ALCOSWITCH PUSHBUTTON
22 mm EMERGENCY STOP SWITCH

ILLUMINATED AND NON-ILLUMINATED

INTRODUCTION

TE Connectivity (TE)'s ALCOSWITCH PBES22 series pushbutton emergency stop switch is offered in illuminated or non-illuminated styles. When mounted, the switch offers IP65 protection on the front of the panel. Easy to terminate screw terminals allow fast termination.

FEATURES

- IP65 rated front of panel

- IEC 60947-5-1 & IEC 60947-5-5

- Ø22.3 mm and Ø25.5 mm mounting hole options

- Simple and easy mounting

- Blocks and sockets with screw terminals

- Silver plating

- Illuminated and non-illuminated styles

- LED & incandescent

- High actuation force

APPROVALS

- UL, CE, TUV & UKCA agency approval
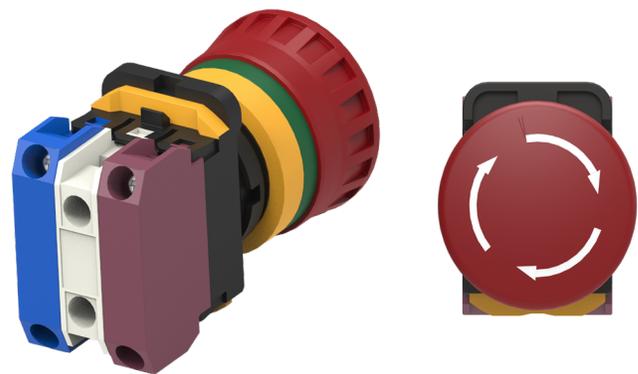
2416049
AVAILABLE WITH OR WITHOUT ILLUMINATION
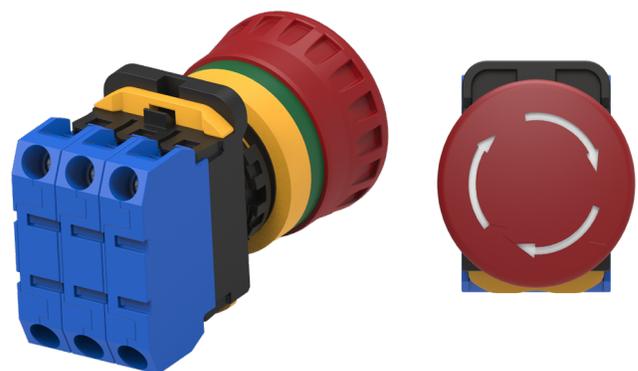
2416050
AVAILABLE WITHOUT ILLUMINATION

ALCOSWITCH Pushbutton 22 mm Emergency Stop Switch
Illuminated and Non-Illuminated

PRODUCT SPECIFICATION

Mechanical life	>100,000 Operations
Electrical life	>100,000 Operations
Motion tolerance	< 20 Operations/minute (mechanical and electrical life)
Degree of protection	Panel front: IP65 (IEC 60529) Contact block: IP20 (IEC 60529)
Panel thickness	0.8 mm to 6.0 mm (without anti-rotation ring or nameplate) 1.2 mm to 4.5 mm (with anti-rotation ring or nameplate)
Mounting ring torque	2 N-m
Maximum insulation voltage	2500 VAC @ 50/60 Hz, 10 mA, 1 minute
Insulation resistance	100 MΩ @ 500 VDC, 100 mA, 1 minute
Storage temperature	-40 °C to +70 °C
Operating temperature	-25 °C to +70 °C (Without lamp) -25 °C to +55 °C (With lamp)
Contact resistance	<= 100 mΩ, 1A, 6 to 8 VDC
Operating forces	Push - lock : 20 N to 30 N, Pull - reset : less than 50 N, Turn – reset: less than 1 N-m
Operating travel	Push – lock 8±2 mm, Pull - reset : 4.6±1 mm Turn – reset CW 20°
Pollution degree	3
Wire range	16 to 14 awg, 1.5 mm^2 to 2.5 mm^2
Min applicable load	3V AC/DC, 3 mA
Rated impulse withstanding voltage	2.5 kV
Conditional short-circuit current	1 kA
Screw size for terminal and lamp socket block	M3.5
Tightening torque for terminal and lamp socket block screw	0.8 N-m

