

# A01 - A02 SERIES

## INDUSTRIAL CONTROLS

### Distinctive features

**A01 and A02 Series are designed and manufactured in the United Kingdom**

The A01 and A02 series offer ranges of:

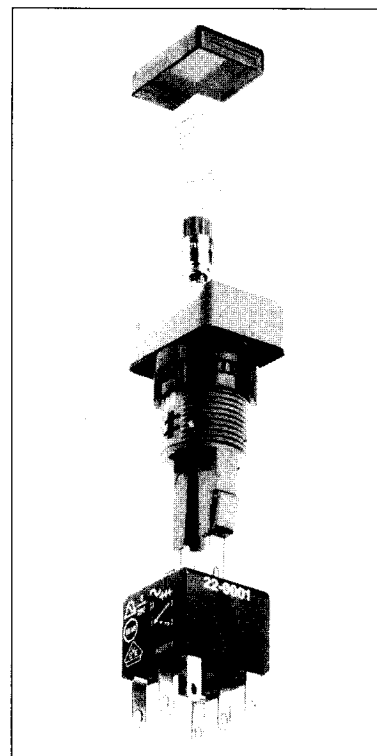
- pushbutton switches, illuminated or not
- indicators
- 2 or 3 position keylock switches
- 2 or 3 position rotary lever switches
- emergency stop switches

with rectangular, square or round operators.

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



## CE - Marking



Sub-assembly

For single part number assemblies please contact APEM Components

### A01 series

- Panel cut-out : Ø 16mm (.630)
- 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 multi-chip LED

### A02 series

- Panel cut-out :  
- round or square : Ø22mm (.866)  
- rectangular : 29,5 x 21,5mm (1.160 x 846)
- 1 and 2 poles
- Screw terminals
- Contacts : silver
- Current/voltage rating :  
12A 380VAC - 16A 250VAC max.  
25mA 5VAC min.
- Lamp : filament, neon, multi-chip LED  
or special multi-LED assembly

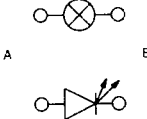
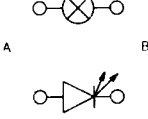
For back of panel safety, this series has a unique covered cable connection arrangement. See page 20

# A01 - A02 SERIES

## INDUSTRIAL CONTROLS

### Specifications

#### ELECTRICAL SPECIFICATIONS

	<b>A01</b>	<b>A02</b>
<ul style="list-style-type: none"> <li>• <b>Function :</b></li> <li>• <b>Current/voltage rating :</b></li> <li>• <b>Contact gap</b></li> <li>• <b>Initial contact resistance :</b></li> <li>• <b>Insulation resistance :</b></li> <li>• <b>Dielectric strength :</b></li> <li>• <b>Electrical life :</b></li> <li>• <b>Insulation :</b></li> <li>• <b>Lamp life :</b></li> </ul>	<p>Momentary or maintained action</p> <p>10mA 5VAC min. 6A 250VAC max.</p> <p>1,5mm (.059)</p> <p>10mΩ max. at 1A 4VDC</p> <p>50 MΩ min.</p> <p>750V between open contacts 5KV live to accessible</p> <p>50.000 cycles min.</p> <p>Class 2</p> <p>LED : 60.000 h min. to 75% relative luminosity - Filament : approx. 5.000 h Neon : approx. 10.000 h</p>	<p>Momentary or maintained action</p> <p>25mA 5VAC min. 12A 380VAC - 16A 250VAC max.</p> <p>Double break 2 x 1,5mm (.059)</p> <p>10mΩ max. at 1A 4VDC</p> <p>50 MΩ min.</p> <p>2KV between open contacts 4KV live to accessible</p> <p>50.000 cycles min.</p> <p>Class 2</p> <p>LED : 60.000 h min. to 75% relative luminosity - Filament : approx. 5.000 h Neon : approx. 10.000 h</p>
<ul style="list-style-type: none"> <li>• <b>Lamp circuit diagrams</b></li> </ul>		

#### GENERAL SPECIFICATIONS

	<b>A01</b>	<b>A02</b>
<ul style="list-style-type: none"> <li>• <b>Min. mechanical life :</b></li> <li>• <b>Operating force:</b></li> <li>• <b>Operating temperature :</b></li> <li>• <b>Solder heat resistance :</b> (IEC 68-2-20Tb, method 2)</li> <li>• <b>Operating humidity :</b></li> <li>• <b>Degree of environmental protection (IEC 529)</b></li> <li>• <b>Lamps :</b></li> <li>• <b>Switch terminals :</b></li> <li>• <b>Lamp terminals :</b></li> </ul>	<p>Momentary : 1 million cycles Maintained action : 100.000 cycles Keylock and rotary : 100.000 cycles</p> <p>2,5N - 10N depending on switch element fitted</p> <p>-20°C to +55°C</p> <p>350°C, 5 sec.</p> <p>Up to 95% RH</p> <p>IP 65 front of panel IP 40 back of panel</p> <p>Midget Grooved T13/4, filament, multi-chip LED or neon</p> <p>Solder/quick-connect 2,8mm (.110)</p> <p>Solder/quick-connect 2,8mm (.110)</p>	<p>Momentary : 1 million cycles Maintained action : 100.000 cycles Keylock and rotary : 100.000 cycles</p> <p>3N - 15N depending on switch element fitted</p> <p>-20°C to +85°C</p> <p>350°C, 5 sec.</p> <p>Up to 95% RH</p> <p>IP 65 front of panel IP 40 back of panel</p> <p>Midget Grooved T1 3/4, filament, multi-chip LED or neon Special multi-LED assembly</p> <p>M3 screws - wire 2 x 0,75 mm<sup>2</sup> max.</p> <p>M3 screws Flexible wire 2 x 2,5 mm<sup>2</sup> max. Rigid wire 4 mm<sup>2</sup> max.</p>

