

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 :
 - Ø 16 mm (.630), except :
 - flush mount round : Ø 22 mm (.866)
 - flush mount rectangular : 20.60 x 26.70 mm
 - flush mount square : 20.60 x 20.60 mm
 - A1 series : Ø 22 mm (.866)
 - A03 series : round or square Ø 22 (.866)
flush mount : Ø 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 : Ø 22 mm (.866)
 - rectangular : 29,5 x 21,5 mm (1.160x.846)
 - flush mount : Ø 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.

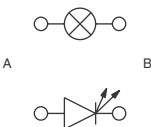
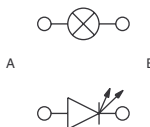
Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.

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.

A01 series

Illuminated or non-illuminated pushbutton switches

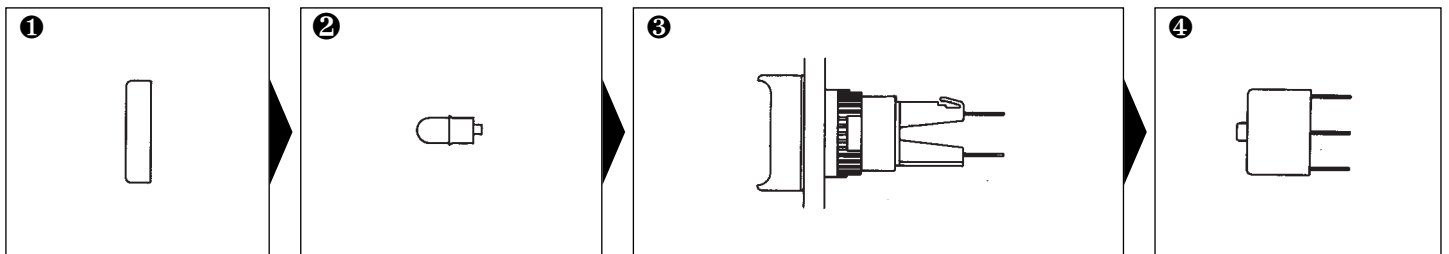
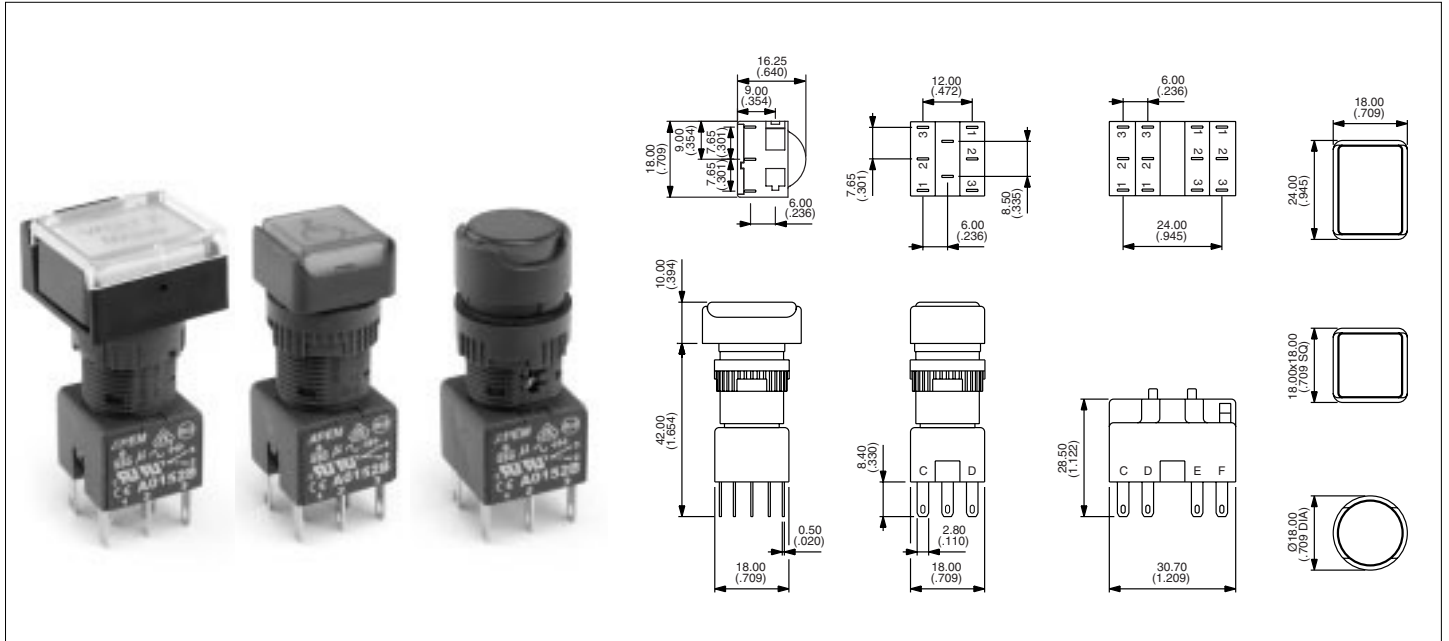
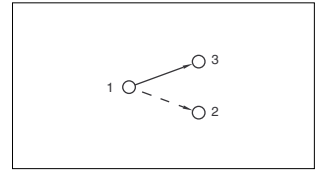
Panel cut-out Ø 16 (.630)

