Contents

Product Description

Operator

Eaton's Cutler-Hammer® E34 Series 30.5 mm pushbutton line features the same rugged die cast construction of our 10250T line with an additional two-layer 100% solid thermosetting cathodic epoxy coating. This coating provides a flat black smooth, consistent, corrosion resistant surface that has passed a demanding 600 hour salt spray test. (The industry standard for this 4X test requires only 200 hours.)

Ultraviolet Light

E34 cathodic coating is not recommended for use in applications where exposure to ultraviolet light exists — use NEMA 4X 10250T operators.

Reliability Nibs

Eaton's Cutler-Hammer contact blocks feature enclosed silver contacts with pointed "reliability nibs" for reliable performance from logic level up to 600V. To ensure reliable switching, nibs bite through oxide which can form on silver contacts, eliminating the need for expensive logic level blocks for most applications.

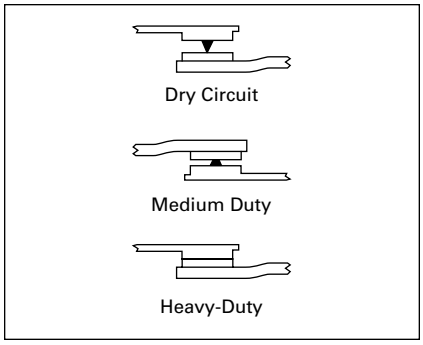


Figure 2-120. Reliability Nibs

Liquid Drainage

Eaton's Cutler-Hammer pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high pressure washdowns, effectively relieving pressure from the internal diaphragm seal, ensuring reliable sealing in applications even beyond NEMA 4.

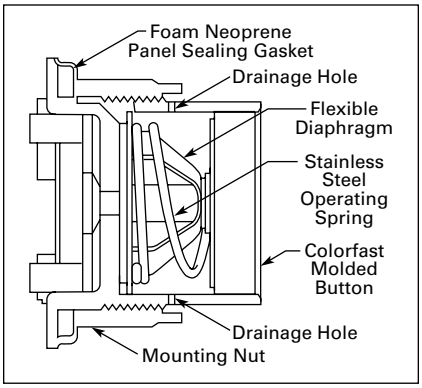
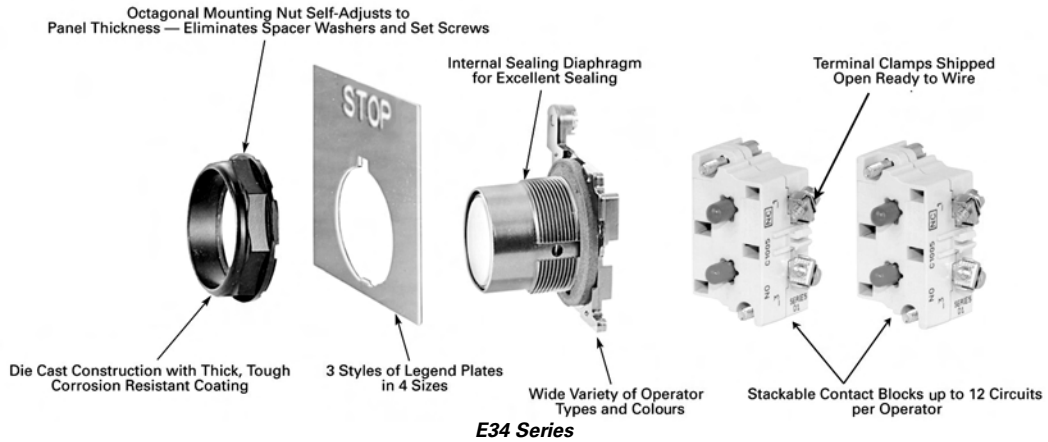


Figure 2-121. Diaphragm Seal

Features

- Epoxy-coated metal operators
- Corrosion resistant
- Integral ground screw terminal on operators
- FDA approved for sanitary chemical resistance requirements



E34 Series

Standards and Certifications

- CE EN60947-5-1
- UL 508 — File No. E131568
- CSA C22.2 No. 14 — File No. LR68551
- FDA 3-A Sanitary Standards

Ingress Protection

When mounted in similarly rated enclosure —

- Standard Indicating Lights
  - UL (NEMA) 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
  - IEC IP65
- All Other Operators
  - UL (NEMA) 1, 2, 3, 3R, 4, 4X, 12, 13
  - IEC IP65

Technical Data and Specifications

Mechanical Ratings

- Frequency of operation
  - All pushbuttons: 6000 operations/hr.
  - Key and lever selector switches: 3000 operations/hr.
  - Auto-latch devices: 1200 operations/hr.
- Life
  - Pushbuttons: 10 x 10^6 operations
  - Contact blocks: 10 x 10^6 operations
  - PresTest units: 10 x 10^6 operations
  - Lever and key selector switches: 0.25 x 10^6 operations
  - Twist to release pushbuttons: 0.3 x 10^6 operations
- Shock resistance
  - Duration: 210 mS ≥ 5g

