B

❑ **Agency approvals**

CECC 96401-001

This range of professional switches is suitable for use in military and other high specification environments.

❑ **Contacts**
Highly reliable contacts suitable for low level applications (10mA 50mV, 10µA 5VDC min.) or power applications (2A 250VAC, 4A 125VAC, 4A 30VDC max.)

❑ **Double shell case**
For high mechanical strength and high electrical insulation.

❑ **Compact size**
The small rear end of the switch allows space savings behind the panel.

❑ **Finish**
Matt black finish on body, bushing, plunger and hardware.

❑ **Full sealing**
Panel sealed to IP 67, these switches are frontal sealed by three O-rings and have full rear end sealing.

13000X778 series

High performance pushbutton switches - threaded bushing Ø 11,9 (15/32)

Specifications

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 250VAC - 4A 125VAC - 4A 28VDC
- Minimum load : 10mA 50mV, 10µA 5VDC
  When used above 300mA 28VDC, the gold plating is removed on contact areas and is considered only as a protection against oxidation during storage.
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
  1.000 Vrms 50 Hz min. between terminals
  2.000 Vrms 50 Hz min. between poles
  2.000 Vrms 50 Hz min. between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life :
  - At 2A 250VAC - 4A 28VDC : 10.000 cycles
 - At low level (50mV 10mA) : 150.000 cycles
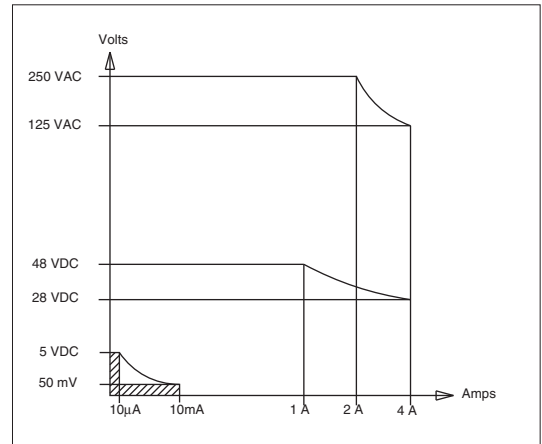
MATERIALS

- Case : diallylphthalate (DAP) with PBT external shell (epoxy sealed)
- Actuator : brass, black chrome plated
- Bushing : brass, black chrome plated
- Contacts : silver inlay - gold plated over nickel barrier

SEALING

- Front panel sealing by three O-rings
- Panel seal withstands 1 bar pressure and remains sealed even when the switch is operated.
- Epoxy sealed terminals
- Splash-proof case

① O-ring
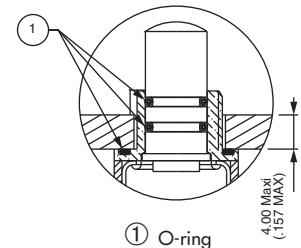
GENERAL SPECIFICATIONS

- Total travel : 2 mm (.078)
- Torque : 1,50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 5 mm (.196) max.
- Shock test : 50g - 11ms (IEC 68-2-27)
- Vibrations : 10-500 Hz - 10g (IEC68-2-6)
- Operating temperature : -40°C to +85°C
- Humidity test : 56 days, 93 % R.H., 40°C (IEC 68-2-3)
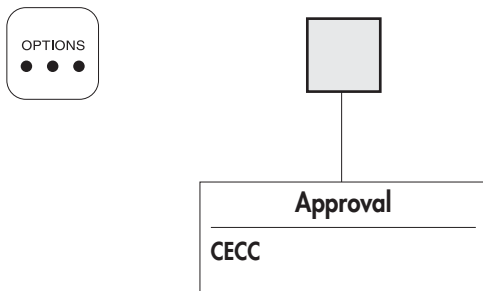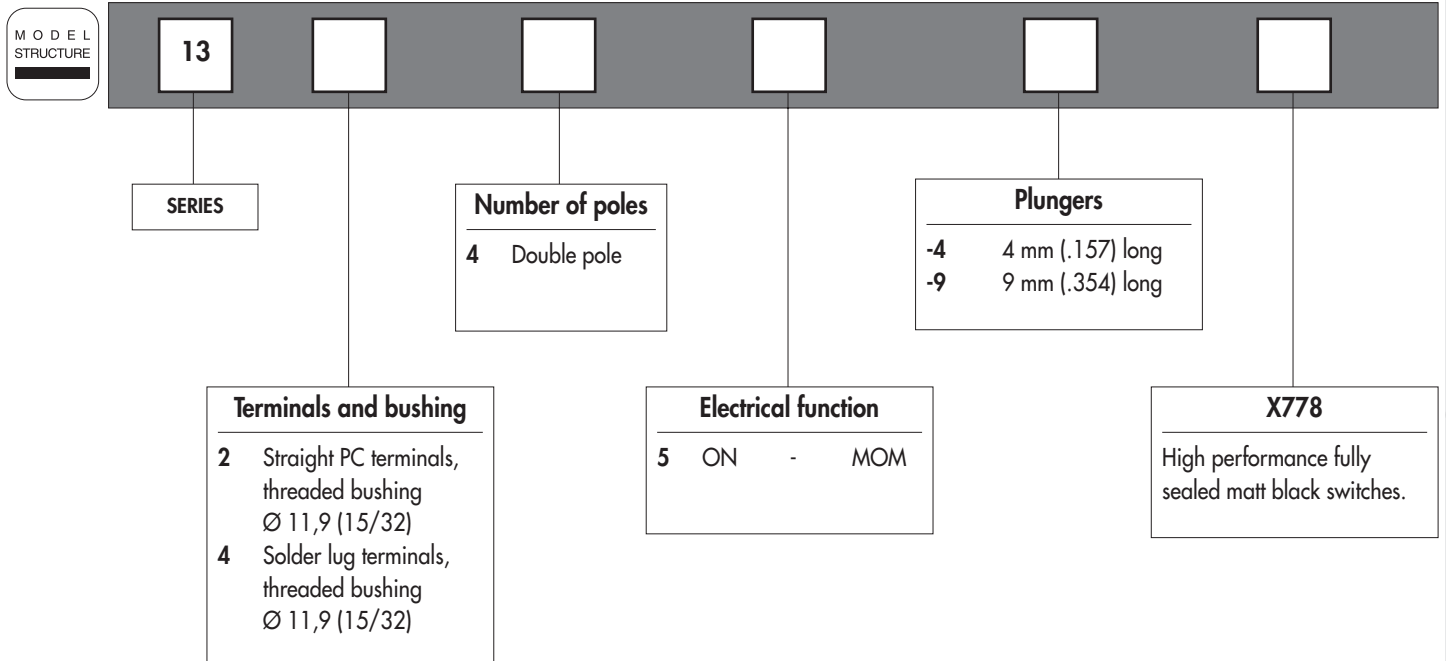- Salt spray test : 96 hours (IEC 68-2-11)