ELECTRICAL RATINGS

TUV (IEC 60947-5-5)				
Rated insulation voltage (Ui)	600 V			
Conventional enclosed thermal current (I$_{the}$)	10 A			
Rated operational voltage (Ue)	24 V	120 V	240 V	380 V
Utilization category	Rated operational current (Ie)			
AC-15	10 A	6 A	3 A	2 A
AC-12	10 A	10 A	6 A	2 A
DC-13	4 A	4 A	1 A	--
DC-12	8 A	8 A	2 A	--

UL (UL 508, CNL 508)					
Load Type	Operating Voltage	24 V	120 V	240 V	380 V
General Purpose	AC (50/60 Hz)	10 A	10 A	6 A	2 A
	DC	8 A	2.2 A	1.1 A	-
Resistive	AC (50/60 Hz)	10 A	10 A	6 A	2 A
	DC	8 A	2.2 A	1.1 A	-
Pilot Duty	A600				

SWITCH STYLES

TERMINAL BLOCK
LAMP SOCKET
2416049

TERMINAL BLOCK
2416050

SUB-ASSEMBLIES AND COMPONENETS IDENTIFICATION

ACTUATOR SUB-ASSEMBLY

ILLUMINATED - 2416049
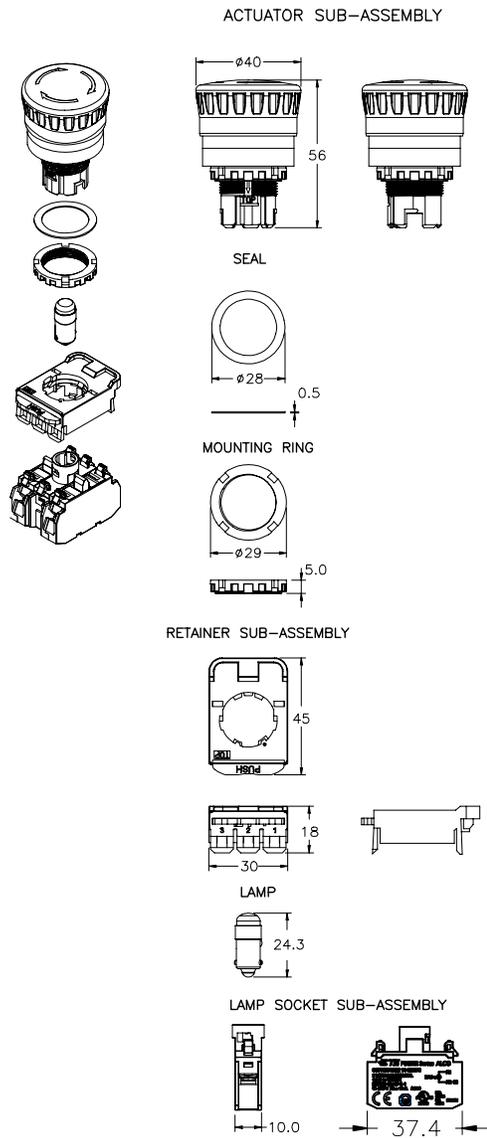
NON-ILLUMINATED - 2416050
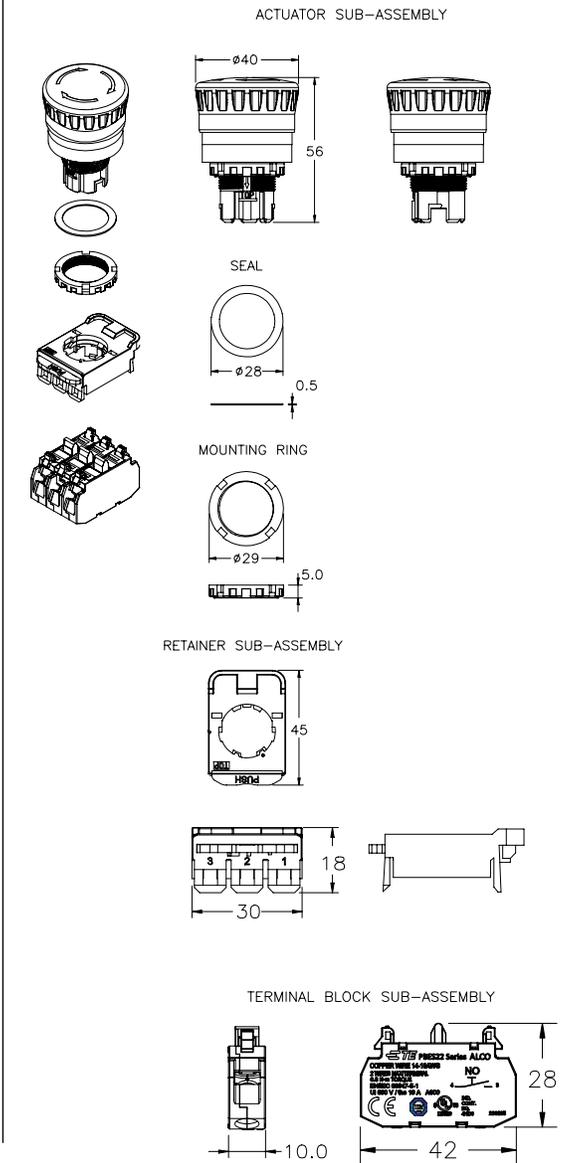
ALCOSWITCH Pushbutton 22 mm Emergency Stop Switch

