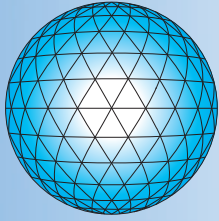


Apem开关 Apem钮子开关 Apem按钮开关 DIP开关 法国APEM switch说明书 法国品牌Apem代理商进口旋转编码开关
Apem摇头开关 Apem船型开关 进口翘板开关 进口急停开关 进口钥匙开关 进口摇头开关 进口按键开关 防水金属开关



APEM

A world of switching capabilities

2011
2012



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By series

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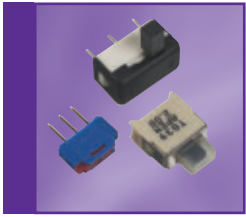


Contents



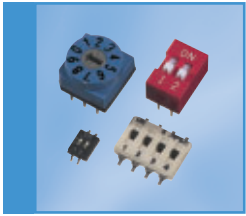
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	Distinctive features and specifications	G 3	A02	Pushbutton, rotary lever, keylock & emergency stop switches - Indicators - Panel cut-out Ø 22 (.866) or 30 (1.181)	G 16
A1	Engraved aluminium flush mounting pushbuttons & indicators - Panel cut-out Ø 22 (.866)	G 5	A03	Compact pushbuttons and indicators Panel cut-out Ø 22 (.866) or 30 (1.181)	G 25
A01	Pushbutton, rotary lever, keylock & emergency stop switches - Indicators - Panel cut-out Ø 16 (.630)	G 6			



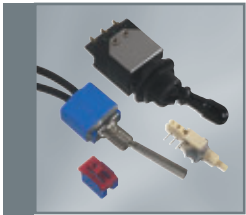
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For toggle, pushbutton and rocker switches
New models H 2



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VL	Panel mount LED indicators	I 3	20 to 500	Security caps New models!	I 6
				Hardware	I 12



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TECHNICAL INFORMATION, ROHS COMPLIANCE, GLOSSARY, ADDRESSES & OTHER PRODUCTS

End of catalogue

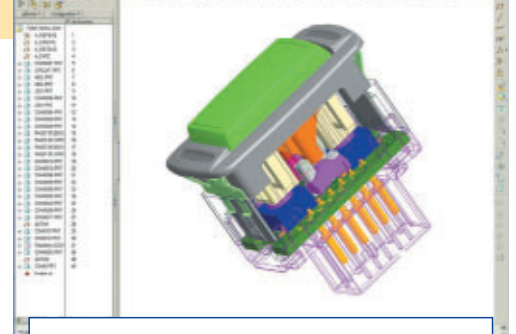
Production process

APEM, vertically integrated manufacturing

Design and development capabilities



CAD/CAM stations



Graphic design

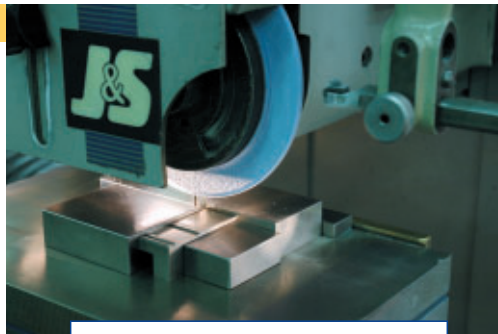


Fabrication of tooling



Qualification

Tooling and automatic assembly



Grinding machine



Electro-erosion



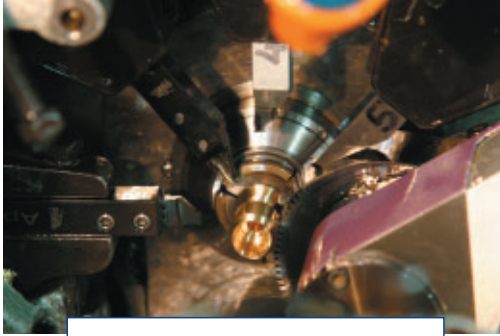
Tooling



Milling

Production process

From raw material transformation to finished products, through the design and production of tooling, APEM controls all phases of production.



Screw machining



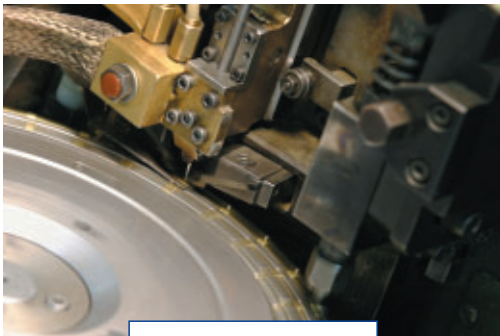
Stamping



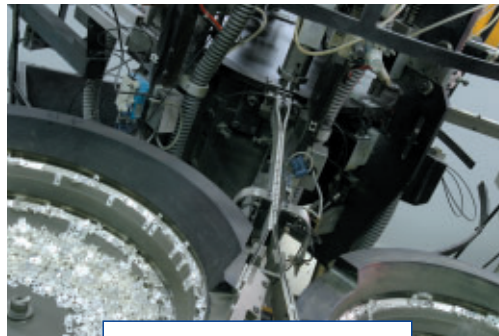
Plating



Moulding



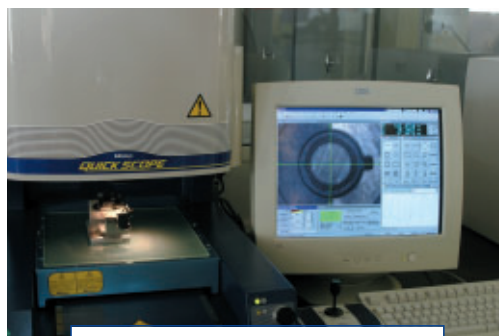
Soldering



Assembly



Marking



Testing

**Switch
manufacturing
process**

Approvals

QUALITY SYSTEM CERTIFICATES

ISO 9001 - 2008 version
AFAQ No 1992/776f



FACTORIES

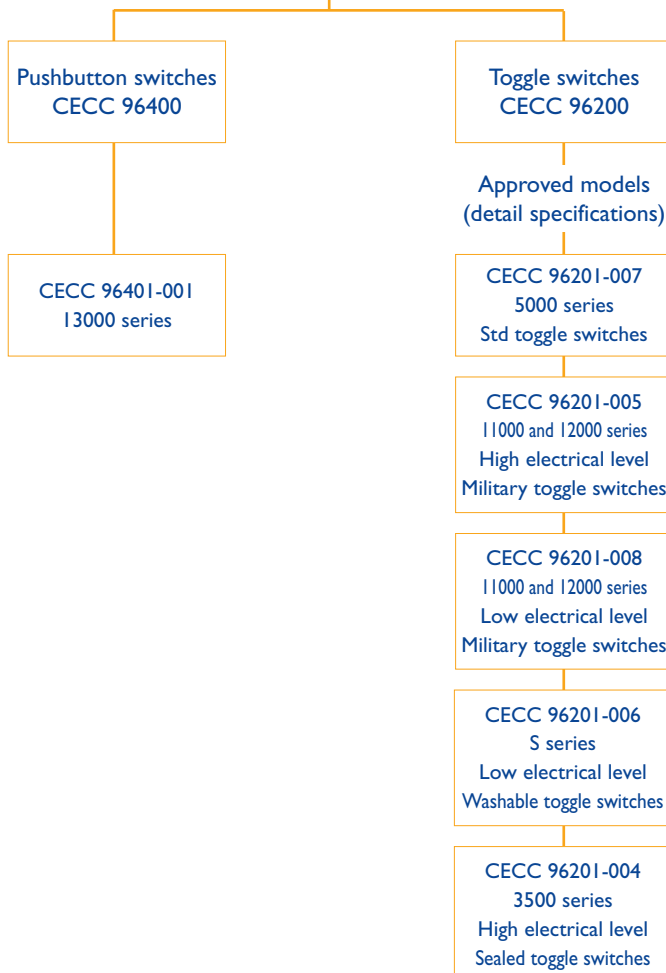
- Caussade (miniature switches)
- Montpezat (industrial switches)
- Montauban (membrane and specific switch panels)

EUROPEAN STANDARDS



Generic specification
CECC 96000

Intermediate specifications



See our cross reference list MCL02 for CECC models.

APEM factories and test laboratories are qualified by :

SNQ Service National de Qualité - No 121
LCIE Laboratoire Central des Industries Electriques

E CECC-IECQ (European)- No 008-95
Standard : CECC 96000

UL Underwriters Laboratories

CSA Canadian Standards Association

NF NF - Normes françaises

VDE VDE - Germany

Other product qualifications

Ex ATEX - PBA series - No INERIS08ATEXQ408







PREFERENTIAL LISTS

NATO — User code No F7507

Consult factory for details of listed models.

Approvals

The SEV, NEMKO, SEMKO and FEMKO approvals are now covered by the new European standard EN 61058-1, which is recognized by all European countries. For our products, the approvals are usually delivered by the French agency (NF) or the German agency (VDE).

SERIES	SAFETY STANDARDS					QUALITY STD
	USE - France NF - EN 61058-1	VDE - Germany DIN - EN 61058-1	UL - U.S.A. UL 1054	CSA - Canada C22.2 N° 55	BSAB - U.K. CEC 24	CECC (European) No. 9600 § 4-3-1 CECC 96000
						
	EN 61058-1	EN 61058-1				
A01-A02		•	•	•	•	
AS			•	•		
AV			•	•		
FM		•	•			
IP-IB-IS			•			
S			•			•
SP			•			
KG		•				
10400						•
10600						•
11000						•
1200	•		•	•		
12000						•
13000			•			•
1500			•			
2200			•	•		
25000N			•			
2600	•	•	•	•		
3500						•
3600			•			
4100-4200			•	•		
4600		•	•	•		
4400		•				
4700		•	•	•		
4800		•				
5000			•	•		•
55000		•	•	•		
57000		•	•	•		
600H	•	•	•	•		
600NH	•	•	•	•		
7000			•	•		
8000			•			

Availability : consult factory for details of approved models.

LAB TEST

APEM's laboratory is approved by the National Standard Office (SNQ) as well as Underwriters Laboratories (UL). Qualification tests and periodical tests are conducted according to European Standard (CECC 96000), International Standards (IEC 1020, IEC 512, IEC 68...) and other safety standards like UL 1054, CSA 55, CEE 24, EN 61058-1.

CECC - IEC TYPICAL TESTS

Visual examination:	IEC 512-2 test 1a	Shock:	IEC 512-4 test 6c
Outline dimensions:	IEC 512-2 test 1b	Climatic sequence:	IEC 512-6 test 11a
Functional operation:	CECC 96000 - § 4-3-1-7	Insulation resistance:	CECC 96000 § 4-3-3-1
Initial contact resistance:	IEC 512-2 test 2a or 2b	Voltage proof:	CECC 96000 § 4-3-4-1
Impact on actuator:	CECC 96000 § 4-3-7-1	Temperature rise (if applicable):	IEC 512-3 test 5a
Robustness of actuator:	CECC 96000 § 4-3-8-1	Soldering:	IEC 512-6
Robustness of mounting:	CECC 96000 § 4-3-8-2	Operating force:	IEC 512-7 test 13c
Robustness of terminals:	IEC 512-8 test 16f	Sealing (air leakage):	IEC 68-2-17 test Qa
Mechanical endurance:	IEC 512-5 test 9a and CECC96000 § 4-3-9-1	Sealing water proof:	CECC 96000 § 4-3-14-2
Electrical endurance:	IEC 512-5 test 9c	Sealing immersion proof:	IEC 68-2-17 test Qf
Electrical overload:	IEC 512-5 test 10a	Sealing (bubble test):	IEC 68-2-17 test Qc
Damp heat, steady state:	IEC 512-6 test 11c	Low air pressure (if required):	IEC 512-6 test 11k
Rapid change of temperature:	IEC 512-6 test 11d	Corrosion (salt resist) (if required):	IEC 512-6 test 11f
Vibration:	IEC 512-4 test 6d	Dry heat:	IEC 512-6 test 11i
Bump (if required):	IEC 512-4 test 6b	Cold:	IEC 512-6 test 11j

CE All switches approved according to EN 61058-1 are compatible with CE marked equipment.

New products

New series, new developments



IZ series

- Rear panel mounting
- Metal or plastic bushing
- Momentary or latching
- Round actuator
- Illuminated or non-illuminated

Section B



IR series

- Up to 5A
- Screw version
- Momentary or latching
- Square or round actuator
- Illuminated or non illuminated

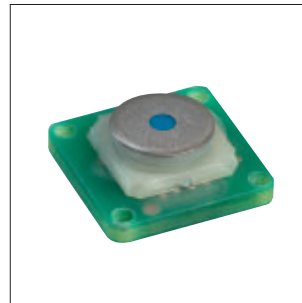
Section B



PBA series

- Dia. 19 mm models
- New LED colours
- New shapes
- ATEX versions

Section B



PR and V series

- Stainless steel keys
- Rear mounting
- Custom marking

Section B



LPI series

- Large ergonomic actuator
- Low behind-panel depth
- Stylish design
- Front or rear mounting
- EN81-70 compliant

Section B



KR series

- Unique rocker design
- Wide choice of colours
- Laser etched symbols
- Illuminated or non-illuminated



KL series

- Locking rocker switches
- Patented intuitive ergonomics
- Laser etched symbols
- Illuminated or non-illuminated

Section D



KI series

- LED indicators
- Wide choice of LEDs
- Laser etched symbols
- Long life expectancy

Section D

New models

- AV series : dia. 22 mm AV with overmolded actuator (AV3S)
- AV series : NO/NC illuminated models (AV3 - AV9)
- AV series : alternate action model (AV...4700)
- D162 series : SMT tact switches
- IKE series : SMT or through-hole DIP switches (replacing IKD)
- Sealing boots : joystick type, boots for the LPI and KG series
- Security caps : 7 new models
- Custom products : limit switch, pendant switch...

Section B

Section B

Section B

Section C

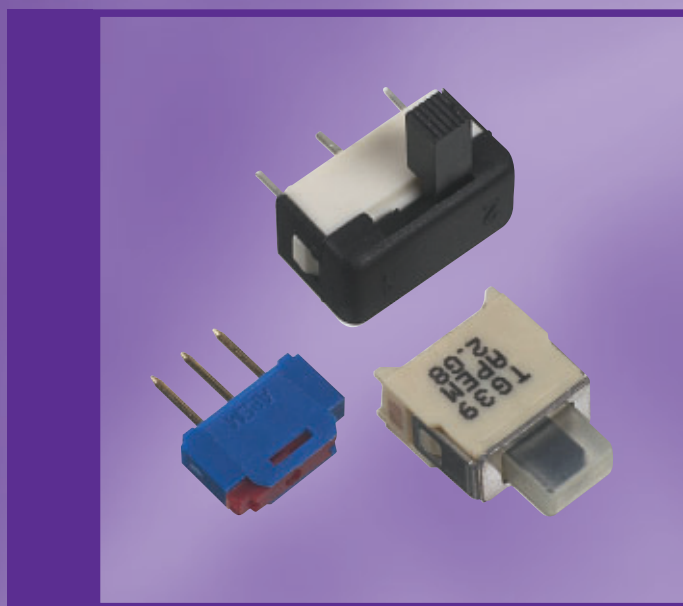
Section F

Section H

Section I

Section J

Slide switches

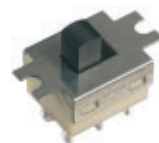


Section E

NK	Subminiature	E 3
SMT TG	Tiny, SMT, washable	E 4
TG	Tiny, washable	E 6
G	Telecom grade	E 9
25000N	Professional	E 15

Selection guide

Slide switches



Series	NK	SMT TG	TG	G	25000N
Page	E-3	E-4	E-6	E-9	E-15
Poles	1	1	1	1,2	1,2
Maximum ratings	500mA 12VDC	0,4VA 20V AC/DC	0,5A 48V AC/DC	2A 250VAC 3A 30VDC	2A 250VAC 1A 30VDC
Mounting options					
Horizontal SMT		X			
Vertical Through hole	X		X	X	X
Horizontal Through hole	X		X	X	X
Vert. right angle Through hole				X	
Panel				X	
Terminal options					
PCB	X	X	X	X	X
Solder lugs				X	
Sealing	No	Process sealed	Process sealed	No	No

NK series

Subminiature slide switches

☐ The smallest changeover

☐ Flush and raised actuators

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 0,5A 12V
- Minimum load : 1mA 10mV
- Initial contact resistance : 20 mΩ max.
- Insulation resistance : 10.000 MΩ min. at 500VDC
- Dielectric strength : 250 Vrms. 50 Hz min. between terminals
- 2.000 Vrms 50 Hz min. between adjacent poles of switches placed side by side
- Electrical life with nominal load : 2.000 cycles
- Capacitance : < 1,5 pF

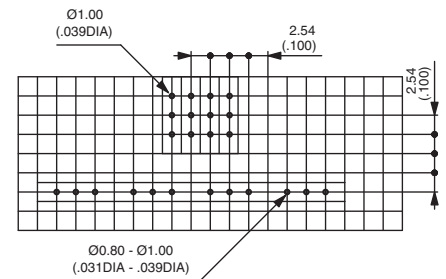
MATERIALS

- Case : PA6/6, glass filled, UL94-V0
- Actuator : PA6/6, glass filled, UL94-V0
- Contacts : gold over nickel

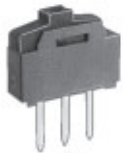
GENERAL SPECIFICATIONS

- Wave solderable : flux sealed
- End stackable, 2,54 (.100) terminal to terminal pitch - 4 switches max., hole dia. 1 mm (.039)
- Travel : 1,6 mm (.062)
- Operating temperature : -40°C to +85°C
- Soldering temperature : 250°C for 5 sec. max.
- Moisture test : 21 days at 95 % RH (IEC 68-2-3)

EXAMPLES OF LAYOUT

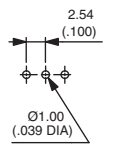
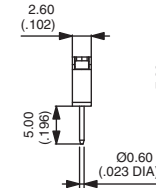
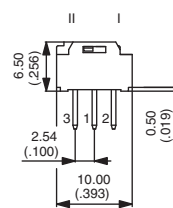
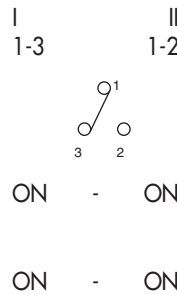


Straight PC terminals



Flush actuator
NK236

Raised actuator
NK236H

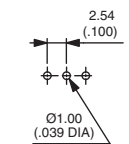
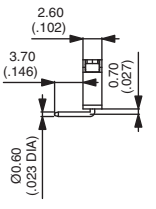
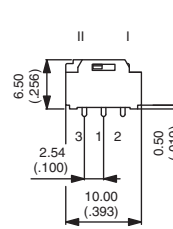
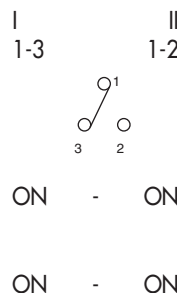


Right angle terminals



Flush actuator
NK236W

Raised actuator
NK236WH



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



Packaging unit : 100 pieces.

SMT TG series

Surface mount tiny washable slide 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-lead 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
- 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

GENERAL SPECIFICATIONS

- Actuator travel : 2,60 mm (.102)
- 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

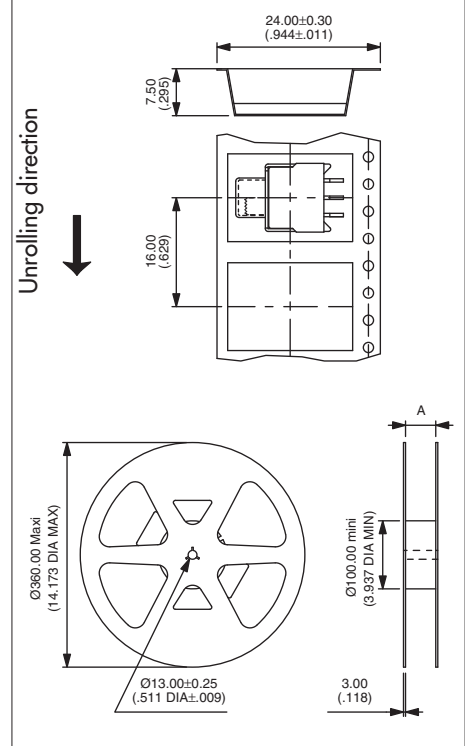
- Case : high temperature plastic material UL94-V0
- Actuator : high temperature plastic material UL94-V0
- Ground plate and positioning pins : steel, tin plated
- Contacts : brass, gold plated
- Terminals : brass, with pure tin plating over nickel barrier
- Rubber seal : silicone, transparent

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.

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

PACKAGING

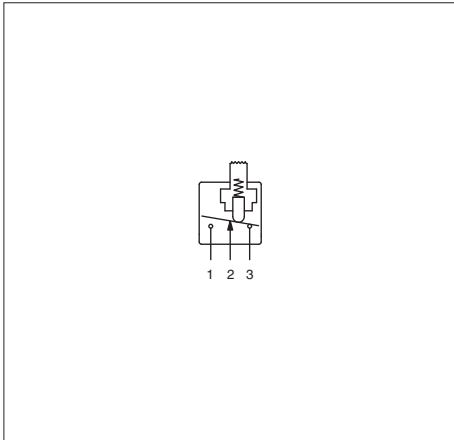


Tape width	24.00 (.944)	44.00 (1.732)
Reel (dimension A)	24.40+2.00/0.00 (.960+.078/.000)	44.40+2.00/0.00 (1.748+.078/.000)

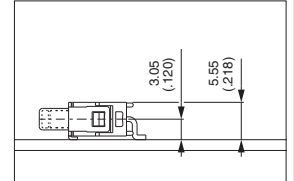
Standard packaging unit : 500 pieces
Tape meeting international standard IEC -
Publication 286-3 (EIA481A)
Start leader : 400 mm min.

SMT TG series

Surface mount tiny washable slide switches



- With or without positioning pins
- Rubber seal removable after cleaning
- Single pole

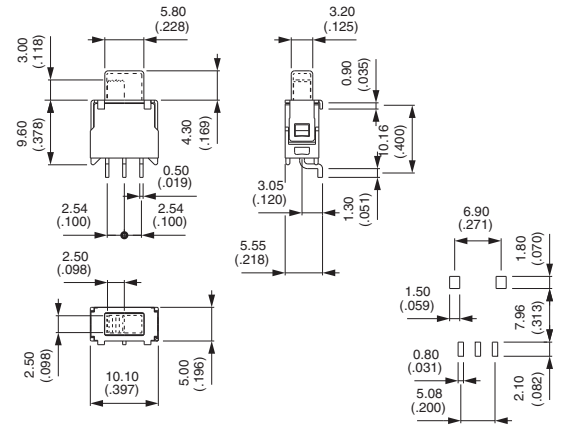


Slide switches



TG36WS80050
TG39WS80050

ON - ON
ON OFF ON

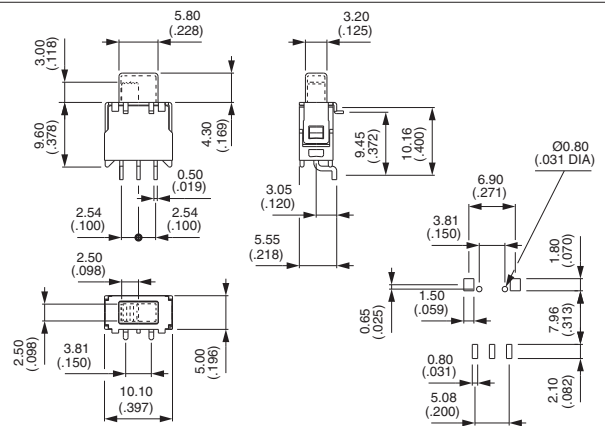


Slide switches - with positioning pins



TG36WS80065
TG39WS80065

ON - ON
ON OFF ON



Slide switches with flush actuator

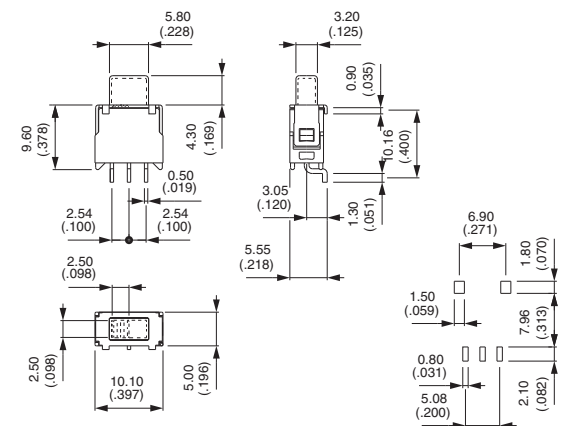


Without positioning pins
TG36WS81050
TG39WS81050

ON - ON
ON OFF ON

With positioning pins
TG36WS81065
TG39WS81065

ON - ON
ON OFF ON



Shown without positioning pins
(positioning pins same as above)

E

TG series

Tiny slide switches

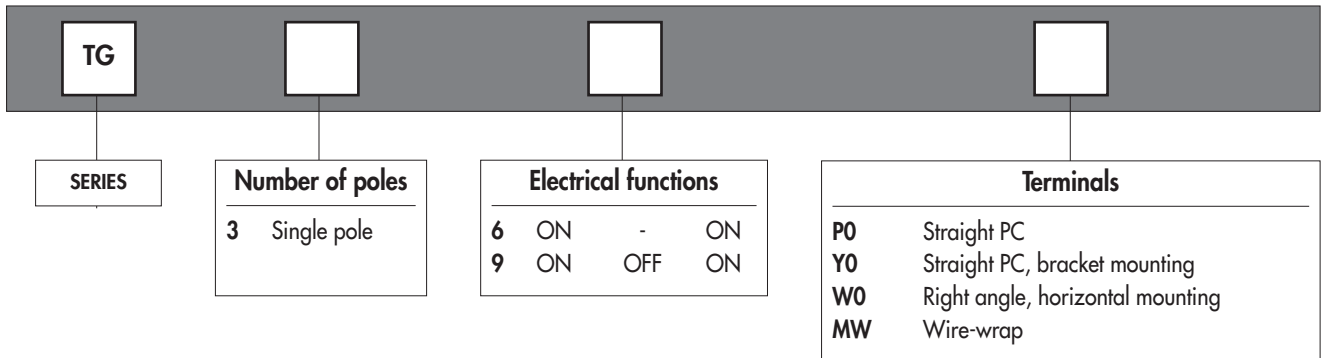
Overview and specifications

- Sealed**
 - Single piece case
 - Epoxy sealed terminals
- Wide variety of contact materials**
- Same PCB layout as TL, TP and TR tiny series**

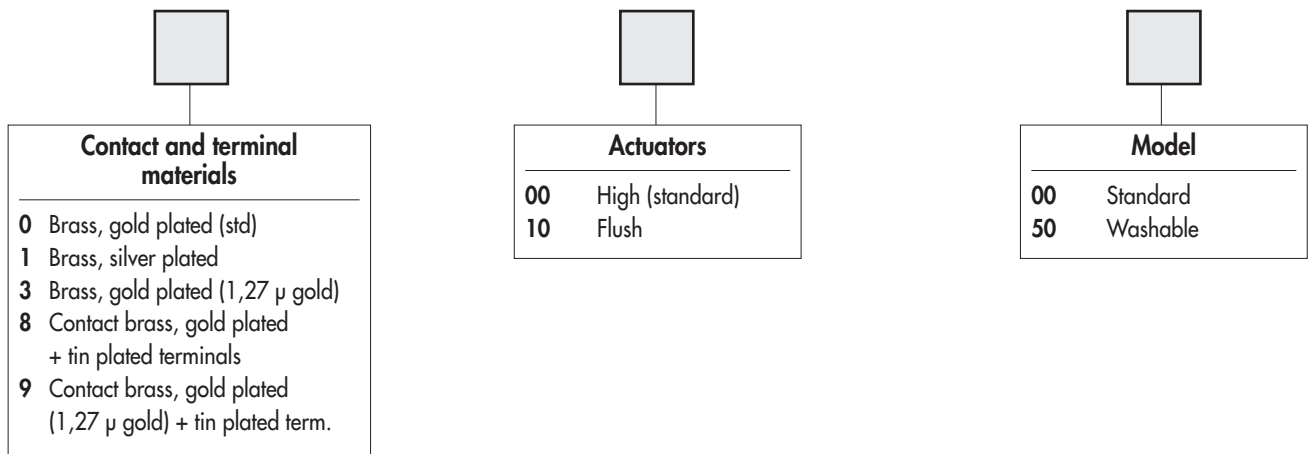
SPECIFICATIONS
<ul style="list-style-type: none"> • Current/voltage rating with resistive load : <ul style="list-style-type: none"> - Gold plated contacts : 0,4VA 20V max. AC or DC. - Silver plated contacts : 0,5A 48V max. AC or DC • Contact resistance : 20 mΩ max. • Insulation resistance : 1.000 MΩ 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 • Travel : 2,60 mm (.102) • Operating temperature : -30°C to +85°C • Cleaning : solvents or water + detergent • Wave soldering : 260°C - 5 sec. max.

MATERIALS
<ul style="list-style-type: none"> • Case : flame retardant thermoplastic • Actuator : thermoplastic • Ground plate and bracket : brass, tin plated • Contacts and terminals : see above • Rubber seal : silicone, transparent • Terminal seal : epoxy

MODEL STRUCTURE



OPTIONS



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

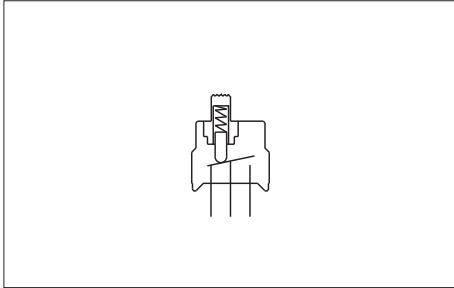


Packaging unit : 100 pieces, except for models with right angle terminals (50 pieces)

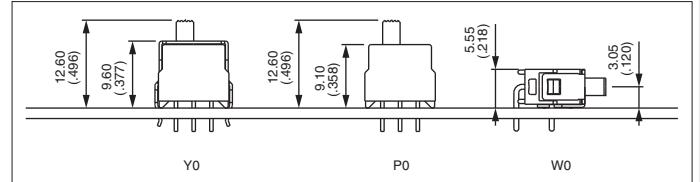
TG series

Tiny slide switches

Standard or washable



- Straight PC, right angle or wire-wrap terminals
- Single pole
- The silicone rubber seal can be removed after cleaning.



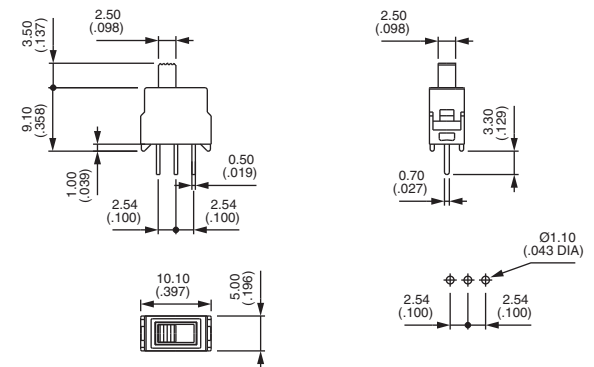
To complete the following part numbers, refer to "Overview" and replace the • symbol with one of the options proposed under "Contact and terminal materials".

Straight PC terminals - standard model



TG36P0•0000
TG39P0•0000

ON - ON
ON OFF ON

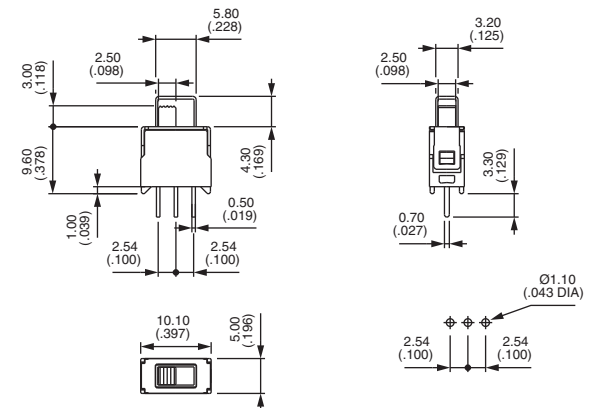


Straight PC terminals - washable model



TG36P0•0050
TG39P0•0050

ON - ON
ON OFF ON

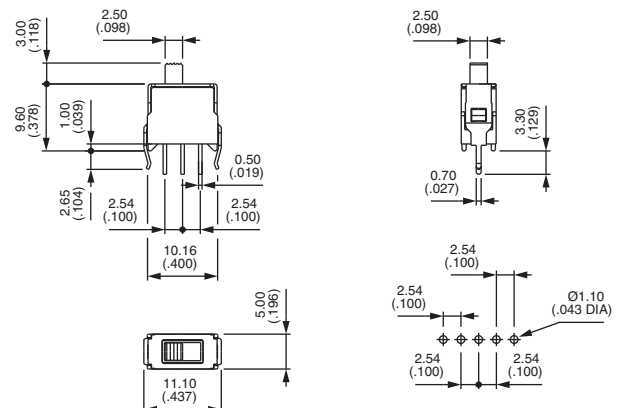


Straight terminals - bracket mounting - standard model



TG36Y0•0000
TG39Y0•0000

ON - ON
ON OFF ON



TG series

Tiny slide switches

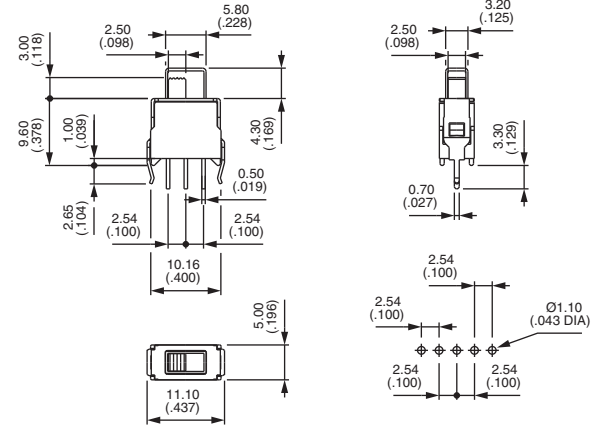
Standard or washable

Straight terminals - bracket mounting - washable model



TG36Y0•0050
TG39Y0•0050

ON - ON
ON OFF ON

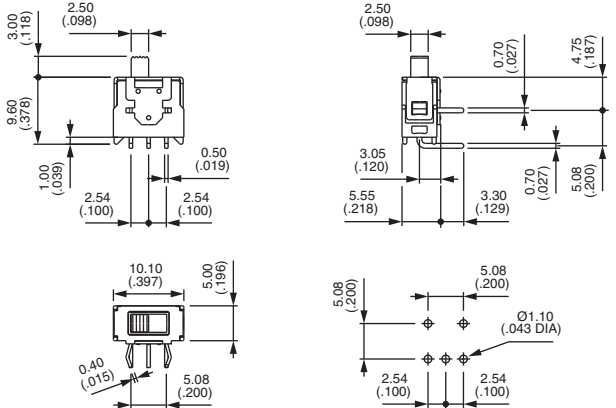


Right angle terminals - horizontal mounting - standard model



TG36W0•0000
TG39W0•0000

ON - ON
ON OFF ON

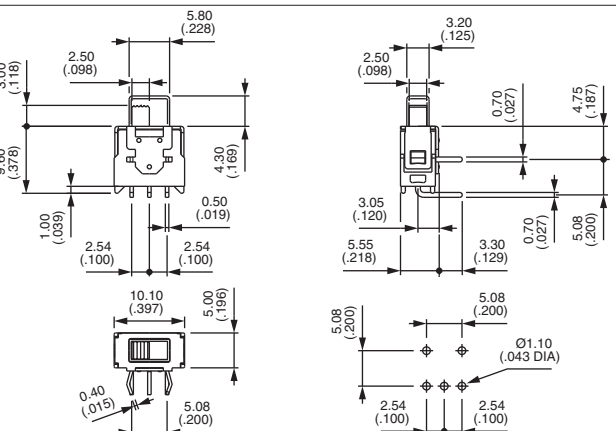


Right angle terminals - horizontal mounting - washable model



TG36W0•0050
TG39W0•0050

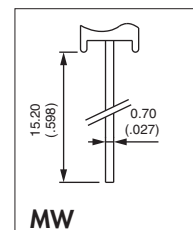
ON - ON
ON OFF ON



OTHER CONFIGURATIONS

MW Wire-wrap terminals

10 Flush actuator



G series

Slide switches - telecom grade

Distinctive features and specifications



- Panel and PC mount models
- 6 actuator lengths
- Wide variety of contact materials

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (codes 1 or 2) : 2A 250VAC - 4A 125VAC - 3A 30VDC
 - gold plated brass contacts (code 0) : 0,4VA 20VAC or DC max.
- Initial contact resistance : 10 mΩ
- Insulation resistance : 1.000 MΩ min.
- Dielectric strength : 1.000 Vrms 50 Hz min.
- Electrical life with resistive load :
 - silver contacts (codes 1 or 2) : 2 positions : 40.000 cycles
 - 3 positions : 20.000 cycles
 - gold plated brass contacts (code 0) : 60.000 cycles (0,4VA max.)