For screen engraving or film legends, consult factory

# A02 SERIES

## ILLUMINATED OR NON-ILLUMINATED PUSHBUTTON SWITCHES

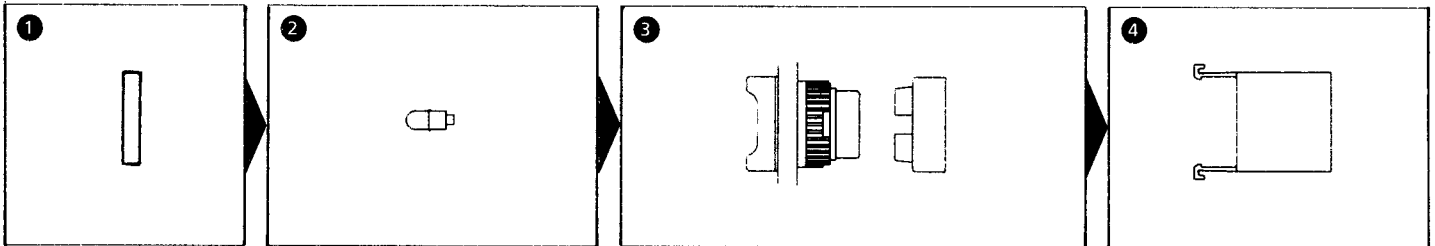
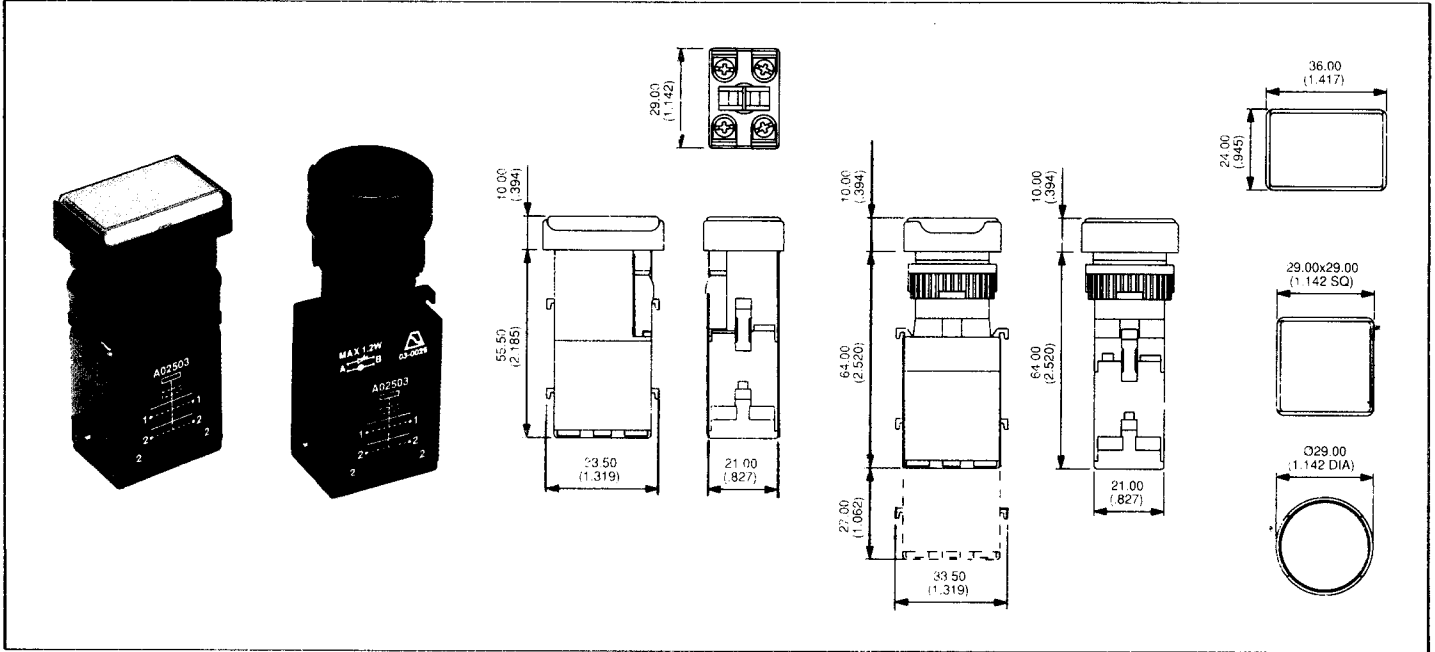
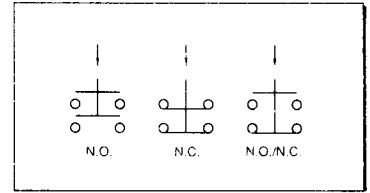
### Panel cut-out Ø22 or 29.5 x 21.5

**A pushbutton assembly requires:**

screen + lamp (if illuminated) + operator + one or two switchblocks

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

**Example:** IP65 rectangular maintained pushbutton, switch blocks with 2 N.O. contacts, red screen and 12V red LED assembly = A0261B, A0242J1, A0201X and A02503.



Screen			Lamp		Operator			Switch block			
Bezel	Colour	Part No	Lamp	Voltage	Part No	Bezel	Description	Lamp type	Part No	Contacts	Part No
□	black	A0261A	Filament	6.3V	A0141A	□	illum, momentary	Lamp/LED	A0201Y	1 N.O.	A02501
□	red	A0261B	Filament	14V	A0141B	□	illum, maintained	Lamp/LED	A0201X	1 N.C.	A02502
□	amber	A0261C	Filament	28V	A0141C	□	illum, momentary	LED assy	A0202Y	2 N.O.	A02503
□	yellow	A0261D	Filament	36V	A0141D	□	illum, maintained	LED assy	A0202X	2 N.C.	A02504
□	green	A0261E	Filament	48V	A0141E	□	Non-illum, maintained		A0203X	1 N.O./1 N.C.	A02505
□	blue	A0261F	Filament	60V	A0141F	□	Non-illum, momentary		A0203Y		
□	clear	A0261G	Neon	110V	A0143G	□	illum, momentary	Lamp/LED	A0204Y		
□	white	A0261J	Neon	220V	A0143H	□	illum, maintained	Lamp/LED	A0204X		
□	black	A0262A	LED lamp	model numbers: see P6&7		□	illum, momentary	LED assy	A0205Y		
□	red	A0262B			A0242H*	□	illum, maintained	LED assy	A0205X		
□	amber	A0262C	LED assy	6V	A0242J*	□	Non-illum, momentary		A0206Y		
□	yellow	A0262D	LED assy	12V	A0242K*	□	Non-illum, maintained		A0206X		
□	green	A0262E	LED assy	24V	A0242L*	○	illum, momentary	Lamp/LED	A0207Y	1 N.O.	A02506
□	blue	A0262F	LED assy	6V	A0243H*	○	illum, maintained	Lamp/LED	A0207X	1 N.C.	A02507
□	clear	A0262G	LED assy	12V	A0243J*	○	illum, momentary	LED assy	A0208Y	2 N.O.	A02508
□	white	A0262J	LED assy	24V	A0243K*	○	illum, maintained	LED assy	A0208X	2 N.C.	A02509
○	black	A0263A	LED assy	6V	A0244H*	○	Non-illum, momentary		A0209Y	1 N.O./1 N.C.	A02510
○	red	A0263B	LED assy	12V	A0244J*	○	Non-illum, maintained		A0209X		
○	amber	A0263C	LED assy	24V	A0244K*						
○	yellow	A0263D	Replace * with colour code for LED assemblies:								
○	green	A0263E			1: red	<b>WHITE OR BLUE LED ASSEMBLY:</b>					
○	blue	A0263F			2: green	contact APEM Components					
○	clear	A0263G			3: amber						
○	white	A0263J									