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	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

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

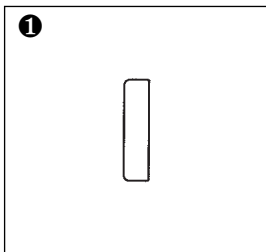
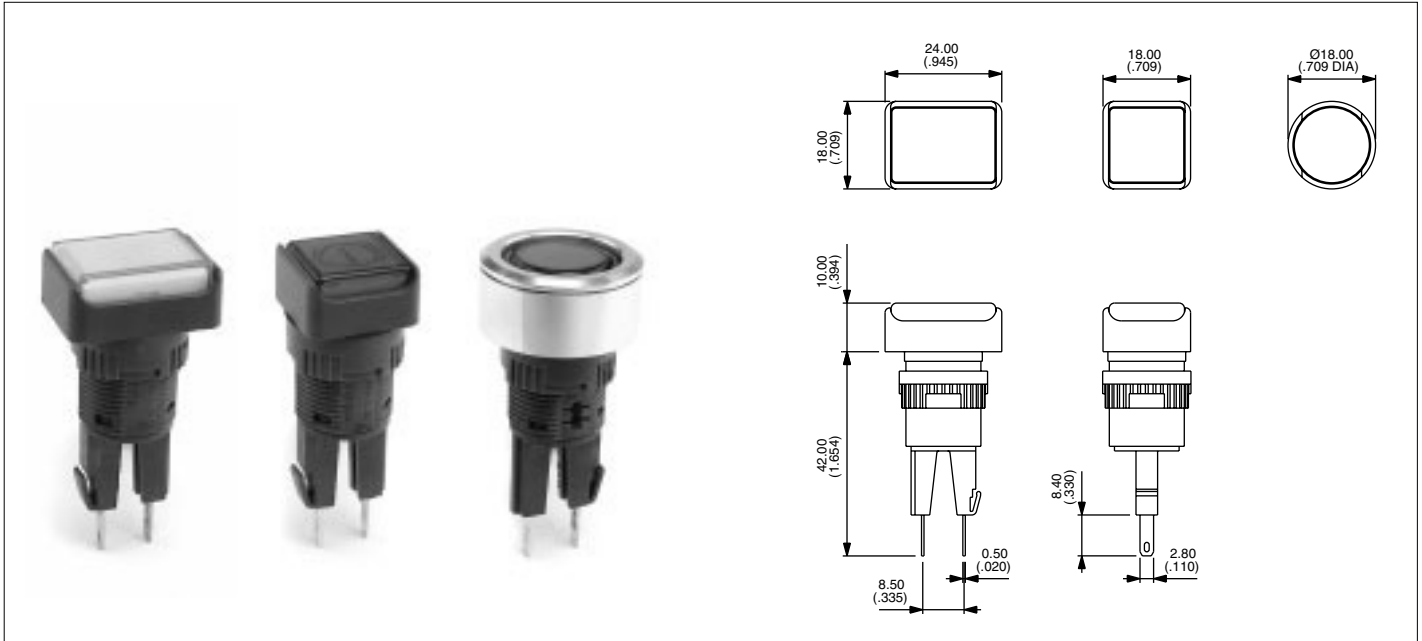
Panel cut-out Ø 16 (.630)

An indicator assembly requires :

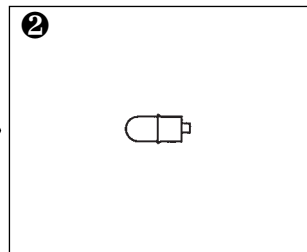
screen + lamp + operator.

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

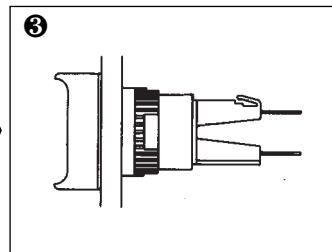
Example : IP65 rectangular indicator with red screen and 12V red LED = A0161B, A0142M1 and A0171.



