

## Accessory Installation

## Protective boot

For use with flush, extended and double head pushbutton operators only. To fit, discard pushbutton sealing washer, then pull the rim of the boot skirt over the bezel and flange of the operator and secure operator to panel.

## Padlock cover

Fit padlockable cover to operator then fit additional panel seal (supplied) to operator between padlockable cover and panel.

## Mechanical push

For use with pushbutton and mushroom operators (except twist to release and key release). To install, cut to desired length and insert into the back of operator.

## Operator plug

Used for operating the center block on pushbutton and mushroom operators (except twist to release, key release, and push-push types). To assemble, push plug into the back of the operator. On mushroom operators cut down the plug to 15.2mm (0.62") prior to assembly. Plug is notched to indicate cut down length.

## Hole plug

These plugs seal unused 22.5mm openings and include a panel sealing washer to provide Enclosure Ratings 1, 2, 3, 3R, 4, 4X, 12, and 13.

## Panel Spacing Mounting Dimensions

Minimum spacings:	mm (inches)	
Size/type of operator	A	B
All types except those listed below	30 (1.18)	50 (1.97)
Lever selector switches and 40mm dia. operators	45 (1.77)	50 (1.97)
50mm dia. operators	55 (2.16)	55 (2.16)
Operators fitted with 70mm dia. legend plate	75 (2.95)	75 (2.95)
Operators fitted with rubber boots or padlockable covers	35 (1.38)	50 (1.97)
Double head pushbutton	30 (1.18)	60 (2.36)
Double head pushbutton with boot	35 (1.38)	60 (2.36)

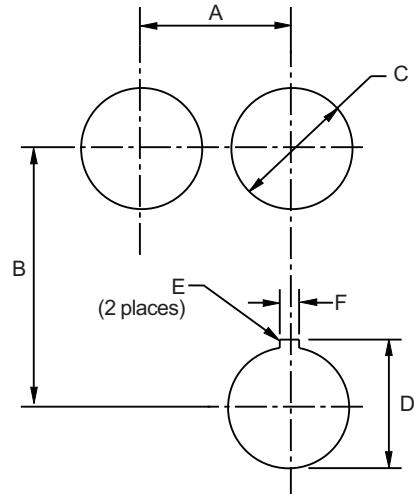
## Panel Mounting and Drilling Dimensions

## Panel thickness

Maximum 6.35mm (0.25"). Minimum 1mm (0.04"). For each accessory used subtract accessory thickness from 6.35mm (0.25").

Size/type of accessory	Thickness
Legend plate	1.25 (0.05)
Anti-rotation ring	1.5 (0.06)
70mm legend plate	1 (0.04)
Padlockable cover	2.4 (0.09)
Rubber boot	1.3 (0.05)

## Panel Spacing and Drilling



## Panel Drilling

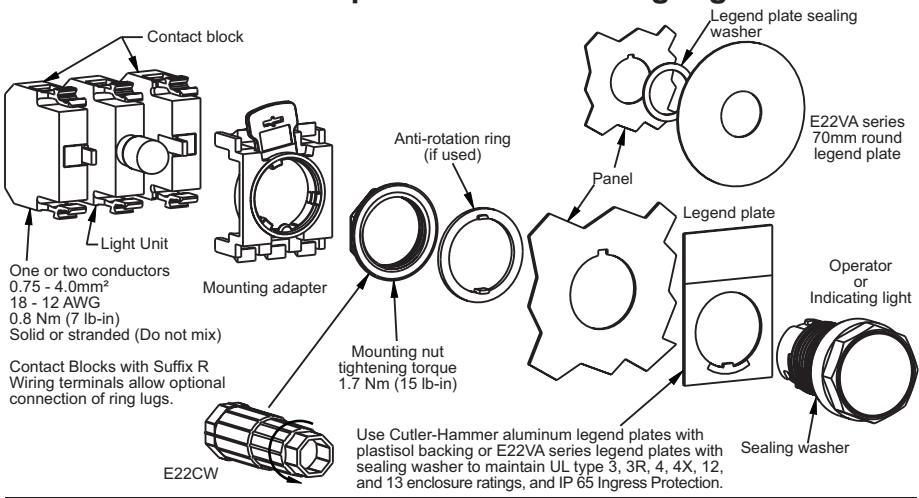
Dimensions	Tolerances
C 22.5 (0.89)	+0.4/-0 (0.016/-0)
D 24.3 (0.96)	+0.4/-0 (0.016/-0)
E R0.8 (R0.03)	≈
F 3.2 (0.125)	+0.2/-0 (0.008/-0)

For additional information, refer to [www.cutler-hammer.com](http://www.cutler-hammer.com)

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The installation and use of Cutler-Hammer products should be in accordance with the provisions of the U.S. National Electrical Code and/or other local codes or industry standards that are pertinent to the particular end use. Installation or use not in accordance with these codes and standards could be hazardous to personnel and/or equipment.

