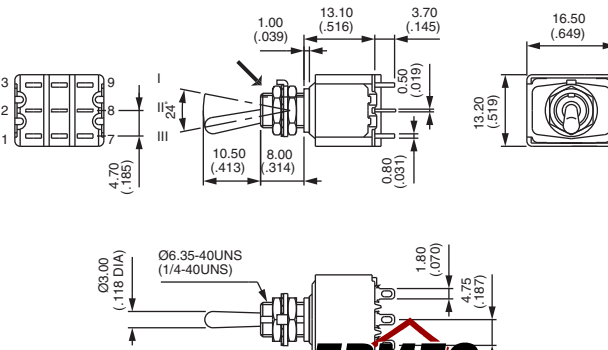
Three pole



5656
5659
5657
5658
5652

III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



www.ermec.com

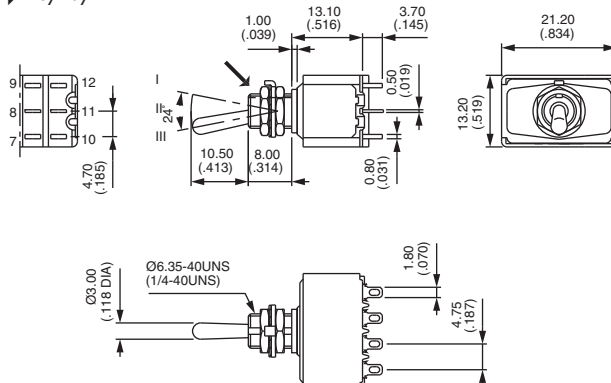
Four pole



5666
5669
5667
5668
5662
5664*
5664 1R*
5664 2R*

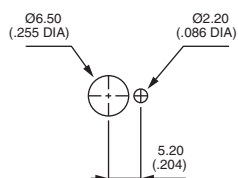
III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
11-12		10-11
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

→ Keyway

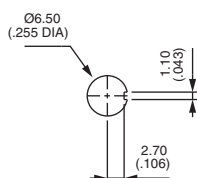


*Function 4 : DP in 4P case - specify CT or TH connections, see end of catalogue.

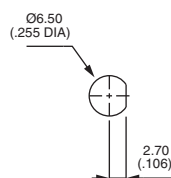
PANEL CUT-OUT



Standard



With K
sealing option



With X408
sealing option

5000 series

Toggle switches - solder lug terminals

ermec@ermec.com

MODEL
STRUCTURE

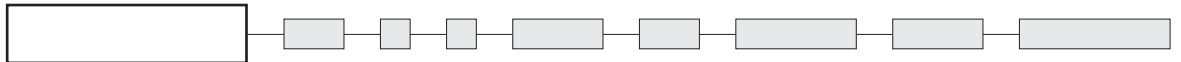
A

Diagram as per 5600 model

5700 models

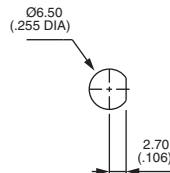
- Flatted bushing Ø 6,35 mm (1/4)
- 1, 2, 3 and 4 pole configurations

MODEL
STRUCTURE



For model structure numbers, refer to 5600 models and replace 6 with 7.

PANEL CUT-OUT



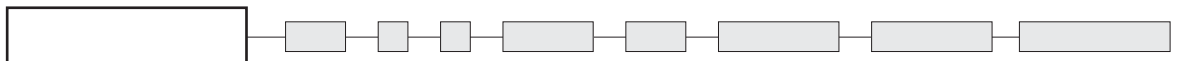
Standard or
with K sealing option

5500 models

- Threaded bushing Ø 6 mm x 0.75 SI (.236 x 0.75 IS)
- 1, 2, 3 and 4 pole configurations

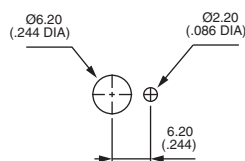
Diagram as per 5600 model

MODEL
STRUCTURE

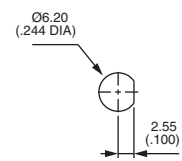


For model structure numbers, refer to 5600 models and replace 6 with 5.

PANEL CUT-OUT



Standard

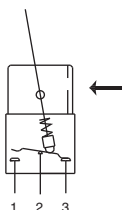


With X408 sealing option

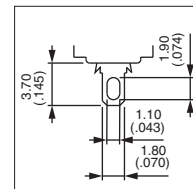
ERMEC
www.ermec.com

www.ermec.com

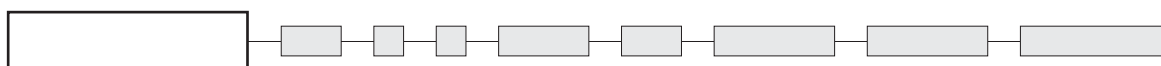
→ Keyway



- 1, 2, 3 and 4 pole configurations
- Supplied with 2 hex nuts and 1 locking ring
- Panel thickness up to 6 mm (.236)



MODEL
STRUCTURE



Shown with standard lever

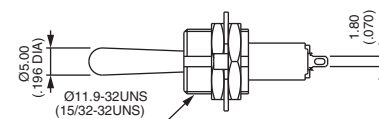
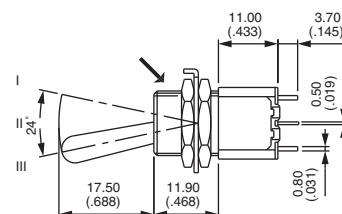
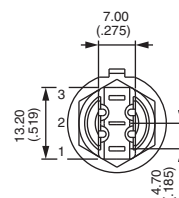
Single pole



5636M
5639M
5637M
5638M
5632M

III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



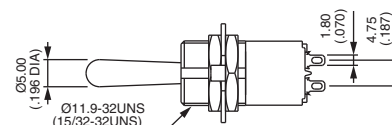
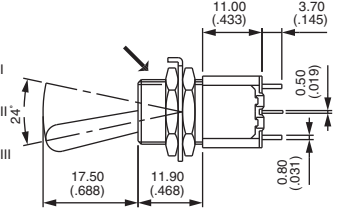
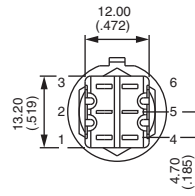
Double pole



5646M
5649M
5647M
5648M
5642M
5644M*
5644M 1R*
5644M 2R*

III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

→ Keyway



* Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

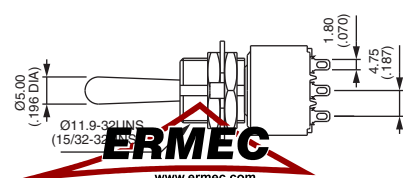
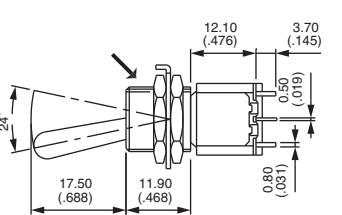
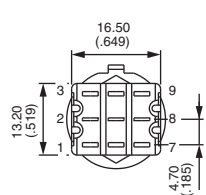
Three pole



5656M
5659M
5657M
5658M
5652M

III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



5000 series

Toggle switches - solder lug terminals

Threaded bushing Ø 11,9 (15/32) : 5600M

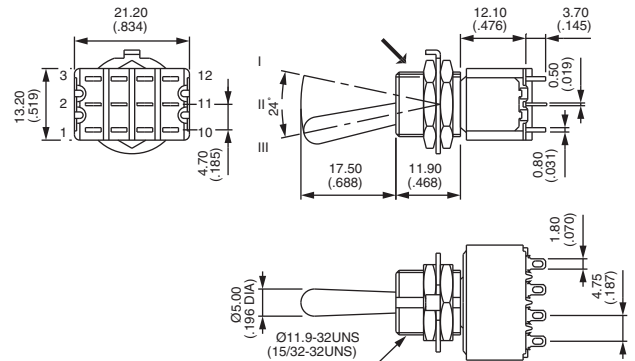
Four pole



5666M
5669M
5667M
5668M
5662M
5664M*
5664M 1R*
5664M 2R*

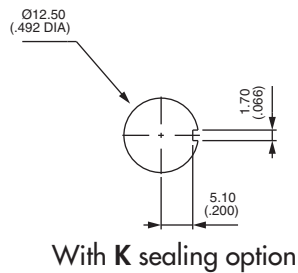
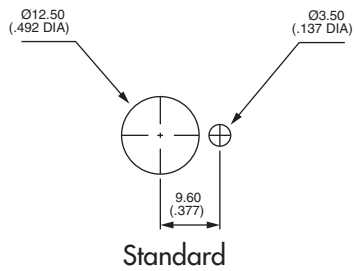
III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
11-12		10-11
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

→ Keyway



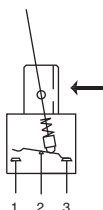
*Function 4 : DP in 4P case - specify CT or TH connections, see end of catalogue.

PANEL CUT-OUT



OTHER : M bushing can be combined with other types such as : 5200, Z, MIWR... Consult factory.

→ Keyway

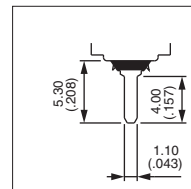


- Terminal spacing 4,7 mm (.185)
- 1, 2, 3 and 4 pole configurations
- Epoxy sealed terminals standard

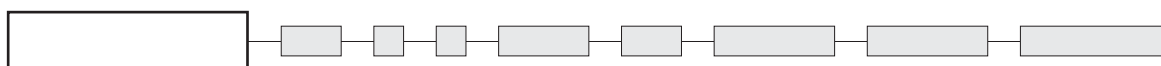
For new projects, we recommend switches with support bracket (option Y) which holds the switch securely on the PCB.

Other terminal lengths presented under "Special options".

Also available with plain bushing, see "Special options" X371



MODEL
STRUCTURE



Shown with standard lever

Single pole

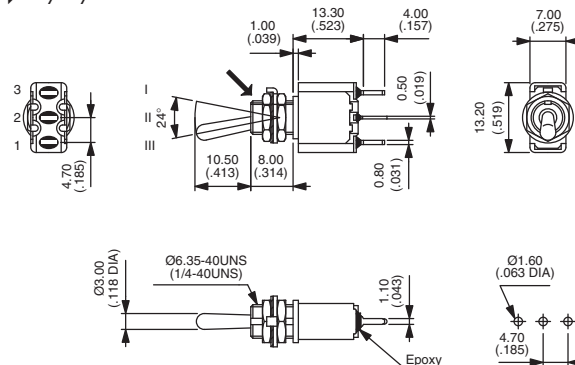


5236 B
5239 B
5237 B
5238 B
5232 B

III	II	I
2-3		1-2

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



Double pole

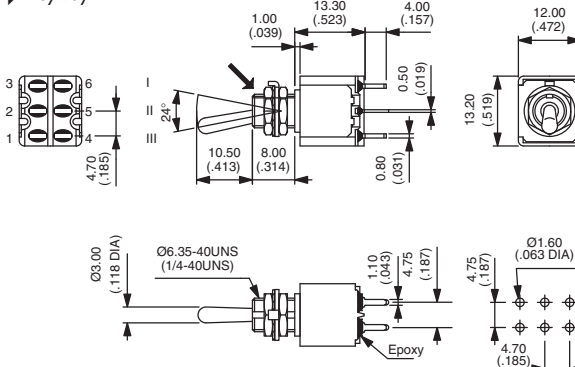


5246 B
5249 B
5247 B
5248 B
5242 B
5244 B*
5244 1R B*
5244 2R B*

III	II	I
2-3		1-2
5-6		4-5

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

→ Keyway



*Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

Three pole

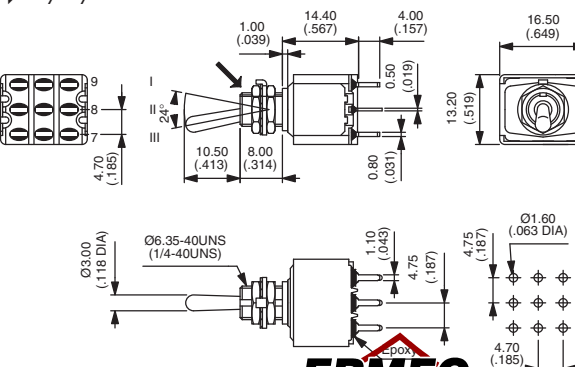


5256 B
5259 B
5257 B
5258 B
5252 B

III	II	I
2-3		1-2
5-6		4-5
8-9		7-8

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



5000 series

Toggle switches - straight PC terminals

Threaded bushing Ø 6,35 (1/4) : 5200 - 5000

ermec@ermec.com

STRUCTURE

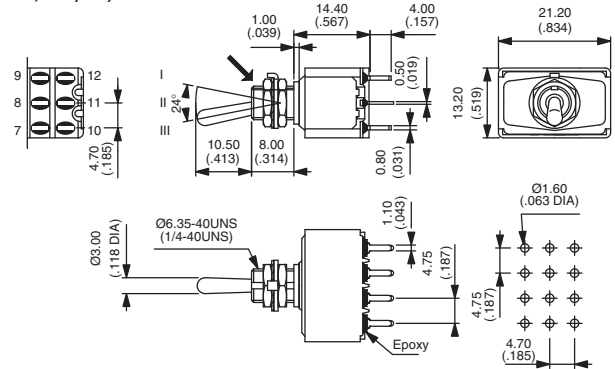
Four pole



5266 B
5269 B
5267 B
5268 B
5262 B
5264 B*
5264 1R B*
5264 2R B*

III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
11-12		10-11
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

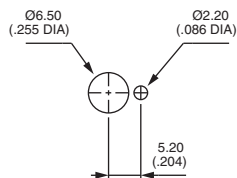
→ Keyway



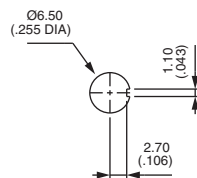
*Function 4 : DP in 4P case - specify CT or TH connections, see end of catalogue.

PANEL CUT-OUT

5200 - 5000 - 5400



Standard

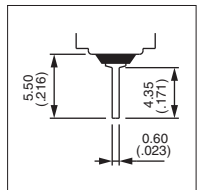


With K sealing option

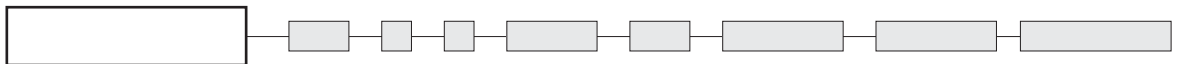
5000 models

- Terminal spacing 5,08 mm (.200)
- Epoxy sealed terminals standard
- 1 and 2 pole configurations

Diagram as per 5200 model



MODEL
STRUCTURE



Shown with standard lever

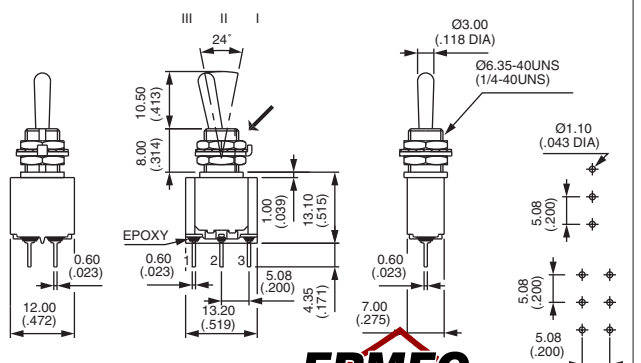
Terminal spacing 5,08 (.200) - single and double pole

→ Keyway



Single pole Double pole
5036 5046
5039 5049
5037 5047
5038 5048
5032 5042
5044*
5044 1R*
5044 2R*

III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM



*Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue

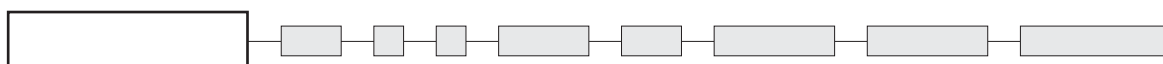
ERMEC
www.ermec.com

www.ermec.com



Diagram, as per 5200 model

MODEL STRUCTURE

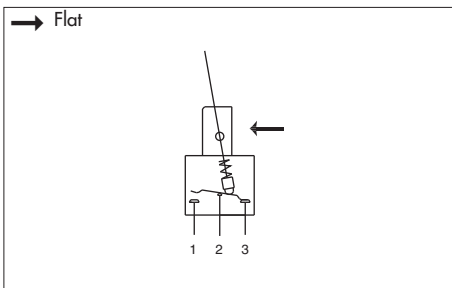


For model structure numbers, refer to
5200 models and replace 2 with 4.

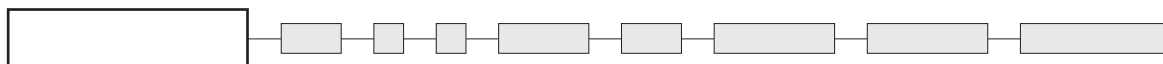
Panel cut-out, see 5200.

5400 models

- Threaded bushing $\varnothing 6,35$ mm (1/4)
- Terminal spacing 4 mm (.157)
- 1, 2, 3 and 4 pole configurations



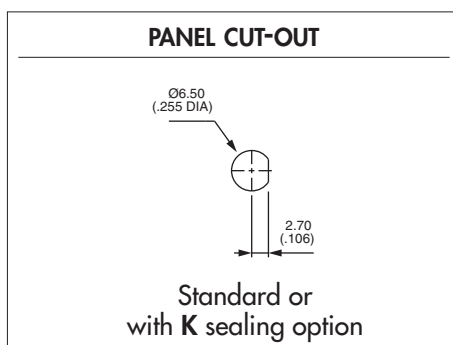
MODEL STRUCTURE



For model structure numbers, refer to
5200 models and replace 2 with 9.

5900 models

- Flatted bushing $\varnothing 6,35$ mm (1/4)
- Terminal spacing 4,7 mm (.185)
- 1, 2, 3 and 4 pole configurations



www.ermec.com

5000 series

Toggle switches - straight PC terminals

ermec@ermec.com



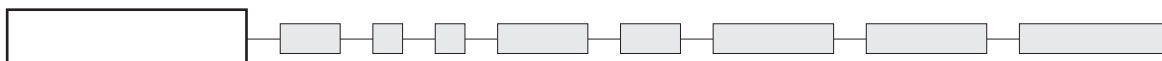
A

Diagram, as per 5200 model

5100 models

- Threaded bushing $\varnothing 6 \text{ mm} \times 0.75 \text{ SI}$ (.236 x 0.75 IS)
- Terminal spacing 4,7 mm (.185)
- 1, 2, 3 and 4 pole configurations

MODEL
STRUCTURE



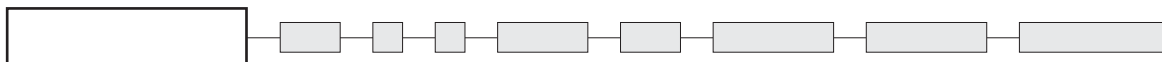
For model structure numbers, refer to
5200 models and replace 2 with 1.
Panel cut-out, see below.

5300 models

- Threaded bushing $\varnothing 6 \text{ mm} \times 0.75 \text{ SI}$ (.236 x 0.75 IS)
- Terminal spacing 4 mm (.157)
- 1, 2, 3 and 4 pole configurations

Diagram, as per 5200 model

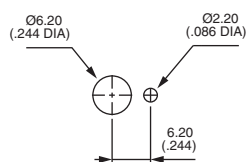
MODEL
STRUCTURE



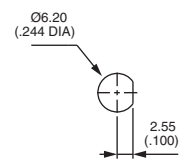
For model structure numbers, refer to
5200 models and replace 2 with 3.

PANEL CUT-OUT

5100 - 5300



Standard

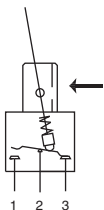


With **X408** sealing option

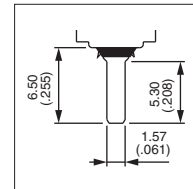
ERMEC
www.ermec.com

www.ermec.com

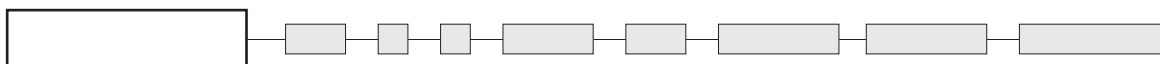
→ Keyway



- Terminal spacing 4,7 mm (.185)
- Epoxy sealed terminals standard
- 1 and 2 pole configurations



MODEL
STRUCTURE



Shown with standard lever

Single pole

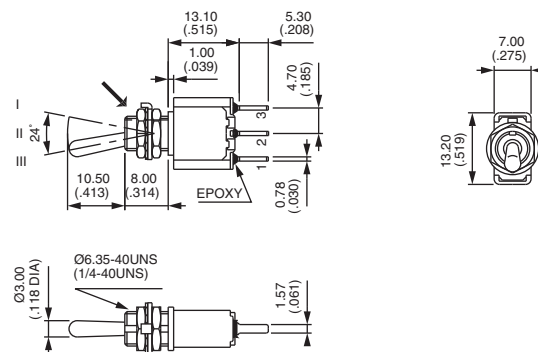


5236Z
5239Z
5237Z
5238Z
5232Z

III II I
2-3 1-2

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

→ Keyway



Double pole

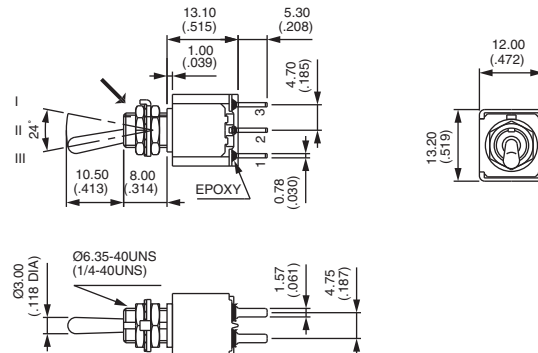


5246Z
5249Z
5247Z
5248Z
5242Z
5244Z*
5244Z 1R*
5244Z 2R*

III II I
2-3 1-2
5-6 4-5

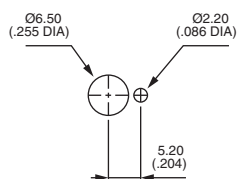
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

→ Keyway

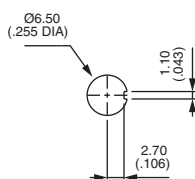


*Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

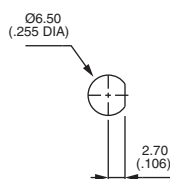
PANEL CUT-OUT



Standard



With K
sealing option



With X408
sealing option

5000 series

Toggle switches - quick-connect terminals

ermec@ermec.com



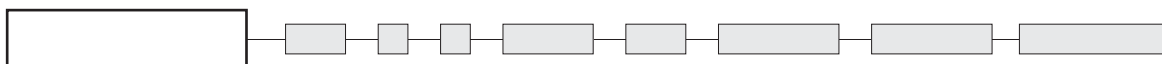
A

Diagram, as per 5900 model

5900Z models

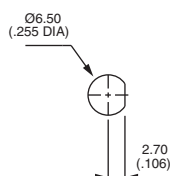
- Flatted bushing $\varnothing 6,35$ mm (1/4)
- Terminal spacing 4,7 mm (.185)
- Epoxy sealed terminals standard
- 1 and 2 pole configurations

MODEL STRUCTURE



For model structure numbers, refer to 5200Z models and replace 2 with 9.

PANEL CUT-OUT



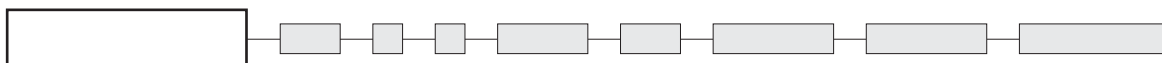
Standard or
with K sealing option

5100Z models

- Threaded bushing $\varnothing 6$ mm x 0.75 SI (.236 x 0.75 IS)
- Terminal spacing 4,7 mm (.185)
- Epoxy sealed terminals standard
- 1 and 2 pole configurations

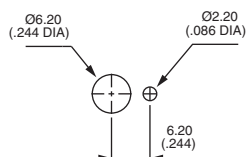
Diagram, as per 5200 model

MODEL STRUCTURE



For model structure numbers, refer to 5200Z models and replace 2 with 1.

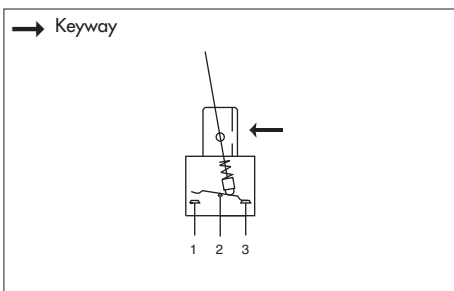
PANEL CUT-OUT



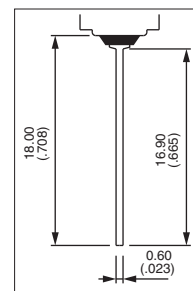
Standard



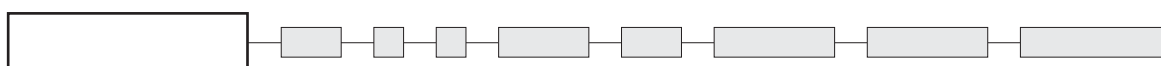
www.ermec.com



- Terminal spacing 5,08 mm (.200)
- Epoxy sealed terminals standard
- 1 and 2 pole configurations
- Can also be used as extended PCB terminals



MODEL
STRUCTURE



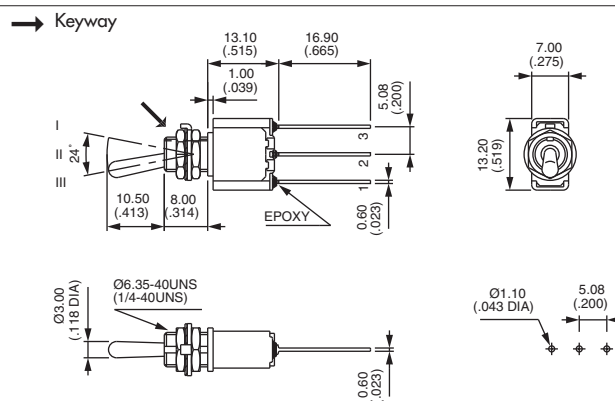
Shown with standard lever

Terminal spacing 5,08 (.200) - single pole



5236MIWR
5239MIWR
5237MIWR
5238MIWR
5232MIWR

III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

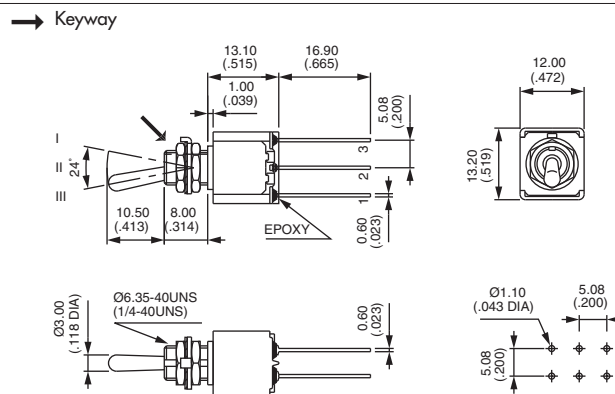


Terminal spacing 5,08 (.200) - double pole



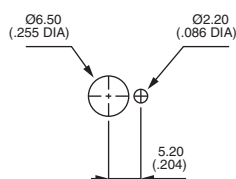
5246MIWR
5249MIWR
5247MIWR
5248MIWR
5242MIWR
5244 1R MIWR*
5244 1R MIWR*
5244 2R MIWR*

III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM

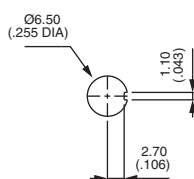


*Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

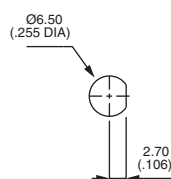
PANEL CUT-OUT



Standard



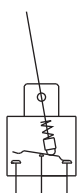
With K
sealing option



With X408
sealing option

Right angle terminals - horizontal : 5200W

STRUCTURE



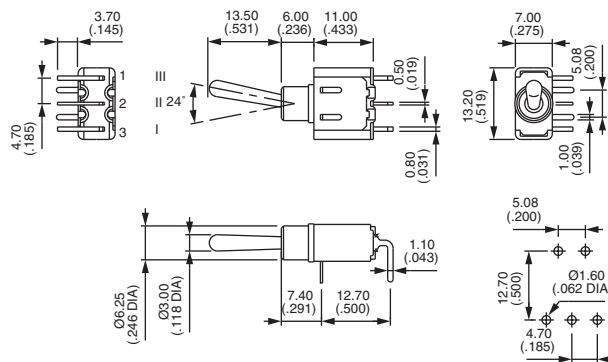
- Special switch **5200WX404** with reduced overall dimensions is presented under "Special options".

A

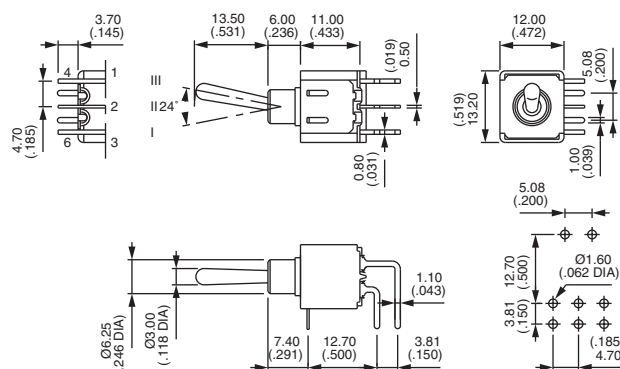


Shown with standard lever

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

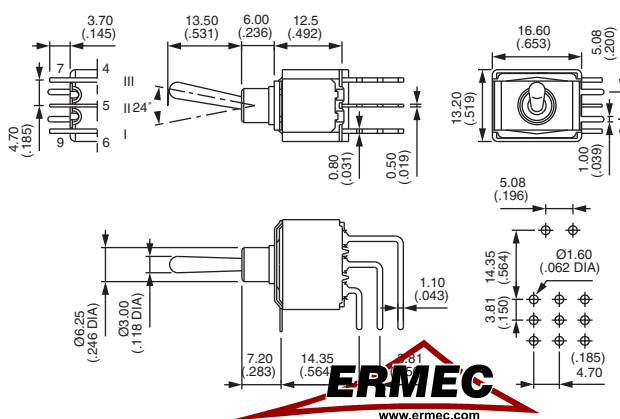


ON - ON
ON OFF ON
MOM OFF MOM
ON OFF MOM
ON - MOM
ON ON ON
ON ON MOM
MOM ON MOM



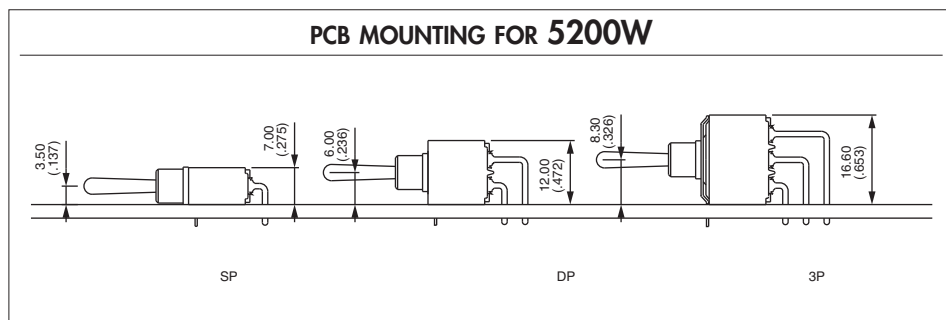
*Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



www.ermec.com

PCB MOUNTING FOR 5200W

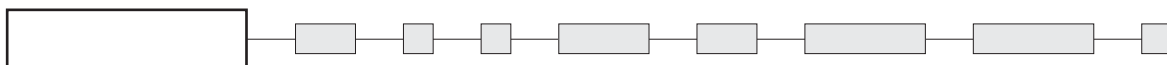


5400W models

- Terminal spacing 4 mm (.157)
- 1 and 2 pole configurations

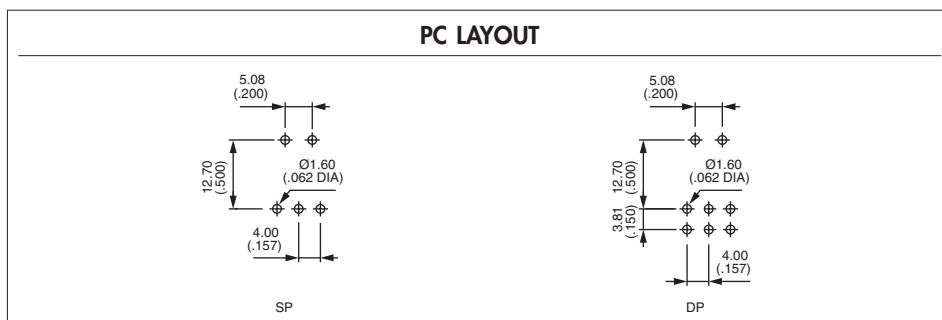
Diagram, as per 5200W model

MODEL STRUCTURE



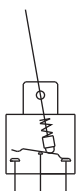
For model structure numbers, refer to **5200W** single and double pole and replace 2 with 4.