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

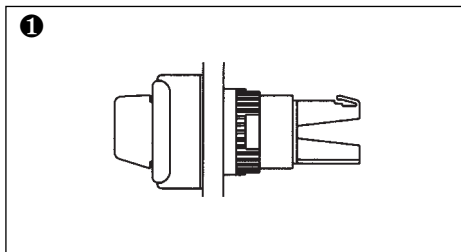
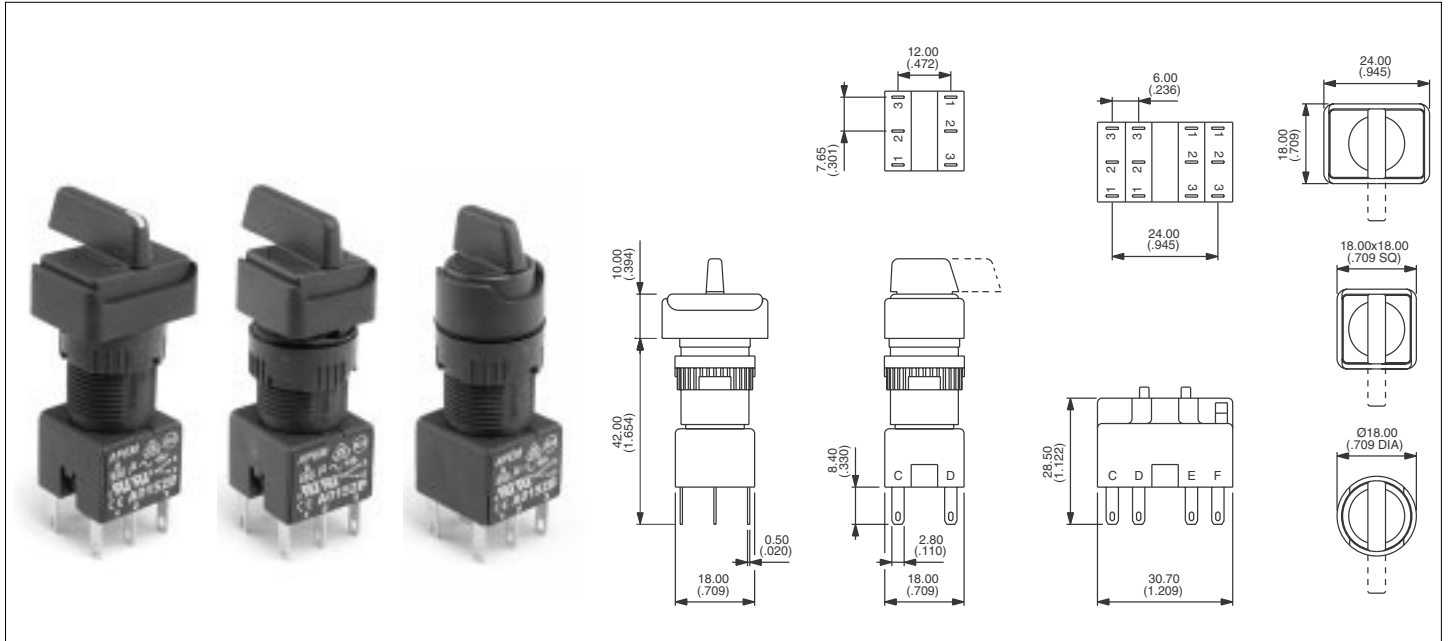
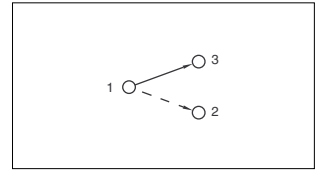
Rotary lever switches

Panel cut-out Ø 16 (.630)

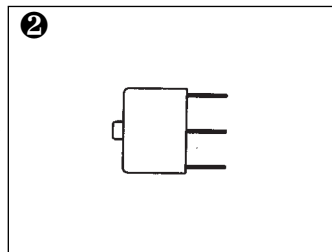
A rotary lever switch assembly requires :
operator + switch block.

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.

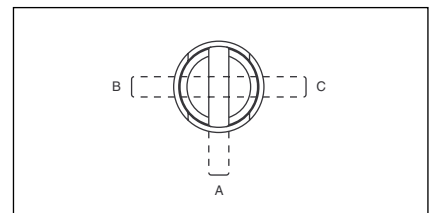


Operator



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	Description	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

