

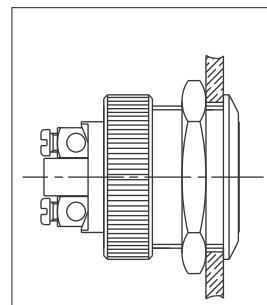
# AV series

## Anti-vandal and security pushbutton switches

### Distinctive features

- ☐ **Attractive, robust and durable**
  - Irremovable
  - Anti-jamming construction : reduced travel to prevent insertion of foreign parts
  - Contact and mechanism protected against crushing
  - Fire resistant
  - Long life
- ☐ **Different bushing sizes and actuator shapes**
- ☐ **Sealed versions**
- ☐ **Degree of protection of sealed versions (switches mounted on vertical panels) : IP65 to IP67 or IP69K depending on models**
- ☐ **UL/CSA approved models**

UG1410-A-R1



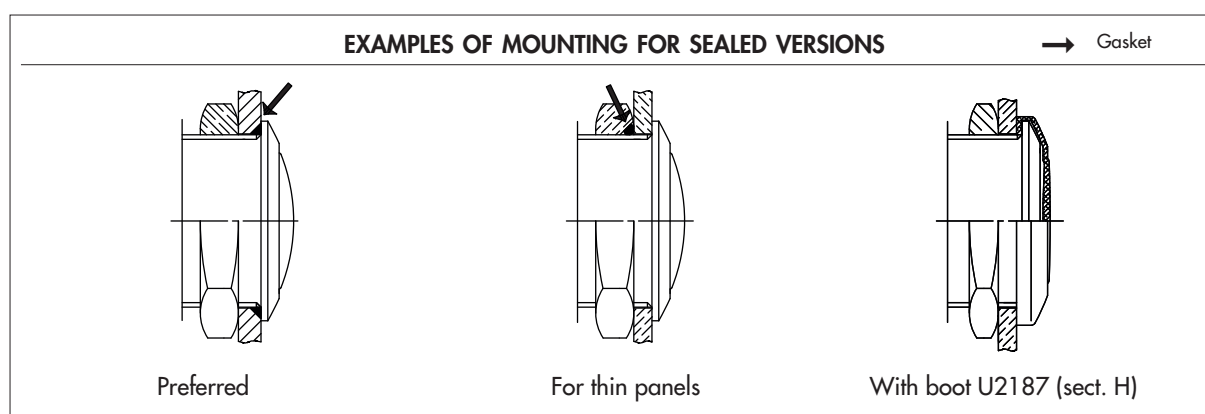
The AV series is a large range of very robust pushbutton switches, consisting of 2 families :

#### ANTI-VANDAL PUSHBUTTON SWITCHES (pages 77-79)

- Great robustness (impact resistance IK08 (Ø 19 mm) and IK10 (Ø 22 mm))
- Actuator and bushing : stainless steel
- Bushing Ø 19 mm (.748) or 22 mm (.866)

#### SECURITY PUSHBUTTON SWITCHES (pages 80-106)

- Large variety of models
- Actuator and bushing : nickel plated, chrome plated or polished varnished brass, stainless steel
- Bushing diameter 16 mm (.629), 19 mm (.748), 22 mm (.866) or 24 mm (.944)
- Marking, illumination, tactile feedback
- Numerous electrical functions (momentary or maintained)



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



**Packaging unit** : specified on the following pages.



**Mounting accessories** : Standard and special hardware are presented in section I.



**Sealing boots** are available for models with Ø 19 mm (.748) bushing. See Section H.

The company reserves the right to change specifications without notice.

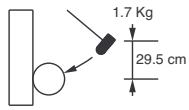
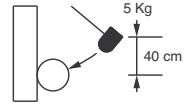
- ☐ Very robust
- Impact resistance IK08 for model Ø 19 mm (.748)  
and IK10 for model Ø 22 mm (.866)
- ☐ Stainless steel actuator and bushing
- ☐ UL-CSA approved (long case only)

B2

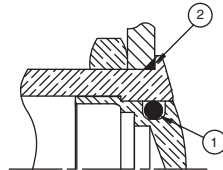
| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Max. current/voltage rating with resistive load : <ul style="list-style-type: none"> <li>- A contacts : 4A 12VDC, 500.000 cycles</li> <li>- C contacts : 2A 48 VDC, 10.000 cycles</li> </ul> </li> <li>Initial contact resistance : 10 mΩ max.</li> <li>Insulation resistance : 1.000 MΩ min. at 500VDC</li> <li>Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame<br/>2.000 Vrms 50 Hz min. between terminals</li> <li>Torque : 5 Nm min.- 14 Nm max. applied to nut</li> <li>Panel thickness : 1 (.039) to 11 mm (.433) max.</li> <li>Operating temperature : -30°C to +70°C</li> <li>Low level or mechanical life : 1.000.000 cycles</li> <li>Hand soldering : 300°C, 3 sec. max.</li> <li>Packaging unit : 20 pieces (models Ø 22) or 40 pieces (models Ø 19)</li> </ul> |

| MATERIALS                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Case : PBT</li> <li>Contacts : silver (A)<br/>or brass, silver plated (C)</li> <li>Bushing : stainless steel</li> <li>Actuator : stainless steel</li> </ul> |

| CUT-OUT                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Panel cut-out :<br/>Ø 19,2 mm (.755)<br/>or Ø 22,2 mm (.874)</li> <li>Min. pitch for matrix mounting :<br/>30 mm x 30 mm (1.181x1.181)</li> </ul> |

| ROBUSTNESS                                                       |                                                                                     |                                 |                                                                                     |                                   |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|
| Model Ø 19 mm (.748)                                             |                                                                                     | Model Ø 22 mm (.866)            |                                                                                     |                                   |
| Degree of protection according to EN 62262, June 95 (NFC 20-015) |  | IK08                            |  | IK10                              |
|                                                                  | Hammer radius 25 mm                                                                 | Striking energy: 5 joules (5Nm) | Hammer radius 50 mm                                                                 | Striking energy: 20 joules (20Nm) |

Increased impact resistance provided by a nut or mechanical stop.

| SEALING ( OPTION T )                                                                  |
|---------------------------------------------------------------------------------------|
|  |
| Front panel sealing (IP65)                                                            |

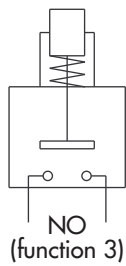
① internal gasket    ② external gasket

Option N does not include ① nor ②.

# AV series

Anti-vandal pushbutton switches Ø 19 mm (.748)

Momentary (NO)



## ORDER FORMAT

|        |                                  |                       |          |                                 |                            |                     |                  |
|--------|----------------------------------|-----------------------|----------|---------------------------------|----------------------------|---------------------|------------------|
| AV     |                                  |                       | 3        |                                 |                            | 40                  |                  |
| SERIES | Actuator type                    | Case                  | Function | Contacts                        | Terminals                  | Bush./act. material | Sealing          |
|        | 09 Flat<br>19 Curved<br>9D Flush | 000 Long<br>100 Short | 3 NO     | A Silver<br>C Brass, silver pl. | 9 Screw<br>2 Quick-connect | 40 Stainless steel  | N No<br>T Sealed |

B2

In the following model numbers, replace • with elements selected in the above order format.

### Flat actuator - short case - 48VDC - AV09100

Hex nut 22 (.866) across flats



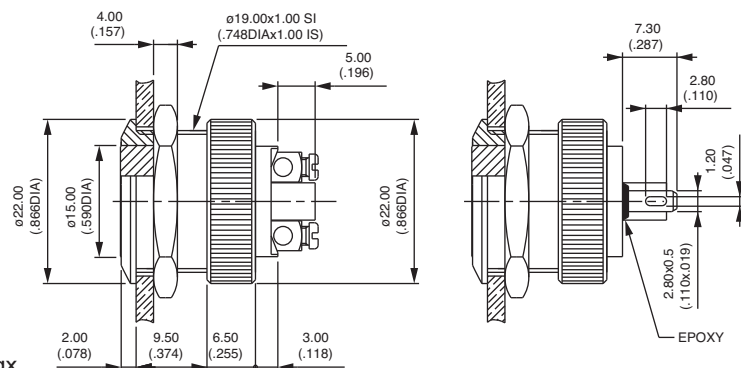
Screw terminals  
AV091003•940•



Solder lug /  
quick-connect term.  
AV091003•240•



Screw terminals for wires 1,5 mm<sup>2</sup> max.



### Flat actuator - long case - 4A 250VAC/8A125VAC - UL/CSA - AV09000

Hex nut 22 (.866) across flats

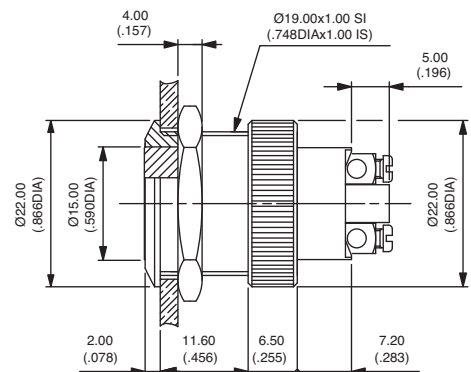


Screw terminals  
AV090003A940•

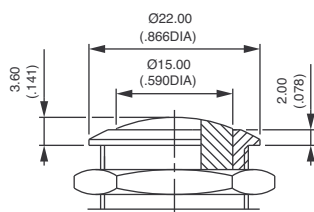


To order switches marked UL-CSA, add  
"UU" at the end of model number.

Screw terminals for wires 1,5 mm<sup>2</sup> max.

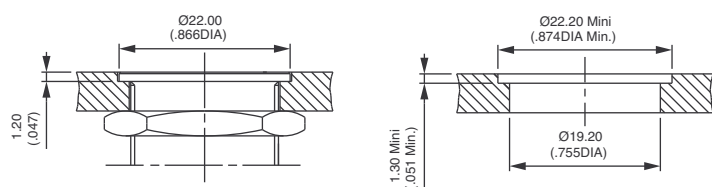


### Curved actuator - AV19



Screw terminals  
AV19•003•940•  
Solder lug/quick-connect term. (short case)  
AV191003•240•

### Flush model - AV9D



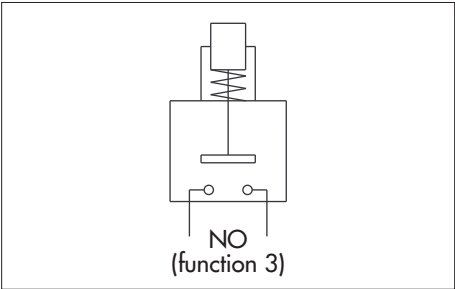
Screw terminals  
AV9D•003•940•  
Solder lug / quick-connect terminals (short case only)  
AV9D1003•240•

Panel cut-out

# AV series

## Anti-vandal pushbutton switches Ø 22 mm (.866)

Momentary (NO)



### ORDER FORMAT

|        |                                                                                                |                       |          |                                 |                            |                     |                  |
|--------|------------------------------------------------------------------------------------------------|-----------------------|----------|---------------------------------|----------------------------|---------------------|------------------|
| AV     |                                                                                                |                       | 3        |                                 |                            | 40                  |                  |
| SERIES | Bushing/act. configuration                                                                     | Case                  | Function | Contacts                        | Terminals                  | Bush./act. material | Sealing          |
|        | 03 Flat act.<br>02 Curved act.<br>M3 Flat act + flatted bush.<br>M2 Curved act.+ flatted bush. | 000 Long<br>100 Short | 3 NO     | A Silver<br>C Brass, silver pl. | 9 Screw<br>2 Quick-connect | 40 Stainless steel  | N No<br>T Sealed |

In the following model numbers, replace • with elements selected in the above order format.

B2

### Flat actuator - short case - 48VDC - AV03100

Hex nut 25 (.984) across flats



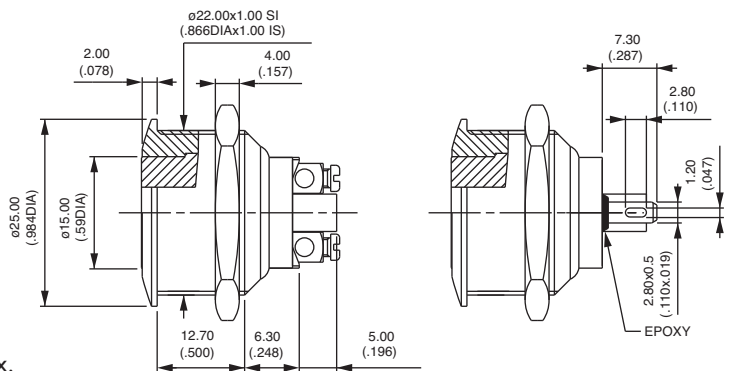
Screw terminals  
AV031003•940•



Solder lug / quick-connect term.  
AV031003•240•



Screw terminals for wires 1,5 mm<sup>2</sup> max.