APPROVALS

Many models within this range have full CECC approval. To order switches marked CECC, complete appropriate box of ordering format.

MODEL STRUCTURE

13

SERIES

Number of poles

4   Double pole

Plungers

-4   4 mm (.157) long
-9   9 mm (.354) long

Terminals and bushing

2   Straight PC terminals, threaded bushing Ø 11,9 (15/32)
4   Solder lug terminals, threaded bushing Ø 11,9 (15/32)

Electrical function

5   ON   -   MOM

X778

High performance fully sealed matt black switches.

OPTIONS

Approval

CECC

ABOUT THIS SERIES
On the following pages, you will find successively :
- model structure of switches
- options in the same order as in above chart

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

Sealing boots can be used to further protect the switches against dust and water. They are presented in section H.

Mounting accessories : standard hardware supplied with all models : 1 hex nut 14 (.551) across flats, part number U41. This nut is presented after model structure of switches.
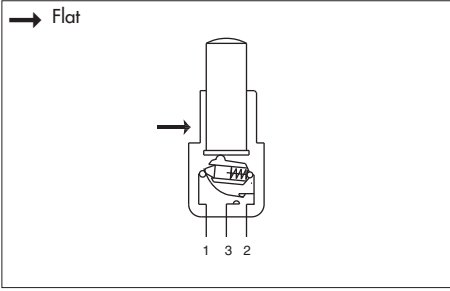**Security cap** available to prevent inadvertent plunger operation. See section I.
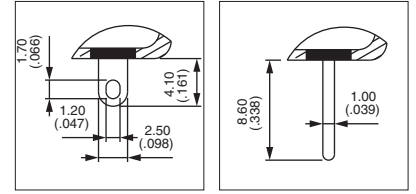
Packaging unit : 25 pieces

13000X778 series

High performance pushbutton switches - threaded bushing Ø 11,9 (15/32)

Fully sealed - matt black

• **Quick-break momentary pushbutton switches**

1.70 (.066)
4.10 (.161)
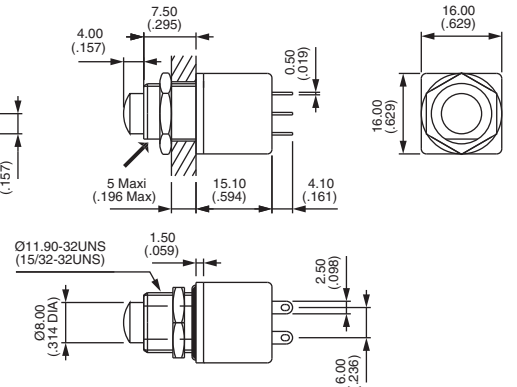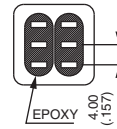1.20 (.047)
2.50 (.098)
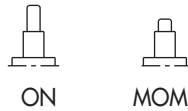8.60 (.338)
1.00 (.039)

