

# ES series

Heavy-duty safety switches •  
panel cut-out Ø 22 mm or Ø 28 mm



## DISTINCTIVE FEATURES

- Rugged version : 100,000 cycles mechanical life
- Locked/unlocked status indicator
- Lower behind-panel depth
- Sealed to IP65, IP67 and IP69K
- Complies with EN 60947-5-1



## ELECTRICAL SPECIFICATIONS

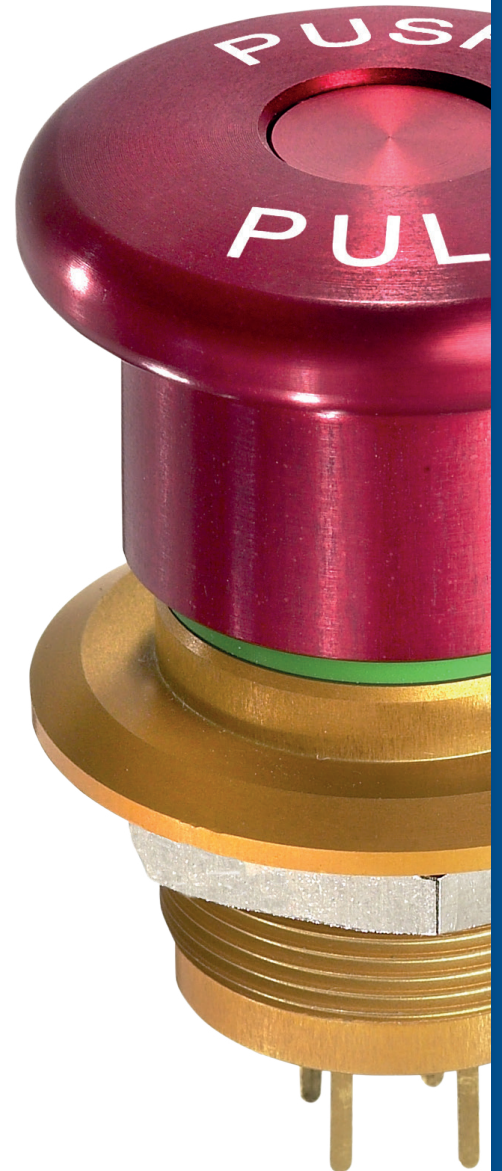
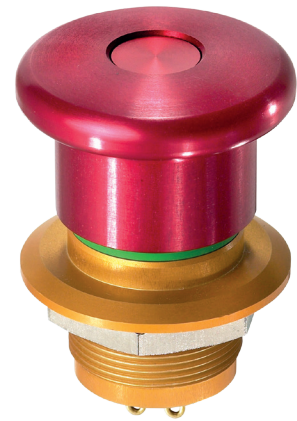
- Electrical function : push-pull ON-ON
- Current/voltage rating : 1 A 24 VDC DC-14
- Electrical life : 6,050 cycles
- Contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min. at 500 VDC
- Dielectric strength : 1,000 Vrms 50 Hz min. between terminals  
2,000 Vrms 50 Hz min. between poles and between terminals and frame



## ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP65, IP67 and IP69K according to IEC 60529 and DIN 40050
- Rear sealing : IP67 - only for cable version (C)
- Salt spray : 96 hours according to IEC 68-2-11
- Vibrations : 10-500 Hz - 10 g according to IEC 68-2-6
- Shock resistance : 50 g according to IEC 68-2-27
- Robustness (axial) : IK10
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)
- Complies with EN 60947-5-1

The company reserves the right to change specifications without notice.



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## GENERAL SPECIFICATIONS

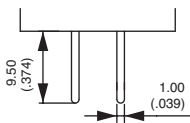
- Panel thickness : 1.5 mm (.059) min to 6 mm (.236) max.
- Low level or mechanical life : 100,000 cycles
- Travel to lock : 2.20 mm ± 0.3 mm
- Total travel : 4.20 mm ± 0.3 mm
- Torque : 5 Nm min. - 14 Nm max. applied to nut
- Operating force :  
2 pole models : Push : 30 N ± 7 N / Pull : 25 N ± 5 N  
3 pole models : Push : 45 N ± 7 N / pull : 25 N ± 5 N

## MATERIALS

- Case : diallyphthalate (DAP)
- Actuator : aluminum, red anodized
- Bushing : aluminum, yellow anodized
- Contacts : silver, gold plated
- Terminal seal : epoxy
- Cable : 4 wires, AWG 22, section 0.34 mm<sup>2</sup>, lenght 500 mm

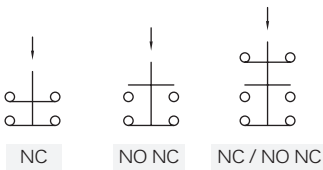
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

## TERMINALS

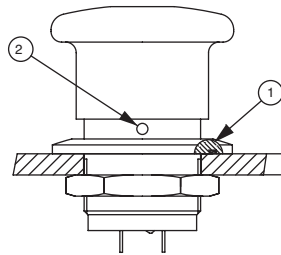


Straight PC

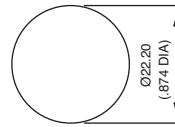
## ELECTRICAL FUNCTIONS



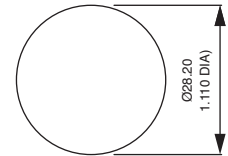
## PANEL CUT-OUT



- ① - O-ring
- ② - Hole



2 pole



3 pole

**NOTE :** the hole in the bushing is designed for insertion of a Ø 2 mm metal rod helping to fasten the switch on the panel.