### Flat actuator - long case - 4A 250VAC/8A125VAC - UL/CSA - AV03000

Hex nut 25 (.984) across flats

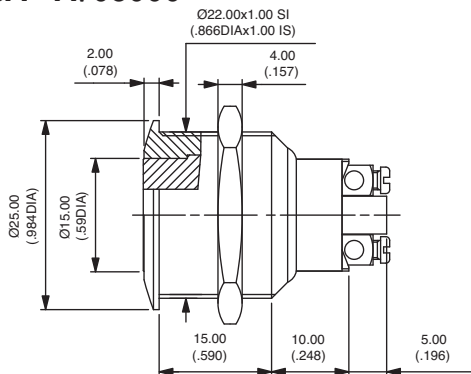


Screw terminals  
AV030003A940•

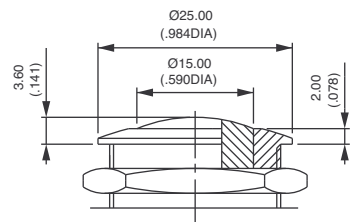


To order switches marked UL-CSA, add "UU" at the end of model number.

Screw terminals for wires 1,5 mm<sup>2</sup> max.

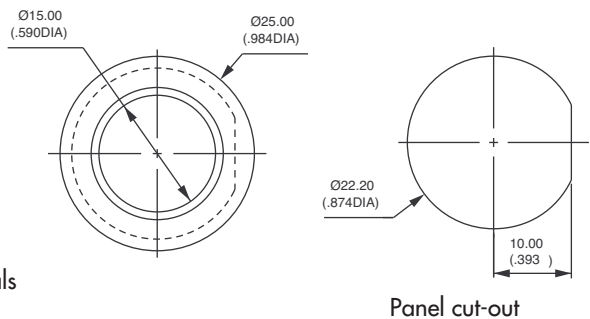


### Curved actuator - AV02



Screw terminals  
AV02•003•940•  
Solder lug / quick-connect (short case)  
AV021003•240•

### Flatted bushing - AVM3 and AVM2



Flat actuator, screw terminals  
AVM3•003•940•

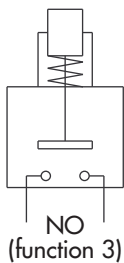
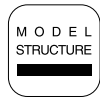
Curved actuator, screw terminals  
AVM2•003•940•

Panel cut-out

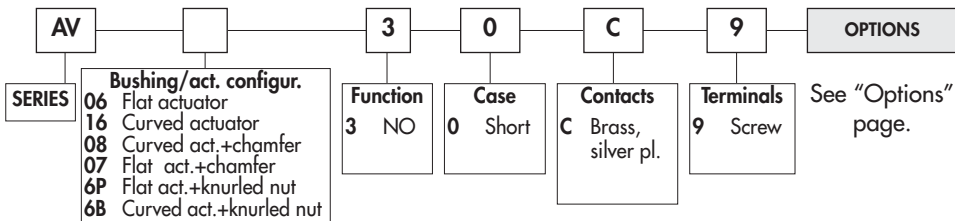
# AV series

Snap action security pushbutton switches Ø 16 mm (.629)

Momentary (NO)



## ORDER FORMAT



## SPECIFICATIONS

- Travel : 1,60 mm (.063) ± 0,3 mm (.011)
- Max. current/voltage rating with resistive load : 200mA 48 VDC - 100mA 48VDC
- Initial contact resistance : 50 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 50.000 cycles at 200mA 48VDC  
100.000 cycles at 100mA 48VDC
- Torque : 5 Nm min. - 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -30°C to +70°C
- Low level or mechanical life : 1.000.000 cycles
- Packaging unit : 60 pieces

## MATERIALS

- Case : PBT
- Contacts : brass, silver plated (C)
- Bushing and actuator : see "Options" page

## CUT-OUT

- Panel cut-out : Ø 16,2 mm (.637)
- Min. pitch for matrix mounting : 24 mm x 24 mm (.944 x .944) (AV6P & AV6B : 20 mm x 20 mm)

To order a product, select a basic model below and add the desired options.

## BASIC MODEL

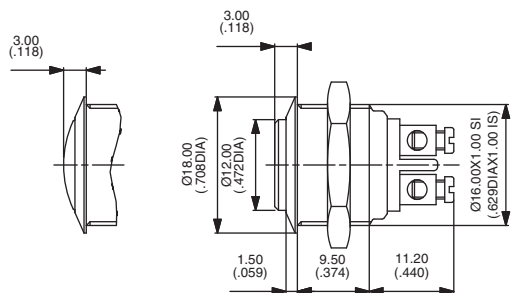
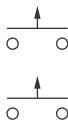
### Flat or curved actuator - screw terminals

Hex nut 19 (.748) across flats



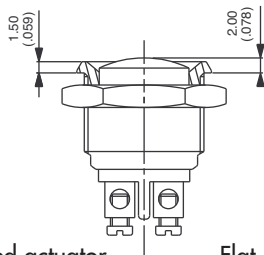
Flat actuator  
AV0630C9

Curved actuator  
AV1630C9



Screw terminals for wires 1,5 mm² max.

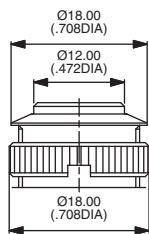
### With chamfer



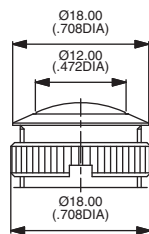
Curved actuator  
AV0830C9

Flat actuator  
AV0730C9

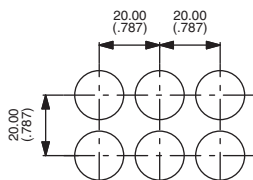
### With knurled nut for matrix mounting 20 x 20 - AV6P and AV6B



Flat actuator  
AV6P30C9



Curved actuator  
AV6B30C9



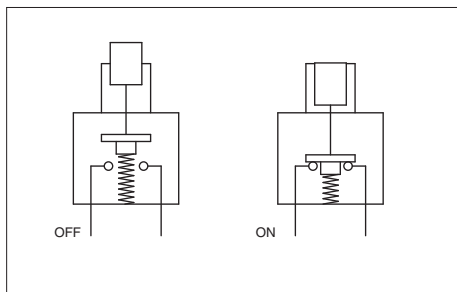
Wrench available  
under P/N U1990.



# AV series

## Security pushbutton switches Ø 16 mm (.629)

Latching action



### ORDER FORMAT

| SERIES | Actuator             | Function | Case   | Contacts | Terminals                           | OPTIONS             |
|--------|----------------------|----------|--------|----------|-------------------------------------|---------------------|
| AV     | 06 Flat<br>16 Curved | 1 Off-On | 1 Long | A Silver | 2 Solder<br>4 PC<br>8 Quick-connect | See "Options" page. |

### SPECIFICATIONS

- Max. current/voltage rating with resistive load : 1A 24VDC
- Initial contact resistance : 50mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms 50 Hz min. between terminals  
1 000 Vrms 50 Hz between terminals and frame
- Electrical life : 40.000 cycles
- Torque : 5 Nm min. - 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -30°C to +70°C
- Low level or mechanical life : 200.000 cycles
- Hand soldering : 300°C, 5 sec. max.
- Packaging unit : 25 pieces

### MATERIALS

- Case : PA-6T, UL94-V0
- Contacts : silver (A)  
*Gold plated silver (AD) on request*
- Bushing and actuator : see "Options" page

### CUT-OUT

- Panel cut-out : Ø 16,2 mm (.637)
- Min. pitch for matrix mounting : 24 mm x 24 mm (.944 x .944)

To order a product, select a basic model below and add the desired options.

### BASIC MODEL

#### Flat or curved actuator - solder lug terminals

Hex nut 19 (.748) across flats

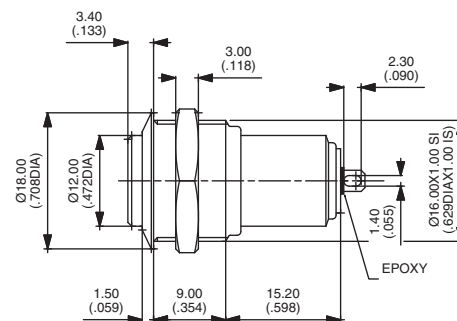
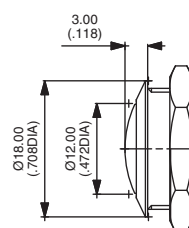


Flat actuator  
AV0611A2

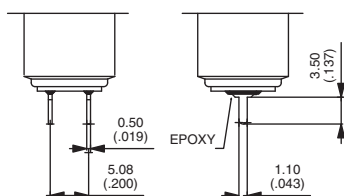
OFF - ON

Curved actuator  
AV1611A2

OFF - ON



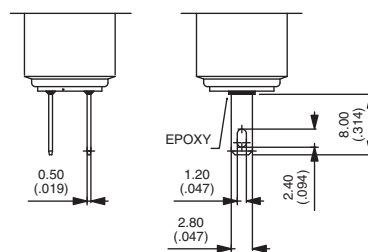
#### Straight PC terminals



Flat actuator  
AV0611A4

Curved actuator  
AV1611A4

#### Quick-connect terminals



Flat actuator  
AV0611A8

Curved actuator  
AV1611A8

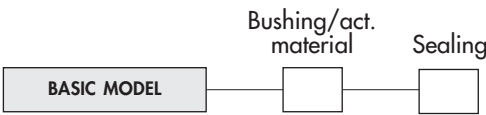
# AV series

Security pushbutton switches Ø 16 mm (.629)



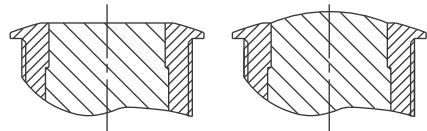
## Options

After selecting basic model number, fill in last 2 boxes with desired options.



### BUSHING/ACTUATOR MATERIALS

#### Flat or curved metal actuator



| CODE          | BUSHING             | ACTUATOR            |
|---------------|---------------------|---------------------|
| 00 (standard) | Nickel plated brass | Nickel plated brass |
| 10            | Nickel plated brass | Stainless steel     |
| 40            | Stainless steel     | Stainless steel     |

### SEALING

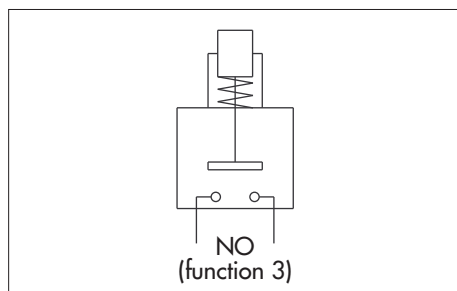
|       |                            |
|-------|----------------------------|
| Blank | No sealing                 |
| K     | Front panel sealing (IP65) |



# AV series

## Security pushbutton switches Ø 19 mm (.748)

Momentary (NO)



### ORDER FORMAT

| SERIES | Bushing/act. config.                                                                               | Case                  | Function | Contacts                          | Terminals                  | OPTIONS             |
|--------|----------------------------------------------------------------------------------------------------|-----------------------|----------|-----------------------------------|----------------------------|---------------------|
| AV     | 09 Flat actuator<br>19 Curved actuator<br>9P Flat act., knurled nut<br>9B Curved act., knurled nut | 000 Long<br>100 Short | 3 NO     | A Silver<br>C Brass<br>silver pl. | 9 Screw<br>2 Quick-connect | See "Options" page. |

### SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - A contacts : 4A 12VDC, 500.000 cycles
  - C contacts : 2A 48 VDC, 10.000 cycles
- Approved ratings of models with long case and A contacts (AV..000) :  
UL-CSA : 4A 250VAC - 8A 125VAC - 6.000 cycles
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame  
2.000 Vrms 50 Hz min. between terminals
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 11 mm (.433) max.
- Operating temperature : -30°C to +70°C
- Low level or mechanical life : 1.000.000 cycles
- Hand soldering : 300°C, 3 sec. max.
- Packaging unit : 40 pieces

### MATERIALS

- Case : PBT
- Contacts : silver (A)  
or brass, silver plated (C)
- Bushing and actuator : see "Options" page

### CUT-OUT

- Panel cut-out : Ø 19,2 mm (.755)
- Min. pitch for matrix mounting :  
30 mm x 30 mm (1.181x1.181)  
(AV9P & AV9B : 25 mm x 25 mm)

To order a product, select a basic model below and add the desired options.

### BASIC MODEL

#### Flat actuator - short case - 48VDC - AV09100

Hex nut 22 (.866) across flats

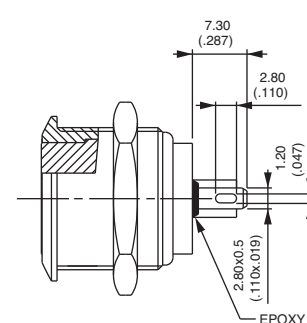
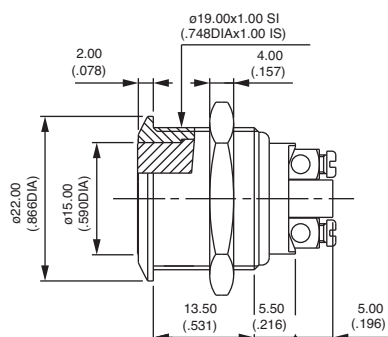


Screw terminals  
AV091003•9

Solder lug /  
quick-connect term.  
AV091003•2

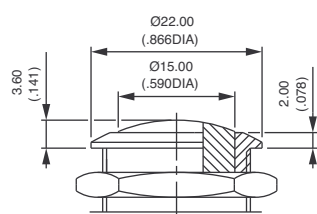


Screw terminals for wires 1,5 mm² max.