### Second switch block

Contacts	Part No
1 N.O.	A02506
1 N.C.	A02507
2 N.O.	A02508
2 N.C.	A02509
1 N.O./1 N.C.	A02510

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

UNSEALED SWITCHES (IP40): add '01' to end of OPERATOR model number  
 SCREEN ENGRAVING/INSERTABLE LEGENDS: contact APEM Components

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

# A02 SERIES

## METAL BEZEL PUSHBUTTON SWITCHES AND INDICATORS

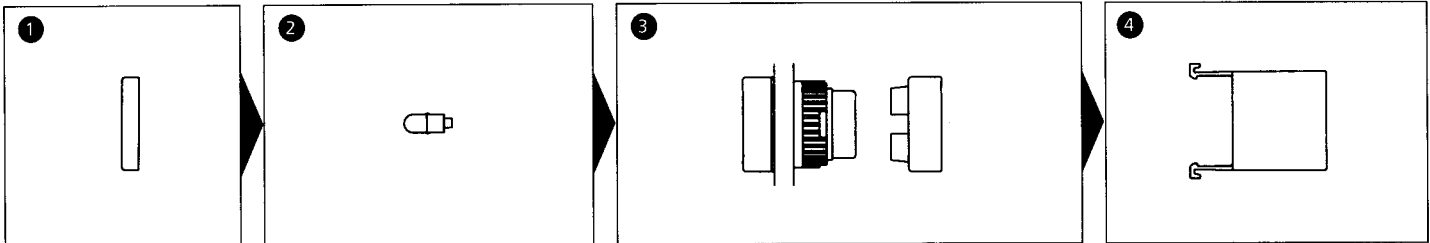
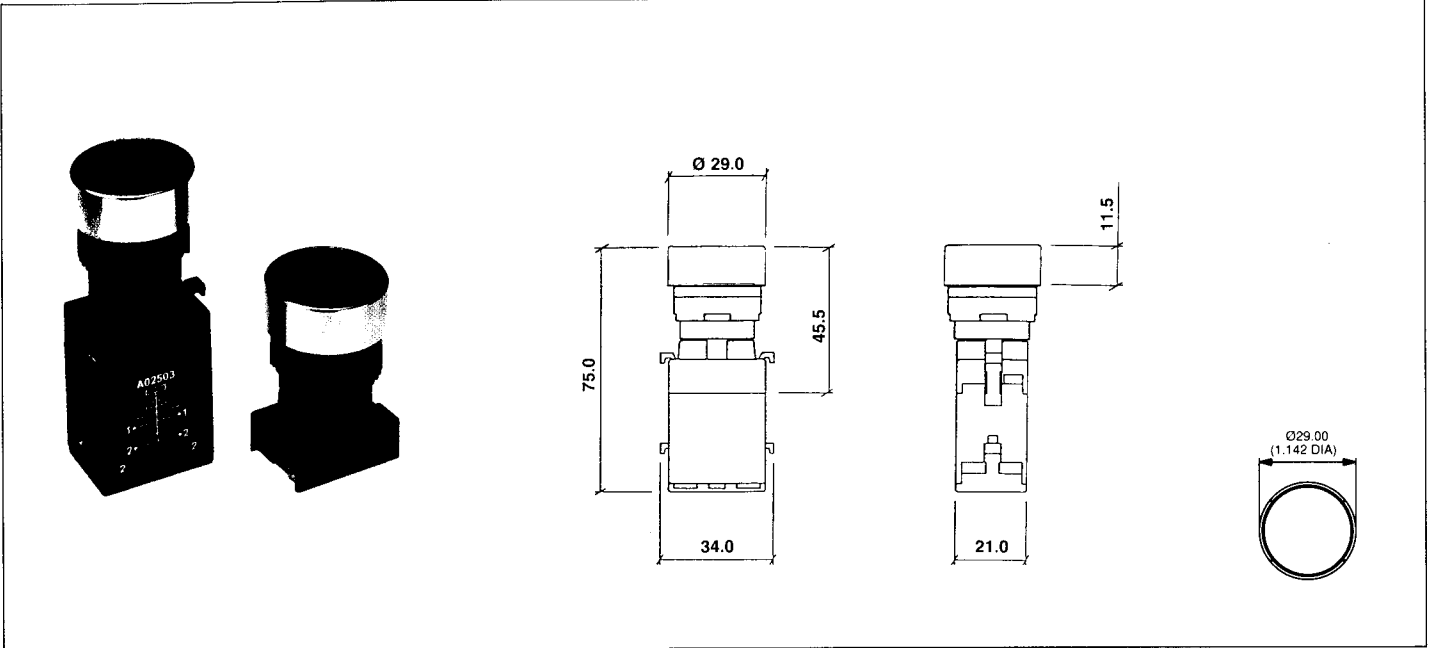
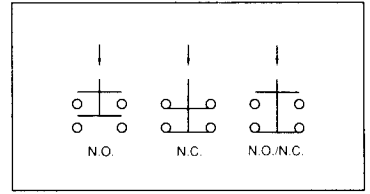
### Panel cut-out Ø22

**A pushbutton assembly requires:**

screen + lamp (if illuminated) + operator + one or two switchblocks

**An indicator assembly requires :** screen + lamp + operator

**Example:** IP65 metal bezel maintained pushbutton, switch block with 2 N.O. contacts, red screen and 12V red LED assembly = A0263B, A0244J1, A0211X and A02503.