## E22 Plastic Operators &amp; Indicating Lights



LISTED  
IND CONT EQ  
A161



LR 68551

UL Listed for use on a flat surface of type 1, 2, 3, 3R, 4, 4X, 12 and 13 enclosures.

NEMA Enclosure Types: 1, 2, 3, 3R, 4, 4X, 12, 13

Double Head Pushbutton:  
without boot - NEMA Type 1  
with boot - as listed above

Contact Rating Codes: A600 / Q600  
E22BR1 Only: A600 / Q300

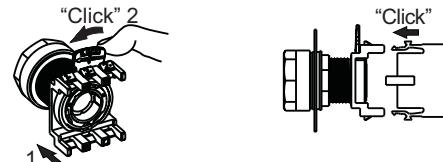
IEC 60947-5-1 / EN 60947-5-1  
AC 15, DC 13, Pollution Degree 3  
Ui = 690 V Uimp = 4kV  
Short Circuit Coordination



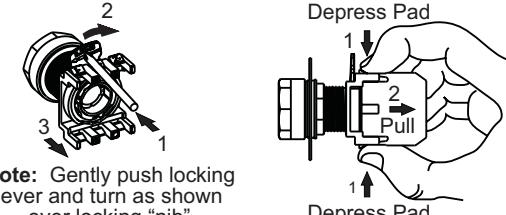
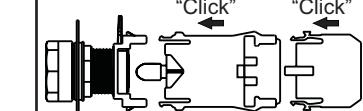
GE Power Controls TIA 10  
Red Spot Type G, 10A, 660 VAC  
460 VDC, BS88-2, IEC 60269-2-1

Ingress Protection (IEC 60529): IP 65  
Double head pushbutton without boot: IP 65  
Double head pushbutton with boot: IP 65  
Degree of protection against electrical contact (IEC 60529) - IP 2X Fingerproof protection.  
Zb (Opposite Polarity)

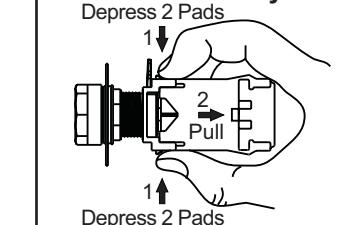
## Assembly



## Disassembly

Transformer Units  
Assembly

## Disassembly



Note: Gently push locking lever and turn as shown over locking "nib"

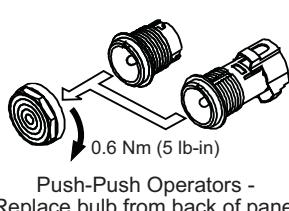
Note: Do not use E22B4/E22B4R/E22BF4 Contact Blocks with Push-Push Operators.

WARNING	AVERTISSEMENT
<b>RISK OF ELECTRIC SHOCK</b> Turn power off before wiring and bulb replacement.	<b>RISQUE DE CHOC ÉLECTRIQUE</b> Couper l'alimentation électrique avant de câbler ou de remplacer une ampoule.

Note: For ease in wiring **two-circuit contact blocks**, wire front terminals (terminals closest to panel) first.

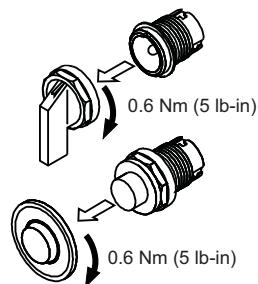
### Bulb Replacement - Front of Panel

#### Indicating Lights and Illuminated Pushbuttons

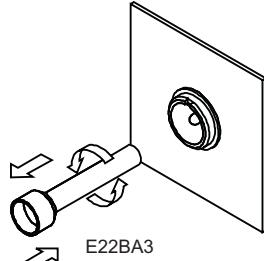


Push-Push Operators - Replace bulb from back of panel

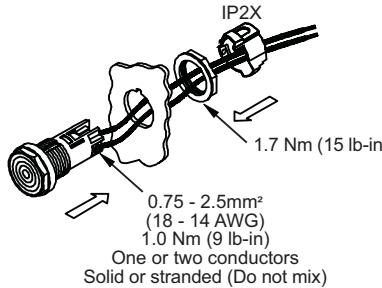
#### Illuminated Selector Switches and Push/Pull Operators