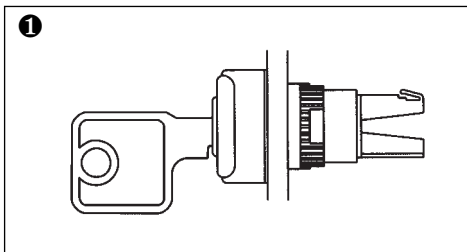
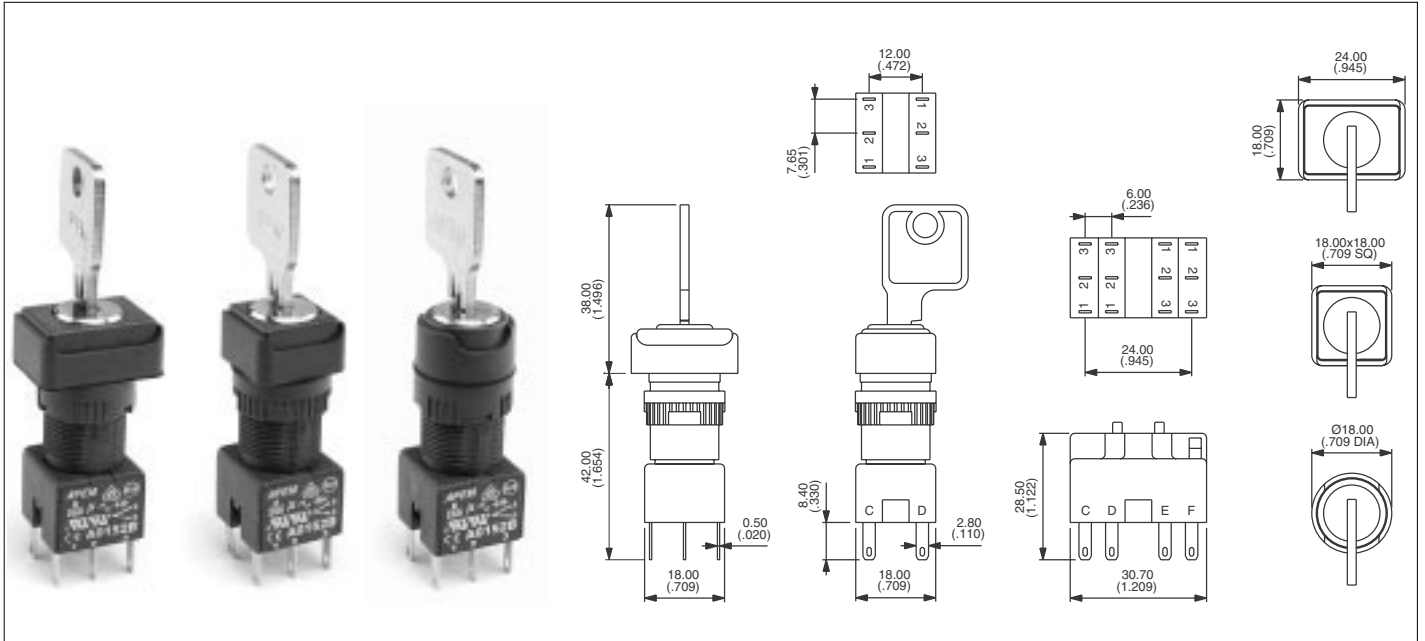
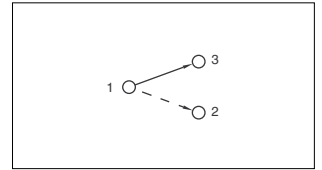
Panel cut-out Ø 16 (.630)

A keylock switch assembly requires :

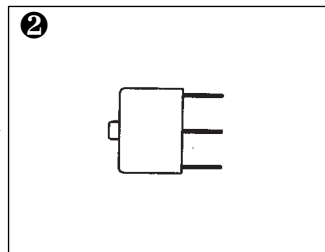
operator + switch block.

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.

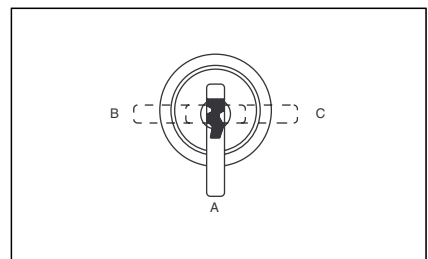


Operator



Switch block

Key Positions



• 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.

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		

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

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

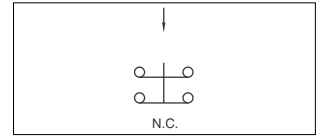
A01 series

Emergency stop switches

Panel cut-out Ø 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.