Screen			Lamp			Operator			Switch block		
Bezel	Colour	Part No	Lamp	Voltage	Part No	Bezel	Description	Lamp type	Part No	Contacts	Part No
○	black	A0263A	Filament	6.3V	A0141A	○	illum, momentary	Lamp/LED	A0210Y	1 N.O.	A02501
○	red	A0263B	Filament	14V	A0141B	○	illum, maintained	Lamp/LED	A0210X	1 N.C.	A02502
○	amber	A0263C	Filament	28V	A0141C	○	illum, momentary	LED assy	A0211Y	2 N.O.	A02503
○	yellow	A0263D	Filament	36V	A0141D	○	illum, maintained	LED assy	A0211X	2 N.C.	A02504
○	green	A0263E	Filament	48V	A0141E	○	Non-illum, momentary		A0212Y	1 N.O./1 N.C.	A02505
○	blue	A0263F	Filament	60V	A0141F	○	Non-illum, maintained		A0212X		
○	clear	A0263G	Neon	110V	A0143G	○	illum, indicator	Lamp/LED	A0277		
○	white	A0263J	Neon	220V	A0143H	○	illum, indicator	LED assy	A0278		
			LED lamp								
			LED assy ○	6V	A0244H*						
			LED assy ○	12V	A0244J*						
			LED assy ○	24V	A0244K*						
			NB Replace * with colour code for LED assemblies:			1:	red				
					2:	green					
					3:	amber					

Std bezel material : nickel plated brass

### Second switch block

Contacts	Part No
1 N.O.	A02506
1 N.C.	A02507
2 N.O.	A02508
2 N.C.	A02509
1 N.O./1 N.C.	A02510

**WHITE OR BLUE LED ASSEMBLY:**  
contact APEM Components

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

**UNSEALED SWITCHES (IP40):** add '01' to end of OPERATOR model number  
**SCREEN ENGRAVING/INSERTABLE LEGENDS:** contact APEM Components

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



# A02 SERIES

## INDICATORS

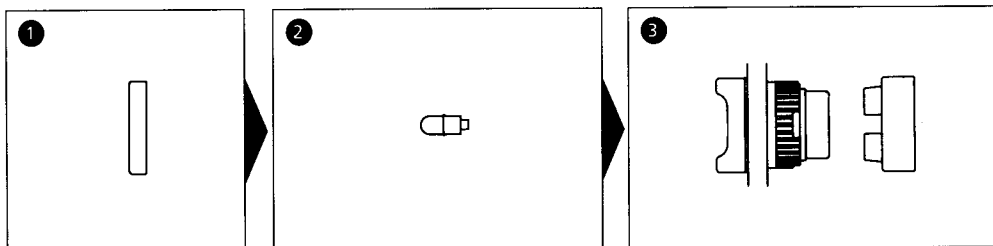
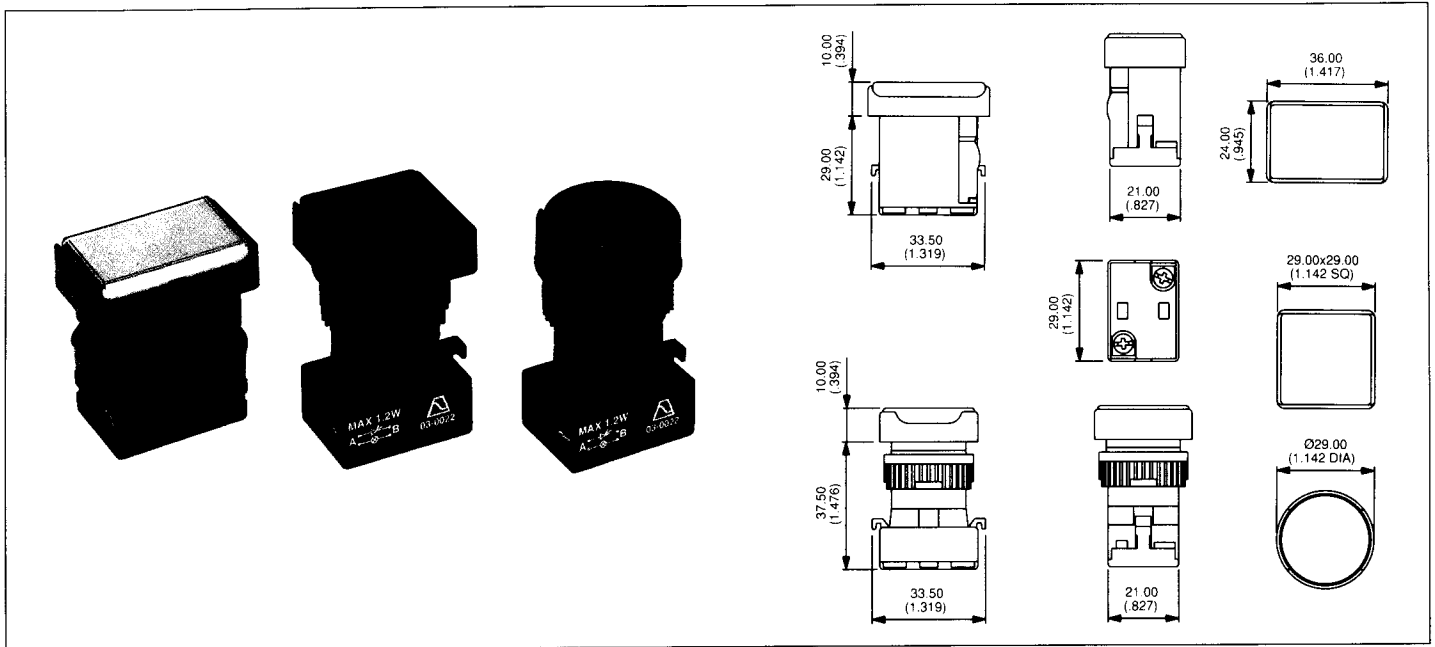
### Panel cut-out Ø22 or 29.5 x 21.5