Contacts : replace • with A (silver) or C (silver plated brass).

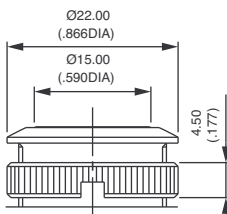
#### Curved actuator - short case



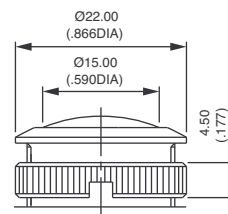
Screw terminals  
AV191003•9

Solder lug / quick-connect terminals  
AV191003•2

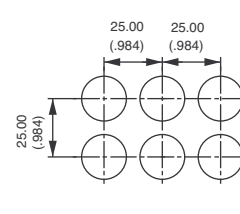
#### With knurled nut for matrix mounting 25 x 25 - AV9P and AV9B



Flat actuator, screw terminals  
AV9P1003•9  
Flat actuator, solder lug term.  
AV9P1003•2



Curved actuator, screw terminals  
AV9B1003•9  
Curved actuator, solder lug term.  
AV9B1003•2



Wrench available  
under P/N U1929

# AV series

Security pushbutton switches Ø 19 mm (.748)

Momentary (NO)



## Flat actuator - long case - 4A 250VAC/8A 125VAC - UL/CSA - AV09000

Hex nut 22 (.866) across flats

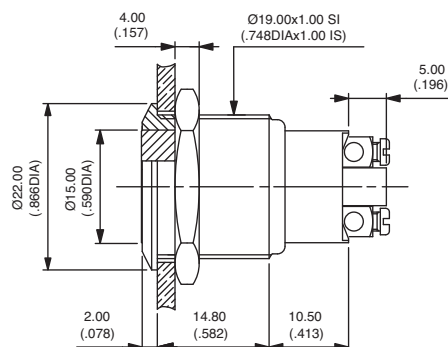


Screw terminals  
**AV090003A9**



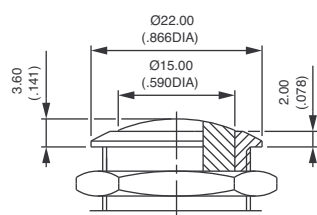
To order switches marked **UL-CSA**, add **"UU"** at the end of model number.

Screw terminals for wires 1,5 mm<sup>2</sup> max.



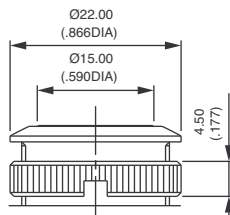
B2

## Curved actuator - long case

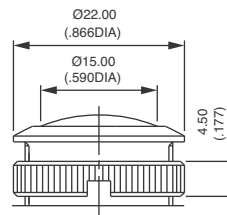


Screw terminals  
**AV190003A9**

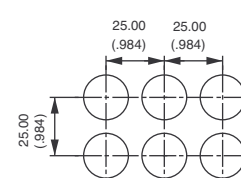
## With knurled nut for matrix mounting 25 x 25 - AV9P and AV9B



Flat actuator, screw terminals  
**AV9P0003A9**



Curved actuator, screw terminals  
**AV9B0003A9**



Wrench available  
under P/N **U1929**.

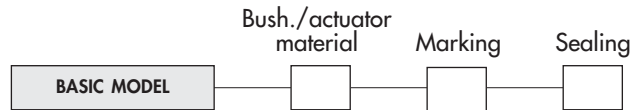


# AV series

Security pushbutton switches Ø 19 mm (.748)

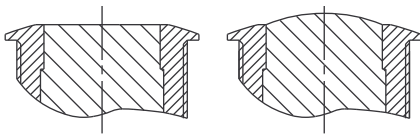
Options

After selecting basic model number,  
fill in last 3 boxes  
with desired options.



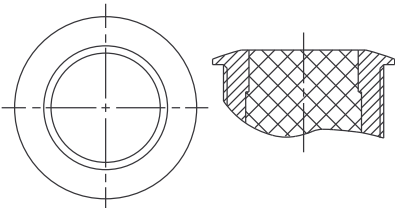
## BUSHING/ACTUATOR MATERIALS

### Flat or curved metal actuator



| CODE          | BUSHING                  | ACTUATOR                 |
|---------------|--------------------------|--------------------------|
| 00 (standard) | Nickel plated brass      | Nickel plated brass      |
| 10            | Nickel plated brass      | Stainless steel          |
| 12            | Nickel plated brass      | Chrome plated brass      |
| 20            | Chrome plated brass      | Chrome plated brass      |
| 30            | Chrome plated brass      | Stainless steel          |
| 40            | Stainless steel          | Stainless steel          |
| 80            | Varnished polished brass | Varnished polished brass |

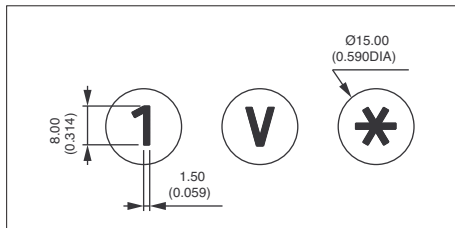
### Flat thermoplastic actuator



| CODE          | BUSHING                  | ACTUATOR COLOUR                                    |
|---------------|--------------------------|----------------------------------------------------|
| 0• (standard) | Nickel plated brass      | Replace • with one of the following codes.         |
| 2•            | Chrome plated brass      | 1 : blue - 1/4 : dark blue - 2 : black - 3 : green |
| 8•            | Varnished polished brass | 4 : grey - 5 : yellow - 6 : red - 7/1 : white      |
|               |                          | 9 : orange                                         |

## MARKING

- By engraving on flat or curved brass actuator (stainless steel on request)
- by hot stamping on flat thermoplastic actuator



Select an option from each of the two tables below.

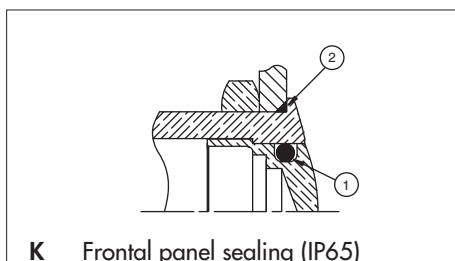
| TYPE OF MARKING |                |
|-----------------|----------------|
| CODE            | TYPE           |
| 0 to 9          | Numbers 0 to 9 |
| X               | Symbol *       |
| Y               | Symbol #       |
| A to N          | Letters A to N |
| P to W          | Letters P to W |
| O               | Letter O       |

Letter O : same code and same design as number 0.  
For special symbols, consult factory.  
Minimum order : 500 pieces

| COLOUR OF MARKING                                                                    |                |
|--------------------------------------------------------------------------------------|----------------|
| CODE                                                                                 | COLOUR         |
| <b>Brass actuator</b>                                                                |                |
| 0 (standard)                                                                         | Same as finish |
| 2                                                                                    | Black          |
| Note : a finished product supplied in version "0" cannot be modified to version "2". |                |
| <b>Thermoplastic actuator</b>                                                        |                |
| 2                                                                                    | Black          |
| 7                                                                                    | White          |

## SEALING

Blank No sealing

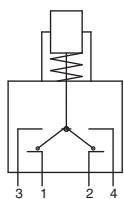


- ① internal gasket  
② external gasket

# AV series

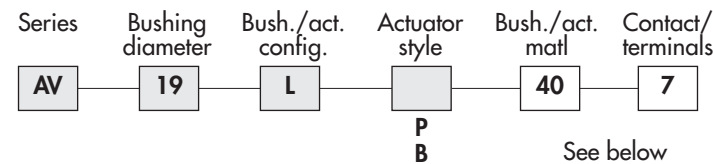
## Security pushbutton switches Ø 19 mm (.748)

Momentary (NC/NO)



Combined NC/NO

### ORDER FORMAT



### SPECIFICATIONS

- Max. current/voltage rating with resistive load :  
5A 250VAC - 5A 125VAC - 6.000 cycles  
5A 15VDC - 3A 30VDC - 50.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between term. and frame
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 9 mm (.354) max.
- Operating temperature : -20°C to +85°C
- Low level or mechanical life : 1.000.000 cycles
- Front panel sealing : IP65 and IP69K
- Packaging unit : 20 pieces

### MATERIALS

- Case : PA 6/6
- Contacts : silver
- Bushing : stainless steel (std)
- Actuator : stainless steel (std)

### CUT-OUT

- Panel cut-out : Ø 19,2 mm (.755)
- Min. pitch for matrix mounting :  
30 mm x 30 mm (1.181x1.181)

All model numbers below are for switches with standard bushing/actuator material.

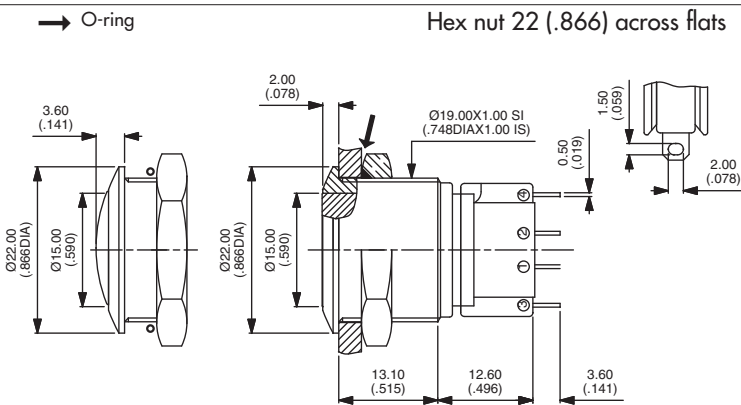
### BASIC MODEL

#### Solder lug terminals - AV19..407



Flat actuator  
AV19LP407

Curved actuator  
AV19LB407



### BUSHING/ACTUATOR MATERIALS

| CODE | BUSHING             | ACTUATOR            |
|------|---------------------|---------------------|
| 00   | Nickel plated brass | Nickel plated brass |
| 20   | Chrome plated brass | Chrome plated brass |

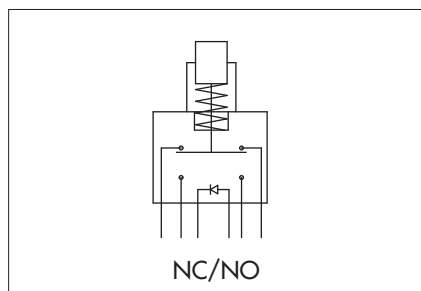
For non-standard material, replace 40 with one of the following codes.



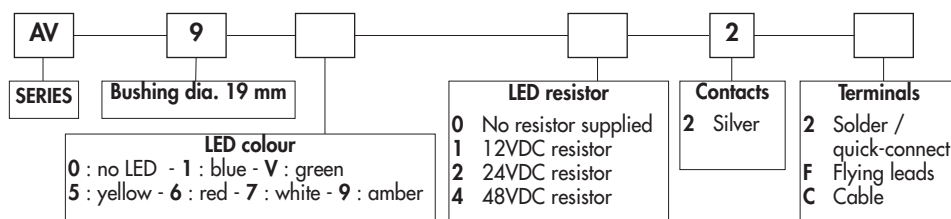
# AV series

## Security pushbutton switches Ø 19 mm (.748)

With illuminated ring - momentary (NC/NO)



### ORDER FORMAT



### SPECIFICATIONS

- Travel : 2 mm  $\pm$  0,3 mm (.003)
- Max. current/voltage rating with resistive load : 1A 30VDC
- LED voltage : 12VDC, 24VDC or 48VDC  
(If not supplied by APEM, a resistor must be series-connected by the user)\*\*
- Initial contact resistance : 100 m $\Omega$  max.
- Insulation resistance : 10 M $\Omega$  min. at 500VDC
- Dielectric strength : 500 Vrms 50 Hz min. between terminals  
1.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 250.000 cycles at full load
- Operating force : 5N  $\pm$  2N
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Low level or mechanical life : 1.000.000 cycles
- Operating temperature : -30°C to +85°C
- Hand soldering : 350°C, 5 seconds max.
- Packaging unit : flying lead/cable models : 1 piece - other models : 40 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : polyamide, glass filled
- Contacts : silver
- Bushing : see next page
- Actuator : see next page
- Elastomeric membrane : silicone
- LED

### CUT-OUT

- Panel cut-out : Ø 19,2 mm (.755)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired LED colour and voltage. Then select the desired options on next page.

