

# AV series

Security pushbutton switches •  
 Ø 19 or 22 mm • illuminated momentary NC/NO



## DISTINCTIVE FEATURES

- With illuminated ring
- Momentary NC/NO
- Solder lug, flying lead or cable terminals
- Marking available on request



## ENVIRONMENTAL SPECIFICATIONS

- Optional front panel sealing : IP67 according to IEC 60529
- Operating temperature : -30 °C to +85 °C (-22 °F to +185 °F)



## ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 1 A 30 VDC
- LED voltage : 12 VDC, 24 VDC or 48 VDC  
 If not supplied by APEM, a resistor must be series-connected by the user : see LED component specifications below.
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 10 MΩ min. at 500 VDC
- 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

### LED COMPONENT SPECIFICATIONS

LED color	Forward current	Typ. forward voltage	Max. forward voltage
Blue	20 mA	3.3 V	3.8 V
Green	20 mA	4 V	4.5 V
Yellow	20 mA	2 V	2.5 V
Red	20 mA	1.95 V	2.5 V
White	20 mA	3.3 V	4 V
Amber	20 mA	2.3 V	2.8 V
Red / green	20 mA	2.2 V / 3.2 V	2.8 V / 4 V

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

The company reserves the right to change specifications without notice.



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## GENERAL SPECIFICATIONS

- Travel : 2 mm ± 0.3 mm (.003)
- Operating force : 5 N ± 2 N
- Torque : 1.5 Nm min. - 4 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Low level or mechanical life : 1,000,000 cycles
- Hand soldering : 350 °C (662 °F), 5 seconds max.



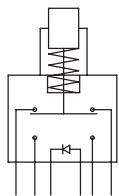
## MATERIALS

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

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



## ELECTRICAL FUNCTIONS



NC/NO



## MOUNTING

- Panel cut-out : Ø 19.2 mm (.755) or Ø 22.2 mm (.874)
- Min. pitch for matrix mounting : 30 mm x 30 mm (1.181x1.181)
- Optional connector (*this connector ensures a unique mounting orientation*)

### CONNECTOR COLORS

U3181	White
<b>U3182</b>	<b>Black</b>
U3183	Green
U3185	Yellow
U3186	Red
U3188	Natural
U3189	Orange



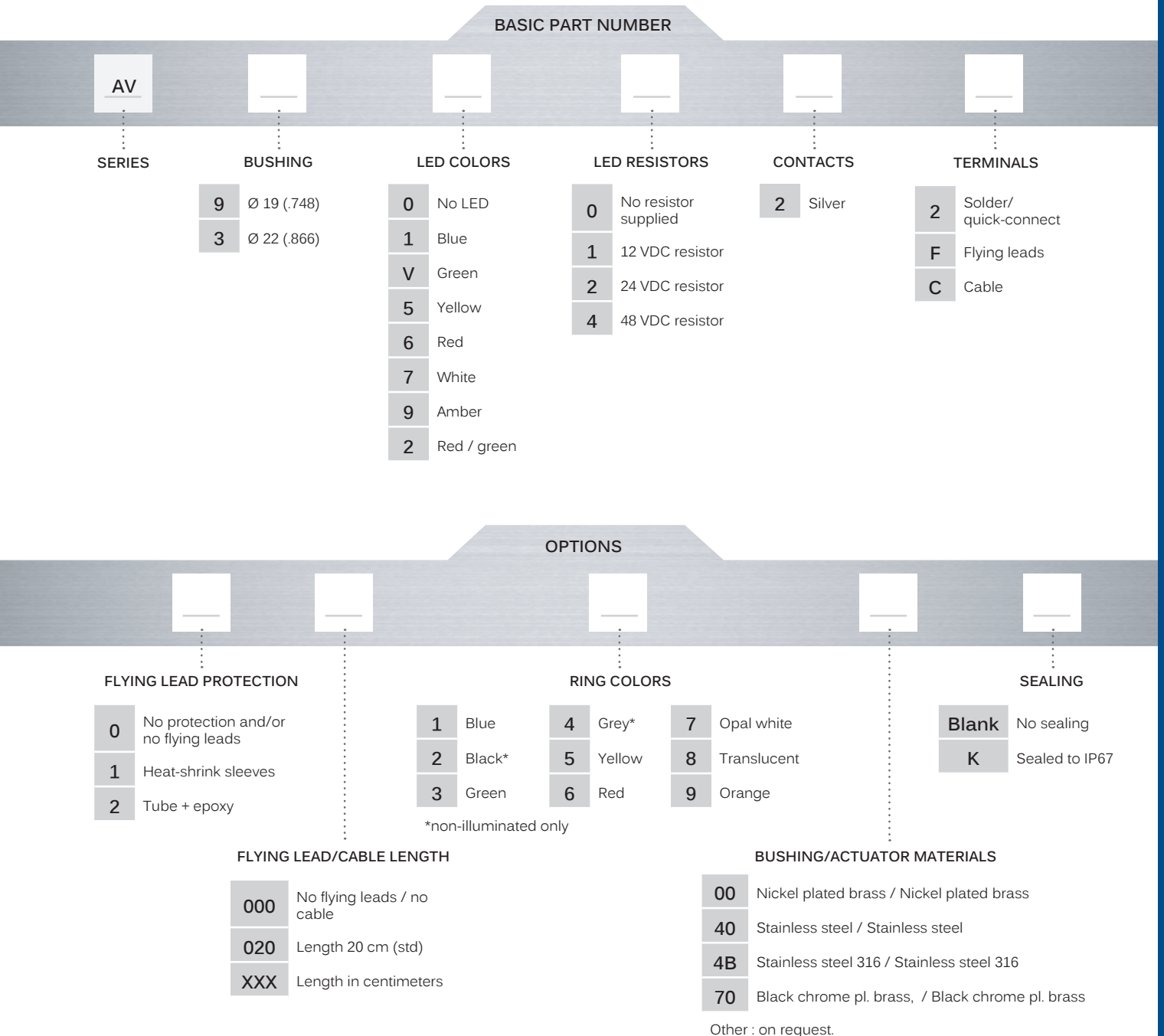
Tabs to be fitted by the user : TE 63241-3 or similar