MATERIALS

- Case : PES
- Actuator : polyamide, glass filled
- Cover : stainless steel
- Contacts
 - 0 : brass, gold plated
 - 1 : silver
 - 2 : silver, gold plated
 - 5 : special contact, lower rating, minimum quantity : consult factory
- Terminal seal : epoxy

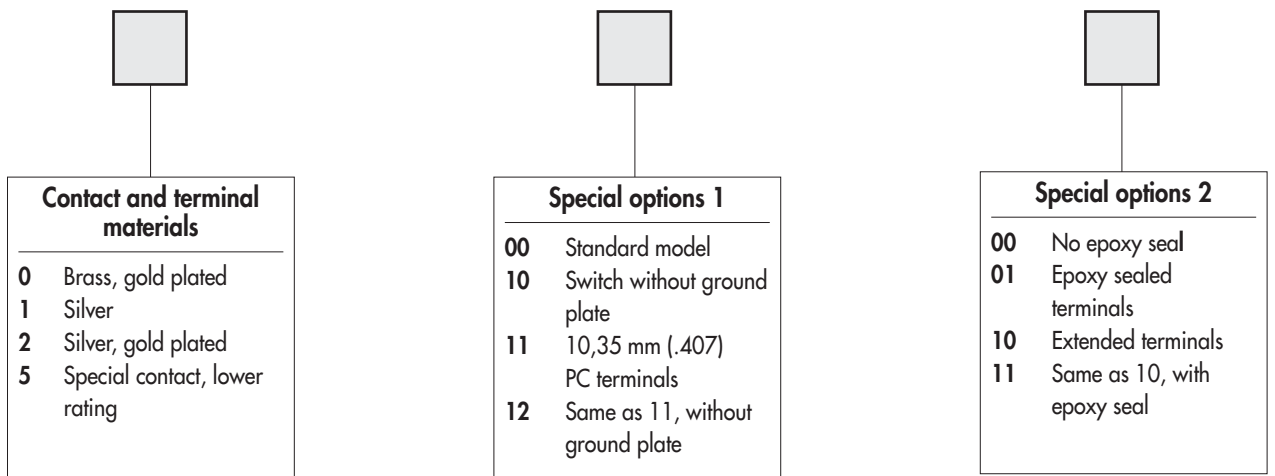
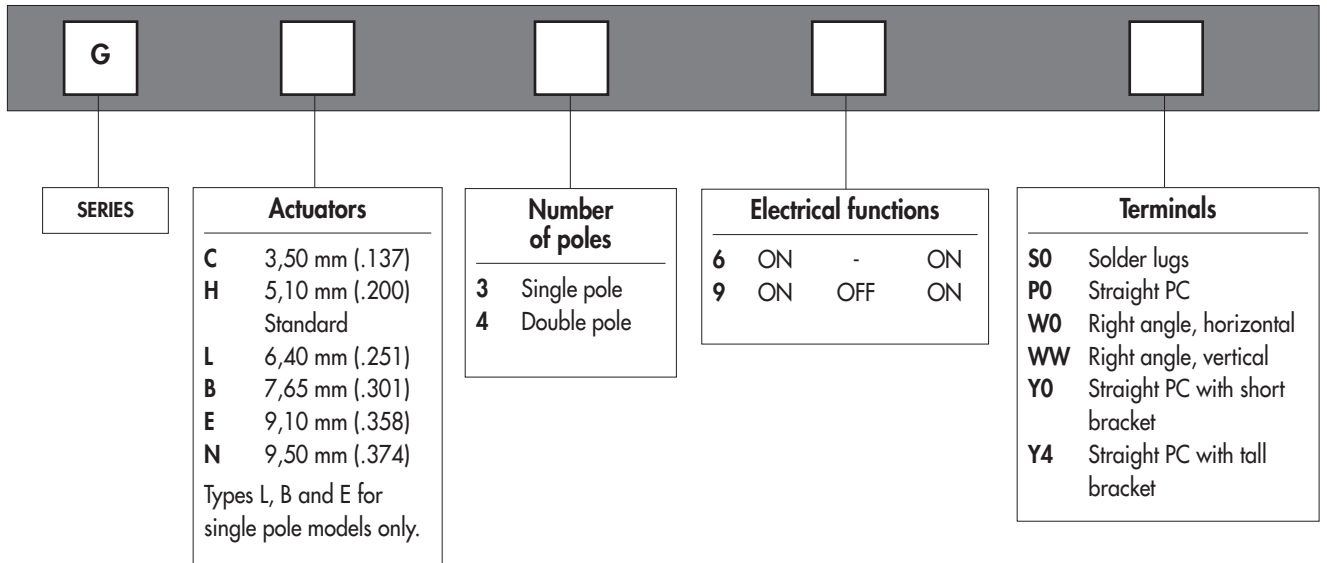
GENERAL SPECIFICATIONS

- Travel : 2,20 mm (.086), except actuator N on SP model : 2,60 mm (.102)
- Operating temperature : -30°C to +85°C
- Recommended soldering : 300°C 5 sec. max.

G series

Slide switches - telecom grade

Overview



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.

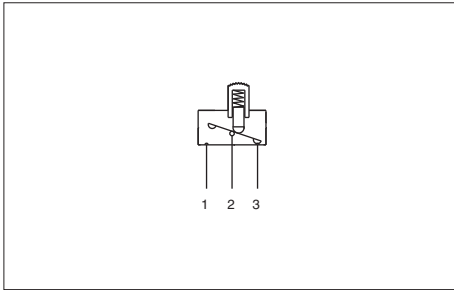


Packaging unit : 100 pieces for SP solder lug (S0) and straight terminal (P0) models. 50 pieces for other models.



G series

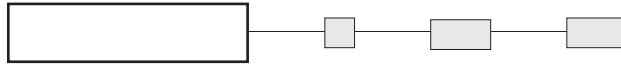
Slide switches - telecom grade



- Solder lug, straight PC or right angle terminals
- Single and double pole configurations



MODEL STRUCTURE



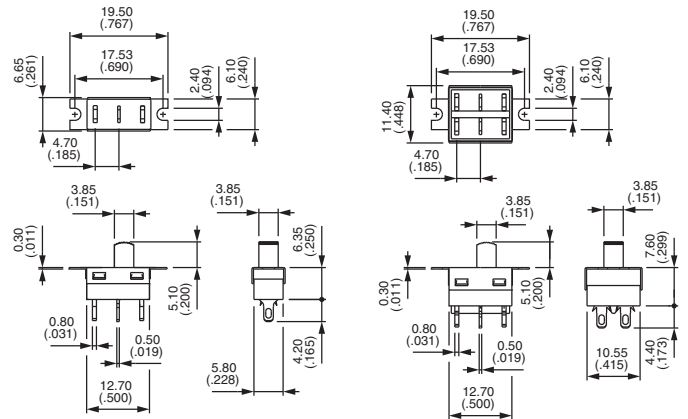
Shown with standard actuator (type H)

Solder lug terminals



Single pole	Double pole	ON	-	ON
GH36S0	GH46S0	ON	-	ON
GH39S0	GH49S0	ON	OFF	ON

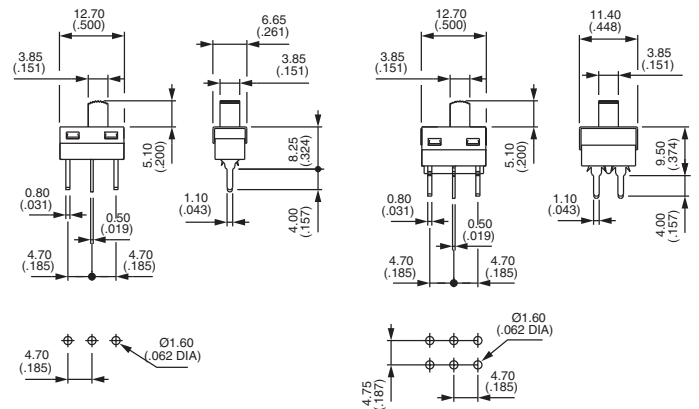
Order with epoxy sealed terminals (option 01).



Straight PC terminals



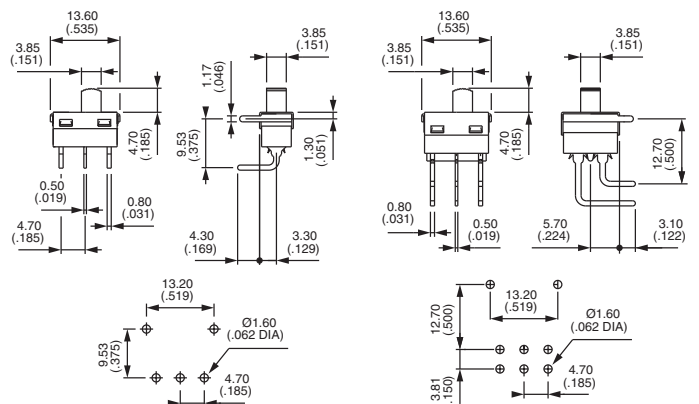
Single pole	Double pole	ON	-	ON
GH36P0	GH46P0	ON	-	ON
GH39P0	GH49P0	ON	OFF	ON



Right angle terminals - horizontal



Single pole	Double pole	ON	-	ON
GH36W0	GH46W0	ON	-	ON
GH39W0	GH49W0	ON	OFF	ON



G series

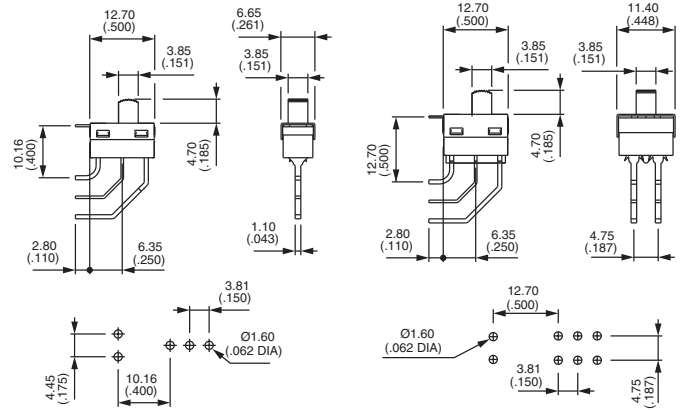
Slide switches - telecom grade



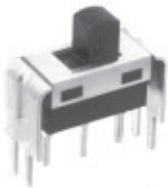
Right angle terminals - vertical



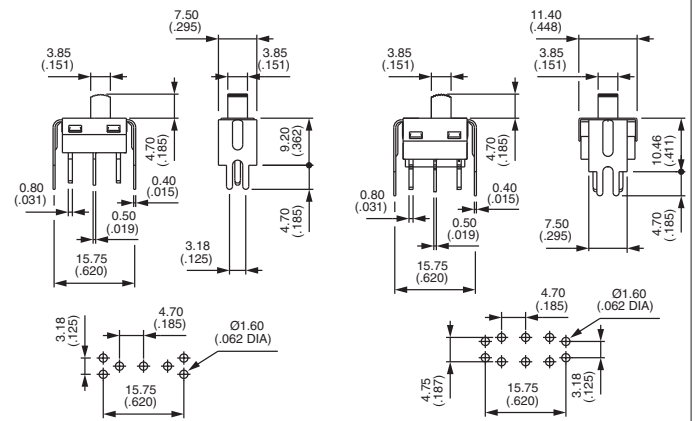
Single pole	Double pole	ON	-	ON
GH36WW	GH46WW	ON	-	ON
GH39WW	GH49WW	ON	OFF	ON



Straight PC terminals - short bracket : Y0



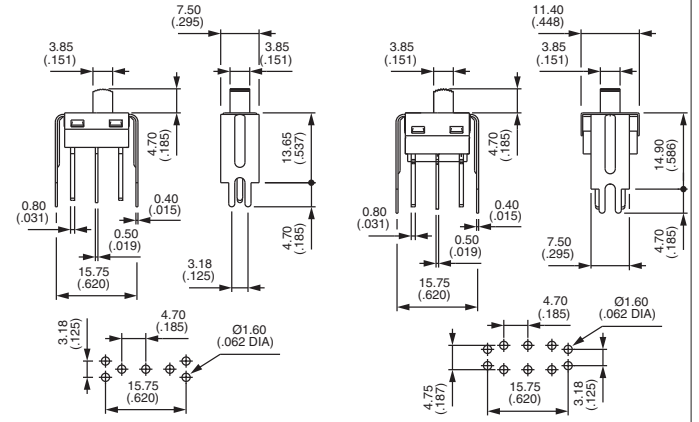
Single pole	Double pole	ON	-	ON
GH36Y0	GH46Y0	ON	-	ON
GH39Y0	GH49Y0	ON	OFF	ON



Straight PC terminals - tall bracket : Y4

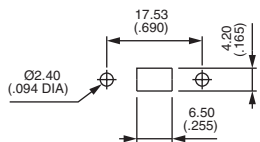


Single pole	Double pole	ON	-	ON
GH36Y4	GH46Y4	ON	-	ON
GH39Y4	GH49Y4	ON	OFF	ON

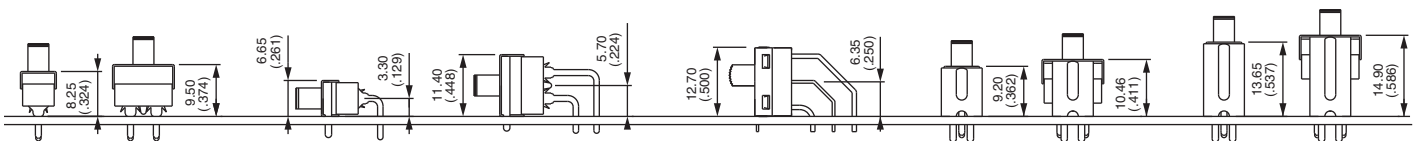


PANEL CUT-OUT

Solder lug model



PCB MOUNTING

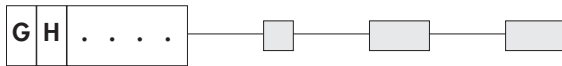




G series

Slide switches - telecom grade

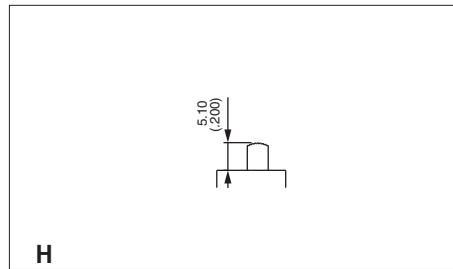
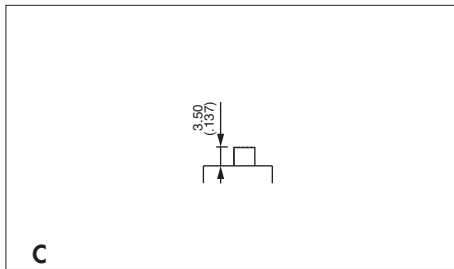
ACTUATORS



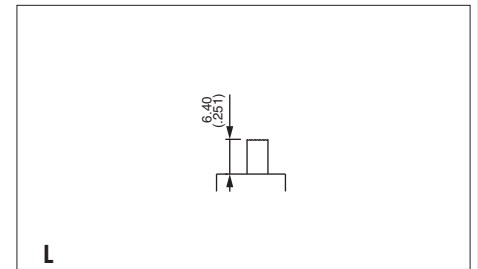
Replace second digit (H) of basic model number with one of the codes below.



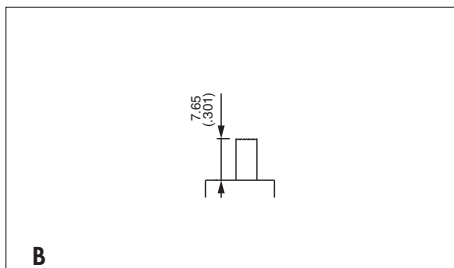
Dimensions below are for solder lug (SO) and straight terminals (PO) models.
 For other models (WO - WW - Y0 - Y4), height is less 0,4 mm (.015).



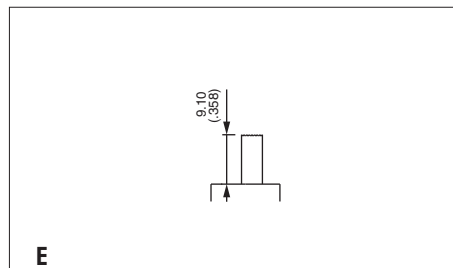
Standard



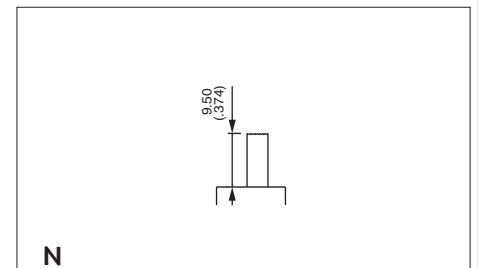
For single pole only



For single pole only



For single pole only



CONTACT AND TERMINAL MATERIALS



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

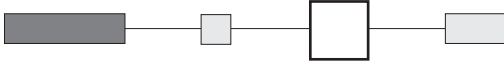
E

G series

Slide switches - telecom grade

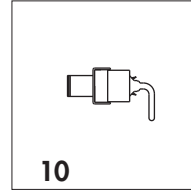


SPECIAL OPTIONS 1



00 Standard switch as presented under "Model Structure"

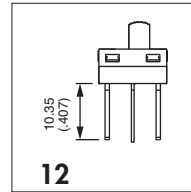
10 Switch **without ground plate**
 For right angle only (W0 and WW models)



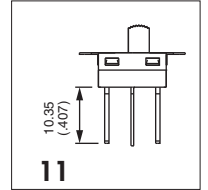
10

11 10,35 mm (.407) long PC terminals

12 10,35 mm (.407) long PC terminals **without ground plate**

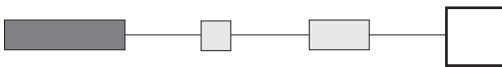


12



11

SPECIAL OPTIONS 2

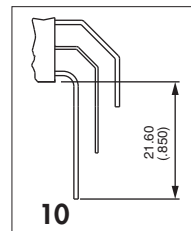


00 No epoxy seal

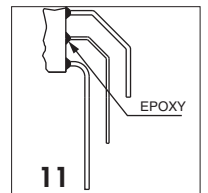
01 **Epoxy sealed** terminals
 (compulsory on solder lug models)

10 **Extended terminals**
 For vertical right angle (WW models)

11 **Extended terminals** as above, **with epoxy seal**



10



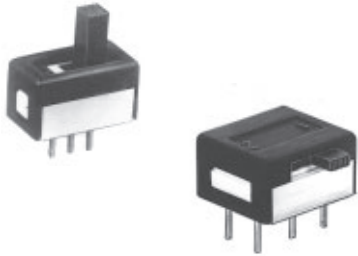
11

E

2500N series

Professional slide switches

Distinctive features and specifications



- Professional grade slide switches for PC boards
- Approved according to UL 1054
- Wave solderable
Not washable in aqueous process
- Available with flush, high and side actuator
- Various actuator lengths

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A) : 2A 250VAC - 4A 125VAC - 1A 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 :
 - silver contacts (A) : 10m Ω max.
 - gold plated brass contacts (LD) : 50m 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 : 10.000 cycles at full load
- Low level or mechanical life : 20.000 cycles

MATERIALS

- Case : PBT
- Actuator : polyamide, glass filled
- Cover : polyamide, glass filled
- Contacts
 - A** : silver
 - LD** : brass, gold plated
- Terminal seal : epoxy

APPROVALS



Availability : consult factory for details of approved models.

Marking : To order switches marked UL, complete the "Options and Approvals" box of ordering format.

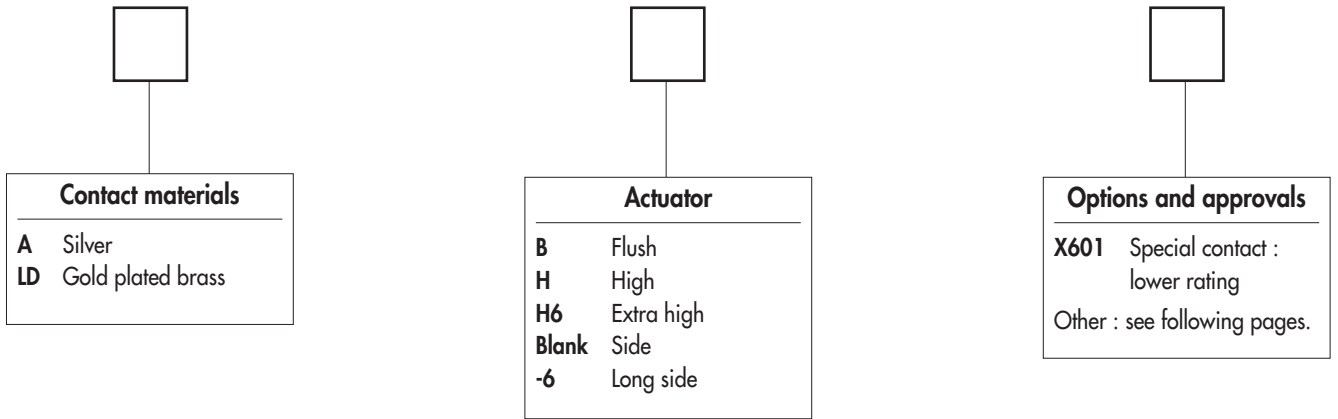
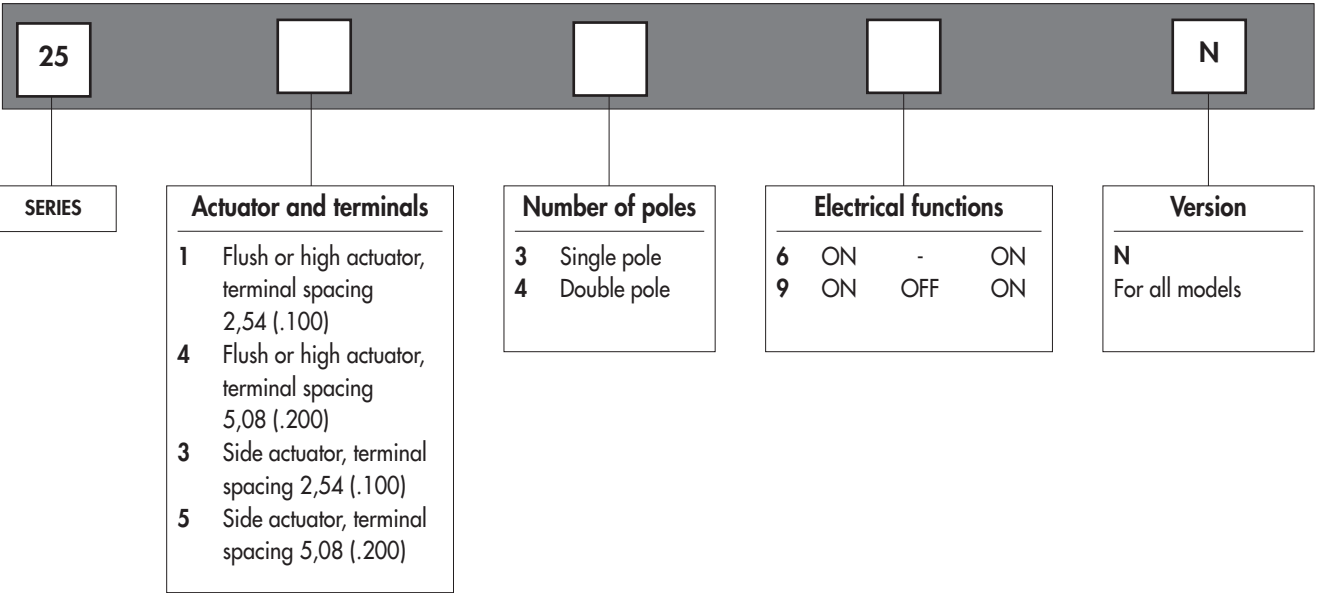
GENERAL SPECIFICATIONS

- Operating temperature :
 - 40°C to +85°C
- Overall length : 14 mm (.551)
- Actuator height (outside case) :
 - high : 2,80 mm (.110)
 - extra high : 6 mm (.236)
 - side : 2,3 mm (.090)
 - long side : 6 mm (.236)
- Travel : 4 mm (.157)

25000N series

Professional slide switches

Overview



ABOUT THIS SERIES

On the following pages, you will find successively :
 - model structure of switches (including actuator options)
 - contact options

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.

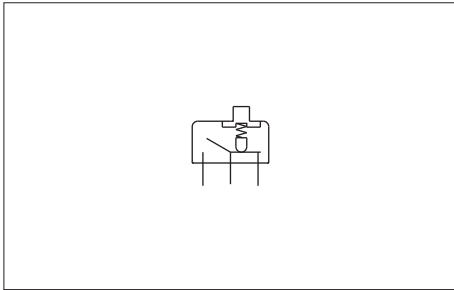


Packaging unit : single pole : 100 pieces - double pole : 50 pieces



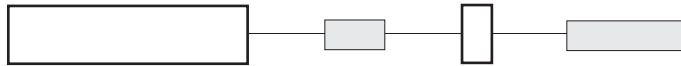
25000N series

Professional slide switches



- Epoxy sealed terminals standard
- 1 and 2 pole configurations
- **UL approved models** : see next page.

MODEL
STRUCTURE



Flush actuator : 25000NB



Terminal spacing
2,54 (.100)

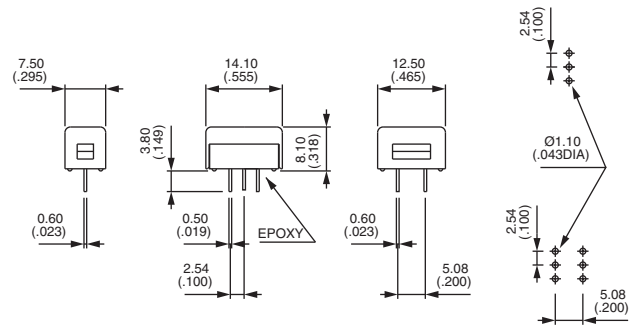
Single pole
25136N B
25139N B

Double pole
25146N B
25149N B

Terminal spacing
5,08 (.200)

Single pole
25436N B
25439N B

Double pole
25446N B
25449N B



High actuator : 25000NH



Terminal spacing
2,54 (.100)

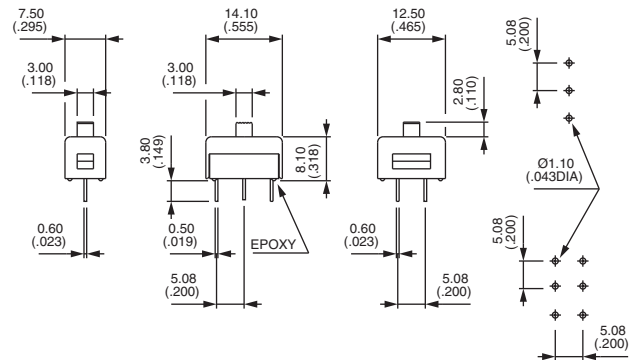
Single pole
25136N H
25139N H

Double pole
25146N H
25149N H

Terminal spacing
5,08 (.200)

Single pole
25436N H
25439N H

Double pole
25446N H
25449N H



Extra high actuator : 25000NH6



Terminal spacing
2,54 (.100)

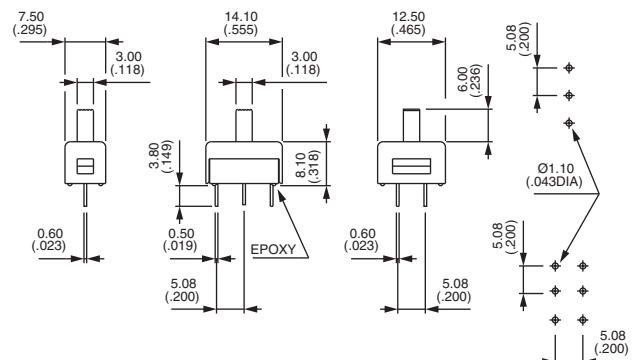
Single pole
25136N H6
25139N H6

Double pole
25146N H6
25149N H6

Terminal spacing
5,08 (.200)

Single pole
25436N H6
25439N H6

Double pole
25446N H6
25449N H6



25000N series

Professional slide switches



Side actuator : 25000N



Terminal spacing
2,54 (.100)

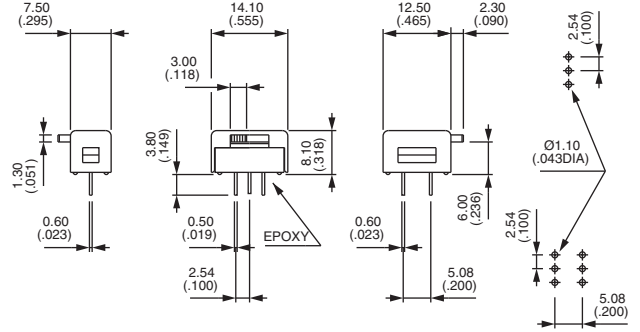
Single pole
25336N
25339N

Double pole
25346N
25349N

Terminal spacing
5,08 (.200)

Single pole
25536N
25539N

Double pole
25546N
25549N



Long side actuator : 25000N-6



Terminal spacing
2,54 (.100)

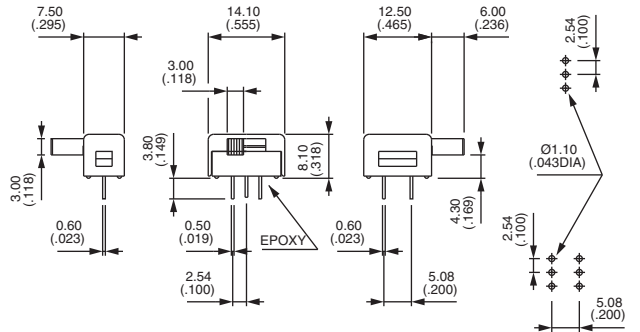
Single pole
25336N -6
25339N -6

Double pole
25346N -6
25349N -6

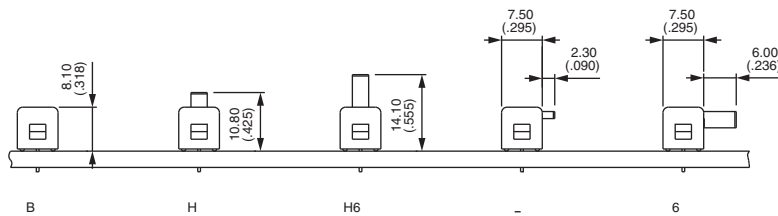
Terminal spacing
5,08 (.200)

Single pole
25536N -6
25539N -6

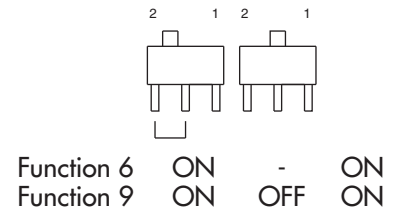
Double pole
25546N -6
25549N -6



PCB MOUNTING



POSITIONS AND CONNECTIONS

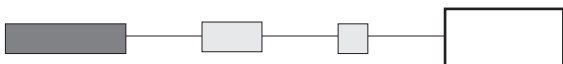


CONTACT MATERIALS



A Silver
LD Brass, gold plated

OPTIONS AND APPROVALS



- X601** Silver plated brass contacts - Lower rating 3VA 30VDC. Min quantity : 5.000 pieces per model and shipment.
- X693** Flame retardant plastic materials
- X693UL** Switches approved and marked UL (silver contacts only)

Dip and coded rotary switches

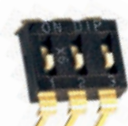


Section F

P36 (CR36)	Low profile coded rotary, SMT or through-hole	F 3
PT65 (CR65)	Coded rotary, through-hole	F 5
DS/DSR	Standard DIP	F 8
DP/DPL	Piano DIP	F 10
DA	Right angle DIP	F 11
IKN	Low profile DIP, SMT or through-hole	F 12
IKE <i>New!</i>	DIP, SMT or through-hole	F 15
IKH	Half pitch DIP, SMT, very low profile	F 17

Selection guide

Dip and coded rotary switches



Series	P36 (CR36)	PT65 (CR65)	DS-DSR	DP-DPL	DA	IKN	IKE	IKH
Type	Coded rotary		DIP					
Page	F-3	F-5	F-8	F-10	F-11	F-12	F-15	F-17
Number of positions	10 & 16	10 & 16	2-12 (except 11)	2-12 (except 11)	2-12 (except 11)	2-8 (even only)	1-12 (except 11)	2-10 (even only)
Maximum ratings	400mA 24VDC	400mA 24VDC	100mA 50VDC	100mA 50VDC	100mA 50VDC	100mA 48VDC	25mA 24VDC	100mA 50VDC
Process Sealed	Yes	Yes	W. optional tape	W. optional tape	W. optional tape	W. optional tape	No	W. optional tape
Profile off PCB	Through hole : 3,65mm SMT: 3,85mm	6,5mm	5,85mm	10,3mm	9,9mm	Through hole: 4mm SMT: 2,85mm	SMT : 3,80mm Through hole : 3,4 mm	1,6mm
Mounting options								
SMT	X					X	X	X
Through hole	X	X	X	X	X	X	X	
Right angle Through hole		X						

CR36 series outside the US and the UK.

P36 series

Low profile rotary code switches

Surface mount or through-hole



- 3 actuator types
- Save board space
- Highly reliable
- Solder and flux sealed, washable

P36				
SERIES	Mounting	Actuators	Codes	Terminals
	(none) Through-hole S Surface mount	1 Screwdriver 3 Spindle 8 Slotted spindle	01 BCD 02 BCD complement 03 Hexadecimal 06 Hexadec. complement	(none) Straight or SMT V Crimped L254 Right angle, spacing 2,54 (.100)

ELECTRICAL SPECIFICATIONS
<ul style="list-style-type: none"> • Operating voltage : 24 VDC max. • Contact load, static : 400mA max. • Contact load, dynamic : 100mA max. • Initial contact resistance : 100 mΩ max. • Insulation resistance : 100 MΩ min.

MECHANICAL AND THERMAL SPECS
<ul style="list-style-type: none"> • Torque : 0,7 Ncm min. • Expected life : 10.000 cycles min. • Operating temperature : -30°C to +90°C

MATERIALS
<ul style="list-style-type: none"> • Base : UL94-V0, high temperature thermoplastic • Cover : stainless steel • Actuator : PA 4.6 nylon • Contacts : gold over nickel plated phosphor bronze • Terminals : tin plated

SOLDER RECOMMENDATIONS
(DIN CEI 68-2-20) <ul style="list-style-type: none"> • Manual soldering : 340°C max. for 2 seconds max. • Wave soldering : 280°C max. for 5 seconds max. • Reflow soldering : 260°C max. for 10 seconds max.

PACKAGING		
<p>P36S1.. 1300 pieces per reel (dim.A = 22,4 mm dim B = 16,4 mm)</p>		
<p>P36S3.. P36S8.. 600 pieces per reel (dim.A = 30,4 mm dim B = 24,4 mm)</p>		

- Reels : see above. To order a SMT product with tape & reel packaging, add "TR" at the end of its part number.
- Tubes : 50 pieces (through-hole or SMT) per tube.

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

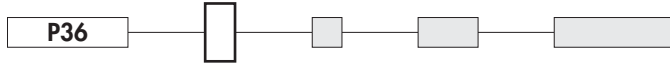


P36 series

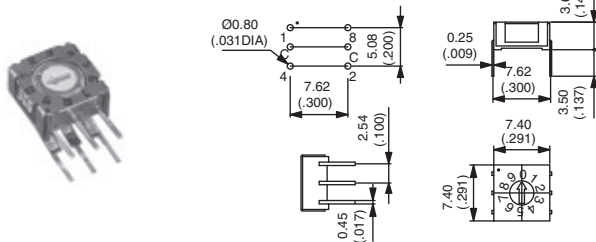
Low profile rotary code switches

Surface mount or through-hole

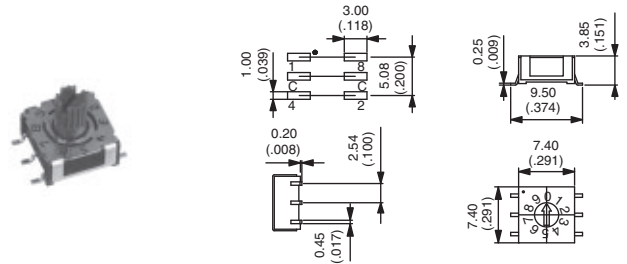
MOUNTING



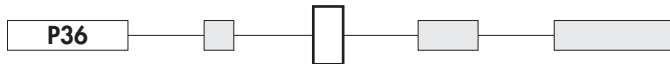
(none) Through-hole



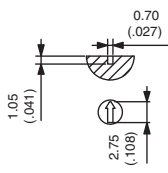
S Surface mount



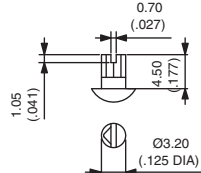
ACTUATORS



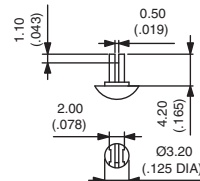
1 Screwdriver



3 Spindle



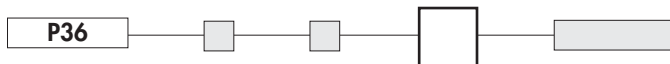
8 Slotted spindle



Actuator colour depending on codes

BCD red
 BCD compl. orange
 Hexadecimal grey
 Hexadec. compl. white

CODES / TRUTH TABLES



	C	1	2	4	8	
0	●					0
1	●	●				1
2	●		●			2
3	●	●	●			3
4	●			●		4
5	●	●		●		5
6	●		●	●		6
7	●	●	●	●		7
8	●				●	8
9	●	●			●	9

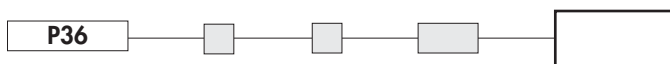
▲ Position ▲ Marking

	C	1	2	4	8	
0	●	●	●	●	●	0
1	●	●	●	●	●	1
2	●	●	●	●	●	2
3	●	●	●	●	●	3
4	●	●	●	●	●	4
5	●	●	●	●	●	5
6	●	●	●	●	●	6
7	●	●	●	●	●	7
8	●	●	●	●	●	8
9	●	●	●	●	●	9

	C	1	2	4	8	
0	●					0
1	●	●				1
2	●		●			2
3	●	●	●			3
4	●			●		4
5	●	●		●		5
6	●		●	●		6
7	●	●	●	●		7
8	●				●	8
9	●	●			●	9
10	●		●		●	A
11	●	●	●		●	B
12	●			●	●	C
13	●	●		●	●	D
14	●		●	●	●	E
15	●	●	●	●	●	F

	C	1	2	4	8	
0	●	●	●	●	●	0
1	●	●	●	●	●	1
2	●	●	●	●	●	2
3	●			●	●	3
4	●	●	●		●	4
5	●			●	●	5
6	●	●			●	6
7	●			●	●	7
8	●	●	●	●		8
9	●		●	●		9
10	●	●		●		A
11	●		●		●	B
12	●	●	●			C
13	●		●			D
14	●	●				E
15	●					F

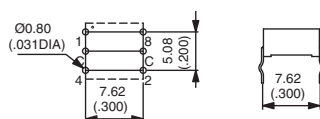
TERMINALS



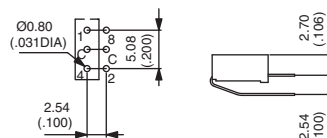
(none) Straight or SMT



V Crimped



L254 Right angle, spacing 2,54 (.100)



PT65 series

Rotary code switches

Through-hole

CR65 series, with a blue case, outside the US and the UK.