### Flat actuator - solder lug terminals

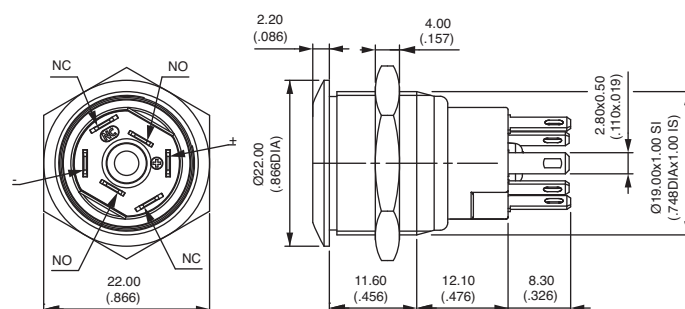
Hex nut 22 (.866) across flats



Illuminated (select LED colour above) \*  
**AV9•022** ON - MOM

Non-illuminated  
**AV90022** ON - MOM

\* No LED resistor supplied on this model.



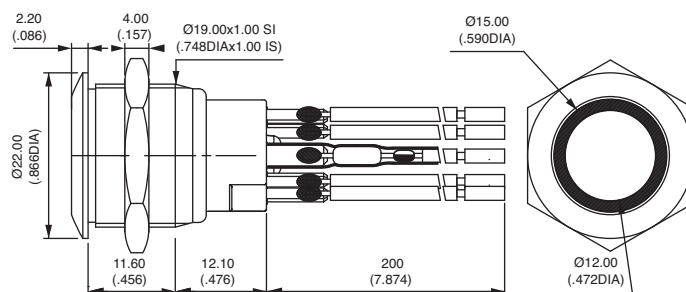
### Flat actuator - flying lead terminals

Hex nut 22 (.866) across flats



Illuminated (select LED colour & resistor above)  
**AV9••2F** ON - MOM

Non-illuminated  
**AV9002F** ON - MOM



Wire colours : black: NC, orange: NO, red: LED anode (+), blue : LED cathode (-)

# AV series

## Security pushbutton switches Ø 19 mm (.748)

With illuminated ring - momentary (NC/NO)



B2

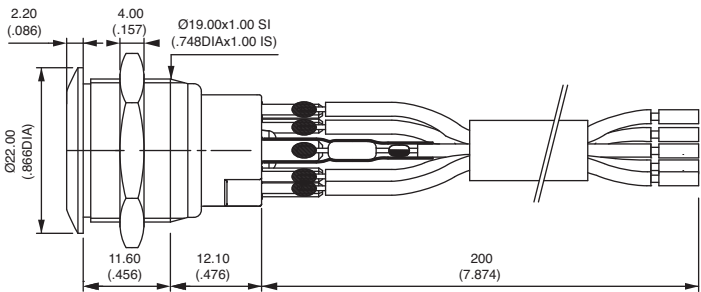
### Flat actuator - cable terminals

Hex nut 22 (.866) across flats

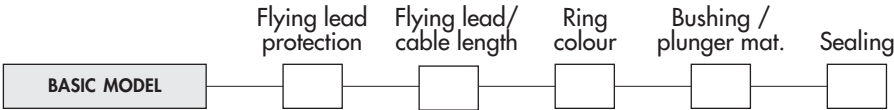


Illuminated (select colour & resistor)  
**AV9••2C** ON - MOM

Non-illuminated  
**AV9002C** ON - MOM



After selecting basic model No.,  
fill in last 5 boxes  
with desired options.



### FLYING LEAD PROTECTION

- 0 No protection and/or no flying leads
- 1 Heat-shrink sleeves
- 2 Tube + epoxy

### FLYING LEAD/CABLE LENGTH

- 000 No flying leads / no cable
- 020 Length 20 cm (standard)
- XXX Length in centimeters

### RING COLOURS

| CODE | COLOUR  | CODE | COLOUR           |
|------|---------|------|------------------|
| 1    | Blue    | 6    | Red              |
| 2    | Black * | 7    | Opal white (std) |
| 3    | Green   | 8    | Translucent      |
| 4    | Grey *  | 9    | Orange           |
| 5    | Yellow  |      |                  |

\* non-illuminated only

### BUSHING/PLUNGER MATERIALS

| CODE                | BUSHING                 | ACTUATOR                |
|---------------------|-------------------------|-------------------------|
| 00                  | Nickel plated brass     | Nickel plated brass     |
| 40                  | Stainless steel 303     | Stainless steel 303     |
| 4A                  | Stainless steel 304     | Stainless steel 304     |
| 4B                  | Stainless steel 316     | Stainless steel 316     |
| 70                  | Chrome pl. brass, black | Chrome pl. brass, black |
| Other : on request. |                         |                         |

### SEALING

Blank No sealing



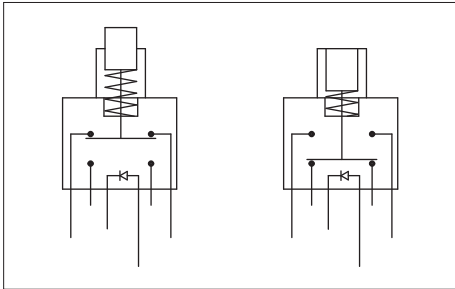
**K** Front panel sealing (IP67)

- ① internal membrane
- ② external gasket

# AV series

## Security pushbutton switches Ø 19 mm (.748)

Illuminated and non-illuminated - latching



### ORDER FORMAT

| AV    |                      | 1                  |                  |                                                    | E        | A        |                                     | OPTIONS        |
|-------|----------------------|--------------------|------------------|----------------------------------------------------|----------|----------|-------------------------------------|----------------|
| SERIE | Actuator type        | Bush./act. config. | Illumin.         | LED colour                                         | Function | Contacts | Terminals                           | See next page. |
|       | 09 Flat<br>19 Curved |                    | 0 No<br>L Illum. | 0 No LED<br>1 Blue<br>3 Green<br>5 Yellow<br>6 Red |          |          | 2 Solder<br>4 PC<br>8 Quick-connect |                |

### SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 48 VDC
- LED voltage and consumption : blue 3,5V 10mA, green : 2V 10mA, yellow & red : 2V 20mA (a resistor must be series-connected by the user)\*\*
- Initial contact resistance : 50 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 1 000 Vrms 50 Hz min. between terminals, 500 Vrms 50 Hz min. between terminals and frame
- Electrical life : 500.000 cycles at 2A 48VDC
- Torque : 5 Nm min. - 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 9 mm (.354) max.
- Operating temperature : -30°C to +70°C
- Low level or mechanical life : 1.000.000 cycles
- Hand soldering : 300°C, 4 seconds max.
- Packaging unit : 20 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : PA6T UL94-V0
- Contacts : silver
- Bushing and actuator : see next page
- LED

### CUT-OUT

- Panel cut-out : Ø 19,2 mm (.755)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181 x 1.181)

To order a product, select a basic model below and add the desired options selected on next page.

Standard actuator position : the actuator is flush in the non-latched position and recessed in the latched position.

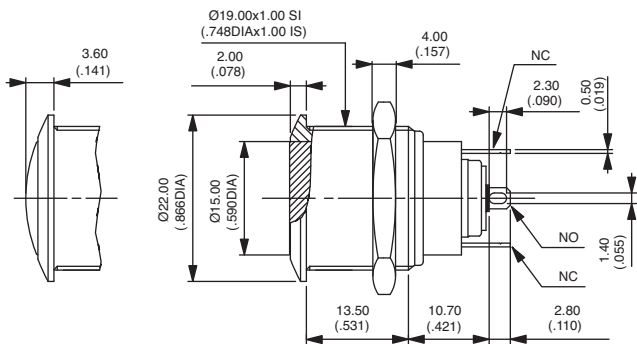
### Non-illuminated - solder lug terminals

Hex nut 22 (.866) across flats



Flat actuator \*  
**AV09100EA2** ON - ON

Curved actuator  
**AV19100EA2** ON - ON



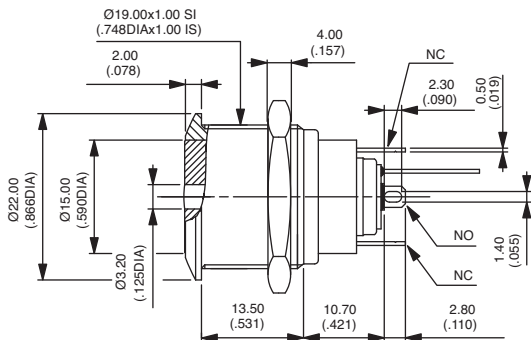
\* Also available with prominent actuator in the non-latched position

### Illuminated - solder lug terminals

Hex nut 22 (.866) across flats



Flat actuator  
**AV0911L•EA2** ON - ON



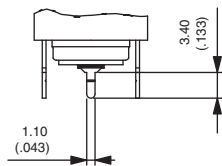
Replace • with desired LED colour.

# AV series

Security pushbutton switches Ø 19 mm (.748)

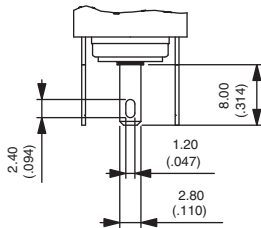
Latching - Options

### Straight PC terminals



Replace 2 with 4 at the end of the model numbers shown on previous page.

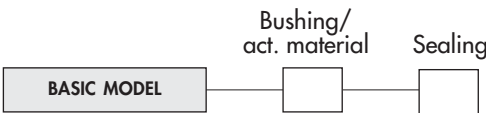
### Quick-connect terminals



Replace 2 with 8 at the end of the model numbers shown on previous page.

B2

After selecting basic model number, fill in last 2 boxes with desired options.

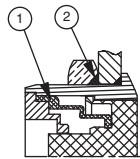


### BUSHING/ACTUATOR MATERIALS

| CODE     | BUSHING             | ACTUATOR            |
|----------|---------------------|---------------------|
| 00 (std) | Nickel plated brass | Nickel plated brass |
| 10       | Nickel plated brass | Stainless steel     |
| 40       | Stainless steel     | Stainless steel     |
| 50       | Stainless steel     | Nickel plated brass |

### SEALING

Blank No sealing



K Frontal panel sealing (IP65)

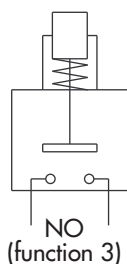
- ① elastomeric membrane
- ② external gasket



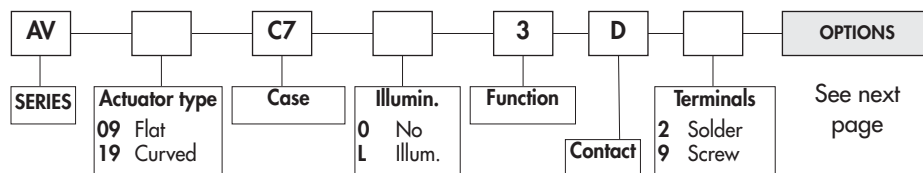
# AV series

## Tactile security pushbutton switches Ø 19 mm (.748)

Illuminated and non-illuminated - momentary (NO)



### ORDER FORMAT



### SPECIFICATIONS

- **Travel : 0,7 mm (.027) ±0,1 mm (.003)**
- Max. current/voltage rating with resistive load : 50mA 24VDC
- LED voltage and consumption : 2-colour LED : 2V (3V max.) 20mA  
Other colours : 2V (3V max.) 10mA  
A resistor must be series-connected by the user \*\*
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 500 Vrms 50 Hz min. between terminals  
2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 1.000.000 cycles at full load
- Operating force : 7 N ±2N
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -30°C to +70°C
- Hand soldering : 270°C, 3 seconds max.
- Packaging unit : 40 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : PBT UL94-V0
- Terminals : brass, gold plated
- Contacts : gold plated dome
- Bushing and actuator : see next page
- LED

### CUT-OUT

- Panel cut-out : Ø 19,2 mm (.755)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired options selected on next page.

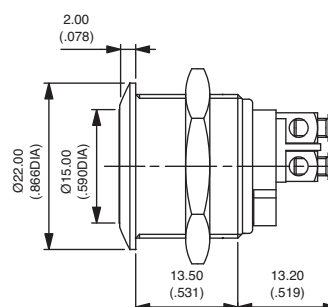
### Flat actuator - non-illuminated



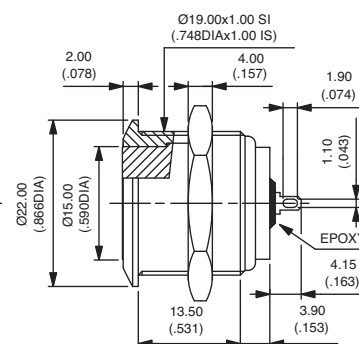
Solder lug terminals  
**AV09C703D2**

Screw terminals  
**AV09C703D9**

Also available with curved actuator :  
**AV19C703D2** or **AV19C703D9**



Hex nut 22 (.866) across flats

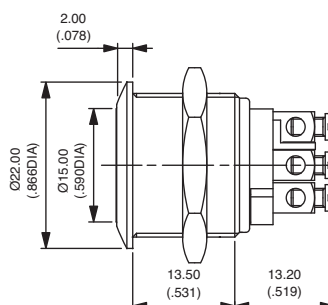


### Flat actuator - illuminated

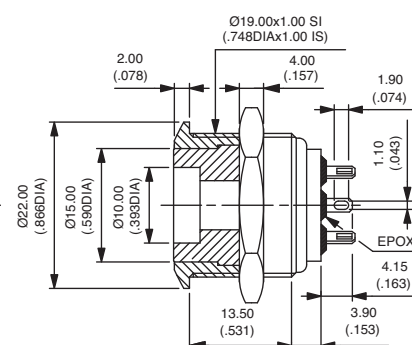


Solder lug terminals  
**AV09C7L3D2**

Screw terminals  
**AV09C7L3D9**



Hex nut 22 (.866) across flats



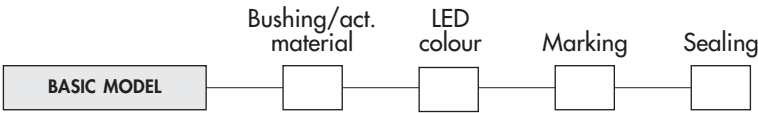
# AV series

Tactile security pushbutton switches Ø 19 mm (.748)

Options



After selecting basic model no.,  
fill in last 4 boxes  
with desired options.