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## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

- ⚠ **Notice:** please note that not all combinations of above numbers are available. Refer to the following pages for further information.
- 🔧 **Mounting accessories:** standard hardware supplied : 1 hex nut. Standard and special hardware is presented in the "Hardware" section of website.

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## BUSHING Ø 19 (.748) - FLAT ACTUATOR - SOLDER LUG TERMINALS



Illuminated\*  
**AV9•022**



Non-illuminated  
**AV90022**



\* select LED color on previous page - No LED resistor supplied on this model.

## BUSHING Ø 19 (.748) - FLAT ACTUATOR - FLYING LEAD TERMINALS



Illuminated\*  
**AV9••2F**



Non-illuminated  
**AV9002F**



\* select LED color & resistor on previous page.

## BUSHING Ø 19 (.748) - FLAT ACTUATOR - CABLE TERMINALS



Illuminated\*  
**AV9••2C**



Non-illuminated  
**AV9002C**



\* select LED color & resistor on previous page.

## BUSHING Ø 22 (.866) - FLAT ACTUATOR - SOLDER LUG TERMINALS



Illuminated\*  
**AV3•022**

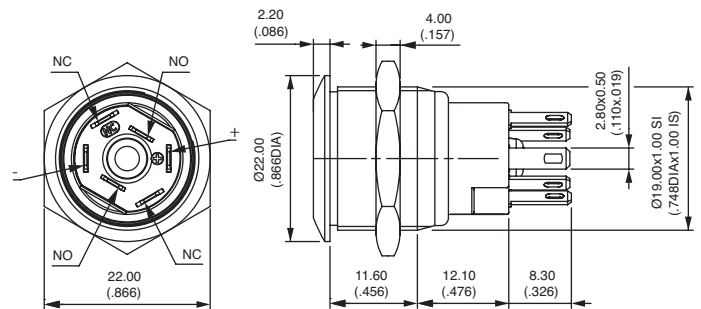


Non-illuminated  
**AV30022**

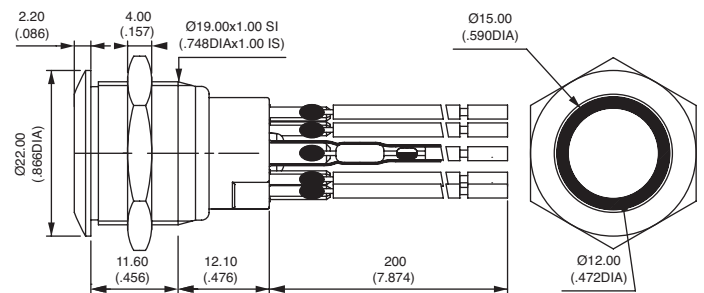


\* select LED color on previous page - No LED resistor supplied on this model.