- 4 actuator types
- Save board space
- Highly reliable
- Solder and flux sealed, washable

PT65			
SERIES	Actuators	Codes	Terminals
	<ul style="list-style-type: none"> 1 Screwdriver 3 Spindle 5 Segment wheel 7 Accessories 	<ul style="list-style-type: none"> 01 BCD 02 BCD complement 03 Hexadecimal 06 Hexadecimal complement 	<ul style="list-style-type: none"> (none) Straight L254 Right angle, spacing 2,54 (.100) L508 Right angle, spacing 5,08 (.200)

ELECTRICAL SPECIFICATIONS
<ul style="list-style-type: none"> • Operating voltage : 24 VDC max. • Contact load, static : 400mA max. • Contact load, dynamic : 150mA max. • Initial contact resistance : 80 mΩ max. • Insulation resistance : 100 MΩ min.

MECHANICAL AND THERMAL SPECS
<ul style="list-style-type: none"> • Torque : 0,7 Ncm min. • Expected life : 10.000 cycles min. • Operating temperature : -20°C to +70°C

MATERIALS
<ul style="list-style-type: none"> • Base : UL94-V0, high temperature thermoplastic • Cover : UL94-V0, high temperature thermoplastic, grey • Actuator : PA 4.6 nylon • Contacts : gold over nickel plated phosphor bronze • Terminals : tin plated

SOLDER RECOMMENDATIONS
(DIN CEI 68-2-20)
<ul style="list-style-type: none"> • Manual soldering : 340°C max. for 2 seconds max. • Wave soldering : 260°C max. for 10 seconds max.

PACKAGING
<ul style="list-style-type: none"> • Switches for screwdriver slot or accessory actuation (PT651 and PT657) : tubes of 50 pieces • Switches with spindle (PT653) or segment wheel (PT655) : candy trays of 50 pieces • Accessories : bags of 50 pieces

DIMENSIONS
Screwdriver slot, straight terminals

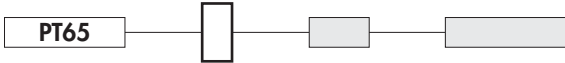
Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.

PT65 series

Rotary code switches

Through-hole

ACTUATORS



1 Screwdriver

3 Spindle (grey)

5 Segment wheel (grey)

7 Accessories

See next page

CODES / TRUTH TABLES



01 BCD

	C	1	2	4	8	
0	●					0
1	●	●				1
2	●		●			2
3	●	●	●			3
4	●			●		4
5	●	●		●		5
6	●		●	●		6
7	●	●	●	●		7
8	●				●	8
9	●	●			●	9

02 BCD complement

	C	1	2	4	8	
0	●	●	●	●	●	0
1	●	●	●	●	●	1
2	●	●	●	●	●	2
3	●	●	●	●	●	3
4	●	●	●	●	●	4
5	●	●	●	●	●	5
6	●	●	●	●	●	6
7	●	●	●	●	●	7
8	●	●	●	●	●	8
9	●	●	●	●	●	9

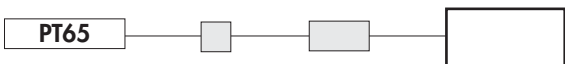
03 Hexadecimal

	C	1	2	4	8	
0	●					0
1	●	●				1
2	●		●			2
3	●	●	●			3
4	●			●		4
5	●	●		●		5
6	●		●	●		6
7	●	●	●	●		7
8	●				●	8
9	●	●			●	9
10	●		●		●	A
11	●	●			●	B
12	●		●		●	C
13	●	●	●		●	D
14	●		●	●	●	E
15	●	●	●	●	●	F

06 Hexadecimal complement

	C	1	2	4	8	
0	●	●	●	●	●	0
1	●	●	●	●	●	1
2	●	●	●	●	●	2
3	●	●	●	●	●	3
4	●	●	●	●	●	4
5	●	●	●	●	●	5
6	●	●	●	●	●	6
7	●	●	●	●	●	7
8	●	●	●	●	●	8
9	●	●	●	●	●	9
10	●	●	●	●	●	A
11	●	●	●	●	●	B
12	●	●	●	●	●	C
13	●	●	●	●	●	D
14	●	●	●	●	●	E
15	●	●	●	●	●	F

TERMINALS



(none) Straight

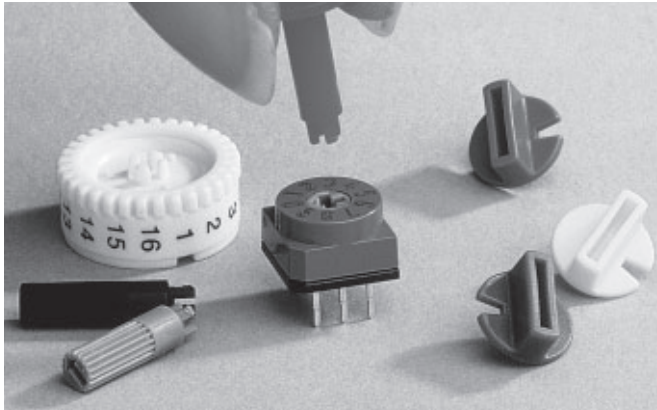
L254 Right angle spacing 2,54 (.100)

L508 Right angle spacing 5,08 (.200)

PT65 series

Rotary code switches

Through-hole



ACCESSORIES ADAPTED TO YOUR APPLICATIONS

Basic model PT657 has been designed to accept different actuators with snap-in connection.

According to your application, you can choose between spindles or plastic knobs in two different lengths and a Ø 17 mm (.669) knurled wheel for lateral marking.

Standard colours are shown below. Special colours are also available on request.

<p>SPINDLES Length 11,6 mm (standard) Length 13,3 mm</p>	<p>P/N U4822 U4824 U4832</p>	<p>COLOURS black grey black</p>	
<p>PLASTIC KNOBS Length 5,3 mm (standard) Length 15,7 mm Length 4,4 mm</p>	<p>P/N U4906 U4916 U4941 U4943 U4944 U4945 U4946</p>	<p>COLOURS red red blue green grey yellow red</p>	
<p>KNURLED WHEEL (unmarked - marking on request)</p>	<p>P/N U4847/1</p>	<p>COLOUR white/black</p>	<p>→ Panel</p>

STANDARD PRODUCTS

MODELS CODES	FOR SCREWDRIVER		WITH SPINDLE	WITH SEGMENT WHEEL		FOR ACCESS.
	Upper actuation	Side actuation	Upper actuation	Upper actuation	Side actuation	Upper actuation
BCD	PT65101	PT65101L254 PT65101L508	PT65301	PT65501	-	PT65701
BCD complement	PT65102	-	-	PT65502	-	-
Hexadecimal	PT65103	PT65103L254 PT65103L508	PT65303	PT65503	PT65303L254	-
Hexadecimal complem.	PT65106	-	-	-	-	-

DS-DP-DA series

DIP switches

Distinctive features and specifications

- Standard, piano and right angle models
- 2 to 12 positions
- Top tape sealing option

ELECTRICAL SPECIFICATIONS

- Current/voltage rating :
 - non-switching : 100mA 50VDC
 - switching : 50mA 24VDC
- Contact resistance (at 100mA) :
 - 50mΩ max. at initial
 - 100mΩ after life test
- Insulation resistance (at 100VDC +/-15V) :
 - 100 MΩ min. between adjacent terminals
- Dielectric strength : 500VDC for one minute
- Capacitance : 5 pF between adjacent terminals
- Circuit : single pole, single throw
- Electrical life : 2.000 cycles min. per switch

MATERIALS

- Case, UL94-V0, glass fiber filled PBT, black
- Cover : UL94-V0, glass fiber filled PBT, red
- Actuator : UL94-V0, glass fiber filled PBT, white
- Terminals/contacts : gold over nickel plated phosphor bronze
- Terminal seal : epoxy
- Tape seal : polyester film

GENERAL SPECIFICATIONS

- Operating force :
 - DP models : 4N
 - DS/DA models : 8N
- Travel : 2 mm (.078)
- Mechanical life : 5.000 cycles min. per switch
- Vibration test : MIL-STD-202F method 201A
- Shock test : MIL-STD-202F method 213B, condition A
- Operating temperature : -20°C to +70°C

RECOMMENDED SOLDERING AND CLEANING PROCESSES

- Hand soldering : 320°C max. for 2 seconds max. (30 watt iron max.)
- Wave soldering : 260°C max. for 5 seconds max.
- Force rinse, high agitation or triple bath cleaning method (**with tape seal, option T**) : freon TF or TE. When vapor methods are used, do not subject switch to solvents above 51°C.

Note : keep switches in "OFF" position during soldering and cleaning for best results.

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

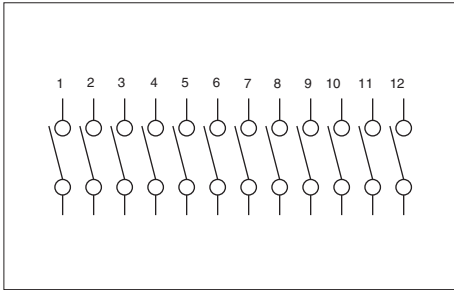


Packaging unit : standard IC tubes - Quantities depending on model. See table below.

DS/DSR	Quantity	DS-T/DSR-T	Quantity	DA	Quantity	DA-T	Quantity	DP/DPL	Quantity	DP-T/DPL-T	Quantity
DS(R)-02	72	DS(R)-02T	72	DA-02	73	DA-02T	70	DP(L)-02	70	DP(L)-02T	65
DS(R)-03	51	DS(R)-03T	51	DA-03	52	DA-03T	50	DP(L)-03	50	DP(L)-03T	49
DS(R)-04	40	DS(R)-04T	40	DA-04	40	DA-04T	39	DP(L)-04	39	DP(L)-04T	39
DS(R)-05	32	DS(R)-05T	32	DA-05	33	DA-05T	32	DP(L)-05	32	DP(L)-05T	32
DS(R)-06	27	DS(R)-06T	27	DA-06	28	DA-06T	28	DP(L)-06	27	DP(L)-06T	27
DS(R)-07	24	DS(R)-07T	24	DA-07	24	DA-07T	24	DP(L)-08	21	DP(L)-08T	21
DS(R)-08	21	DS(R)-08T	21	DA-08	21	DA-08T	21	DP(L)-10	17	DP(L)-10T	17
DS(R)-09	19	DS(R)-09T	19	DA-09	19	DA-09T	19	DP(L)-12	14	DP(L)-12T	14
DS(R)-10	17	DS(R)-10T	17	DA-10	17	DA-10T	17				
DS(R)-12	14	DS(R)-12T	14	DA-12	14	DA-12T	14				

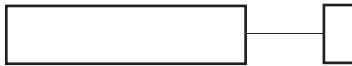
DS/DSR series

Standard DIP switches



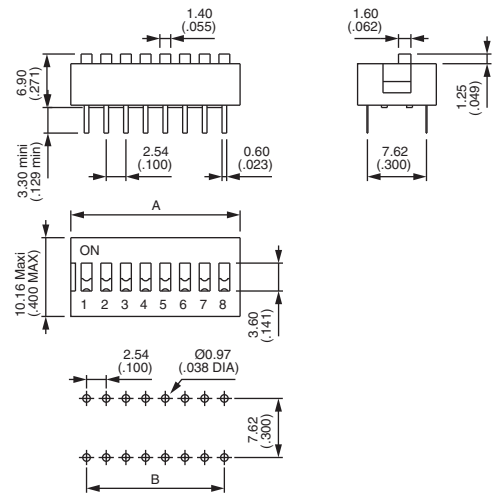
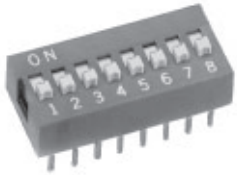
- Raised or recessed actuator
- 2 to 12 positions

MODEL
STRUCTURE



Raised actuator : DS

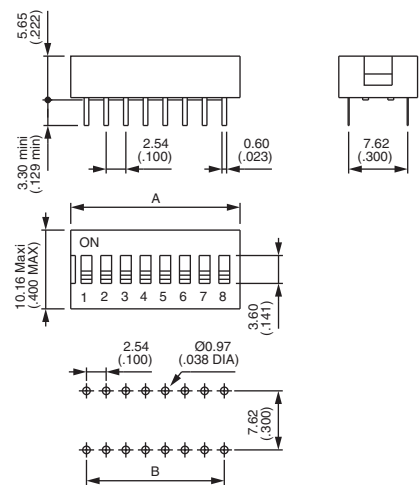
Model No	No. pos.	Dim "A"	Dim. "B"
DS-02	2	6,60 (.259)	2,54 (.100)
DS-03	3	9,14 (.359)	5,08 (.200)
DS-04	4	11,68 (.459)	7,62 (.300)
DS-05	5	14,22 (.559)	10,16 (.400)
DS-06	6	16,76 (.659)	12,70 (.500)
DS-07	7	19,30 (.759)	15,24 (.600)
DS-08	8	21,84 (.859)	17,78 (.700)
DS-09	9	24,38 (.959)	20,32 (.800)
DS-10	10	26,92 (1.059)	22,86 (.900)
DS-12	12	32,00 (1.259)	27,94 (1.100)



Top tape sealed : add "T" after model number.

Recessed actuator : DSR

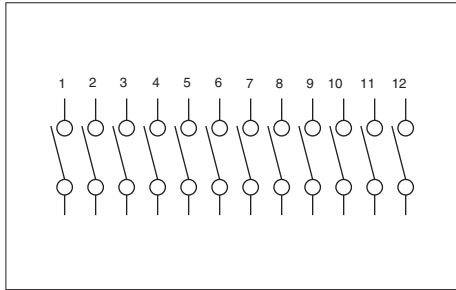
Model No	No. pos.	Dim "A"	Dim. "B"
DSR-02	2	6,60 (.259)	2,54 (.100)
DSR-03	3	9,14 (.359)	5,08 (.200)
DSR-04	4	11,68 (.459)	7,62 (.300)
DSR-05	5	14,22 (.559)	10,16 (.400)
DSR-06	6	16,76 (.659)	12,70 (.500)
DSR-07	7	19,30 (.759)	15,24 (.600)
DSR-08	8	21,84 (.859)	17,78 (.700)
DSR-09	9	24,38 (.959)	20,32 (.800)
DSR-10	10	26,92 (1.059)	22,86 (.900)
DSR-12	12	32,00 (1.259)	27,94 (1.100)



Top tape sealed : add "T" after model number.

DP/DPL series

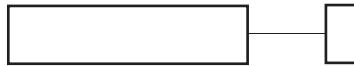
Piano DIP switches



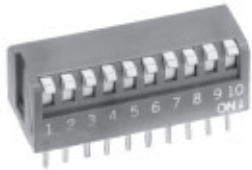
- Short or long actuator
- 2 to 12 positions

Note : Push down for "ON" is our standard type.
 Push down for "OFF" is also available on special order,
 consult factory.

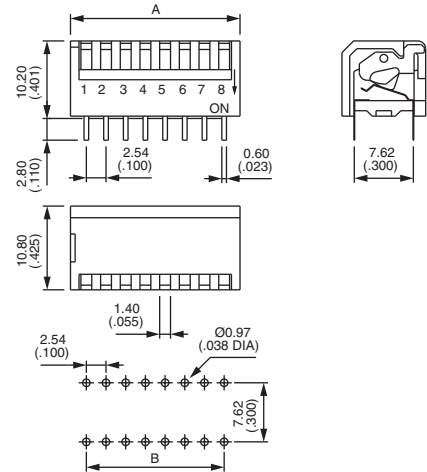
MODEL
 STRUCTURE



Short actuator : DP



Model No	No. pos.	Dim "A"	Dim. "B"
DP-02	2	6,63 (.261)	2,54 (.100)
DP-03	3	9,17 (.361)	5,08 (.200)
DP-04	4	11,71 (.461)	7,62 (.300)
DP-05	5	14,25 (.561)	10,16 (.400)
DP-06	6	16,8 (.661)	12,70 (.500)
DP-08	8	21,87 (.861)	17,78 (.700)
DP-10	10	26,95 (1.061)	22,86 (.900)
DP-12	12	32,03 (1.261)	27,94 (1.100)

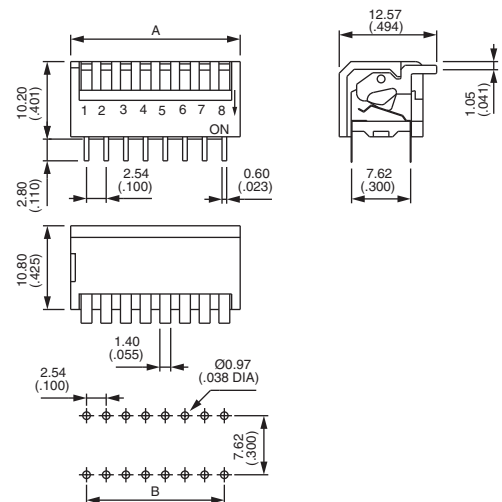


Top tape sealed : add "T" after model number.

Long actuator : DPL



Model No	No. pos.	Dim "A"	Dim. "B"
DPL-02	2	6,63 (.261)	2,54 (.100)
DPL-03	3	9,17 (.361)	5,08 (.200)
DPL-04	4	11,71 (.461)	7,62 (.300)
DPL-05	5	14,25 (.561)	10,16 (.400)
DPL-06	6	16,8 (.661)	12,70 (.500)
DPL-08	8	21,87 (.861)	17,78 (.700)
DPL-10	10	26,95 (1.061)	22,86 (.900)
DPL-12	12	32,03 (1.261)	27,94 (1.100)

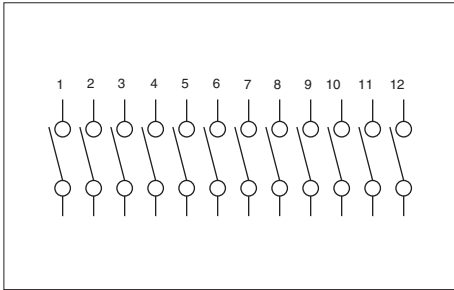


Top tape sealed : add "T" after model number.

F

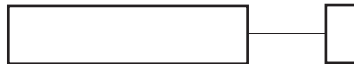
DA series

Right angle DIP switches



• 2 to 12 positions

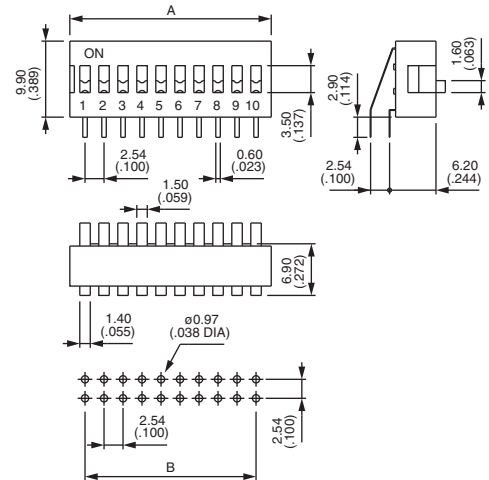
MODEL
STRUCTURE



Raised actuator : DA



Model No	No. pos.	Dim "A"	Dim. "B"
DA-02	2	6,60 (.259)	2,54 (.100)
DA-03	3	9,14 (.359)	5,08 (.200)
DA-04	4	11,68 (.459)	7,62 (.300)
DA-05	5	14,22 (.559)	10,16 (.400)
DA-06	6	16,76 (.659)	12,70 (.500)
DA-07	7	19,30 (.759)	15,24 (.600)
DA-08	8	21,84 (.859)	17,78 (.700)
DA-09	9	24,38 (.959)	20,32 (.800)
DA-10	10	26,92 (1.059)	22,86 (.900)
DA-12	12	32,00 (1.259)	27,94 (1.100)



Top tape sealed : add "T" after model number.

IKN series

DIP switches, surface mount or through-hole

Distinctive features

Low profile

- The lowest case available in 2, 4, 6 and 8 pole versions
- Reduction of the shadow effect in IR soldering
- 30 % reduction of component volume

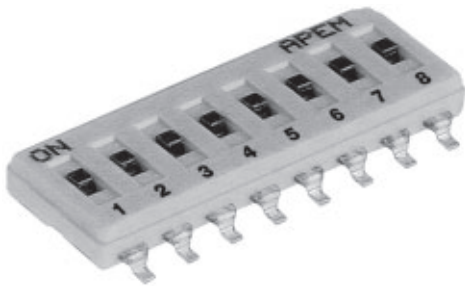
Two versions

Surface mount models

- Designed for reflow soldering
- UL 94-V0 high temperature materials
- Tin plated terminals

Through-hole models

- Same thermal specifications as SMT models, allowing mixed soldering process



Washable by construction

- Moulded-in terminals
- Ultrasonic-welded case
- Two slots on case corners allowing removal of protection tape

Reliable contacts

- Anti-crush system on moving contact
- Bifurcated self-cleaning sliding contacts
- Positive detent actuation
- Recessed slide actuators preventing accidental actuation
- Good visibility of actuators : black slide on clear background

Two types of packaging

Surface mount models

- Tape and reel (1.000 pieces per reel) - IC tubes

Through-hole models

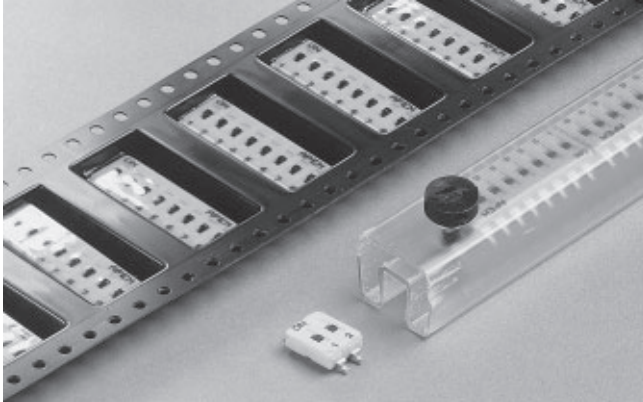
- IC tubes

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

IKN series

Surface mount DIP switches

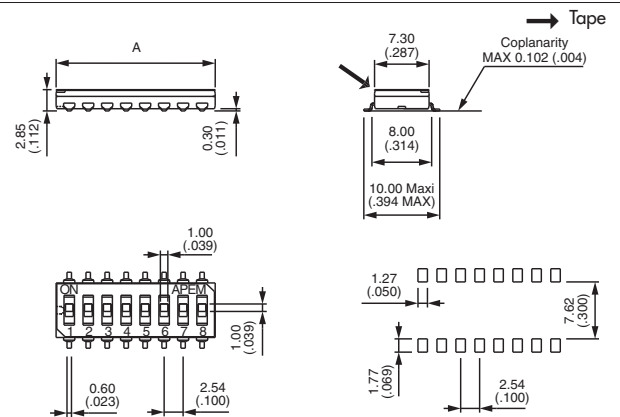
Low profile



- Overall height from PCB : 2,85 mm (.112)
- Self-cleaning wiping contacts
- Recessed actuator with positive detent
- Tin plated terminals
- Process compatible - withstand IR reflow soldering (see Technical Information, Surface Mount, end of catalogue)
- Washable

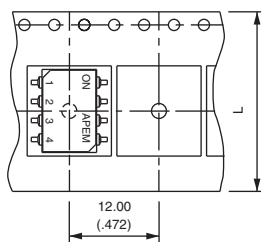
Tape & reel	IC tubes	No pos.	Dimension "A"
IKN0204000	IKN0203000	2	6 (.236)
IKN0404000	IKN0403000	4	11,10 (.437)
IKN0604000	IKN0603000	6	16,20 (.637)
IKN0804000	IKN0803000	8	21,30 (.838)

Supplied with all poles in "ON" position.
Other models (3, 5 and 7 positions) : on request

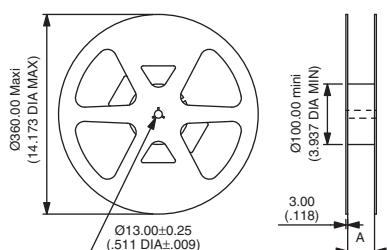


PACKAGING

Unrolling direction →



Pos.	Tape dim. "L"	Reel dim. "A"
2	16 (.629)	16,40 (.646)
4	24 (.944)	24,40 (.960)
6	24 (.944)	24,40 (.960)
8	32 (1.259)	32,40 (1.275)



SPECIFICATIONS

- Max. current/voltage rating :
 - switching : 100mA 24VDC
 - non-switching : 100mA 48VDC
- Contact resistance :
 - initial : 30 mΩ max.
 - after 2.000 cycles : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 500 VAC min.
- Electrical life : 2.000 cycles
- Travel : 0,67 mm (.026)
- Operating temperature : -40°C to +100°C
- Storage temperature : -40°C to +125°C

MATERIALS

- Case and actuator : UL 94-V0 thermoplastic
- Stationary contact : bronze, gold plated over nickel barrier
- Moving contact : beryllium copper, gold plated
- Terminals : tin plated over nickel barrier
- Protection tape : polyimide

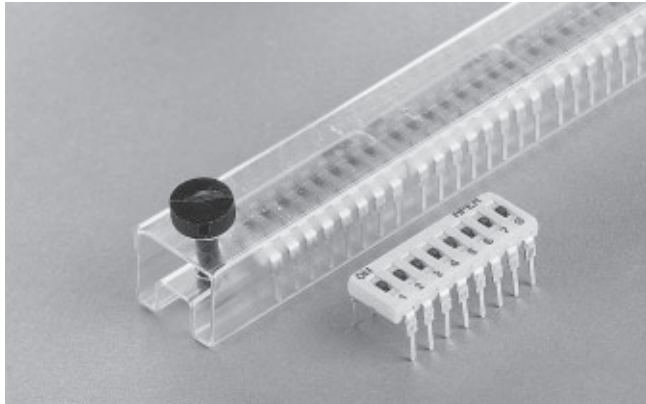
Antistatic packaging - Standard packaging units :

- Reels of 1.000 pieces
- Tape meeting international standard IEC - Publication 286-3 (EIA481A)
- Start leader : 400 mm min. - End leader : 160 mm
- IC tubes : see next page.

IKN series

Through-hole DIP switches

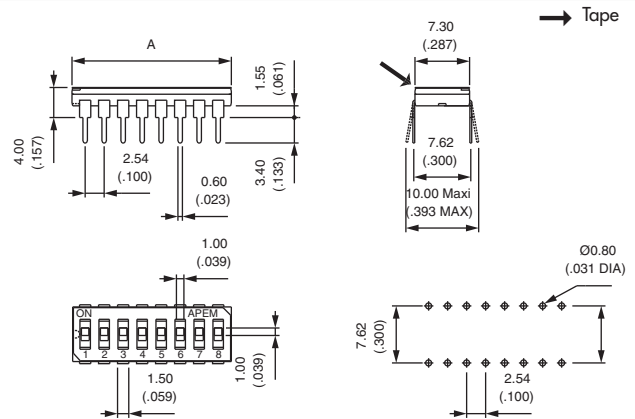
Low profile



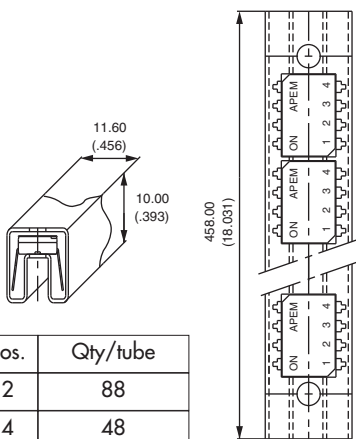
- Overall height from PCB : 4 mm (.156)
- Self-cleaning wiping contacts
- Recessed actuator with positive detent
- Tin plated terminals
- Wave solderable
- Washable

Model No	No pos.	Dimension "A"
IKN0200000	2	6 (.236)
IKN0400000	4	11,10 (.437)
IKN0600000	6	16,20 (.637)
IKN0800000	8	21,30 (.838)

Supplied with all poles in "ON" position.
Other models (3, 5 and 7 positions) : on request



PACKAGING



Pos.	Qty/tube
2	88
4	48
6	33
8	25

IC TUBES

SPECIFICATIONS

- Max. current/voltage rating :
 - switching : 100mA 24VDC
 - non-switching : 100mA 48VDC
- Contact resistance :
 - initial: 30 mΩ max.
 - after 2.000 cycles : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 500 VAC min.
- Electrical life : 2.000 cycles
- Travel : 0,67 mm (.026)
- Operating temperature : -40°C to +100°C
- Storage temperature : -55°C to +125°C

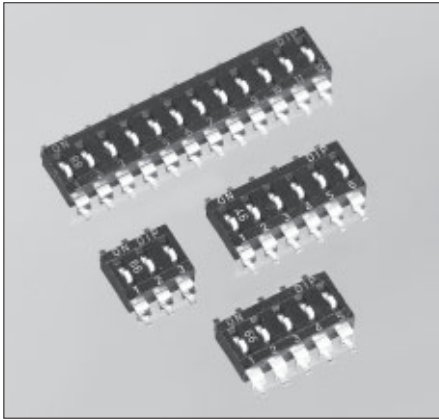
MATERIALS

- Case and actuator : UL 94-V0 thermoplastic
- Stationary contact : bronze, gold plated over nickel barrier
- Moving contact : beryllium copper, gold plated
- Terminals : tin plated over nickel barrier
- Protection tape : polyimide

IKE series

Surface mount DIP switches

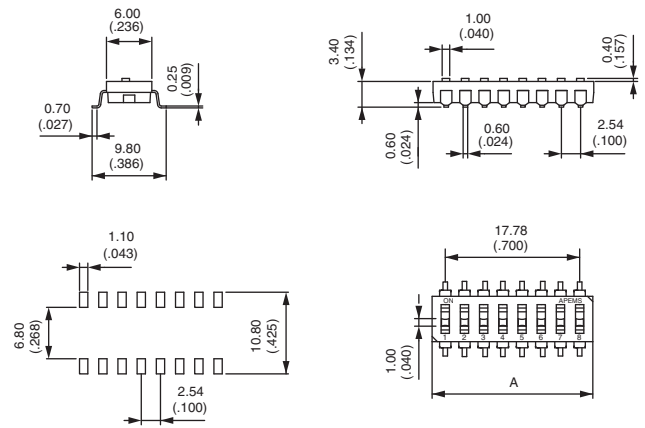
New!



- Overall height from PCB : 3,80 mm (.149)
- End stackable
- Raised actuator
- Even and odd pole numbers
- Self-cleaning wiping contacts
- Gold plated terminals
- Process compatible - withstand IR reflow soldering
(see Technical Information, Surface Mount, end of catalogue)

Models with recessed actuator and tape available on request.

Tape & reel	IC tubes	No pos.	Dimension "A"	Qty/tube
IKE0104101	IKE0103101	1	2,44 (.096)	194
IKE0204101	IKE0203101	2	4,98 (.196)	95
IKE0304101	IKE0303101	3	7,52 (.296)	63
IKE0404101	IKE0403101	4	10,06 (.316)	47
IKE0504101	IKE0503101	5	12,60 (.496)	38
IKE0604101	IKE0603101	6	15,14 (.596)	31
IKE0704101	IKE0703101	7	17,68 (.696)	27
IKE0804101	IKE0803101	8	20,22 (.796)	23
IKE0904101	IKE0903101	9	22,76 (.896)	21
IKE1004101	IKE1003101	10	25,30 (.996)	18
IKE1204101	IKE1203101	12	30,38 (1,196)	12



Supplied with all poles in "OFF" position.

SPECIFICATIONS

- Max. current/voltage rating : 25mA 24VDC
- Initial contact resistance : 50 mΩ max.
- Insulation resistance : 100 MΩ min. at 500VDC
- Dielectric strength : 500 VAC min.
- Electrical life : 2.000 cycles
- Travel : 1 mm (.039)
- Operating temperature : -20°C to +85°C
- Storage temperature : -40°C to +85°C

MATERIALS

- Case and actuator : UL94-V0 thermoplastic
- Moving contact : copper, gold plated
- Terminals : gold plated

Antistatic packaging - standard packaging units

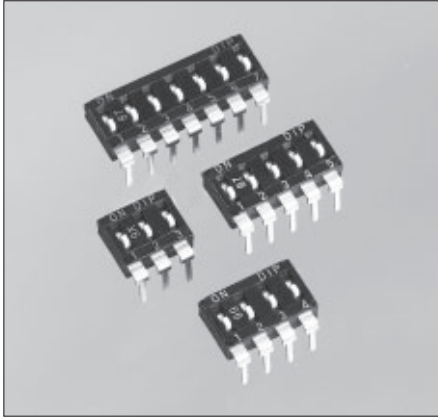
- Reels of 900 pieces
Tape meeting international standard IEC, publication 286-3 (EIA481A).
- IC tubes : see above chart for quantities.

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

IKE series

Through-hole DIP switches

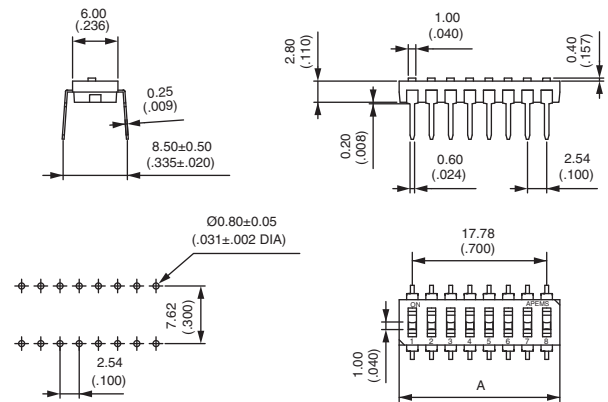
New!



- Overall height from PCB : 3,40 mm (.133)
- End stackable
- Raised actuator
- Even and odd pole numbers
- Self-cleaning wiping contacts
- Gold plated terminals
- Wave solderable

Models with recessed actuator and tape available on request.

Model No	No pos.	Dimension "A"	Qty/tube
IKE0100101	1	2,44 (.096)	194
IKE0200101	2	4,98 (.196)	95
IKE0300101	3	7,52 (.296)	63
IKE0400101	4	10,06 (.316)	47
IKE0500101	5	12,60 (.496)	38
IKE0600101	6	15,14 (.596)	31
IKE0700101	7	17,68 (.696)	27
IKE0800101	8	20,22 (.796)	23
IKE0900101	9	22,76 (.896)	21
IKE1000101	10	25,30 (.996)	18
IKE1200101	12	30,38 (1,196)	12



Supplied with all poles in "OFF" position.

SPECIFICATIONS

- Max. current/voltage rating : 25mA 24VDC
- Initial contact resistance : 50 mΩ max.
- Insulation resistance : 100 MΩ min. at 500VDC
- Dielectric strength : 500 VAC min.
- Electrical life : 2.000 cycles
- Travel : 1 mm (.039)
- Operating temperature : -20°C to +85°C
- Storage temperature : -40°C to +85°C

MATERIALS

- Case and actuator : UL94-V0 thermoplastic
- Moving contact : copper, gold plated
- Terminals : gold plated

Antistatic packaging - standard packaging units

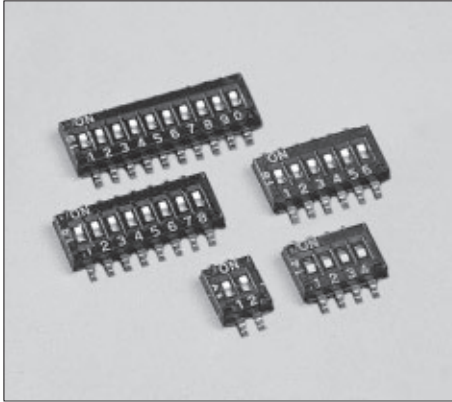
- IC tubes : see above chart for quantities.

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

IKH series

Surface mount half pitch DIP switches

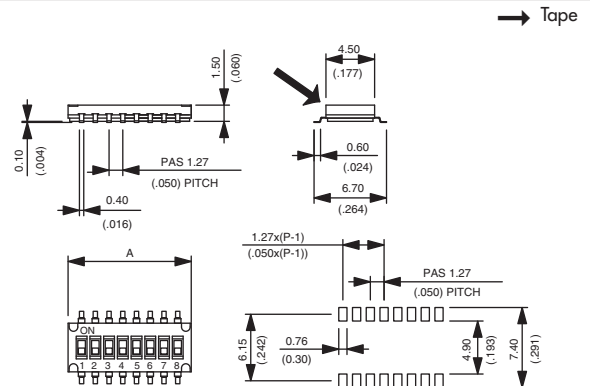
Very low profile



- 1,27 mm (.050) terminal to terminal pitch
- Overall height from PCB : 1,6 mm (.063) only
- Very small PCB space requirement
- Process compatible - withstand IR reflow soldering
(see Technical Information, Surface Mount, end of catalogue)
- Washable (tape seal standard)

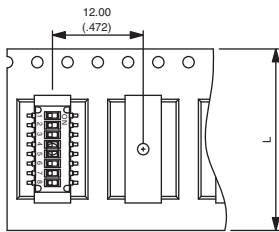
Tape & reel	IC tubes (Qty)	No pos.	Dimension "A"
IKH0204000	IKH0203000 (125)	2	3,77 (.148)
IKH0404000	IKH0403000 (75)	4	6,31 (.248)
IKH0604000	IKH0603000 (54)	6	8,85 (.348)
IKH0804000	IKH0803000 (40)	8	11,39 (.448)
IKH1004000	IKH1003000 (33)	10	13,93 (.548)

Supplied with all poles in "ON" position.
Switches without tape seal : on request.