## BUSHING/ACTUATOR MATERIALS

| Non-illuminated models |                          |                          | Illuminated models |                          |                          |
|------------------------|--------------------------|--------------------------|--------------------|--------------------------|--------------------------|
| CODE                   | BUSHING                  | ACTUATOR                 | CODE               | BUSHING                  | ACTUATOR                 |
| 00 (std)               | Nickel plated brass      | Nickel plated brass      | 00 (std)           | Nickel plated brass      | Nickel plated brass      |
| 10                     | Nickel plated brass      | Stainless steel          | 20                 | Chrome plated brass      | Chrome plated brass      |
| 30                     | Chrome plated brass      | Stainless steel          | 40                 | Stainless steel          | Stainless steel          |
| 40                     | Stainless steel          | Stainless steel          | 50                 | Stainless steel          | Nickel plated brass      |
| 80                     | Varnished polished brass | Varnished polished brass | 80                 | Varnished polished brass | Varnished polished brass |

## LED COLOURS

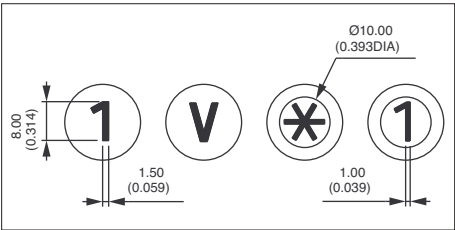
Blank      No LED

1 : Blue - 3 : Green - 5 : Yellow - 6 : Red - 7 : White - 9 : Amber - 2 : Red/green

## MARKING

For flat or curved actuator.

- by engraving on non-illuminated brass actuator (stainless steel on request).
- by hot stamping on thermoplastic insert (illuminated actuators)



| TYPE OF MARKING |                |
|-----------------|----------------|
| CODE            | TYPE           |
| 0 to 9          | Numbers 0 to 9 |
| X               | Symbol *       |
| Y               | Symbol #       |
| A to N          | Letters A to N |
| P to W          | Letters P to W |
| 0               | Letter O       |

Letter O : same code and same design as number 0.

For special symbols, consult factory.

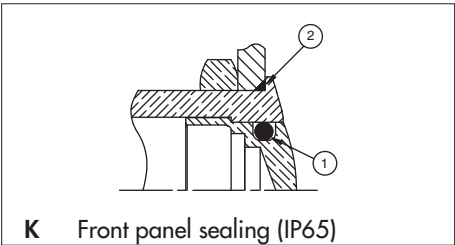
Minimum order : 500 pieces

Select an option from each of the two tables below.

| COLOUR OF MARKING                                                                    |                  |
|--------------------------------------------------------------------------------------|------------------|
| CODE                                                                                 | COLOUR           |
| <b>Non-illuminated actuators</b>                                                     |                  |
| 0 (standard)                                                                         | Same as finish   |
| 2                                                                                    | Black            |
| Note : a finished product supplied in version "0" cannot be modified to version "2". |                  |
| <b>Illuminated actuators</b>                                                         |                  |
| 2                                                                                    | Black (on white) |

## SEALING

Blank      No sealing



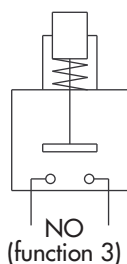
- ① internal gasket  
② external gasket



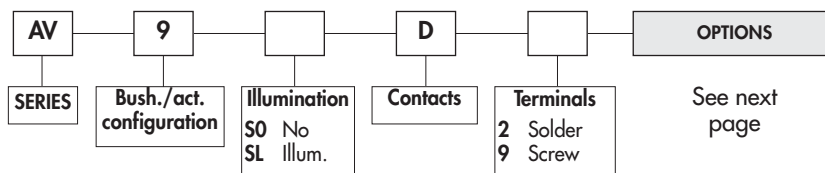
# AV series

## Tactile security pushbuttons Ø 19 mm (.748) with overmolded actuator

Illuminated and non-illuminated - momentary (NO)



### ORDER FORMAT



### SPECIFICATIONS

- **Travel : 0,7 mm (.027) ± 0,1 mm (.003)**
- Max. current/voltage rating with resistive load : 50mA 24VDC
- LED voltage and consumption : 2-colour LED : 2V (3V max.) 20mA  
Other colours : 2V (3V max.) 10mA  
(a resistor must be series-connected by the user)\*\*
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 500 Vrms 50 Hz min. between terminals  
2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 1.000.000 cycles at full load
- Operating force : 7 N ±2N - Sealing option K will increase the operating force.
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -30°C to +70°C
- Hand soldering : 270°C, 3 sec. max.
- Packaging unit : 16 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : PBT UL94-V0
- Terminals : brass, gold plated
- Contacts : gold plated dome
- Bushing : see next page
- Actuator : stainless steel, with thermoplastic overmolding
- LED

### CUT-OUT

- Panel cut-out : Ø 19,2 mm (.755)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired options selected on next page.

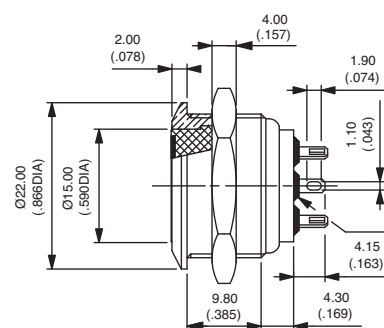
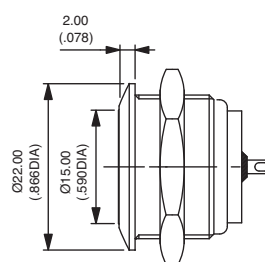
### Flat actuator - solder lug terminals

Hex nut 22 (.866) across flats



Illuminated  
**AV9SLD2**

Non-illuminated  
**AV9SOD2**



Also available with bushing Ø 22 (.866) : on request.

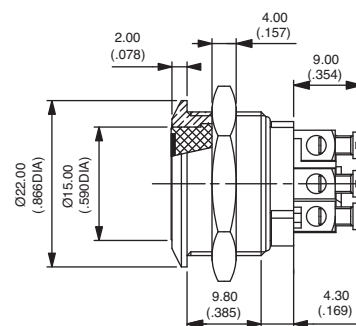
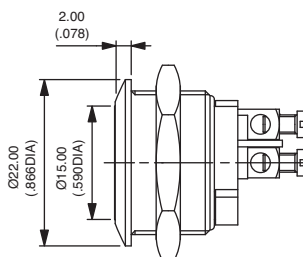
### Flat actuator - screw terminals

Hex nut 22 (.866) across flats



Illuminated  
**AV9SLD9**

Non-illuminated  
**AV9SOD9**



Also available with bushing Ø 22 (.866) : on request.

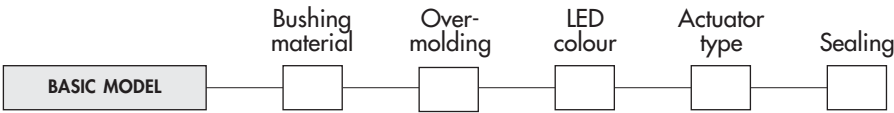
# AV series

Tactile security pushbuttons Ø 19 mm (.748) with overmolded actuator



## Options

After selecting basic model no.,  
fill in last 5 boxes  
with desired options.



### BUSHING MATERIALS

| CODE    | MATERIAL                   |
|---------|----------------------------|
| 0 (std) | Nickel plated brass        |
| 2       | Chrome plated brass        |
| 4       | Stainless steel            |
| 5       | Gold plated brass          |
| 6       | Chrome plated brass, satin |
| 7       | Chrome pl. brass, black    |
| 8       | Varnished polished brass   |
| 9       | Polished brass             |

### OVERMOLDING COLOURS

| CODE                   | COLOUR  | CODE | COLOUR      |
|------------------------|---------|------|-------------|
| 1                      | Blue    | 6    | Red         |
| 2                      | Black * | 7    | White       |
| 3                      | Green   | 8    | Translucent |
| 4                      | Grey *  | 9    | Orange      |
| 5                      | Yellow  |      |             |
| * non-illuminated only |         |      |             |

### LED COLOURS

| CODE  | COLOUR                |
|-------|-----------------------|
| Blank | No LED                |
| 1     | Blue                  |
| 2     | Red/green             |
| 3 **  | Green                 |
| V **  | Green, high intensity |
| 5     | Yellow                |
| 6     | Red                   |
| 7     | White                 |
| 9     | Amber                 |

\*\* To order a green LED for actuator style 002, always use code V.  
Other actuator styles can be ordered with LED code 3 or V.

### ACTUATOR STYLES

The ring and symbols are obtained by photochemical engraving of a stainless steel insert.  
The insert is then overmolded in the desired colour.

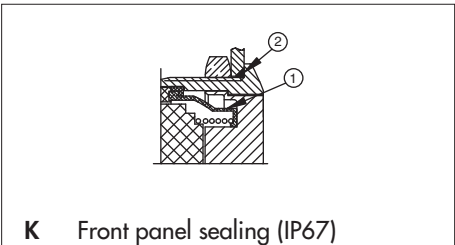
The following actuator styles are available. For other types, consult factory.

| CODE        | 001                       | 002              | 003   | 004             | 005     |
|-------------|---------------------------|------------------|-------|-----------------|---------|
| DESCRIPTION | Illuminated ring and disc | Illuminated ring | Arrow | Loudspeaker OFF | Opening |
| RING/SYMBOL |                           |                  |       |                 |         |

| CODE        | 006        | 008     | 009     | 010    | 011   |
|-------------|------------|---------|---------|--------|-------|
| DESCRIPTION | Validation | Closing | Standby | Cancel | Power |
| SYMBOL      |            |         |         |        |       |

### SEALING

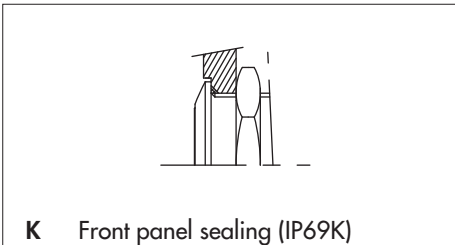
Blank No sealing



K Front panel sealing (IP67)

- ① internal membrane
- ② external gasket

Recommended panel mounting for IP69K



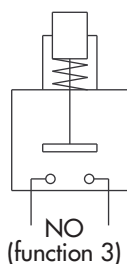
K Front panel sealing (IP69K)



# AV series

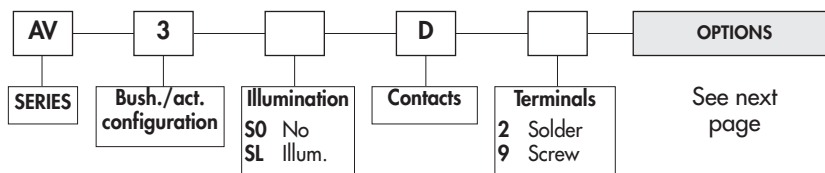
## Tactile security pushbuttons Ø 22 mm (.866) with overmolded actuator

Illuminated and non-illuminated - momentary (NO)



NO  
(function 3)

### ORDER FORMAT



UG1410-A-R1

### SPECIFICATIONS

- Travel : 0,7 mm (.027) ± 0,1 mm (.003)
- Max. current/voltage rating with resistive load : 50mA 24VDC
- LED voltage and consumption : 2-colour LED : 2V (3V max.) 20mA  
Other colours : 2V (3V max.) 10mA  
(a resistor must be series-connected by the user)\*\*
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 500 Vrms 50 Hz min. between terminals  
2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 1.000.000 cycles at full load
- Operating force : 7 N ± 2N - sealing option K will increase the operating force.
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -30°C to +70°C
- Hand soldering : 270°C, 3 sec. max.
- Packaging unit : 16 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : PBT UL94-V0
- Terminals : brass, gold plated
- Contacts : gold plated dome
- Bushing : see next page
- Actuator : stainless steel, with thermoplastic overmolding
- LED

### CUT-OUT

- Panel cut-out : Ø 22,2 mm (.874)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired options selected on next page.