PC LAYOUT



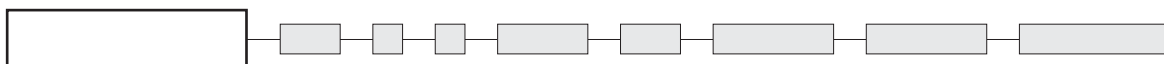
Right angle terminals - vertical : 5200WW

STRUCTURE



- **Pin spacing 3,81 mm (.150)**
- **1, 2, 3 and 4 pole configurations**

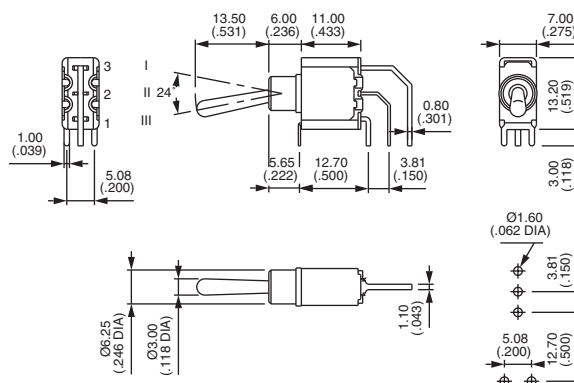
MODEL STRUCTURE



Shown with standard lever

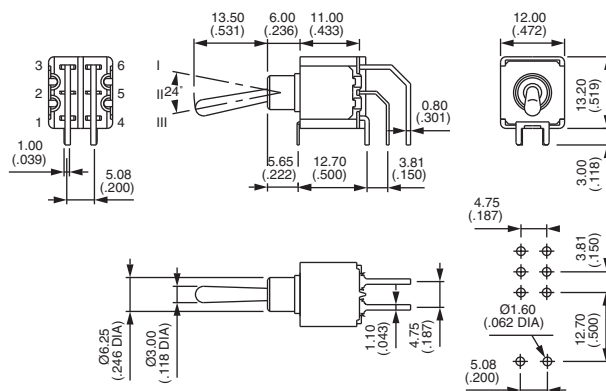
5236WW
5239WW
5237WW
5238WW**
5232WW**

III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



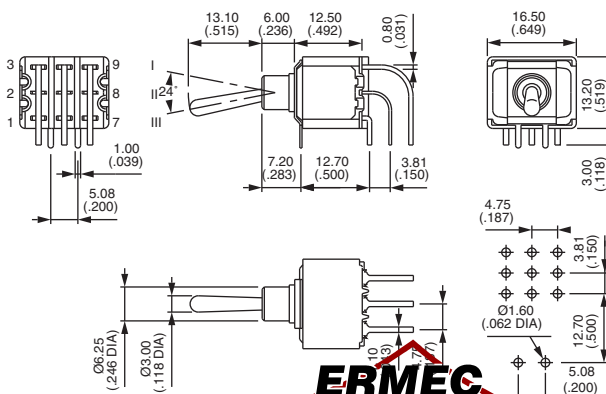
5246WW
5249WW
5247WW
5248WW**
5242WW**
5244WW*
5244WW 1R*
5244WW 2R*

III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM



5256WW
5259WW
5257WW
5258WW**
5252WW**

III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



* and **: see notes next page.

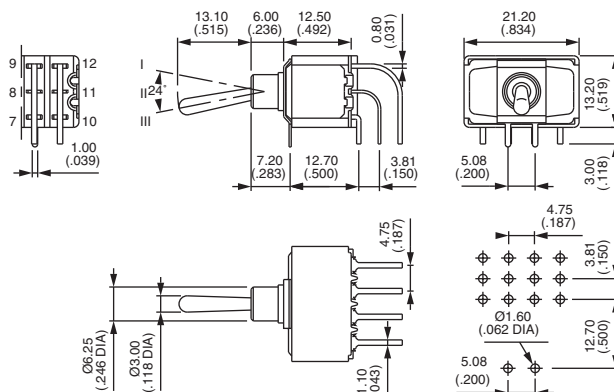
ERMEC
www.ermec.com

Four pole



5266WW
5269WW
5267WW
5268WW**
5262WW**
5264WW*
5264WW 1R*
5264WW 2R*

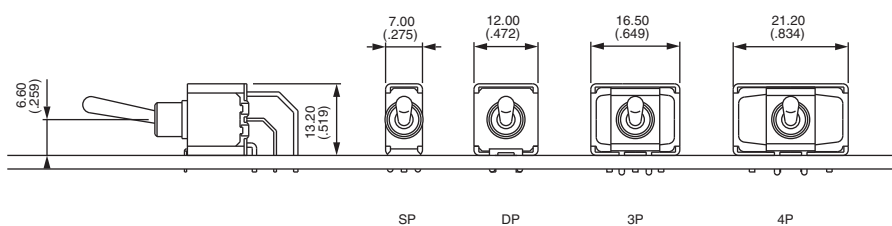
III	II	I
2-3		1-2
5-6		4-5
8-9		7-8
11-12		10-11
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM



* Function 4 : SP in DP case, DP in 4P case - specify CT or TH connections, see end of catalogue.

** Functions 2 and 8 : reversed connection available, consult factory.

PCB MOUNTING

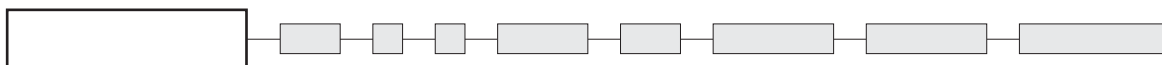


5400WW models

- Pin spacing 2,54 mm (.100)
- 1, 2, 3 and 4 pole configurations

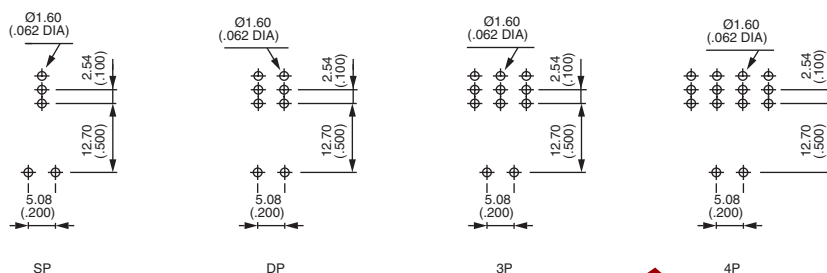
Diagram as per 5200WW model

MODEL STRUCTURE



For model structure numbers, refer to **5200WW** models and replace 2 with 4.

PC LAYOUT



5000 series

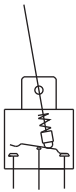
Toggle switches - plain bushing

Straight PC terminals - bracket mounting : 5200Y

ermec@ermec.com

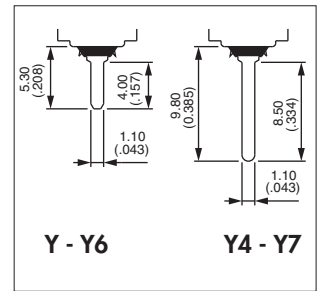
STRUCTURE

A

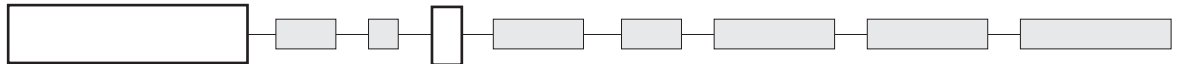


Brackets reduce mechanical stress on solder joints and increase resistance to vibrations.
Bracket material : tin plated steel.

- Epoxy sealed terminals standard
- 1 and 2 pole configurations



MODEL
STRUCTURE



Shown with standard lever

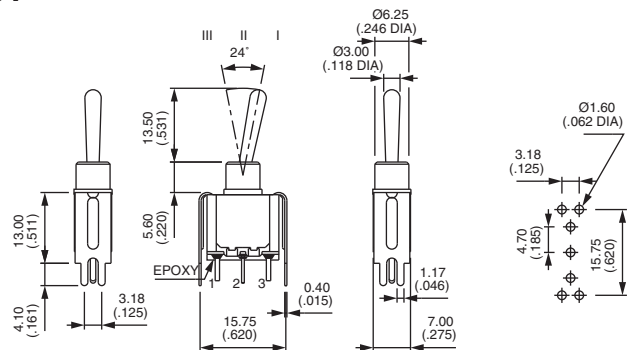
Short bracket - width 15,75 (.620) - single pole : 5230Y



5236Y B
5239Y B
5237Y B
5238Y B
5232Y B

III	II	I
2-3		1-2

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



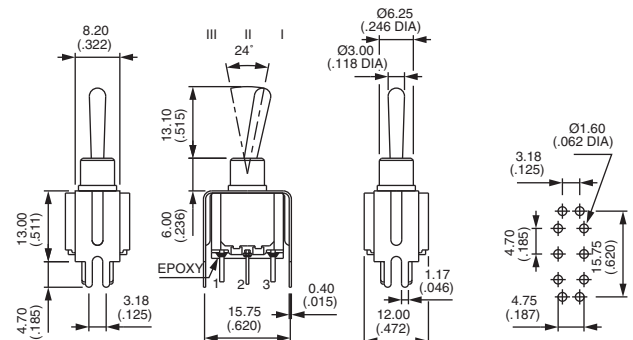
Short bracket - width 15,75 (.620) - double pole : 5240Y



5246Y B
5249Y B
5247Y B
5248Y B
5242Y B
5244Y B*
5244Y 1R B*
5244Y 2R B*

III	II	I
2-3		1-2
5-6		4-5

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM



* Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.



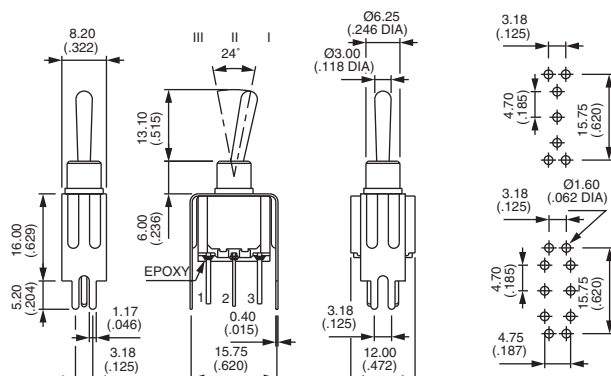
www.ermec.com

Tall bracket - width 15,75 (.620) : 5200Y4



Single pole Double pole

	III	II	I
	2-3		1-2
	5-6		4-5
5236Y4 B	ON	-	ON
5239Y4 B	ON	OFF	ON
5237Y4 B	MOM	OFF	MOM
5238Y4 B	ON	OFF	MOM
5232Y4 B	ON	-	MOM
5244Y4 B*	ON	ON	ON
5244Y4 1R B*	ON	ON	MOM
5244Y4 2R B*	MOM	ON	MOM

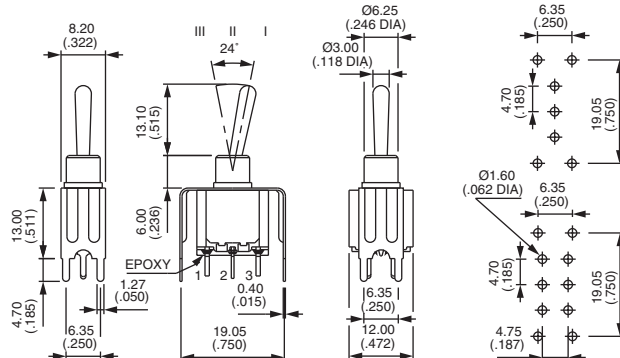


Short bracket - width 19,05 (.750) : 5200Y6



Single pole Double pole

	III	II	I
	2-3		1-2
	5-6		4-5
5236Y6 B	ON	-	ON
5239Y6 B	ON	OFF	ON
5237Y6 B	MOM	OFF	MOM
5238Y6 B	ON	OFF	MOM
5232Y6 B	ON	-	MOM
5244Y6 B*	ON	ON	ON
5244Y6 1R B*	ON	ON	MOM
5244Y6 2R B*	MOM	ON	MOM

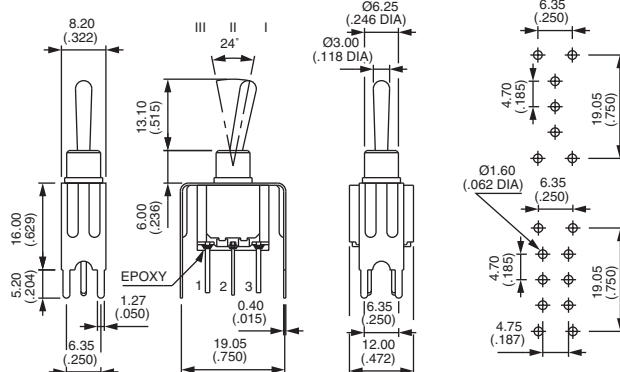


Tall bracket - width 19,05 (.750) : 5200Y7



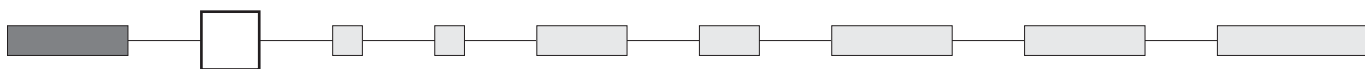
Single pole Double pole

	III	II	I
	2-3		1-2
	5-6		4-5
5236Y7 B	ON	-	ON
5239Y7 B	ON	OFF	ON
5237Y7 B	MOM	OFF	MOM
5238Y7 B	ON	OFF	MOM
5232Y7 B	ON	-	MOM
5244Y7 B*	ON	ON	ON
5244Y7 1R B*	ON	ON	MOM
5244Y7 2R B*	MOM	ON	MOM



* Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

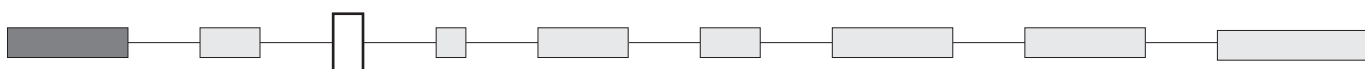
CONTACT MATERIALS



- A Silver
- AD Silver, gold plated
- CD Brass, gold plated

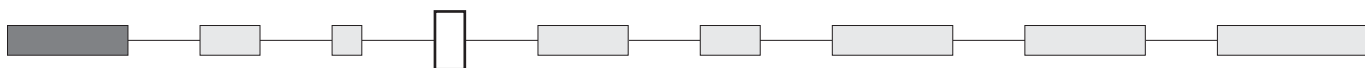
Special contacts for peak currents : see X814, under "Special Options".

FINISH



- Blank Bright chrome finish
- G Matt black finish on bushing, actuator and hardware

SEALING



- Blank
 - For 5000 - 5200Z and 5200MIWR models : epoxy sealed terminals standard
 - Other models : no sealing required

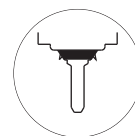
- B Epoxy sealed terminals

- K Front panel sealing by one O-ring and sealing washer. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.



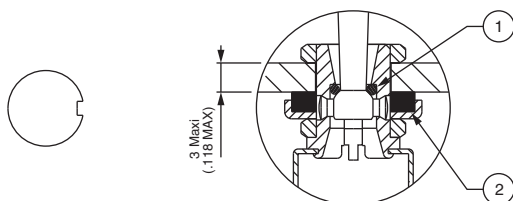
Available on models with $\varnothing 6,35$ (1/4) or 11,9 (15/32) **threaded bushing only.**
Not available with levers 8, 9, 12, 22, 23.

- KB Combined sealings



- ① O-ring
- ② Sealing washer

K with $\varnothing 6,35$ (1/4)
keyway bushing



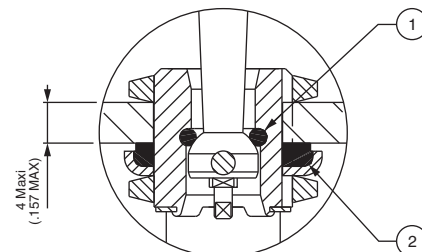
Includes washer
U360

K with $\varnothing 6,35$ (1/4)
flatted bushing



Includes washer
U5141

K with $\varnothing 11,9$ (15/32)
keyway bushing



Includes washer
U60

Sealing by two O-rings, see X408 under "Special options".





FLUORESCENT TIP

Blank

None

038

White fluorescent tip.
Becomes luminous when submitted to ultraviolet rays.

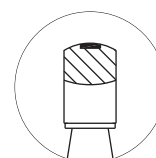
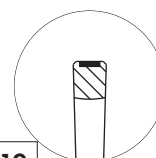


Available with matt black finish (option G) only.

Consult factory for levers available with this option.

Standard lever

Locking lever



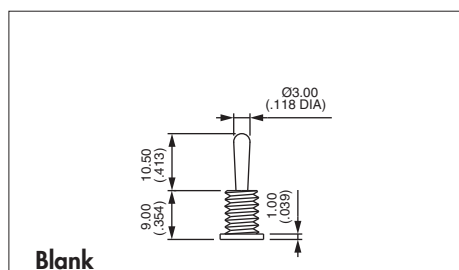
-19

Same dimensions as standard actuator below.

ACTUATORS

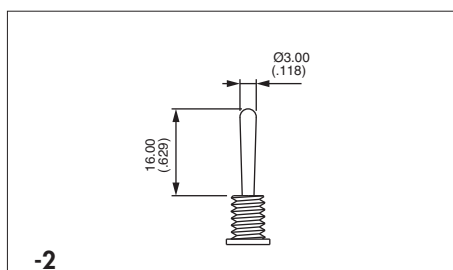
Levers for threaded bushing models Ø 6,35 (1/4) or Ø 6 (.236)

Dash compulsory before lever code.

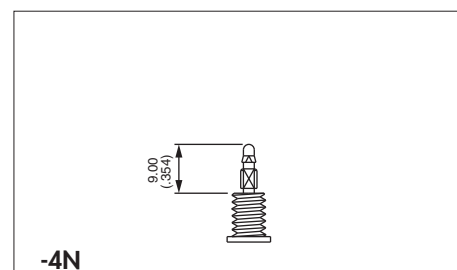


Blank

Standard

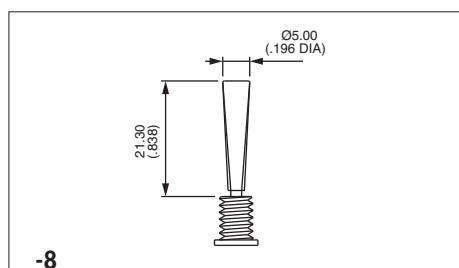


-2



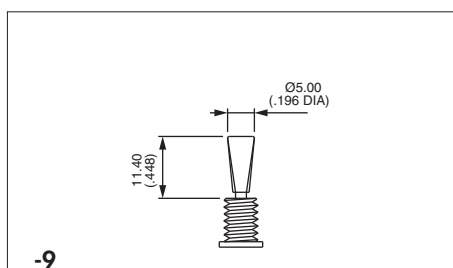
-4N

For use with paddles only



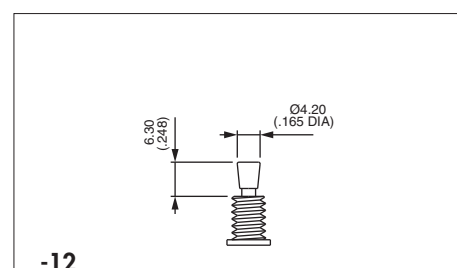
-8

Not available with sealing options K or X408



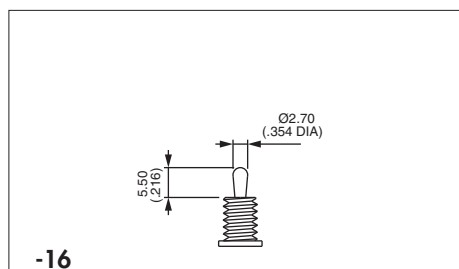
-9

Not available with sealing options K or X408

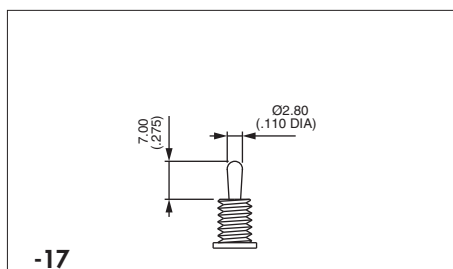


-12

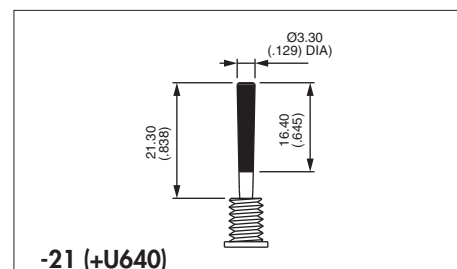
Not available with sealing options K or X408



-16



-17



-21 (+U640)

U640 to be placed in last box of ordering format. Refer to our code.



www.ermec.com

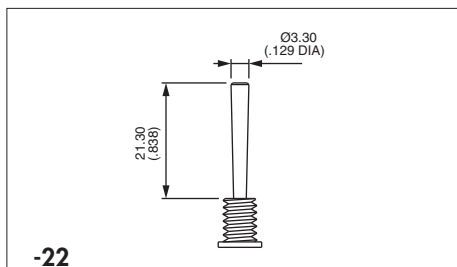
5000 series

Toggle switches

ermec@ermec.com

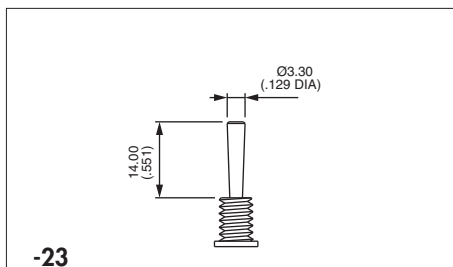
OPTIONS

ACTUATORS (continued)



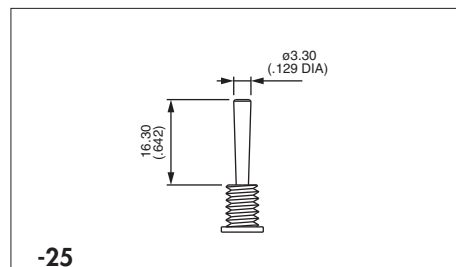
-22

Not available with sealing options K or X408



-23

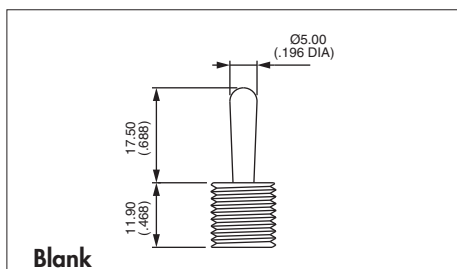
Not available with sealing options K or X408



-25

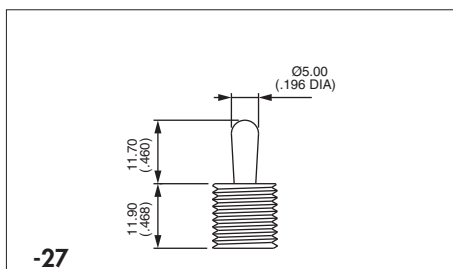
Not available with sealing options K or X408

Levers for threaded bushing models Ø 11,9 (15/32) : 5600M



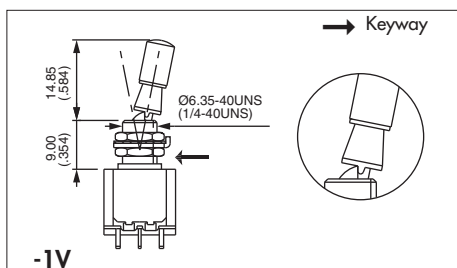
Blank

Standard



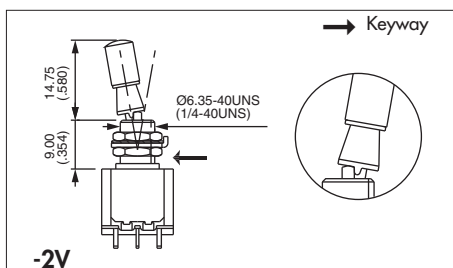
-27

Locking levers



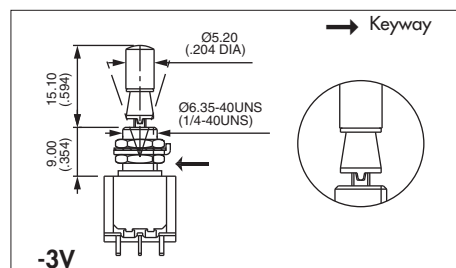
-1V

1 locked position (function 6)



-2V

2 locked positions (function 6)



-3V

3 locked positions (functions 9 and 4)

Consult factory for other locking lever options.



Available with Ø 6,35 mm (1/4) threaded bushing models only.
For plain bushing models, see X386 or X916 under "Special options" on the following pages.

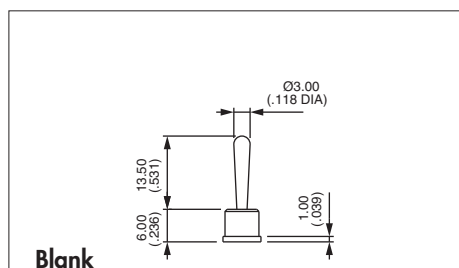


www.ermec.com



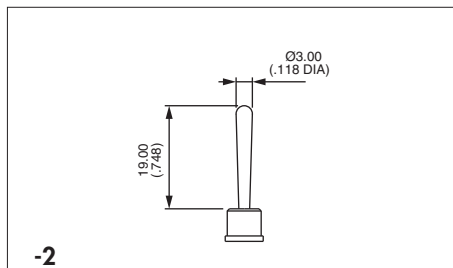
ACTUATORS (continued)

For plain bushing models : W - WW and Y

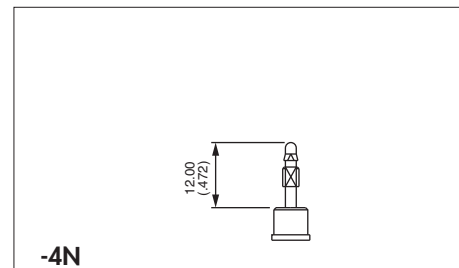


Blank

Standard

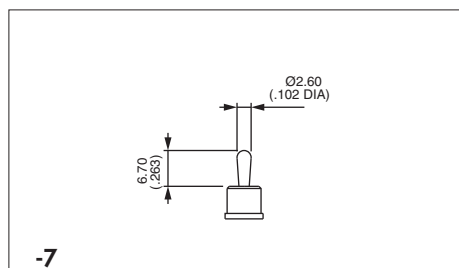


-2

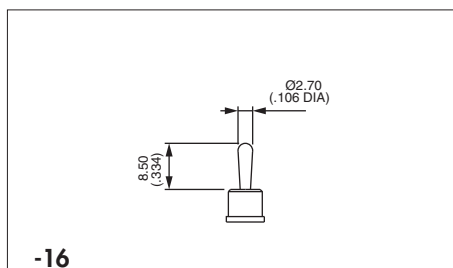


-4N

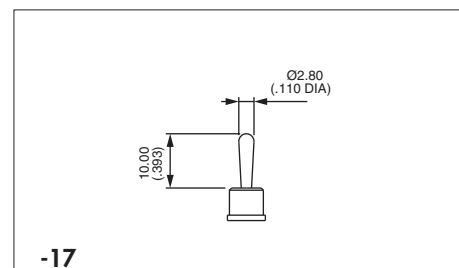
For use with paddles only



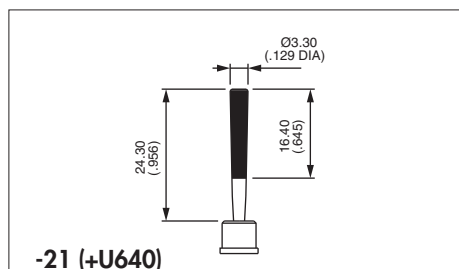
-7



-16



-17



-21 (+U640)

U640 to be placed in last box of ordering format. Replace 0 by colour code.

Actuator colours

Replace "0" by number

1	blue
1/4	dark blue
2	black
3	green
4	grey
5	yellow
6	red
7	ivory
7/1	white
9	orange



LEVER LENGTH

With bracket or mounting plate lever length will be reduced by 0,4 mm (.015) as a rule. Please refer to switch technical drawings in "Model Structure" pages for details.

5000 series

Toggle switches

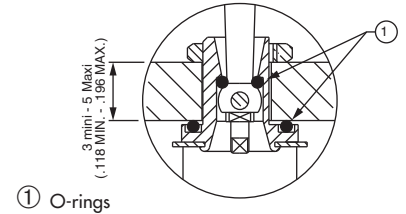
SPECIAL OPTIONS

Blank No special requirement

X408 Front panel sealing by two O-rings. Flatted bushing for precise orientation. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated. Includes sealed terminals (option B).

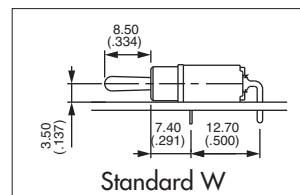


Available only on models with threaded bushing except 5600M. Not available with levers 8, 9, 12, 22, 23.

