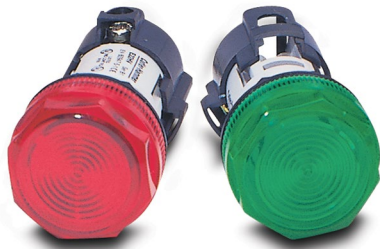




E22 Series Selection Guide



Indicating lights

Complete assembly includes:

- Illuminated operator, including optically enhanced lens
- Incandescent or LED light units (Order legend plate separately)



Selector switches

Complete assembly includes:

- Selector operator
- Contact block(s) - one or two normally open or normally closed
- Black bezel (Order legend plate separately)



Pushbuttons

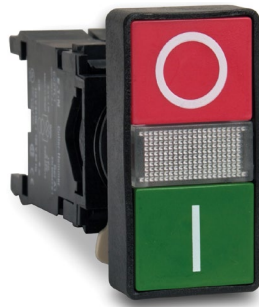
Complete assembly includes:

- Flush or extended momentary operators
- One normally open or normally closed contact
- Push-push models also available
- 120VAC light (if illuminated) (Order legend plate separately)



40 and 50mm mushroom pushbuttons

- Push-Pull trigger action
- Illuminated or non-illuminated (Order legend plate separately)



Double headed pushbutton

- On/Off control



Control station

- For Start/Stop applications



Illuminated pushbuttons

- Red, green or amber
- 120VAC or 24 VAC/DC
- Order legend plate separately



Push-to-test indicating lights

- Red, green or amber
- Order legend plate separately
 - Red, green or amber
 - Order legend plate separately



Tools and Accessories

- Legend plates
- Hole plugs
- Bulb tools
- Replacement bulbs



E22 Series Technical Specifications

Cutler-Hammer

| Ingress Protection (IP) Rating | |
|---|--|
| (IP65, IP66 ratings to IEC 529) UL Listed (NEMA) Types 1, 2, 3, 3R, 4, 4X, 12, and 13 when mounted in an enclosure rated for those same applications. See pages 30-9 and 30-10 for descriptions. | |
| Electrical Specifications | |
| Electrical Rating | UL508; UL File E131568. CSA certified class 3211 03, LR 68551. NEMA ICS5-2000: A600, Q600 (refer to page 68). IEC 60947-5-1: AC15, DC13. |
| Maximum Frequency of Operation | |
| 22mm Pushbuttons | 6,000 operations/hour IEC 60947-5-1: AC15, DC13. |
| Key and Lever Selector Switches | 3,000 operations/hour |
| Twist-to-Release Devices | 1,200 operations/hour |
| Push-Pull Operators | 3,000 operations/hour |
| Mechanical Life | |
| Pushbutton | 5 million operations |
| Selector Switches | 500,000 operations |
| Push-Pull and Twist-to-Release | 300,000 operations |
| Contact Block | 3 million operations |
| Environmental Specifications | |
| Operating Temperature | Maximum 60°C at 95% RH, -20° to 60°C (-14° to 140°F), altitude 2000 meters |
| Storage Temperature | Maximum 60°C at 95% RH, -40° to 80°C (-40° to 176°F) |
| Vibration | |
| Vibration | 5G/0.7 mm peak-to-peak 10 sweeps, 10-500 Hz |
| Shock | 18G, 18ms |
| Bump | 25G, 6ms for 1,000 cycles |
| Construction | |
| Components | Materials |
| Housing, Bezel, Mounting Rings | Glass-filled nylon |
| Internal Seal | Nitrate rubber |
| Panel Gasket | Nitrate rubber |
| Illuminated Lenses | Polycarbonate |
| Buttons | Polyester or polycarbonate |
| Springs | Stainless steel |
| Contacts | Silver |
| Terminal Screws/Terminals | Brass |
| Panel Thickness - mm (inches) | |
| Nominal | 6.8 (0.2) ¹ |
| Aluminum Legend Plates | 1.3 (0.05) |
| Large Yellow Round Legend Plates | 1.0 (0.04) |
| Minimum | 1.0 (0.04) |
| ¹ Installation of certain accessories will increase the total (overall) panel thickness by the amount shown. The total panel thickness with all accessories installed cannot exceed the maximum allowable nominal dimensions of 6.8 mm (0.27 in.). | |
| Wire Specifications | |
| Minimum/Maximum | 18AWG (0.75 mm ²) / 12AWG (2.5 mm ²) |
| Tightening Torque | 7 lb-in |

Electrical life

- AC15 durability: 120V, 6A 1 X 10⁶ operations
- DC13 durability: 24V, 8A 0.15 X 10⁶ operations 660V, .1A 0.5 X 10⁶

Logic-level operation

5 VDC, 1 mA (minimum recommended)

Contacts feature a pointed surface called "Reliability Nib." The projection penetrates through any oxidation providing unmatched low-level operation without using exotic metals or sealed contacts.