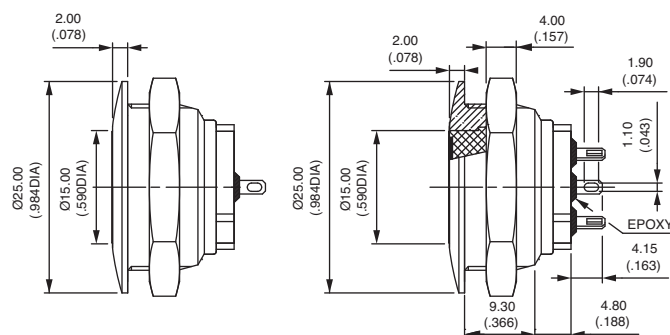
### Flat actuator - solder lug terminals

Hex nut 25 (.984) across flats



Illuminated  
AV3SLD2

Non-illuminated  
AV3SOD2



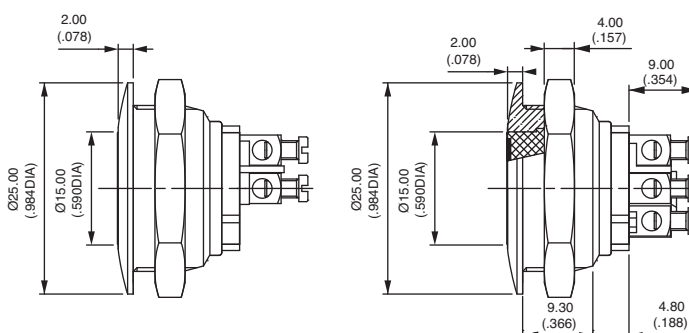
### Flat actuator - screw terminals

Hex nut 25 (.984) across flats



Illuminated  
AV3SLD9

Non-illuminated  
AV3SOD9

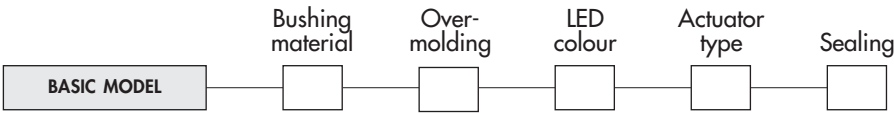


# AV series

Tactile security pushbuttons Ø 22 mm (.866) with overmolded actuator

## Options

After selecting basic model no.,  
fill in last 5 boxes  
with desired options.



### BUSHING MATERIALS

| CODE    | MATERIAL                   |
|---------|----------------------------|
| 0 (std) | Nickel plated brass        |
| 2       | Chrome plated brass        |
| 4       | Stainless steel            |
| 5       | Gold plated brass          |
| 6       | Chrome plated brass, satin |
| 7       | Chrome pl. brass, black    |
| 8       | Varnished polished brass   |
| 9       | Polished brass             |

### OVERMOLDING COLOURS

| CODE                   | COLOUR  | CODE | COLOUR      |
|------------------------|---------|------|-------------|
| 1                      | Blue    | 6    | Red         |
| 2                      | Black * | 7    | White       |
| 3                      | Green   | 8    | Translucent |
| 4                      | Grey *  | 9    | Orange      |
| 5                      | Yellow  |      |             |
| * non-illuminated only |         |      |             |

### LED COLOURS

| CODE  | COLOUR                |
|-------|-----------------------|
| Blank | No LED                |
| 1     | Blue                  |
| 2     | Red/green             |
| 3 **  | Green                 |
| V **  | Green, high intensity |
| 5     | Yellow                |
| 6     | Red                   |
| 7     | White                 |
| 9     | Amber                 |

\*\* To order a green LED for actuator style 002, always use code V.  
Other actuator styles can be ordered with LED code 3 or V.

### ACTUATOR STYLES

The ring and symbols are obtained by photochemical engraving of a stainless steel insert.  
The insert is then overmolded in the desired colour.

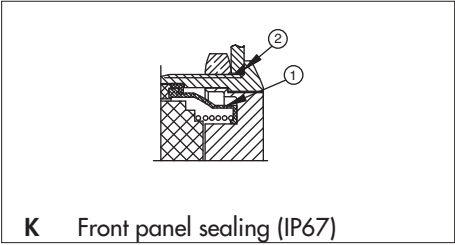
The following actuator styles are available. For other types, consult factory.

| CODE        | 001                                                                                 | 002                                                                                 | 003                                                                                 | 004                                                                                  | 005                                                                                   |
|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| DESCRIPTION | Illuminated ring and disc                                                           | Illuminated ring                                                                    | Arrow                                                                               | Loudspeaker OFF                                                                      | Opening                                                                               |
| RING/SYMBOL |  |  |  |  |  |

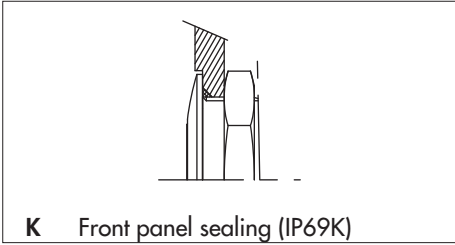
| CODE        | 006                                                                                 | 008                                                                                 | 009                                                                                 | 010                                                                                  | 011                                                                                   |
|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| DESCRIPTION | Validation                                                                          | Closing                                                                             | Standby                                                                             | Cancel                                                                               | Power                                                                                 |
| SYMBOL      |  |  |  |  |  |

### SEALING

Blank No sealing



Recommended panel mounting for IP69K



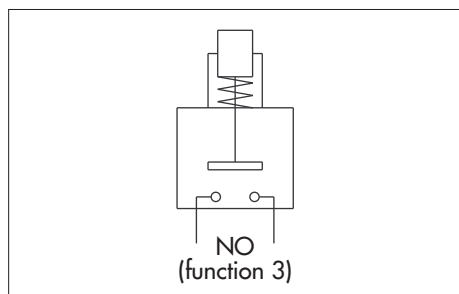
- ① internal membrane  
② external gasket



# AV series

## Security pushbutton switches Ø 22 mm (.866)

Momentary (NO)



### ORDER FORMAT

| SERIES | Bushing/act. configuration                                                                           | Case                  | Function | Contacts                        | Terminals                  | OPTIONS             |
|--------|------------------------------------------------------------------------------------------------------|-----------------------|----------|---------------------------------|----------------------------|---------------------|
| AV     | 03 Flat actuator<br>02 Curved actuator<br>M2 Curved act.+flatted bush.<br>M3 Flat act.+flatted bush. | 000 Long<br>100 Short | 3 NO     | A Silver<br>C Brass, silver pl. | 9 Screw<br>2 Quick-connect | See "Options" page. |

### SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - A contacts : 4A 12VDC, 500.000 cycles
  - C contacts : 2A 48 VDC, 10.000 cycles
- Approved ratings of models with long case and A contacts (AV..000) :  
UL-CSA : 4A 250VAC - 8A 125VAC - 6.000 cycles
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame  
2.000 Vrms 50 Hz min. between terminals
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 11 mm (.433) max.
- Operating temperature : -30°C to +70°C
- Low level or mechanical life : 1.000.000 cycles
- Hand soldering : 300°C, 3 sec. max.
- Packaging unit : 20 pieces

### MATERIALS

- Case : PBT
- Contacts : silver (A) or brass, silver plated (C)
- Bushing and actuator : see "Options" page

### CUT-OUTS

- Panel cut-out : Ø 22,2 mm (.874)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below or on next page and add the desired options.

### BASIC MODEL

#### Flat actuator - short case - 48VDC - AV03100

Hex nut 25 (.984) across flats

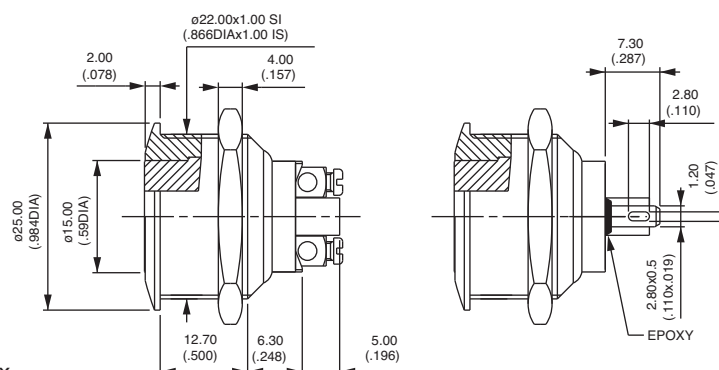


Screw terminals  
AV031003•9

Solder lug /  
quick-connect term.  
AV031003•2

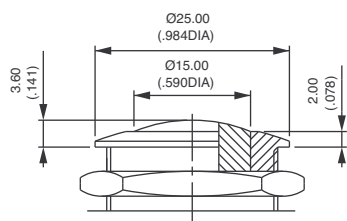


Screw terminals for wires 1,5 mm² max.



Contacts : replace • with A (silver) or C (silver plated brass).

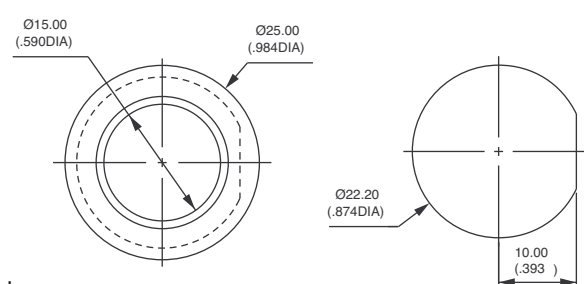
#### Curved actuator - short case



Screw terminals  
AV021003•9

Solder lug / quick-connect terminals  
AV021003•2

#### Flatted bushing - short case - AVM3 and AVM2



Flat actuator, screw terminals  
AVM31003•9  
Curved actuator, screw terminals  
AVM21003•9

# AV series

Security pushbutton switches Ø 22 mm (.866)

Momentary (NO) - momentary (NC) - alternate action



## Flat actuator - long case - 4A 250VAC/8A 125VAC - UL/CSA - AV03000

Hex nut 25 (.984) across flats

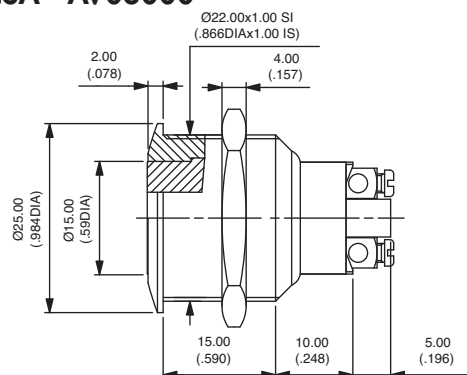


Screw terminals  
AV030003A9

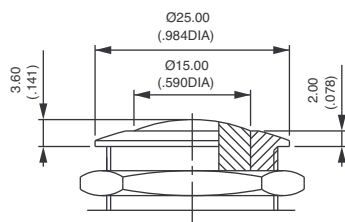


To order switches marked **UL-CSA**, add **"UU"** at the end of model number.

Screw terminals for wires 1,5 mm<sup>2</sup> max.

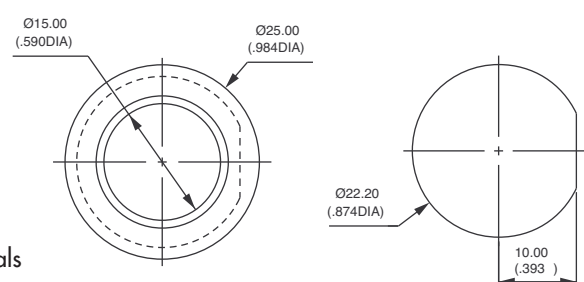


## Curved actuator - long case



Screw terminals  
AV020003A9

## Flatted bushing - long case - AVM3 and AVM2



Flat actuator, screw terminals  
AVM30003•9  
Curved actuator, screw terminals  
AVM20003•9

## MOMENTARY NORMALLY CLOSED MODEL (NC)

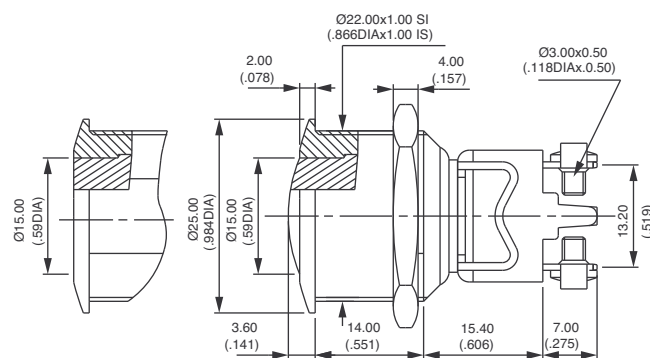
### Bushing Ø 22 (.866) - AV..1200

Hex nut 25 (.984) across flats

- Single pole, screw terminals, without marking
- Silver plated copper contacts (C)
- Max. current/voltage rating with resistive load :  
2A 250VAC - 3A 125VAC - 2,5A 24VDC
- Dielectric strength :  
2.000 Vrms 50 Hz min. betw. term. and frame  
2.000 Vrms. 50 Hz min. between terminals
- Electrical life : 100.000 cycles at 0,3A 24VAC or DC  
10.000 cycles at full load
- Packaging unit : 20 pieces

Flat actuator  
AV031202C900

Curved actuator  
AV021202C900

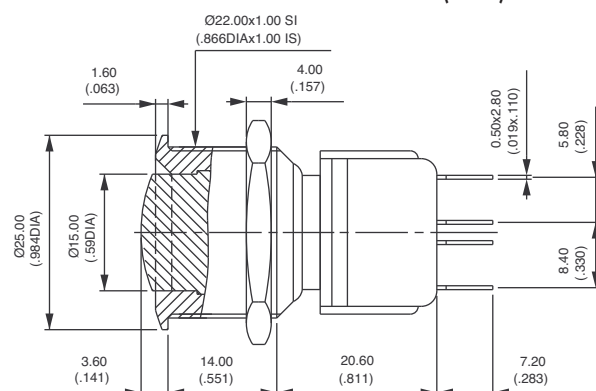


### Bushing Ø 22 (.866) - alternate action - AV..4700

Hex nut 25 (.984) across flats

- Double pole, solder lug/quick-connect term., curved actuator
- Silver contacts
- Max. current/voltage rating with resistive load :  
3(1,5)A 250VAC - 6A 125VAC - 3A 24VAC or DC
- Dielectric strength :  
3.000 Vrms min. between terminals and frame
- Electrical life : 10.000 cycles at full load  
50.000 cycles at 1A 24VAC or DC
- Mechanical life : 100.000 cycles
- Packaging unit : 10 pieces

AV044746A200



Further specifications : see previous page. Bushing/actuator materials, marking and sealing : see "options" on next page.