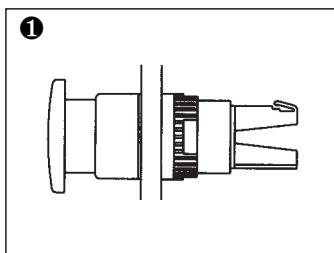
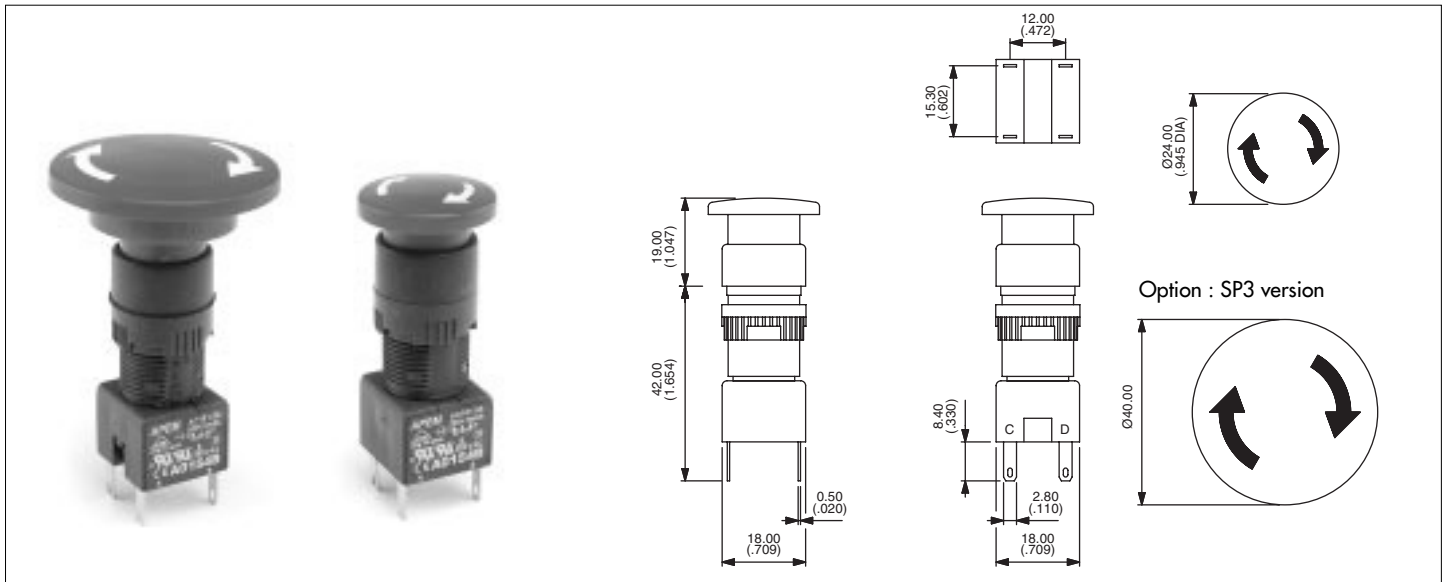


General specifications

- 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)

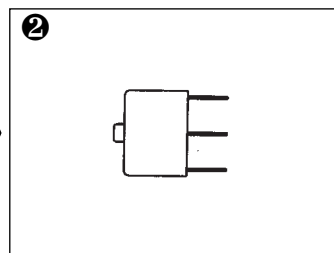
Electrical specifications

- 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 Ø Emergency stop	A01ES
40 mm Ø Emergency stop	A01ES SP3



Switch block

No of poles	Part No
Single pole	A0150BUL
Double pole	A0154BUL

Accessory



60 mm Ø Self Adhesive Label

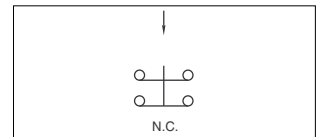
Description	Part No
Yellow label with text	A01YL1
Yellow label	A01YL2

A01 series

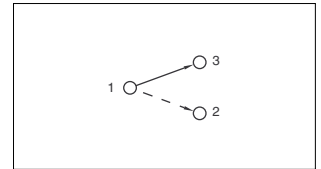
Emergency stop switches/mushroom head pushbutton switches

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	A01MMASP352B + 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