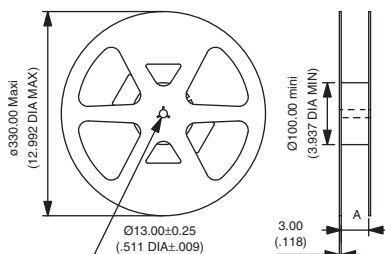


TAPE AND REEL PACKAGING

Unrolling direction →



Pos.	Tape dim. "L"	Reel dim. "A"
2	12,00 (.472)	12,40 (.488)
4	16,00 (.629)	16,40 (.646)
6	16,00 (.629)	16,40 (.646)
8	24,00 (.944)	24,40 (.960)
10	24,00 (.944)	24,40 (.960)



SPECIFICATIONS

- Max. current/voltage rating :
- switching : 25mA 24VDC
- non switching : 100mA 50VDC
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 100 MΩ min. at 500VDC
- Dielectric strength : 300 Vca min.
- Electrical life : 1.000 cycles
- Travel : 0,60 mm (.024)
- Operating temperature : -20°C to +70°C
- Storage temperature : -40°C to +85°C

MATERIALS

- Case and cover : high temperature thermoplastic UL 94-V0, black
- Actuator : high temperature thermoplastic UL 94-V0, white
- Contacts : phosphor bronze, gold plated, over nickel barrier
- Terminals : tin plated
- Tape seal : polyimide

Antistatic packaging - standard packaging units

- Reels of 4.000 pieces
Tape meeting international standard IEC - Publication 286-3 (EIA481A)
- IC tubes : see above.

Dimensions in mm and inches.

Industrial controls



Section G

	Distinctive features and specifications	G 3
A1	Engraved aluminium flush mounting pushbuttons & indicators - Panel cut-out Ø 22 (.866)	G 5
A01	Pushbutton, rotary lever, keylock & emergency stop switches - Indicators - Panel cut-out Ø 16 (.630)	G 6
A02	Pushbutton, rotary lever, keylock & emergency stop switches - Indicators - Panel cut-out Ø 22 (.866) or 30 (1.181)	G 16
A03	Compact pushbuttons and indicators - Panel cut-out Ø 22 (.866) or 30 (1.181)	G 25

Selection guide

Industrial controls



Series	A1	A01	A01	A01	A01	A01ES	A01
Type	Pushbutton	Pushbutton	Indicator	Rotary	Keylock	Emergency Stop	Mushroom Head Pushbutton
Page	G-5	G-6	G-7	G-8	G-9	G-10	G-12
Poles	1,2,3,4	1,2,3,4		1,2,3,4	1,2,3,4	1,2	1,2,3,4
Sealing	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Back panel sealing	Option	Option	Option	Option	Option	Option	Option
Illuminated	Yes	Yes	Yes	No	No	No	No
Maximum current	6A 250VAC 6A 12VDC	6A 250VAC 6A 12VDC	6A 250VAC 6A 250VAC	6A 250VAC 6A 12VDC	6A 250VAC 6A 12VDC	1,5A 250VAC AC-15	6A 250VAC 6A 12VDC
Panel cut-out							
Ø16mm		X	X	X	X	X	X
Ø22mm	X	X	X	X	X		X
Flush mounting	Yes	Option	Option	Option	Option	No	Option
Terminal options							
Solder lugs	X	X	X	X	X	X	X
Quick-connect	X	X	X	X	X	X	X
PCB Mounting	Option	Option	Option	Option	Option	Option	Option



Series	A02	A02	A02	A02	A02ES	A02	A03
Type	Pushbutton	Indicator	Rotary	Keylock	Emergency Stop	Mushroom Head Pushbutton	Pushbutton
Page	G-16	G-19	G-20	G-21	G-22	G-23	G-25
Poles	1,2,3,4,n		1,2,3,4,n	1,2,3,4,n	1,2	1,2,3,4	1,2,3,4
Sealing	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Back panel sealing	No	No	No	No	No	No	Option
Illuminated	Yes	Yes	No	No	No	No	Yes
Maximum current	16A 250VAC 12A 12VDC	16A 250VAC 12A 12VDC	16A 250VAC 12A 12VDC	16A 250VAC 12A 12VDC	2,5A 380VAC AC-15	16A 250VAC 12A 12VDC	6A 250VAC 6A 12VDC
Panel cut-out							
Ø22mm	X	X	X	X	X	X	X
Ø30mm	X	X	X	X			X
Flush mounting	Yes	Yes	Option	Option	No	Option	Yes
Terminal options							
Solder lugs							X
Quick-connect	Option	Option	Option	Option	Option	Option	X
Screw	X	X	X	X	X	X	
PCB Mounting	No	No	No	No	No	No	Option

A1-A01-A02-A03 series

Industrial controls

Distinctive features

The A01 and A02 series offer ranges of :

- pushbutton switches, illuminated or not
- indicators
- 2 or 3 position keylock switches
- 2 or 3 position rotary lever switches
- emergency stop switches

with rectangular, square or round operators.

New!

- Custom engraved aluminium pushbutton switches, A1 series
- Switch enclosures
- Pushbutton switches and indicators, A03 series

- Environmental protection : IP65
- Modular construction
- Electrical life : 50.000 cycles min.
- Screen engraving or insertable legends on request
- Approvals



UL 1054



BS RIA 20 Shock & Vibration



EN 61058-1
pending



EN 61058-1



Each sub-assembly has to be ordered separately.

A01 - A1 - A03 series

- Panel cut-out :
 \varnothing 16 mm (.630), except :
 - flush mount round : \varnothing 22 mm (.866)
 - flush mount rectangular : 20.60 x 26.70 mm
 - flush mount square : 20.60 x 20.60 mm
 - A1 series : \varnothing 22 mm (.866)
 - A03 series : round or square \varnothing 22 (.866)
 flush mount : \varnothing 30 mm (1.378)
- 1, 2, 3 and 4 poles
- Solder lug/quick-connect terminals
- Contacts : silver, gold plated
- Current/voltage rating :
 6A 250VAC max. - 10mA 5VAC min.
- Lamp : filament, neon or LED

A02 series

- Panel cut-out :
 - round or square : \varnothing 22 mm (.866)
 - rectangular : 29,5 x 21,5 mm (1.160x.846)
 - flush mount : \varnothing 30 mm (1.378)
 - 1 and 2 poles
 - Screw terminals (optional : quick-connect term.)
 - Contacts : silver
 - Current/voltage rating : 12A 380VAC
 16A 250VAC max. - 25mA 5VAC min.
 - Lamp : filament, neon, LED
 or special multi-LED array
- Option : end cap terminal guard. Order separately (see end of A02 series).

Packaging unit :

A1 : 25 pieces - A01 : 20 pieces (except pushbuttons: 25 pieces) - A02 : 25 pieces - A03 : 10 pieces.

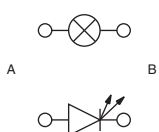
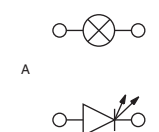
Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.

A1-A01-A02-A03 series

Industrial controls

Specifications for pushbutton, keylock and rotary switches

ELECTRICAL SPECIFICATIONS

	A01 - A1 - A03	A02
• Function :	Momentary or maintained action	Momentary or maintained action
• Current/voltage rating :	10mA 5VAC min. 6A 250VAC max. - 6A 12VDC max.	25mA 5VAC min. 12A 380VAC - 16A 250VAC max. 12A 12VDC max.
• Contact gap	> 1 mm (.039)	Double break 2 x 1,5 mm (.059)
• Initial contact resistance :	10mΩ max. at 1A 4VDC	10mΩ max. at 1A 4VDC
• Insulation resistance :	50 MΩ min.	50 MΩ min.
• Dielectric strength :	750V between open contacts 5KV live to accessible	2KV between open contacts 4KV live to accessible
• Electrical life (resistive load) :	50.000 cycles	50.000 cycles
• Insulation :	Class 2	Class 2
• Lamp life :	LED : 60.000 h min. to 75% relative luminosity - Filament : approx. 5.000 h Neon : approx. 10.000 h	LED : 60.000 h min. to 75 % relative luminosity - Filament : approx. 5.000 h Neon : approx. 10.000 h
• Lamp circuit diagrams		

GENERAL SPECIFICATIONS

	A01 - A1 - A03	A02
• Min. mechanical life :	Pushb. momentary : 1 million cycles Pushb. maintained : 100.000 cycles Keylock and rotary : 100.000 cycles	Pushb. momentary: 1 million cycles Pushb. maintained : 100.000 cycles Keylock and rotary : 100.000 cycles
• Panel thickness	8 mm (.315) max.	8 mm (.315) max.
• Operating temperature :	-20°C to +55°C	-20°C to +85°C
• Solder heat resistance : (IEC 68-2-20Tb, method 2)	350°C, 5 sec.	350°C, 5 sec.
• Degree of environmental protection (IEC 529)	IP 65 front of panel IP 40 back of panel	IP 65 front of panel IP 40 back of panel
• Lamps :	Midget Grooved T1 _{3/4} , filament, LED or neon	Midget Grooved T1 _{3/4} , filament, LED or neon Special multi-LED array
• Switch terminals :	Solder/quick-connect 2,8 mm (.110)	M3 screws - wire 2 x 0,75 mm ² max.
• Lamp terminals :	Solder/quick-connect 2,8 mm (.110)	M3 screws Flexible wire 2 x 2,5 mm ² max. Rigid wire 4 mm ² max.

Specifications for emergency stop switches : see pages 10 and 22.

For screen engraving or film legends, contact APEM.

A1 series

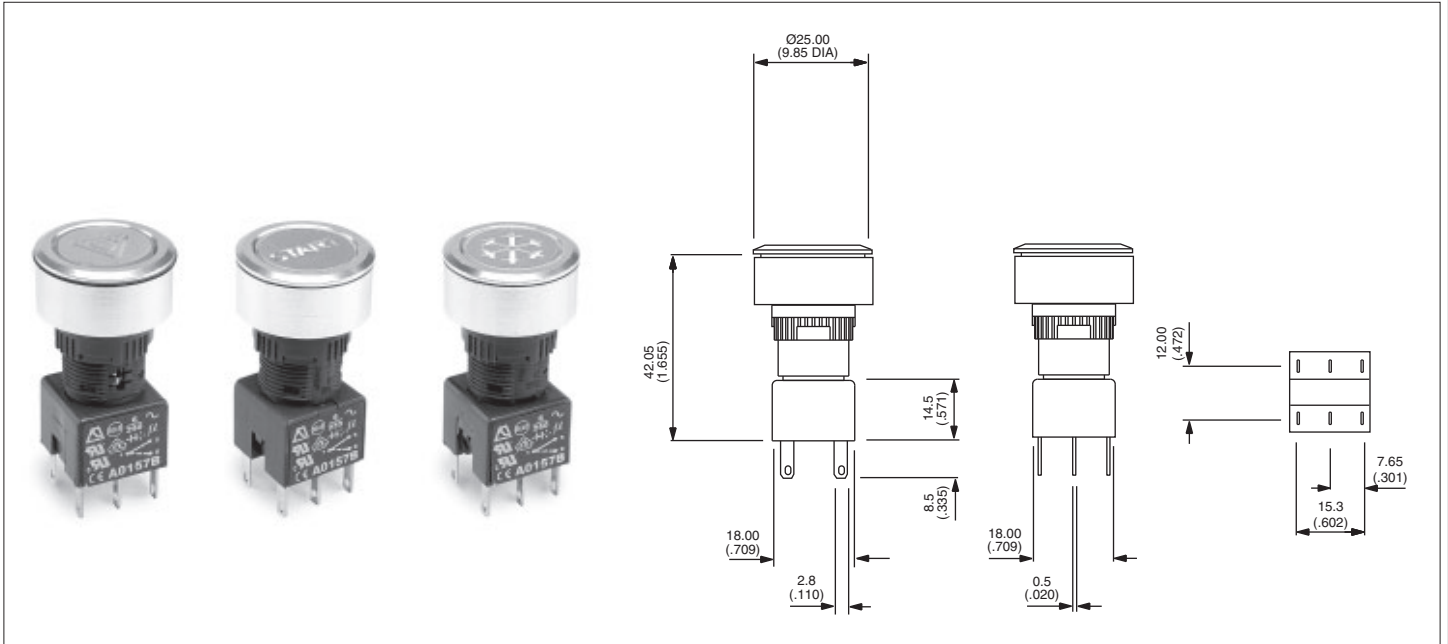
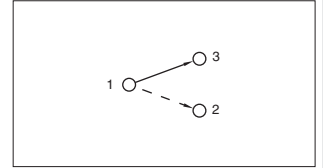
Engraved aluminium flush mounting pushbuttons and indicators

Panel cut-out Ø 22 (.866)

A pushbutton assembly requires :

engraved screen + lamp (if illuminated) + operator + switch block + flush mount bezel.
To order these elements, select desired model numbers from the table below.

Example : pushbutton, round, illuminated, sealed to IP65, latching, single pole with "start" engraving, 24V blue LED and flush mounting bezel = A1PCA1X103K403.



A1									
Switch Type P - pushbutton I - indicator	Bezel C - round	Illumination A - illuminated B - non-illum.	Sealing 0 - unsealed 1 - sealed IP65	Function 0 - indicator X - latching Y - momentary	Switch block 0 - indicator 1 - single pole 2 - double pole 5 - three pole 3 - four pole	Accessories O3 - flushmount			
Bulb									

Engraved Screen Options	
01 - Front Fog Lights	11 - 'Lock'
02 - Rear Fog Lights	12 - 'Unlock'
03 - 'Start'	13 - Rear Window Heating
04 - Interior Light	14 - Cooling
05 - Boot Release	15 - Wipers
06 - Hazard Warning	16 - Washers
07 - Lights	17 - Fan
08 - Heating & Ventilation	18 - Horn
09 - Map Lights	19 - Air recirculation
10 - Side Lights	20 - Blank

OTHER SCREEN ENGRAVING OPTIONS :
contact APEM.

A1 - filament 6.3V
B1 - filament 14V
C1 - filament 28V
D1 - filament 36V
E1 - filament 48V
F1 - filament 60V
G1 - Neon 110V
H1 - Neon 220V
I1 - Led 6V red
I2 - Led 6V green
I3 - Led 6V amber
J1 - Led 12V red
J2 - Led 12V green
J3 - Led 12V amber
J4 - Led 12V blue
J5 - Led 12V white
K1 - Led 24V red
K2 - Led 24V green
K3 - Led 24V amber
K4 - Led 24V blue
K5 - Led 24V white
L1 - Led 48V red
L2 - Led 48V green
L3 - Led 48V amber

A01 series

Illuminated or non-illuminated pushbutton switches

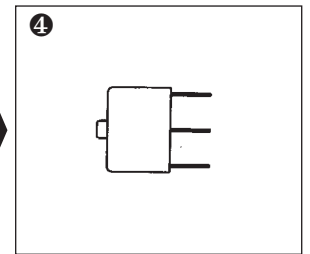
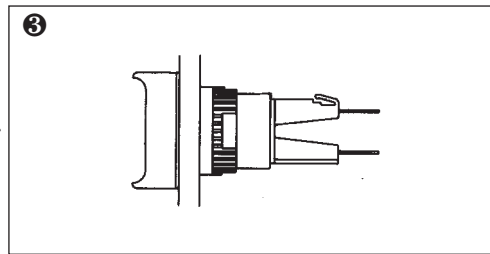
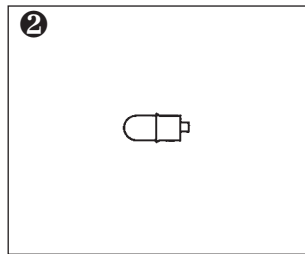
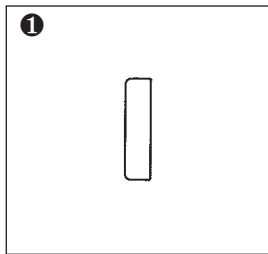
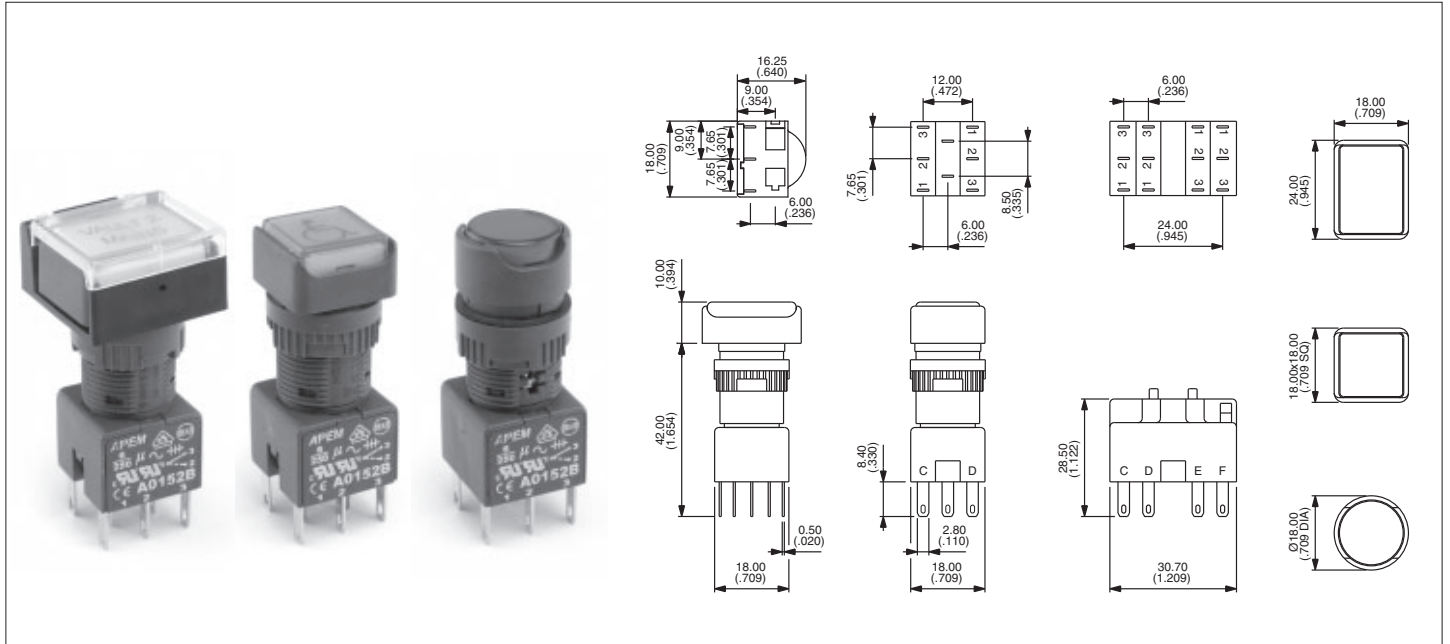
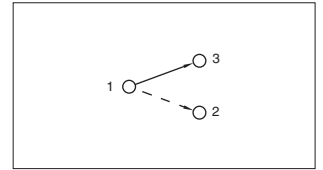
Panel cut-out Ø 16 (.630)

A pushbutton assembly requires :

screen + lamp (if illuminated) + operator + switch block.

To order these elements, select desired model numbers from tables below.

Example : IP65 rectangular pushbutton, single pole, maintained, red screen and 12V red LED = A0161B, A0142M1, A0101X and A0151BUL



Screen

Bezel	Colour	Part No.
□	black	A0161A
□	red	A0161B
□	amber	A0161C
□	yellow	A0161D
□	green	A0161E
□	blue	A0161F
□	clear	A0161G
□	white	A0161J
□	black	A0162A
□	red	A0162B
□	amber	A0162C
□	yellow	A0162D
□	green	A0162E
□	blue	A0162F
□	clear	A0162G
□	white	A0162J
○	black	A0163A
○	red	A0163B
○	amber	A0163C
○	yellow	A0163D
○	green	A0163E
○	blue	A0163F
○	clear	A0163G
○	white	A0163J

Lamp

Lamp	Voltage	Part No.
Filament	6.3V	A0141A
Filament	1.4V	A0141B
Filament	28V	A0141C
Filament	36V	A0141D
Filament	48V	A0141E
Filament	60V	A0141F
Neon	110V	A0143G
Neon	220V	A0143H
LED	6V red	A0142L1
LED	6V green	A0142L2
LED	6V amber	A0142L3
LED	12V red	A0142M1
LED	12V green	A0142M2
LED	12V amber	A0142M3
LED	12V blue	A0142M4
LED	12V white	A0142M5
LED	24V red	A0142N1
LED	24V green	A0142N2
LED	24V amber	A0142N3
LED	24V blue	A0142N4
ED	24V white	A0142N5
LED	48V red	A0142P1
LED	48V green	A0142P2
LED	48V amber	A0142P3

Operator

Pole	Bezel	Description	Part No.
1 or 2	□	illum, momentary	A0101Y
1 or 2	□	illum, maintained	A0101X
1 or 2	□	Non-illum, momentary	A0102Y
1 or 2	□	Non-illum, maintained	A0102X
3 or 4	□	illum, momentary	A0103Y
3 or 4	□	illum, maintained	A0103X
3 or 4	□	Non-illum, momentary	A0104Y
3 or 4	□	Non-illum, maintained	A0104X
1 or 2	□	illum, momentary	A0105Y
1 or 2	□	illum, maintained	A0105X
1 or 2	□	Non-illum, momentary	A0106Y
1 or 2	□	Non-illum, maintained	A0106X
3 or 4	□	illum, momentary	A0107Y
3 or 4	□	illum, maintained	A0107X
3 or 4	□	Non-illum, momentary	A0108Y
3 or 4	□	Non-illum, maintained	A0108X
1 or 2	○	illum, momentary	A0109Y
1 or 2	○	illum, maintained	A0109X
1 or 2	○	Non-illum, momentary	A0110Y
1 or 2	○	Non-illum, maintained	A0110X
3 or 4	○	illum, momentary	A0111Y
3 or 4	○	illum, maintained	A0111X
3 or 4	○	Non-illum, momentary	A0112Y
3 or 4	○	Non-illum, maintained	A0112X

Switch block

No of poles	Part No.
Single pole	A0151BUL
Double pole	A0152BUL
Three pole	A0155BUL
Four pole	A0153BUL

UNSEALED SWITCHES (IP40) :
add "01" to end of operator model number.

BI-COLOUR LED's optional.

SCREEN ENGRAVING/INSERTABLE LEGENDS : contact APEM

Bezel: □ rectangular, □ square, ○ round, 'illum' - illuminated, 'Non-illum' - non illuminated

A01 series

Indicators

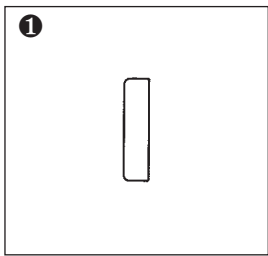
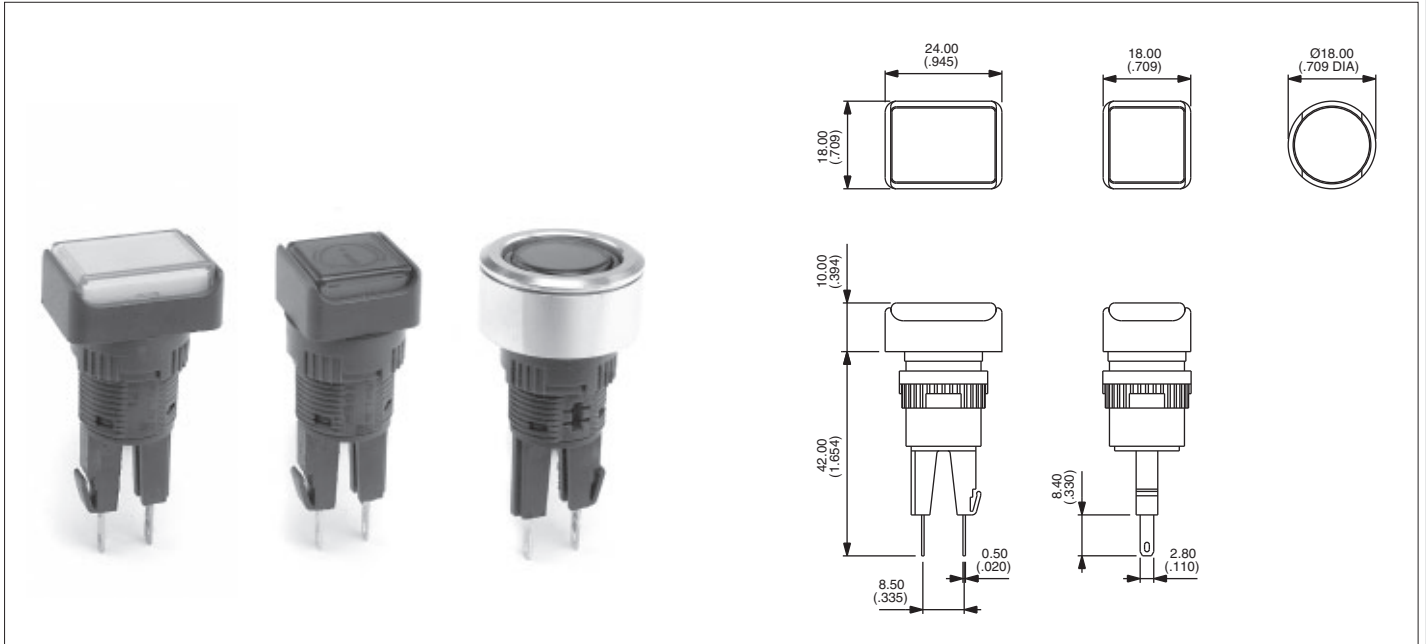
Panel cut-out Ø 16 (.630)

An indicator assembly requires :

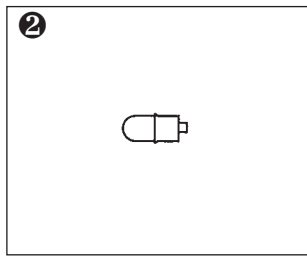
screen + lamp + operator.

To order these elements, select desired model numbers from tables below.

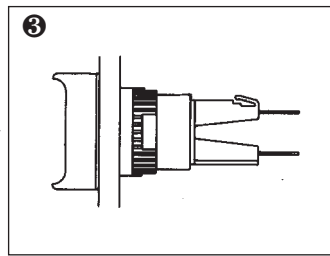
Example : IP65 rectangular indicator with red screen and 12V red LED = A0161B, A0142M1 and A0171.



Screen



Lamp



Operator

Bezel	Colour	Part No.
□	black	A0161A
□	red	A0161B
□	amber	A0161C
□	yellow	A0161D
□	green	A0161E
□	blue	A0161F
□	clear	A0161G
□	white	A0161J
□	black	A0162A
□	red	A0162B
□	amber	A0162C
□	yellow	A0162D
□	green	A0162E
□	blue	A0162F
□	clear	A0162G
□	white	A0162J
○	black	A0163A
○	red	A0163B
○	amber	A0163C
○	yellow	A0163D
○	green	A0163E
○	blue	A0163F
○	clear	A0163G
○	white	A0163J

Lamp	Voltage	Part No.
Filament	6.3V	A0141A
Filament	14V	A0141B
Filament	28V	A0141C
Filament	36V	A0141D
Filament	48V	A0141E
Filament	60V	A0141F
Neon	110V	A0143G
Neon	220V	A0143H
LED	6V red	A0142L1
LED	6V green	A0142L2
LED	6V amber	A0142L3
LED	12V red	A0142M1
LED	12V green	A0142M2
LED	12V amber	A0142M3
LED	12V blue	A0142M4
LED	12V white	A0142M5
LED	24V red	A0142N1
LED	24V green	A0142N2
LED	24V amber	A0142N3
LED	24V blue	A0142N4
LED	24V white	A0142N5
LED	48V red	A0142P1
LED	48V green	A0142P2
LED	48V amber	A0142P3

Bezel	Description	Part No.
□	Indicator	A0171
□	Indicator	A0172
○	Indicator	A0173

UNSEALED INDICATORS (IP40) :
add "01" to end of operator model number.

SCREEN ENGRAVING / INSERTABLE LEGENDS : contact APEM

Bezel: □ rectangular, □ square, ○ round

A01 series

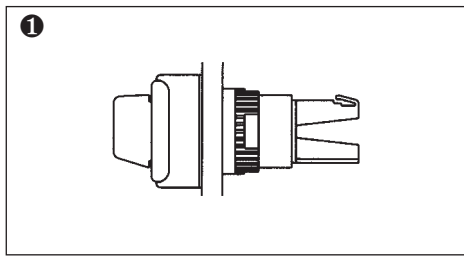
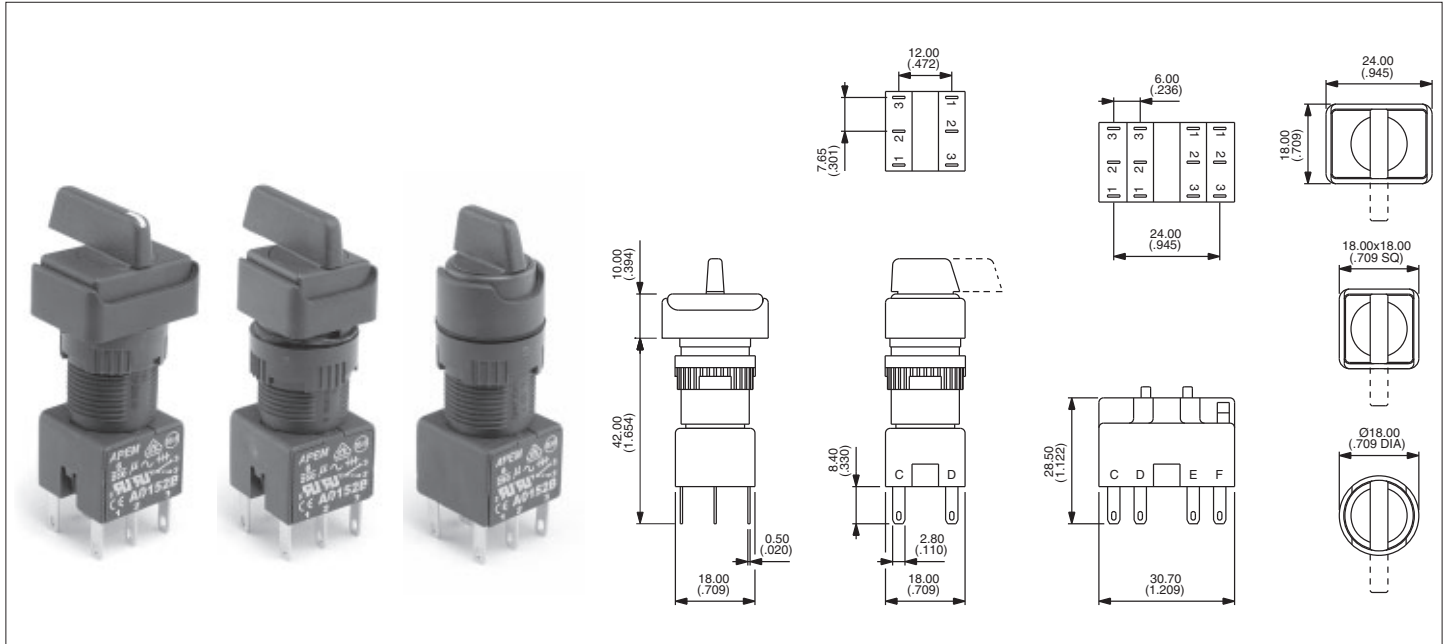
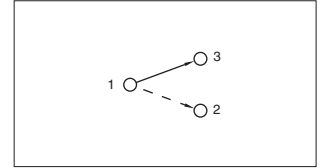
Rotary lever switches

Panel cut-out Ø 16 (.630)

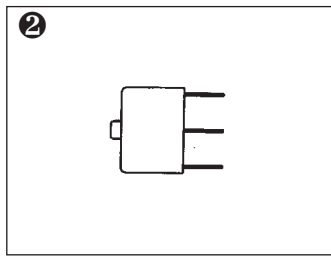
A rotary lever switch assembly requires :
operator + switch block.

To order these elements, select desired model numbers from tables below.

Example : IP65 rectangular rotary switch with long lever, clockwise rotation, single pole, 2 positions, maintained = A019109 and A0151BUL.

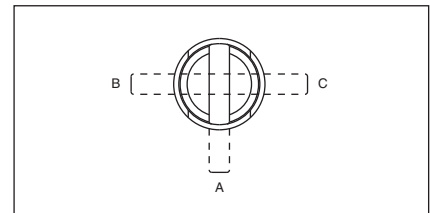


Operator



Switch block

Lever Positions



• Lever Rotation - 2 position switches

The model numbers shown are for switches with clockwise lever rotation.

For anticlockwise rotation, replace :

- | | | |
|----|------|----|
| 09 | with | 01 |
| 10 | with | 02 |
| 11 | with | 03 |
| 12 | with | 04 |

at the end of the model number.

Optional Engraving on Lever end

See above photo left.

To order, add "WL" to the end of the operator part No.

Example : A019609WL..

Pole	Bezel	Description	Short lever	Long lever	No of poles	Part No
1 or 2	□	2 pos. maintained	A019209	A019109•	Single pole	A0151BUL
1 or 2	□	2 pos. momentary	A019210	A019110•	Double pole	A0152BUL
3 or 4	□	2 pos. maintained	A019211	A019111•	Three pole	A0155BUL
3 or 4	□	2 pos. momentary	A019212	A019112•	Four pole	A0153BUL
1 or 2	□	3 pos. maintained	A019205	A019105		
1 or 2	□	3 pos. momentary	A019206	A019106		
1 or 2	□	3 pos. mainL, momR	A019207	A019107		
1 or 2	□	3 pos. momL, mainR	A019208	A019108		
1 or 2	□	2 pos. maintained	A019409	A019309•		
1 or 2	□	2 pos. momentary	A019410	A019310•		
3 or 4	□	2 pos. maintained	A019411	A019311•		
3 or 4	□	2 pos. momentary	A019412	A019312•		
1 or 2	□	3 pos. maintained	A019405	A019305		
1 or 2	□	3 pos. momentary	A019406	A019306		
1 or 2	□	3 pos. mainL, momR	A019407	A019307		
1 or 2	□	3 pos. momL, mainR	A019408	A019308		
1 or 2	○	2 pos. maintained	A019609	A019509•		
1 or 2	○	2 pos. momentary	A019610	A019510•		
3 or 4	○	2 pos. maintained	A019611	A019511•		
3 or 4	○	2 pos. momentary	A019612	A019512•		
1 or 2	○	3 pos. maintained	A019605	A019505		
1 or 2	○	3 pos. momentary	A019606	A019506		
1 or 2	○	3 pos. mainL, momR	A019607	A019507		
1 or 2	○	3 pos. momL, mainR	A019608	A019508		

Bezel: □ rectangular, □ square, ○ round, 'pos' - position, 'mainL' - maintained left, 'momR' - momentary right, etc

A01 series

Keylock switches

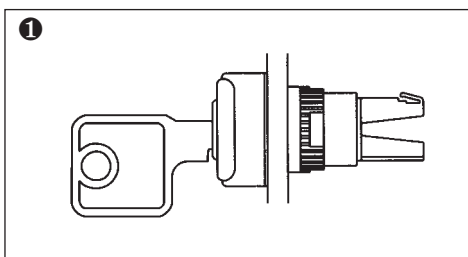
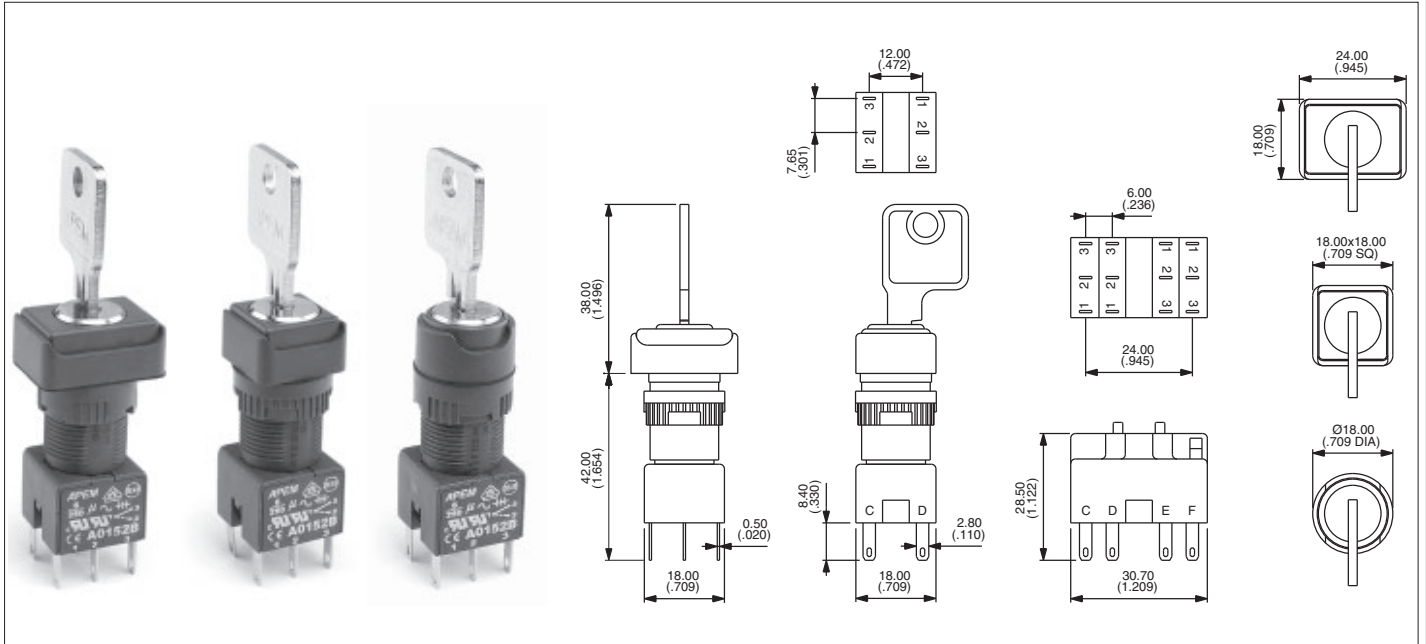
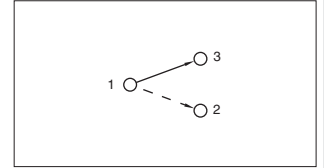
Panel cut-out Ø 16 (.630)

A keylock switch assembly requires :

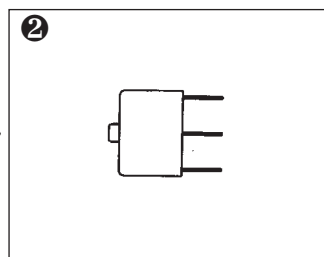
operator + switch block.