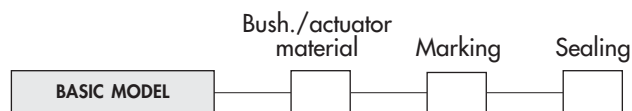


# AV series

Security pushbutton switches Ø 22 mm (.866)

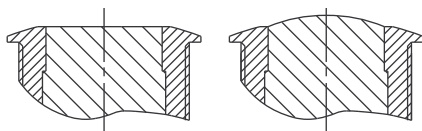
Options

After selecting basic model number,  
fill in last 3 boxes  
with desired options.



## BUSHING/ACTUATOR MATERIALS

### Flat or curved metal actuator

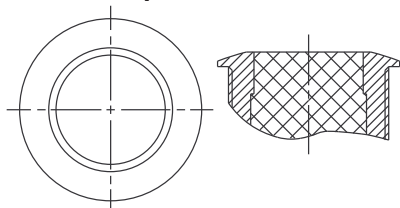


| CODE          |
|---------------|
| 00 (standard) |
| 10            |
| 12            |
| 20            |
| 30            |
| 40            |
| 80 **         |

| BUSHING                  |
|--------------------------|
| Nickel plated brass      |
| Nickel plated brass      |
| Nickel plated brass      |
| Chrome plated brass      |
| Chrome plated brass      |
| Stainless steel          |
| Varnished polished brass |

| ACTUATOR                 |
|--------------------------|
| Nickel plated brass      |
| Stainless steel          |
| Chrome plated brass      |
| Chrome plated brass      |
| Stainless steel          |
| Stainless steel          |
| Varnished polished brass |

### Flat thermoplastic actuator



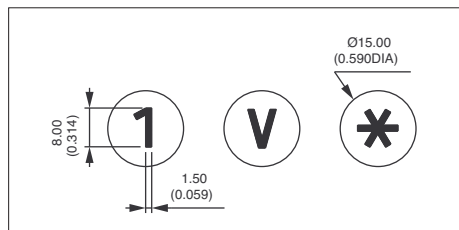
| CODE          |
|---------------|
| 0• (standard) |
| 2•            |
| 8•            |

| BUSHING                  |
|--------------------------|
| Nickel plated brass      |
| Chrome plated brass      |
| Varnished polished brass |

| ACTUATOR COLOUR                                    |
|----------------------------------------------------|
| Replace • with one of the following codes.         |
| 1 : blue - 1/4 : dark blue - 2 : black - 3 : green |
| 4 : grey - 5 : yellow - 6 : red - 7/1 : white      |
| 9 : orange                                         |

## MARKING

- By engraving on flat or curved brass actuator (stainless steel on request)
- by hot stamping on flat thermoplastic actuator



Select an option from each of the two tables below.

### TYPE OF MARKING

| CODE   | TYPE           |
|--------|----------------|
| 0 to 9 | Numbers 0 to 9 |
| X      | Symbol *       |
| Y      | Symbol #       |
| A to N | Letters A to N |
| P to W | Letters P to W |
| 0      | Letter O       |

Letter O : same code and same design as number 0.  
For special symbols, consult factory.  
Minimum order : 500 pieces

### COLOUR OF MARKING

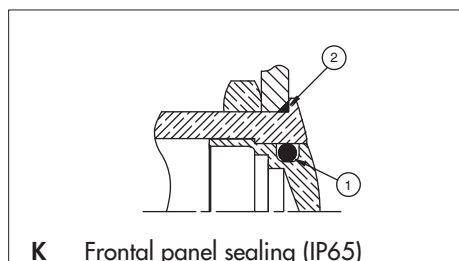
| CODE                  | COLOUR         |
|-----------------------|----------------|
| <b>Brass actuator</b> |                |
| 0 (standard)          | Same as finish |
| 2                     | Black          |

Note : a finished product supplied in version "0" cannot be modified to version "2".

|                               |       |
|-------------------------------|-------|
| <b>Thermoplastic actuator</b> |       |
| 2                             | Black |
| 7                             | White |

## SEALING

Blank      No sealing



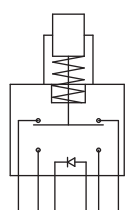
K Frontal panel sealing (IP65)

- ① internal gasket  
② external gasket

# AV series

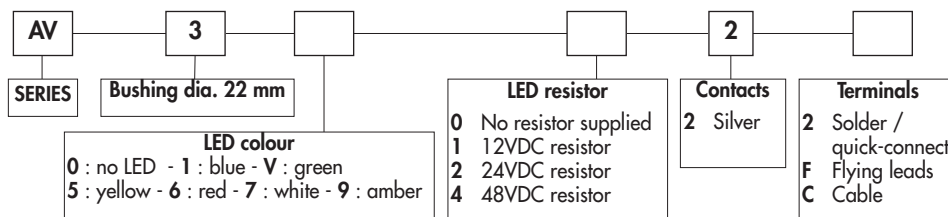
## Security pushbutton switches Ø 22 mm (.866)

With illuminated ring - momentary (NC/NO)



NC/NO

### ORDER FORMAT



### SPECIFICATIONS

- Travel : 2 mm ± 0,3 mm (.003)
- Max. current/voltage rating with resistive load : 1A 30VDC
- LED voltage : 12VDC, 24VDC or 48VDC (If not supplied by APEM, a resistor must be series-connected by the user)\*\*
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 10 MΩ min. at 500VDC
- Dielectric strength : 500 Vrms 50 Hz min. between terminals
- 1.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 250.000 cycles at full load
- Operating force : 5N ± 2N
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Low level or mechanical life : 1.000.000 cycles
- Operating temperature : -30°C to +85°C
- Hand soldering : 350°C, 5 seconds max.
- Packaging unit : flying lead/cable models : 1 piece - other models : 40 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : polyamide, glass filled
- Contacts : silver
- Bushing : see next page
- Actuator : see next page
- Elastomeric membrane : silicone
- LED

### CUT-OUT

- Panel cut-out : Ø 22,2 mm (.874)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired LED colour and voltage. Then select the desired options on next page.

### Flat actuator - solder lug terminals

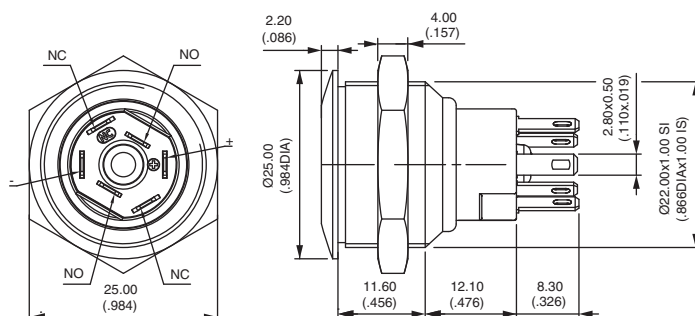
Hex nut 25 (.984) across flats



Illuminated (select LED colour above) \*  
**AV3•022** ON - MOM

Non-illuminated  
**AV30022** ON - MOM

\* No LED resistor supplied on this model.



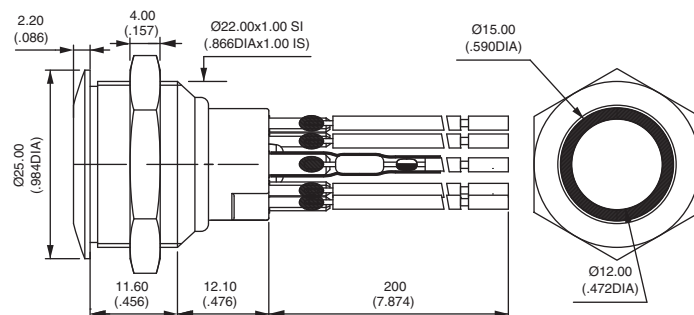
### Flat actuator - flying lead terminals

Hex nut 25 (.984) across flats



Illuminated (select LED colour & resistor above)  
**AV3••2F** ON - MOM

Non-illuminated  
**AV3002F** ON - MOM



Wire colours : black: NC, orange: NO, red: LED anode (+), blue : LED cathode (-)



# AV series

Security pushbutton switches Ø 22 mm (.866)

With illuminated ring - momentary changeover (NC/NO)

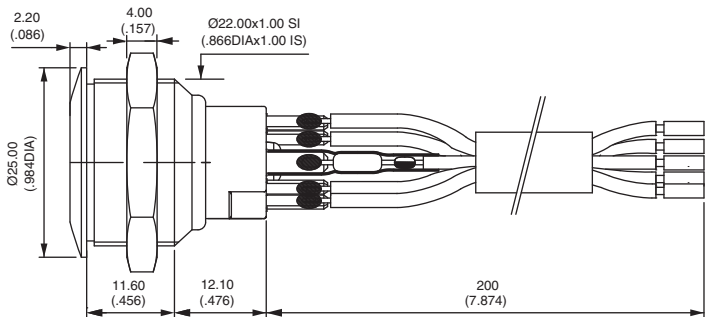
## Flat actuator - cable terminals

Hex nut 25 (.984) across flats



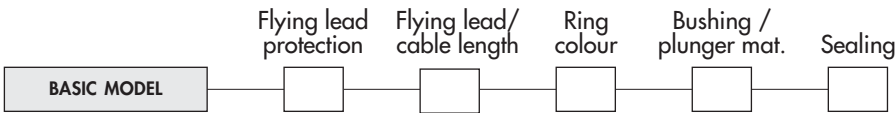
Illuminated (select colour & resistor)  
**AV3••2C** ON - MOM

Non-illuminated  
**AV3002C** ON - MOM



B2

After selecting basic model No.,  
fill in last 5 boxes  
with desired options.



## FLYING LEAD PROTECTION

- 0 No protection and/or no flying leads
- 1 Heat-shrink sleeves
- 2 Tube + epoxy

## WIRE/CABLE LENGTH

- 000 No flying leads / no cable
- 020 Length 20 cm (7.874) - standard
- XXX Length in centimeters

## RING COLOURS

| CODE | COLOUR  | CODE | COLOUR           |
|------|---------|------|------------------|
| 1    | Blue    | 6    | Red              |
| 2    | Black * | 7    | Opal white (std) |
| 3    | Green   | 8    | Translucent      |
| 4    | Grey *  | 9    | Orange           |
| 5    | Yellow  |      |                  |

\* non-illuminated only

## BUSHING/PLUNGER MATERIALS

| CODE | BUSHING                 | ACTUATOR                |
|------|-------------------------|-------------------------|
| 00   | Brass, nickel plated    | Brass, nickel plated    |
| 40   | Stainless steel 303     | Stainless steel 303     |
| 4A   | Stainless steel 304     | Stainless steel 304     |
| 4B   | Stainless steel 316     | Stainless steel 316     |
| 70   | Chrome pl. brass, black | Chrome pl. brass, black |

Other : on request.