**An indicator assembly requires:**

screen + lamp, LED or LED assembly + operator

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

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



### Screen

### Lamp

### Operator

Bezel	Colour	Part No	Lamp	Voltage	Part No	Bezel	Description	Lamp type	Part No
□	black	A0261A	Filament	6.3V	A0141A	□	Indicator	Lamp/LED	A0271
□	red	A0261B	Filament	14V	A0141B	□	Indicator	LED assy	A0272
□	amber	A0261C	Filament	28V	A0141C	□	Indicator	Lamp/LED	A0273
□	yellow	A0261D	Filament	36V	A0141D	□	Indicator	LED assy	A0274
□	green	A0261E	Filament	48V	A0141E	○	Indicator	Lamp/LED	A0275
□	blue	A0261F	Filament	60V	A0141F	○	Indicator	LED assy	A0276
□	clear	A0261G	Neon	110V	A0143G				
□	white	A0261J	Neon	220V	A0143H				
□	black	A0262A	LED lamp	model numbers: see P6&7					
□	red	A0262B							
□	amber	A0262C	LED assy	□ 6V	A0242H*				
□	yellow	A0262D	LED assy	□ 12V	A0242J*				
□	green	A0262E	LED assy	□ 24V	A0242K*				
□	blue	A0262F	LED assy	□ 6V	A0243H*				
□	clear	A0262G	LED assy	□ 12V	A0243J*				
□	white	A0262J	LED assy	□ 24V	A0243K*				
○	black	A0263A	LED assy	○ 6V	A0244H*				
○	red	A0263B	LED assy	○ 12V	A0244J*				
○	amber	A0263C	LED assy	○ 24V	A0244K*				
○	yellow	A0263D	Replace * with colour code for LED assemblies:						
○	green	A0263E			1: red	<b>WHITE OR BLUE LED ASSEMBLY:</b>			
○	blue	A0263F			2: green	contact APEM Components			
○	clear	A0263G			3: amber				
○	white	A0263J							

UNSEALED INDICATORS (IP40): add '01' to end of OPERATOR model number  
 SCREEN ENGRAVING/INSERTABLE LEGENDS: contact APEM Components

Bezel: □ rectangular, □ square, ○ round

# A02 SERIES

## ROTARY SWITCHES

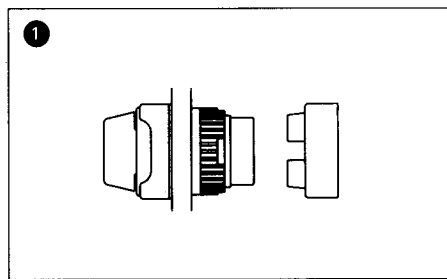
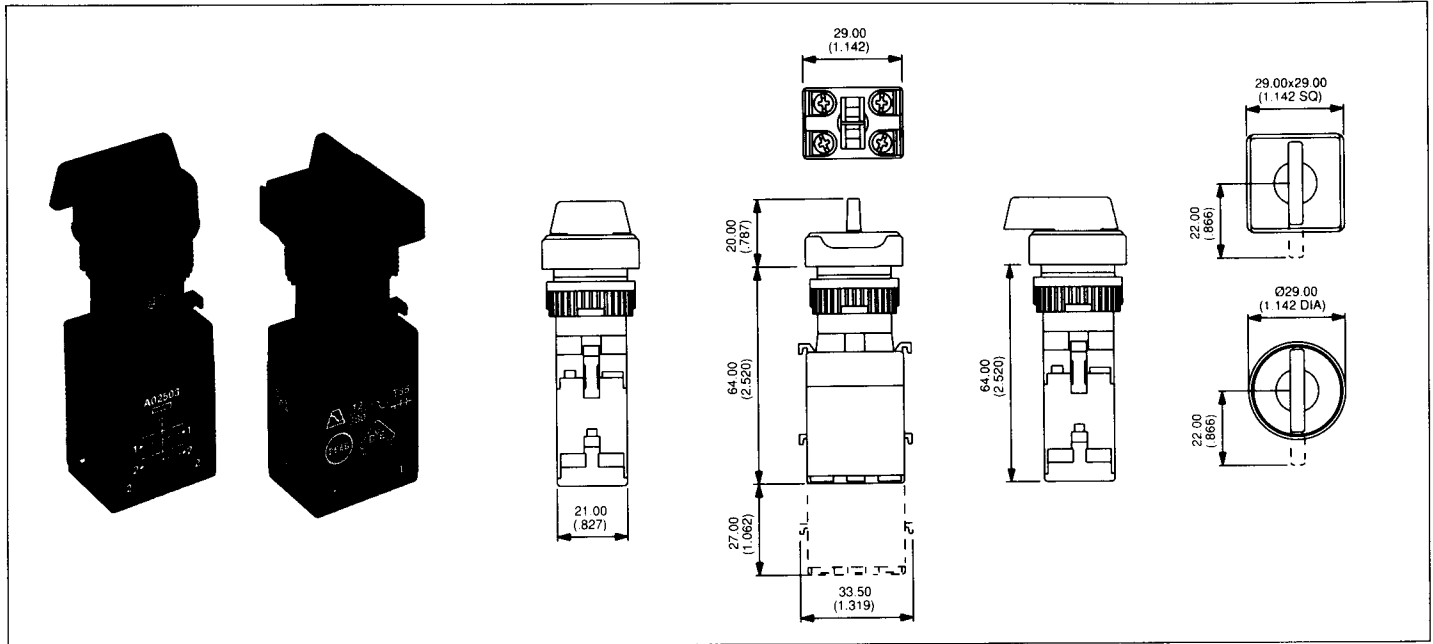
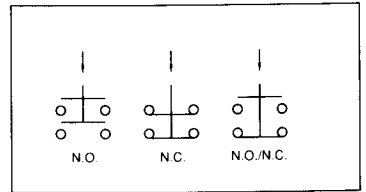
### Panel cut-out Ø22 (.866)

**A rotary lever assembly requires:**

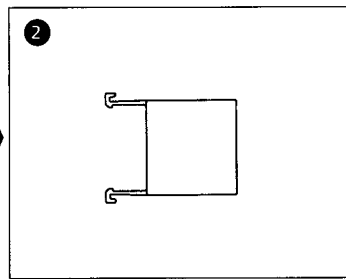
operator + one or two switchblocks

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

**Example:** IP65 square 2 position maintained rotary switch with long lever, switch block with 2 N.O. contacts. = A029101 and A02503.