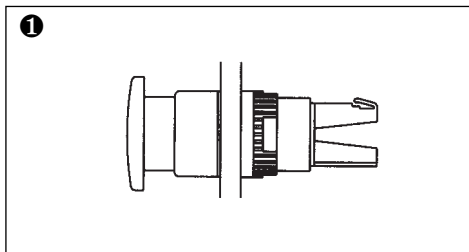
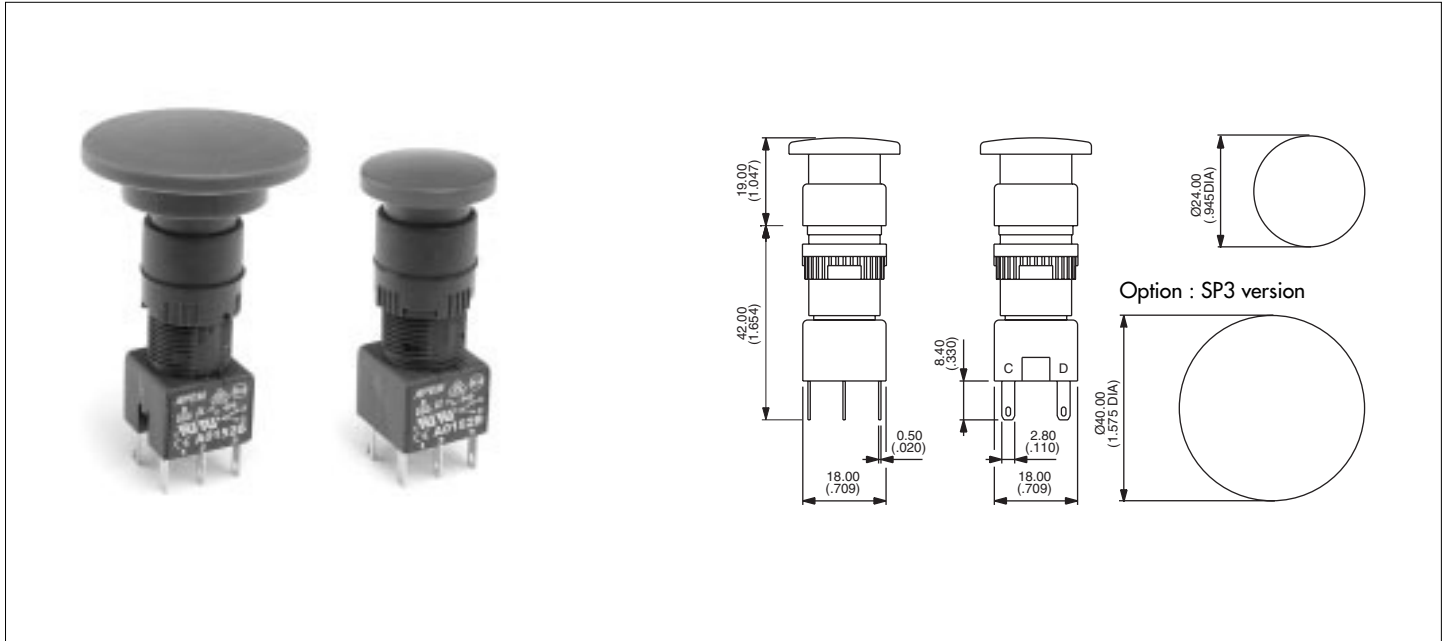
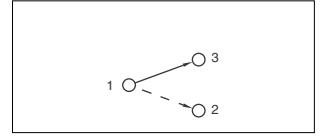
12A 250V versions or custom printing on mushroom head actuators : contact APEM.

A01 series

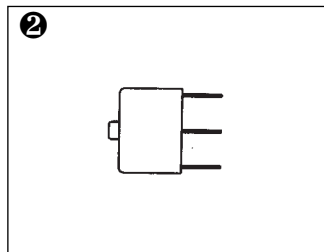
Mushroom head pushbutton switches

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	No of poles	Part No
24mmØ	Black momentary	A01MMA	Single pole	A0151BUL
24mmØ	Red momentary	A01MMB	Double pole	A0152BUL
24mmØ	Yellow momentary	A01MMD	Three pole	A0155BUL
24mmØ	Green momentary	A01MME	Four pole	A0153BUL
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		