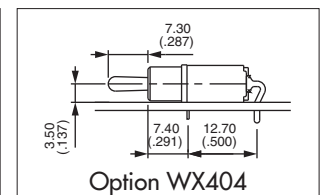


① O-rings

X404 Horizontal right angle with reduced overall dimensions (shown with lever -16)



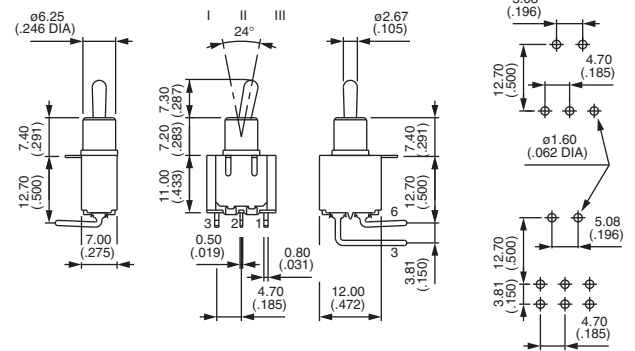
Standard W



Option WX404

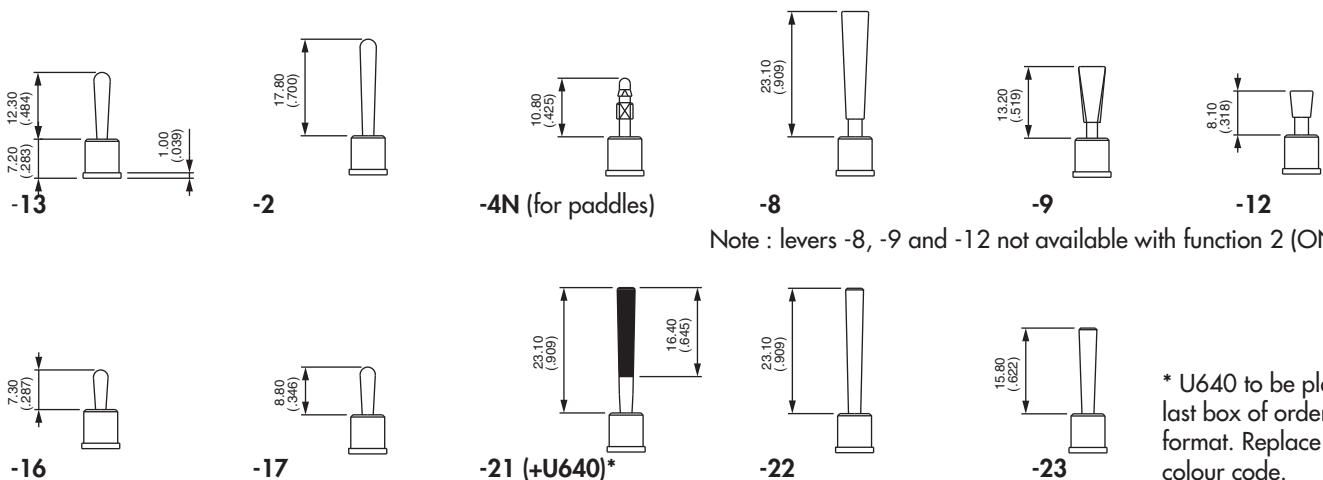


	III	II	I
	2-3		1-2
	5-6		4-5
Single pole			
5236W X404	5246W X404	ON -	ON
5239W X404	5249W X404	ON OFF	ON
5237W X404	5247W X404	MOM OFF	MOM
5238W X404	5248W X404	ON OFF	MOM
5232W X404	5242W X404	ON -	MOM
	5244W X404*	ON ON	ON
	5244W1R X404*	ON ON	MOM
	5244W2R X404*	MOM ON	MOM



* Function 4 : SP in DP case - specify CT or TH connections, see end of catalogue.

Levers lengths for WX404 (also available with X445 option)



Note : levers -8, -9 and -12 not available with function 2 (ON-MOM)

* U640 to be placed in last box of ordering format. Replace 0 by colour code.

Insulating caps and paddles for X404 :

Insulating cap U1710 available with lever style 16.

Paddles U240N, U290N and U390N available with lever style 4N. See details on next pages.



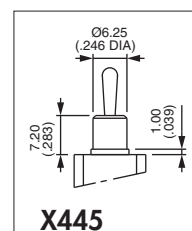
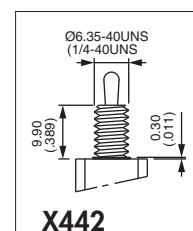
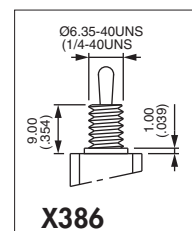
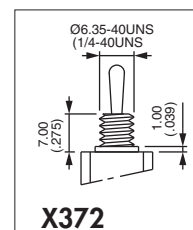
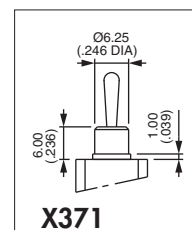


SPECIAL OPTIONS (continued)



With options X372, X386, X442 and X445, the lever lengths indicated on previous pages will be modified.

- X371** Plain bushing Ø 6,25 mm (.246) (instead of standard threaded bushing).
- X372** Threaded bushing Ø 6,35 (1/4). **Height 7 mm (.274)**.
- X386** Threaded bushing Ø 6,35 mm (1/4) to replace plain bushing on models W - WW and Y.
- X442** Threaded bushing Ø 6,35 mm (1/4) - **Height 9,9 mm (.389)**.
- X445** Plain bushing. **Height 7,2 mm (.283)** - for W, WW and Y models. Available with the same levers, insulating cap and paddles as X404.
- X601** **Silver plated brass contacts.**
Current/voltage rating for an electrical life of 20.000 cycles :
0,2A 250VAC - 0,4A 125VAC - 0,5A 30VDC.
Minimum quantity : 5.000 pieces per model and shipment.



X681 **Satin chrome** actuator

X814 Switches for peak currents

Peak current up to 120A (1 ms) 60VDC - single/double pole



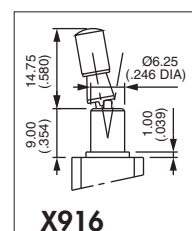
Single pole
5636A X814 ON - ON

Double pole
5646A X814 ON - ON

- Contacts : silver/nickel alloy (AgNi)
- Max. current/voltage rating :
2/120A (1 ms) 60VDC - 10.000 cycles
3/40A 125VAC - 250VAC - 10.000 cycles
- Further specifications and dimensions : see 5600 series.
- General information on peak currents : see end of catalogue.

X902 Plain bushing Ø 6,25 mm (.246) - **Height 9 mm (.354)**.

X916 Locking lever on model with plain bushing.



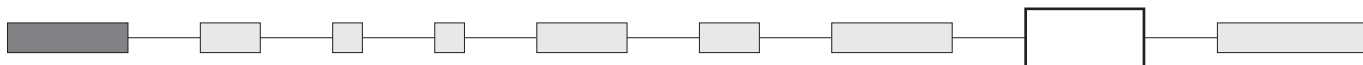
5000 series

Toggle switches

ermec@ermec.com

OPTIONS

AGENCY APPROVALS



UL
CSA
CECC

All standard models, except 5200MIWR

Standard models 5600 - 5200

Availability : consult factory for details of approved combinations or options.

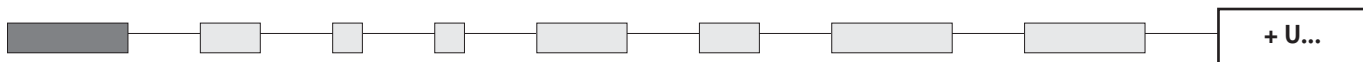
Marking : to order switches marked UL, CSA or CECC, complete above box with desired approvals, in this order & without space (ex. : ULCSACECC). Blank : no agency approval required.

VDE (with UL & CSA)

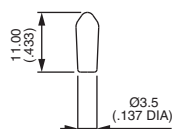
Refer to 55000 series on the following pages.

Preferential lists : see specifications.

INSULATING CAPS AND PADDLES

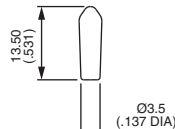


Insulating caps



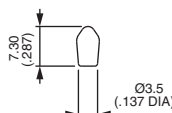
U270

For lever 13 and threaded bushing only



U1040

For lever 13 and plain bushing only



U1710

For lever 17 and threaded bushing
For lever 7 and plain bushing

Cap colours

Replace last
"0" by number

1	blue
1/4	dark blue
2	black
3	green
4	grey
5	yellow
6	red
7/1	white
9	orange



Insulating caps are not available in ivory colour.



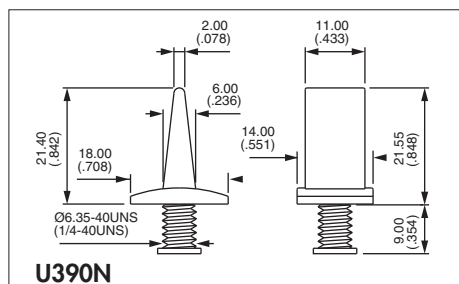
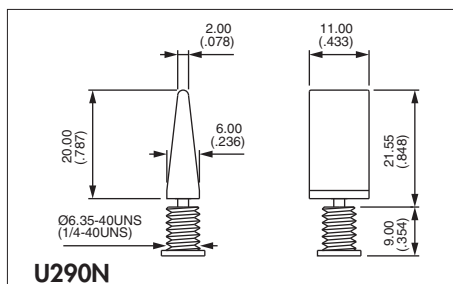
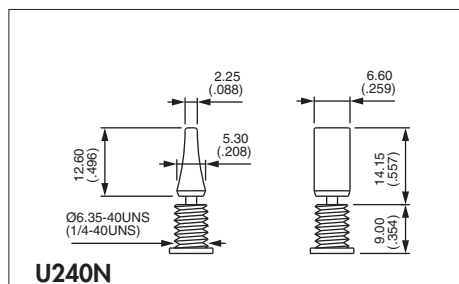
www.ermec.com



INSULATED CAPS AND PADDLES (continued)

Paddles

For use with lever 4N only. Shown with standard threaded bushing. Order separately.



Paddle colours

Replace last
"0" by number

1	blue
1/4	dark blue
2	black
3	green
4	grey
5	yellow
6	red
7	ivory
7/1	white
9	orange

55000 series

VDE approved toggle switches

ermec@ermec.com

ME L
STRUCTURE



EN 61058-1



- The switches described below are marked VDE as standard.
- UL and CSA agency approvals are also available. To order a switch marked UL or CSA, please complete "Other agency approvals" box.

ELECTRICAL SPECIFICATIONS

- Class I (normal insulation)
- Small contact opening : μ (< 3 mm (.118))
- Current/voltage rating with resistive load : 3A 250VAC - 6A 125VAC
- Dielectric strength :
2.000 Vrms 50 Hz min. between poles and between terminals and frame
1.000 Vrms 50 Hz min. between terminals
- Special body for increased creepage distance and air gap : 3 mm (.118)

GENERAL SPECIFICATIONS

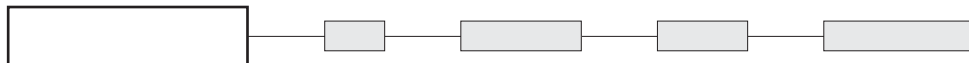
- Insulating cap, compulsory, supplied glued on the lever :
U270 for models 55600A, 55200A and 55200ZA
U1040 for models 55200WA and 55200WA X433
- Ground connector :
U721 compulsory if the panel is not metallic or not connected to ground
- Epoxy sealed terminals standard

MATERIALS

- Contacts : silver
- Case : diallylphthalate (DAP)
- Actuator : brass, chrome plated with insulating vinyl cap
- Bushing : brass, nickel plated
- Housing : stainless steel
- Terminal seal : epoxy

Further specifications, see 5000 series.

MODEL STRUCTURE



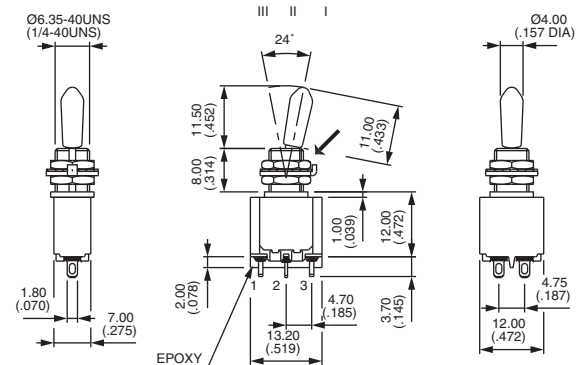
Solder lugs

→ Keyway

III	II	I
2-3		1-2
5-6		4-5

Single pole Double pole

55636A	55646A	ON	-	ON
55639A	55649A	ON	OFF	ON



Also available with $\varnothing$ 6 mm (.236) bushing : **55500**.

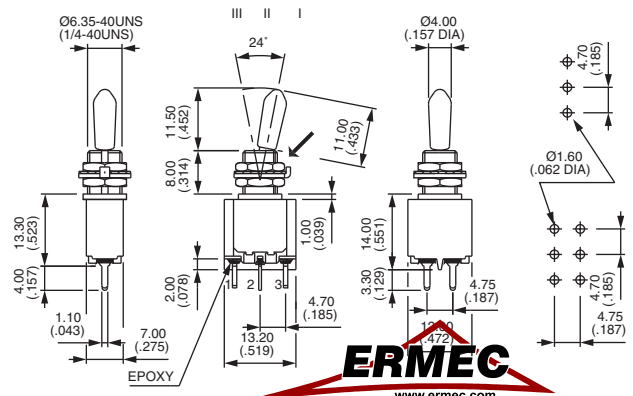
Straight PC terminals

→ Keyway

III	II	I
2-3		1-2
5-6		4-5

Single pole Double pole

55236A	55246A	ON	-	ON
55239A	55249A	ON	OFF	ON



Also available with $\varnothing$ 6 mm (.236") bushing : **55100**.

www.ermec.com



55000 series

VDE approved toggle switches

Right angle terminals - horizontal

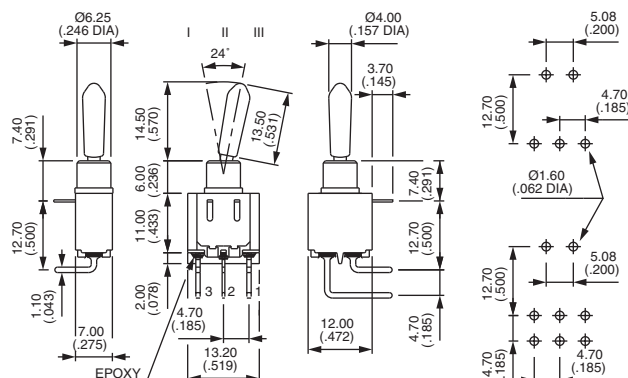
III	II	I
2-3		1-2
5-6		4-5

Single pole Double pole*

55236WA	55246WA X433	ON	-	ON
55239WA	55249WA X433	ON	OFF	ON

"X433" to be placed in the third box of ordering format.

Also available for VERTICAL mounting (on request).



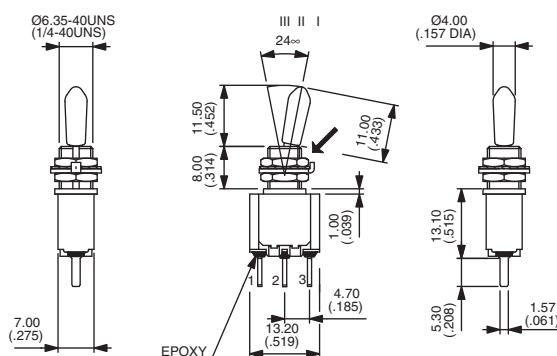
Quick-connect terminals

→ Keyway

III	II	I
2-3		1-2

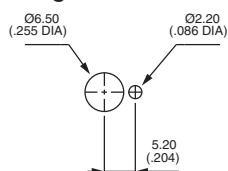
Single pole

55236Z	ON	-	ON
55239ZA	ON	OFF	ON

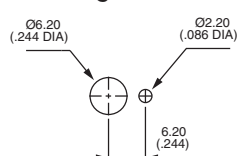


PANEL CUT-OUT

Bushing Ø 6,35 (1/4)

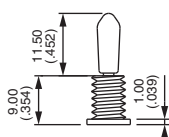


Bushing Ø 6 (.236)



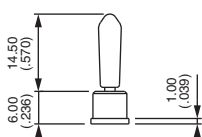
* In double pole W models, spacing between poles on PCB is different from standard : 4,7 mm (.185) instead of 3,81 mm (.150)

LEVERS



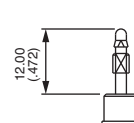
Blank

For threaded bushing models
Cap U270 compulsory



Blank

For plain bushing models
Cap U1040 compulsory



-4N

For use with **ERMEC**
www.ermec.com

www.ermec.com

55000 series

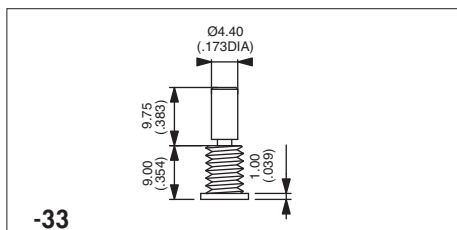
VDE approved toggle switches

ermec@ermec.com

OPTIONS

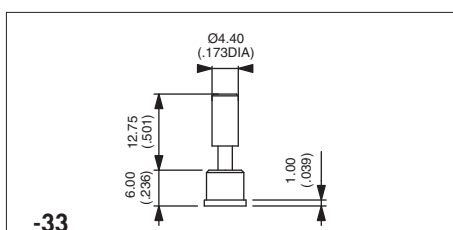


LEVERS (continued)



-33

For threaded bushing models



-33

For plain bushing models

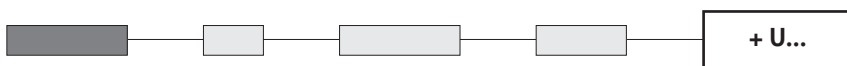
OTHER AGENCY APPROVALS



UL
CSA

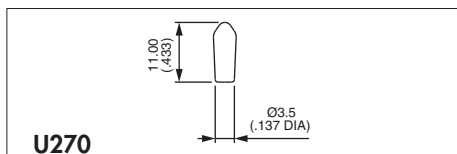
To order a switch additionally marked UL and/or CSA, complete above box with desired approvals (ex. ULCSA).

INSULATING CAPS AND PADDLES



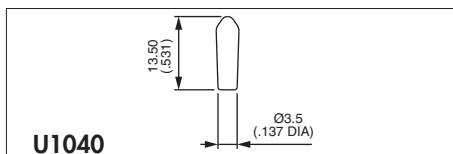
Insulating caps

Compulsory - delivered assembled on the lever - not available in ivory colour



U270

For threaded bushing models

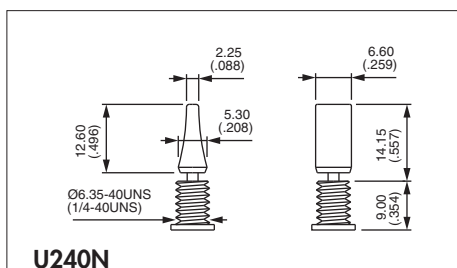


U1040

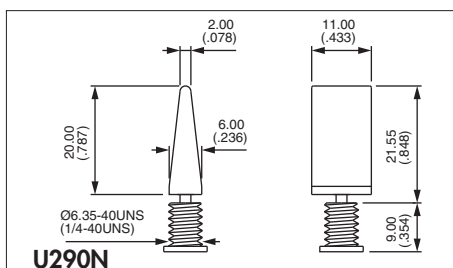
For plain bushing models

Paddles

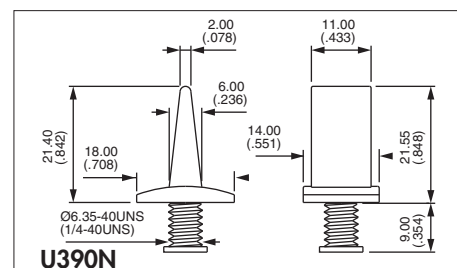
For use with lever 4N only. Shown with threaded bushing. Order separately.



U240N



U290N



U390N

Cap/paddle colours

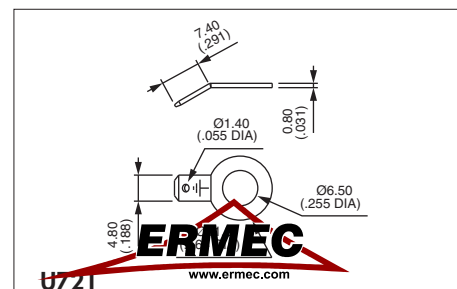
Replace last "0" by number

- | | |
|-----|-----------|
| 1 | blue |
| 1/4 | dark blue |
| 2 | black |
| 3 | green |
| 4 | grey |
| 5 | yellow |
| 7 | ivory |
| 7/1 | white |
| 9 | orange |



GROUND CONNECTOR

IMPORTANT : compulsory on models with threaded bushing if the panel is not metallic or not connected to ground. Order separately.



U721

www.ermec.com

21000N series

Low profile toggle switches

Distinctive features and specifications



- ☐ Available with threaded or plain bushing, both with mounting plate
- ☐ Low profile - same height for single and double pole
- ☐ Wave solderable only

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A) : 2A 250VAC - 4A 125VAC - 4A 30VDC
 - gold plated brass contacts (LD) : 100mA 30VDC
- Minimum load :
 - silver contacts (A) : 100mA 10V
 - gold plated brass contacts (LD) : 10 μ A 5VDC - 10mA 50mV
- Initial contact resistance : 20 m Ω max.
- Insulation resistance : 1.000 M Ω min. at 500VDC
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals
 - 2.000 Vrms 50 Hz min. between poles
 - 2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life at full load :
 - silver contacts (A) : 20.000 cycles
 - gold plated brass contacts (LD) : 50.000 cycles
- Low level or mechanical life : 100.000 cycles

MATERIALS

- Case and cover : PBT
- Actuator : brass, nickel plated
- Bushing : brass, nickel plated
- Contacts
 - A : silver
 - LD : brass, gold plated

GENERAL SPECIFICATIONS

- Operating temperature : -40°C to +85°C



www.ermec.com

21000N series

ermec@ermec.com

Low profile toggle switches

Overview



21

SERIES

Terminals and bushings

- 1 Straight PC terminals, threaded bushing
- 2 Straight PC terminals, plain bushing

Number of poles

- 3 Single pole
- 4 Double pole

Electrical functions

6	ON	-	ON
9	ON	OFF	ON
7	MOM	OFF	MOM
8	ON	OFF	MOM
2	ON	-	MOM

N

Version

N
For all models.

OPTIONS

Contact materials

- A** Silver
LD Brass, gold plated

Finish

- Blank** Bright chrome finish
G Matt black finish on bushing, actuator and hardware.

Sealing

- Blank** Epoxy sealed terminals standard
K Sealing by O-ring

ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



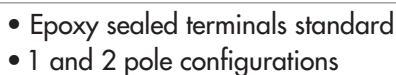
Mounting accessories : standard hardware supplied with all models with threaded bushing : 2 hex nuts 8 mm (.314) across flats. Standard and special hardware available are presented in section I.



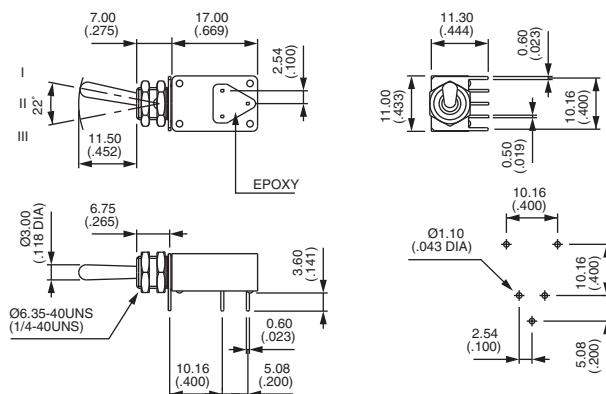
Packaging unit : 50 pieces for SP models, 25 pieces for DP.



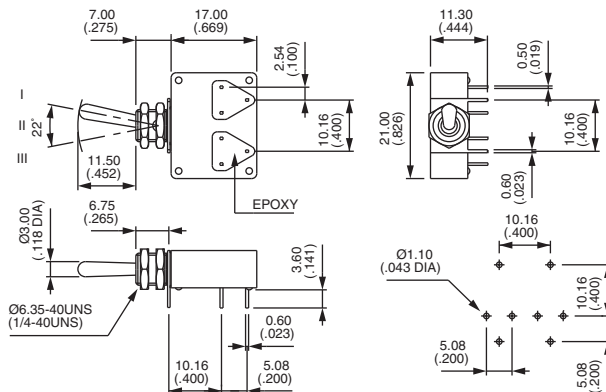
www.ermec.com



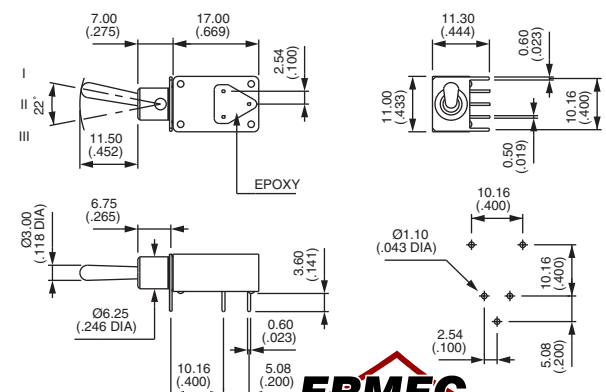
III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



III	II	I
2-3		1-2
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



ERMEC
www.ermec.com

Low profile toggle switches

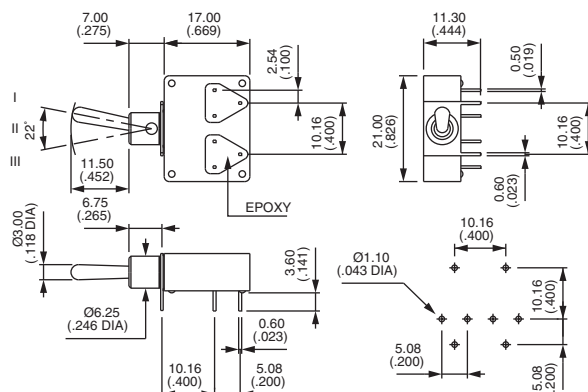
STRUCTURE

STRUCTURE

21246N
21249N
21247N
21248N
21242N

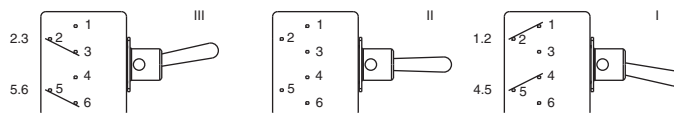


III	II	I
2-3		1-2
5-6		4-5
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



Ø6.50
(.255 DIA)

Bottom view



Function 6	ON	-	ON
Function 9	ON	OFF	ON
Function 7	MOM	OFF	MOM
Function 8	ON	OFF	MOM
Function 2	ON	-	MOM



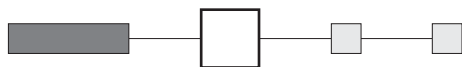
www.ermec.com



21000N series

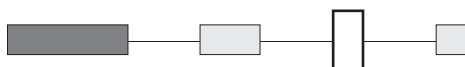
Low profile toggle switches

CONTACT MATERIALS



A Silver
LD Brass, gold plated

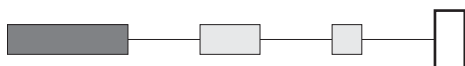
FINISH



Blank Bright chrome finish on actuator, nickel plating for bushing and hardware.

G Matt black finish on bushing, actuator and hardware

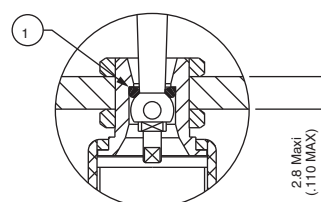
SEALING



Epoxy sealed terminals are standard.

Blank No sealing except standard.

K Bushing internally sealed by one O-ring (version without washer U360). Protects the switch against water and dust.



① O-ring



www.ermec.com

10600 series

ermec@ermec.com

Professional toggle switches - threaded bushing Ø 10 (.393)

Distinctive features and specifications

☐ CECC approved

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
2A 220VAC - 3A 110VAC - 3A 24VDC
- Minimum load : 100µA 10mV
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
1.000 Vrms 50 Hz min. between terminals of the same pole
2.000 Vrms 50 Hz min. between terminals and frame
2.000 Vrms 50 Hz min. between terminals of adjacent poles
- Electrical life : 50.000 cycles

MATERIALS

- Case : diallylphthalate (DAP) or high temperature plastic material (UL94-V0)
- Actuator : brass, nickel plated
- Bushing : brass, nickel plated
- Housing : stainless steel
- Contacts :
 - silver
 - silver, gold plated
- Terminal seal : epoxy

HOMOLOGATION



CECC 96201-007

Availability : consult factory for details of approved models.

Marking : to order switches marked CECC, add "CECC" to model number.

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.106 Ft.lb) max. applied to nut
- Max. panel thickness :
4 mm (.157)
- Operating temperature :
-40°C to +85°C

ABOUT THIS SERIES

Complete part numbers are shown on the following pages.

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 1 knurled cap nut, 1 hex nut, 1 locking ring and 1 lockwasher. They are presented in section I.



Packaging unit : 25 pieces.

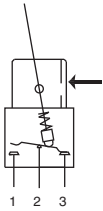


www.ermec.com

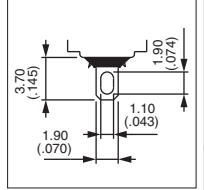
10600 series

Professional toggle switches - threaded bushing Ø 10 (.393)

→ Keyway



- Solder lug terminals
- 2 and 3 positions
- 1 and 2 pole configurations
- Available with matt black finish :
consult factory for model number



2 positions - single pole



Silver contacts

106362103

106322103

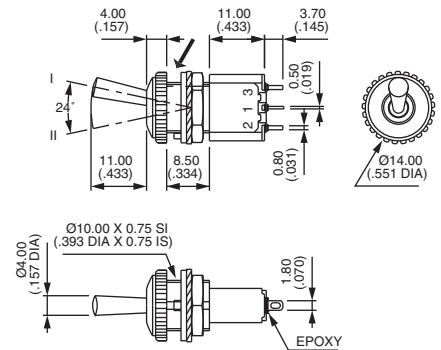
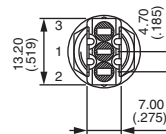
Gold plated silver contacts

106361175

106321175

II	I
1-3	1-2
ON - ON	ON - MOM
ON - MOM	ON - MOM

→ Keyway



2 positions - double pole



Silver contacts

106462103

106422103

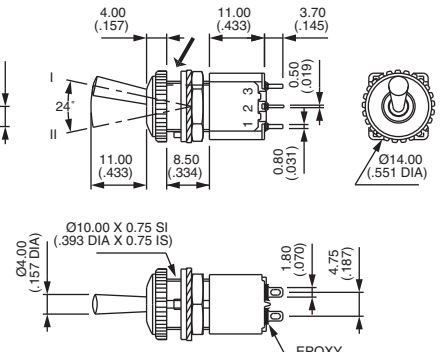
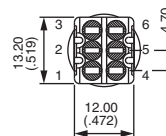
Gold plated silver contacts

106461175

106421175

II	I
2-3	2-1
5-6	5-4
ON - ON	ON - MOM
ON - MOM	ON - MOM

→ Keyway



3 positions - single pole



Silver contacts

106392103

106372103

106382103

Gold plated silver contacts

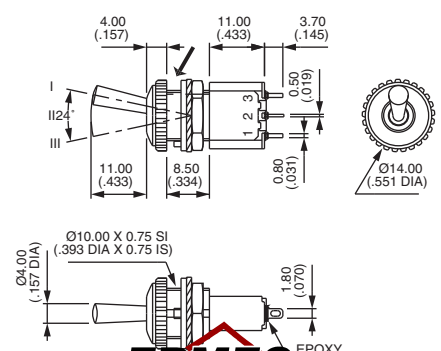
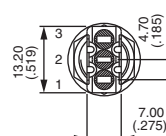
106391175

106371175

106381175

III	II	I
2-3		2-1
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM

→ Keyway



www.ermec.com

10600 series

ermec@ermec.com

Professional toggle switches - threaded bushing Ø 10 (.393)

3 positions - double pole

III	II	I
2-3		2-1
5-6		5-4

→ Keyway



Silver contacts

106492103

106472103

106482103

106440886*

ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	ON	ON
	(2-3)	
	(5-4)	

Gold plated silver contacts

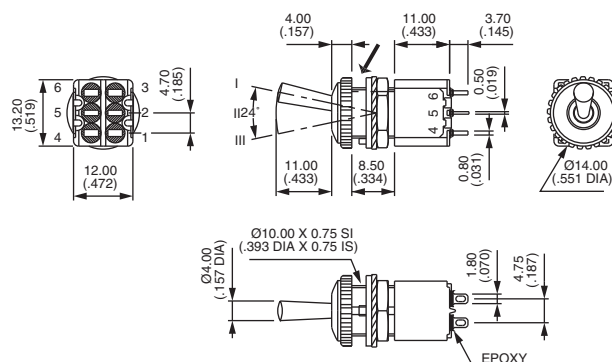
106491175

106471175

106481175

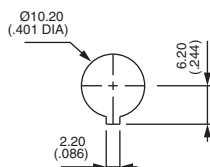
106440944*

ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	ON	ON
	(2-3)	
	(5-4)	



* Function 4 : SP in DP case. See Positions and Connections type TH, end of catalogue.
Jumper between terminals 2 and 4 to be wired by the user.