## CONNECTIONS

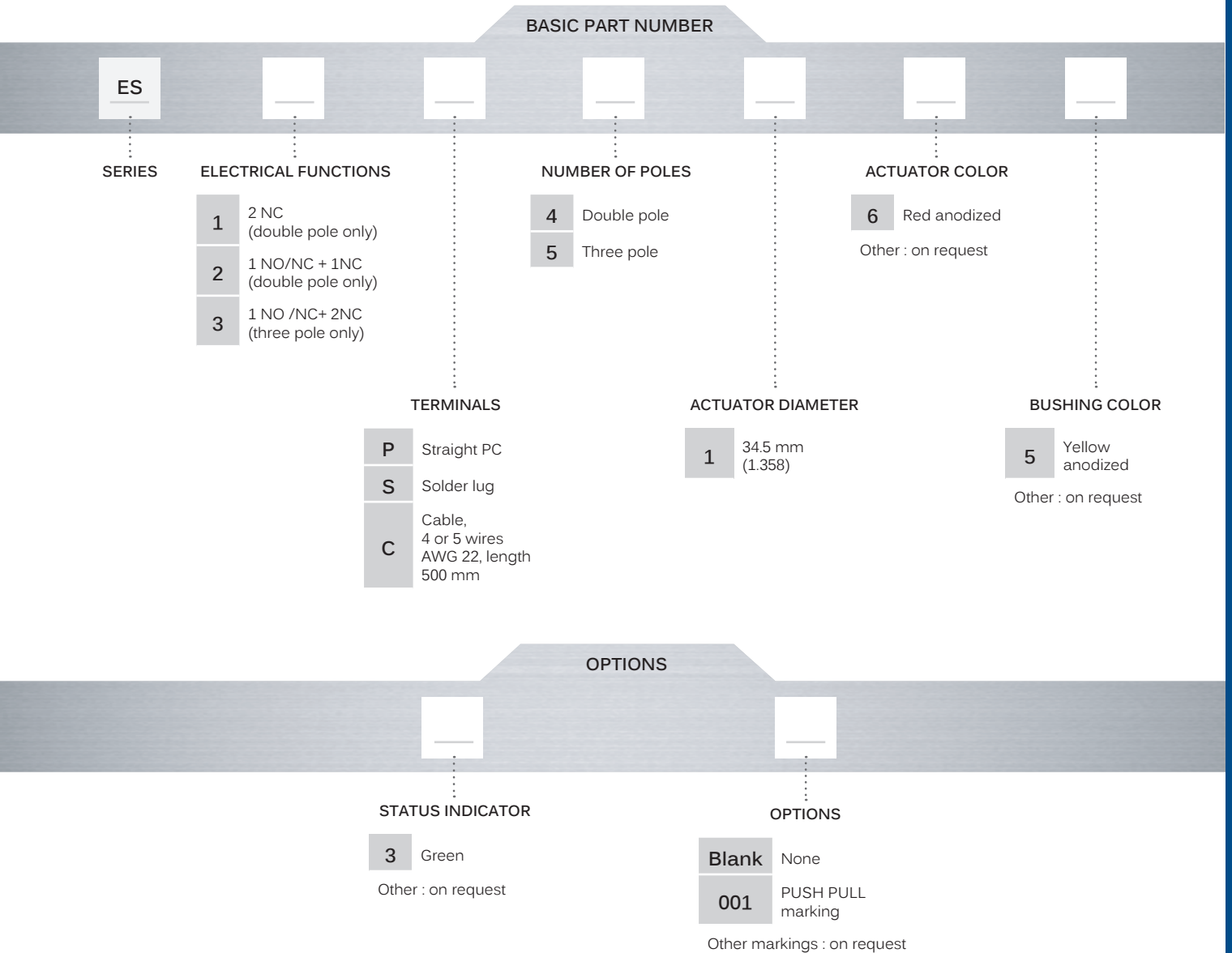
	POLE 1	POLE 2
C	White	Brown
NC	Red	Green

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## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

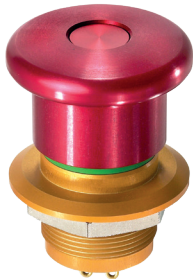
On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

- 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 25 (.984) or 32 (1.260) across flats and 1 O-ring.