## SEALING

Blank No sealing



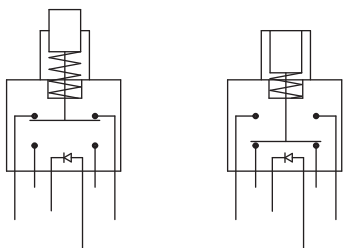
K Front panel sealing (IP67)

- ① internal membrane
- ② external gasket

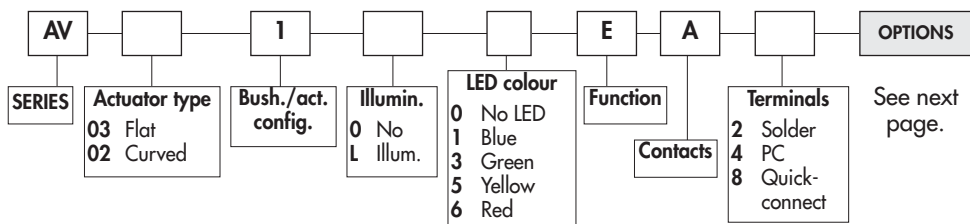
# AV series

## Security pushbutton switches Ø 22 mm (.866)

Illuminated and non-illuminated - latching



### ORDER FORMAT



### SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 48 VDC
- LED voltage and consumption : blue 3,5V 10mA, green : 2V 10mA, yellow & red : 2V 20mA (a resistor must be series-connected by the user)\*\*
- Initial contact resistance : 50 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 1 000 Vrms 50 Hz min. between terminals, 500 Vrms 50 Hz min. between terminals and frame
- Electrical life : 500.000 cycles at 2A 48VDC
- Torque : 5 Nm min. - 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 9 mm (.354) max.
- Operating temperature : -30°C to +70°C
- Low level or mechanical life : 1.000.000 cycles
- Hand soldering : 300°C, 4 seconds max.
- Packaging unit : 20 pieces

\*\* Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

### MATERIALS

- Case : PA6T UL94-V0
- Contacts : silver
- Actuator and bushing : see next page
- LED

### CUT-OUT

- Panel cut-out : Ø 22,2 mm (.874)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired options selected on next page.

Standard actuator position : the actuator is flush in the non-latched position and recessed in the latched position.

### Non-illuminated - solder lug terminals

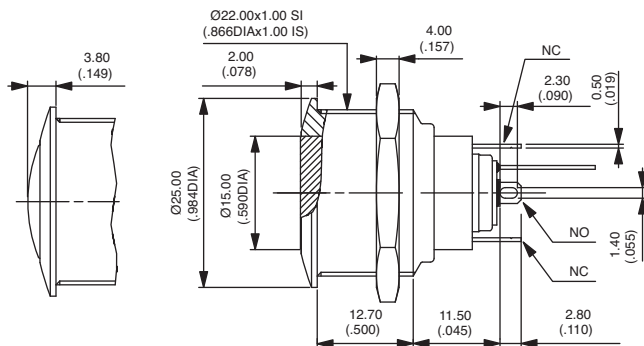


Flat actuator \*  
**AV03100EA2** ON - ON

Curved actuator  
**AV02100EA2** ON - ON

\* Also available with prominent actuator in the non-latched position

Hex nut 25 (.984) across flats



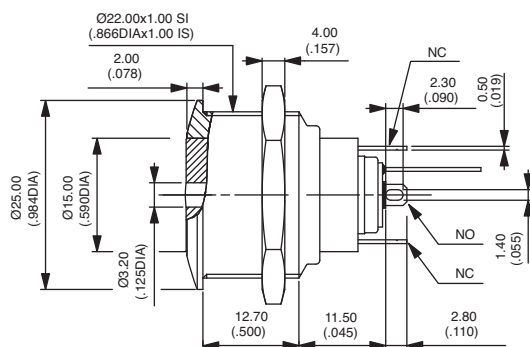
### Illuminated - solder lug terminals



Flat actuator  
**AV031L•EA2** ON - ON

Replace • with desired LED colour.

Hex nut 25 (.984) across flats

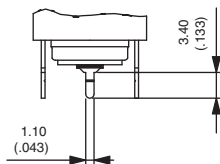


# AV series

Security pushbutton switches Ø 22 mm (.866)

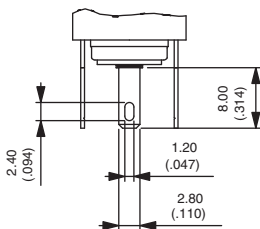
*Illuminated and non-illuminated - latching*

## Straight PC terminals



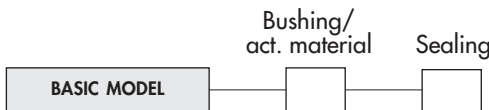
Replace 2 with 4 at the end of the model numbers shown on previous page.

## Quick-connect terminals



Replace 2 with 8 at the end of the model numbers shown on previous page.

After selecting basic model number, fill in last 2 boxes with desired options.

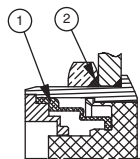


## BUSHING/ACTUATOR MATERIALS

| CODE     | BUSHING             | ACTUATOR            |
|----------|---------------------|---------------------|
| 00 (std) | Nickel plated brass | Nickel plated brass |
| 10       | Nickel plated brass | Stainless steel     |
| 40       | Stainless steel     | Stainless steel     |
| 50       | Stainless steel     | Nickel plated brass |

## SEALING

Blank      No sealing



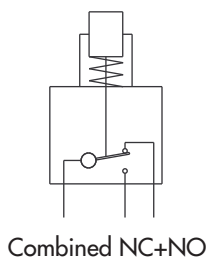
**K** Frontal panel sealing (IP65)

- ① elastomeric membrane
- ② external gasket

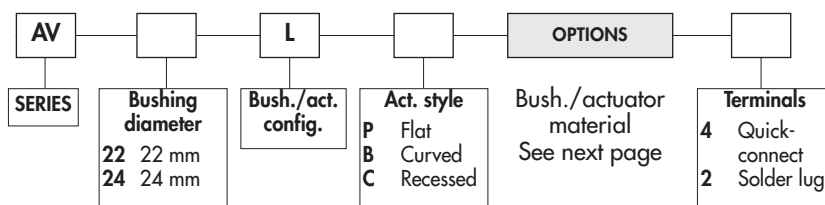
B2

## Security pushbutton switches Ø 22 mm (.866) or 24 mm (.944) with large actuator

*Momentary (combined NC+NO)*



## ORDER FORMAT



## SPECIFICATIONS

- Max. current/voltage rating with resistive load : 5A 250VAC
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 1.000.000 cycles at 1A 250VAC  
100.000 cycles at full load
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -20°C to +55°C
- Low level or mechanical life : 3.000.000 cycles
- Front panel sealing : IP65
- Hand soldering : 300°C, 5 sec. max.
- Packaging unit : 20 pieces (except black chrome plated : 16 pieces)

## MATERIALS

- Case : polyester, glass filled
- Contacts : silver/nickel alloy
- Bushing and actuator :  
see next page.

## CUT-OUT

- Panel cut-out : Ø 22,2 mm (.874) or Ø 24,2 mm (.952)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181) or 33 mm x 33 mm (1.299x1.299)

To order a product, select a basic model below or on next page and add the desired bushing/actuator materials.

## BASIC MODEL

### Flat actuator - AV22LP



Quick-connect terminals  
**AV22LP••4**

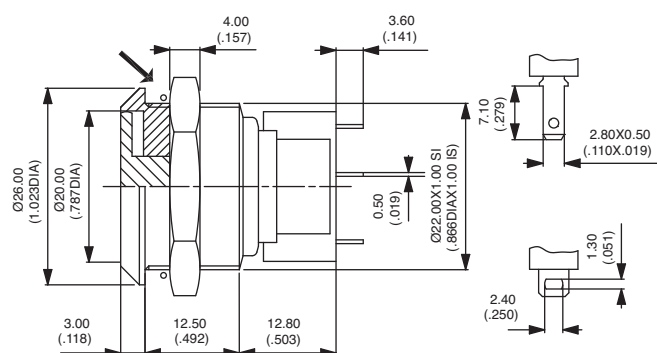


Solder lug terminals  
**AV22LP••2**

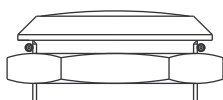


→ O-ring

Hex nut 25 (.984) across flats

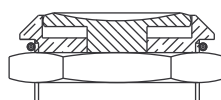


## Curved actuator - AV22LB



Quick-connect terminals  
**AV22LB••4**  
Solder lug terminals  
**AV22LB••2**

## Recessed actuator - AV22LC



Quick-connect terminals  
**AV22LC••4**  
Solder lug terminals  
**AV22LC••2**



# AV series

Security pushbutton switches Ø 22 mm (.866) or 24 mm (.944) with large actuator

Momentary (combined NC+NO)

## BASIC MODEL

### Flat actuator - low profile - AV24LP



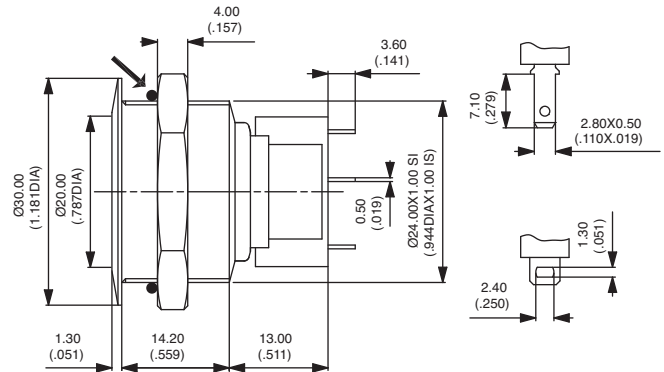
Quick-connect terminals  
**AV24LP••4**

Solder lug terminals  
**AV24LP••2**

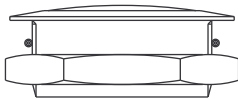


→ O-ring

Hex nut 27 (1.062) across flats

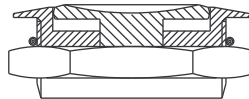


### Curved actuator - AV24LB



Quick-connect terminals  
**AV24LB••4**  
Solder lug terminals  
**AV24LB••2**

### Recessed actuator - AV24LC



Quick-connect terminals  
**AV24LC••4**  
Solder lug terminals  
**AV24LC••2**

## BUSHING/ACTUATOR MATERIALS

### Models with non-anodized actuator

| CODE          | BUSHING             |
|---------------|---------------------|
| 40 (standard) | Stainless steel     |
| 20            | Chrome plated brass |

| ACTUATOR            |
|---------------------|
| Stainless steel     |
| Chrome plated brass |

### Models with anodized actuator

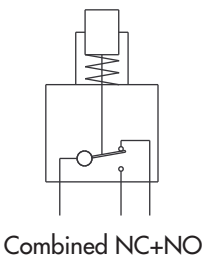
| CODE | BUSHING                   |
|------|---------------------------|
| 1•   | Black chrome plated brass |
| 2•   | Chrome plated brass       |
| 4•   | Stainless steel           |

| ACTUATOR COLOUR                                                                         |
|-----------------------------------------------------------------------------------------|
| Replace • with one of the following codes :                                             |
| 1 : blue - 2 : black - 3 : pale green - 3F : dark green - 4 : natural - 5 : gold yellow |
| 6 : red - 6B : maroon                                                                   |

# AV series

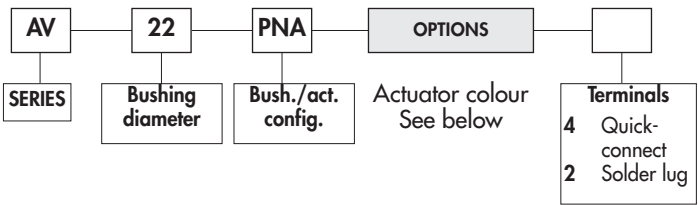
## Mushroom head security pushbutton switches Ø 22 mm (.866)

Momentary (combined NC+NO)



Combined NC+NO

### ORDER FORMAT



### SPECIFICATIONS

- Max. current/voltage rating with resistive load : 5A 250VAC
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 1.000.000 cycles at 1A 250VAC  
50.000 cycles at full load
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -20°C to +55°C
- Low level or mechanical life : 1.000.000 cycles
- Front panel sealing : IP65
- Hand soldering : 300°C, 5 sec. max.
- Packaging unit : 16 pieces

### MATERIALS

- Case : polyester, glass filled
- Contacts : silver/nickel alloy
- Bushing : brass, nickel plated
- Actuator : aluminium, anodized

### CUT-OUT

- Panel cut-out : Ø 22,2 mm (.874)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)

To order a product, select a basic model below and add the desired actuator colour.

### BASIC MODEL

#### Mushroom head actuator - AV22PNA

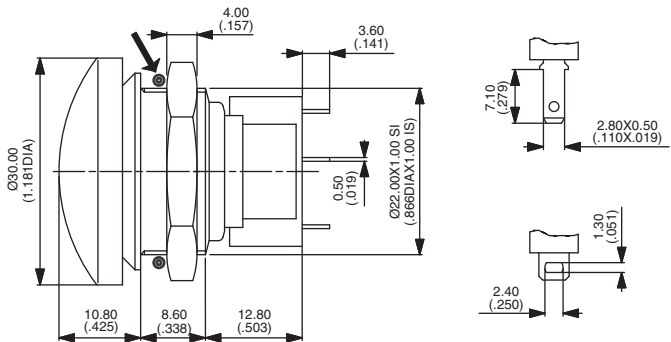


Quick-connect terminals  
**AV22PNA•4**

Solder lug terminals  
**AV22PNA•2**

→ O-ring

Hex nut 25 (.984) across flats



### ACTUATOR ANODIZATION COLOURS

1 : blue - 2 : black - 3 : pale green - 3F : dark green - 4 : natural - 5 : gold yellow - 6 : red - 6B : maroon

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