Illuminated and Non-Illuminated

2416049

LAMP SOCKET

TERMINAL BLOCK

0.8 TO 6mm WITHOUT ANTI-ROTATION RING OR NAMEPLATE
1.2 TO 4.5mm WITH ANTI-ROTATION RING OR NAMEPLATE

45.7±1

33.0±1

RELEASED POSITION

30±1

TERMINAL BLOCK

ACTUATOR POSITION
INDICATOR BAND,
COLOR GREEN

41.6±0.5

28.0
REF.

ACTUATED POSITION

Ø40±0.5
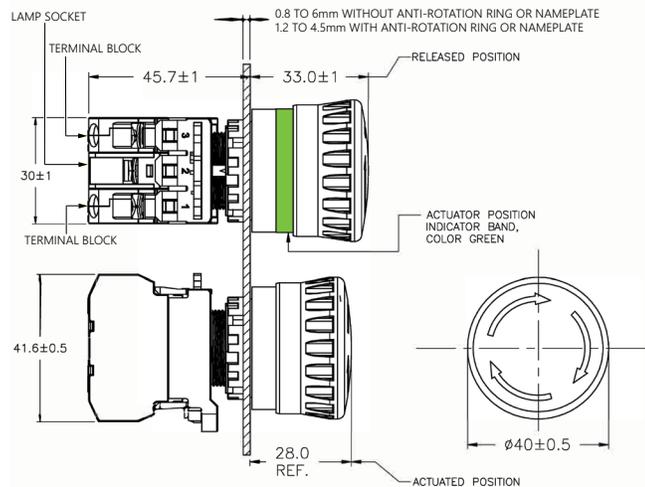
2416050

TERMINAL BLOCKS

0.8 TO 6mm WITHOUT ANTI-ROTATION RING OR NAMEPLATE
1.2 TO 4.5mm WITH ANTI-ROTATION RING OR NAMEPLATE

45.7±1

33±1

RELEASED POSITION

30±1

ACTUATOR POSITION
INDICATOR BAND,
COLOR GREEN

41.6±0.5

28.0
REF.

ACTUATED POSITION

Ø40±0.5

TERMINAL BLOCKS

COLOR: GREEN

COLOR: RED

COLOR: MAUVE

TE PBES22 Series ALCO
COPPER WIRE 14-16AWG
2 WIRES MAX/TERMINAL
0.8 N·m TORQUE
EN/IEC 60947-5-1
UI 600 V / Ithe 10 A   A600

NO

4   3

IND.
CONT.
EQ.
4HD6   230825

COLOR: BLUE

TE PBES22 Series ALCO
COPPER WIRE 14-16AWG
2 WIRES MAX/TERMINAL
0.8 N·m TORQUE
EN/IEC 60947-5-4
UI 600 V / Ithe 10 A   A600

NC

2   1

IND.
CONT.
EQ.
4HD6   230825

.4
NO

.3
NO

.2
NC

.1
NC

FUNCTION:
NO=NORMALLY OPEN
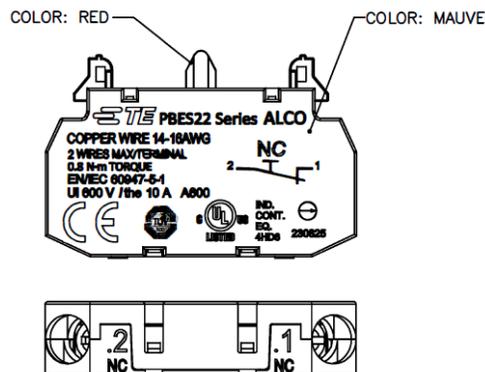
FUNCTION:
NC=NORMALLY CLOSED