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## DOUBLE POLE - 2 NC CONTACTS



Solder lug terminals

**ES1S41653**

Straight PC terminals

**ES1P41653**

## DOUBLE POLE - 2 NC & 1 NO/NC + 1 NC CONTACTS



Cable terminals

2 NC

**ES1C41653**

Cable terminals

1 NO/NC+ 1 NC

**ES2C41653**

## DOUBLE POLE - 1 NO/NC + 1 NC CONTACTS



Solder lug terminals

**ES2S41653**

Straight PC terminals

**ES2P41653**

## THREE POLE - 1 NO/NC + 2 NC CONTACTS

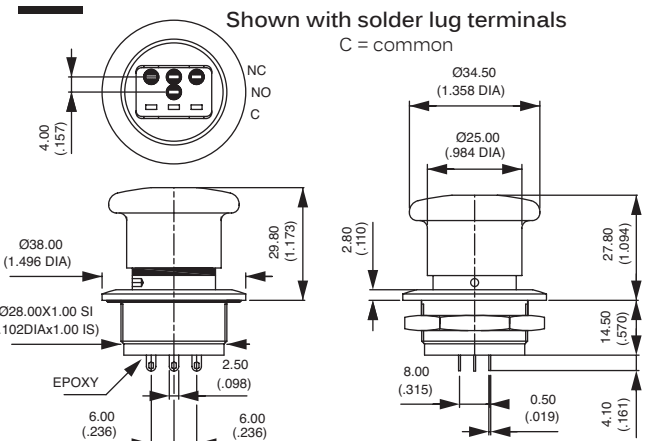
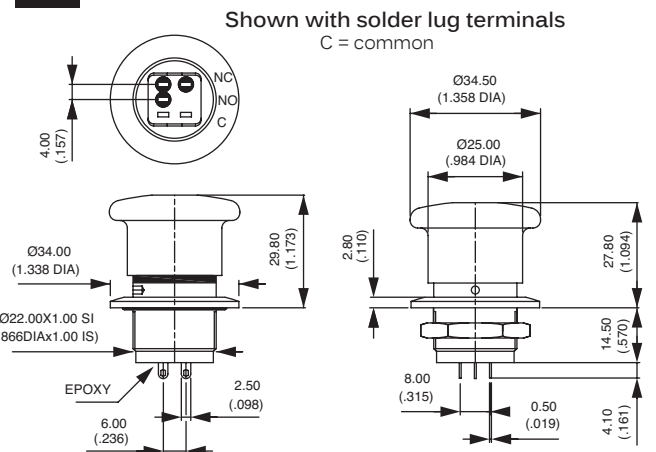
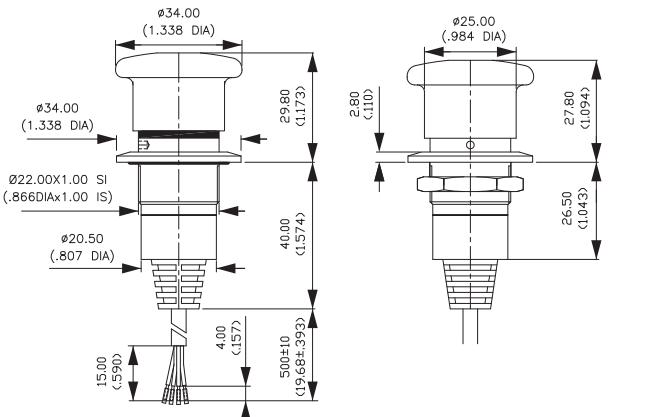
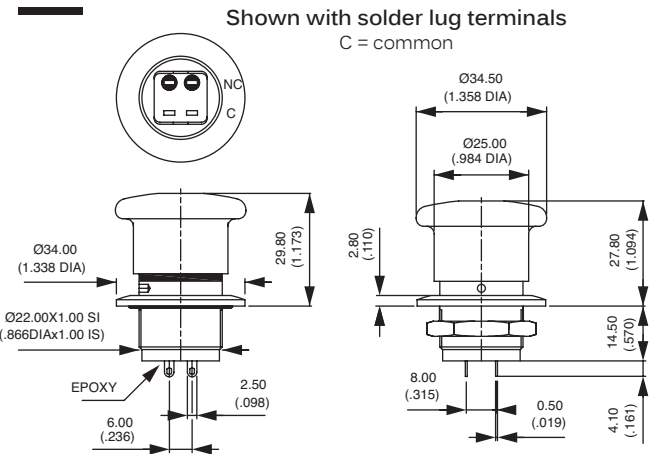


Solder lug terminals

**ES3S51653**

Straight PC terminals

**ES3P51653**



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## STATUS INDICATOR COLOR



3 Green

Other : on request.

## OPTIONS



Blank None  
001 PUSH PULL marking

Other markings : on request