PANEL CUT-OUT



www.ermec.com

11000 and 12000 series

Professional toggle switches

Distinctive features



☐ Applications

These switches are specially manufactured for defence, telecommunications and other professional applications.

☐ Approvals



CECC 96201-005
CECC 96201-008

- Meeting the requirements of **MIL** standard (MIL 3950)



☐ Robust switches for high specification environments

☐ Toggle action on 2-position models giving smooth mechanical operation

☐ Plastic material with high insulation resistance

☐ Several front panel sealing options

☐ Several locking lever options (12000 series)

☐ Bright chrome, satin chrome or matt black finish



www.ermec.com

11000 series

ermec@ermec.com

Professional toggle switches - threaded bushing Ø 6,35 (1/4)

Specifications

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A-AD2-X780) : 2A 250VAC - 4A 125VAC - 4A 30VDC
 - gold contacts (D) : 200mA 250VAC - 400mA 125VAC
- Minimum load : AD2-X780-D contacts : 10mA 50mV, 10µA 5V min.
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals
 - 2.000 Vrms 50 Hz min. between poles and between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life at full load :

Peak currents, refer to "Special options".

Contacts	Max. current/voltage rating	Number of cycles	
		2 positions	3 positions
A	2A 250VAC - 4A 125VAC - 4A 30VDC	50.000	50.000
AD2 X780	2A 250VAC - 4A 125 VAC - 4A 30VDC (Gold plating : 100mA 30VDC max.)	20.000	20.000
D	200mA 250VAC - 400mA 125VAC	80.000	50.000
Low level or mechanical life		150.000	100.000

MATERIALS

- Case : diallylphthalate (DAP)
- Actuator : brass, nickel plated
- Bushing : brass, nickel plated
- Housing : brass, nickel plated
- Contacts
 - A** : silver
 - AD2** : gold plated silver (2 microns gold)
 - X780** : solid rivet - gold plated silver/nickel alloy
 - D** : solid gold rivet
 - X910** : silver/nickel alloy (for peak currents, see "Special options")
- Terminal seal : epoxy

Note : AD2 and X780 contacts can be used for high level applications. In this case, the gold layer is considered only as a protection against oxidation during storage.

GENERAL SPECIFICATIONS

- Torque : 1,25 Nm (.92 Ft.lb) max. applied between the 2 nuts
- Standard panel thickness : 2,5 mm (.098) max.
- Operating temperature : -40°C to +85°C

RELIABILITY - RUN-IN TEST

Upon request, each individual switch can be submitted to a low level run-in test of 50 or 250 cycles to ensure suitability for special applications requiring a very high level of reliability (military, etc.).

AGENCY APPROVALS



CECC 96201-005
CECC 96201-008

Availability : consult factory for details of approved models.

Marking : to order switches marked CECC, complete appropriate box of ordering format.

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Packaging unit : 25 pieces or 50 pieces depending on models.

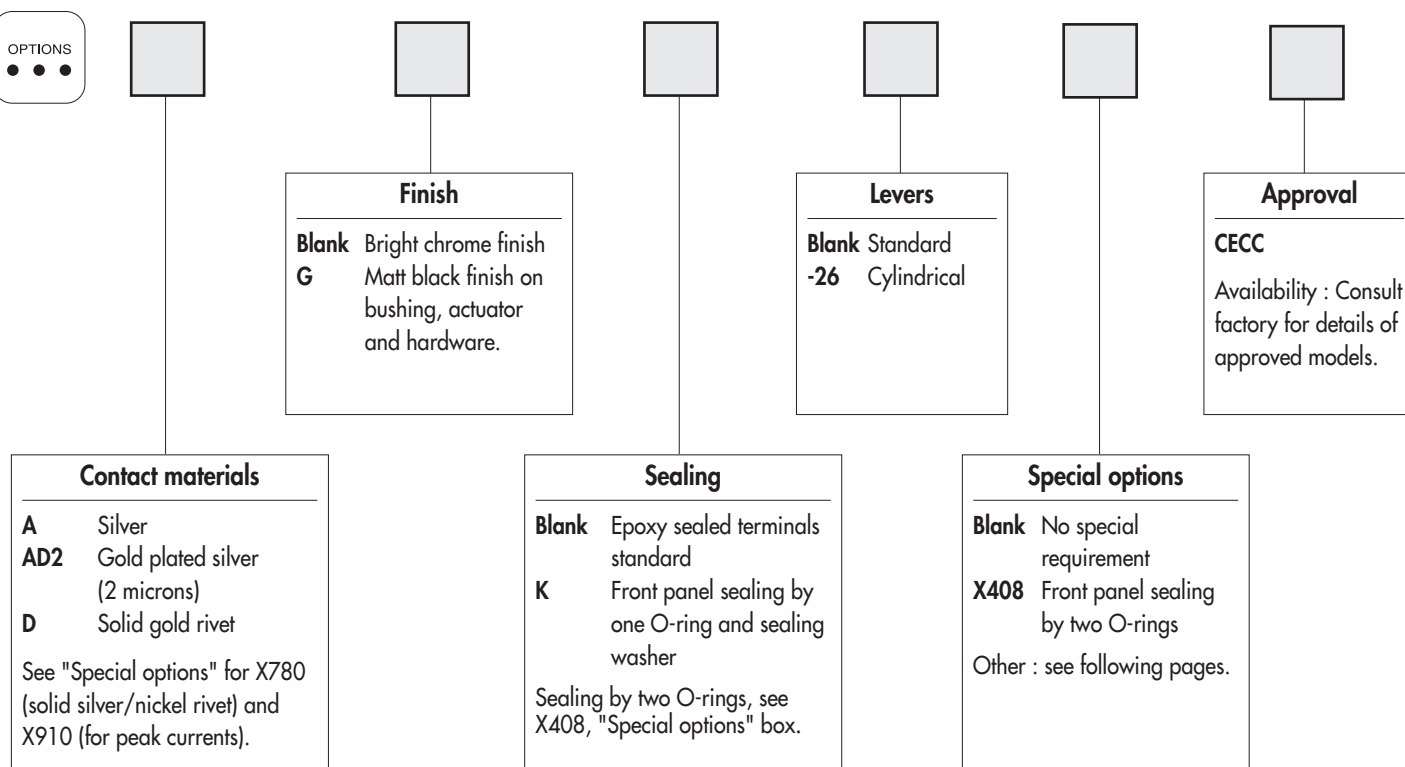
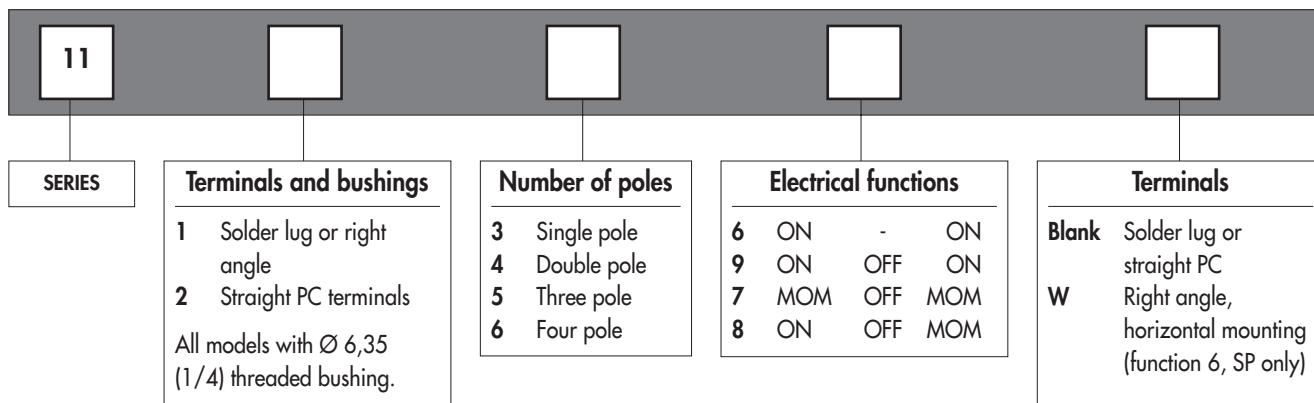


www.ermec.com

11000 series

Professional toggle switches - threaded bushing Ø 6,35 (1/4)

Overview



NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 2 hex nuts 8 (.314) across flats, 1 locking ring and 1 lockwasher. Standard and special hardware available are presented in section I.



www.ermec.com

11000 series

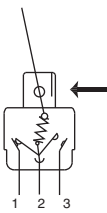
Professional toggle switches - threaded bushing Ø 6,35 (1/4)

ermec@ermec.com

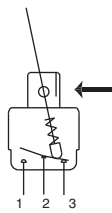
MODEL STRUCTURE

—

→ Keyway

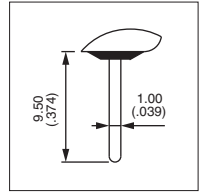
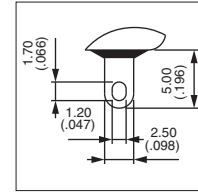


Function 6

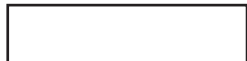


Other functions

- Solder lug, straight PC or right angle terminals
- Epoxy sealed terminals standard



MODEL
STRUCTURE



Shown with standard lever

Solder lug terminals - single pole

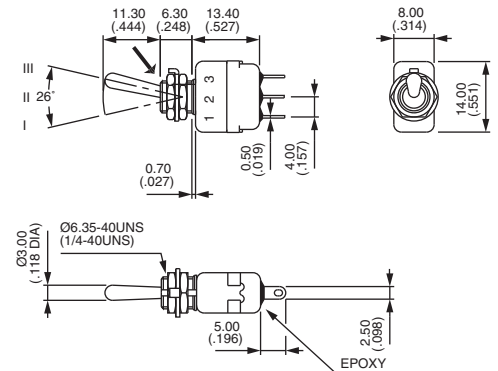


11136
11139
11137
11138

I II III

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM

→ Keyway



Solder lug terminals - double pole

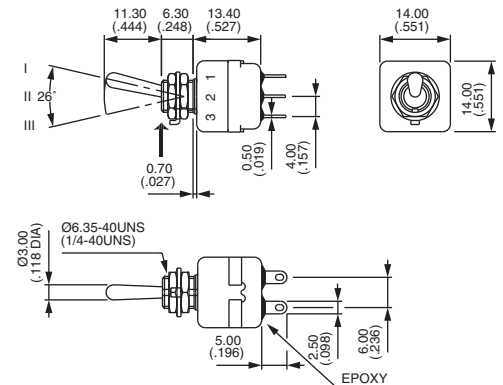
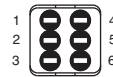


11146
11149
11147
11148

I II III

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM

→ Keyway



Solder lug terminals - three pole

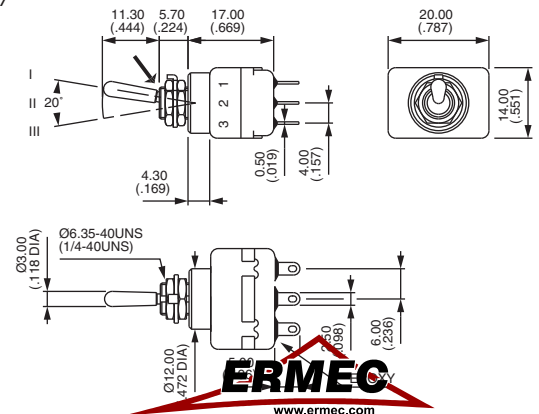


11156
11159
11157
11158

I II III

ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM

→ Keyway



www.ermec.com

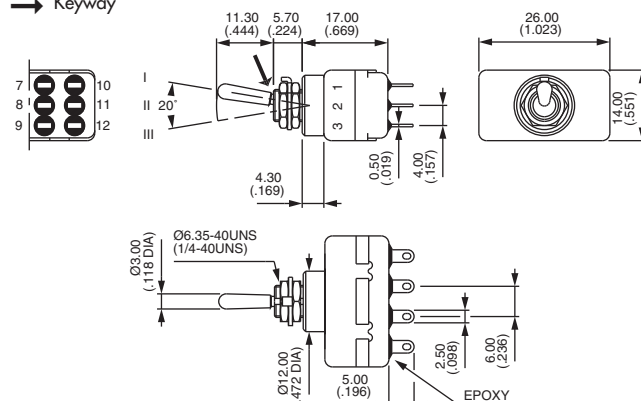
Solder lug terminals - four pole



11166
11169
11167
11168

II	II	III
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM

→ Keyway



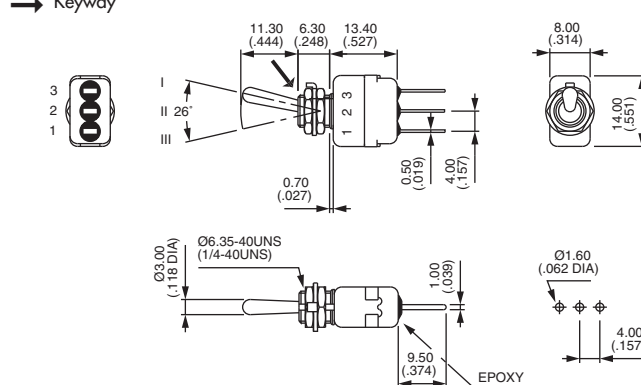
Straight PC terminals - single pole ▲



11236

II	II	III
ON	-	ON

→ Keyway



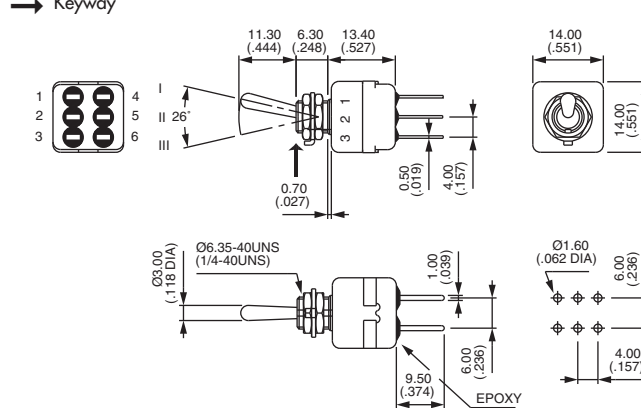
Straight PC terminals - double pole ▲



11246

II	II	III
ON	-	ON

→ Keyway



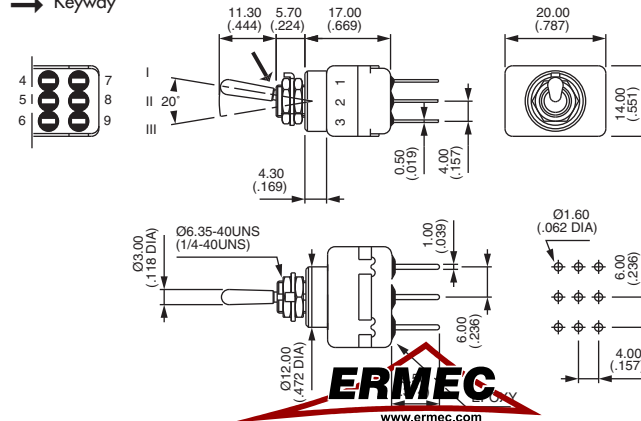
Straight PC terminals - three pole ▲



11256

II	II	III
ON	-	ON

→ Keyway



10/10/2016

A

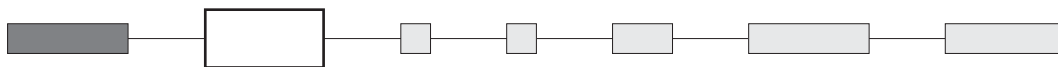
APEM



11000 series

Professional toggle switches - threaded bushing Ø 6,35 (1/4)

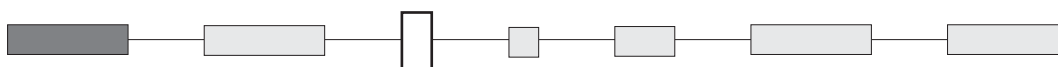
CONTACT MATERIALS



- A** Silver
- AD2** Gold plated silver (2 micron gold)
- D** Solid gold rivet

See "Special options" for contacts X780 (solid silver/nickel rivet) and contacts X910 (for peak currents).

FINISH



- Blank** Bright chrome finish
- G** Matt black finish on bushing, lever and hardware.

Other finish, consult factory.

SEALING

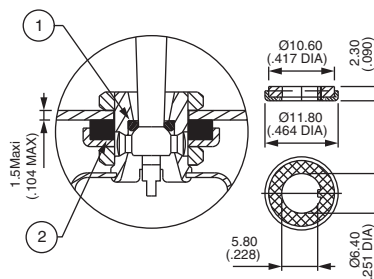


Epoxy sealed terminals are standard.

- Blank** No sealing except standard
- K** Front panel sealing by O-ring and sealing washer. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.



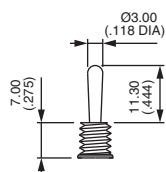
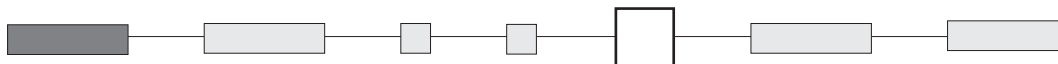
Not available on 11000W model.



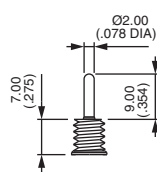
- ① O-ring
- ② Sealing washer

Sealing by two O-rings, see X408 under "Special options".
Sealing boots : see section H.

LEVERS



- Blank**
- Standard



- 26**
- Cylindrical



www.ermec.com

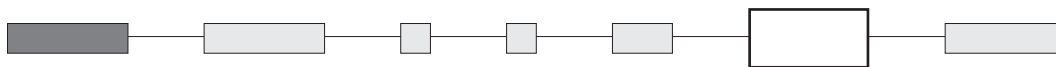
11000 series

Professional toggle switches - threaded bushing Ø 6,35 (1/4)

ermec@ermec.com



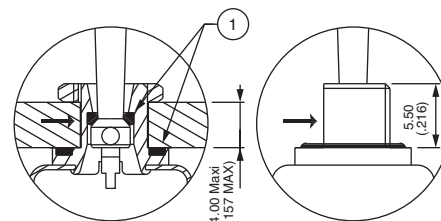
SPECIAL OPTIONS



- X408** Front panel sealing by two O-rings. Flatted bushing for precise orientation.
Protects the switch against water and dust.
Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.



Not available on 11000W model.



X408

→ Flat

① O-rings

- X780** Solid rivet, gold plated silver/nickel alloy

- X910** Switches for peak currents

Peak current up to 80A (1 ms) 60VDC - single/double pole



Single pole
11136 X910

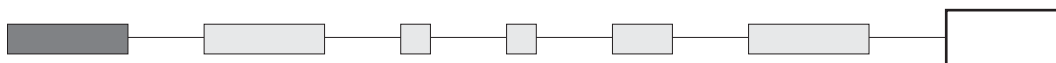
ON - ON

Double pole
11146 X910

ON - ON

- Contacts : solid rivet - silver/nickel alloy (AgNi)
- Max. current/voltage rating :
3/80A (1 ms) 60VDC - 10.000 cycles
2/30A 250VAC - 10.000 cycles
- Further specifications and dimensions : see previous pages
- General information on peak currents : see end of catalogue.

AGENCY APPROVALS



- CECC** CECC 96201-005 (high level - contacts X780)
CECC 96201-008 (low level - contacts AD2 or D)

Availability : consult factory for details of approved models.

Marking : to order switches marked CECC , complete above box with "CECC".
Blank : no agency approval required.



www.ermec.com

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A-AD2-X780) : 2A 250VAC - 4A 125VAC - 4A 30VDC
 - gold contacts (D) : 200mA 250VAC - 400mA 125VAC
- Minimum load : AD2-X780-D contacts : 10mA 50mV, 10µA 5V min.
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals
 - 2.000 Vrms 50 Hz min. between poles and between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life at full load :

Peak currents, refer to "Special options".

Contacts	Max. current/voltage rating	Number of cycles	
		2 positions	3 positions
A	2A 250VAC - 4A 125VAC - 4A 30VDC	50.000	50.000
AD2 X780	2A 250VAC - 4A 125 VAC - 4A 30VDC (Gold plating : 100mA 30VDC max.)	20.000	20.000
D	200mA 250VAC - 400mA 125VAC	80.000	50.000
Low level or mechanical life		150.000	100.000

MATERIALS

- Case : diallylphthalate (DAP)
- Actuator : brass, chrome plated
- Bushing : brass, nickel plated
- Housing : brass, nickel plated
- Contacts
 - A** : silver
 - AD2** : gold plated silver (2 microns gold)
 - X780** : solid rivet - gold plated silver/nickel alloy
 - D** : solid gold rivet
 - X910** : silver/nickel alloy (for peak currents, see "Special options")
- Terminal seal : epoxy

Note : AD2 and X780 contacts can be used for high level applications. In this case, the gold layer is considered only as a protection against oxidation during storage.
Tin dipped terminals available, see "Special options".

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied between the 2 nuts
- Standard panel thickness : 4,5 mm (.177) max.
- Operating temperature : -40°C to +85°C

RELIABILITY - RUN-IN TEST

Upon request, each individual switch can be submitted to a low level run-in test of 50 or 250 cycles to ensure suitability for special applications requiring a very high level of reliability (military, space, etc.).

AGENCY APPROVALS



CECC 96201-005
CECC 96201-008

Designed to **MIL** specifications

Availability : consult factory for details of approved models.

Marking : to order switches marked CECC, complete appropriate box of ordering format.

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Packaging unit : 2 pole models : 25 pieces - 3 & 4 pole models : 20 pieces.



www.ermec.com

12000 series

ermec@ermec.com

Professional toggle switches - threaded bushing Ø 11,9 (15/32)

Overview



12

SERIES

Terminals and bushings

- 1 Solder lug terminals
- 2 Straight PC terminals

All models with threaded bushing Ø 11,9 (15/32). Bushing Ø 15 (.590), see X822 under "Special options".

Number of poles

- 4 Double pole
- 5 Three pole
- 6 Four pole

Electrical functions

6	ON	-	ON
9	ON	OFF	ON
7	MOM	OFF	MOM
8	ON	OFF	MOM
5	-	ON	MOM
4	ON	ON	ON
	ON	ON	MOM ▲
	MOM	ON	MOM ▲

Function 4

▲ Must not have blank in "momentary" box.

Momentary for function 4

- 1R ON ON MOM
- 2R MOM ON MOM

Leave blank for other functions.



Finish

- Blank** Bright chrome finish
- G** Matt black finish on bushing, actuator and hardware.

Satin chrome finish, see "Special options".

Fluorescent tip

- Blank** None
- 038** White fluorescent tip to lever

Available with matt black finish (G) only.

Special options

- Blank** No special requirement
- X408** Front panel sealing by two O-rings
- X822** Bushing Ø 15 (.590)
- Other : see foll. pages.

Contact materials

- A** Silver
- AD2** Silver, gold plated (2 micron gold))
- D** Solid gold rivet

See "Special options" for X780 (solid silver/nickel rivet) and X910 (for peak currents).

Sealing

- Blank** Epoxy sealed terminals standard
- K** Front panel sealing by one O-ring and sealing washer

Sealing by two O-rings, see X408, "Special options" box.

Levers

- Blank** Standard lever
- 12** Short lever

Locking levers

- 1V** 1 locked position
- 2V** 2 locked positions
- 3V** 3 locked positions
- Other : see foll. pages.

Approvals

CECC

Availability : Consult factory for details of approved models.



NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 2 hex nuts 14 (.551) across flange and 2 O-ring. Standard and special hardware available are presented in section I.

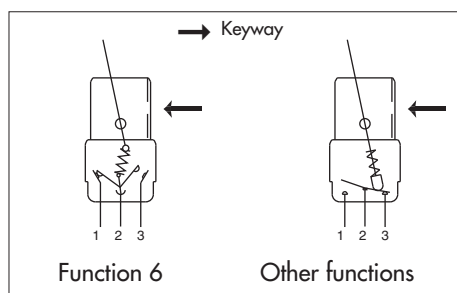
Security caps are available to prevent inadvertent lever operation. They are presented in section I.



www.ermec.com

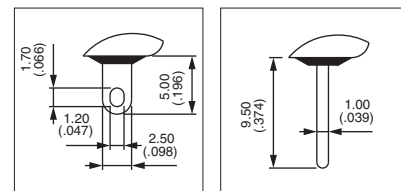
Professional toggle switches - threaded bushing Ø 11,9 (15/32)

Solder lug terminals : 12100

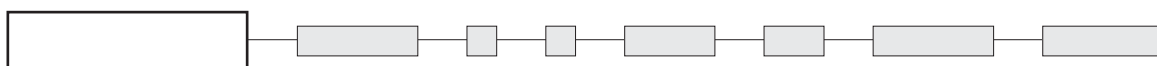


- Epoxy sealed terminals standard

Typical angle of throw (A)	
Function 6	26°
Functions 9, 7, 8, 4	20°
Function 5	12°



MODEL STRUCTURE



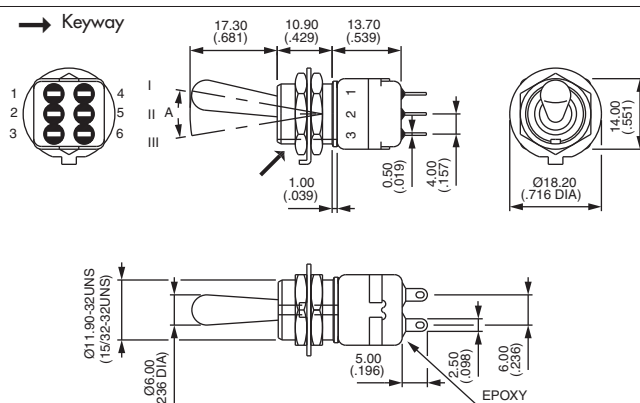
Shown with standard lever

Solder lug terminals - double pole



12146	ON	-	ON
12149	ON	OFF	ON
12147	MOM	OFF	MOM
12148	ON	OFF	MOM
12144*	ON	ON	ON
12144 1R*	ON	ON	MOM
12144 2R*	MOM	ON	MOM
12145	-	ON	MOM

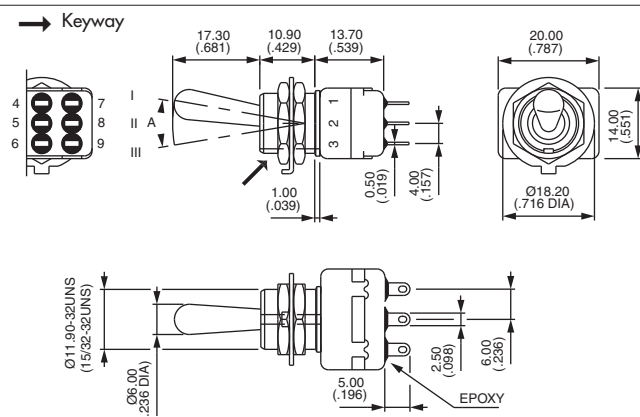
* Function 4 : SP in DP case - connections, see end of catalogue.



Solder lug terminals - three pole



12156	ON	-	ON
12159	ON	OFF	ON
12157	MOM	OFF	MOM
12158	ON	OFF	MOM

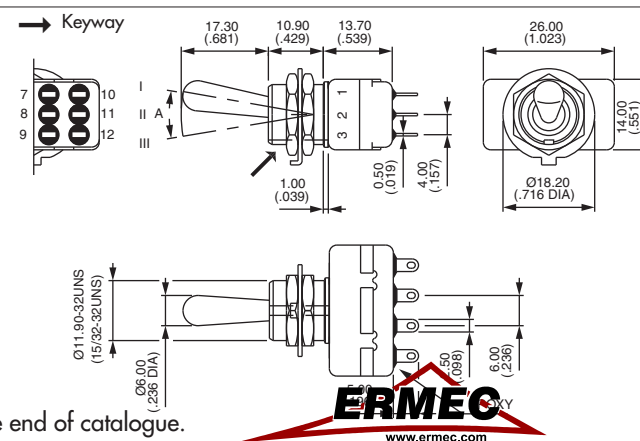


Solder lug terminals - four pole



12166	ON	-	ON
12169	ON	OFF	ON
12167	MOM	OFF	MOM
12168	ON	OFF	MOM
12164*	ON	ON	ON
12164 1R*	ON	ON	MOM
12164 2R*	MOM	ON	MOM

* Function 4 : DP in 4P case - connections, see end of catalogue.