MODEL STRUCTURE

B

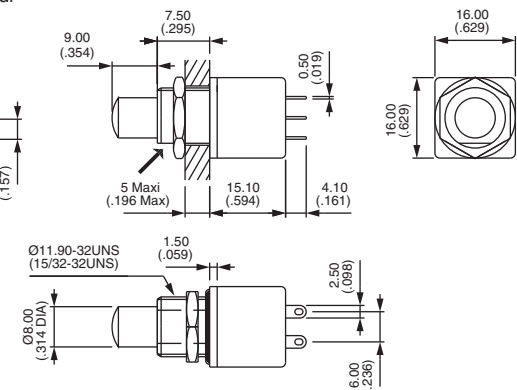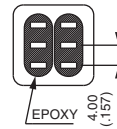## Solder lug terminals - double pole - 4 mm (.157) plunger → Flat

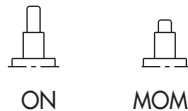**13445-4X778**   ON   MOM

EPOXY
4.00 (.157)
4.00 (.157)
7.50 (.295)
0.50 (.019)
16.00 (.629)
16.00 (.629)
5 Maxi (.196 Max)
15.10 (.594)
4.10 (.161)
Ø11.90-32UNS (15/32-32UNS)
1.50 (.059)
2.50 (.098)
Ø8.00 (.314 DIA)
6.00 (.236)

Solder lug terminals - double pole - 9 mm (.354) plunger → Flat

13445-9X778   ON   MOM
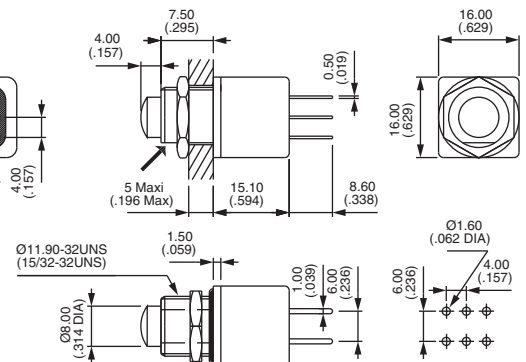
EPOXY
4.00 (.157)
9.00 (.354)
7.50 (.295)
0.50 (.019)
16.00 (.629)
16.00 (.629)
5 Maxi (.196 Max)
15.10 (.594)
4.10 (.161)
Ø11.90-32UNS (15/32-32UNS)
1.50 (.059)
2.50 (.098)
Ø8.00 (.314 DIA)
6.00 (.236)

Straight PC terminals - double pole - 4 mm (.157) plunger → Flat

13245-4X778   ON   MOM

EPOXY
4.00 (.157)
4.00 (.157)
7.50 (.295)
0.50 (.019)
16.00 (.629)
16.00 (.629)
5 Maxi (.196 Max)
15.10 (.594)
8.60 (.338)
Ø11.90-32UNS (15/32-32UNS)
1.50 (.059)
1.00 (.039)
6.00 (.236)
Ø8.00 (.314 DIA)
Ø1.60 (.062 DIA)
4.00 (.157)
6.00 (.236)

Straight PC terminals - double pole - 9 mm (.354) plunger → Flat

13245-9X778

ON   MOM

EPOXY

7.50 (.295)
9.00 (.354)
0.50 (.019)
16.00 (.629)
16.00 (.629)
4.00 (.157)
5 Maxi (.196 Max)
15.10 (.594)
8.60 (.338)
Ø1.60 (.062 DIA)

Ø11.90-32UNS (15/32-32UNS)
1.50 (.059)
1.00 (.039)
6.00 (.236)
6.00 (.236)
4.00 (.157)
Ø8.00 (.314 DIA)

PANEL CUT-OUT

Ø12.00 (.472 DIA)
5.10 (.200)
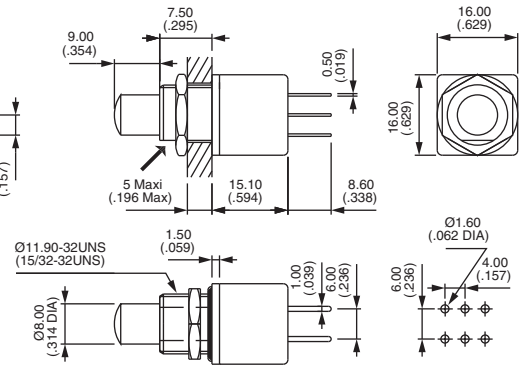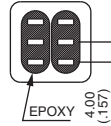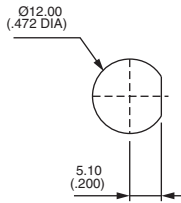
STANDARD HARDWARE

Hex nut

14.00 (.551)
2.30 (.090)

Ø11.9-32UNS (15/32-32UNS)
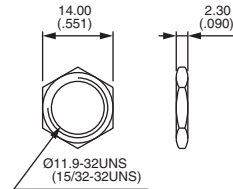
U41 (matt black)

POSITIONS AND CONNECTIONS

FUNCTION	BUTTON POSITION AND CONNECTIONS		TERMINAL IDENTIFICATION	
	I	II	→ Flat	
	ON	MOM		
13245	A 1-2	A 1-3		
13445	B 1-2	B 1-3		

AGENCY APPROVAL

CECC   CECC 96401-001

Marking : to order switches marked CECC, please complete above box with "CECC".
Blank : no agency approval required.

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