Climate Conditions

- Operating Temperature: 1° to 150°F (-17° to 66°C)
- Storage Temperature: -40° to 176°F (-40° to 80°C)
- Altitude: 6,562 ft. (2,000m)
- Humidity: Max. 95% RH @ 60°C

Electrical Ratings

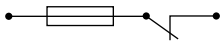
Table 2-266. Contact Block

Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC							
Description	Volts AC 50 or 60 Hz				Volts DC		
	120	240	480	600	24/28	125	250
Make and Emergency Interrupting Capacity (Amp)	60	30	15	12	5.7	1.1	0.55
Normal Load Break (Amp)	6	3	1.5	1.2	5.7	1.1	0.55
Thermal Current (Amp)	10	10	10	10	5.0	5.0	5.0
Voltamperes:							
Make and Emergency	7200	7200	7200	7200	138	138	138
Interrupting Capacity Normal Load Break	720	720	720	720	138	138	138

- Insulation: Ui = 660V AC or DC
- Thermal: Ith = 10A

Short Circuit Coordination to IEC/EN 60947-5-1

- Rated conditional short circuit current: 1 kA
- Fuse type: GE Power Controls TIA 10, Red Spot Type gG, 10A, 660V AC, 460V DC, BS88-2, IEC 60269-2-1



Fuse

- NEMA, UL rating: A600, P600
  - AC load life duty cycle 1200 operations/hour
    - 10A: 110V pf 0.4 – 1 x 10^6 operations
    - 5A: 250V pf 0.4 – 1 x 10^6 operations
    - 2A: 660V pf 0.4 – 1 x 10^6 operations
- Switching capacity
  - AC15 rated make/break (11 x Ie at 1.1 x Ue)
    - 6A: 120V pf 0.3
    - 4A: 240V pf 0.3
    - 2A: 660V pf 0.3
  - DC13 rated make/break (1.1 x Ie at 1.1 x Ue)
    - 1.0A: 125V L/R ≥ 0.95 at 300 mS
    - 0.55A: 250V L/R ≥ 0.95 at 300 mS
    - 0.1A: 660V L/R ≥ 0.95 at 300 mS
    - 10A: 110V pure resistive
- Maximum ratings for logic level and hostile atmosphere application
  - Maximum amperes: 0.5A
  - Maximum volts: 120V AC/DC
- Low voltage switching: Conical shaped points or "reliability nibs" improve performance in dry circuit, corrosive, fine dust and other contaminated atmospheres. Under normal environmental conditions, the minimum operational voltage is 5V and the minimum operational current is 1 mA, AC/DC.
- Contact operation: Slow make and break. All normally closed contacts have positive opening operation, i.e., normally closed contacts are forced open in the event of contact weld or spring breakage.

Light Units

- Transformers: will withstand short circuit for 1 hour per IEC 60947-5-1
- Bulbs — average life:
  - Transformer type: 20,000 hrs.
  - Resistor/direct voltage type: 2500 hrs. minimum @ rated V
  - LED: 60,000 to 100,000 hrs.

Note: For additional technical information, see Pub. **TD.7.4.T.E.04**.

Terminals

- Marking: NC-NO on the contact block to meet the NEMA requirements. Dual marking system 1 – 2 for normally closed, 3 – 4 for normally open to meet BS5472 (Cenelec EN50 005).
- Clamps: Terminals are saddle clamp type for 1 x 22 AWG (0.34 mm^2) to 2 x 14 AWG (2.5 mm^2) conductors.
- Torque = 7 lb-in (0.8 Nm)
- Degree of protection against direct electrical contact: IP2X with finger-proof shroud

Product Selection

Momentary Pushbutton Units

■ Non-illuminated

Table 2-267. Pushbutton Units — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Contact Type	Button Colour	Flush Button	Extended Button	Mushroom Button	Jumbo Mushroom ①
					
		Catalogue Number	**Catalogue Number**	**Catalogue Number**	**Catalogue Number**
1NO	Black Red Green Red — Engraved EMERG. STOP	**E34PB1-53X** **E34PB2-53X** **E34PB3-53X** —	**E34EB1-53X** **E34EB2-53X** **E34EB3-53X** —	**E34LB1-53X** **E34LB2-53X** **E34LB3-53X** —	**E34JB1-53X** **E34JB2-53X** **E34JB3-53X** **E34JB2N8-53X**
1NC	Black Red Green Red — Engraved EMERG. STOP	**E34PB1-51X** **E34PB2-51X** **E34PB3-51X** —	**E34EB1-51X** **E34EB2-51X** **E34EB3-51X** —	**E34LB1-51X** **E34LB2-51X** **E34LB3-51X** —	**E34JB1-51X** **E34JB2-51X** **E34JB3-51X** **E34JB2N8-51X**
1NO-1NC	Black Red Green Red — Engraved EMERG. STOP	**E34PB1-1X** **E34PB2-1X** **E34PB3-1X** —	**E34EB1-1X** **E34EB2-1X** **E34EB3-1X** —	**E34LB1-1X** **E34LB2-1X** **E34LB3-1X** —	**E34JB1-1X** **E34JB2-1X** **E34JB3-1X** **E34JB2N8-1X**

① Anodized aluminum head — may not be suitable for some corrosive environments.