12000 series

ermec@ermec.com

STRUCTURE

Professional toggle switches - threaded bushing Ø 11,9 (15/32)

Straight PC terminals : 12200

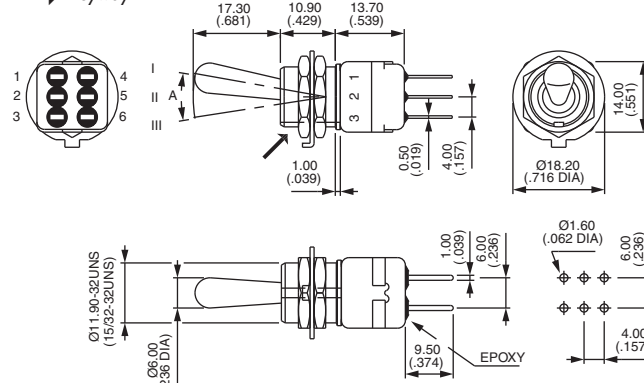
Straight PC terminals - double pole ▲



12246

I II III
ON - ON

→ Keyway



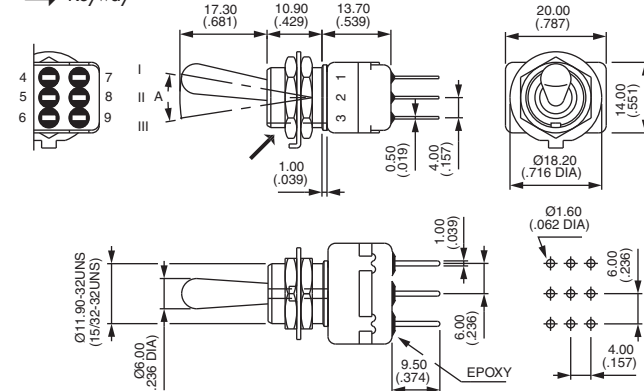
Straight PC terminals - three pole ▲



12256

I II III
ON - ON

→ Keyway



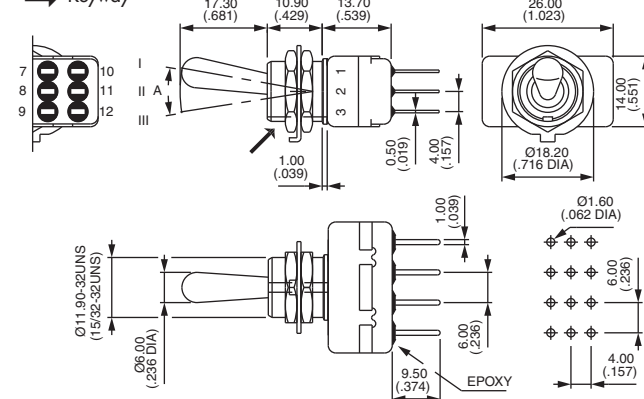
Straight PC terminals - four pole ▲



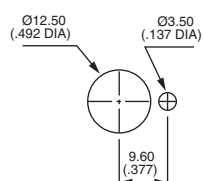
12266

I II III
ON - ON

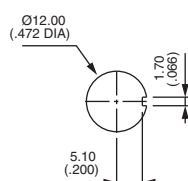
→ Keyway



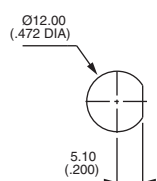
PANEL CUT-OUT



Standard

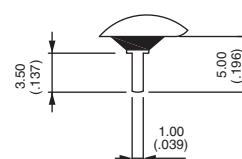


With K
sealing option



With X408
sealing option

▲ 3,5 mm (.138) short terminals available for function 6, as well as for functions 9, 7, 8, 4 and 5. On request.



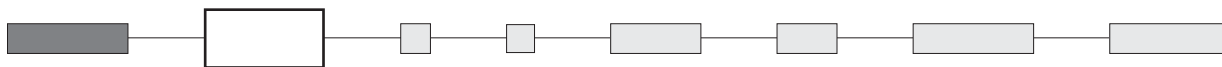
www.ermec.com



12000 series

Professional toggle switches - threaded bushing Ø 11,9 (15/32)

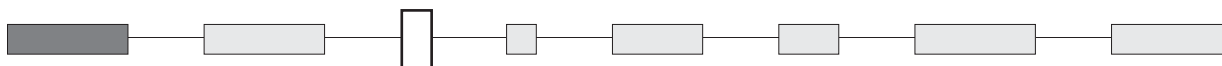
CONTACT MATERIALS



- A** Silver
- AD2** Silver, gold plated (2 micron gold)
- D** Solid gold rivet (except functions 4 and 5)

See "Special options" for contacts X780 (solid silver/nickel rivet) and contacts X910 (for peak currents).

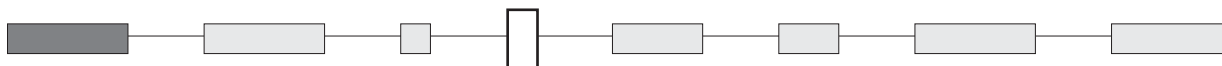
FINISH



- Blank** Bright chrome finish
- G** Matt black finish on bushing, lever and hardware.

For satin chrome finish, see "Special options".

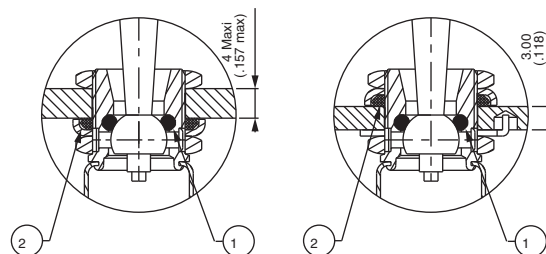
SEALING



Epoxy sealed terminals are standard.

- Blank** No sealing except standard.
- K** Front panel sealing by one O-ring and sealing washer. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.

Sealing by two O-rings, see X408 under "Special options".
Sealing boots : see section H.



① O-ring ② Sealing washer

FLUORESCENT TIP

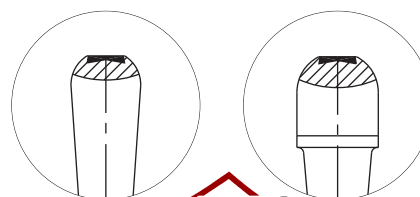


- Blank** None
- 038** White fluorescent tip. Becomes luminous when submitted to ultra-violet rays.



Available with matt black finish (option G) only.

Standard lever Locking lever



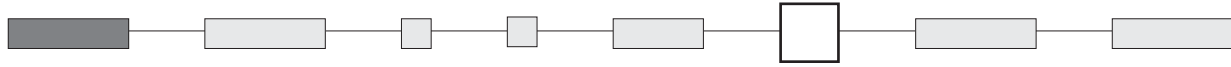
www.ermec.com

12000 series

Professional toggle switches - threaded bushing Ø 11,9 (15/32)

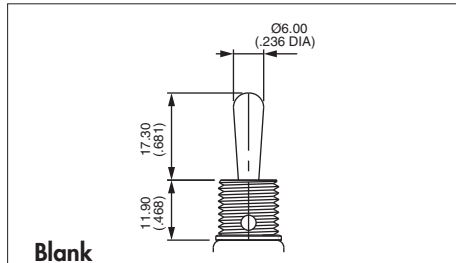
ermec@ermec.com
OPTIONS
• • •

ACTUATORS



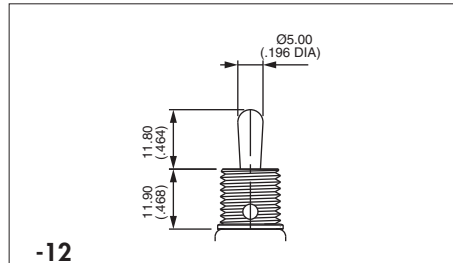
Levers

Dash compulsory before lever code.



Blank

Standard



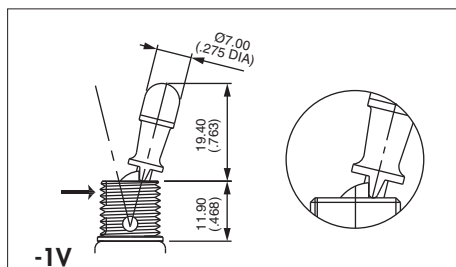
-12

Short lever

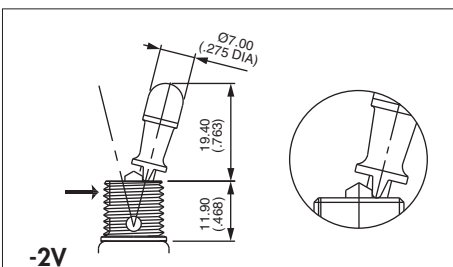
Security caps : see section I.

Locking levers

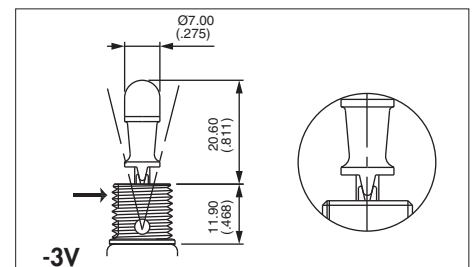
→ Keyway



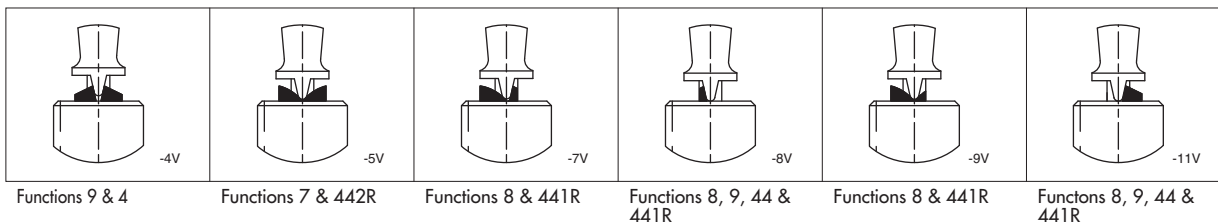
-1V
1 locked position (function 6)
Typical angle of throw : 26°



-2V
2 locked positions (function 6)
Typical angle of throw : 26°



-3V
3 locked positions (functions 9 and 4)
Typical angle of throw : 20°



Functions 9 & 4

Functions 7 & 442R

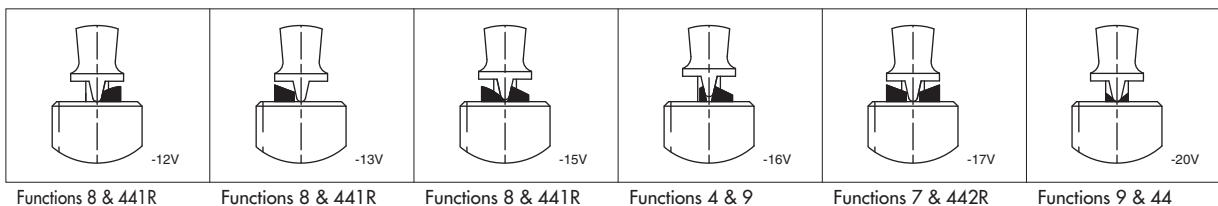
Functions 8 & 441R

Functions 8, 9, 44 & 441R

Functions 8 & 441R

Functions 8, 9, 44 & 441R

New!



Functions 8 & 441R

Functions 8 & 441R

Functions 8 & 441R

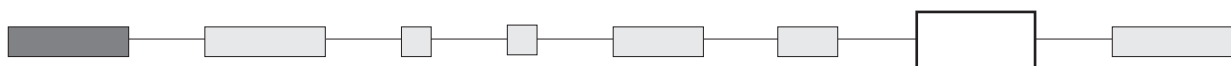
Functions 4 & 9

Functions 7 & 442R

Functions 9 & 44

Note : -5V and -12V are not true locking levers : no pulling is required before actuation.

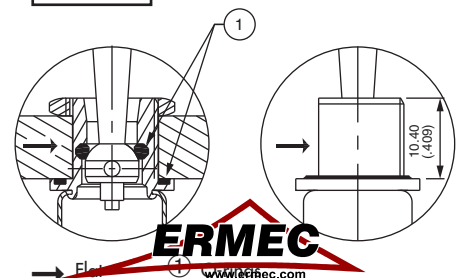
SPECIAL OPTIONS



Blank No special requirement.

X408 Front panel sealing by two O-rings. Flatted bushing for precise orientation. Panel thickness : 8 mm (.314) max., 3 mm (.118) min. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.

X545 Lever, bushing, housing, nuts and washers with satin chrome finish.



→ Fl. 10.40 (.409) www.ermec.com

www.ermec.com



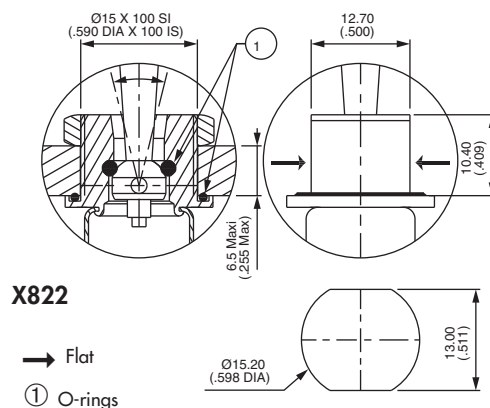
12000 series

Professional toggle switches - threaded bushing Ø 11,9 (15/32)

SPECIAL OPTIONS (continued)

X822 Threaded bushing Ø 15 (.590), with double flat
Not available with function 5 or locking levers.
Includes front panel sealing and X780 contact material.

X780 Solid rivet - gold plated silver/nickel alloy contacts
Not available with function 5.



X910 Switches for peak currents

Peak current up to 80A (1 ms) 60VDC - double pole

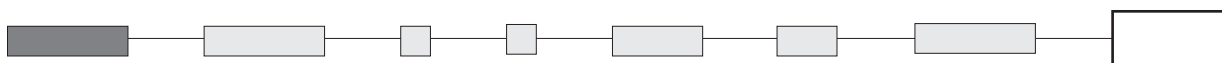


12146 X910

ON - ON

- Contacts : solid rivet - silver/nickel alloy (AgNi)
- Max. current/voltage rating :
3/80A (1 ms) 60VDC - 10.000 cycles
2/30A 250VAC - 10.000 cycles
- Further specifications and dimensions : see previous pages
- General information on peak currents : see end of catalogue.

AGENCY APPROVAL



CECC CECC 96201-005 (high level - contacts X780)
CECC 96201-008 (low level - contacts AD2 or D)

Availability : consult factory for details of approved models.

Marking : to order switches marked CECC, complete above box with "CECC".
Blank : no agency approval required.



www.ermec.com

12000X778 series

ermec@ermec.com

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

Distinctive features

A



☐ Approval



CECC 96201-005
CECC 96201-008

This range of professional toggle switches is suitable for use in military and other high specification environments.

☐ Contacts

Highly reliable contacts suitable for low level applications (10mA 50mV - 10µA 5VDC min.) or power applications (2A 250VAC - 4A 125VAC - 4A 30VDC max.)

☐ Pinned lever

The base of the switch lever is pinned to the bushing, thus earthing the lever to the bushing. This also provides strain relief to protect the switch if accidentally knocked.

☐ Double shell case

For high mechanical strength and high electrical insulation.

☐ Compact size

The small rear end of the switch allows space saving behind the panel.

☐ Finish

Matt black finish on body, bushing, lever and hardware.

☐ Sealing

Panel sealed to IP 67, these switches are frontal sealed by two O-rings and have full rear end sealing.

☐ Accessories

A comprehensive range of protection boots (both full and half length), locking levers and security caps are available.



www.ermec.com

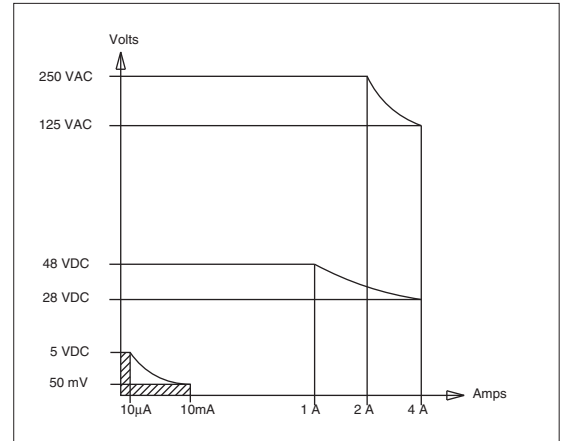
12000X778 series ermec.com

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

Specifications

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 250VAC - 4A 125VAC - 4A 28VDC
- Minimum load : 10mA 50mV, 10µA 5VDC
When used above 300mA 28VDC, the gold plating is removed on contact areas and is considered only as a protection against oxidation during storage.
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
1.000 Vrms 50 Hz min. between terminals
2.000 Vrms 50 Hz min. between poles
2.000 Vrms 50 Hz min. between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life :
- At 2A 250VAC - 4A 28VDC :
20.000 cycles (10.000 for functions 5, 4-1R, 4-2R)
- At low level (50mV 10mA) :
150.000 cycles (switches with 2 maintained positions)
100.000 cycles (switches with 3 maintained positions)
50.000 cycles (momentary functions 7, 8, 4-1R, 4-2R, 5)

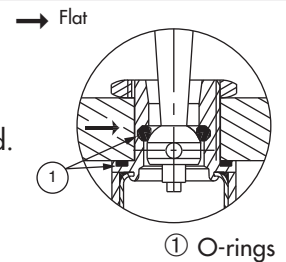


MATERIALS

- Case : diallylphthalate (DAP) with plastic external shell (epoxy sealed)
- Actuator : brass, black chrome plated
- Bushing : brass, black chrome plated
- Contacts : solid rivet - gold plated silver/nickel alloy

SEALING

- Front panel sealing by two O-rings
Flatted bush for precise orientation
- Panel seal withstands 1 bar pressure and remains sealed even when the switch is operated.
- Epoxy sealed terminals
- Splash-proof case



GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 8 mm (.314) max. - 3 mm (.118) min.
- Shock test : 50g - 11ms (IEC 68-2-27)
- Vibrations : 10-500 Hz - 10g (IEC68-2-6)
- Operating temperature : -40°C to +85°C
- Humidity test : 56 days, 93 % R.H., 40°C (IEC 68-2-3)
- Salt spray test : 96 hours (IEC 68-2-11)

APPROVALS

Many models within this range have full CECC approval and are marked CECC. Please consult factory for list of approved models.



www.ermec.com

12000X778 series

ermec@ermec.com

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

Overview

MODEL
STRUCTURE

12

SERIES

Terminals and bushings

- 1 Solder lug terminals, threaded bushing Ø 11,9 (15/32)
- 2 Straight PC terminals, threaded bushing Ø 11,9 (15/32)

Number of poles

- 4 Double pole
- 5 Three pole
- 6 Four pole

Electrical functions

6	ON	-	ON
9	ON	OFF	ON
7	MOM	OFF	MOM
8	ON	OFF	MOM
4	ON	ON	ON
	ON	ON	MOM Δ
	MOM	ON	MOM Δ
5		ON	MOM

Function 4

- . For 2 and 4 poles only.
- . Δ Must not have blank in "momentary" box.

Momentary

1R	ON	ON	MOM
2R	MOM	ON	MOM

- . For function 4 only.
- . Leave blank for other functions.

OPTIONS

Fluorescent tip

Blank	None
038	White fluorescent tip to lever

Levers

Blank	Standard lever
-12	Short lever

Locking levers

-1V	1 locked position
-2V	2 locked positions
-3V	3 locked positions

X778

High performance fully sealed matt black switches.

Approval

CECC

Availability :
Consult factory for details of approved models.

ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Sealing boots can be used to further protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 1 hex nut 14 mm (.551) across flats, part number U41. This nut is presented after model structure of switches.



Packaging unit : 2 pole models : 25 pieces
3 and 4 pole models : 20 pieces



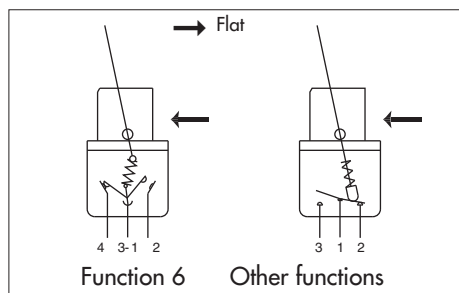
www.ermec.com



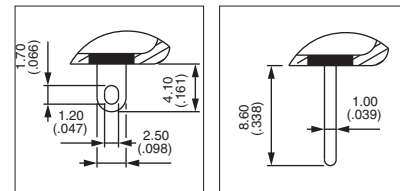
12000X778 series

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

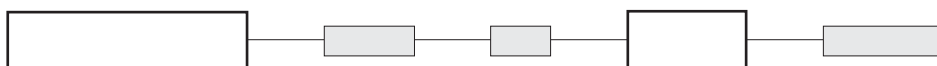
Fully sealed - matt black



Typical angle of throw (A)	
Function 6	24°
Functions 9, 7, 8, 4	20°
Function 5	12°



MODEL
STRUCTURE



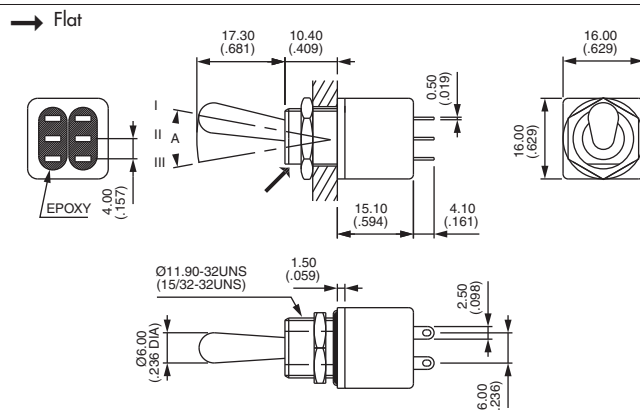
Shown with standard lever

Solder lug terminals - double pole



12146 X778
12149 X778
12147 X778
12148 X778
12144 X778
12144-1R X778
12144-2R X778
12145 X778

I	II	III
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	ON	ON
MOM	ON	ON
MOM	ON	MOM
ON	ON	MOM

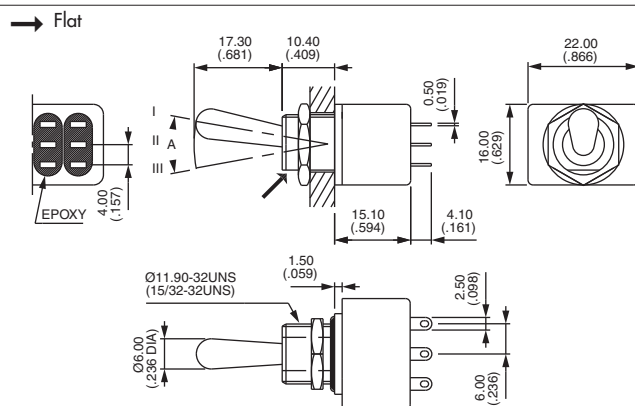


Solder lug terminals - three pole



12156 X778
12159 X778
12157 X778
12158 X778

I	II	III
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM

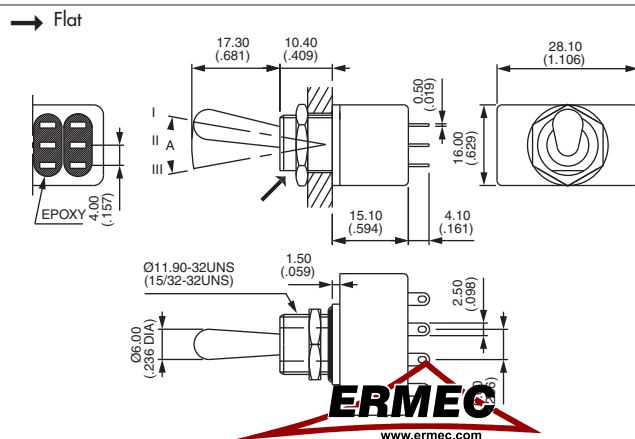


Solder lug terminals - four pole



12166 X778
12169 X778
12167 X778
12168 X778
12164 X778
12164-1R X778
12164-2R X778

I	II	III
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM



www.ermec.com

12000X778 series

ermec@ermec.com

MOD E L
STRUCTURE

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

Fully sealed - matt black

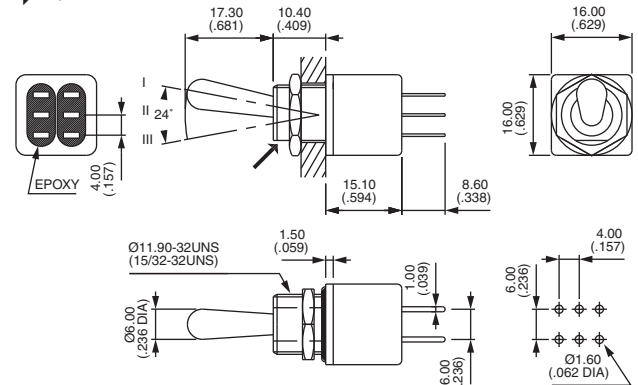
Straight PC terminals - double pole ▲



12246 X778

I II III
ON - ON

→ Flat



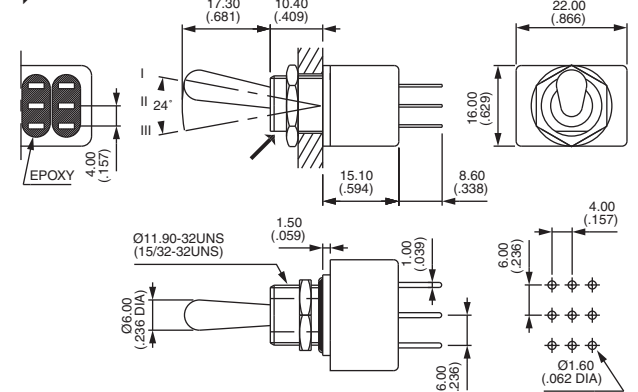
Straight PC terminals - three pole ▲



12256 X778

I II III
ON - ON

→ Flat



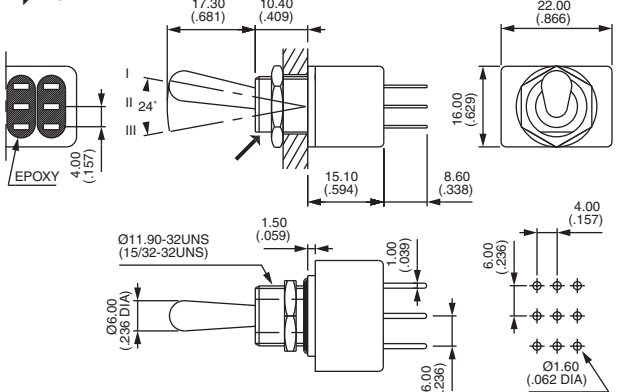
Straight PC terminals - four pole ▲



12266 X778

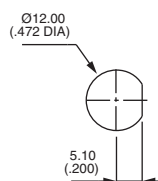
I II III
ON - ON

→ Flat



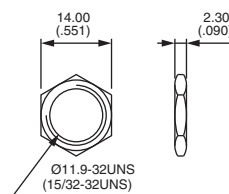
Positions and connections, see next page.

PANEL CUT-OUT



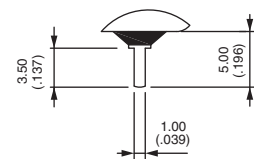
STANDARD HARDWARE

Hex nut



U41 (matt black)

▲ 3,5 mm (.138) short terminals available for function 6, as well as for functions 9, 7, 8, 4 and 5. On request.

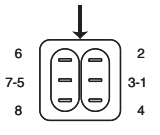
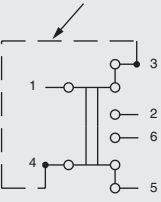
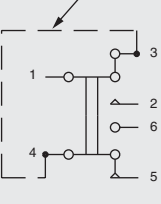
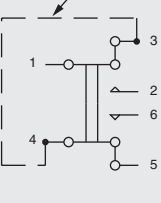
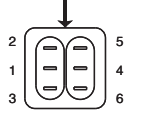
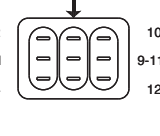
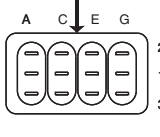
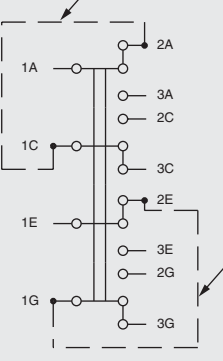


www.ermec.com

12000X778 series ermec.com

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

Positions and connections

FUNCTION	LEVER POSITION AND CONNECTIONS			TERMINAL IDENTIFICATION	WIRING FOR 3-WAY SWITCHES (FUNCTION 4)
I	II	III (Flat)			
12146	ON	-	ON		→ External jumper (added by customer)
12147	MOM	OFF	MOM	→ Flat	12144 
12148	ON	OFF	MOM		
12149	ON	OFF	ON		
12148CT	MOM	OFF	ON		
	1-2		1-3		12144-1R 
	4-5		4-6		12144-2R 
12145	-	ON	MOM		
		1-2	1-3		
		4-5	4-6		
12144	ON	ON	ON		
12144-1R	MOM	ON	ON		
12144-2R	MOM	ON	MOM		
	1-2	1-3	1-3		
	4-5	4-5	4-6		
12156	ON	-	ON		
	(1-3)-4		(1-3)-2		
	(5-7)-8		(5-7)-6		
	(9-11)-12		(9-11)-10		
12166	ON	-	ON		12164 
	1A - 3A		1A - 2A		
	1C - 3C		1C - 2C		
	1E - 3E		1E - 2E		
	1G - 3G		1G - 2G		
12164	ON	ON	ON		
	1A - 2A	1A - 2A	1A - 3A		
	1C - 2C	1C - 3C	1C - 3C		
	1E - 2E	1E - 2E	1E - 3E		
	1G - 2G	1G - 3G	1G - 3G		

ERMEC

www.ermec.com

www.ermec.com

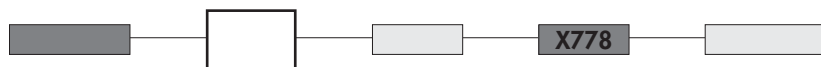
12000X778 series

High performance toggle switches - threaded bushing Ø 11,9 (15/32)

ermec@ermec.com

OPTIONS
● ● ●

FLUORESCENT TIP

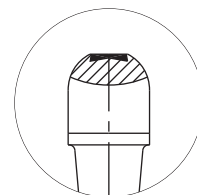
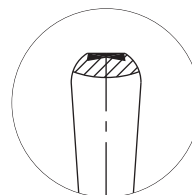


Blank None

038 White fluorescent tip.
Becomes luminous when submitted to ultra-violet rays.

Standard lever

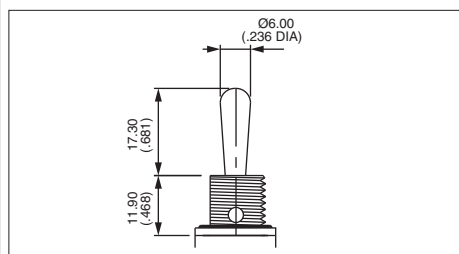
Locking lever



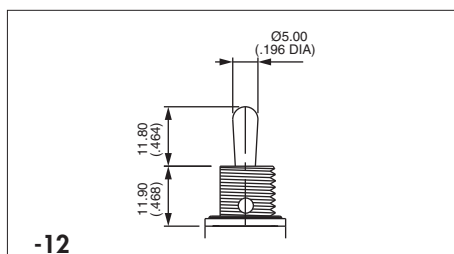
LEVERS / LOCKING LEVERS



Dash compulsory before lever code.



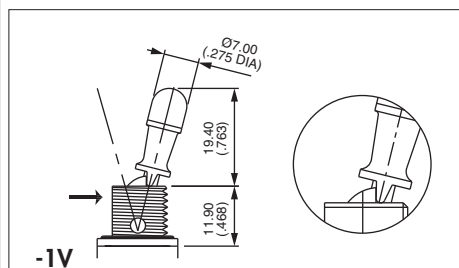
Standard lever (leave blank)



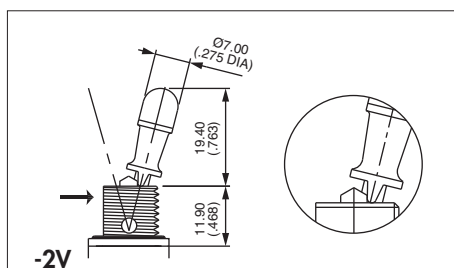
-12
Short lever

Sealing boots : see section H.
Security caps : see section I.