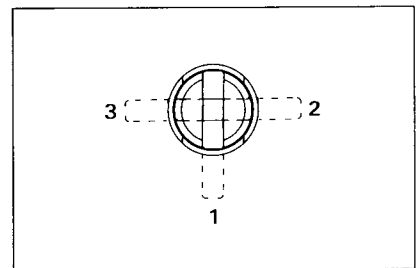


**Operator**



**Switch block**

**Lever positions**



Bezel	Description	Short lever	Long lever	Contacts	Part No
□	2 pos. maintained	A029201	A029101	1 N.O.	A02501
□	2 pos. momentary	A029202	A029102	1 N.C.	A02502
□	3 pos. maintained	A029203	A029103	2 N.O.	A02503
□	3 pos. momentary	A029204	A029104	2 N.C.	A02504
□	3 pos. mainL, momR	A029205	A029105	1 N.O./1 N.C.	A02505
□	3 pos. momL, mainR	A029206	A029106		
○	2 pos. maintained	A029401	A029301		
○	2 pos. momentary	A029402	A029302		
○	3 pos. maintained	A029403	A029303		
○	3 pos. momentary	A029404	A029304		
○	3 pos. mainL, momR	A029405	A029305		
○	3 pos. momL, mainR	A029406	A029306		

**Second switch block**

Contacts	Part No
1 N.O.	A02506
1 N.C.	A02507
2 N.O.	A02508
2 N.C.	A02509
1 N.O./1 N.C.	A02510

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

**• Lever Rotation - 2 position switches**

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

01 with 07  
02 with 08

at the end of the model number.

**UNSEALED SWITCHES (IP40):** add '01' to end of OPERATOR model number

Bezel: □ square, ○ round,

# A02 SERIES

## KEYLOCK SWITCHES

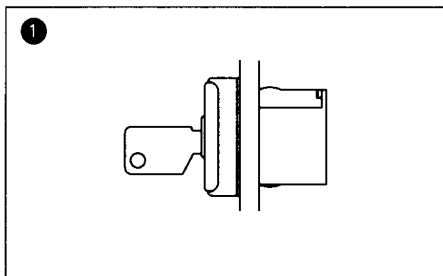
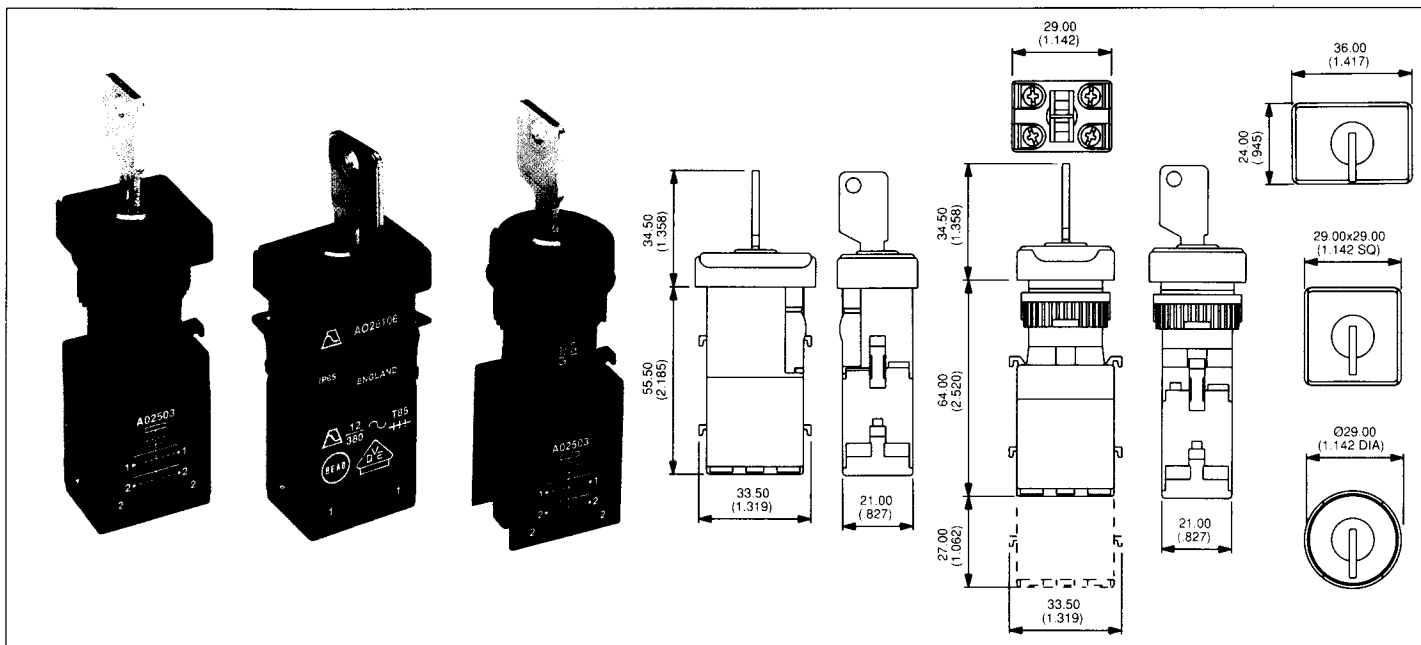
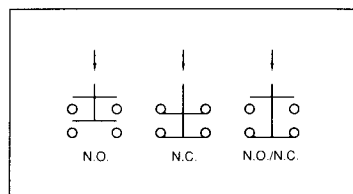
### Panel cut-out Ø22 or 29.5 X 21.5