To order these elements, select desired model numbers from tables below.

Example : IP65 rectangular keyswitch, clockwise rotation, single pole, 2 positions, maintained = A018125 and A0151BUL.

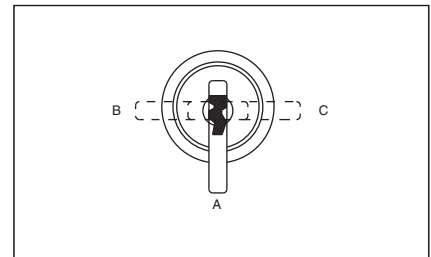


Operator



Switch block

Key Positions



Pole	Bezel	Description	Part No	Key removable	No of poles	Part No
1 or 2	□	2 pos. maintained	A018123	A	Single pole	A0151BUL
1 or 2	□	2 pos. maintained	A018125	A-B	Double pole	A0152BUL
1 or 2	□	2 pos. momentary	A018124	A	Three pole	A0155BUL
3 or 4	□	2 pos. maintained	A018127	A-B	Four pole	A0153BUL
3 or 4	□	2 pos. momentary	A018128	A		
1 or 2	□	3 pos. maintained	A018105	A-B-C		
1 or 2	□	3 pos. momentary	A018106	A		
1 or 2	□	3 pos. mainL, momR	A018107	A-B		
1 or 2	□	3 pos. momL, mainR	A018108	A-C		
1 or 2	□	2 pos. maintained	A018223	A		
1 or 2	□	2 pos. maintained	A018225	A-B		
1 or 2	□	2 pos. momentary	A018224	A		
3 or 4	□	2 pos. maintained	A018227	A-B		
3 or 4	□	2 pos. momentary	A018228	A		
1 or 2	□	3 pos. maintained	A018205	A-B-C		
1 or 2	□	3 pos. momentary	A018206	A		
1 or 2	□	3 pos. mainL, momR	A018207	A-B		
1 or 2	□	3 pos. momL, mainR	A018208	A-C		
1 or 2	○	2 pos. maintained	A018323	A		
1 or 2	○	2 pos. maintained	A018325	A-B		
1 or 2	○	2 pos. momentary	A018324	A		
3 or 4	○	2 pos. maintained	A018327	A-B		
3 or 4	○	2 pos. momentary	A018328	A		
1 or 2	○	3 pos. maintained	A018305	A-B-C		
1 or 2	○	3 pos. momentary	A018306	A		
1 or 2	○	3 pos. mainL, momR	A018307	A-B		
1 or 2	○	3 pos. momL, mainR	A018308	A-C		

• Key Rotation - 2 position switches

The model numbers shown are for switches with clockwise key rotation.

For anticlockwise rotation, replace :

25	with	01
24	with	02
27	with	03
28	with	04

at the end of the model number.

2 standard keys are supplied.
20 key barrel types available from stock.

NON-REMOVABLE KEY POSITIONS / ON-ON-ON FUNCTION : contact APEM.

Bezel: □ rectangular, □ square, ○ round, 'pos' - position, 'mainL' - maintained left, 'momR' - momentary right, etc

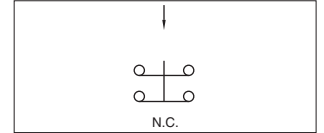
A01 series

Emergency stop switches

Panel cut-out $\varnothing 16 (.630)$

- Prominent 24 mm (.944) dia. or optional 40 mm (1.575) dia. red mushroom actuator
- Highly reliable positive break switch
- Push to shut off switch, twist to reset to ON
- Approved to UL 1054 / EN 60947-5-1

An emergency stop switch assembly requires : operator + switch block.
To order, specify with single pole or double pole positive break switch block.

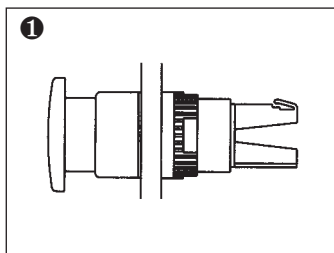
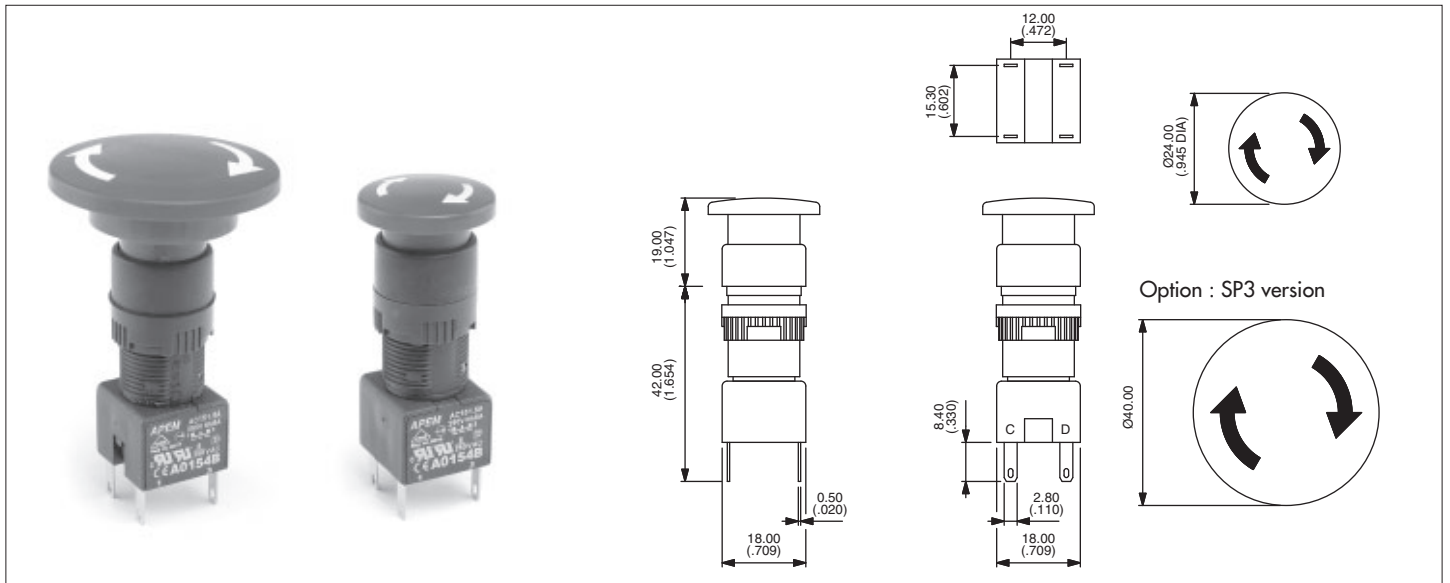


General specifications

- Min. mechanical life : 6.050 cycles (6 cycles per minute)
- Operating force / torque : 16 N / 0,1 Nm
- Operating temperature : -20°C to +55°C
- Solder heat resistance : 350°C, 5 secs (IEC 68-2-2-20Tb, method 2)
- Degree of environmental protection (IEC 529) :
IP65 front of panel, IP40 back of panel
- Switch terminals : solder/quick-connect 2,8 mm (.110) (IEC 68-2-20)

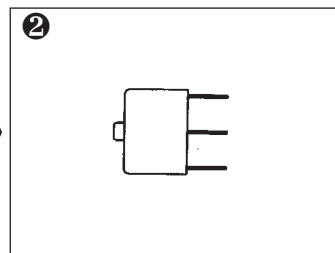
Electrical specifications

- Current/voltage rating :
1,5A 250VAC AC-15
- Contact gap : > 3 mm (.118)
- Dielectric strength : 2.900V
- Electrical life : 6.050 cycles



Operator

Description	Part No
24 mm \varnothing Emergency stop	A01ES
40 mm \varnothing Emergency stop	A01ES SP3



Switch block

No of poles	Part No
Single pole	A0150BUL
Double pole	A0154BUL

Accessory



60 mm \varnothing Self Adhesive Label

Description	Part No
Yellow label with text	A01YL1
Yellow label	A01YL2

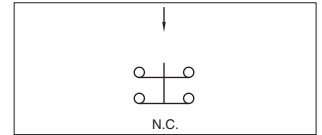
G

A01 series

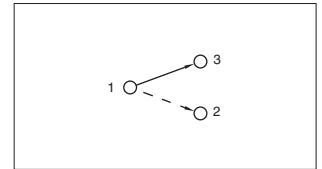
Emergency stop switches/mushroom head pushbutton switches

Fitted in enclosures

- Prominent 40 mm (1.575) dia. mushroom actuator, twist to release
- Highly reliable positive break switching on E-Stop
- Sealed to IP65
- 6A current rating
- Robust polycarbonate enclosures
- Knockouts for popular conduit sizes
- Double pole changeover switch blocks available for momentary/maintained mushroom head pushbuttons.



Emergency stop



Momentary & maintained

Technical specifications

- Contact rating : Pushbutton switch : 6A 250VAC - E-Stop : 1,5A 250VAC
- Dimensions : 65 x 65 x 57 mm
- Electrical life : Pushbutton switch : 50 000 cycles - E-Stop : 6 050 cycles
- Operating temperature : -20°C to +55°C



Description	Part No
Emergency stop	A01ESSP354B + PEA01
Black momentary	A01MMA352B + PEA01
Red momentary	A01MMBSP352B + PEA01
Yellow momentary	A01MMDSP352B + PEA01
Green momentary	A01MMESP352B + PEA01
Blue momentary	A01MMFSP352B + PEA01
Black maintained	A01MXASP352B + PEA01
Red maintained	A01MXBSP352B + PEA01
Yellow maintained	A01MXDSP352B + PEA01
Green maintained	A01MXESP352B + PEA01
Blue maintained	A01MXFSP352B + PEA01

OPTIONS

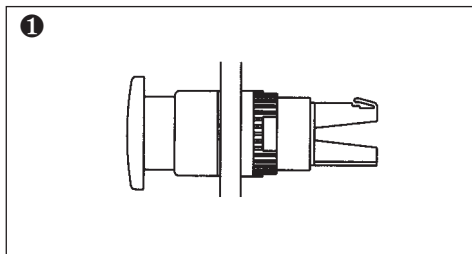
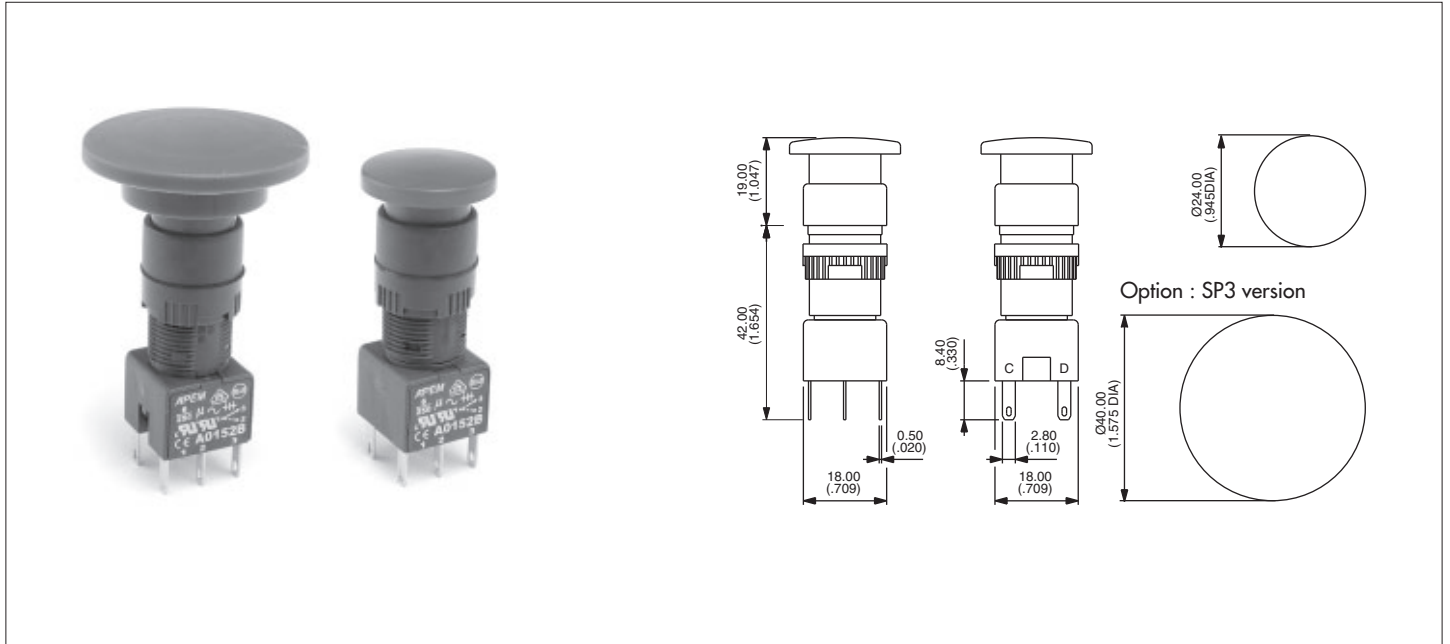
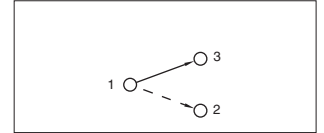
12A 250V versions or custom printing on mushroom head actuators : contact APEM.

A01 series

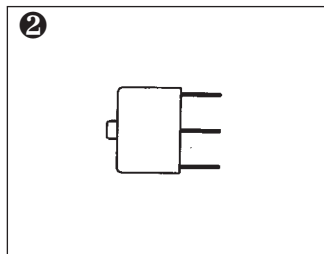
Mushroom head pushbutton switches

Panel cut-out Ø 16 (.630)

- Prominent 24 mm (.944) dia. or optional 40 mm (1.575) dia. mushroom actuators
- Momentary and maintained functions
 Momentary function versions are unmarked.
 Maintained function versions are twist release (arrows indicate direction of twist)
- Various coloured mushroom actuators are available.



Operator



Switch block

Actuator	Description	Part No
24mmØ	Black momentary	A01MMA
24mmØ	Red momentary	A01MMB
24mmØ	Yellow momentary	A01MMD
24mmØ	Green momentary	A01MME
24mmØ	Blue momentary	A01MMF
24mmØ	Black maintained	A01MXA
24mmØ	Red maintained	A01MXB
24mmØ	Yellow maintained	A01MXD
24mmØ	Green maintained	A01MXE
24mmØ	Blue maintained	A01MXF
40mmØ	Black momentary	A01MMA SP3
40mmØ	Red momentary	A01MMB SP3
40mmØ	Yellow momentary	A01MMD SP3
40mmØ	Green momentary	A01MME SP3
40mmØ	Blue momentary	A01MMF SP3
40mmØ	Black maintained	A01MXA SP3
40mmØ	Red maintained	A01MXB SP3
40mmØ	Yellow maintained	A01MXD SP3
40mmØ	Green maintained	A01MXE SP3
40mmØ	Blue maintained	A01MXF SP3

No of poles	Part No
Single pole	A0151BUL
Double pole	A0152BUL
Three pole	A0155BUL
Four pole	A0153BUL

G

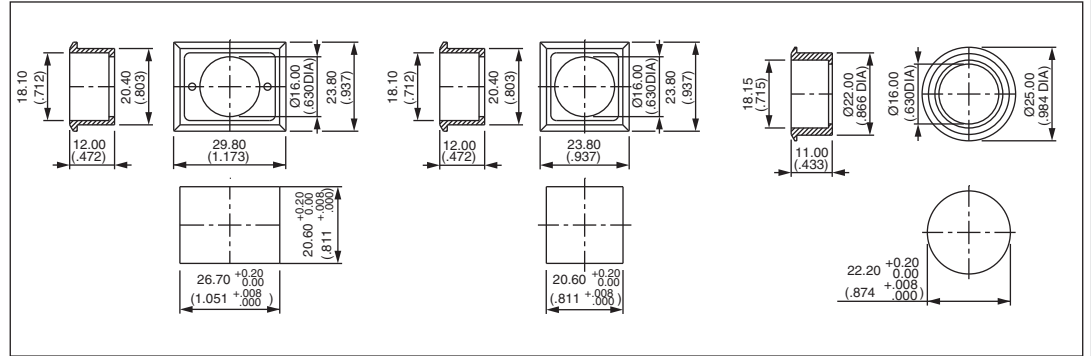
A1-A01 series

Industrial controls

Accessories

FLUSH MOUNTING BEZELS

Dark grey plastic material - supplied with sealing washer



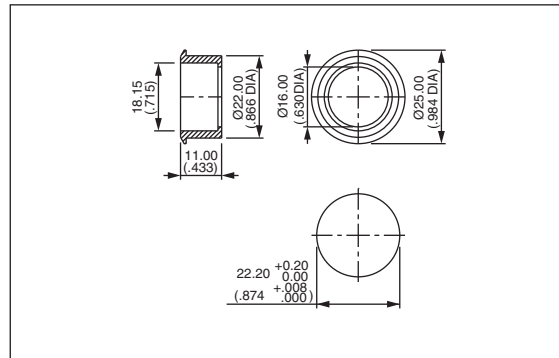
Rectangular **A01FM1**

Square **A01FM**

Round **A01FM2**

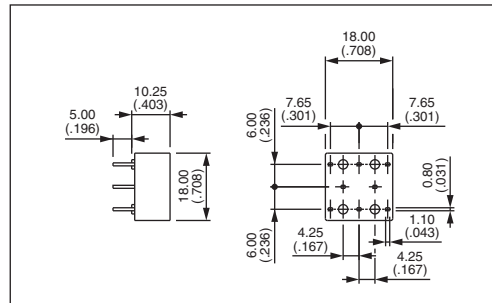
FLUSH MOUNTING BEZELS

Metal versions



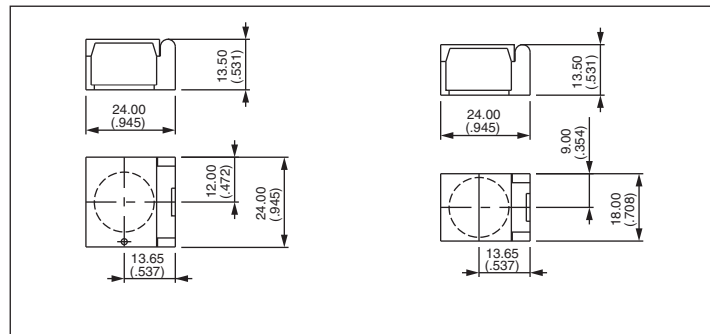
Round, anodised aluminium **A01FMM**
 Round, matt black **A01FMMG**

PCB SOCKET



- Single pole, non illuminated **A01PC1**
- Double pole, non illuminated **A01PC2**
- Single pole, illuminated **A01PC3**
- Double pole, illuminated **A01PC4**
- Indicator **A01PC5**
- Single pole, E-stop **A01PC6**
- Double pole, E-stop **A01PC7**

FLAPGUARDS



Rectangular **A01FG1**

Square/round **A01FG2**

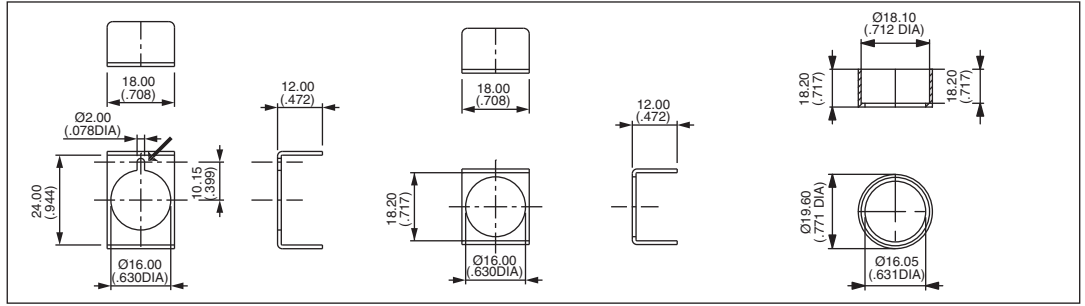
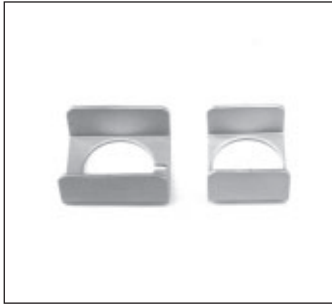
A1-A01 series

Industrial controls

Accessories

METAL GUARDS

→ Slot as alternative to Ø 2 mm hole - Material : 1 mm thick aluminium.



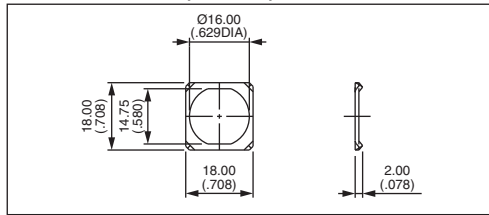
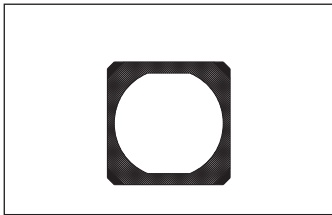
Rectangular **A01MG1**

Square **A01MG**

Round, natural **A01MG2**
 Matt black **A01MG2G**

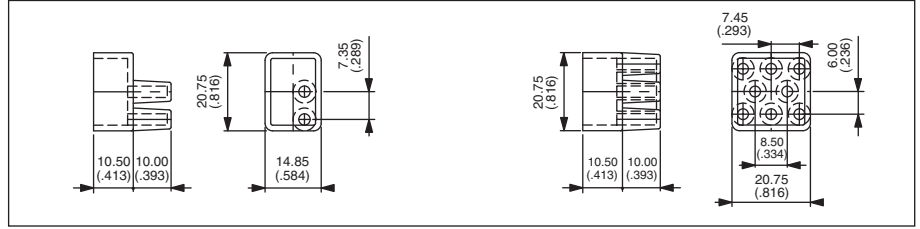
ANTI ROTATION RING

Recommended to prevent product rotation



A01LW

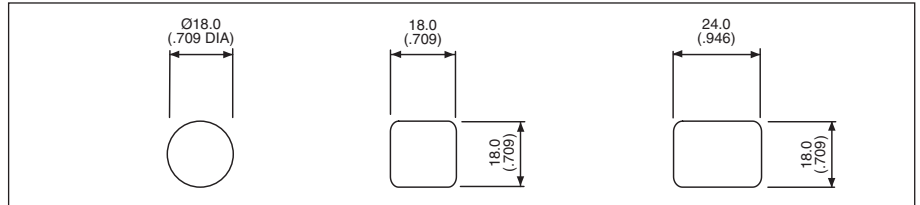
SWITCHBLOCK TERMINAL GUARDS



2 way **A01RTC2**

8 way **A01RTC8**

BLANKING PLUGS



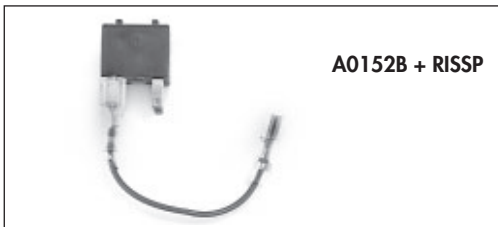
Round **A0133**

Square **A0132**

Rectangular **A0131**

RESISTOR ASSEMBLY

Resistor assembly - 2 stage illumination



A0152B + RISSP



(DIM) normally closed

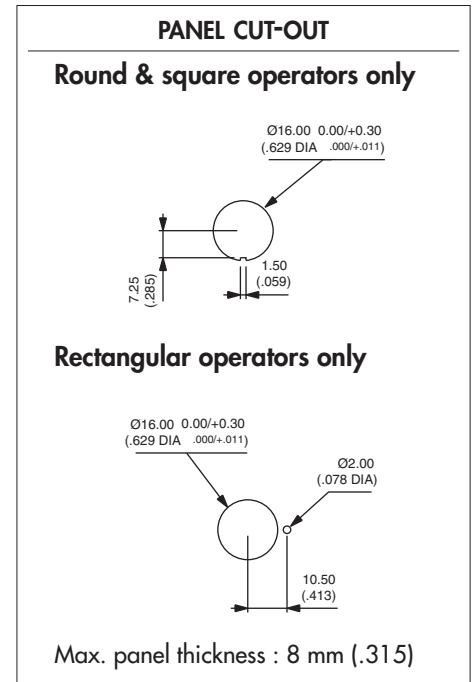
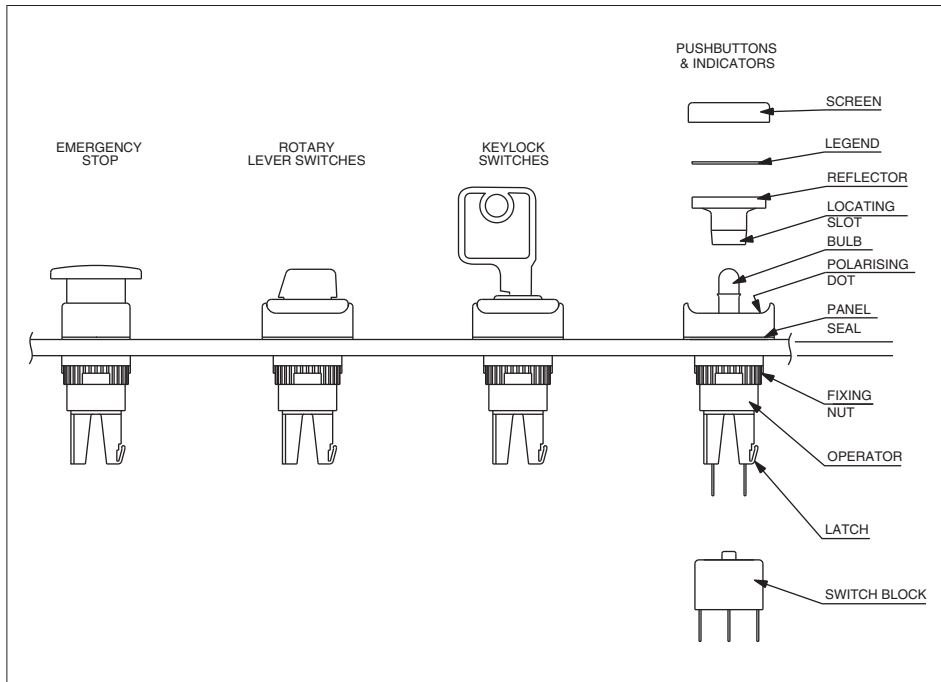
(BRIGHT) normally open

A1-A01 series

Industrial controls

Installation - tools

Modular construction / panel mounting



PANEL MOUNTING ASSEMBLY

- Drill/punch hole shaped as above.
- Assemble front operator through hole, fit fixing nut and tighten to a maximum torque of 0,8Nm using tool No 30-0001.
- Wire chosen switch block as required and slide onto operator until latch engages.
- Fit bulb if required using tool No 30-0002.
- Snap screen onto reflector assembly with legend in between if required and snap onto front operator TAKING CARE TO LINE UP THE LOCATING SLOT WITH THE POLARISING DOT, and not to damage the seal.

TO REMOVE BULB

Remove reflector/screen assembly. Use the bulb extractor 30-0002 to remove the bulb.

SWITCH BLOCK

To assemble switch block to front operator, TAKE CARE TO LINE UP SWITCH BLOCK WITH FRONT OPERATOR. Once in position, slide on to front operator. NB. : Ensure latch is fully engaged correctly onto the switch block.

To remove switch block, depress the latch and slide the switch block off the operator.

FIXING NUT KEY



BULB REMOVER



A02 series

Illuminated or non-illuminated pushbutton switches

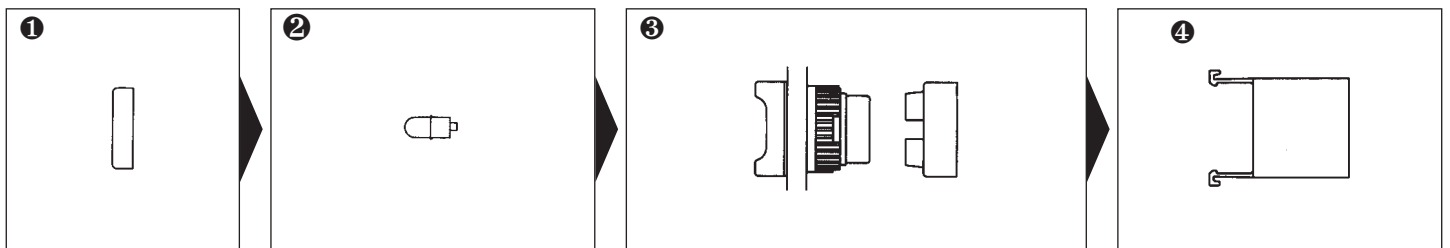
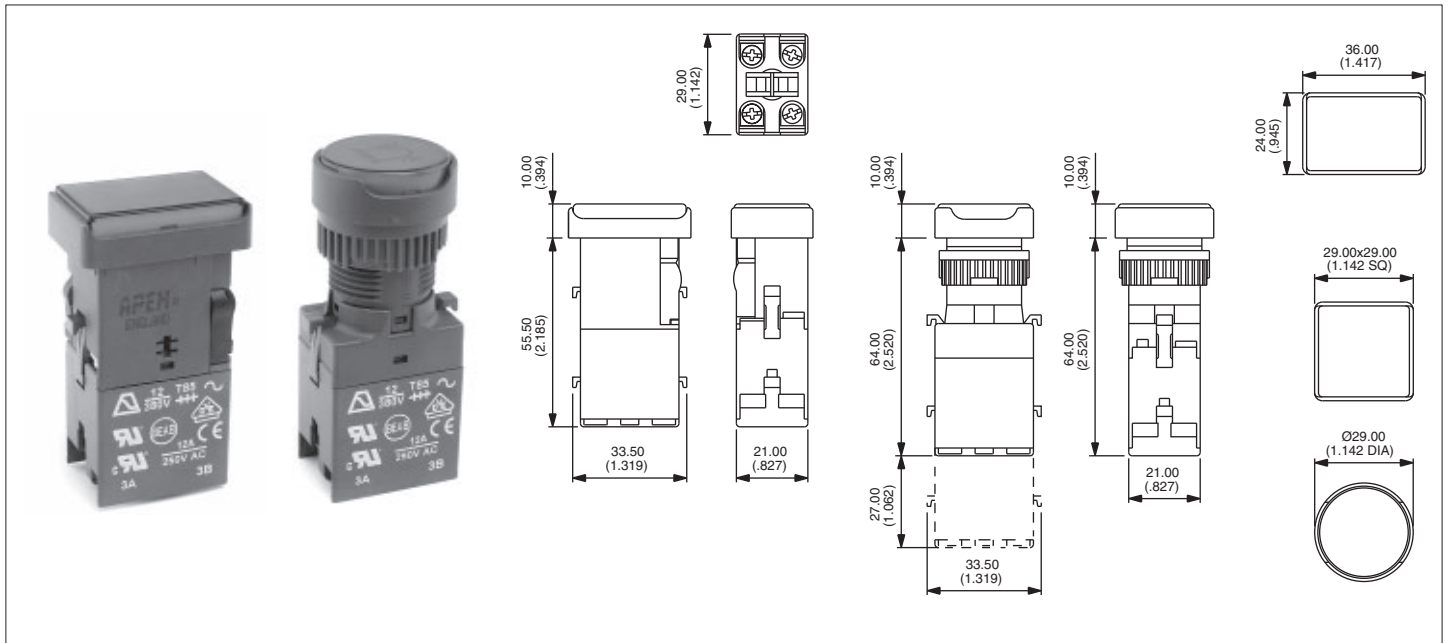
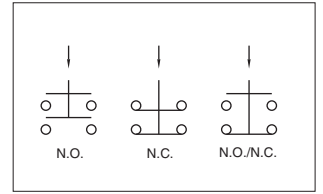
Panel cut-out \varnothing 22 (.866) or 29,5 x 21,5 (1.160x.846)

A pushbutton assembly requires :

screen + lamp (if illuminated) + operator + one or two switch blocks.

To order these elements, select desired model numbers from tables below.

Example : IP65 illuminated rectangular maintained pushbutton, switch block with 2 N.O. contacts, red screen and 12V red LED assembly = A0261B, A0242J1, A0201X and A02503UL.



Screen

Bezel	Colour	Part No.
□	black	A0261A
□	red	A0261B
□	amber	A0261C
□	yellow	A0261D
□	green	A0261E
□	blue	A0261F
□	clear	A0261G
□	white	A0261J
□	black	A0262A
□	red	A0262B
□	amber	A0262C
□	yellow	A0262D
□	green	A0262E
□	blue	A0262F
□	clear	A0262G
□	white	A0262J
○	black	A0263A
○	red	A0263B
○	amber	A0263C
○	yellow	A0263D
○	green	A0263E
○	blue	A0263F
○	clear	A0263G
○	white	A0263J

Lamp

Lamp	Voltage	Part No.
Filament	6.3V	A0141A
Filament	14V	A0141B
Filament	28V	A0141C
Filament	36V	A0141D
Filament	48V	A0141E
Filament	60V	A0141F
Neon	110V	A0143G
Neon	220V	A0143H
LED	model numbers: see A01 pages G6-G7.	
LED assy	6V	A0242H*
LED assy	12V	A0242J*
LED assy	24V	A0242K*
LED assy	6V	A0243H*
LED assy	12V	A0243J*
LED assy	24V	A0243K*
LED assy	6V	A0244H*
LED assy	12V	A0244J*
LED assy	24V	A0244K*
Replace *	with colour code	
for LED assemblies:	1: red	
	2: green	
	3: amber	

Operator

Bezel	Description	Lamp type	Part No.
□	illum, momentary	Lamp/LED	A0201Y
□	illum, maintained	Lamp/LED	A0201X
□	illum, momentary	LED assy	A0202Y
□	illum, maintained	LED assy	A0202X
□	Non-illum, maintained		A0203X
□	Non-illum, momentary		A0203Y
□	illum, momentary	Lamp/LED	A0204Y
□	illum, maintained	Lamp/LED	A0204X
□	illum, momentary	Lamp/LED	A0205Y
□	illum, maintained	LED assy	A0205X
□	Non-illum, momentary		A0206Y
□	Non-illum, maintained		A0206X
○	illum, momentary	Lamp/LED	A0207Y
○	illum, maintained	Lamp/LED	A0207X
○	illum, momentary	LED assy	A0208Y
○	illum, maintained	LED assy	A0208X
○	Non-illum, momentary		A0209Y
○	Non-illum, maintained		A0209X

Switch block

Contacts	Part No.
1 N.O.	A02501UL
1 N.C.	A02502UL
2 N.O.	A02503UL
2 N.C.	A02504UL
1 N.O./1 N.C.	A02505UL

Second switch block

Contacts	Part No.
1 N.O.	A02506UL
1 N.C.	A02507UL
2 N.O.	A02508UL
2 N.C.	A02509UL
1 N.O./1 N.C.	A02510UL

To achieve 3 or 4 pole switching, add second switch block, from above table.

White or blue LED assembly : contact APEM.

UNSEALED SWITCHES (IP40) :

add "01" to end of operator model number.

SCREEN ENGRAVING / INSERTABLE LEGENDS : contact APEM.

Bezel: □ rectangular, □ square, ○ round, 'illum' - illuminated, 'Non-illum' - non illuminated

A02 series

Metal bezel pushbutton switches and indicators

Panel cut-out Ø 22 (.866)

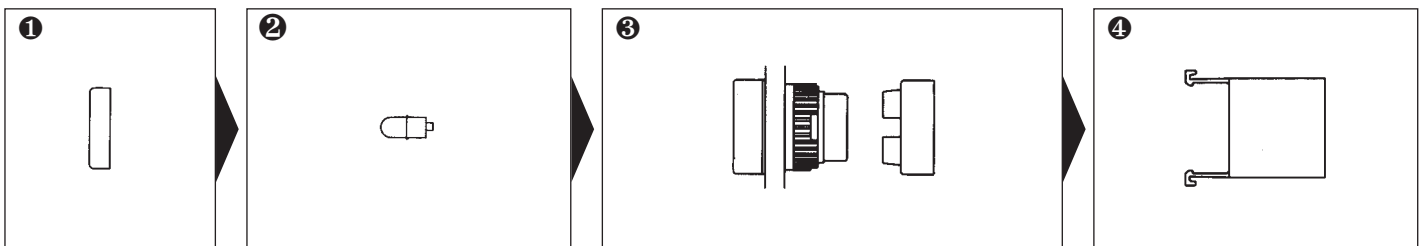
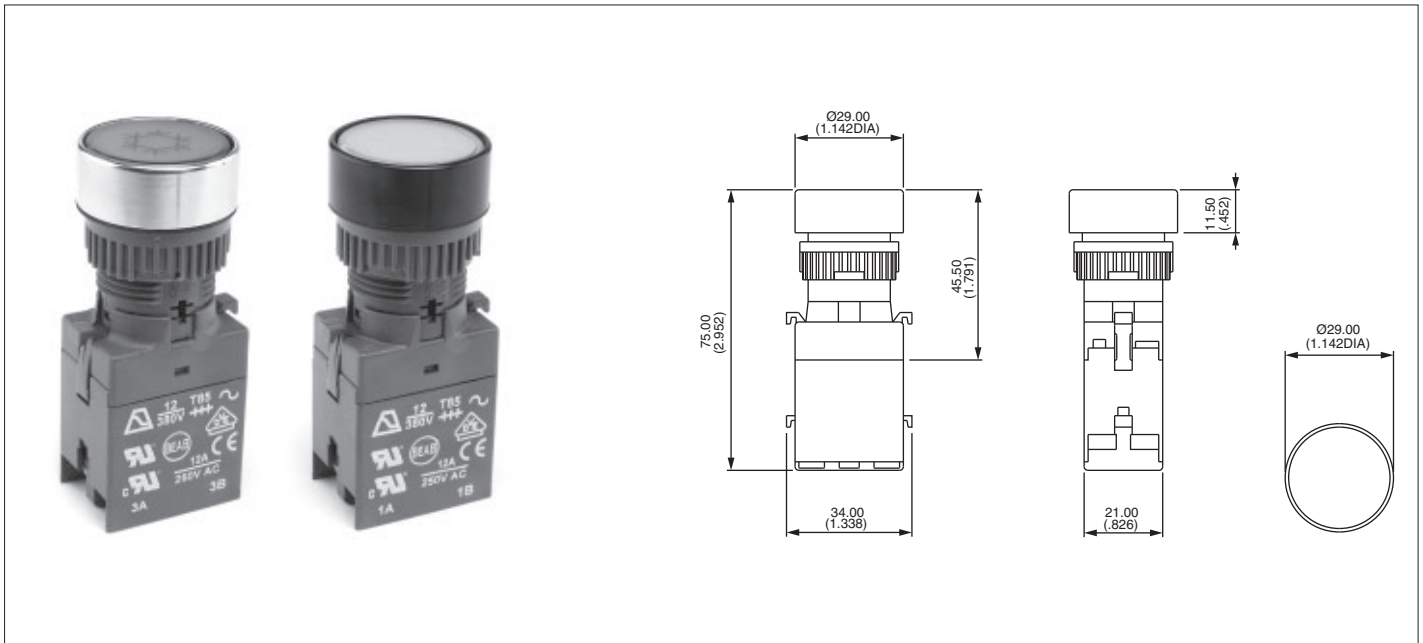
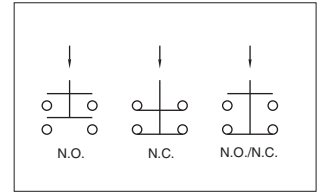
A pushbutton assembly requires :

screen + lamp (if illuminated) + operator + one or two switch blocks.