Locking levers

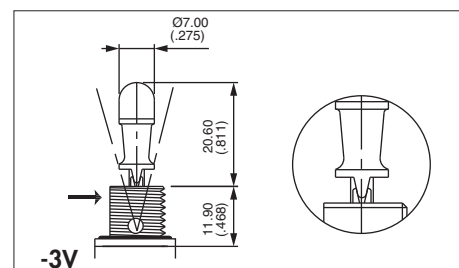


1 locked position (function 6)
Typical angle of throw : 26°

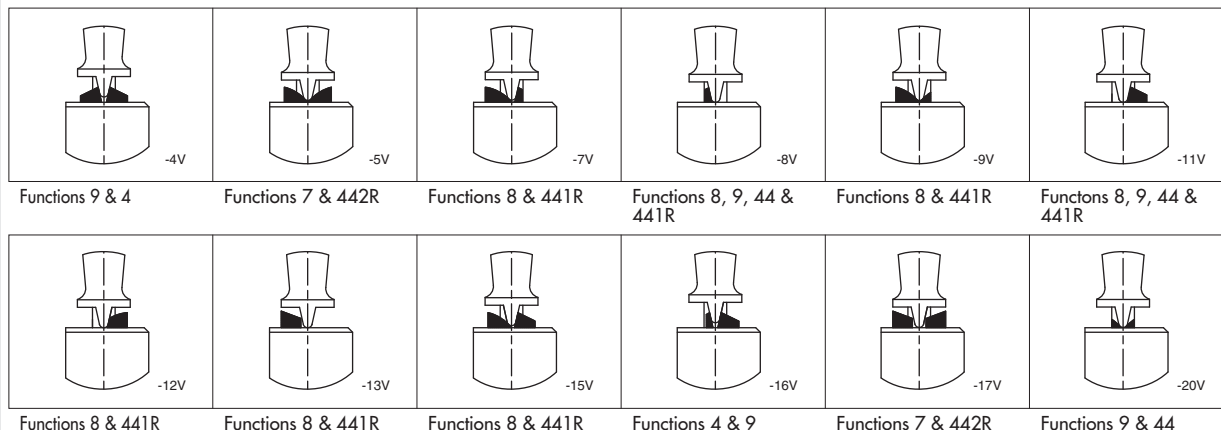


2 locked positions (function 6)
Typical angle of throw : 26°

→ Flat



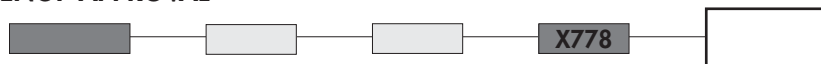
3 locked positions (functions 9 and 4)
Typical angle of throw : 20°



New!

Note : -5V and -12V are not true locking levers : no pulling is required before actuation.

AGENCY APPROVAL



CECC CECC 96201-005 and CECC 96201-008

Availability : consult factory for details of approved models.

Marking : to order switches marked CECC, please complete above box with "CECC". Blank : no agency approval required.



1000 series

Toggle switches - metal lever - economy range

Distinctive features and specifications



- ☐ Butt action contacts
- ☐ Optional insulated levers (X213 and X490)

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A) : 3A 250VAC - 6A 125VAC - 6A 30VDC
 - silver plated copper contacts (C) : 2A 250VAC
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.000 Vrms 50 Hz min. between terminals
 - 2.500 Vrms 50 Hz min. between terminals and frame
- Electrical life : 10.000 cycles at full load

MATERIALS

- Case :
 - function 1 : phenolic resin
 - funct. 6 & 9 : polyamide
- Actuator :
 - brass, nickel plated (1010 and 1020 models)
 - polyamide (1030 models)
- Bushing : brass, nickel plated
- Contacts :
 - A : silver
 - C : copper, silver plated

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 5 mm (.196) max.
- Operating temperature : -20°C to +55°C

ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied :

- silver contact models : 1 hex nut U166 + 1 knurled nut U411
- copper contact models : 1 hex nut U42 + 1 knurled nut U411



Packaging unit : 25 or 40 pieces depending on model.



www.ermec.com

1000 series

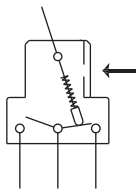
Toggle switches - metal lever - economy range

Solder lug and quick-connect terminals - screw terminals

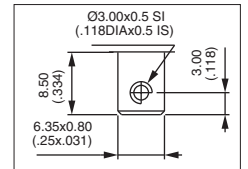
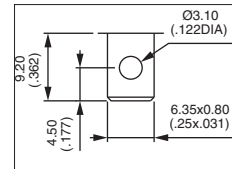
ermec@ermec.com



→ Keyway



- 2 and 3 positions
- Single pole configurations



MODEL
STRUCTURE



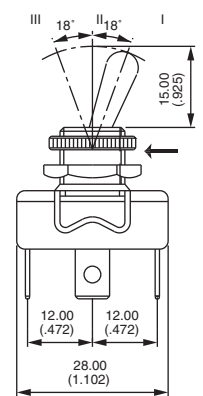
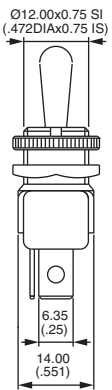
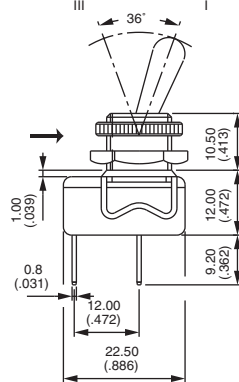
Solder lug and quick-connect terminals



1011
1016
1019

I	II	III
ON	-	OFF
ON	-	ON
ON	OFF	ON

→ Keyway



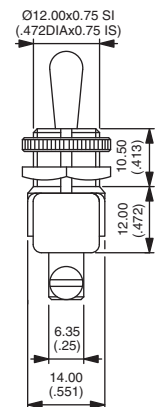
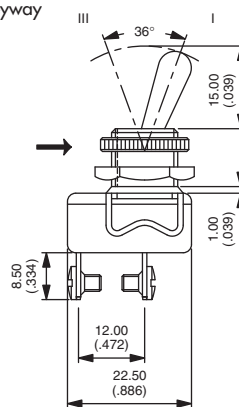
Screw terminals



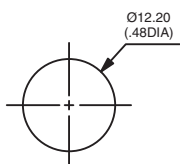
1021

I	II	III
ON	-	OFF

→ Keyway



PANEL CUT-OUT



www.ermec.com



1000 series

Toggle switches - metal lever - economy range

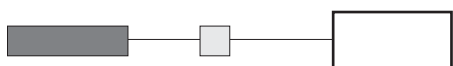
Solder lug and quick-connect terminals - screw terminals

CONTACT MATERIALS

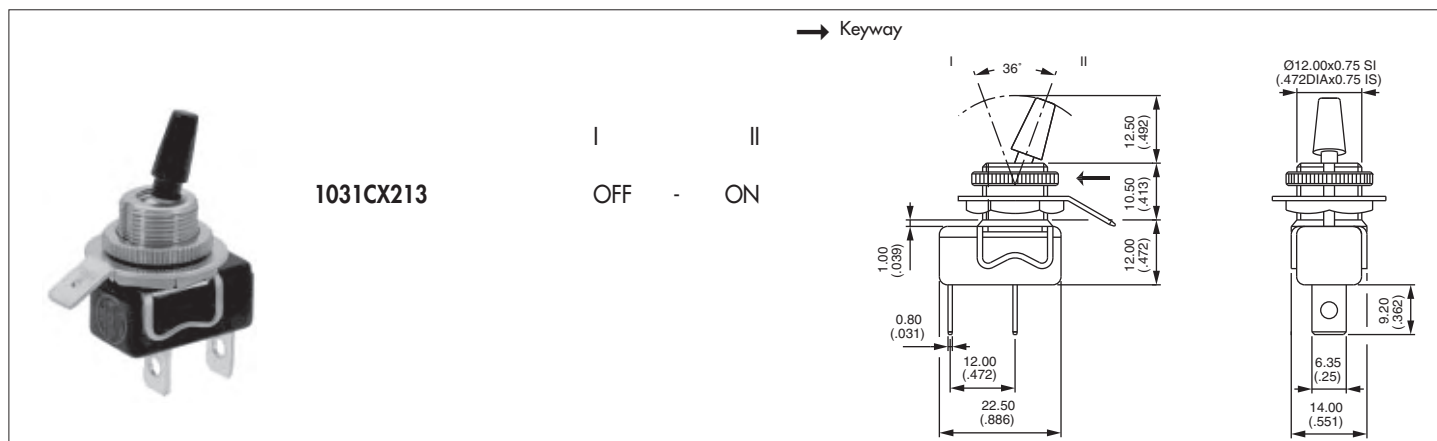


- A** Silver
C Copper, silver plated

SPECIAL OPTIONS WITH INSULATED LEVER

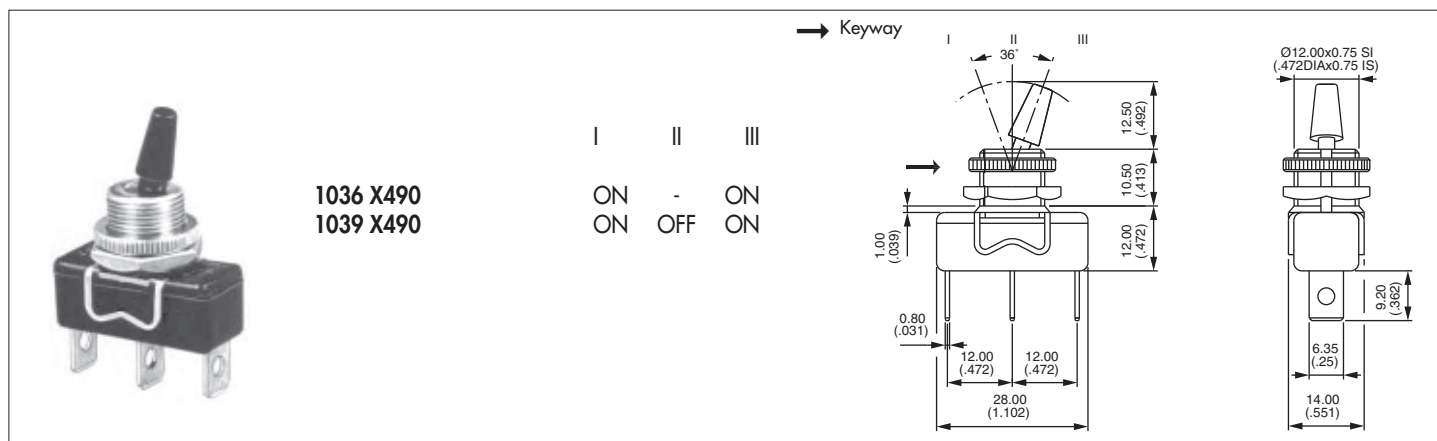


X213 Silver plated copper contacts (C)



Ground connector **U187** compulsory if the panel is not metallic or not connected to ground.
Order separately, see section I.

X490 Available with silver contacts (A) or silver plated copper contacts (C)



www.ermec.com

1500 series

ermec@ermec.com

Toggle switches - insulated lever and bushing

Distinctive features and specifications

☐ UL approved

☐ Variety of actuator styles and colours

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
6A 250VAC (10.000 cycles)
10A 125VAC (6.000 cycles)
5A 12VDC (10.000 cycles)
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000MΩ min. at 500VDC
- Dielectric strength :
2.000 Vrms 50 Hz min. between terminals and between terminals and metal panel

MATERIALS

- Case : polyamide
- Actuator : polyamide
- Bushing : polyamide
- Contacts : silver

GENERAL SPECIFICATIONS

- Torque : 0,95 Nm (.700 Ft.lb) max. applied to nut
- Panel thickness : 4,5 mm (.177) between 2 nuts
- Operating temperature : -20°C to +55°C

AGENCY APPROVALS



Availability : all models

Marking : To order switches marked UL, complete appropriate box of ordering format.

ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 1 hex nut U166 and 1 knurled nut U411.
Standard and special hardware available are presented in section I.



Packaging unit : 50 pieces per type and colour.



www.ermec.com

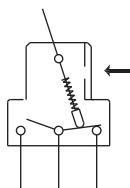


1500 series

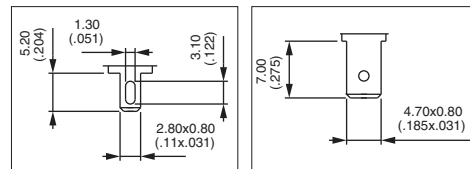
Toggle switches - insulated lever and bushing

Solder lug or quick-connect terminals

→ Keyway



- 2 and 3 maintained positions
- Silver contacts standard
- Single pole configurations



MODEL
STRUCTURE



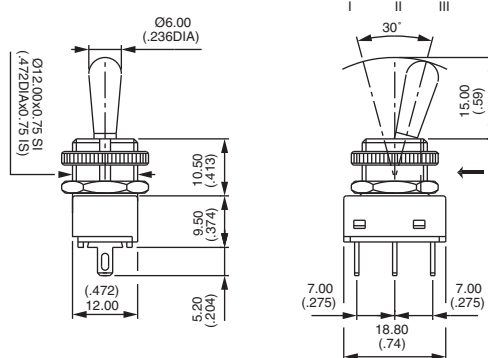
Solder lug terminals

→ Keyway



1531A2
1536A2
1539A2

I	II	III
ON	-	OFF
ON	-	ON
ON	OFF	ON



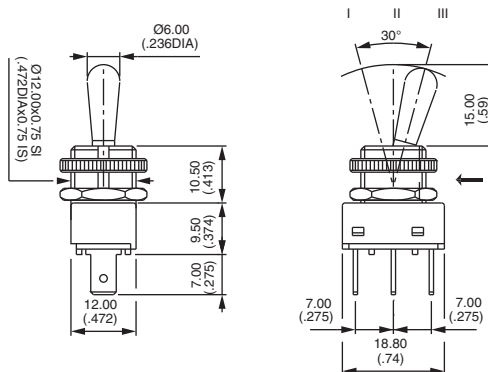
Quick-connect terminals 4,7 x 0,8 (.185 x .031)

→ Keyway

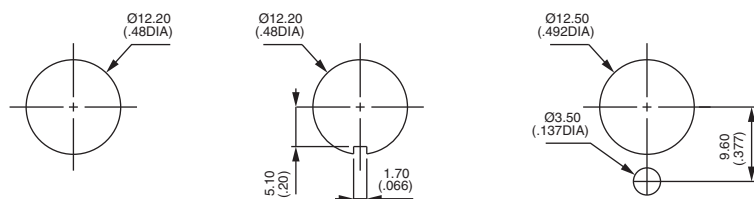


1531A8
1536A8
1539A8

I	II	III
ON	-	OFF
ON	-	ON
ON	OFF	ON



PANEL CUT-OUT



www.ermec.com

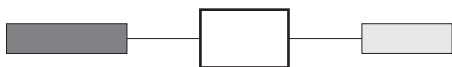
1500 series

Toggle switches - insulated lever and bushing

ermec@ermec.com

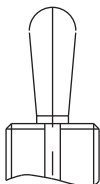


ACTUATORS



Polyamide

Black L12
Red L16
White L17
Orange L19

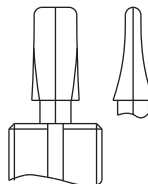


Brass,
nickel plated L1N

Standard

Polyamide

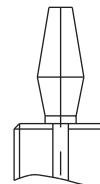
Black L22
Red L26
White L27
Orange L29



Flat

Polyamide

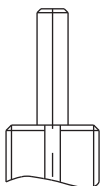
Black L32
Red L36
White L37
Orange L39



Dual cone

Polyamide

Black L42
Red L46
White L47
Orange L49



Cylindrical

AGENCY APPROVALS



UL

Availability : all models.

Marking : to order switches marked UL, complete above box with desired approvals.



www.ermec.com

1600 and 1700 series

Toggle switches - metal lever

Distinctive features and specifications



- ☐ Reduced behind-panel space requirement (models with side terminals)
- ☐ Optional insulated lever

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 4A 30VDC
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.000 Vrms 50 Hz min. between terminals
 - 2.000 Vrms 50 Hz min. between poles and between terminals and lever
- Electrical life : 10.000 cycles at full load

MATERIALS

- Case : phenolic resin
- Actuator :
 - 1600 models : brass nickel plated
 - 1700 models : polyamide
- Bushing : brass, nickel plated
- Contacts : phosphor bronze and brass, silver plated.

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 5 mm (.196) max.
- Operating temperature : -20°C to +55°C

ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Sealing boots are available on models 1600 to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 1 hex nut U42 and 1 knurled nut U411. They are presented in section I.



Packaging unit : 25 or 50 pieces depending on model.



www.ermec.com

1600 and 1700 series

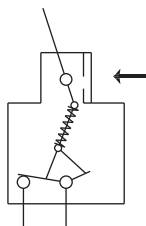
ermec@ermec.com



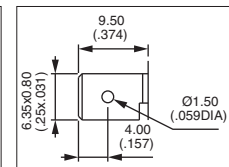
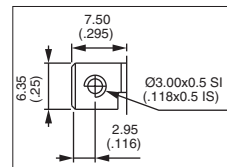
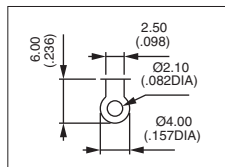
Toggle switches - metal lever

Solder lug or screw terminals

→ Keyway



- Wiping contacts
- Single pole configurations



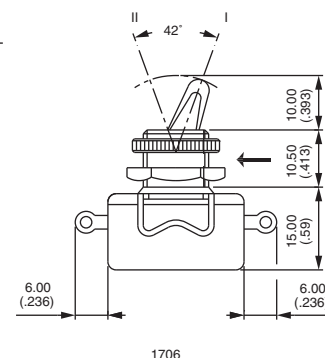
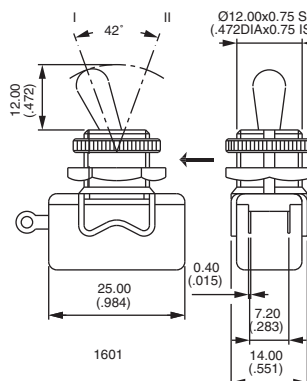
Horizontal solder lug terminals



Metal lever	Insulated black lever
1601	1701
1606	1706

I	ON	-	OFF
II	ON	-	ON

→ Keyway



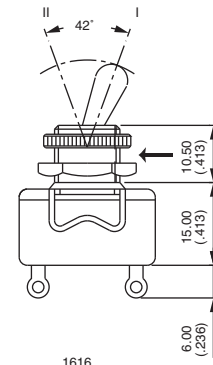
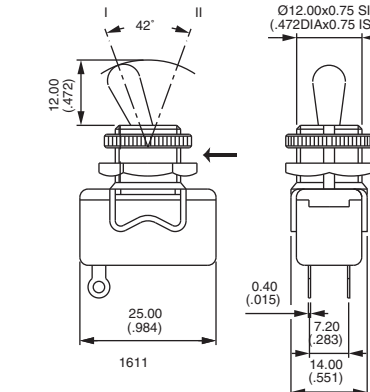
Metal lever - vertical solder lug terminals



1611
1616

I	ON	-	OFF
II	ON	-	ON

→ Keyway



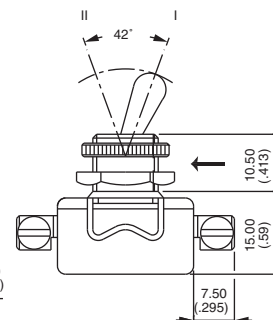
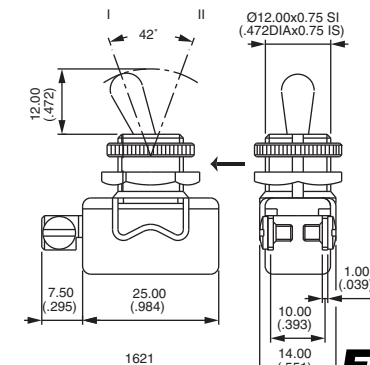
Metal lever - horizontal screw terminals



1621
1626

I	ON	-	OFF
II	ON	-	ON

→ Keyway



ERMEC
www.ermec.com

www.ermec.com



1600 and 1700 series

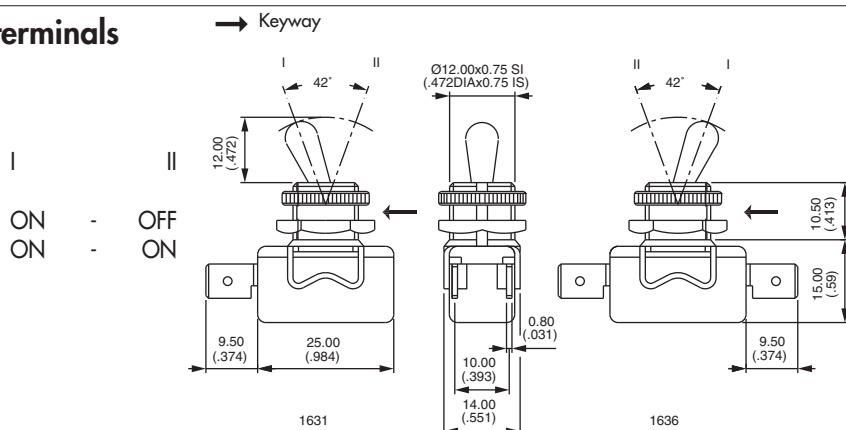
Toggle switches - metal lever

Quick-connect terminals

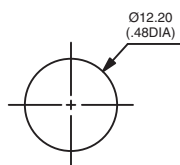
Metal lever - horizontal quick-connect terminals



1631
1636



PANEL CUT-OUT



www.ermec.com

4600 and 4400 series ermec@ermec.com

Toggle switches

Distinctive features and specifications



- ☐ High current/voltage rating in a small case
- ☐ Butt action contacts
- ☐ Insulated or metal lever
- ☐ UL, CSA and VDE (EN 61058-1) approved

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A) : 4A 250VAC - 6A 125VAC
 - silver plated copper contacts (C) : 2A 250VAC - 3A 125VAC
- Approved electrical ratings : see table below
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.000 Vrms 50 Hz min. between terminals
 - 2.500 Vrms 50 Hz min. between poles and between terminals and frame
- Electrical life : 10.000 cycles at full load

APPROVALS	MODELS	POLES	FUNCTIONS	APPROVED RATINGS
UL/CSA	4600A	1-2	1-6-9	3A 250VAC - 6A 125VAC
VDE (EN 61058-1)	4400A	1-2	1-6	4(2)A 250VAC
	4600A	1-2-3	1-6	4(2)A 250VAC

MATERIALS

- Case : melamine phenolic
- Actuator :
 - insulated : polyamide ,6-6
 - non-insulated : brass, nickel plated
- Bushing :
 - insulated : polyamide 6-6
 - non-insulated : brass, nickel plated
- Contacts :
 - A : silver
 - C : copper, silver plated

GENERAL SPECIFICATIONS

- Torque : 0,95 Nm (.70 Ft.lb) max. applied to nut
- Panel thickness : 5 mm (.196) between 2 nuts
- Operating temperature : -20°C to +55°C
- Hand soldering : 270°C max. for 10 seconds max. - iron Ø3 (.118)

AGENCY APPROVALS



EN 61058-1

Availability : see above chart.

Marking : VDE approved models are standard marked.

To order switches marked UL-CSA, complete appropriate box of ordering format.

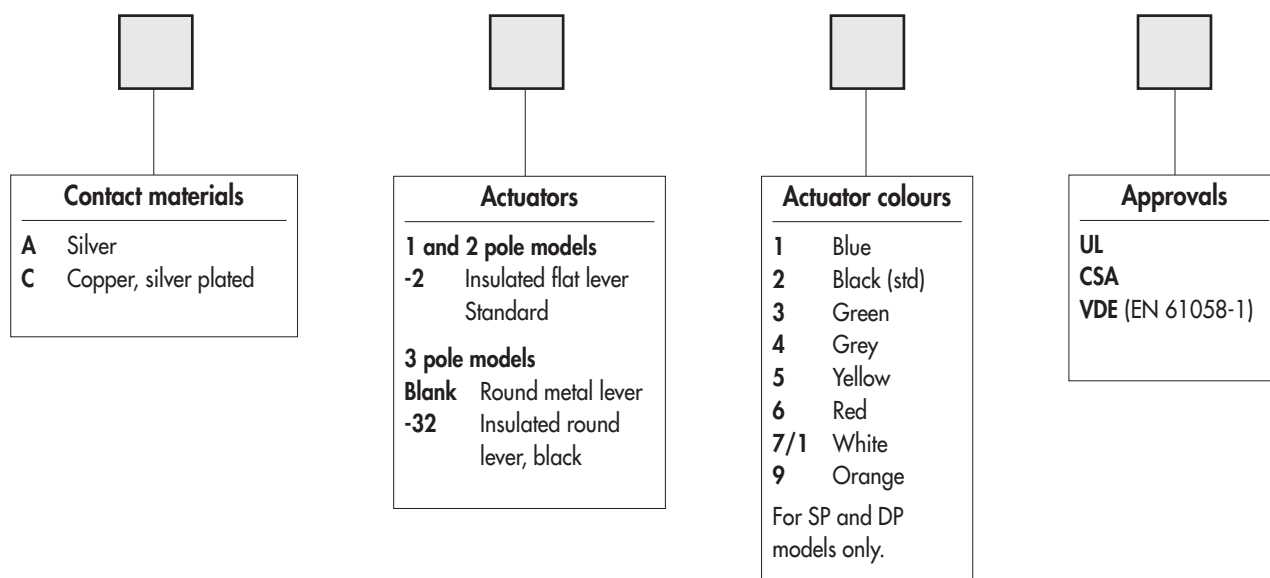
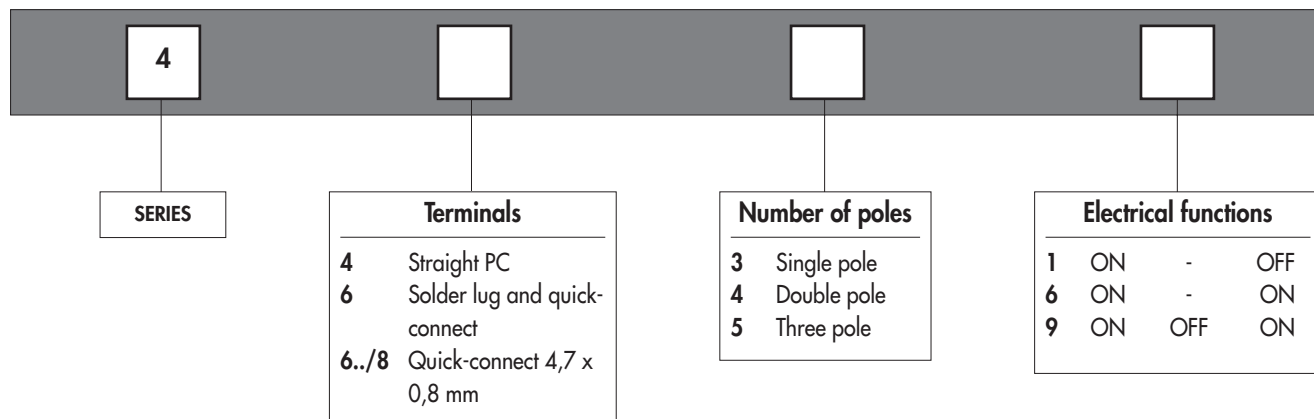


www.ermec.com

4600 and 4400 series

Toggle switches

Overview



ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.



Sealing boots are available on 3 pole models to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models : 1 hex nut U166 and 1 knurled nut U520 in the same colour as the lever (insulated models) or U411 nickel plated (metal lever models). Standard and special hardware available are presented in section I.