Hex nut 22 (.866) across flats

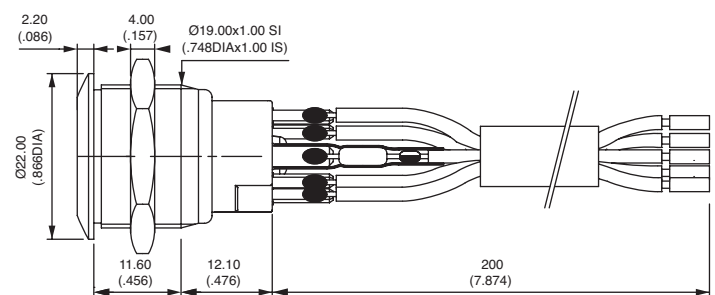


Hex nut 22 (.866) across flats

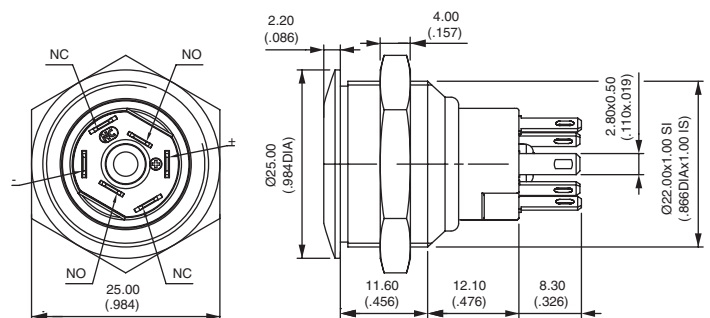


Wire colours : black: NC, orange: NO, red: LED anode (+), blue : LED cathode (-)

Hex nut 22 (.866) across flats



Hex nut 25 (.984) across flats



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## BUSHING Ø 22 (.866) - FLAT ACTUATOR - FLYING LEAD TERMINALS



Illuminated\*  
**AV3••2F**



Non-illuminated  
**AV3002F**



\* select LED color & resistor on previous page.

## BUSHING Ø 22 (.866) - FLAT ACTUATOR - CABLE TERMINALS



Illuminated\*  
**AV3••2C**

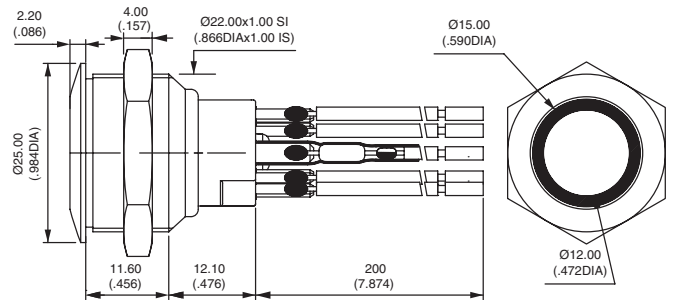


Non-illuminated  
**AV3002C**



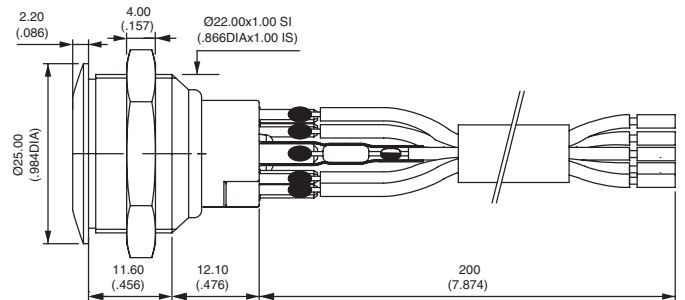
\* select LED color & resistor on previous page.

Hex nut 25 (.984) across flats



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

Hex nut 25 (.984) across flats



### FLYING LEAD PROTECTION

BASIC P/N

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

### FLYING LEAD/ CABLE LENGTH

BASIC P/N

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

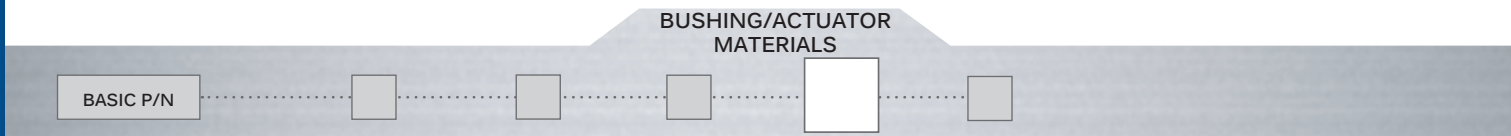
### RING COLORS

BASIC P/N

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

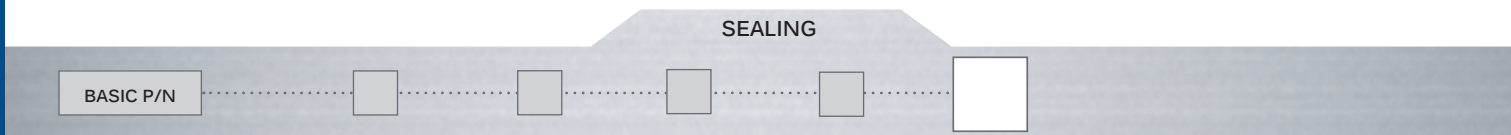
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CODE	BUSHING	ACTUATOR
00 (std)	Nickel plated brass	Nickel plated brass
40	Stainless steel 303	Stainless steel 303
4B	Stainless steel 316	Stainless steel 316
70	Chrome plated brass, black	Chrome plated brass, black

Other : on request.



- Blank No sealing
- K Front panel sealing to IP67

OPTION K



- ① - internal membrane
- ② - external gasket