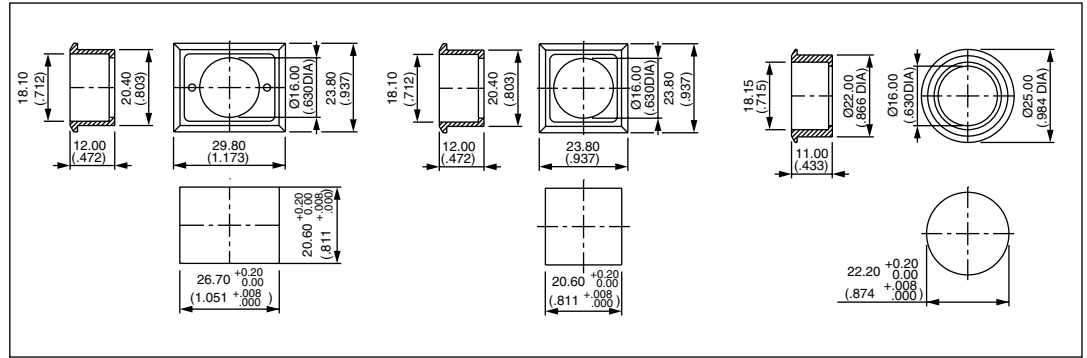
A1-A01 series

Industrial controls

Accessories

FLUSH MOUNTING BEZELS

Dark grey plastic material - supplied with sealing washer



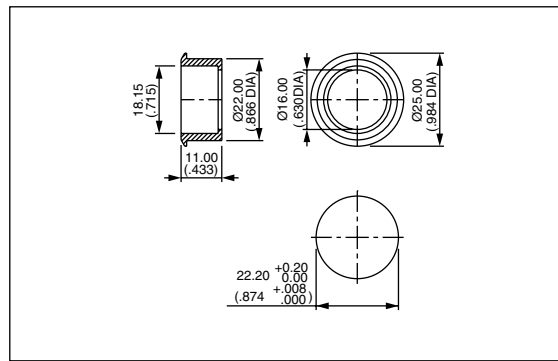
Rectangular **A01FM1**

Square **A01FM**

Round **A01FM2**

FLUSH MOUNTING BEZELS

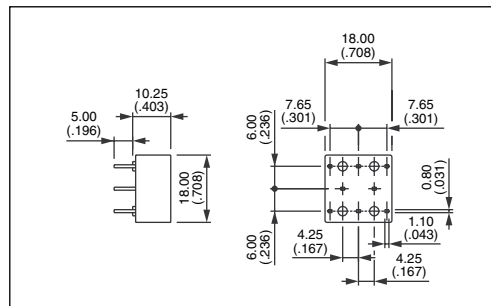
Metal versions



Round, anodised aluminium **A01FMM**

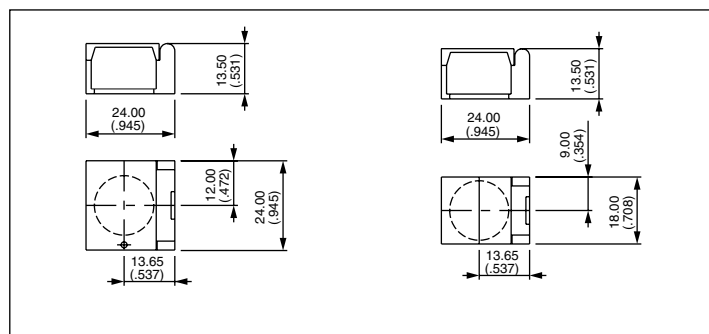
Round, matt black **A01FMMG**

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**

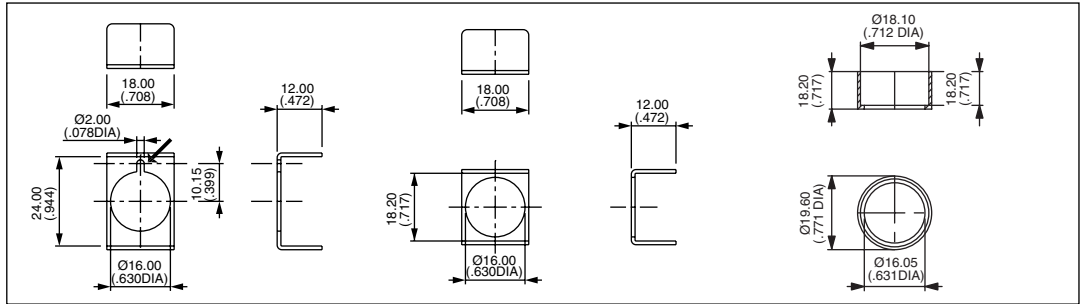
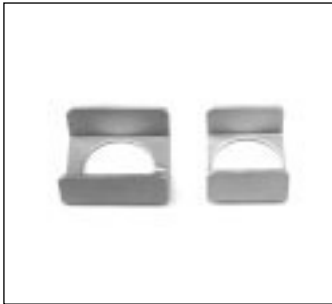
A1-A01 series

Industrial controls

Accessories

METAL GUARDS

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



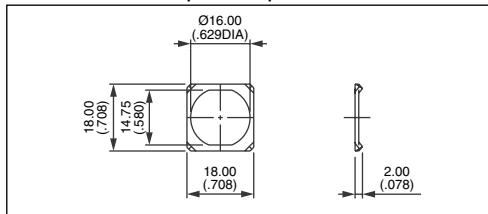
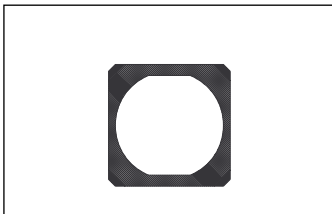
Rectangular **A01MG1**