LAMP SOCKET

COLOR: WHITE

TE PBES22 Series ALCO
COPPER WIRE 14-16AWG
2 WIRES MAX/TERMINAL
0.8 N·m TORQUE
EN/IEC 60947-5-1
UI 600 V / Ithe 10 A   A600

BA9s

X1

X2 (N)

IND.
CONT.
EQ.
4HD6   230821

X1
6V
LAMP
250V   1W
Max
X2(N)
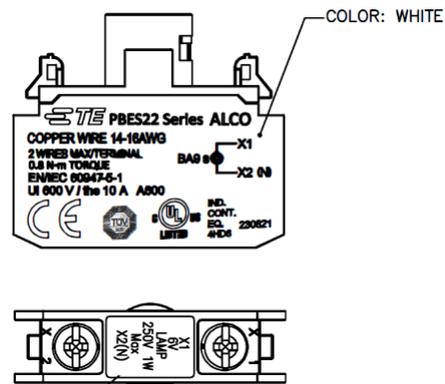
ACCESSORIES

Name Plate

Anti Rotation Ring

Assembly Tool

TE Part Number	Description
2461019-1	Name Plate
2461020-1	Anti Rotation Ring
2461021-1	Assembly Tool

DISASSEMBLY OF THE TERMINAL BLOCKS AND LAMP SOCKET RETAINER SUB-ASSEMBLY FROM THE ACTUATOR SUB-ASSEMBLY (PRIOR TO MOUNTING PANEL)

SEAL, ACTUATOR TO PANEL

OPTION 1

OPTION 2

ACTUATOR SUB-ASSEMBLY

RETAINER SUB-ASSEMBLY

1. RAISE LOCKING LEVER
2. PULL OUT

1. DEPRESS LOCKING LEVER
2. PULL OUT
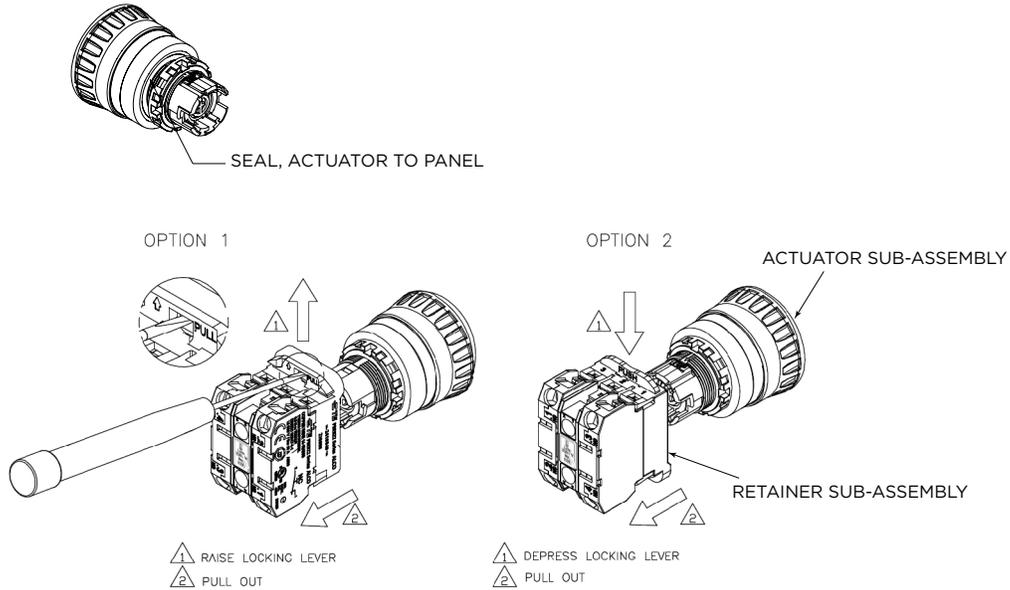
MOUNTING HOLE CONFIGURATIONS
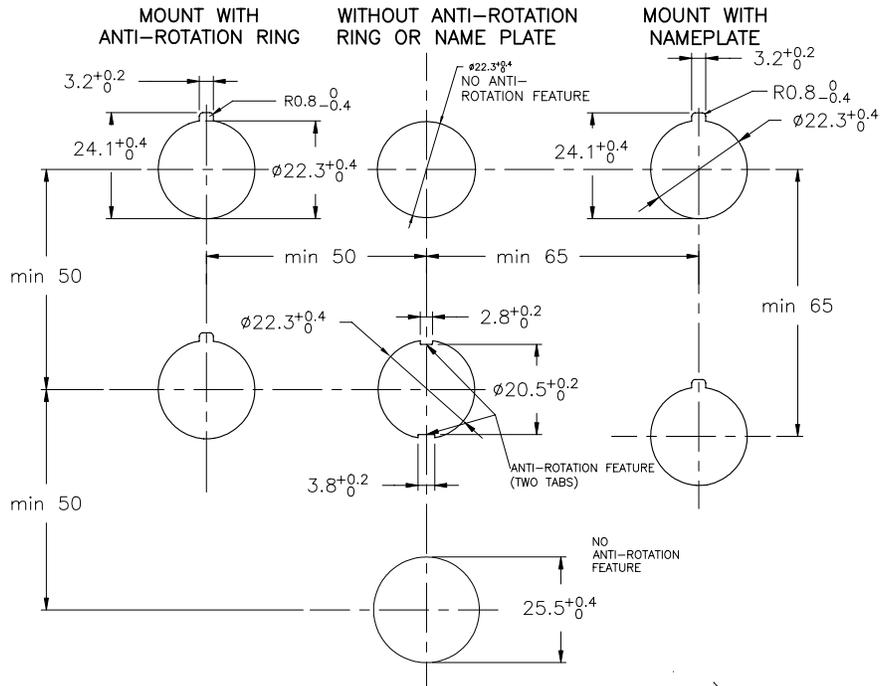
MOUNT WITH ANTI-ROTATION RING