Packaging unit : 20 pieces.



www.ermec.com

4600 and 4400 series

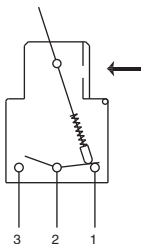
ermec@ermec.com



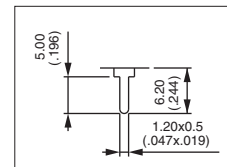
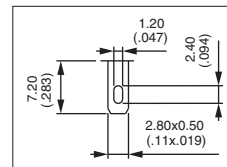
Toggle switches

Insulated flat lever

→ Keyway



- Solder lug/quick-connect terminals 2,8 x 0,5 (.110 x .019)
- Straight PC terminals or quick-connect terminals 4,7 x 0,8 (.185 x .031)
- 2 and 3 maintained positions
- 1 and 2 pole configurations



MODEL
STRUCTURE



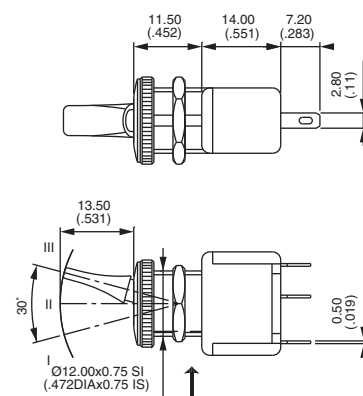
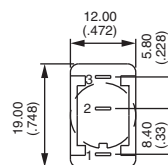
Solder lug/quick-connect terminals - single pole

→ Keyway



4631 -2
4636 -2
4639 -2

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON



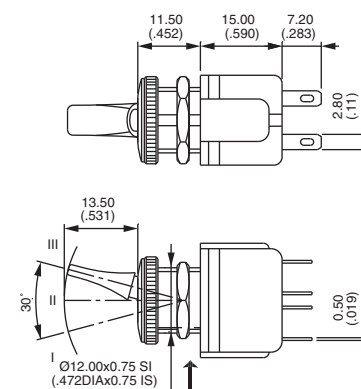
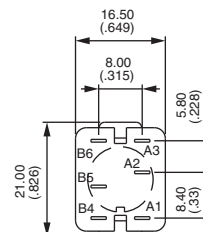
Solder lug/quick-connect terminals - double pole

→ Keyway



4641 -2
4646 -2
4649 -2

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON



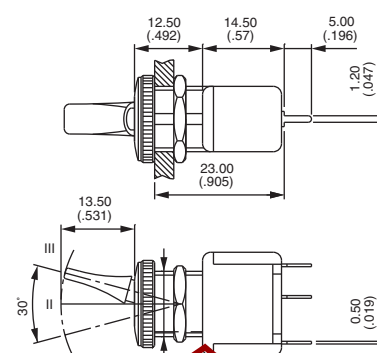
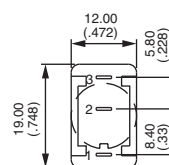
Straight PC terminals - single pole

→ Keyway



4431 -2
4436 -2
4439 -2

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON



www.ermec.com

4600 and 4400 series

Toggle switches

Insulated flat lever

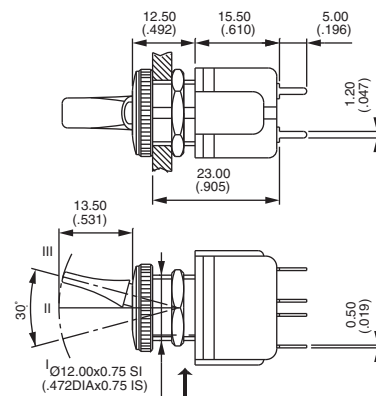
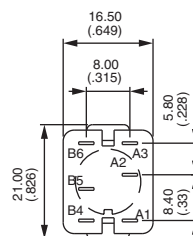
Straight PC terminals - double pole



4441 -2
4446 -2
4449 -2

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON

→ Keyway



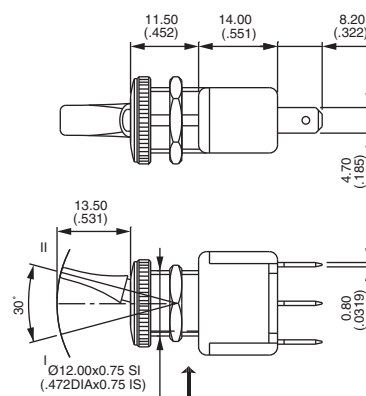
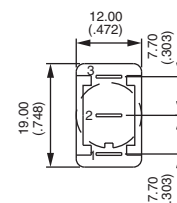
Quick-connect terminals 4,7 x 0,8 (.185 x .031) - single pole



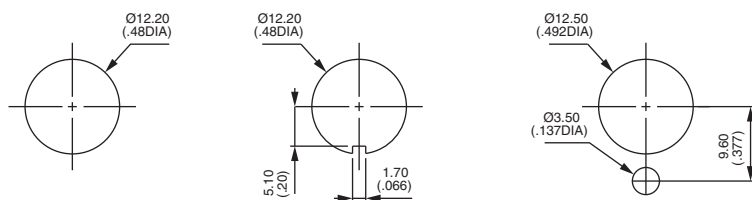
4631/8 -2
4636/8 -2

I		II
ON	-	OFF
ON	-	ON

→ Keyway



PANEL CUT-OUT



4600 and 4400 series

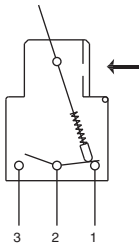
ermec@ermec.com

STRUCTURE

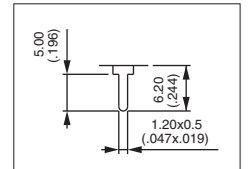
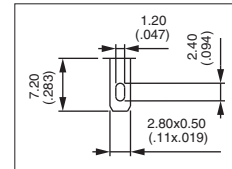
Toggle switches

Round lever - three pole

→ Keyway



- Solder lug or straight PC terminals
- 2 and 3 maintained positions



MODEL
STRUCTURE



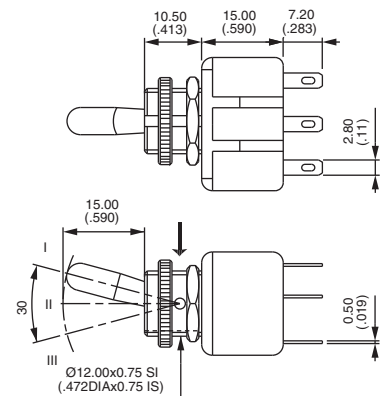
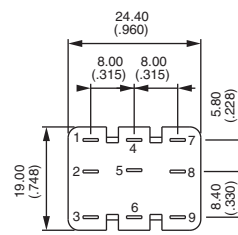
Solder lug terminals - metal lever

→ Keyway



4651
4656
4659

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON



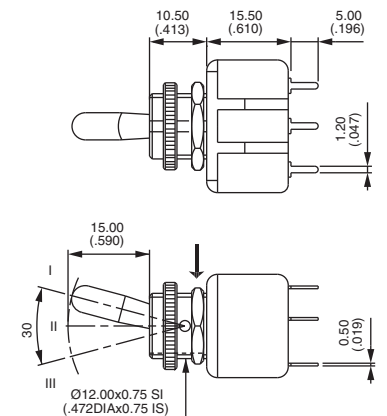
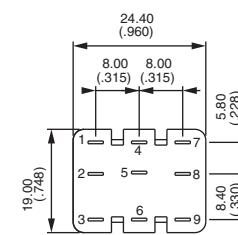
Straight PC terminals - metal lever

→ Keyway



4451
4456
4459

III	II	I
ON	-	OFF
ON	-	ON
ON	OFF	ON



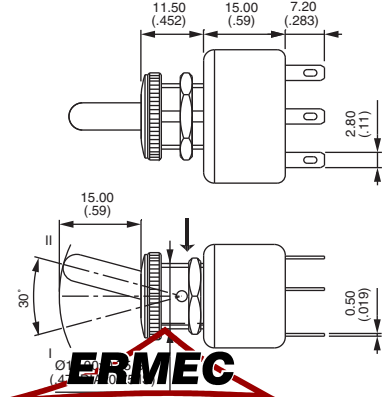
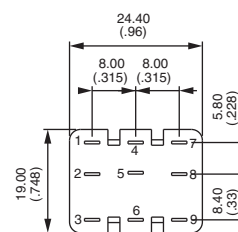
Solder lug terminals - insulated lever - silver contacts

→ Keyway



4651A-32
4656A-32

I	II
ON	-
ON	-
ON	ON



www.ermec.com

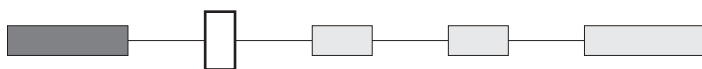


4600 and 4400 series

ermec@ermec.com

Toggle switches

CONTACT MATERIALS



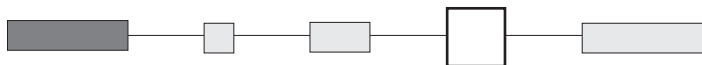
- A** Silver
C Copper, silver plated

ACTUATORS



- Blank** Round, metal lever for 3 pole only
-2 Insulated flat lever (for single and double pole only)
-32 Black insulated round lever (for 3 pole only)

ACTUATOR COLOURS

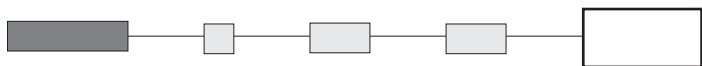


- 1** Blue
2 Black (standard)
3 Green
4 Grey
5 Yellow
6 Red
7/1 White
9 Orange



For insulated flat lever
Black : standard colour - reduced delivery time
Minimum order of 500 pieces for non-standard colours.

APPROVALS



UU (UL-CSA) Single and double pole only

Availability : see specifications for details of approved models.

Marking : to order switches marked UL-CSA, complete above box with 'UU'.
Other approvals available as standard, see specifications.



www.ermec.com

600H and 600NH series ermec@apem.com

Toggle switches - high amperage

Distinctive features and specifications



❑ Construction

Terminal and contact support are manufactured from a single piece of metal. The contacts are resistance-welded to the terminal for increased mechanical strength.

❑ Rating

These switches are suitable for motor loads and power applications up to 15A 250VAC or 10A 400VAC

❑ Metal or insulated lever

❑ UL, CSA and NF-VDE (EN 61058-1) approved

ELECTRICAL SPECIFICATIONS

- Max. current/voltage ratings : see tables below
- Peak current : 30A max. during 1/2 sine, 250VAC
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.000 Vrms 50 Hz min. between terminals
 - 2.500 Vrms 50 Hz min. between terminals and frame
- Electrical life : 10.000 cycles at full load

APPROVED RATINGS

MODELS	FUNCTIONS	600H - 600NH		
		UL	CSA	NF-VDE
		UL 1054	CSA 22-2	EN 61058-1
Single and double pole	ON - OFF (1)	15A 1/2 HP 125-250VAC		10(4)A 400VAC
	ON - ON (6)			
	Other (4-5-7-8-9)	10A 1/2 HP 125-250VAC		T 85/55 (600H)
Three pole	ON - OFF (1) & ON - ON (6)	15A 1/2 HP 125-250VAC		T 125/55 (600NH)
	Other (4-5-7-8-9)	10A 1/2 HP 125-250VAC		

- FOR INFORMATION -

Max. current/voltage rating w. resistive load

Functions	Ratings	Electrical life
ON - OFF ON - ON	15A 250VAC 10A 24VDC 15A 12VDC	10.000 cycles
ON OFF ON	15A 250VAC	6.000 cycles
Other	15A 125VAC 12A 250VAC 5A 25VDC	10.000 cycles

MATERIALS

- Case : polyester UL94-V0
- Actuator :
 - 600H : brass, nickel plated
 - 600NH : black polyamide
- Bushing : brass, nickel plated
- Contacts : silver/nickel alloy

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 4,5 mm (.177) max. between 2 nuts
- Operating temperature : -20°C to +55°C



www.ermec.com

600H and 600NH series

Toggle switches - high amperage

Specifications

AGENCY APPROVALS

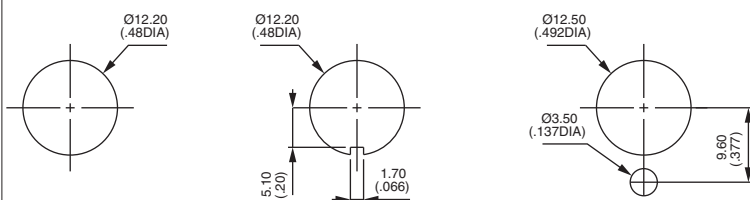


EN 61058-1 EN 61058-1

Availability : see chart on previous page.

Marking : approved models are standard marked.

PANEL CUT-OUT



MOUNTING RECOMMENDATIONS

Connection

- For quick-connect terminals, use 6,3 x 0,8 mm normalized female connectors.
- For screw terminals, use :
 - either 1,5 mm² or 2,5 mm² rigid wires,
 - or prepared stripped and tin plated flexible wires,
 - or prepared flexible wires with crimped termination per EN 50027 (DIN 46228)

Ground connector

Compulsory if the panel is not metallic or not connected to ground. Should also be used when front face nut is of plastic material.

Order separately, see section I.

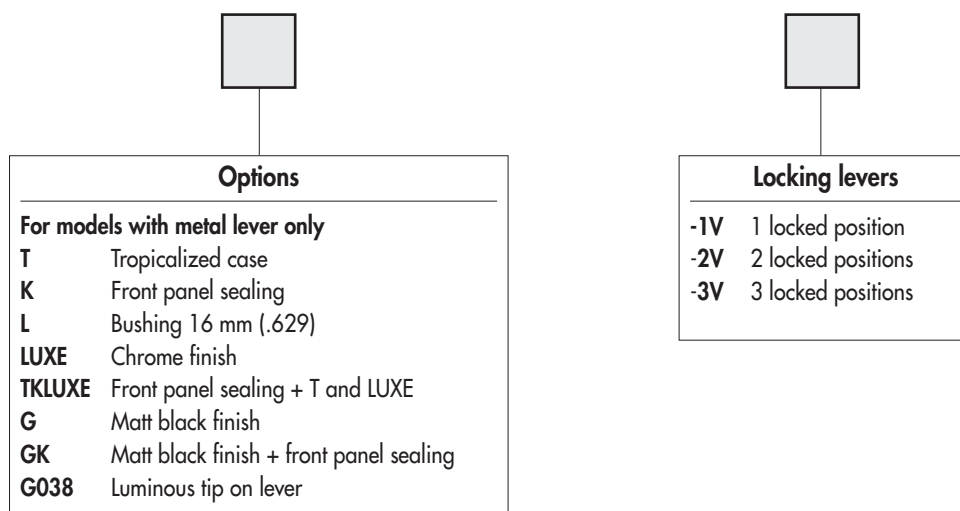
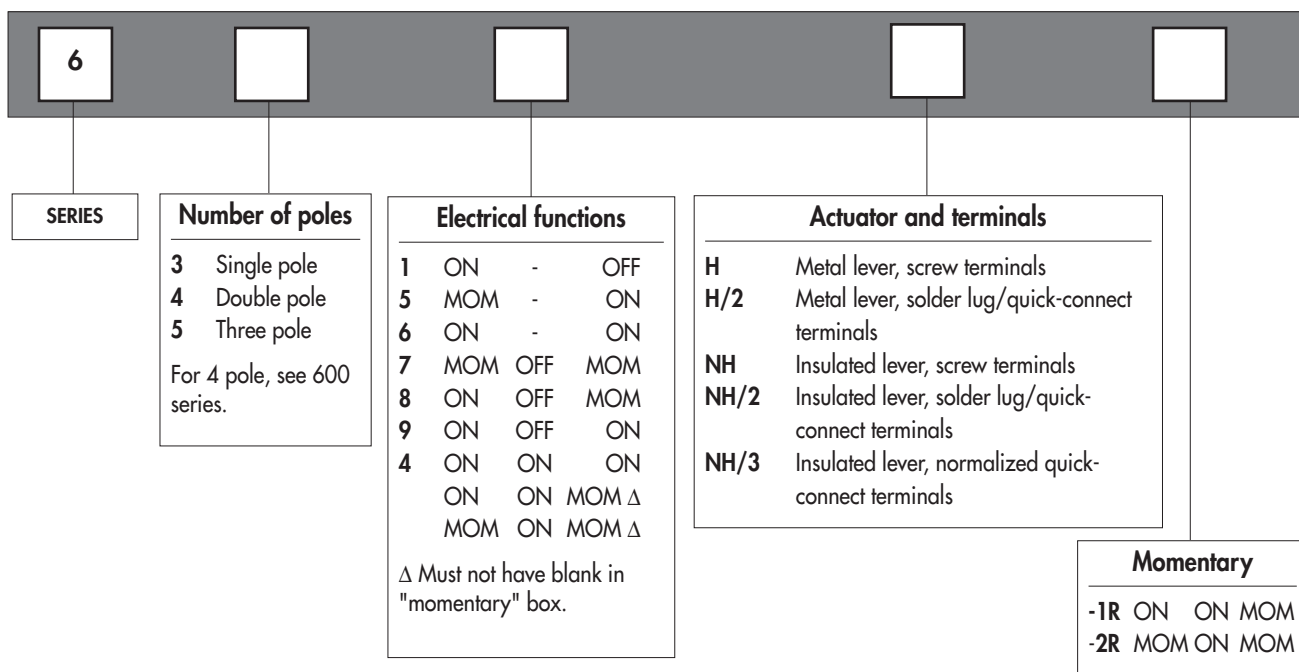


www.ermec.com

600H and 600NH series ermec@apemec.com

Toggle switches - high amperage

Overview



ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

Security caps are available to prevent inadvertent lever operation. They are presented in section I.



Sealing boots are available on 600H series to protect the switches against dust and water. They are presented in section H.



Mounting accessories : standard hardware supplied with all models :

- 600H and series : 1 hex nut U166 and 1 knurled nut U411
- 600NH series : 1 hex nut U166 and 1 knurled nut U522
Standard and special hardware are presented in section I.

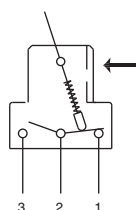


Packaging unit : 25 pieces.



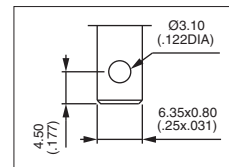
www.ermec.com

→ Keyway

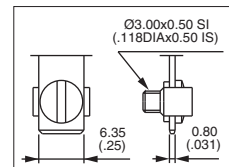


- 2 and 3 maintained or momentary positions
- Solder lug/quick-connect terminals 6,35 x 0,8 (.250 x .031) or screw terminals + clamp
- 1, 2 and 3 pole configurations
- Normalized quick-connect terminals (/3) optional. On request.

600H/2



600H



MODEL
STRUCTURE

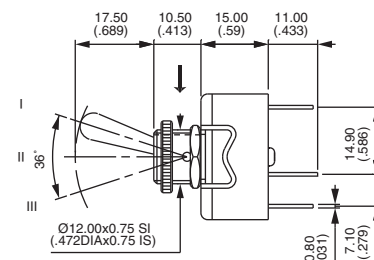
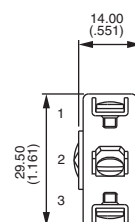


Single pole

→ Keyway



	III	II	I
	2-1		2-3
Solder lug			
631H/2	631H	ON -	OFF
635H/2	635H	MOM -	ON
636H/2	636H	ON -	ON
637H/2	637H	MOM OFF	MOM
638H/2	638H	ON OFF	MOM
639H/2	639H	ON OFF	ON

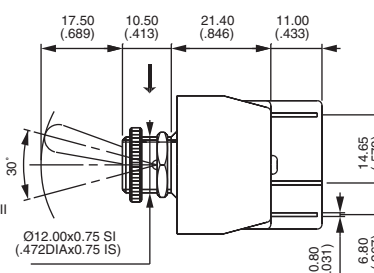
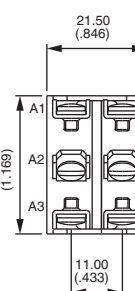


Double pole

→ Keyway



	III	II	I
	2-1		2-3
	5-4		5-6
Solder lug			
641H/2	641H	ON -	OFF
644H/2	644H*	ON ON	ON
644H/2-1R	644H-1R*	ON ON	MOM
644H/2-2R	644H-2R*	MOM ON	MOM
645H/2	645H	MOM -	ON
646H/2	646H	ON -	ON
647H/2	647H	MOM OFF	MOM
648H/2	648H	ON OFF	MOM
649H/2	649H	ON OFF	ON



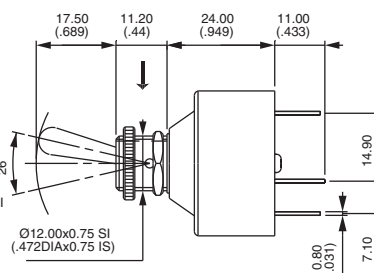
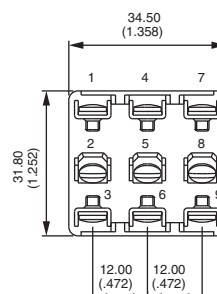
* Function 4 : SP in DP case - see end of catalogue.

Three pole

→ Keyway



	III	II	I
	2-1		2-3
	5-4		5-6
	8-7		8-9
Solder lug			
651H/2	651H	ON -	OFF
655H/2	655H	MOM -	ON
656H/2	656H	ON -	ON
657H/2	657H	MOM OFF	MOM
658H/2	658H	ON OFF	MOM
659H/2	659H	ON OFF	ON

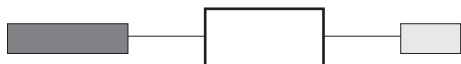


ERMEC
www.ermec.com

600H series

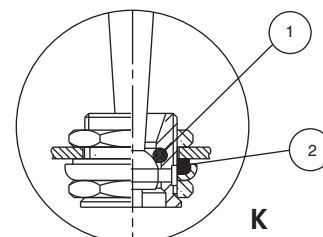
Toggle switches - high amperage - metal lever

OPTIONS FOR 600H SERIES ONLY

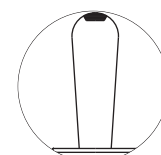


Complete above box with desired options in the same order as below

- T** Tropicalized diallylphthalate case (-40°C to +85°C)
- K** Front panel sealing by 1 O-ring and sealing washer. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated
- L** Special threaded bushing, length 16 mm (.629)
- LUXE** Chrome plated lever and cap nut U117
- TK LUXE** Options T, K and LUXE.
- G** Matt black finish on bushing, lever and nuts. Includes tropicalization (option T)
- GK** Front panel sealing by O-ring and sealing washer (as described in option TK LUXE)
+ option G
- G038** Option G + fluorescent tip on lever. White fluorescent tip becomes luminous when submitted to ultra violet rays.



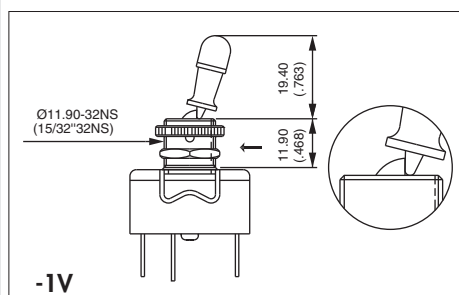
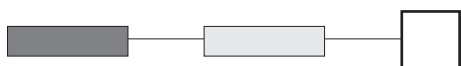
① O-ring ② Sealing washer



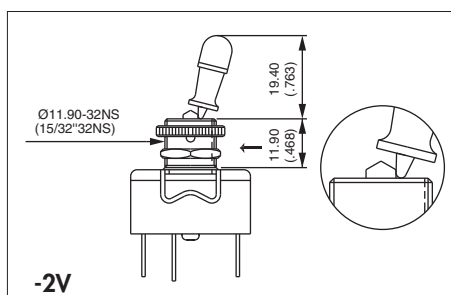
038

LOCKING LEVERS (1 and 2 pole models)

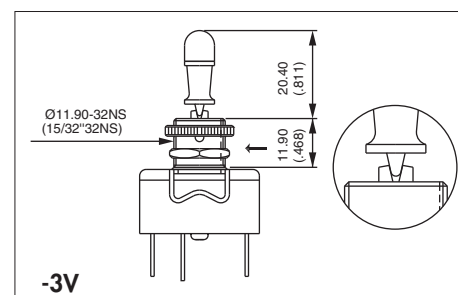
For 3-pole models, refer to 6000 series.



1 locked position



2 locked positions

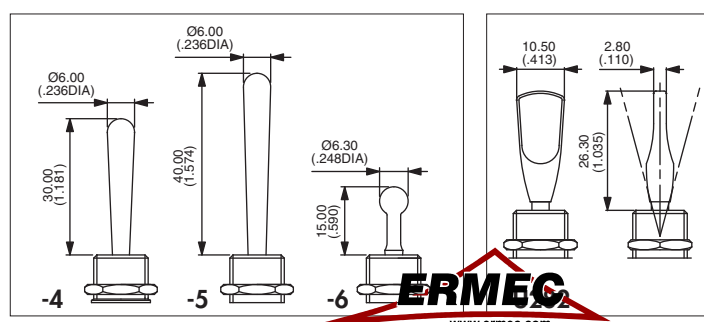


3 locked positions

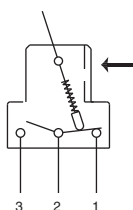
→ Keyway

ACTUATOR OPTIONS (1 and 2 pole models)

- 4** 30 mm (1.181) long actuator
- 5** 40 mm (1.574) long actuator
- 6** Retro style actuator (gold plated or chrome plated : on request)
- Ergonomic flat plastic actuator : add U282 at the end of switch model number.

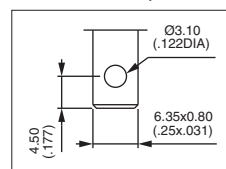


→ Keyway

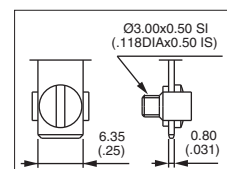


- 2 and 3 maintained or momentary positions
- Solder lug/quick-connect terminals 6,35 x 0,8 (.250 x .031) or screw terminals + clamp
- 1, 2 and 3 pole configurations
- Normalized quick-connect terminals (/3) optional. On request.

600NH/2



600NH



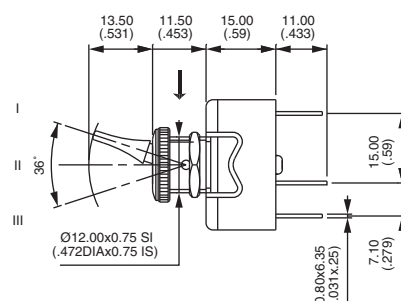
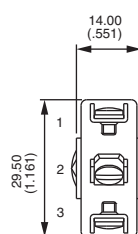
Single pole



Solder lug	Screw term.
631NH/2	631NH
635NH/2	635NH
636NH/2	636NH
637NH/2	637NH
638NH/2	638NH
639NH/2	639NH

III	II	I
2-1		2-3
ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON

→ Keyway



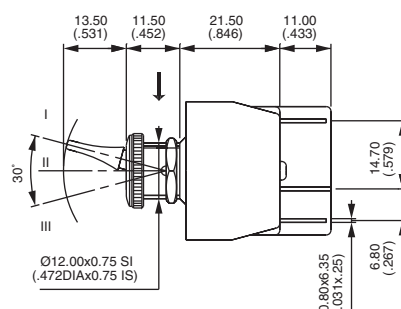
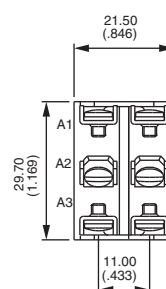
Double pole



Solder lug	Screw term.
641NH/2	641NH
644NH/2	644NH
644NH/2-1R	644NH-1R*
644NH/2-2R	644NH-2R*
645NH/2	645NH
646NH/2	646NH
647NH/2	647NH
648NH/2	648NH
649NH/2	649NH

III	II	I
2-1		2-3
5-4		5-6
ON	-	OFF
ON	ON	ON
ON	ON	MOM
MOM	ON	MOM
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON

→ Keyway



* Function 4 : SP in DP case - see end of catalogue.

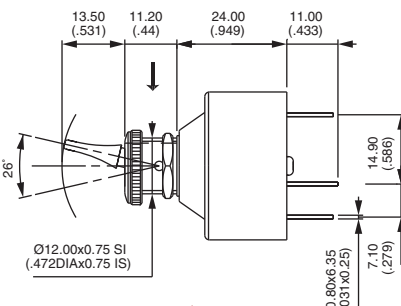
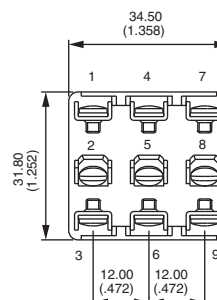
Three pole



Solder lug	Screw term.
651NH/2	651NH
655NH/2	655NH
656NH/2	656NH
657NH/2	657NH
658NH/2	658NH
659NH/2	659NH

III	II	I
2-1		2-3
5-4		5-6
8-7		8-9
ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON

→ Keyway



ERMEC
www.ermec.com

660 series

ermec@ermec.com

Power toggle switches - metal lever

Specifications

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 5A 250VAC - 10A 125VAC - 10A 30VDC
- Decrease by 50 % for inductive load
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.500 Vrms 50 Hz min. between terminals
 - 2.500 Vrms 50 Hz min. between terminals and frame
- Electrical life : 10.000 cycles at full load

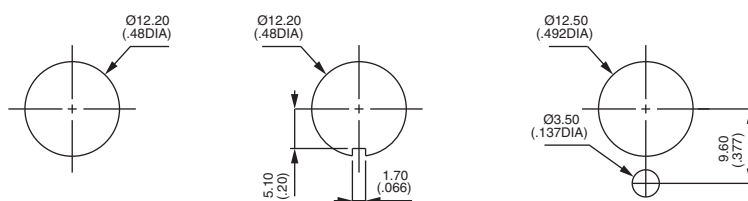
MATERIALS

- Case : melamine/polyester
- Actuator : brass, nickel plated
- Bushing : brass, nickel plated
- Contacts : silver

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 4,5 mm (.177) max.
- Operating temperature : -20°C to +55°C

PANEL CUT-OUT



ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



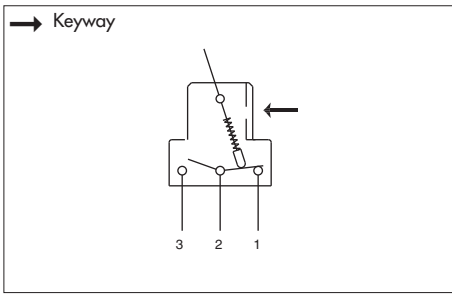
Mounting accessories : standard hardware supplied with all models : 1 hex nut U166, 1 knurled nut U411 and 1 lockwasher U13. Standard and special hardware are presented in section I.



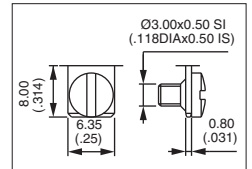
Packaging unit : 25 pieces per type.



www.ermec.com



- 2 and 3 maintained or momentary positions
- Screw terminals



MODEL STRUCTURE



Four pole

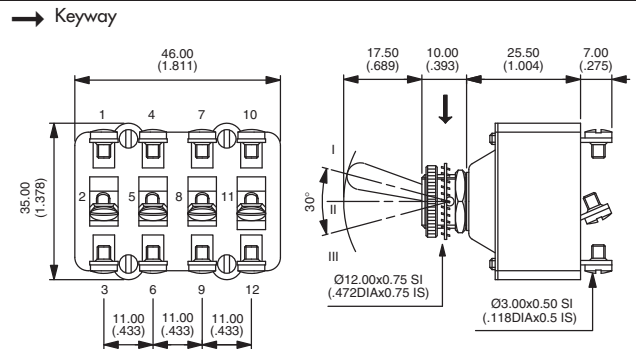


661
665
666
667
668
669

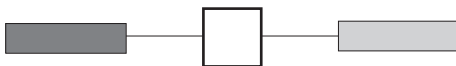
III	II	I
2-1*	2-3**	
ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON

* (2-1) (5-4) (8-7) (11-10)

** (2-3) (5-6) (8-9) (11-12)

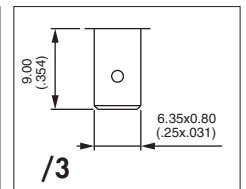
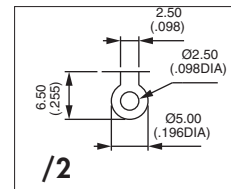


TERMINAL OPTIONS

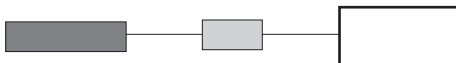


/2 Solder lug terminals

/3 Quick-connect terminals 6,35 x 0,8 (.250 x .031)



OTHER OPTIONS



T Tropicalized diallylphthalate case (-40°C to +85°C)

LUXE Chrome plated lever and cap nut U117

TK LUXE Front panel sealing by O-ring and sealing washer + options T and LUXE. See 600H series.

G Matt black finish on bushing, lever and nuts. Includes tropicalization (option T)

GK Front panel sealing by O-ring and sealing washer (as described in option TK LUXE) + option G

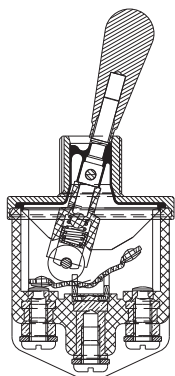


3500 series

ermec@ermec.com

High performance toggle switches - environmentally sealed

Distinctive features and specifications



- ☐ **Completely sealed switches withstanding 0,1 bar pressure**
 - Frontal sealing to IP67 or IP69K by a silicone membrane (for sealed panel mounting, add washer U60, section I).
 - Rear sealing to IP 64 provided by moulded-in terminal inserts
- ☐ **Approved to European standards CECC 96000**
- ☐ **Three types of terminals**
- ☐ **Many lever styles available**

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load and electrical life at full load: see table below
- Initial contact resistance : 10 mΩ max. at 1A 2VDC
- Insulation resistance : 1.000 MΩ
- Dielectric strength : 2.500 Vrms 50 Hz min. between terminals
3.000 Vrms 50 Hz min. between terminals and frame

GENERAL PERFORMANCES

FUNCTIONS	GENERAL PERFORMANCES		
	Alternate current	Direct Current	According to CECC 96201-004
ON-OFF and ON-ON	6.000 cycles, T65°C 20A 125VAC, 3/4HP 15A 250VAC, 1-1/2HP T5, 115VAC, 50/400Hz	10.000 cycles, T20°C 15A 28VDC resistive 15A 28VDC inductive 5A 28VDC lamp load	10.000 cycles 16A 250VAC 15A 32VDC
ON OFF ON	6.000 cycles, T65°C 18A 125VAC, 1/2HP 10A 250VAC, 1/2HP T2, 115VAC, 50/400Hz	10.000 cycles, T20°C 15A 28VDC resistive 15A 28VDC inductive 5A 28VDC lamp load	
OTHER FUNCTIONS	6.000 cycles, T65°C 15A 125VAC 10A 250VAC T2, 115VAC, 50/400Hz	10.000 cycles, T20°C 15A 28VDC resistive 10A 28VDC inductive 3A 28VDC lamp load	

MATERIALS

- Case : mineral filled polyester UL94-V0
- Bushing and cover : zamac
- Actuator : brass, nickel or chrome plated, or anodized aluminium
- Contacts : silver alloy

AGENCY APPROVAL



CECC 96201-004

Availability : consult factory for details of approved models.