**A keyswitch assembly requires:**

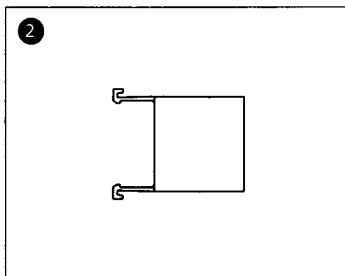
operator + one or two switchblocks

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

**Example:** IP65 square 2 position maintained keyswitch, switch block with 2 N.O. contacts = A028201 and A02503

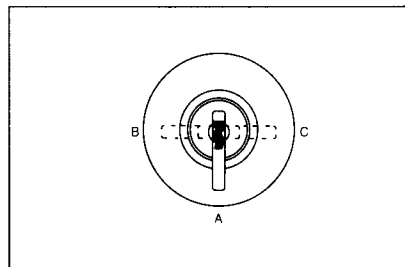


**Operator**



**Switch block**

**Key positions**



Bezel	Description	Part No	Key removable in positions	Contacts	Part No
□	2 pos. maintained	A028101	A-C	1 N.O.	A02501
□	2 pos. momentary	A028102	A	1 N.C.	A02502
□	3 pos. maintained	A028105	A-B-C	2 N.O.	A02503
□	3 pos. momentary	A028106	A	2 N.C.	A02504
□	3 pos. mainL, momR	A028107	A-B	1 N.O./1 N.C.	A02505
□	3 pos. momL, mainR	A028108	A-C		
□	2 pos. maintained	A028201	A-C		
□	2 pos. momentary	A028202	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	A028301	A-C		
○	2 pos. momentary	A028302	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		

**Second switch block**

Contacts	Part No
1 N.O.	A02506
1 N.C.	A02507
2 N.O.	A02508
2 N.C.	A02509
1 N.O./1 N.C.	A02510

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

**Key Rotation - 2 position switches**

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

01 with 20  
02 with 19

at the end of the model number

2 standard keys are supplied.

20 key barrel types available from stock.

UNSEALED SWITCHES (IP40): add '01' to end of OPERATOR model number.

NON-REMOVABLE KEY POSITIONS: contact APEM Components

Bezel: □ rectangular, □ square, ○ round,



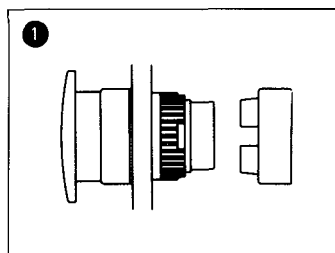
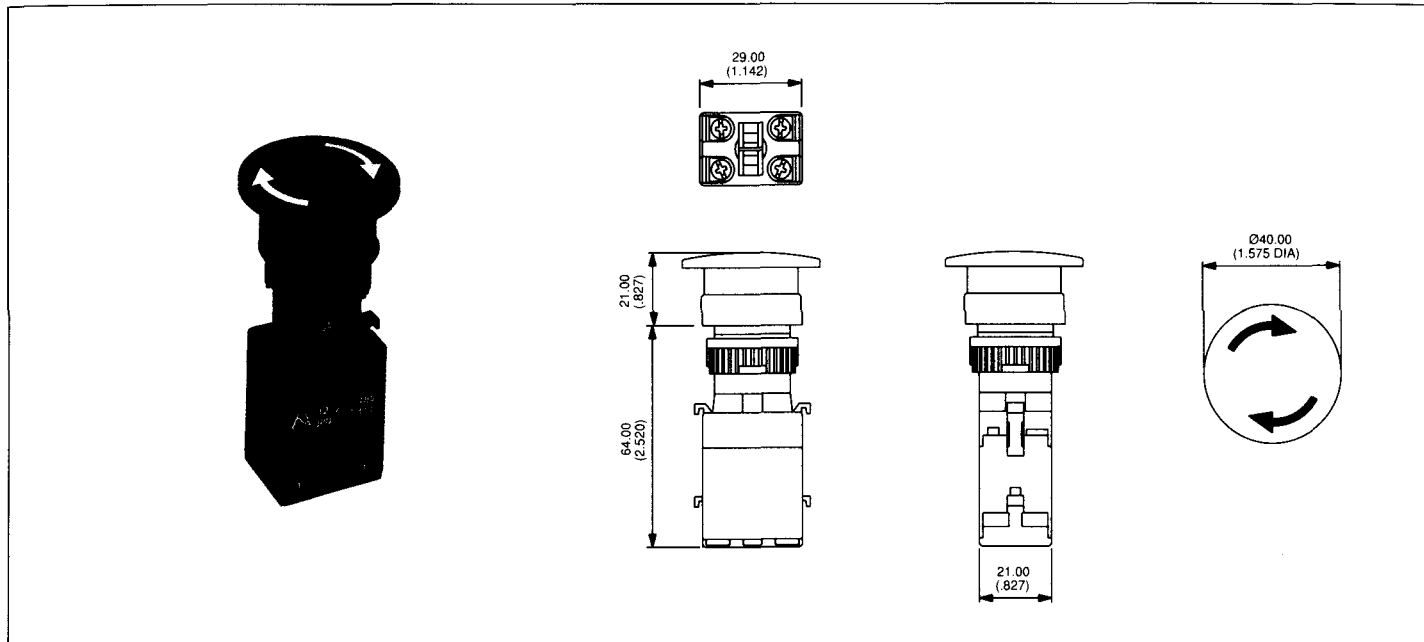
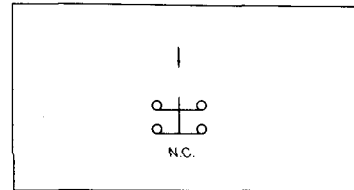
# A02 SERIES

## EMERGENCY STOP SWITCHES

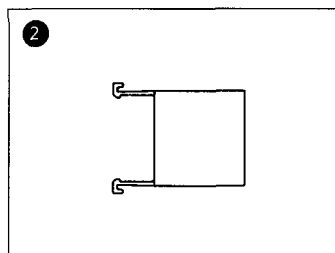
### Panel cut-out Ø22 (.866)