$3.2^{+0.2}_{0}$
$24.1^{+0.4}_{0}$
min 50
min 50
R0.8$^{0}_{-0.4}$
$\varnothing 22.3^{+0.4}_{0}$

WITHOUT ANTI-ROTATION RING OR NAME PLATE

$\varnothing 22.3^{+0.4}_{0}$ NO ANTI-ROTATION FEATURE
min 50
min 65
$\varnothing 22.3^{+0.4}_{0}$
$2.8^{+0.2}_{0}$
$\varnothing 20.5^{+0.2}_{0}$
ANTI-ROTATION FEATURE (TWO TABS)
$3.8^{+0.2}_{0}$
NO ANTI-ROTATION FEATURE
$25.5^{+0.4}_{0}$

MOUNT WITH NAMEPLATE

$3.2^{+0.2}_{0}$
R0.8$^{0}_{-0.4}$
$\varnothing 22.3^{+0.4}_{0}$
$24.1^{+0.4}_{0}$
min 65

**Notes:**

1. Dimensions in millimetres unless otherwise specified.
2. Dimensions shown for reference purposes only. Specifications subject to change.

ACTUATOR SUB-ASSEMBLY INSTALLATION

HOLE SIZE ∅22.3mm,
ORIENT THE MOUNTING RING WITH THE
FLAT SURFACE TOWARDS THE ACTUATOR

TE PART NUMBER 2461021-1

M22XP1.0

∅22.3$^{+0.4}_{-0}$

M22XP1.0

ACTUATOR

∅22.3$^{+0.4}_{-0}$, MOUNTING HOLE WITH TWO
TABS PREVENT THE SWITCH FROM ROTATING
DURING INSTALLATION.

0.8 TO 6mm

FLAT SURFACE OF
MOUNTING RING

HOLE SIZE ∅25.5mm, ORIENT
THE MOUNTING RING WITH THE EXTENDED
SURFACE TOWARDS THE ACTUATOR

∅25.5$^{+0.4}_{-0}$

M22XP1.0

M22XP1.0

0.8 TO 6mm

EXTENDED
SURFACE OF
MOUNTING RING

NAMEPLATE OR ANTI-ROTATION RING CAN ONLY
BE INSTALLED WITH THE HOLE SIZE ∅22.3mm
WITH A NOTCH ON THE TOP OF THE MOUNTING HOLE