Standards and approvals

- UL listed – UL 508 electrical/environmental; UL 486E terminal secureness, File E131568
- CSA Certified – CSA 22.2 #14
- NEMA ICS-1, ICS-2
- IEC 144, 337, 529, 947
- IP65 when mounted in enclosure
- Lloyds No. 4 and 5
- M.T.T.A.
- CE

IEC utilization categories & ratings

AC15

(Control of AC electromagnetic loads)

- 24 volts AC at 10 amps
- 130 volts AC at 6.5 amps

DC13

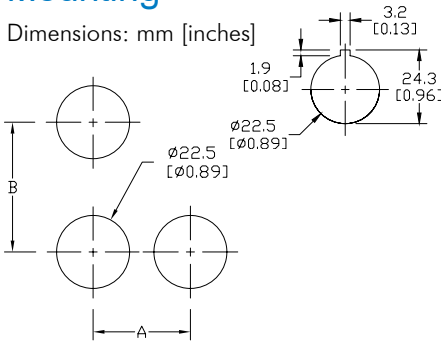
(Control of DC electromagnetic loads)

- 24 volts DC at 1.5 amps
- 110 volts DC at .5 amps

EAT•N E22 Mounting / NEMA Cutler-Hammer Aux Contact Ratings

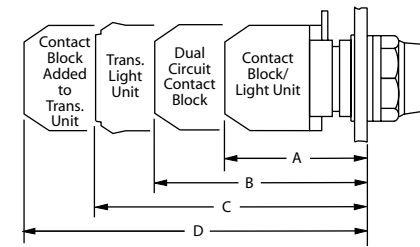
Mounting

Dimensions: mm [inches]



Back-of-panel extensions

Note: This view is to show dimensions only. Contact blocks are not stackable.

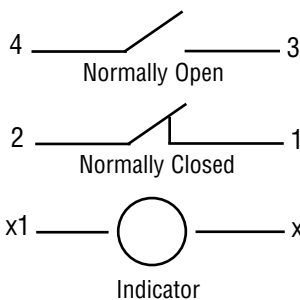


| Minimum Spacing — mm [inches] | | |
|--|------------|-----------|
| Size/Type of Operator | Dimensions | |
| | A | B |
| All types up to 30 (1.18) dia. including knob and key operated selector switches — except those listed below | 30 (1.18) | 50 (1.97) |
| Three-way adapter | | |
| 50 (1.97) dia. operators | 55 (2.16) | 55 (2.16) |
| Large yellow round legend plate - 70 (2.76) diameter | 75 (2.95) | 50 (1.97) |

| Approximate Dimensions — mm [inches] | | | |
|--|----------------------------|------------------------|---|
| A | B | C | D |
| Single circuit block — full voltage and resistor units | Dual circuit contact block | Transformer light unit | Transformer light unit and single circuit contact block |
| Pushbuttons (All Types and Push-Pull) | | | |
| 51 [2.0] | 66 (2.6) | 74 (2.91) | 94 (3.7) |
| Key and Knob Selector Switches | | | |
| 57 [2.2] | 72 (2.83) | 80 (3.15) | 99 (3.9) |

Control Circuit Contact Electrical Ratings and Wiring

Typical Wiring



| NEMA Mechanical Switching Ratings and Test Values for DC Control Circuit Contacts | | | | | |
|---|-------------------------------------|--------------------------------------|-----------|------------------|--------------|
| Contact Rating Designation | Thermal Continuous Test Current (A) | Maximum Make or Break DC Current (A) | | | Volt amperes |
| | | 125 Volts | 250 Volts | 301 to 600 Volts | |
| P300 | 5.0 | 1.1 | 0.55 | --- | 138 |
| P600 | 5.0 | 1.1 | 0.55 | 0.20 | 138 |
| Q300 | 2.5 | 0.55 | 0.27 | --- | 69 |
| Q600 | 2.5 | 0.55 | 0.27 | 0.10 | 69 |
| R300 | 1.0 | 0.22 | 0.11 | --- | 28 |

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-2.

| NEMA Mechanical Switching Ratings and Test Values for AC Control Circuit Contacts | | | | | | | | | | | |
|---|-------------------------------------|---------------------------------|-------|-----------|-------|-----------|-------|-----------|-------|--------------|-------|
| Contact Rating Designation | Thermal Continuous Test Current (A) | Maximum AC Current, 50/60Hz (A) | | | | | | | | Volt amperes | |
| | | 120 Volts | | 240 Volts | | 480 Volts | | 600 Volts | | | |
| | | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break |
| A300 | 10 | 60 | 6.00 | 30 | 3.00 | --- | --- | --- | --- | 7200 | 720 |
| A600 | 10 | 60 | 6.00 | 30 | 3.00 | 15 | 1.50 | 12 | 1.20 | 7200 | 720 |
| B300 | 5 | 30 | 3.00 | 15 | 1.50 | --- | --- | --- | --- | 3600 | 360 |
| B600 | 5 | 30 | 3.00 | 15 | 1.50 | 7.5 | 0.75 | 6 | 0.60 | 3600 | 360 |
| C600 | 2.5 | 15 | 1.5 | 7.5 | 0.75 | 3.75 | 0.375 | 3.00 | 0.30 | 1800 | 180 |

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-1.