An indicator assembly requires : screen + lamp + operator

To order these elements, select desired model numbers from tables below.

Example : IP65 illuminated metal bezel maintained pushbutton, switch block with 2 N.O. contacts, red screen and 12V red LED assembly = A0263B, A0244J1, A0211X and A02503UL.



Screen

Bezel	Colour	Part No
○	black	A0263A
○	red	A0263B
○	amber	A0263C
○	yellow	A0263D
○	green	A0263E
○	blue	A0263F
○	clear	A0263G
○	white	A0263J

Lamp

Lamp	Voltage	Part No
Filament	6.3V	A0141A
Filament	14V	A0141B
Filament	28V	A0141C
Filament	36V	A0141D
Filament	48V	A0141E
Filament	60V	A0141F
Neon	110V	A0143G
Neon	220V	A0143H
LED	model numbers: see A01 pages G6-G7.	
LED assy ○	6V	A0244H*
LED assy ○	12V	A0244J*
LED assy ○	24V	A0244K*
Replace * with colour code for LED assemblies:	1: red	
	2: green	
	3: amber	

White or blue LED assembly : contact APEM.

Operator

Bezel	Description	Lamp type	Part No
○	illum, momentary	Lamp/LED	A0210Y
○	illum, maintained	Lamp/LED	A0210X
○	illum, momentary	LED assy	A0211Y
○	illum, maintained	LED assy	A0211X
○	Non-illum, momentary		A0212Y
○	Non-illum, maintained		A0212X
○	illum, indicator	Lamp/LED	A0277
○	illum, indicator	LED assy	A0278

Std bezel material : nickel plated brass.
For optional black finish, add "G" to the end of operator model number.

UNSEALED SWITCHES (IP40) :

add "01" to end of operator model number.

Switch block

Contacts	Part No
1 N.O.	A02501UL
1 N.C.	A02502UL
2 N.O.	A02503UL
2 N.C.	A02504UL
1 N.O./1 N.C.	A02505UL

Second switch block

Contacts	Part No
1 N.O.	A02506UL
1 N.C.	A02507UL
2 N.O.	A02508UL
2 N.C.	A02509UL
1 N.O./1 N.C.	A02510UL

To achieve 3 or 4 pole switching, add second switch block, from above table.

SCREEN ENGRAVING / INSERTABLE LEGENDS : contact APEM.

Bezel: □ rectangular, ◻ square, ○ round, 'illum' - illuminated, 'Non-illum' - non illuminated

A02 series

Flush mounting pushbutton switches and indicators

Panel cut-out $\varnothing 30$ (1.181)

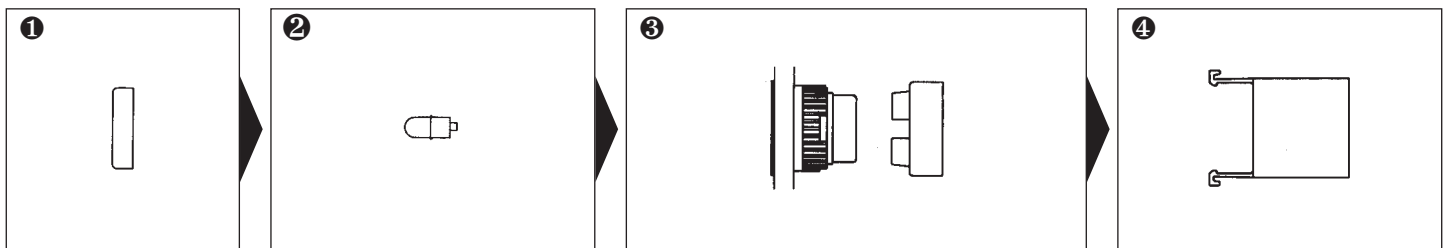
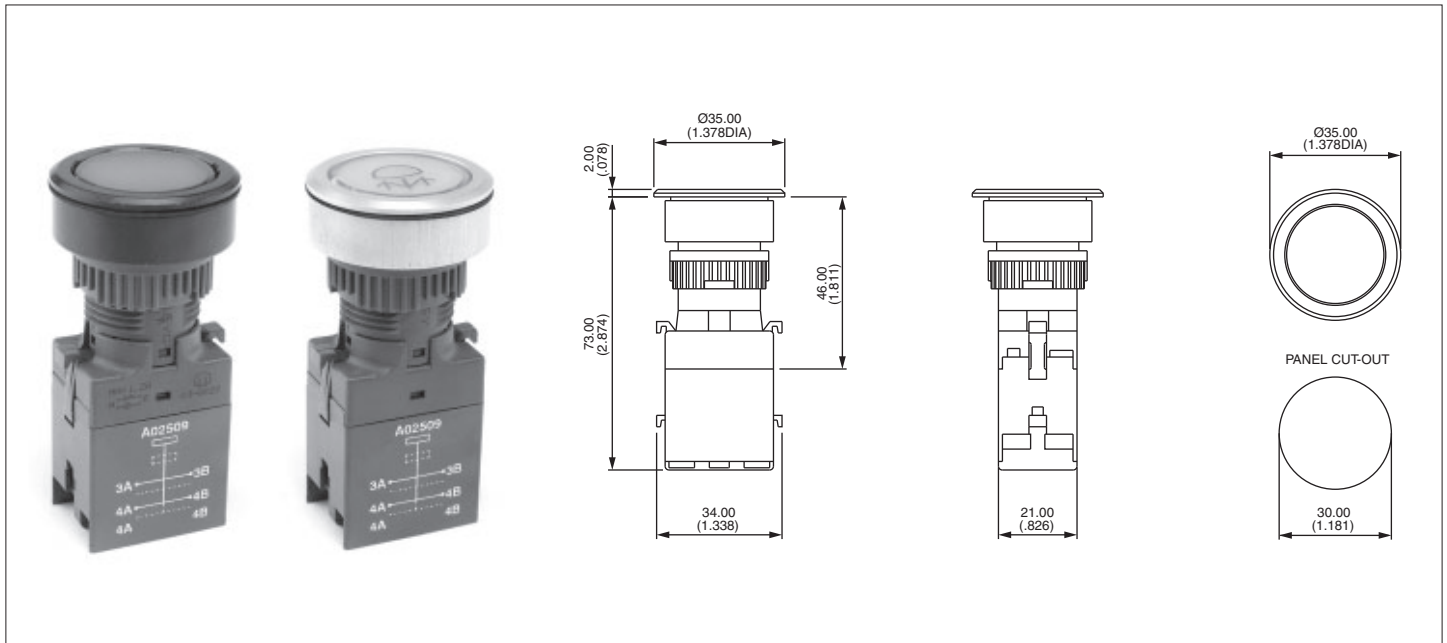
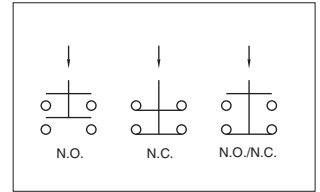
A pushbutton assembly requires :

screen + lamp (if illuminated) + operator + one or two switch blocks.

An indicator assembly requires : screen + lamp + operator

To order these elements, select desired model numbers from tables below.

Example : IP65 illum. flush mounting maintained pushbutton, switch block with 2 N.O. contacts, red screen and 12V red LED assembly = A0263B, A0244J1, A0213X and A02503UL.



Screen

Bezel	Colour	Part No
○	black	A0263A
○	red	A0263B
○	amber	A0263C
○	yellow	A0263D
○	green	A0263E
○	blue	A0263F
○	clear	A0263G
○	white	A0263J

Lamp

Lamp	Voltage	Part No
Filament	6.3V	A0141A
Filament	14V	A0141B
Filament	28V	A0141C
Filament	36V	A0141D
Filament	48V	A0141E
Filament	60V	A0141F
Neon	110V	A0143G
Neon	220V	A0143H
LED model numbers: see A01 pages G6-G7.		
LED assy ○	6V	A0244H*
LED assy ○	12V	A0244J*
LED assy ○	24V	A0244K*
Replace * with colour code		
for LED assemblies:	1: red	
	2: green	
	3: amber	

White or blue LED assembly : contact APEM.

Operator

Bezel	Description	Lamp type	Part No
○	illum, momentary	Lamp/LED	A0214Y
○	illum, maintained	Lamp/LED	A0214X
○	illum, momentary	LED assy	A0213Y
○	illum, maintained	LED assy	A0213X
○	Non-illum, momentary		A0215Y
○	Non-illum, maintained		A0215X
○	illum, indicator	Lamp/LED	A02791
○	illum, indicator	LED assy	A02792

Std bezel material : silver anodised aluminium.
For optional black anodised aluminium, add "G" to end of operator model number.

UNSEALED SWITCHES (IP40) :
add "01" to end of operator model number.

Switch block

Contacts	Part No
1 N.O.	A02501UL
1 N.C.	A02502UL
2 N.O.	A02503UL
2 N.C.	A02504UL
1 N.O./1 N.C.	A02505UL

Second switch block

Contacts	Part No
1 N.O.	A02506UL
1 N.C.	A02507UL
2 N.O.	A02508UL
2 N.C.	A02509UL
1 N.O./1 N.C.	A02510UL

To achieve 3 or 4 pole switching, add second switch block, from above table.

SCREEN ENGRAVING / INSERTABLE LEGENDS : contact APEM.

Bezel: □ rectangular, ◻ square, ○ round, 'illum' - illuminated, 'Non-illum' - non illuminated

A02 series

Indicators

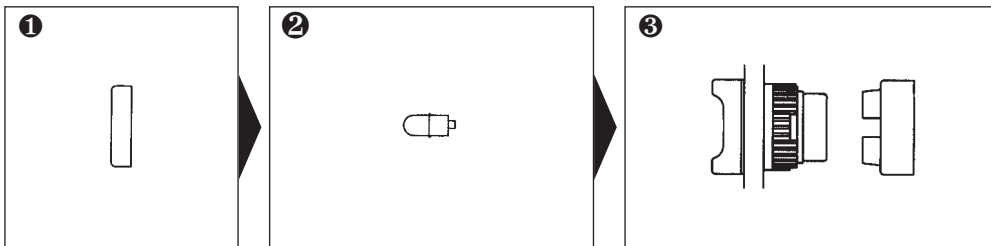
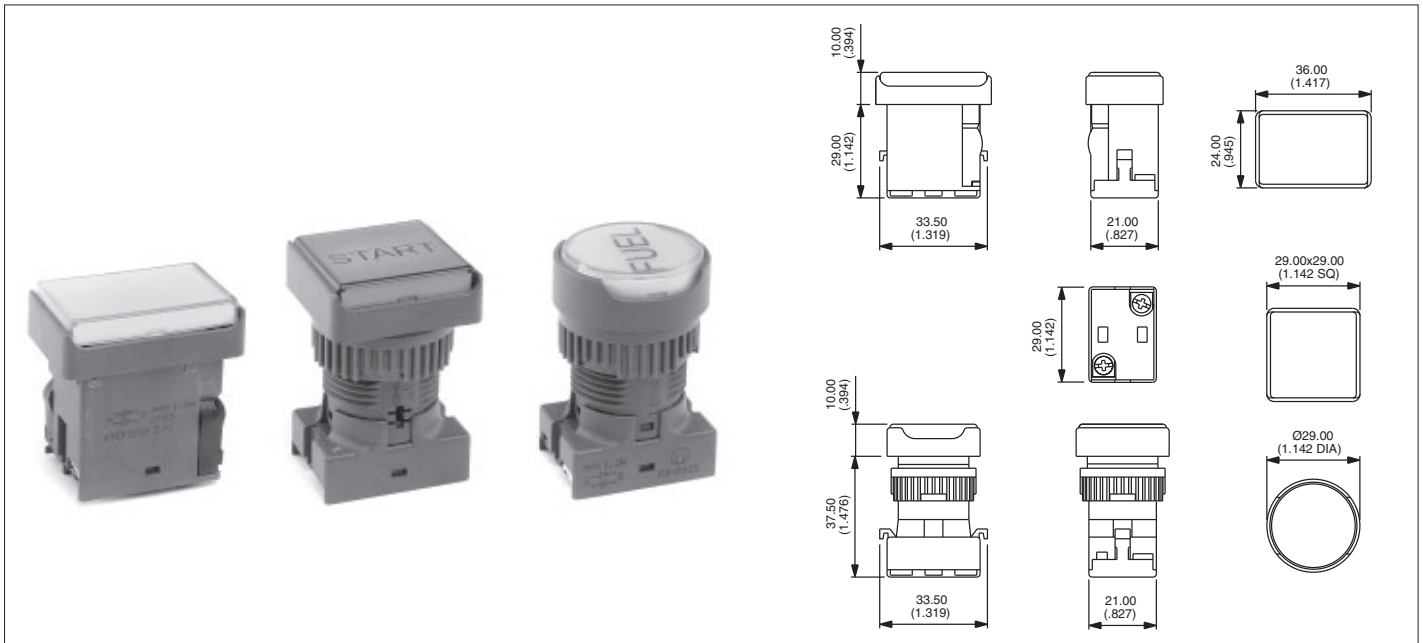
Panel cut-out \varnothing 22 (.866) or 29,5 x 21,5 (1.160x.846)

An indicator assembly requires :

Screen + lamp, LED or LED assembly + operator.

To order these elements, select desired model numbers from tables below.

Example : IP65 rectangular indicator with red screen and 12V red LED assembly = A0261B, A0242J1 and A0272.



Screen

Bezel	Colour	Part No	Lamp	Voltage	Part No
□	black	A0261A	Filament	6.3V	A0141A
□	red	A0261B	Filament	14V	A0141B
□	amber	A0261C	Filament	28V	A0141C
□	yellow	A0261D	Filament	36V	A0141D
□	green	A0261E	Filament	48V	A0141E
□	blue	A0261F	Filament	60V	A0141F
□	clear	A0261G	Neon	110V	A0143G
□	white	A0261J	Neon	220V	A0143H
□	black	A0262A	LED	model numbers: see A01 pages G6-G7.	
□	red	A0262B	LED assy	6V	A0242H*
□	amber	A0262C	LED assy	12V	A0242J*
□	yellow	A0262D	LED assy	24V	A0242K*
□	green	A0262E	LED assy	6V	A0243H*
□	blue	A0262F	LED assy	12V	A0243J*
□	clear	A0262G	LED assy	24V	A0243K*
□	white	A0262J	LED assy	6V	A0244H*
○	black	A0263A	LED assy	12V	A0244J*
○	red	A0263B	LED assy	24V	A0244K*
○	amber	A0263C	LED assy	6V	A0244H*
○	yellow	A0263D	LED assy	12V	A0244J*
○	green	A0263E	LED assy	24V	A0244K*
○	blue	A0263F	LED assy	6V	A0244H*
○	clear	A0263G	LED assy	12V	A0244J*
○	white	A0263J	LED assy	24V	A0244K*

Lamp

Operator

Bezel	Description	Lamp type	Part No
□	Indicator	Lamp/LED	A0271
□	Indicator	LED assy	A0272
□	Indicator	Lamp/LED	A0273
□	Indicator	LED assy	A0274
○	Indicator	Lamp/LED	A0275
○	Indicator	LED assy	A0276

UNSEALED INDICATORS (IP40) :

add "01" to end of operator model number.

White or blue LED assembly :

contact APEM.

SCREEN ENGRAVING / INSERTABLE LEGENDS : contact APEM.

Bezel: □ rectangular, □ square, ○ round,

A02 series

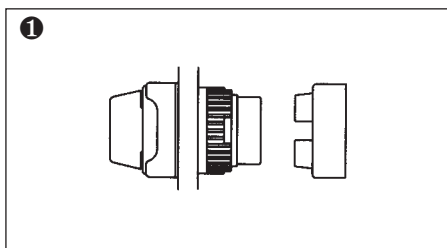
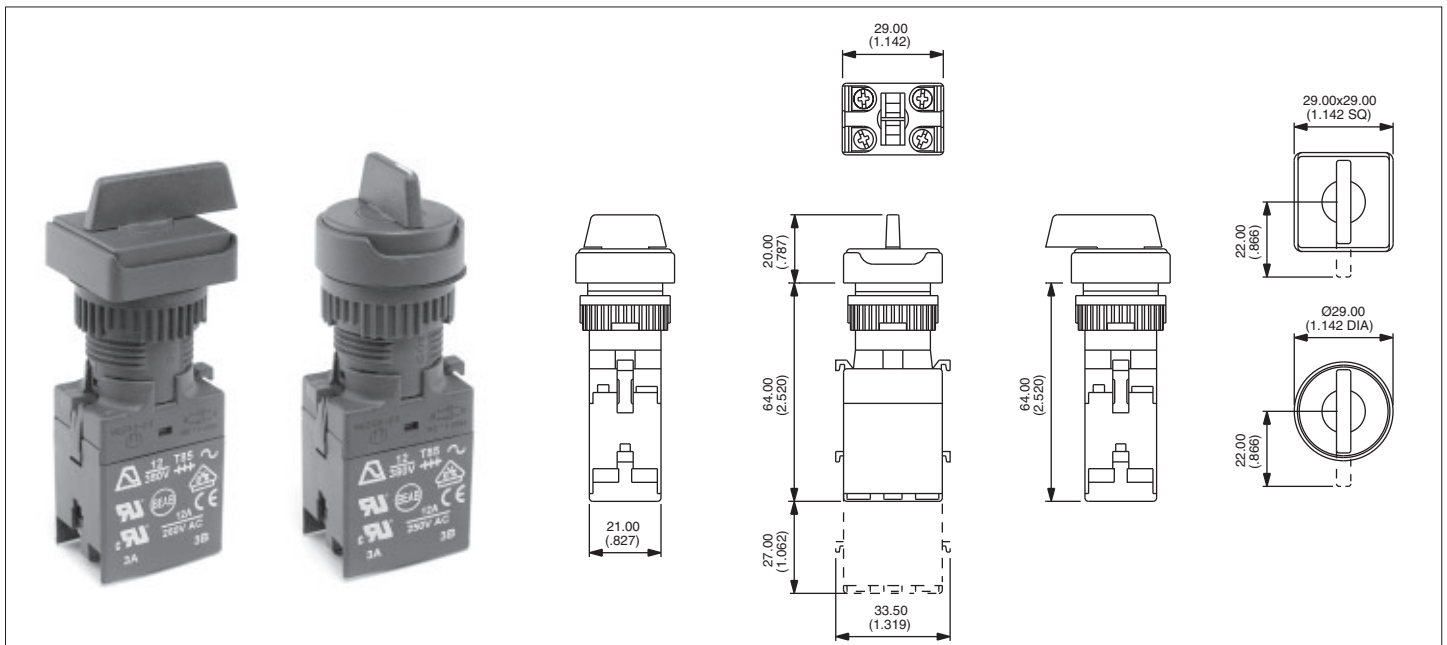
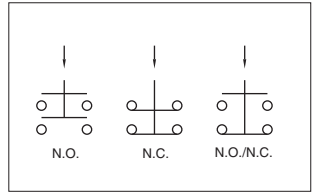
Rotary switches

Panel cut-out Ø 22 (.866)

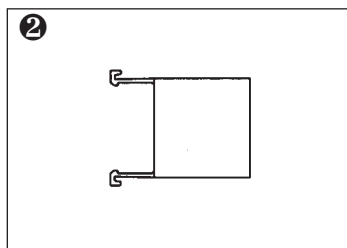
A rotary lever assembly requires :
operator + one or two switch blocks.

To order these elements, select desired model numbers from tables below.

Example : IP65 square 2 position maintained rotary switch with long lever, clockwise rotation, switch block with 2 N.O. contacts = A029107 and A02503UL.

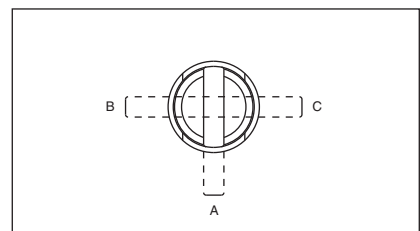


Operator



Switch block

Lever positions



• Lever Rotation - 2 position switches

The model numbers shown are for switches with clockwise lever rotation.

For anticlockwise rotation, replace :

07 with **01**
08 with **02**

at the end of the model number.

Optional engraving on lever end



To order, add "WL" to the end of the part No.
Example : A029407WL.

Bezel	Description	Short lever	Long lever
<input type="checkbox"/>	2 pos. maintained	A029207	A029107*
<input type="checkbox"/>	2 pos. momentary	A029208	A029108*
<input type="checkbox"/>	3 pos. maintained	A029203	A029103
<input type="checkbox"/>	3 pos. momentary	A029204	A029104
<input type="checkbox"/>	3 pos. mainL, momR	A029205	A029105
<input type="checkbox"/>	3 pos. momL, mainR	A029206	A029106
<input type="checkbox"/>	2 pos. maintained	A029407	A029307*
<input type="checkbox"/>	2 pos. momentary	A029408	A029308*
<input type="checkbox"/>	3 pos. maintained	A029403	A029303
<input type="checkbox"/>	3 pos. momentary	A029404	A029304
<input type="checkbox"/>	3 pos. mainL, momR	A029405	A029305
<input type="checkbox"/>	3 pos. momL, mainR	A029406	A029306

OPTION

To specify flush mounting (30 mm Ø) option, add "FM" to the end of the part number (for round operators only).

Example : A029407FM.

Contacts	Part No
1 N.O.	A02501UL
1 N.C.	A02502UL
2 N.O.	A02503UL
2 N.C.	A02504UL
1 N.O./1 N.C.	A02505UL

Second switch block

Contacts	Part No
1 N.O.	A02506UL
1 N.C.	A02507UL
2 N.O.	A02508UL
2 N.C.	A02509UL
1 N.O./1 N.C.	A02510UL

To achieve 3 or 4 pole switching, add second switch block, from above table.

Bezel: square, round,

A02 series

Keylock switches

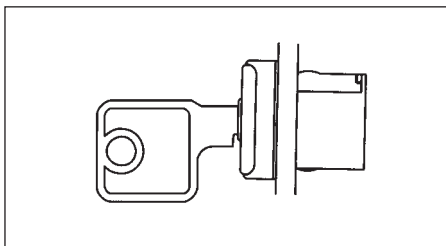
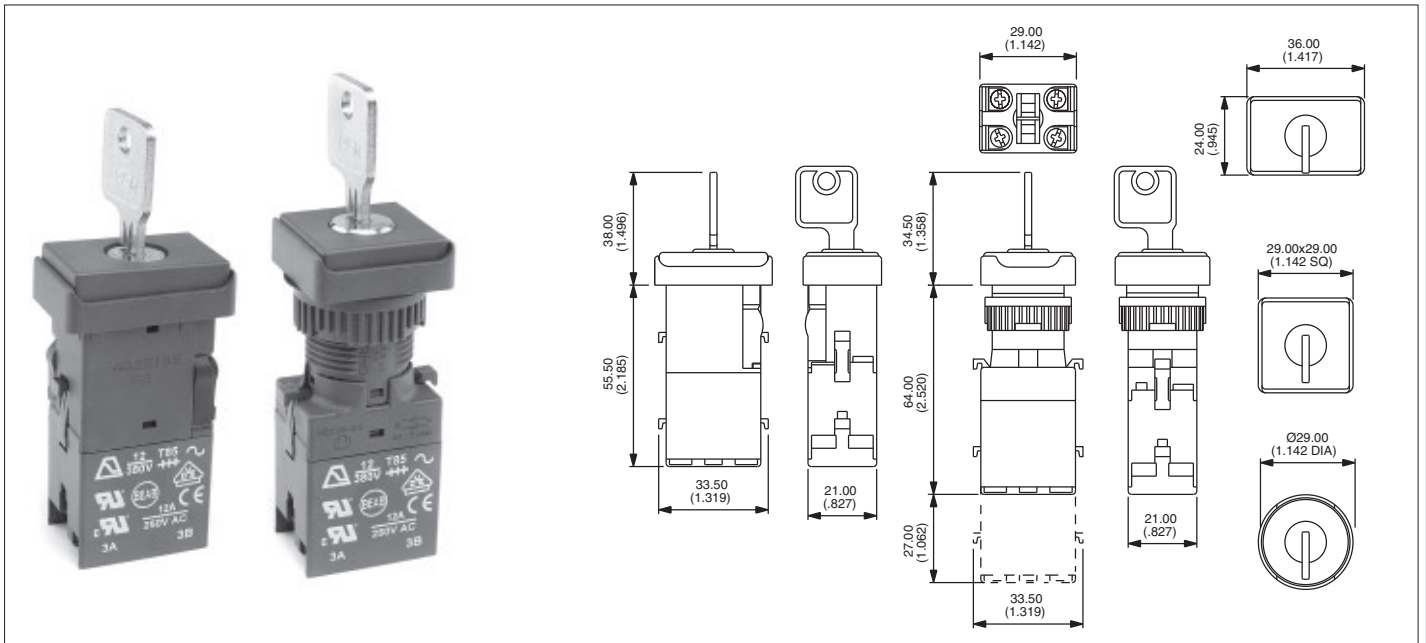
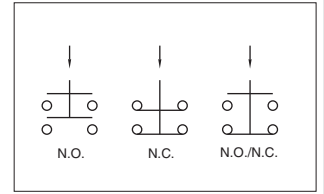
Panel cut-out Ø 22 or 29,5 x 21,5

A keyswitch assembly requires :

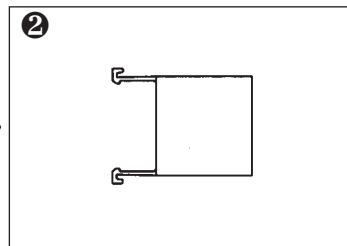
operator + one or two switch blocks.

To order these elements, select desired model numbers from tables below.

Example : IP65 square 2 position keyswitch, clockwise rotation, switch block with 2 N.O. contacts = A028220 and A02503UL.

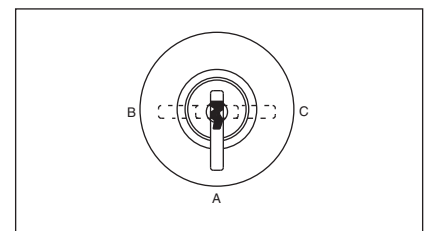


Operator



Switch block

Key positions



• Key Rotation - 2 position switches

The model numbers shown are for switches with clockwise key rotation. For anticlockwise rotation, replace:

20 with **01**
19 with **02**

at the end of the model number

• 2 standard keys are supplied.

• 20 key barrel types available from stock.

Non-removable key positions : contact APEM.

Bezel	Description	Part No	Key removable in positions
□	2 pos. maintained	A028120•	A-B
□	2 pos. momentary	A028119•	A
□	3 pos. maintained	A028105	A-B-C
□	3 pos. momentary	A028106	A
□	3 pos. mainL, momR	A028107	A-B
□	3 pos. momL, mainR	A028108	A-C
□	2 pos. maintained	A028220•	A-B
□	2 pos. momentary	A028219•	A
□	3 pos. maintained	A028205	A-B-C
□	3 pos. momentary	A028206	A
□	3 pos. mainL, momR	A028207	A-B
□	3 pos. momL, mainR	A028208	A-C
○	2 pos. maintained	A028320•	A-B
○	2 pos. momentary	A028319•	A
○	3 pos. maintained	A028305	A-B-C
○	3 pos. momentary	A028306	A
○	3 pos. mainL, momR	A028307	A-B
○	3 pos. momL, mainR	A028308	A-C

Contacts	Part No
1 N.O.	A02501UL
1 N.C.	A02502UL
2 N.O.	A02503UL
2 N.C.	A02504UL
1 N.O./1 N.C.	A02505UL

Second switch block

Contacts	Part No
1 N.O.	A02506UL
1 N.C.	A02507UL
2 N.O.	A02508UL
2 N.C.	A02509UL
1 N.O./1 N.C.	A02510UL

To achieve 3 or 4 pole switching, add second switch block, from above table

OPTION

To specify **flush mounting (30 mm Ø) option**, add "FM" to the end of the part number (for round operators only). Example : A028320FM.

Bezel: □ rectangular, □ square, ○ round,

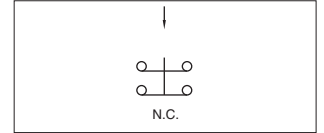
A02 series

Emergency stop switches

Panel cut-out Ø 22 (.866)

- Prominent 40 mm (1.575) dia. red mushroom actuator
- Highly reliable positive break switch
- Push to shut off switch, twist to reset to ON
- Approved to UL 1054 / EN 60947-5-5

An emergency stop switch assembly requires : operator + switch block.
 To order, specify with single pole or double pole positive break switch block.

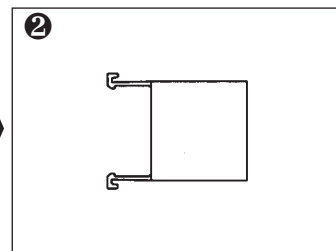
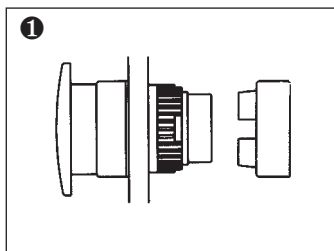
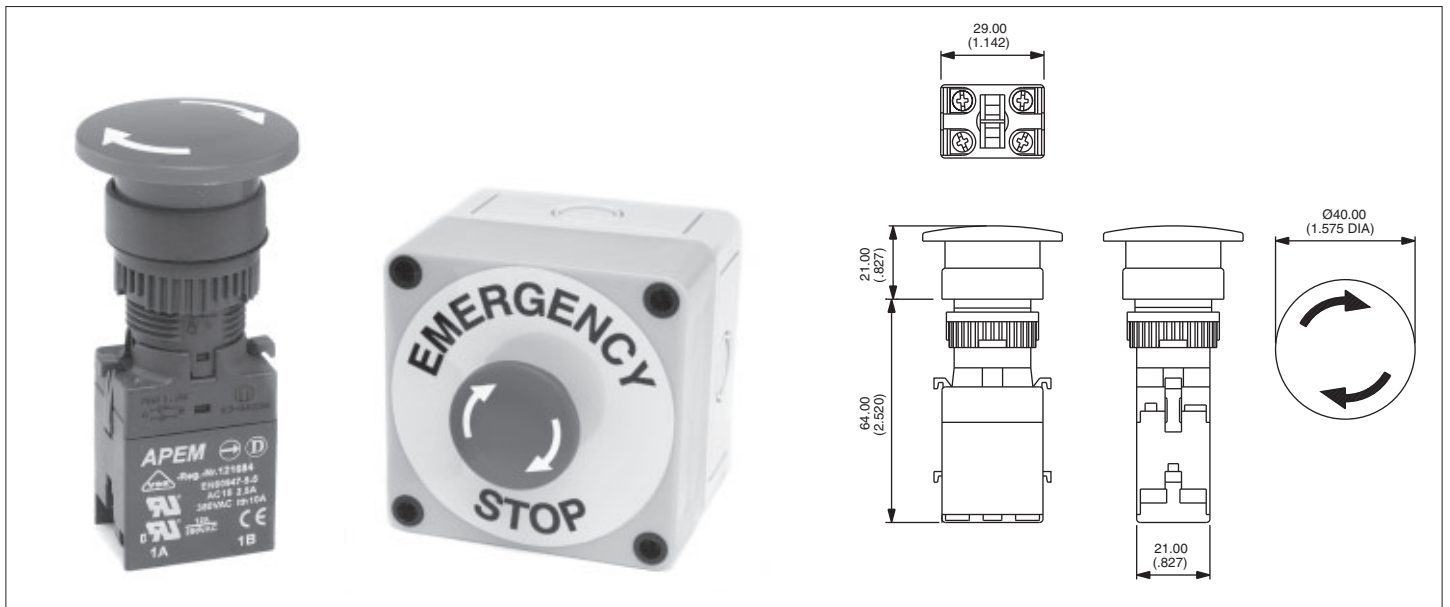


General specifications

- Mechanical life : 6.050 cycles (6 cycles per minute)
- Operating force : 20 N
- Operating temperature : -20°C to +85°C
- Degree of environ. protection (IEC529) : IP65 front of panel, IP40 back of panel
- Switch terminals : M3 screws - wire 2x0.75mm² max.

Electrical specifications

- Current/voltage rating : 2,5A 380VAC AC-15
- Contact gap : > 3 mm (.118)
- Dielectric strength : 2.500V
- Electrical life : 6.050 cycles



Accessory

90 mm Ø Self Adhesive Label

Description	Part No
Yellow label with text	A02YL1
Yellow label	A02YL2

Operator

Bezel	Description	Part No
	Emergency stop	A02ES

Switch block

No of poles	Part No
Double pole	A02511
Single pole	A02512

EMERGENCY STOP SWITCH ENCLOSURE

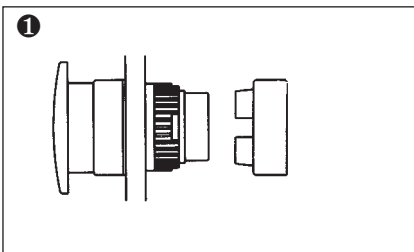
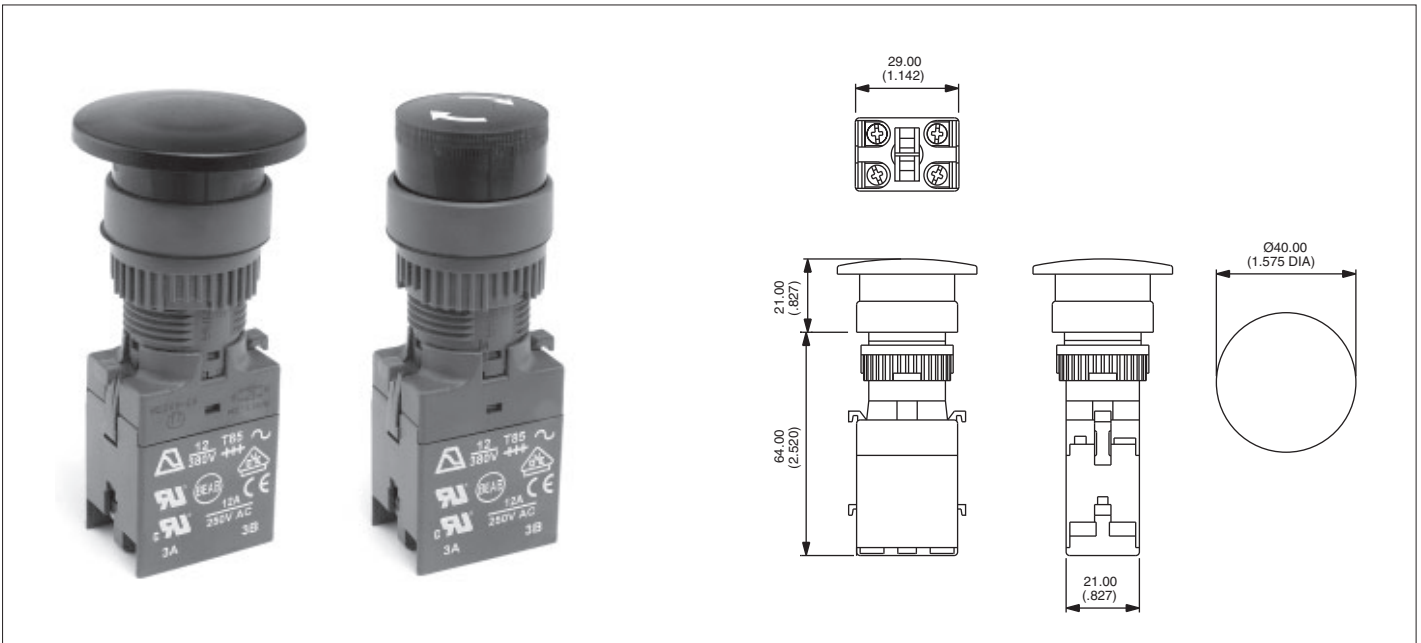
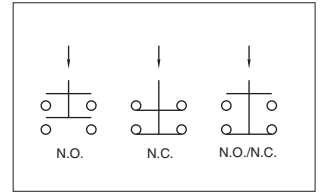
To order the Emergency Stop Switch in the Plastic Enclosure (94 x 94 x 81 mm) with a 2 pole Positive Break Switch Block and Emergency Stop label, use Part number : **A02PE2L**.