∅22.3$^{+0.4}_{-0}$

ANTI-ROTATION RING
TE PART NUMBER
2461020-1

M22XP1.0

M22XP1.0

1.2 to 4.5MM

NAMEPLATE
TE PART NUMBER
2461019-1
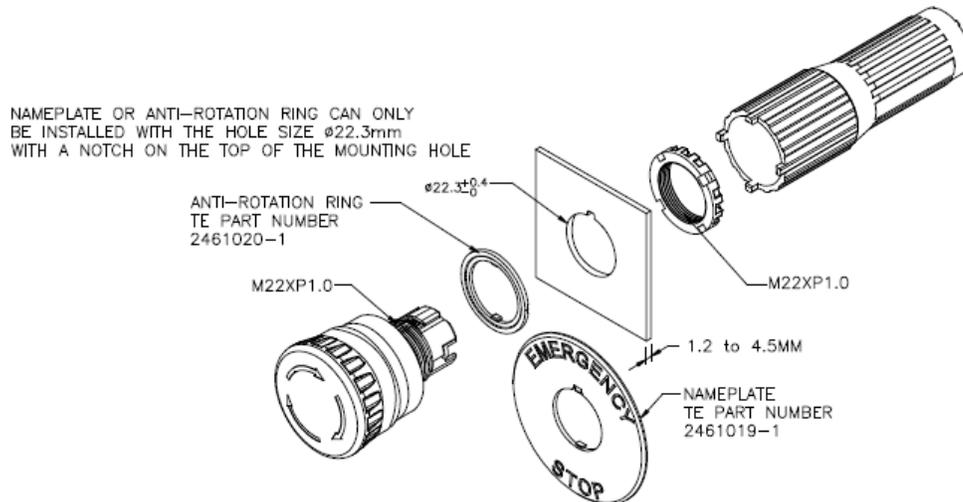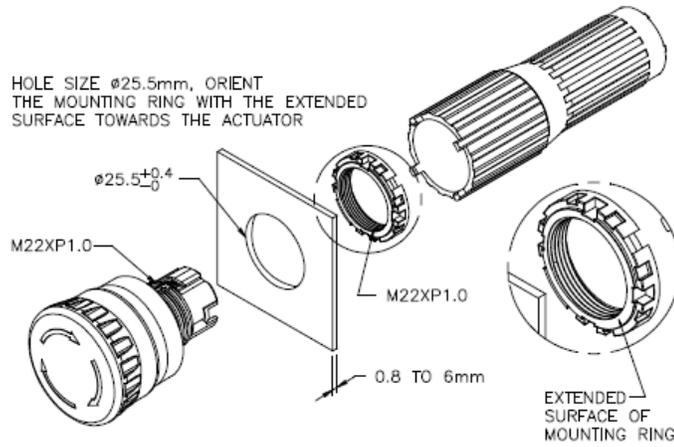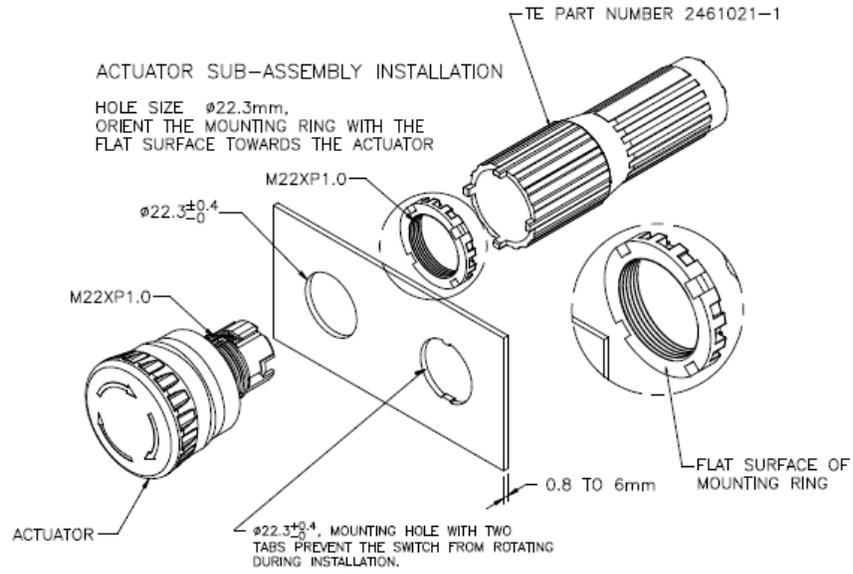
EMERGENCY STOP

Notes:

1.   Dimensions in millimetres unless otherwise specified.

2.   Dimensions shown for reference purposes only. Specifications subject to change.

ASSEMBLY OF THE TERMINAL BLOCKS
AND LAMP SOCKET RETAINER SUB—ASSEMBLY
TO THE ACTUATOR SUB—ASSEMBLY

TOP
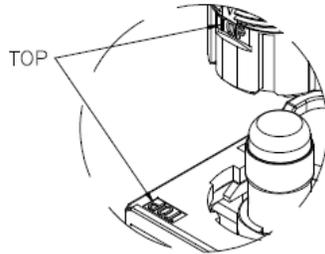
ALIGN THE "TOP" MARKINGS ON THE
ACTUATOR AND THE RETAINER IN THE SAME
DIRECTION AND PUSH THE ACTUATOR IN TO
THE RETAINER
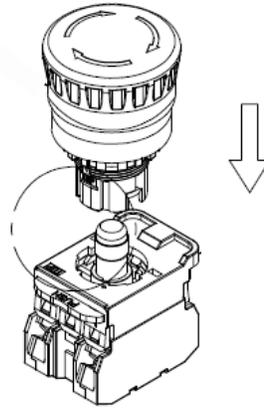
LAMP SOCKET