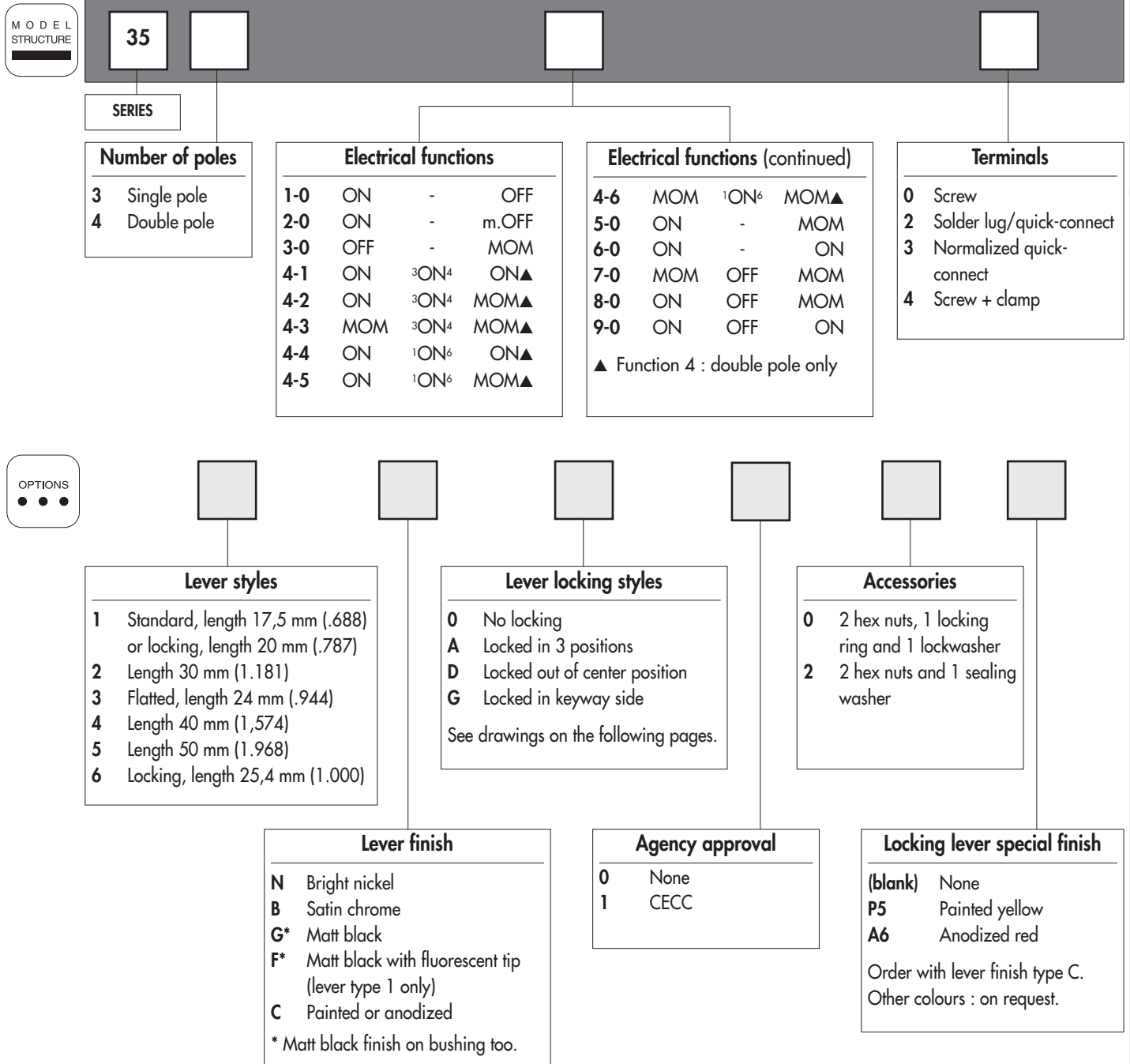
Marking : to order switches marked CECC, complete appropriate box of ordering format.

GENERAL SPECIFICATIONS

- Mechanical life : 40.000 cycles
- Torque : 2 Nm (1.47 Ft.lb) max. applied to nut
- Panel thickness : see "Mounting Accessories" on the following pages
- Operating temperature : -40°C to +85°C
- Moisture resistance : 56 days



www.ermec.com



NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- their options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.

Security caps are available to prevent inadvertent lever operation. They are presented in section I.



Packaging unit : 25 pieces



www.ermec.com

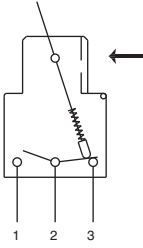
3500 series

High performance toggle switches - environmentally sealed

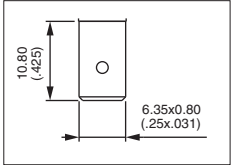
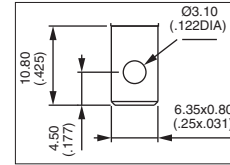
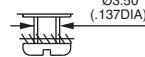
ermec@ermec.com

STRUCTURE

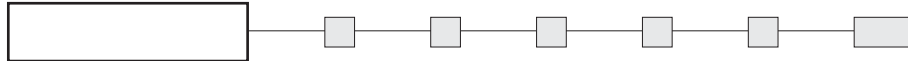
→ Keyway



- Screw, solder lug or quick-connect terminals
- Also available with threaded terminals : consult factory
- Screw terminals + clamp : on request.



MODEL STRUCTURE



Shown with standard lever

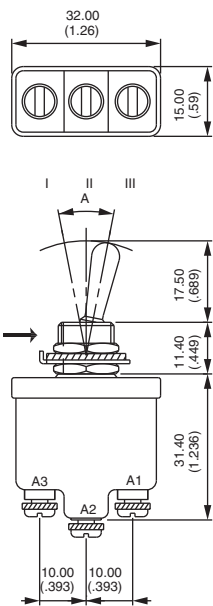


FUNCTIONS			BASIC PART NUMBER					
III	II	I	Screw terminals		Solder lugs and quick-connect term.		Normalized quick-connect terminals	
A2-A3	* A3-B5	A1-A2	Single pole	Double pole	Single pole	Double pole	Single pole	Double pole
B5-B6	** A1-B5	B5-B4						
ON	-	OFF	3531-00	3541-00	3531-02	3541-02	3531-03	3541-03
ON	-	m.OFF	3532-00	3542-00	3532-02	3542-02	3532-03	3542-03
OFF	-	MOM	3533-00	3543-00	3533-02	3543-02	3533-03	3543-03
ON	ON *	ON		3544-10		3544-12		3544-13
ON	ON *	MOM		3544-20		3544-22		3544-23
MOM	ON *	MOM		3544-30		3544-32		3544-33
ON	ON **	ON		3544-40		3544-42		3544-43
ON	ON **	MOM		3544-50		3544-52		3544-53
MOM	ON **	MOM		3544-60		3544-62		3544-63
ON	-	MOM	3535-00	3545-00	3535-02	3545-02	3535-03	3545-03
ON	-	ON	3536-00	3546-00	3536-02	3546-02	3536-03	3546-03
MOM	OFF	MOM	3537-00	3547-00	3537-02	3547-02	3537-03	3547-03
ON	OFF	MOM	3538-00	3548-00	3538-02	3548-02	3538-03	3548-03
ON	OFF	ON	3539-00	3549-00	3539-02	3549-02	3539-03	3549-03

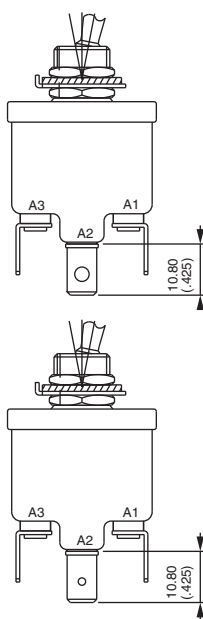
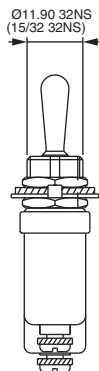
→ Keyway

* and **: A2-B4 and A2-B6 = jumper to be wired by the user.

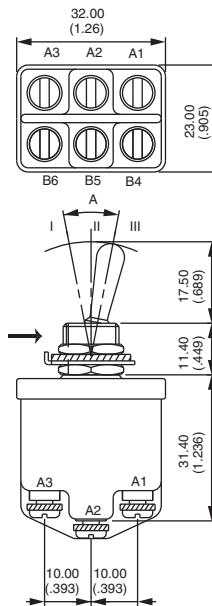
Single pole



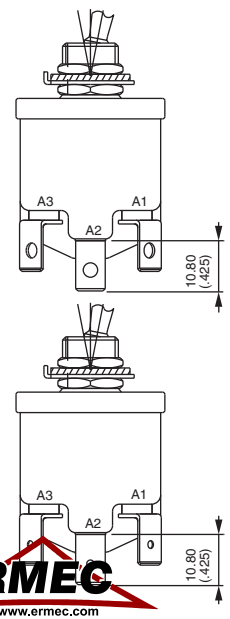
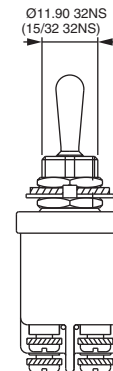
A → 2 POS. 22°
A → 3 POS. 30°



Double pole



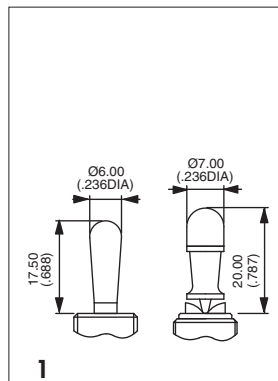
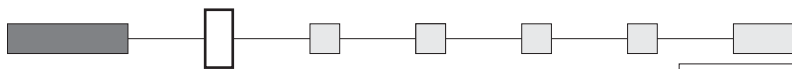
A → 2 POS. 22°
A → 3 POS. 30°



www.ermec.com

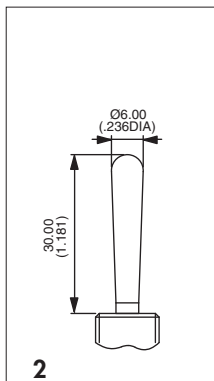


LEVER STYLES

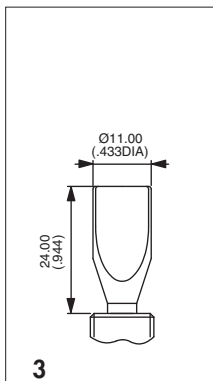


1

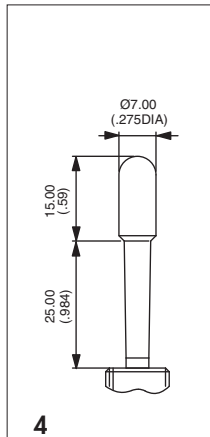
Standard



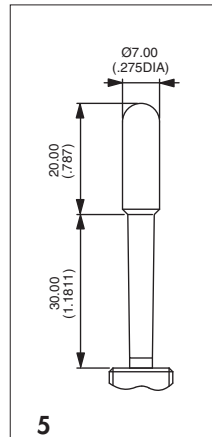
2



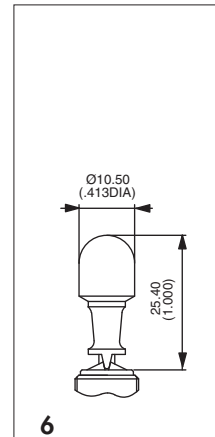
3



4

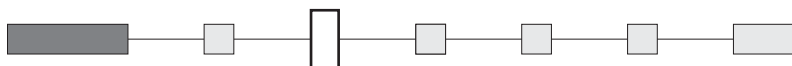


5



6

LEVER FINISH

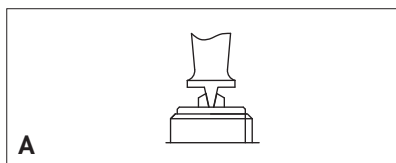
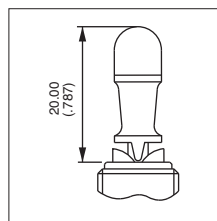


- N** Bright nickel
 - B** Satin chrome
 - G*** Matt black
 - F*** Matt black with fluorescent tip (available with lever type 1 only)
 - C** Painted or anodized (for locking lever only)
- * Matt black finish on bushing too.

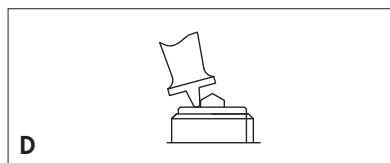
LOCKING LEVER STYLES



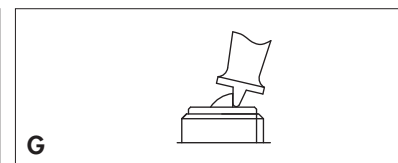
0 No locking



A Locked in 3 positions.
For functions 4-1, 4-4 and 9-0.



D Locked out of center position.
For functions 1-0 and 6-0.

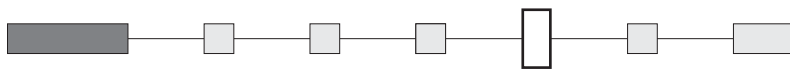


G Locked in keyway.
For functions 1-0 and 6-0.

3500 series

High performance toggle switches - environmentally sealed

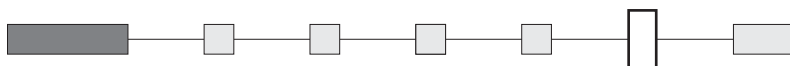
AGENCY APPROVAL



- 0 None
1 CECC

A

MOUNTING ACCESSORIES



- 0 For NON-SEALED mounting (panel cut-out fig. 1, 2 or 3)
2 hex nuts 14 mm (.551) across flats, 1 locking ring U121 or U12, 1 lockwasher U13
Panel thickness : 5 mm (.196) max.
- 2 For SEALED mounting (panel cut-out fig. 2)
2 hex nuts 14 mm (.551) across flats and 1 sealing washer U60
Panel thickness : 4 mm (.157) max.

Special hardware : black cap nut U129. Order separately. See section I.

PANEL CUT-OUT

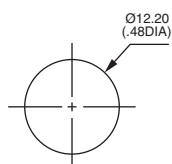


Figure 1

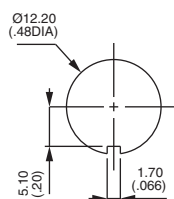


Figure 2

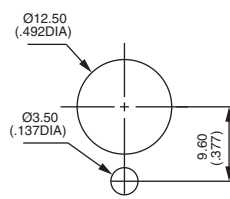
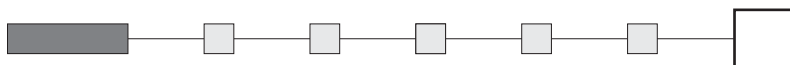


Figure 3

LOCKING LEVER SPECIAL FINISH



- (blank) None
P5 Painted yellow
A6 Anodized red

Order with lever finish type C.
Other colours on request.

3600NF series

Sealed toggle switches for outdoor applications

Distinctive features and specifications



☐ Sealing obtained by :

- O-ring between lever and bushing
- half-length boot and nylon washer (supplied mounted)
- elastomer gasket between cover and case
- molded-in terminal inserts
- sealing washer U60

☐ Solid silver contacts

☐ UL approved

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 12A 28VDC - 6A 250VAC
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.500 Vrms 50 Hz min. between terminals
 - 3.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 10.000 cycles at full load

MATERIALS

- Case : phenolic resin
- Actuator : brass, nickel plated
- Bushing : brass, nickel plated
- Contacts : solid silver

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 2 mm (.079) max. with all accessories
- Operating temperature : -40°C to +85°C

AGENCY APPROVAL



Availability : consult factory for details or approved models.

Marking : to order switches marked UL, complete last box of ordering format.

ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.



Mounting accessories : 1 sealing boot U1151, 1 hex nut U166, 1 nylon washer U21 and 1 sealing washer U60. See section I.



Packaging unit : 25 pieces per type and colour.



www.ermec.com

3600NF series

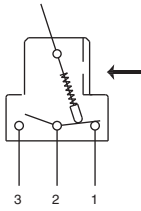
Sealed toggle switches for outdoor applications

Screw terminals - solder lug/quick-connect terminals

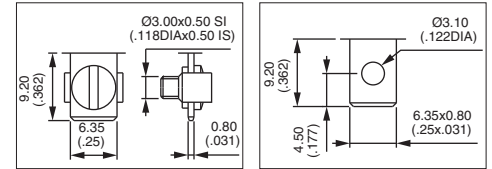
ermec@ermec.com

STRUCTURE

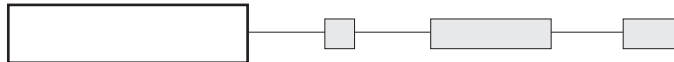
→ Keyway



- 1 and 2 pole configurations



MODEL
STRUCTURE



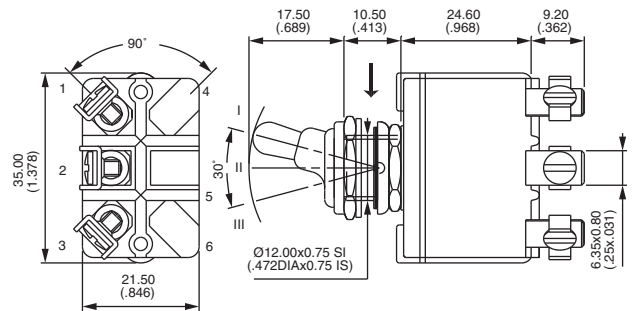
Screw terminals - single pole

→ Keyway



3631NF
3635NF
3636NF
3637NF
3638NF
3639NF

III	II	I
2-1		2-3
ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



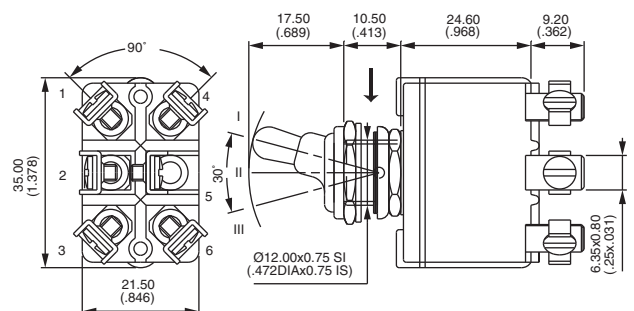
Screw terminals - double pole

→ Keyway



3641NF
3644NF*
3645NF
3646NF
3647NF
3648NF
3649NF

III	II	I
2-1		2-3
5-4		5-6
ON	-	OFF
ON	ON	ON
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



* Function 4 : SP in DP case, see end of catalogue.

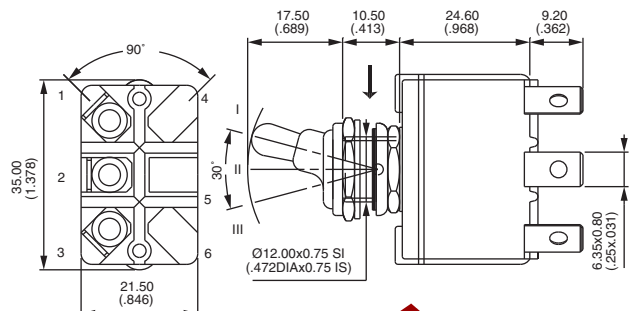
Solder lug/quick-connect terminals - single pole

→ Keyway



3631NF/2
3635NF/2
3636NF/2
3637NF/2
3638NF/2
3639NF/2

III	II	I
2-1		2-3
ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



ERMEC
www.ermec.com

www.ermec.com



3600NF series

Sealed toggle switches for outdoor applications

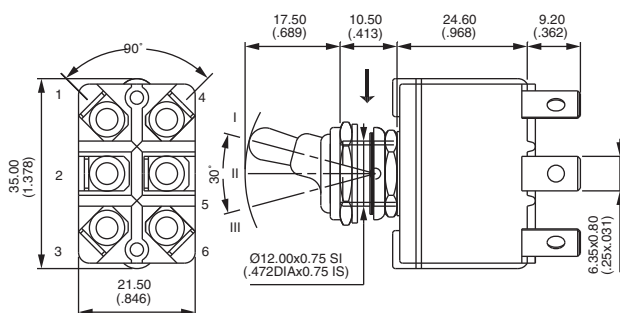
Solder lug/quick-connect terminals

Solder lug and quick-connect terminals - double pole



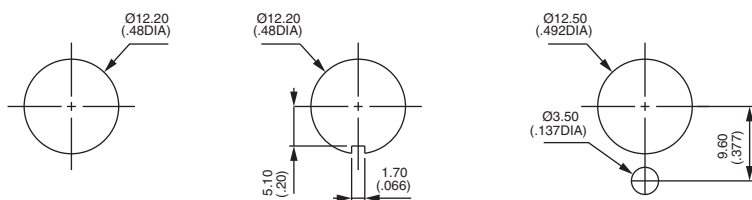
3641NF/2
3644NF/2*
3645NF/2
3646NF/2
3647NF/2
3648NF/2
3649NF/2

III	II	I
2-1		2-3
5-4		5-6
ON	-	OFF
ON	ON	ON
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON

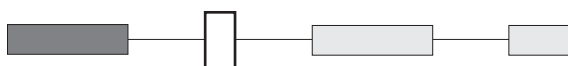


* Function 4 : DP in 4P case, see end of catalogue.

PANEL CUT-OUT



FINISH

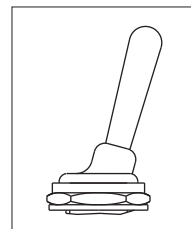


G Matt black finish on lever and nut of sealing boot

SPECIAL LEVER



X1052 30 mm (1.181) long lever



AGENCY APPROVAL



UL

Marking : to order switches marked UL, complete above box with "UL".



www.ermec.com

6000 series

ermec@ermec.com

Toggle switches for military applications

Distinctive features and specifications

A

- ☐ Suitable for military or industrial applications
- ☐ Sealing and locking lever options available
- ☐ Matt black finish on actuator and bushing

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating : see table below
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
 - 2.000 Vrms 50 Hz min. between terminals
 - 3.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 10.000 cycles at full load

CURRENT/VOLTAGE RATING	
	30VDC
Resistive load	6,5A
Inductive load	5A
Lamp load	3A

MATERIALS

- Case : diallylphthalate (DAP)
- Actuator : brass, chrome plated, black
- Bushing : brass, chrome plated, black
- Contacts : A : silver

GENERAL SPECIFICATIONS

- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 5 mm (.196) max.
- Operating temperature : -40°C to +85°C

ABOUT THIS SERIES

Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.

Security caps are available to prevent inadvertent lever operation. They are presented in section I.



Sealing boots are available to protect the switches against dust and water. They are presented in section H.



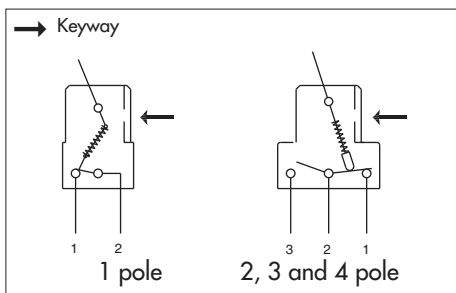
Mounting accessories : standard hardware supplied with all models : 2 matt black nuts U41, matt black locking ring U12, zinc plated lockwasher U13
They are presented in section I.



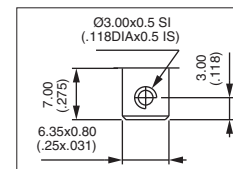
Packaging unit : 25 pieces, except model 6421 (20 pieces)



www.ermec.com



- Screw terminals standard
- Solder lug or quick-connect terminals optional
- 1, 2, 3 and 4-pole configurations



MODEL STRUCTURE



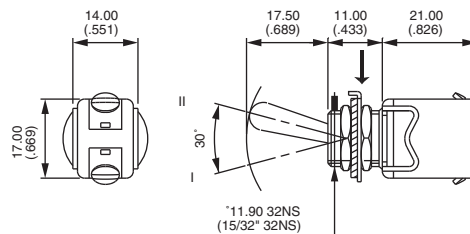
Single pole

→ Keyway



6421A-03

I	II
ON	OFF



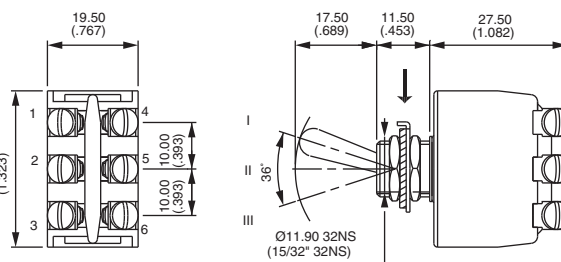
Double pole

→ Keyway



6641-03
6642-03
6643-03
6644-03 ▲
6645-03
6646-03
6647-03
6648-03
6649-03

III	II	I
2-1		2-3
5-4		5-6
ON	-	OFF
ON	-	mom.OFF
MOM	-	OFF
ON	ON	ON
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



▲ Function 4 : SP in DP case, see end of catalogue.

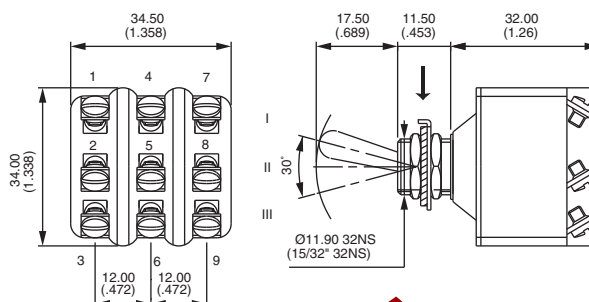
Three pole

→ Keyway



6651-03
6652-03
6653-03
6655-03
6656-03
6657-03
6658-03
6659-03

III*	II	I**
ON	-	OFF
ON	-	mom.OFF
MOM	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



* (2-1) (5-4) (8-7) ** (2-3) (5-6) (8-9)



6000 series

Toggle switches for military applications

ermec@ermec.com
OPTIONS

Four pole

→ Keyway

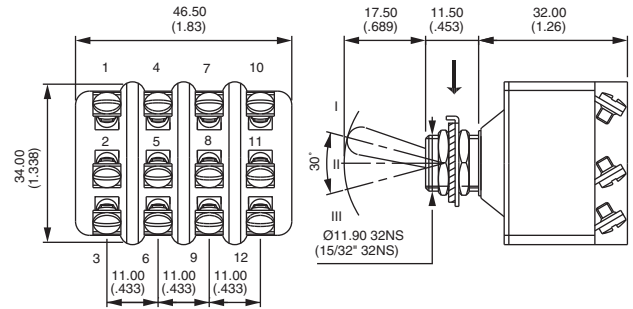


	III*	II	I**
6661-03	ON	-	OFF
6662-03	ON	-	mom.OFF
6663-03	MOM	-	OFF
6664-03 ▲	ON	ON	ON
6665-03	MOM	-	ON
6666-03	ON	-	ON
6667-03	MOM	OFF	MOM
6668-03	ON	OFF	MOM
6669-03	ON	OFF	ON

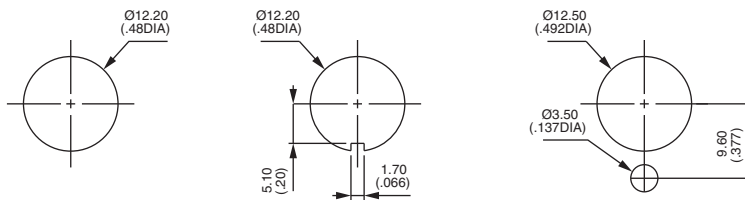
* (2-1) (5-4) (8-7) (11-10)

** (2-3) (5-6) (8-9) (11-12)

▲ Function 4 : 2P in 4P case, see end of catalogue.

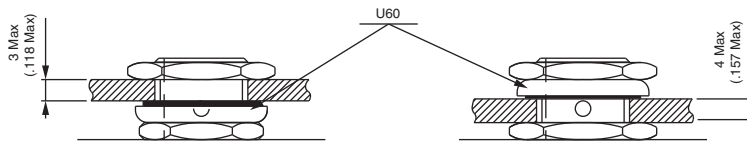


STANDARD PANEL CUT-OUT



PANEL CUT-OUT WITH "K" SEALING

Recommended cut-out and mounting depending on panel thickness



FINISH



- B** Lever and bushing with grey satin chrome finish
- LM** Nickel plated bushing - lever and upper nut bright chrome plated
- 8** Matt black lever with fluorescent tip



www.ermec.com



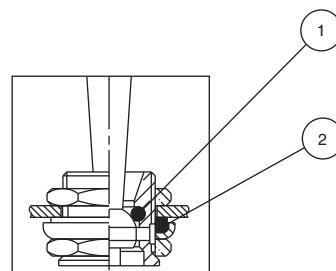
6000 series

Toggle switches for military applications

SEALING

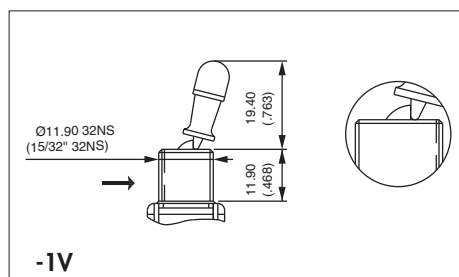


K Frontal sealing by O-ring and sealing washer. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated



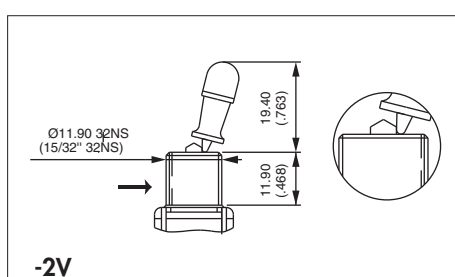
① O-ring ② Sealing washer

LOCKING LEVERS



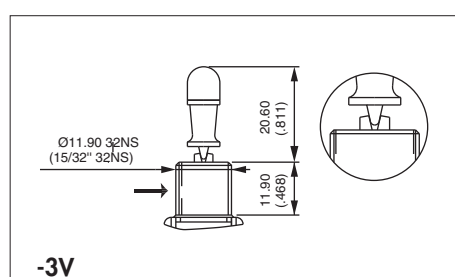
-1V

1 locked position



-2V

2 locked positions



-3V

3 locked positions

→ Keyway

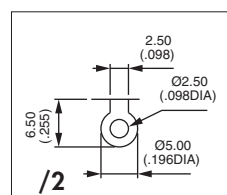
TERMINALS



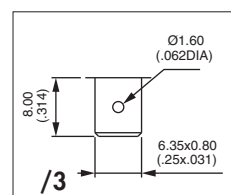
- Blank** Screw terminals
- /2** Solder lug terminals
- /3** Quick-connect terminals 6,35 x 0,8 (.250 x .031)



Not available on single pole models.



/2



/3

NEOPRENE PROTECTION CAPS

These caps are designed to insulate terminals against electrical short circuit.



For 1-pole models

U58

For 2-pole models

U120

For 3-pole models

U46

For 4-pole models

U47

To be ordered separately. Example : PROTECTION CAP U58

ERMEC

www.ermec.com