- Prominent 40mm (1.575) dia red mushroom actuator
- Highly reliable positive break switch
- Push to shut off, twist to reset to ON

Emergency stop switch assembly requires: operator + switch block  
**CONFORMS TO UL1054/EN60947**

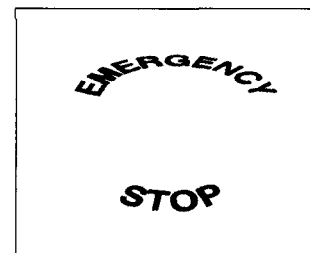


**Operator**



**Switch block**

Accessory



**90mm Self Adhesive Label**

Description	Part No	No of poles	Part No
E-Stop operator	<b>A02ES</b>	Double pole Single pole	<b>A02511</b> <b>A02512</b>

Description	Part No
Yellow label with text	<b>A02YL1</b>
Yellow label	<b>A02YL2</b>

## MUSHROOM HEAD PUSHBUTTONS

Bezel	Description	Part No	Contacts	Part No
○	Red momentary	<b>A02MMB</b>	1 N.O.	<b>A02501</b>
○	Black momentary	<b>A02MMA</b>	1 N.C.	<b>A02502</b>
○	Red maintained	<b>A02MXB</b>	2 N.O.	<b>A02503</b>
○	Black maintained	<b>A02MXA</b>	2 N.C.	<b>A02504</b>
			1 N.O./1 N.C.	<b>A02505</b>

Momentary and maintained function mushroom head pushbutton acutators.

Momentary function version is unmarked (Mushroom head pushbuttons share the same dimensions as emergency stop switches).

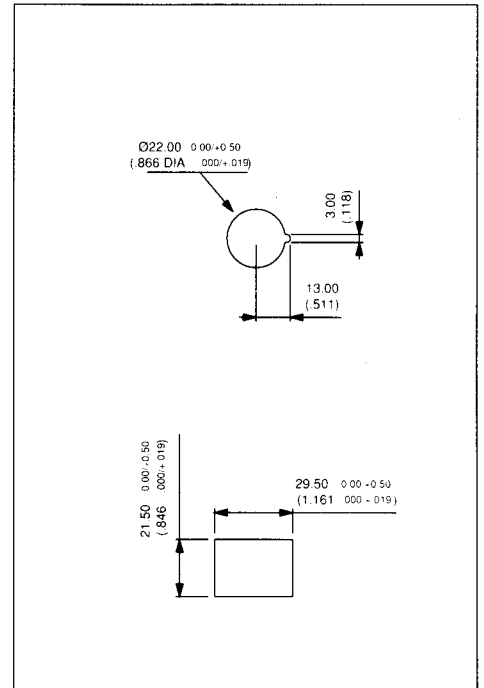
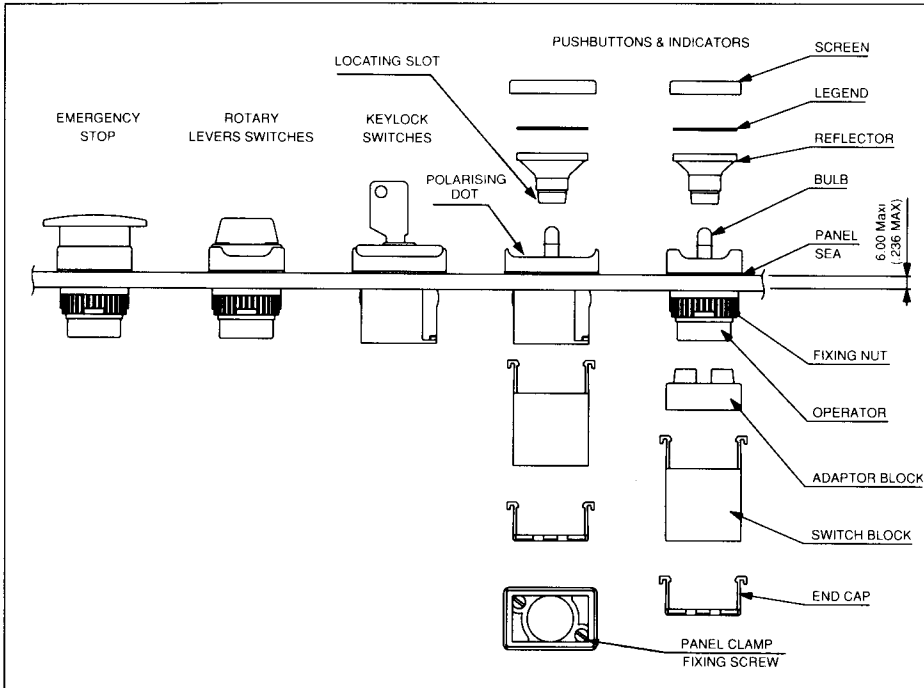
**Mushroom head pushbutton assembly requires:**  
operator + switchblock

For other colour variations please contact APEM Components

UNSEALED SWITCHES (IP40) : add '01' to end of OPERATOR model number

# 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:
  - a/ *Round & Square types*: tighten nut to a maximum torque of 0,8Nm using tool No 30-0001. Snap on adaptor block
  - b/ *Rectangular types*: tighten two panel fixing screws in front to a maximum torque of 6cNm.
- Wire chosen switch block as required and snap onto front operator.
- Snap end cap onto switch block (optional).
- 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.

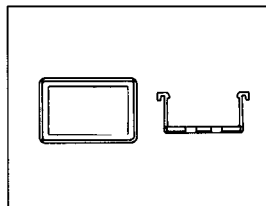
### TO REMOVE BULB

Remove reflector/screen assembly by inserting tool No 30-0006 between the bezel finger guard and the screen to engage the slot and pulling. Use the bulb extractor 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 of operator.

### A02 Accessory



**Part No. : 14-0005**

END CAP TERMINAL GUARD OFFERING UNIQUE TERMINAL PROTECTION

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

**Tolerance:** The general tolerance for dimensions in this catalogue is  $\pm 0,3$  (.012).

Dimensions, specifications and data shown in this catalogue are subject to change without notice.