WIRING GUIDE

NC TERMINAL
BLOCK

NO TERMINAL
BLOCK

CONNECT

WHEN ACTUATED, LAMP WILL TURNED ON.

NC TERMINAL
BLOCK

NO TERMINAL
BLOCK

CONNECT
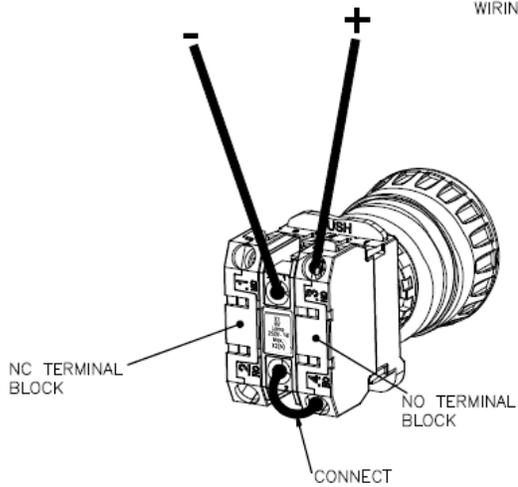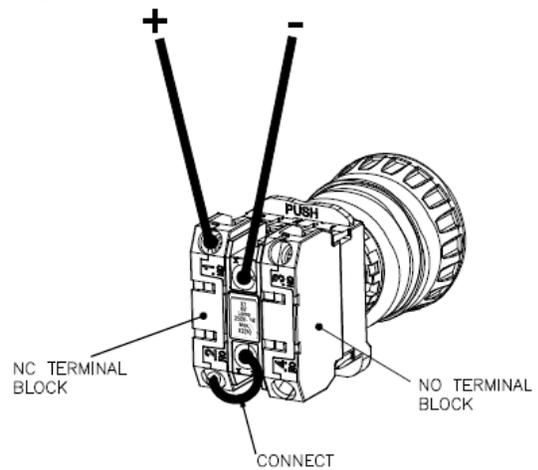
WHEN ACTUATED, LAMP WILL TURNED OFF.

ALCOSWITCH Pushbutton 22 mm Emergency Stop Switch

Illuminated and Non-Illuminated

ORDERING INFORMATION

Illuminated

TE Smart Part Number
PBES22 _ _ _ _

Cavity identification

Model No

PBES22

L | Lamp Available

Button Color

R	Red

Switch Function

Retainer Cavity			
	1	2	3
01	n/a		NC
02	NC		NC
10	NO	Lamp Socket	n/a
11	NO		NC
20	NO		NO

n/a = Cavity is not populated with a terminal block
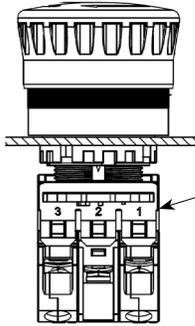
Lamp Options

0	No Lamp
2	6V AC/DC 11mA LED
3	12V AC/DC 10mA LED
4	24V AC/DC 10mA LED
5	6V AC/DC 6.3V 1W Incandescent
6	12V AC/DC 18V 1W Incandescent
7	24V AC/DC 30V 1W Incandescent
H	110V AC/DC 1.4mA LED
M3	230/240V AC/DC 1.2mA LED