A02 series

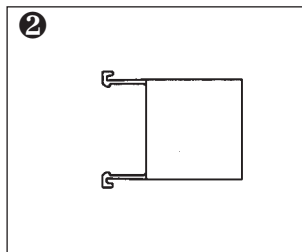
Mushroom head pushbutton switches

Panel cut-out $\varnothing 22 (.866)$

- Prominent 40 mm (1.575) dia. mushroom actuator or optional 26 mm (1.024) actuator
- Momentary and maintained functions
Momentary function versions are unmarked
Maintained function versions are twist to release (arrows indicate direction of twist)
- Various coloured mushroom actuators are available



Operator



Switch block

Bezel	Description	Part No
○	Black momentary	A02MMA
○	Red momentary	A02MMB
○	Yellow momentary	A02MMD
○	Green momentary	A02MME
○	Blue momentary	A02MMF
○	Black maintained	A02MXA
○	Red maintained	A02MXB
○	Yellow maintained	A02MXD
○	Green maintained	A02MXE
○	Blue maintained	A02MXF

Contacts	Part No
1 N.O.	A02501UL
1 N.C.	A02502UL
2 N.O.	A02503UL
2 N.C.	A02504UL
1 N.O./1 N.C.	A02505UL

Second switch block

Contacts	Part No
1 N.O.	A02506UL
1 N.C.	A02507UL
2 N.O.	A02508UL
2 N.C.	A02509UL
1 N.O./1 N.C.	A02510UL

OPTION

For optional reduced ($\varnothing 26$ mm) mushroom head operators : contact APEM.

To achieve 3 or 4 pole switching, add second switch block, from above table

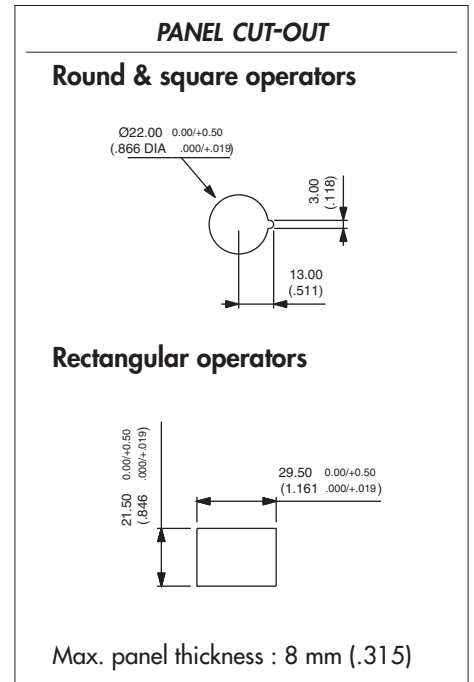
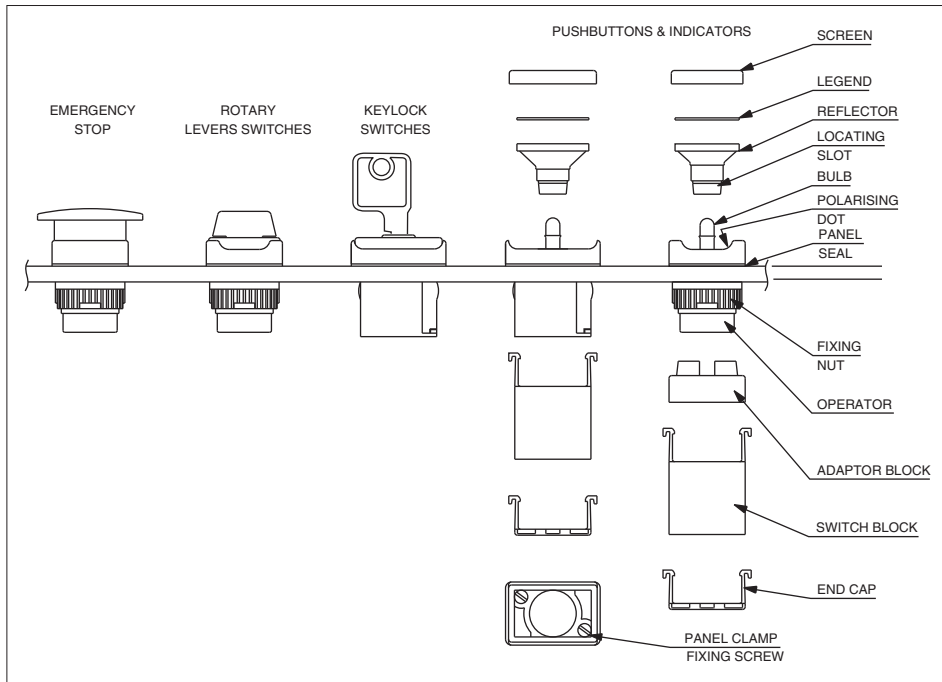
Bezel: ○ round

A02 series

Industrial controls

Installation

Modular construction / panel mounting



PANEL MOUNTING ASSEMBLY

- Drill/punch hole in panel as shaped above.
- Assemble front operator through hole and :
 - Round & square types* : tighten nut to a maximum torque of 0,8Nm using tool No 30-0001. Snap on adaptor block
 - Rectangular types* : tighten two panel fixing screws in front to a maximum torque of 0,06Nm.
- Wire chosen switch block as required and snap onto front operator.
- Snap end cap onto switch block.
- Fit bulb if required using tool No 30-0002.
- Snap screen onto reflector assembly with legend in between if required and snap into front operator **TAKING CARE TO LINE UP THE LOCATING SLOT WITH THE POLARISING DOT**, and not to damage the seal.

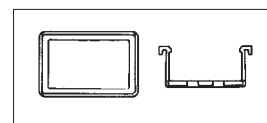
TO REMOVE BULB

Remove reflector/screen assembly. Use the bulb extractor 30-0002 to remove the bulb.

TO REMOVE SWITCH BLOCK

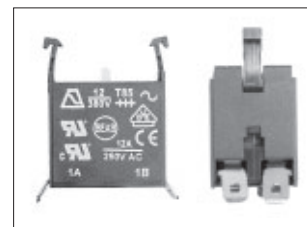
Lever out latches using small screwdriver taking care not to overbend, and pull off the block from the front operator.

A02 Accessories



Part No : 14-0005

End cap terminal guard offering unique terminal protection.



6.35 mm push on tab terminals.
Specify "SP" to the end of the switchblock and operator P/N.
Example : A02503SP.

A03 series

Illuminated or non-illuminated pushbutton switches and indicators

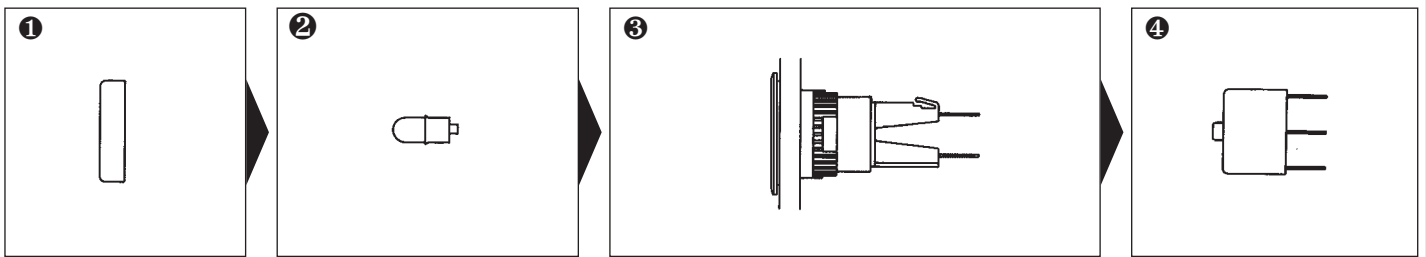
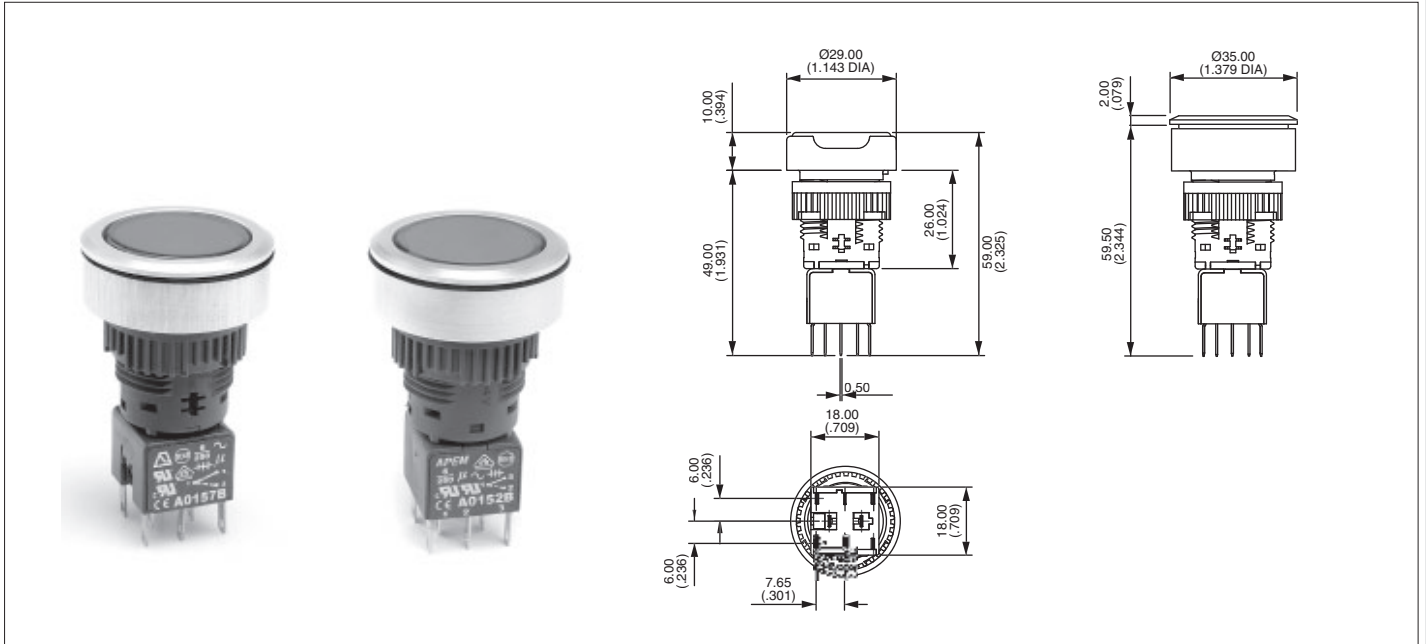
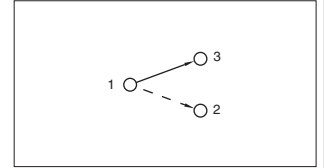
Panel cut-out Ø 22 (.866) or 30 (1.181) - Plastic or metal flush mounting bezel

A pushbutton assembly requires :

screen + lamp (if illuminated) + operator + switch block.

To order these elements, select desired model numbers from tables below.

Example : IP65 flush mounting round pushbutton, maintained function, red screen, 12V red LED and single pole switch block = A0314X, A0263B, A0142M1 and A0151BUL.



Screen

Bezel	Colour	Part No
○	black	A0263A
○	red	A0263B
○	amber	A0263C
○	yellow	A0263D
○	green	A0263E
○	blue	A0263F
○	clear	A0263G
○	white	A0263J

Lamp

Lamp	Voltage	Part No
Filament	6.3V	A0141A
Filament	14V	A0141B
Filament	28V	A0141C
Filament	36V	A0141D
Filament	48V	A0141E
Filament	60V	A0141F
Neon	110V	A0143G
Neon	220V	A0143H
LED	6V red	A0142L1
LED	6V green	A0142L2
LED	6V amber	A0142L3
LED	12V red	A0142M1
LED	12V green	A0142M2
LED	12V amber	A0142M3
LED	12V blue	A0142M4
LED	12V white	A0142M5
LED	24V red	A0142N1
LED	24V green	A0142N2
LED	24V amber	A0142N3
LED	24V blue	A0142N4
LED	24V white	A0142N5
LED	48V red	A0142P1
LED	48V green	A0142P2
LED	48V amber	A0142P3

Operator

Bezel	Description	Lamp type	Part No
○	Plastic illum, momentary	Lamp/LED bulb	A0307Y
○	Plastic illum, maintained	Lamp/LED bulb	A0307X
○	Plastic non-illum, momentary		A0309Y
○	Plastic non-illum, maintained		A0309X
○	Metal illum, momentary	Lamp/LED bulb	A0310Y
○	Metal illum, maintained	Lamp/LED bulb	A0310X
○	Metal non-illum, momentary		A0312Y
○	Metal non-illum, maintained		A0312X
○	F/mount illum, momentary	Lamp/LED bulb	A0314Y
○	F/mount illum, maintained	Lamp/LED bulb	A0314X
○	F/mount non-illum, momentary		A0315Y
○	F/mount non-illum, maintained		A0315X
○	Plastic indicator		A0375
○	Metal indicator		A0377
○	F/mount indicator		A03791

Switch block

No of poles	Part No
Single pole	A0151BUL
Double pole	A0152BUL
Three pole	A0155BUL
Four pole	A0153BUL

UNSEALED SWITCHES (IP40) :
add "01" to end of operator model number.

SCREEN ENGRAVING / INSERTABLE LEGENDS : contact APEM.

Bezel: ○ round. 'illum' - illuminated, 'Non-illum' - non illuminated

Sealing boots



Section H

Sealing boots for toggle, pushbutton and rocker switches
New models!

H 2

H

Sealing boots

- Prevent dust, sand and water from getting into switches.
- On toggle versions, also prevent ice from blocking lever action
- Compatible with frontal sealing options (K and X408).
- Available in a wide range of colours.
- When necessary, a sealing ring or washer is supplied with the boot.



MATERIALS AND SPECIFICATIONS

- Boot material : neoprene or silicone (see comparative advantages below)
- Nut material : brass, nickel plated or matt black
- Operating temperature :
 - neoprene boots : -20°C to +50°C
 - silicone boots : -40°C to + 85°C

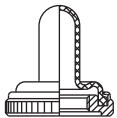
++ : excellent, + : good, - : poor

COMPARATIVE ADVANTAGES	TEMPERATURE RANGE		ELASTICITY	MECHANICAL RESISTANCE
	LOW	HIGH		
Silicone	++	++	++	-
Neoprene	-	+	-	++

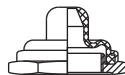
DIFFERENT TYPES OF BOOTS

* Colour options available

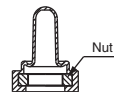
Full-toggle (standard) *



Half-toggle *



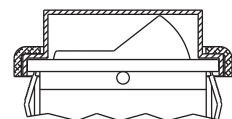
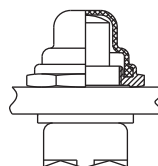
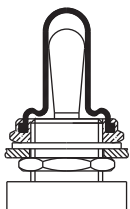
Two-part (no metal parts accessible) *



For double sealing



EXAMPLES OF MOUNTING



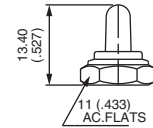
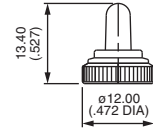
Sealing boots

For toggle switches

For bushing $\varnothing 6 \times 0.75$ (.236 x 0.75) - 5500 series



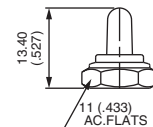
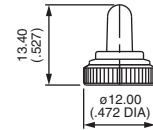
NUT	FULL-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Knurled Nickel plated	U1341	U1341-6	U1341-3	U1341-7
Knurled Matt black	U1343	U1343-6	U1343-3	U1343-7
Hex Nickel plated	U1302	U1302-6	U1302-3	U1302-7
Hex Matt black	U1304	U1304-6	U1304-3	U1304-7



For bushing $\varnothing 6,35-40NS$ (1/4-40UNS) - 5000 and 11000 series



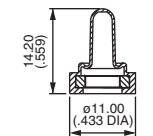
NUT	FULL-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Knurled Nickel plated	U1331	U1331-6	U1331-3	U1331-7
Knurled Matt black	U1333	U1333-6	U1333-3	U1333-7
Hex Nickel plated	U1229	U1229-6	U1229-3	U1229-7
Hex Matt black	U1231	U1231-6	U1231-3	U1231-7



For bushing $\varnothing 6,35-40NS$ (1/4-40UNS) - 5000 and 11000 series



BOOTS SUPPLIED AS 2 SEPARATE PARTS				
NEOPRENE	SILICONE			
Black	Red	Green	White	
U5149	U5149-6	U5149-3	U5149-7	

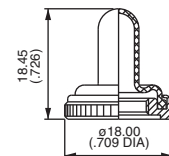


Once the boot is mounted onto the panel, no switch metal part is accessible any more.

For bushing $\varnothing 10 \times 0.75$ (.393 x 0.75) - 10600 series



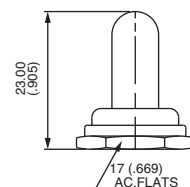
KNURLED NUT	FULL-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1612	U1612-6	U1612-3	U1612-7
Matt black	U1614	U1614-6	U1614-3	U1614-7



For bushing $\varnothing 11,9-32 NS$ (15/32-32NS) - 12000, 5000M, 3500 and 6000 series



HEX NUT	FULL-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1031	U1031-6	U1031-3	U1031-7
Matt black	U1024	U1024-6	U1024-3	-



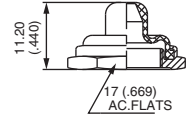
Sealing boots

For toggle switches

For bushing \varnothing 11,9-32 NS (15/32-32NS) - 12000, 3500 and 6000 series



HEX NUT	HALF-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1600	U1600-6	U1600-3	U1600-7
Matt black	U1602	U1602-6	U1602-3	-

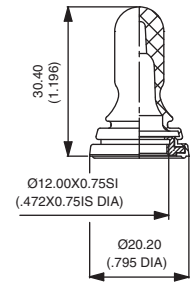


For bushing \varnothing 11,9-32 NS (15/32-32NS) - 12000, 3500, 3600 and 600 series



New!

FULL-TOGGLE BLACK NEOPRENE BOOT
U2252

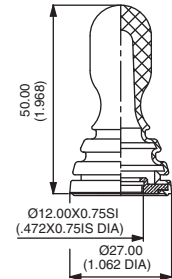


For bushing \varnothing 12 x 0.75 SI (.472x.075 IS) - 600 and 3600 series with X2243 long lever



New!

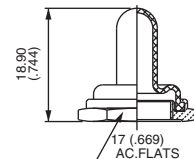
FULL-TOGGLE BLACK NEOPRENE BOOT
U2197



For bushing \varnothing 12 x 0.75 SI (.472x.075 IS) - 4450, 4650 and 1600 series



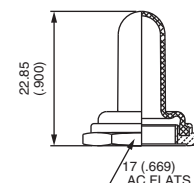
HEX NUT	FULL-TOGGLE BLACK NEOPRENE BOOTS
Nickel plated	U09
Matt black	U223



For bushing \varnothing 12 x 0.75 SI (.472x.075 IS) - 600H, 660, 1000, 1500 and 3600



HEX NUT	FULL-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1565	U1565-6	U1565-3	U1565-7
Matt black	U1567	U1567-6	U1567-3	-
FULL-TOGGLE BLACK NEOPRENE BOOTS				
Nickel plated	U851			
Matt black	U853			



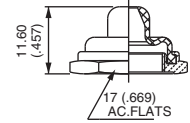
Sealing boots

For toggle switches or pushbutton switches

For bushing $\varnothing 12 \times 0.75$ SI (.472x.075 IS) - 600H, 660, 1000 and 3600 series



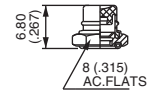
HEX NUT	HALF-TOGGLE SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1151	U1151-6	U1151-3	U1151-7
Matt black	U1153	U1153-6	U1153-3	-
	HALF-TOGGLE BLACK NEOPRENE BOOTS			
Nickel plated	U598			
Matt black	U600			



For bushing $\varnothing 4 \times 0.70$ (.157 x 0.70) - 9500 series



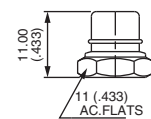
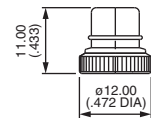
HEX NUT	PUSHBUTTON SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1829	U1829-6	U1829-3	U1829-7
Matt black	U1831	U1831-6	U1831-3	U1831-7



For bushing $\varnothing 6,35-40NS$ (1/4-40UNS) - 18000, 9000 and 13000 series



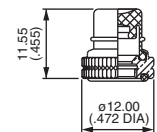
NUT	PUSHBUTTON SILICONE BOOTS			
	Black	Red	Green	White
Knurled Nickel plated	U1401	U1401-6	U1401-3	U1401-7
Knurled Matt black	U1403	U1403-6	U1403-3	U1403-7
Hex Nickel plated	U1318	U1318-6	U1318-3	U1318-7
Hex Matt black	U1320	U1320-6	U1320-3	U1320-7



For bushing $\varnothing 6,35-40NS$ (1/4-40 UNS) - 8000 series



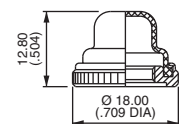
KNURLED NUT	PUSHBUTTON SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U4301	U4301-6	U4301-3	U4301-7



For bushing $\varnothing 10 \times 0.75$ (.393 x 0.75) - 10400 series



KNURLED NUT	PUSHBUTTON SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1624	U1624-6	U1624-3	U1624-7
Matt black	U1626	U1626-6	U1626-3	U1626-7



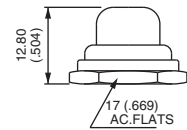
Sealing boots

For pushbutton switches

For bushing \varnothing 11,9-32 NS (15/32-32UNS) - 13000X778, 13000X768 and 8000-6X934 series



HEX NUT	PUSHBUTTON SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U589	U589-6	U589-3	U589-7
Matt black	U590	U590-6	U590-3	-

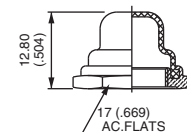


For long plunger (-9) care should be taken over the panel thickness.

For bushing \varnothing 12 x 0.75 SI (.472x.075 IS) - 1200, 4700 and 4800 series



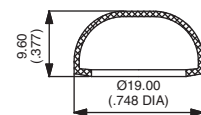
HEX NUT	PUSHBUTTON SILICONE BOOTS			
	Black	Red	Green	White
Nickel plated	U1654	U1654-6	U1654-3	U1654-7
Matt black	U1656	U1656-6	U1656-3	-
	PUSHBUTTON BLACK NEOPRENE BOOTS			
Nickel plated	U31			
Matt black	U225			
Chrome plated	U224			



For double sealing on IP and IB-IS series



SILICONE BOOT	
Transparent	U5125
Blue	U5125-1
Black	U5125-2
Red	U5125-6

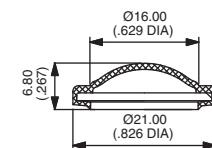


Operating temperature : -40°C to +85°C
 The flat seal or O-Ring supplied with the switch should not be used with this boot.

For double sealing on IA series



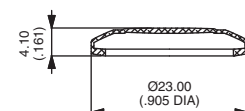
SILICONE BOOT	
Black	U6602
Yellow	U6605
Red	U6606



For AV series (models with \varnothing 19 mm bushing)



SILICONE BOOT	
Black	U2187-2
Green	U2187-3
Grey	U2187-4
Yellow	U2187-5
Red	U2187-6
White	U2187-7
Transparent	U2187-8



Sealing boots

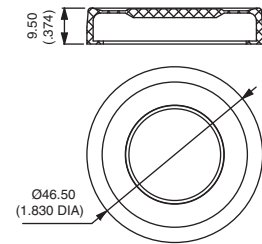
For pushbutton switches or rocker switches

For LPI series

New!



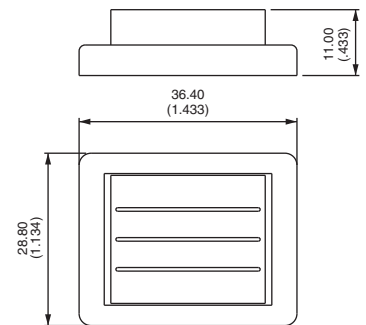
SILICONE BOOT	
Black	U3082
Transparent	U3088



For 2600 series



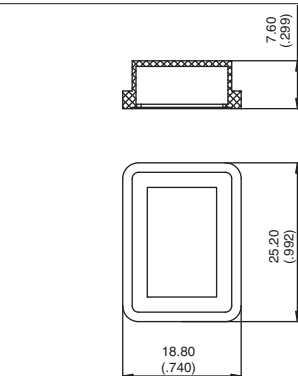
TRANSPARENT SILICONE BOOT	
U2150	



For FM series



TRANSPARENT PVC BOOT	
U5720	



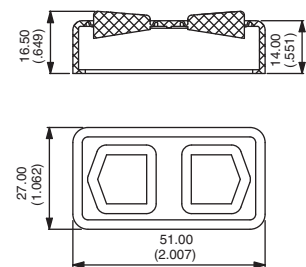
For KG series

New!



BLACK SILICONE BOOT	
U3084	

Also available with pad-printed symbols : on request.



Indicators / Accessories Hardware



Section I

Q	New!	Panel mount LED indicators, up to 220VAC	12
VL		Panel mount LED indicators	13
B		15A and 25A terminal posts	15
20 to 500		Security caps New models!	16
		Hardware	112

Q series

Panel mount LED indicators

New!

With the recent introduction of new versions, APEM now offers the broadest range of LED indicators in the market:

- 7 diameters: 6, 8, 12, 14, 16, 19 and 22 mm,
- 3 bezel styles: prominent, recessed and flush
- 3 bezel finishes: bright chrome, black chrome and satin grey
- 6 standard power supply voltages: 6VDC, 12VDC, 24VDC, 28VDC, 110VAC and 230VAC
- 5 LED colours: red, green, yellow, blue and white
- Optional bicolour or tricolour LED's
- 3 output styles: solder lug/faston terminals, pins or wires

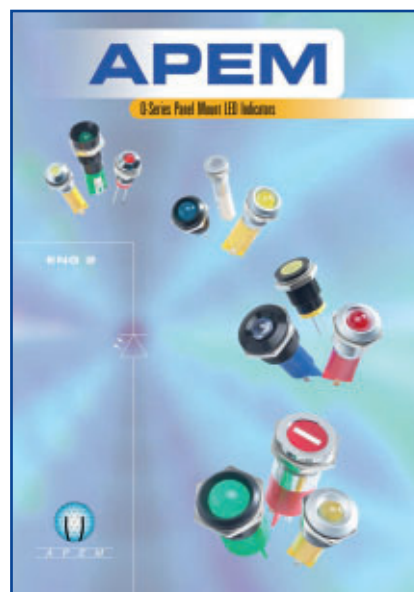
Options

- High brightness LED's (sunlight readable)
- Panel sealing to IP67
- Custom engraving on flush bezel versions
- Plastic bezels on 16 and 22 mm

Main specifications

- Typical viewing angle: 70° to 100° depending on model
- Long life expectancy: 100.000 hours
- Operating temperature range: -40°C to + 85°C

To benefit by the numerous advantages of LED technology (long life, low electrical consumption, low thermal dissipation, good impact resistance), APEM also offers a range of based LED lamps intended for replacement of less efficient filament lamps.



36-page catalogue on line and on request - www.apem.com

VL series

Panel mount LED indicators

Distinctive features and specifications

New!

- Indicators with built-in LED
New colours : blue and white
- Antirotation flatted bushing
- 2 bushing diameters : 6 mm (.236) and 8 mm (.314)
- Sealed or unsealed
- Bright or matt black chrome finish

ELECTRICAL SPECIFICATIONS

- Insulation resistance : 1.000 MΩ min.
 - Dielectric strength : 250 Vrms 50 Hz min.
 - Electrical life at high temperature : 72 H at 85°C
- LED specifications (TA 25°C)**
- Forward voltage : 2VDC (≤ 2,6V)
 - Nominal current : 10mA
 - Max. surge current (tp < 10µs) : 0,5A
 - Max. reversed voltage : 25V
 - Max. forward current : 40mA
 - Max. power dissipation : 100mW
 - Correct polarity of D.C supply to diode electrodes must be observed :
 - longer lead : anode (+)
 - shorter lead : cathode (-) on flat side of bushing (see drawings).
 - The LED is not removable.

MATERIALS

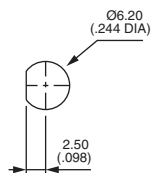
- Bushing and collar : brass, bright or matt black chrome plated
- Lens : polycarbonate
- LED

GENERAL SPECIFICATIONS

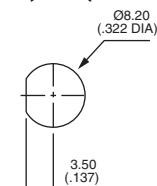
- Torque : 1,25 Nm (.922 Ft.lb) max. applied to nut
- Climatic category : 40/085/21
- Protection level for sealed models: IP 67 according to IEC 529
- In accordance with NFC 93680 standard

PANEL CUT-OUT

For Ø 6 (.236)

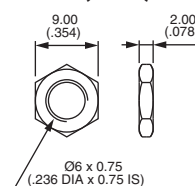


For Ø 8 (.314)

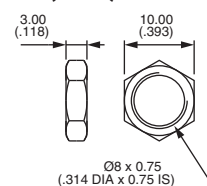


STANDARD HARDWARE

For Ø 6 (.236)



For Ø 8 (.314)



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.



Mounting accessories : standard hardware supplied with all models : nickel plated hex nut 9 mm (.354) across flats for indicators Ø 6 (.236) or 10 mm (.393) across flats for indicators Ø 8 (.314).



Packaging unit : 50 pieces.

VL series

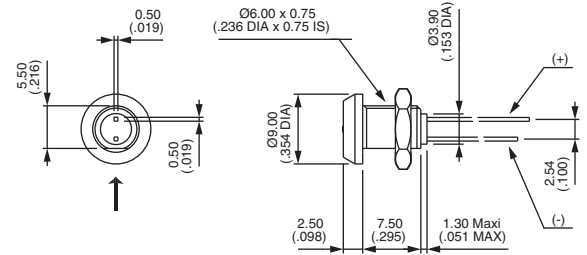
Panel mount LED indicators

Diameter 6 (.236) - unsealed



LED colour	Bright finish (standard)	Matt black finish
Red	VL1000P600	VL100GP600
Yellow	VL1000P500	VL100GP500
Green	VL1000P300	VL100GP300
Blue	VL1000P100	VL100GP100
White	VL1000P700	VL100GP700

→ Flat



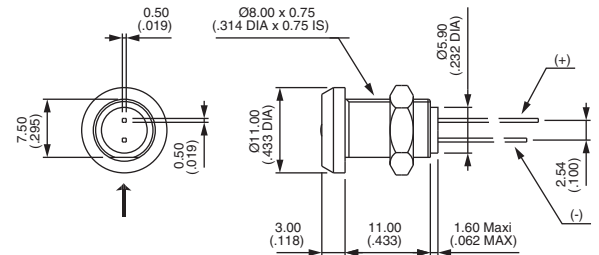
Max. panel thickness 5,50 (.216)

Diameter 8 (.314) - unsealed



LED colour	Bright finish (standard)	Matt black finish
Red	VL3000P600	VL300GP600
Yellow	VL3000P500	VL300GP500
Green	VL3000P300	VL300GP300
Blue	VL3000P100	VL300GP100
White	VL3000P700	VL300GP700

→ Flat



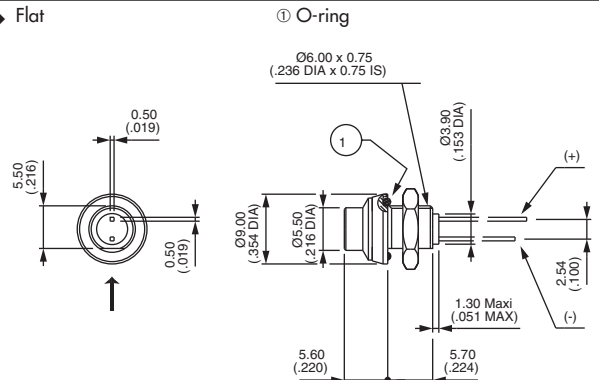
Max. panel thickness 8 (.314)

Diameter 6 (.236) - sealed



LED colour	Bright finish (standard)	Matt black finish
Red	VL1CK0P600	VL1CKGP600
Yellow	VL1CK0P500	VL1CKGP500
Green	VL1CK0P300	VL1CKGP300
Blue	VL1CK0P100	VL1CKGP100
White	VL1CK0P700	VL1CKGP700

→ Flat



Lens cap in the same colour as the LED.

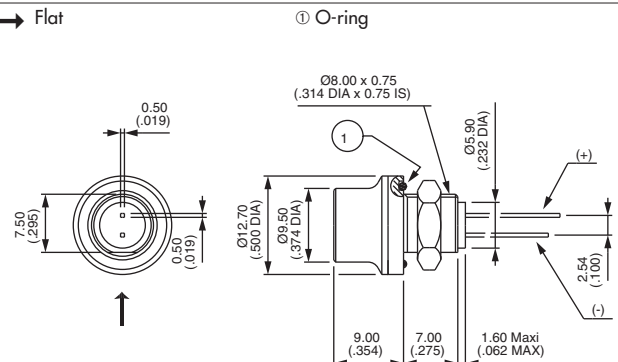
Max. panel thickness 3,70 (.145)

Diameter 8 (.314) - sealed



LED colour	Bright finish (standard)	Matt black finish
Red	VL3CK0P600	VL3CKGP600
Yellow	VL3CK0P500	VL3CKGP500
Green	VL3CK0P300	VL3CKGP300
Blue	VL3CK0P100	VL3CKGP100
White	VL3CK0P700	VL3CKGP700

→ Flat



Lens cap in the same colour as the LED.

Max. panel thickness 4 (.157)

B series

15A and 25A terminal posts

SPECIFICATIONS

- Dielectric strength : 15A type : 3.000 Vrms 50 Hz min. between shaft and panel
25A type : 4.000 Vrms 50 Hz min. between shaft and panel
- Short overload (< 2mn) : 50 % with cable lug
- Terminal connection by : - plug \varnothing 4 mm (.157), solder lugs, wire lead
- Operating temperature : -40°C to +70°C
- Packaging unit : 100 pieces or multiple per type and colour.

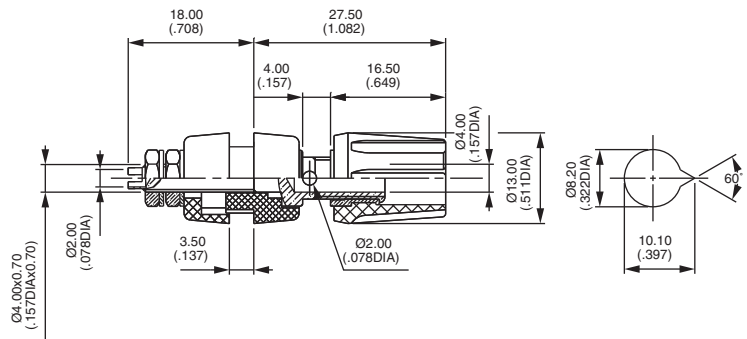
MATERIALS

- Shaft : brass, nickel plated
- Insulated nut : ABS molding over brass
- Other insulated parts : phenolic resin or melamine

Insulated terminal posts 15A



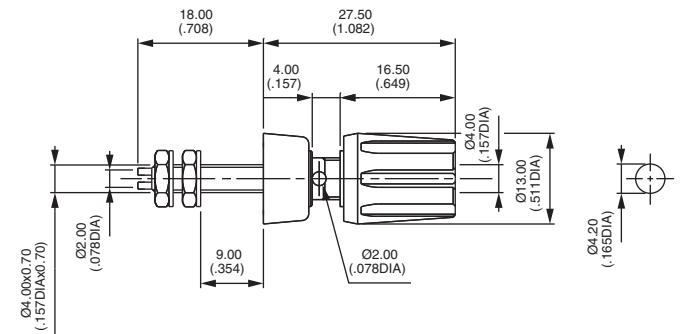
B1	Black
B11	Red
B12	Green
B13	Blue
B14	White
B15	Yellow
B16	Green / Yellow
B19	Orange



Non-insulated terminal posts 15A



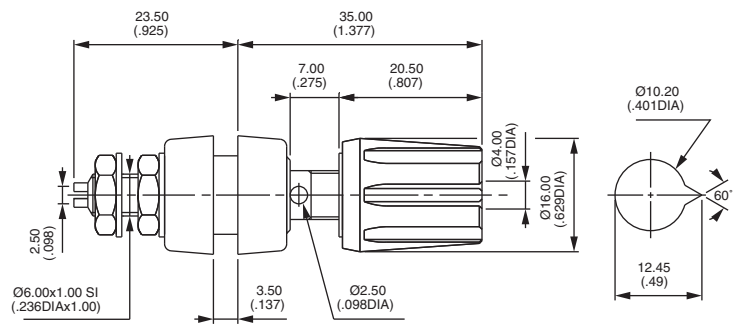
B2	Black
B21	Red
B22	Green
B23	Blue
B24	White
B25	Yellow
B26	Green / Yellow
B29	Orange



Insulated terminal posts 25A



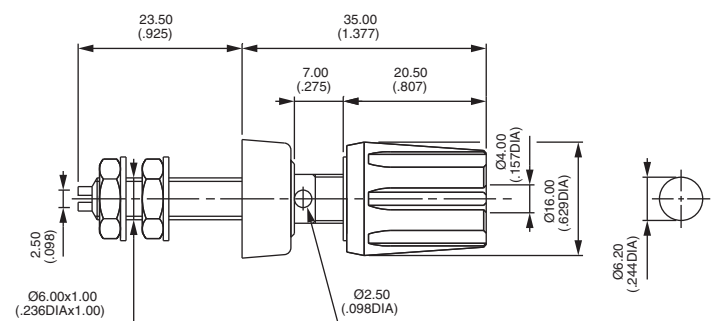
B3	Black
B31	Red
B32	Green
B33	Blue
B34	White
B35	Yellow
B36	Green / Yellow
B39	Orange



Non-insulated terminal posts 25A



B4	Black
B41	Red
B42	Green
B43	Blue
B44	White
B45	Yellow
B46	Green / Yellow
B49	Orange



Security caps

For switch series 12000 - 3500 - 600H - 6000

With standard bushing

Security caps prevent any inadvertent lever operation. When the cap is raised, the lever can be operated freely. When the cap is fully depressed, the lever is reset/locked in a stable position. They are designed for use on switches with $\varnothing 11,9 (.468)$ or $\varnothing 12 (.472)$ threaded bushing and lever length 17,5 (.688) outside bushing.

Note : For correct switch operation, the security cap should be adjusted properly by means of 2 nuts.