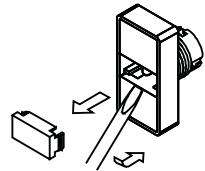
#### Bulb Removal Tool



#### Monoblock Indicating Light Wiring and Mounting

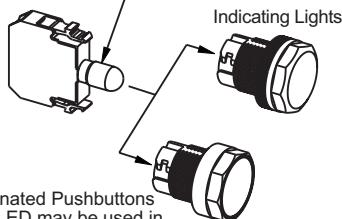


#### Double Head Pushbutton



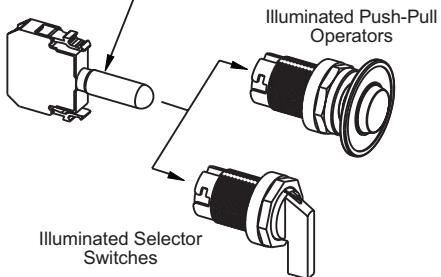
### Bulb Type Usage Instructions

#### Standard Incandescent Bulb / LED



Illuminated Pushbuttons  
(Tall LED may be used in Push-Push illuminated pushbuttons)

#### Tall Incandescent Bulb / LED



### CAUTION

#### RISK OF OVERHEATING

To avoid damage to Illuminated Operators, do not exceed 60 V, 1.2 W Incandescent Bulb Ratings.

### ATTENTION

#### RISQUE DE SURCHAUFFE

Pour éviter d'endommager le dispositif lumineux, ne pas utiliser une ampoule incandescente supérieure à 60 V, 1.2 W.

### Contact Block Selection Charts

#### 2 Position Push Pull Operators

Circuit Configurations (Viewed from front of panel)		Contact Block Mounting Position (Viewed from back of panel)			Contact Arrangement	Contact Block *
Pulled	Pushed	Left 1	Center 3	Right 2		
X	O	■	□	□	12 — 11	E22B1
O	X	■	□	□	14 — 13	E22B2
O	X	■	□	□	14 — 13 12 — 11	E22B11
O	O	■	□	□	14 — 13 14A — 13A	E22B20

#### 3 Position Push Pull Operators

Circuit Configurations (Viewed from front of panel)		Contact Block Mounting Position (Viewed from back of panel)			Contact Arrangement	Contact Block *
Pulled	Central	Pushed	Left 1	Center 3	Right 2	
X	O	○	■	□	12 — 11 22 — 21	E22B1
O	O	○	□	■	12 — 11 24 — 23	E22B11
O	O	○	□	■	12 — 11 24 — 23	E22B20

\* May include Suffix R

Contact blocks mounted in position 2 (right) produces identical circuit configurations.

Push-Pull operators will accept a maximum of 2 contact blocks.  
X = Circuit closed   O = Circuit open   ■ = Position occupied

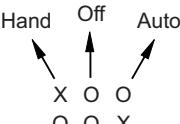
#### Selector Switch Operators

Circuit Configurations (Viewed from front of panel)		Cam 1	Cam 2	Contact Block Mounting Position (Viewed from back of panel)			Contact Arrangement	Contact Block (May include Suffix R)			
2 Position Cam 2	or			Left 1	Center 3	Right 2					
O	X	X	O	O	O	X	■	□	□	14 — 13	E22B2
X	O	O	X	X	O	O	■	□	□	12 — 11	E22B1
O	X	X	O	X	X	O	■	□	□	14 — 13 12 — 11	E22B11
O	X	X	O	O	O	X	■	□	□	14 — 13 14A — 13A	E22B20
O	X	O	O	X	O	X	□	□	■	24 — 23	E22B2
X	O	X	X	O	X	O	□	□	■	22 — 21	E22B1
O	X	O	X	X	X	O	□	□	■	24 — 23 22 — 21	E22B11
O	X	O	O	X	O	X	□	□	■	24 — 23 24A — 23A	E22B20
O	X	X	O	O	X	O	■	□	□	14 — 13 12 — 11 22 — 21	E22B11+B1 or E22B12
O	X	X	O	O	X	O	■	□	□	14 — 13 jumper 12 — 11 22 — 21 24 — 23	E22B11+B11 or E22B22

#### Explanation of How to Use Selector Switch Contact Block Selection Chart

- Determine the "X O" sequence you require for your application.
- Locate the first sequence "X O O" under column marked Cam 1 or Cam 2, then identify which cam and contact is used and what position it is assembled.
- Example: "X O O" uses Cam 1, E22B2, mounting position 1 (left).

Example:



X = Circuit closed  
O = Circuit open  
■ = Position occupied

- Repeat for second sequence "O O X". Do not mix sequences from Cam 1 and Cam 2.
- Example: "O O X" uses Cam 1, E22B2, mounting position 2 (right).

**NOTE:** Do not use 5-way mounting adapter with E22B4/E22B4R/E22BF4 contact blocks, 3-position push-pull operators, E22LTA emergency stop operators, push-push operator or Cam 2 3-position selector switches.

#### Terminal numbers

These identify the contact position and contact function. Example: 14 — 13 The "1" indicates sequence (position) number 1. Numbers "3 & 4" indicate the circuit is normally open.