Square **A01MG**

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

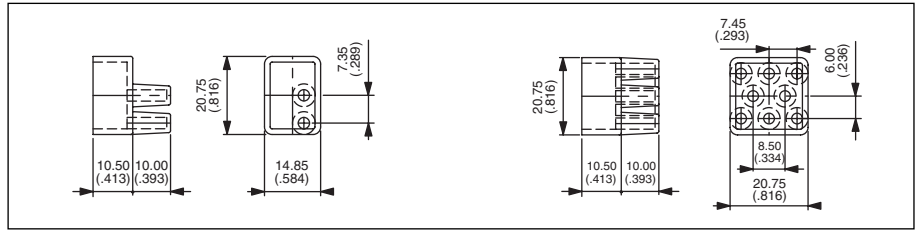
ANTI ROTATION RING

Recommended to prevent product rotation



A01LW

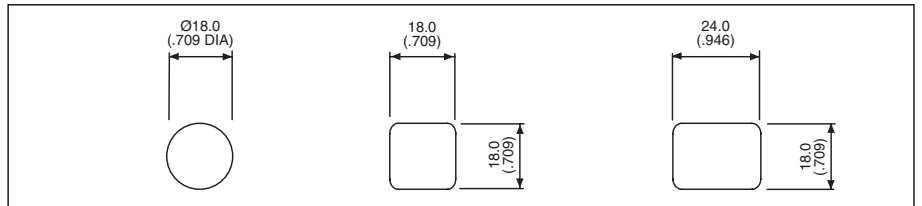
SWITCHBLOCK TERMINAL GUARDS



2 way **A01RTC2**

8 way **A01RTC8**

BLANKING PLUGS



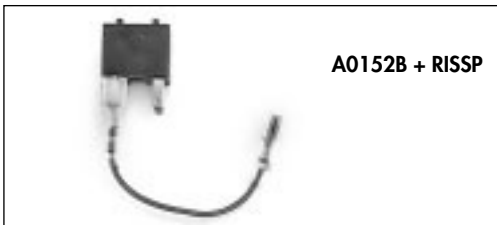
Round **A0133**

Square **A0132**

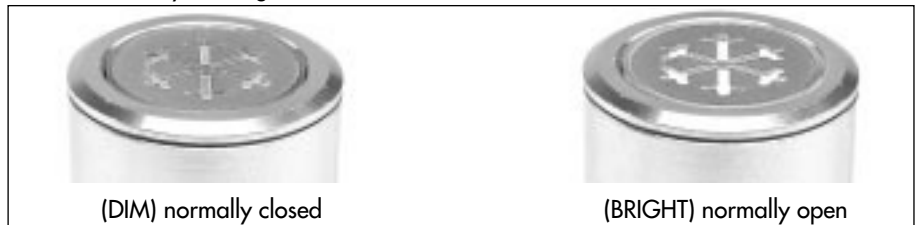
Rectangular **A0131**

RESISTOR ASSEMBLY

Resistor assembly - 2 stage illumination



A0152B + RISSP



(DIM) normally closed

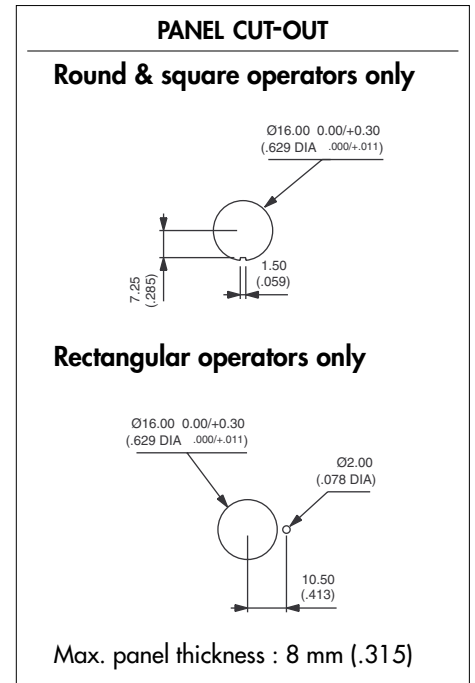
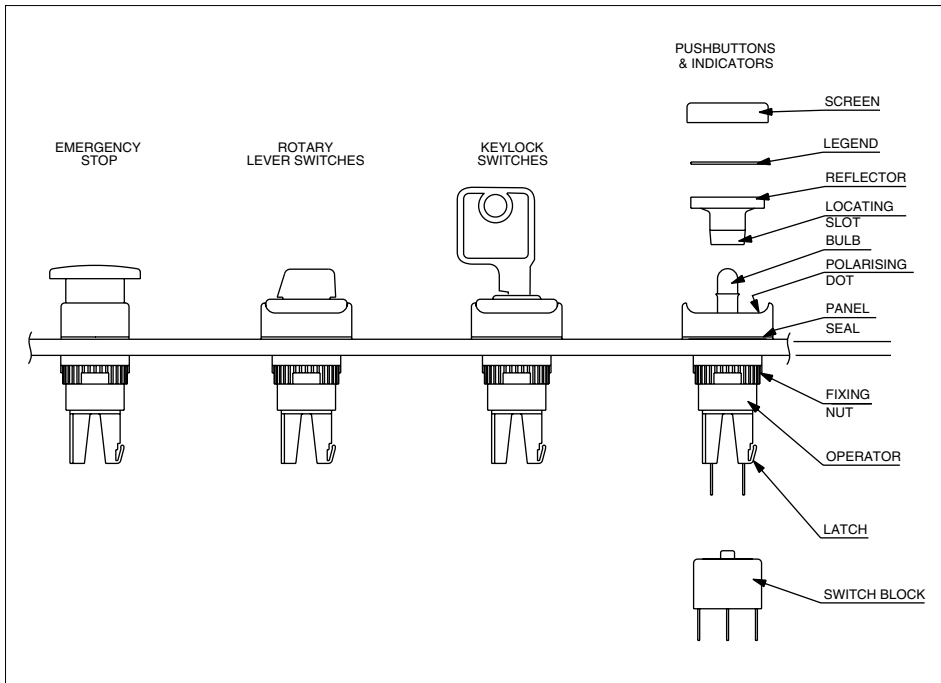
(BRIGHT) normally open

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



30-0001

BULB REMOVER



30-0002