MATERIALS

- Support plate : matt black steel
- Cap : thermoset or thermoplastic (20PN, 200PN, 300PN)

MODEL STRUCTURE

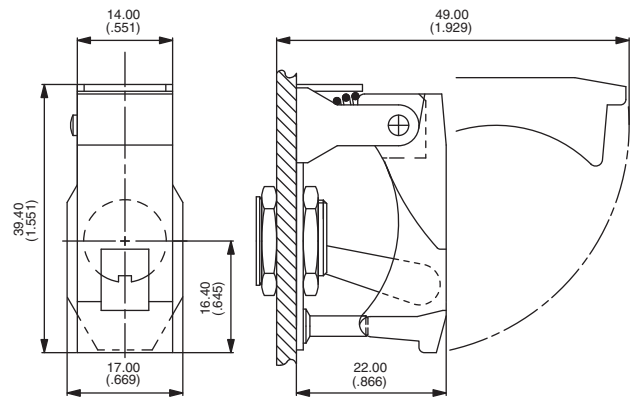


Series 20 - for 2-position switches

- Lever returned then locked in down position (OFF)



Model No	Colour
22	Grey
23	White
24	Orange
25	Black
26	Red
27	Green
28	Yellow
29	Blue
25/28	Black/yellow striped

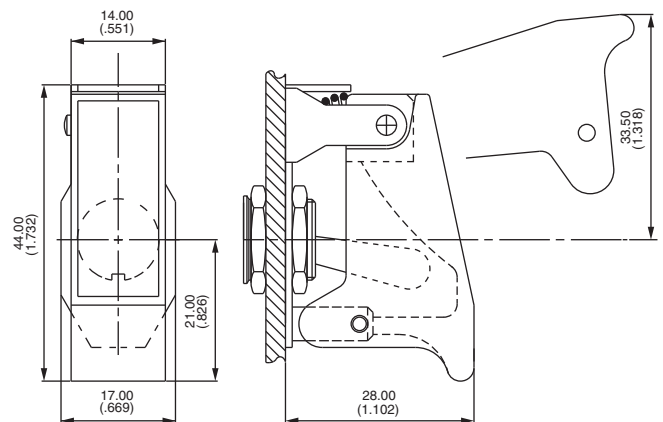


Series 20PN - for 2-position switches

- Lever returned then locked in down position (OFF)



Model No	Colour
22PN	Grey
23PN	White
24PN	Orange
25PN	Black
26PN	Red
27PN	Green
28PN	Yellow
29PN	Blue



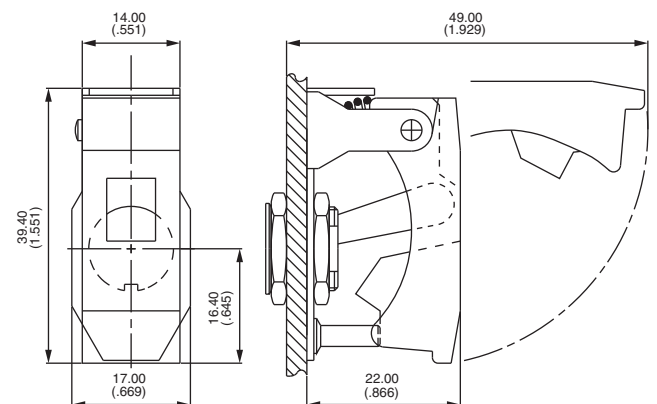
On this model, holes for wiring a seal are standard.

Series 30 - for 3-position switches

- Lever returned then locked in upper position



Model No	Colour
32	Grey
33	White
34	Orange
35	Black
36	Red
37	Green
38	Yellow
39	Blue
35/38	Black/yellow striped



Security caps

For switch series 12000 - 3500 - 600H - 6000

With standard bushing

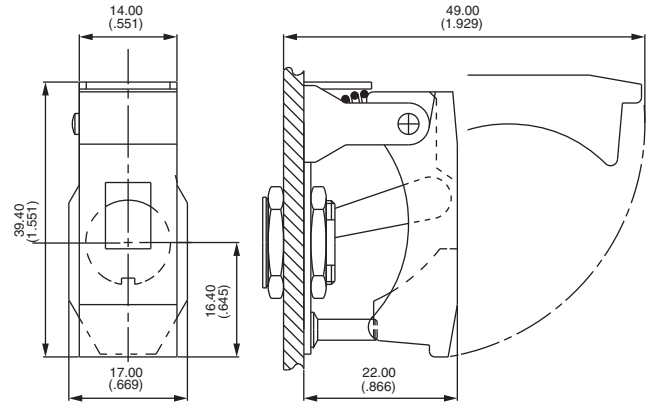
Series 40 - for 2-position switches

- Lever returned then locked in upper position



Model No	Colour
42	Grey
43	White
44	Orange
45	Black
46	Red
47	Green
48	Yellow
49	Blue
45/48	Black/yellow striped

Model 140 (with smaller aperture) recommended for the 12000 series.



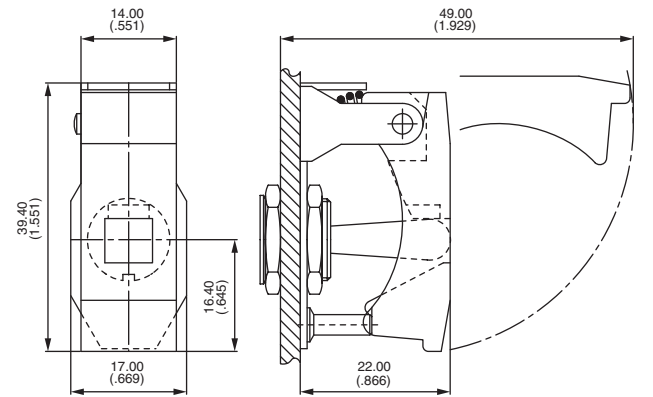
Series 80 - for 3-position switches

- Lever returned then locked in center position



Model No	Colour
82	Grey
83	White
84	Orange
85	Black
86	Red
87	Green
88	Yellow
89	Blue

New!



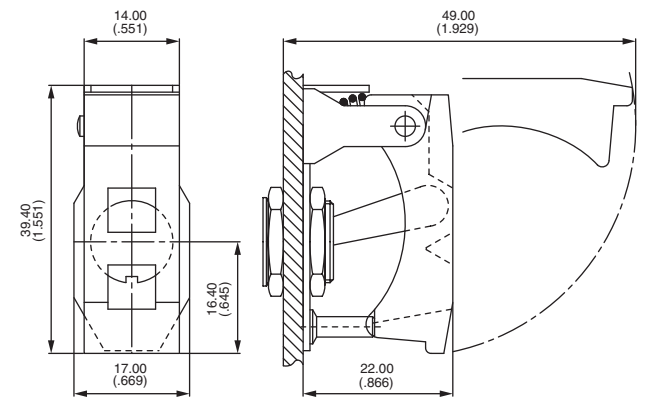
Series 200 - for 2-position switches

- Lever returned then locked either in lower or in upper position



Model No	Colour
202	Grey
203	White
204	Orange
205	Black
206	Red
207	Green
208	Yellow
209	Blue

New!



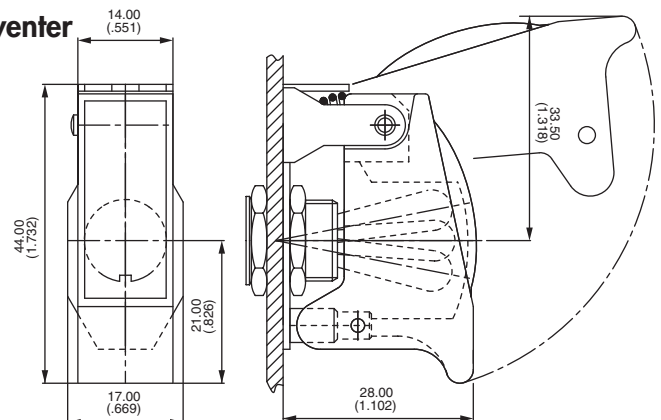
Series 200PN - for 2 or 3-position switches - action preventer

- Lever not locked, but protected in the position where left by the user



Model No	Colour
202PN	Grey
203PN	White
204PN	Orange
205PN	Black
206PN	Red
207PN	Green
208PN	Yellow
209PN	Blue

New!



Security caps

For switch series 12000 - 3500 - 600H - 6000

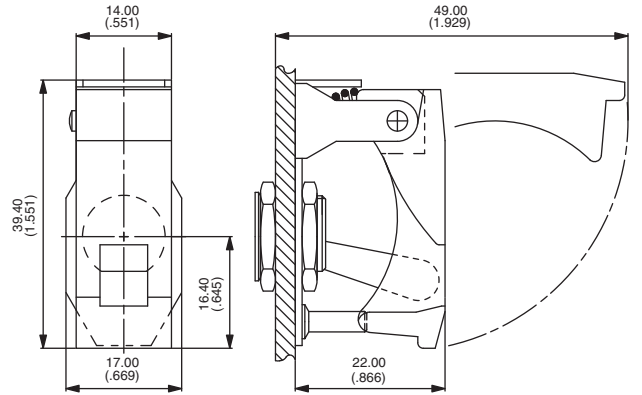
With flatted bushing

Series 50 - for 2-position switches

- Lever returned then locked in down position (OFF)



Model No	Colour
52	Grey
53	White
54	Orange
55	Black
56	Red
57	Green
58	Yellow
59	Blue
55/58	Black/yellow striped

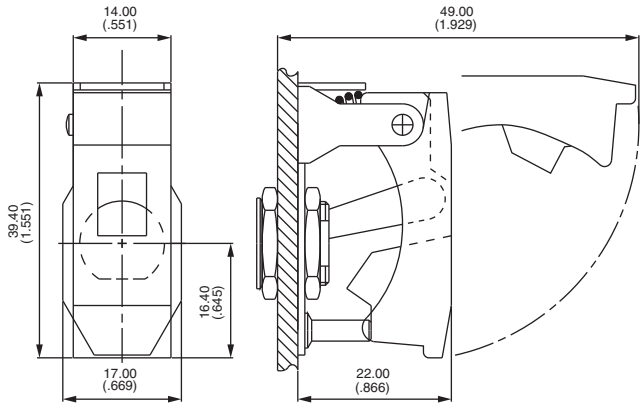


Series 60 - for 3-position switches

- Lever returned then locked in upper position



Model No	Colour
62	Grey
63	White
64	Orange
65	Black
66	Red
67	Green
68	Yellow
69	Blue
65/68	Black/yellow striped

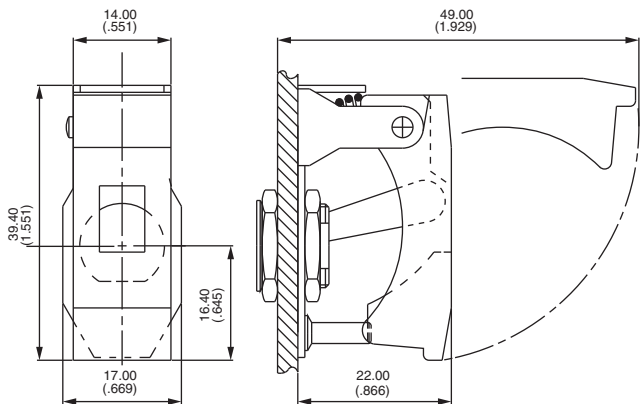


Series 70 - for 2-position switches

- Lever returned then locked in upper position



Model No	Colour
72	Grey
73	White
74	Orange
75	Black
76	Red
77	Green
78	Yellow
79	Blue
75/78	Black/yellow striped



Model 170 (with smaller aperture) recommended for the 12000 series.

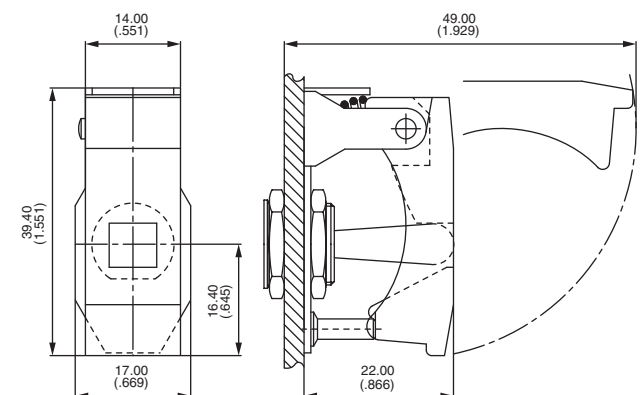
Series 100 - for 3-position switches

- Lever returned then locked in center position



Model No	Colour
102	Grey
103	White
104	Orange
105	Black
106	Red
107	Green
108	Yellow
109	Blue

New!



Security caps

For switch series 12000 - 3500 - 600H - 6000

With flatted bushing

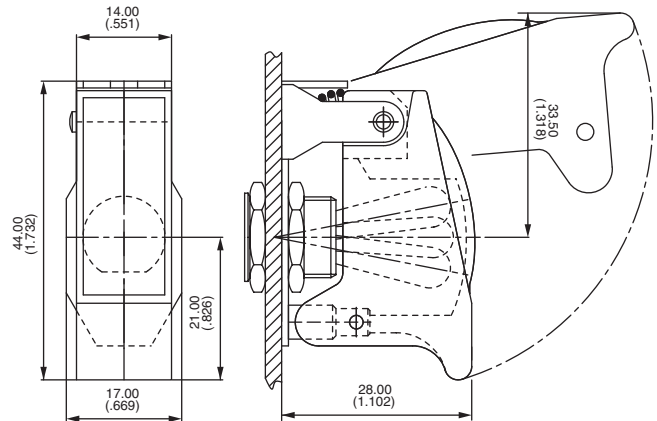
Series 300PN - for 2 or 3-position switches

- Lever not locked, but protected in the position where left by the user.



Model No	Colour
302PN	Grey
303PN	White
304PN	Orange
305PN	Black
306PN	Red
307PN	Green
308PN	Yellow
309PN	Blue

New!



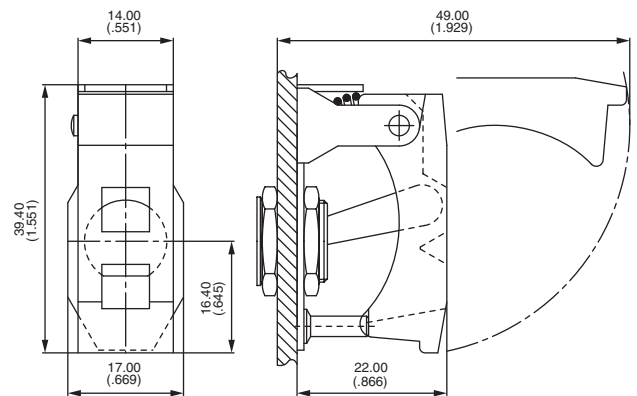
Series 500 - for 2-position switches

- Lever returned then locked either in lower or in upper position

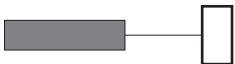


Model No	Colour
502	Grey
503	White
504	Orange
505	Black
506	Red
507	Green
508	Yellow
509	Blue

New!

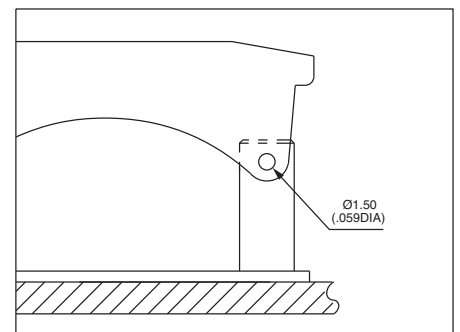


OPTIONS



P Holes for wiring a seal

Cap engraving available : consult factory.



Security caps

For switch series 3500 - 600H - 6000

With standard or flatted bushing

Series 90

- Lever locked in center position

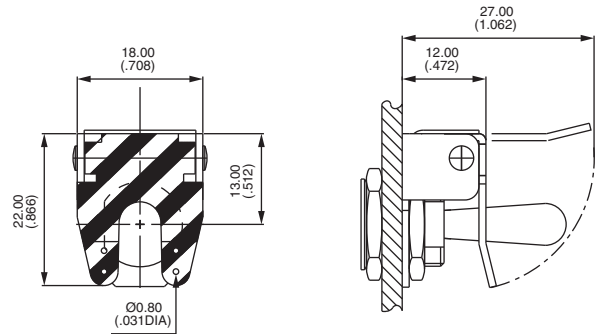


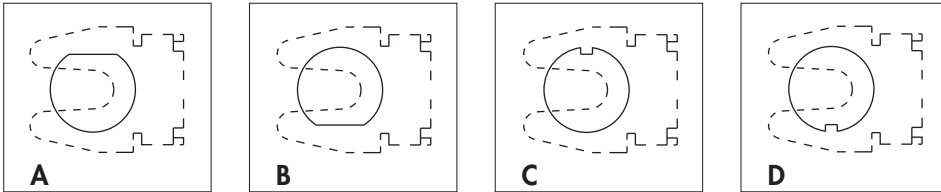
Plate features holes for wiring a seal.

To build a part number, select desired option from each category here below.

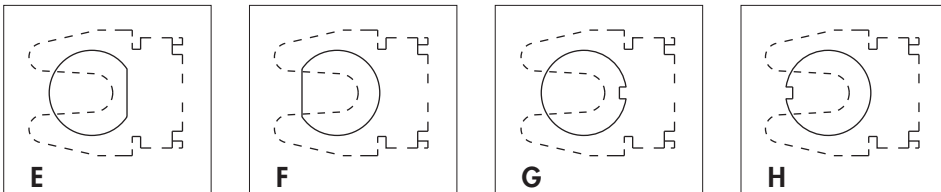
BUSHING SHAPES



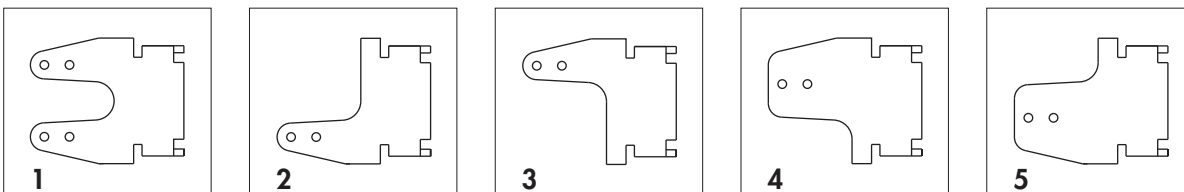
For standard products



For other products



SECURITY CAP SHAPE



1
Locks in center position

2
Prevents down position

3
Prevents up position

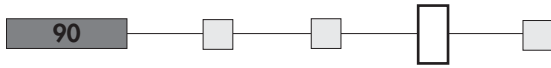
4
Locks in down position

5
Locks in up position

Security caps

For switch series 3500 - 600H - 6000 (continued) - For pushbutton series 13000

SECURITY CAP COLOURS

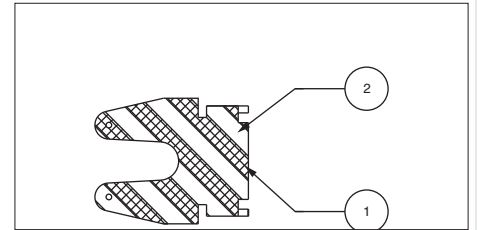


1	Blue
2	Black
3	Green
4	Grey
5	Yellow
6	Red
7/1	White
9	Orange
0	Striped (see below)

COLOUR OF STRIPES

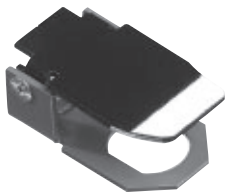


	Stripe ①	Stripe ②
A	Red	Black
B	Yellow	Black
C	Red	White
D	White	Black



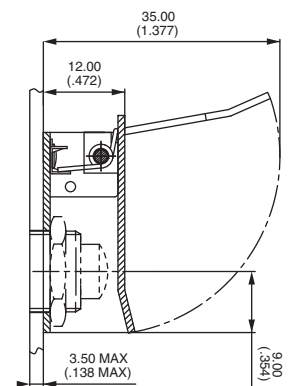
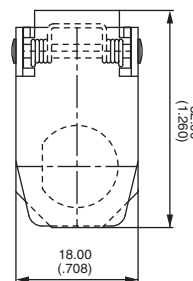
Series 90AX2328 for pushbutton series 13000

- Spring-loaded cover returning automatically in lower position. The user has to keep the cover raised while actuating the switch.



Model No	Colour
90AX2328-27	Black with white stripe
90AX2328-67	Red with white stripe

New!



Hardware

For miniature switches

- Standard hardware is automatically supplied with the switches
- Non standard hardware is to be ordered separately



Hardware supplied with sealing options :

- K version : 2 hex nuts + sealing washer
- X408 option : 1 hex nut + 1 O-ring

STANDARD HARDWARE FOR SWITCHES Ø 6 (.236) - 5000 SERIES

HEX NUT	LOCKING RING	LOCKWASHER
Nickel plated Matt black	Nickel plated Matt black	Stainless steel
U208 U726	U198 U728	U215

NON STANDARD HARDWARE FOR SWITCHES Ø 6 (.236) - 5000 SERIES

KNURLED NUT	SPECIAL NUT 12 (.472) ACROSS FLATS	KNURLED CAP NUTS
Chrome plated	Chrome plated	Chrome plated Matt black
U826	U1916	U461 U502
		U232

STANDARD HARDWARE FOR SWITCHES Ø 6,35 (1/4) - ALL SERIES

HEX NUT	LOCKING RING	LOCKWASHER
Nickel plated Matt black	Nickel plated Matt black	Stainless steel
U76 U94	U78 U93	U215

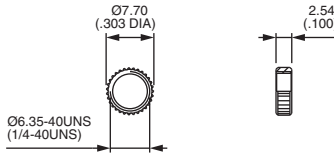
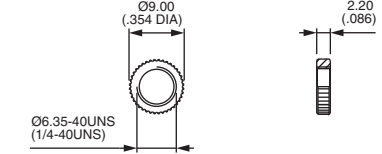
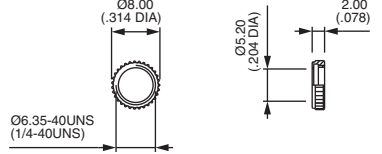
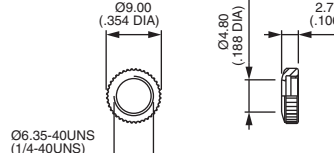
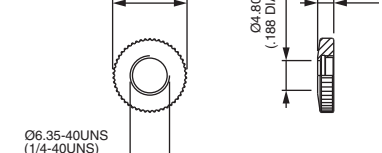
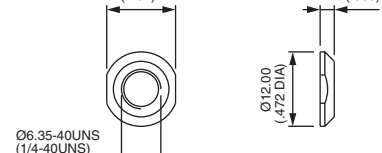
HARDWARE SUPPLIED (unsealed types)

SERIES	HEX NUT	LOCKING RING	LOCKWASHER
SF	2	1	1
11000	2	1	1
13000	2	1	1
18000-8000-SP	2	1	1
21000N	2	-	-
5000	2	1	1
9400-9600	2	-	1

Hardware

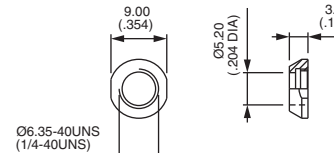
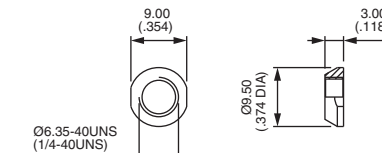
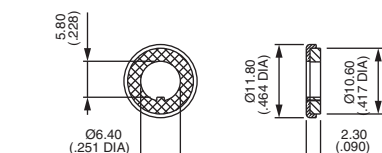
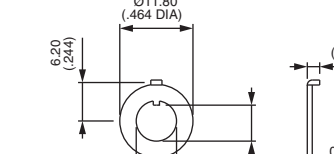
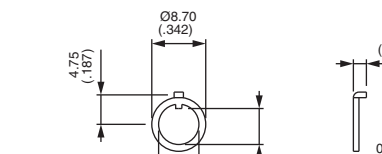
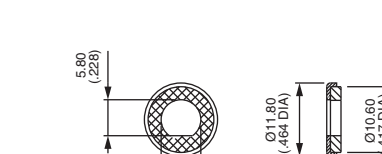
For miniature switches

NON STANDARD HARDWARE FOR SWITCHES Ø 6,35 (1/4) - ALL SERIES

<p>KNURLED NUT</p>  <p>Nickel plated U369</p>	<p>KNURLED NUT</p>  <p>Nickel plated U229 Matt black U230</p>	<p>KNURLED NUT</p>  <p>Chrome plated U501</p>
<p>KNURLED CAP NUT</p>  <p>Chrome plated U216 Matt black U218</p>	<p>KNURLED CAP NUT</p>  <p>Chrome plated U268 Matt black U725</p>	<p>DRESS NUT</p>  <p>Nickel plated U443 Matt black U848</p>

* U216 and U268 : consult factory for mounting on 11000 three and four pole, and 5000 locking lever models.

OTHER HARDWARE FOR SWITCHES Ø 6,35 (1/4) - ALL SERIES

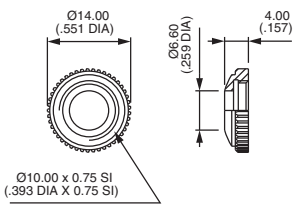
<p>CONIC CAP NUT</p>  <p>Nickel plated U500</p>	<p>CONIC NUT</p>  <p>Chrome plated U542 Nickel plated U561</p>	<p>SEALING WASHER for keyway bushing</p>  <p>U360</p>
<p>SPECIAL LOCKING RING Spacing 6,2 mm (.244)</p>  <p>Nickel plated U368</p>	<p>SPECIAL LOCKING RING Spacing 4,75 mm (.187)</p>  <p>Nickel plated U409</p>	<p>SEALING WASHER for flatted bushing</p>  <p>U5141</p>

Hardware

For miniature switches

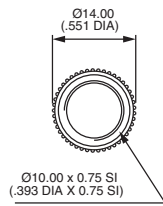
STANDARD HARDWARE FOR SWITCHES Ø 10 (.393) - 10400 AND 10600 SERIES

KNURLED CAP NUT
(std for 10600)



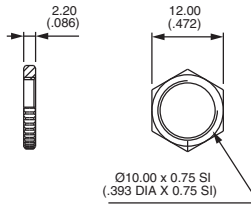
Chrome plated
U2220

KNURLED NUT
(std for 10400)



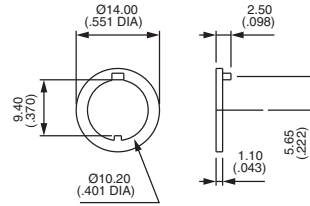
Nickel plated
U2311

HEX NUT



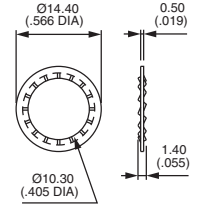
Nickel plated
U842

LOCKING RING



Nickel plated
U844

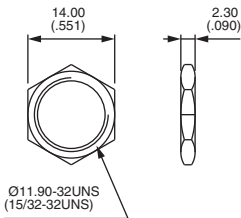
LOCKWASHER



Zinc plated steel
U843

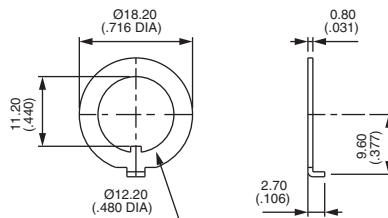
STANDARD HARDWARE FOR SWITCHES Ø 11,9 (15/32) - 12000, 13000X768 AND 5600M SERIES

HEX NUT



Nickel plated
Matt black
U162
U41

LOCKING RING

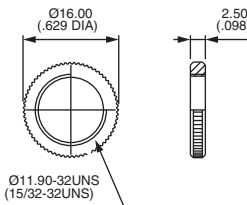


Nickel plated
Matt black
U121
U12

SERIES	HARDWARE SUPPLIED	
	HEX NUT	LOCKING RING
12000	2	1
13000X768	1	-
5600M	2	1
8000X718	2	1

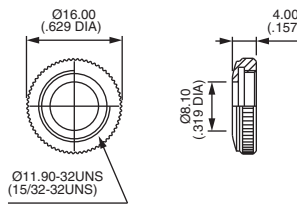
NON STANDARD HARDWARE FOR SWITCHES Ø 11,9 (15/32) - 12000, 13000X768 AND 5600M SERIES

KNURLED NUT

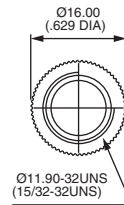


Nickel plated
Matt black
U53
U1634

KNURLED CAP NUTS

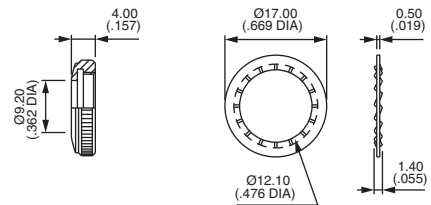


Chrome plated
U124



Chrome plated
U123

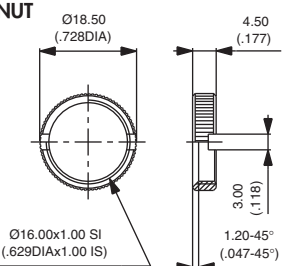
LOCKWASHER



Zinc plated steel
U13

HARDWARE FOR SWITCHES Ø 16

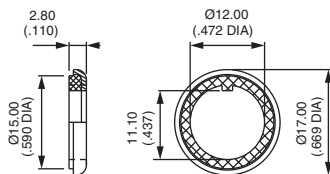
KNURLED NUT



U3327

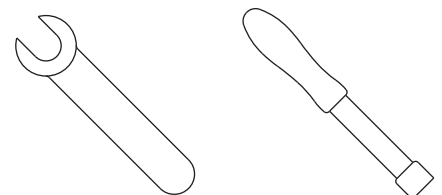
OTHER HARDWARE

SEALING WASHER



U60

WRENCHES

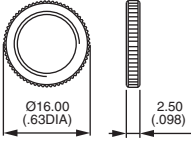
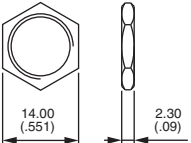
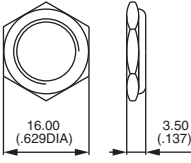
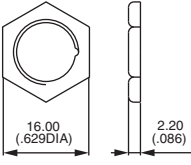
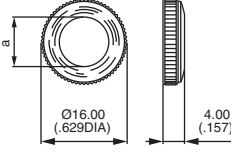


Available for some accessories.
Consult factory.

Hardware

For industrial switches

- Standard hardware is indicated by darkened boxes.
For details of hardware supplied, please refer to beginning of each series.
- Special hardware is to be ordered separately.

NUTS	Bushing \varnothing 11,9 (15/32) thread 0,794-32UNS Series 3500 - 6000			Bushing \varnothing 12 (.472) thread 0,75 Series IB/IS - IP - 660 - 600H - 600NH 1000 - 1200 - 1500 - 1600 - 1700 - 3600 - 4000		
	Chrome plated brass	Nickel plated brass	Matt black brass	Chrome plated brass	Nickel plated brass	Matt black brass
		U53	U1634	U412	U411	U413
	U92	U162	U41	U212	U166	U183
 Hex cap nut				U35		
 PAL nut					U42 (passive zinc plated steel)	
 Knurled cap nut	U123			U117 $\alpha = 8,5 (.334)$ U118 $\alpha = 10,3 (.405)$		U129 $\alpha = 8,5 (.334)$ U130 $\alpha = 10,3 (.405)$

INSULATED NUT U520

 ABS or polyamide with glass fibre	For threaded bushing \varnothing 12 (.472) x 0,75 IS Series 1500 - 4000 - 600NH - 6-600NH								
	Blue	Black	Green	Grey	Yellow	Red	White	Chrome plated	Orange
	U521	U522	U523	U524	U525	U526	U527/1	U528	U529

The locking ring U121 (nickel plated) or U12 (matt black) is only provided with tropicalized switches version T or G and with series 3500 - 6000.

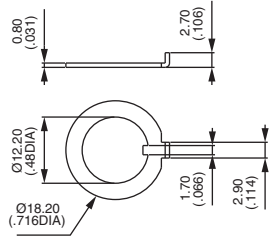
The lockwasher U13 must be ordered separately, except for series 660, 3500 and 6000.

Hardware

For industrial switches

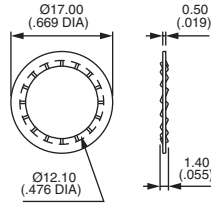
HARDWARE FOR SWITCHES Ø 12 (.472) AND 11,9 (15/32)

LOCKING RING



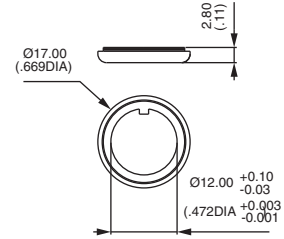
Nickel plated **U121**
Matt black **U12**

LOCKWASHER



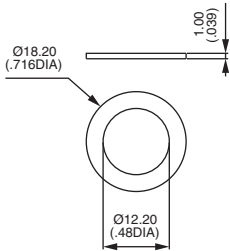
Zinc plated steel **U13**

SEALING WASHER



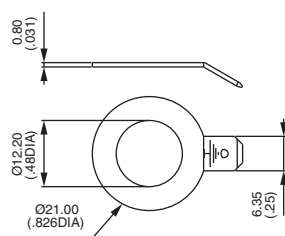
Stainless steel and neoprene **U60**

SEALING WASHER FOR BOOTS



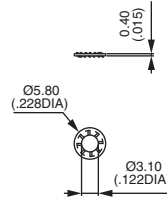
Nylon **U21**

GROUND CONNECTOR



Nickel plated **U187**

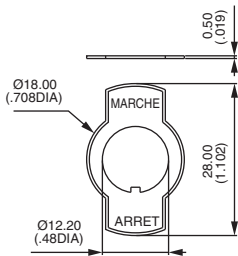
LOCKWASHER



Zinc plated steel **U14**

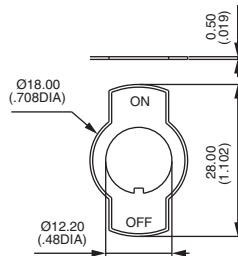
PLATES FOR SWITCHES Ø 12 (.472) AND 11,9 (15/32)

Marche - arrêt



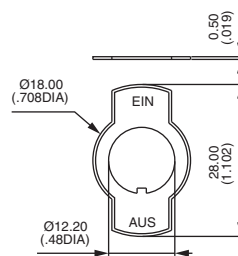
U17

ON - OFF



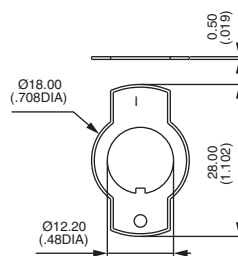
U19

EIN - AUS



U99

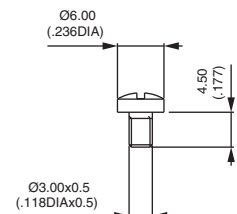
I - 0



U1050

CONNECTING SCREW

Supplied with the switches



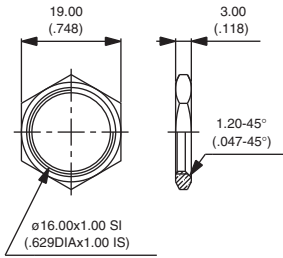
U03

Hardware

For industrial switches

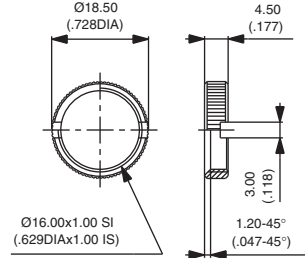
HARDWARE FOR AV SERIES (ANTI-VANDAL AND SECURITY PUSHBUTTON SWITCHES)

HEX NUT FOR MODELS Ø 16 (.629)



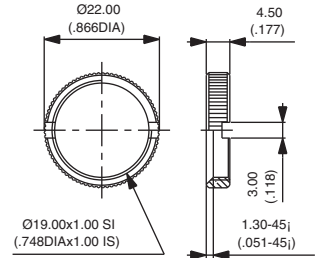
10-621 (sealed or unsealed models)

KNURLED NUT FOR MODELS Ø 16 (.629)



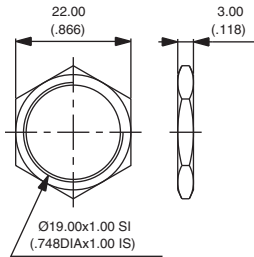
10-960-5 (sealed or unsealed models)

KNURLED NUT FOR MODELS Ø 19 (.748)

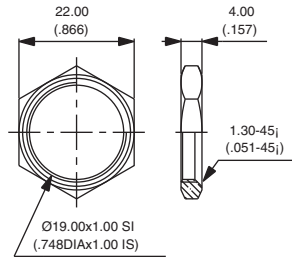


U1977-5 (sealed or unsealed models)

HEX NUTS FOR MODELS Ø 19 (.748)



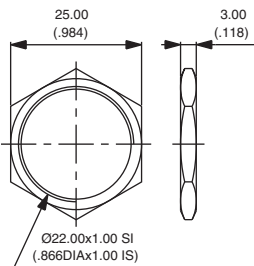
U1950-5 (unsealed models)



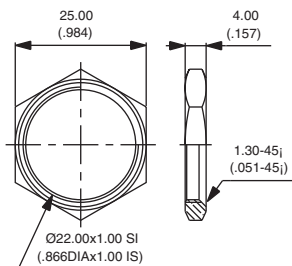
10-855-5 (sealed models)

Wrench for nut U1977-5 available under part number U1929.

HEX NUTS FOR MODELS Ø 22 (.866)

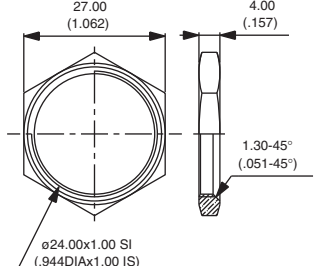


U1951-5 (unsealed models)



10-856-5 (sealed models)

HEX NUT FOR MODELS Ø 24 (.944)



U2059-5 (sealed or unsealed models)

All above nuts are made of nickel plated brass.

For switches with front panel sealing (option K), a neoprene O-ring is supplied with each nut.