PART NUMBER LIST

TE Part Number	TE Smart Part Number	TE Part Number	TE Smart Part Number	TE Part Number	TE Smart Part Number
2416049-1	PBES22L010R	1-2416049-9	PBES22L100R	3-2416049-7	PBES22L200R
2416049-2	PBES22L012R	2-2416049-0	PBES22L102R	3-2416049-8	PBES22L202R
2416049-3	PBES22L013R	2-2416049-1	PBES22L103R	3-2416049-9	PBES22L203R
2416049-4	PBES22L014R	2-2416049-2	PBES22L104R	4-2416049-0	PBES22L204R
2416049-5	PBES22L015R	2-2416049-3	PBES22L105R	4-2416049-1	PBES22L205R
2416049-6	PBES22L016R	2-2416049-4	PBES22L106R	4-2416049-2	PBES22L206R
2416049-7	PBES22L017R	2-2416049-5	PBES22L107R	4-2416049-3	PBES22L207R
2416049-8	PBES22L01HR	2-2416049-6	PBES22L10HR	4-2416049-4	PBES22L20HR
2416049-9	PBES22L01M3R	2-2416049-7	PBES22L10M3R	4-2416049-5	PBES22L20M3R
1-2416049-0	PBES22L020R	2-2416049-8	PBES22L110R		
1-2416049-1	PBES22L022R	2-2416049-9	PBES22L112R		
1-2416049-2	PBES22L023R	3-2416049-0	PBES22L113R		
1-2416049-3	PBES22L024R	3-2416049-1	PBES22L114R		
1-2416049-4	PBES22L025R	3-2416049-2	PBES22L115R		
1-2416049-5	PBES22L026R	3-2416049-3	PBES22L116R		
1-2416049-6	PBES22L027R	3-2416049-4	PBES22L117R		
1-2416049-7	PBES22L02HR	3-2416049-5	PBES22L11HR		
1-2416049-8	PBES22L02M3R	3-2416049-6	PBES22L11M3R		

ORDERING INFORMATION

Non-illuminated

Cavity identification

TE Smart Part Number
PBES22 _ _ _

Model No

PBES22

N	No Lamp

Button Color

R	Red

Switch Function

	Retainer Cavity		
	1	**2**	**3**
01	n/a	n/a	NC
02	NC	n/a	NC
03	NC	NC	NC
10	NO	n/a	n/a
11	NO	n/a	NC
12	NO	NC	NC
20	NO	n/a	NO
21	NO	NO	NC
30	NO	NO	NO
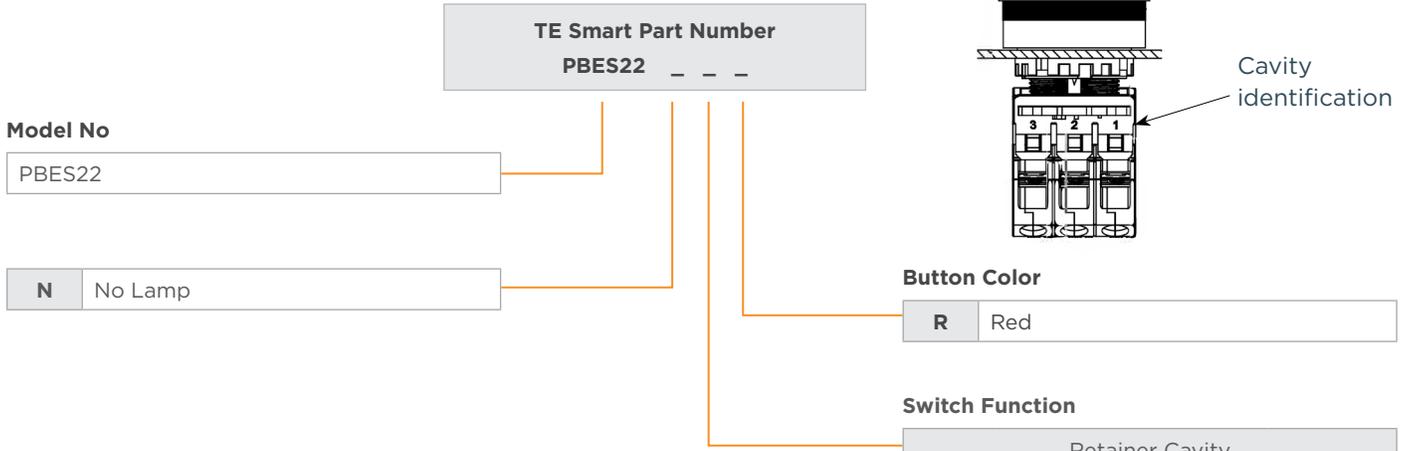
PART NUMBER LIST

TE Part Number	TE Smart Part Number
2416050-1	PBES22N01R
2416050-2	PBES22N02R
2416050-3	PBES22N03R
2416050-4	PBES22N10R
2416050-5	PBES22N11R
2416050-6	PBES22N12R
2416050-7	PBES22N20R
2416050-8	PBES22N21R
2416050-9	PBES22N30R

n/a = Cavity is not populated with a terminal block