Indicating Light Units

■ Plastic Lenses

24V Full Voltage Indicating Light — Red Catalogue Number E34FB24H2X

Table 2-268. Indicating Light Units — UL (NEMA) 3, 3R, 3S, 4, 4X, 12, 13

Lamp	Type	Voltage	Colour	Indicating Light ② Catalogue Number	LED/Lamp Number
LED	Full Voltage	24V AC/DC	Red Green Amber	**E34FB197LRP24** **E34FB197LGP24** **E34FB197LAP24**	Bayonet Base
		120V AC	Red Green Amber	**E34FB197LRP2A** **E34FB197LGP2A** **E34FB197LAP2A**	
Incandescent	Full Voltage	24V AC/DC	Red Green Amber	**E34FB24H2X** **E34FB24H3X** **E34FB24H9X**	#757
	Resistor	120V AC/DC	Red Green Amber	**E34RB120H2X** **E34RB120H3X** **E34RB120H9X**	120MB
	Transformer	120V AC 50/60 Hz	Red Green Amber	**E34TB120H2X** **E34TB120H3X** **E34TB120H9X**	#755

② Anodized aluminum head — may not be suitable for some corrosive environments.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

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Pushbuttons

Table 2-269. Momentary Pushbutton Operators, Non-illuminated — UL (NEMA) 3, 3R, 4, 4X, 12, 13

	Colour	Catalogue Number
Flush Button		
	Black	**E34PB1**
	Red	**E34PB2**
	Green	**E34PB3**
	Yellow	**E34PB4**
	White	**E34PB5**
	Blue	**E34PB6**
	Grey	**E34PB7**
	Orange	**E34PB8**
Extended Button		
	Black	**E34EB1**
	Red	**E34EB2**
	Green	**E34EB3**
	Yellow	**E34EB4**
	White	**E34EB5**
	Blue	**E34EB6**
	Grey	**E34EB7**
	Orange	**E34EB8**

		Vertical	Horizontal
Half Shrouded Button			
	Black	**E34EVB1**	**E34EHB1**
	Red	**E34EVB2**	**E34EHB2**
	Green	**E34EVB3**	**E34EHB3**
	Yellow	**E34EVB4**	**E34EHB4**
	White	**E34EVB5**	**E34EHB5**
	Blue	**E34EVB6**	**E34EHB6**
	Grey	**E34EVB7**	**E34EHB7**
	Orange	**E34EVB8**	**E34EHB8**

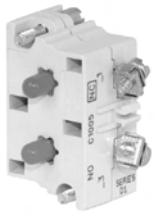
Mushroom Button		
	Black	**E34LB1**
	Red	**E34LB2**
	Green	**E34LB3**
	Yellow	**E34LB4**
	Blue	**E34LB6**
Anodized Aluminum Jumbo Mushroom Button ①		
	Black	**E34JB1**
	Red	**E34JB2**
	Red (Engraved EMER. STOP)	**E34JB2N8**
	Green	**E34JB3**
	Yellow	**E34JB4**

① Anodized aluminum head — may not be suitable for some corrosive environments.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

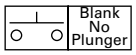
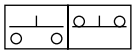
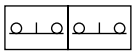
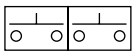
Contact Blocks

See **Page 2-181** for additional contact blocks, fingerproof shrouds and Transparent Amber coloured blocks.



Contact Block

Table 2-270. Contact Blocks

Symbol	Circuit	Catalogue Number
	NC	**10250T51**
	NO	**10250T53**
	NO-NC	**10250T1**
	2NC	**10250T3**
	2NO	**10250T2**

Illuminated Pushbuttons and Indicating Lights

Table 2-271. Operators without Lens

Light Unit Type	Type	Voltage	Illuminated Pushbutton	Indicating Light	PresTest	Lamp Number
						
			Catalogue Number	Catalogue Number	Catalogue Number	
LED (LEDs not included) ①	Full Voltage	—	**E34CB497L**	**E34FB197L**	**E34FPB297L**	Bayonet Base
	Transformer AC Only	24	**E34XB024L**	—	—	
		120	**E34XB120L**	**E34TB120L**	**E34TPB120L**	
		240	**E34XB240L**	**E34TB240L**	**E34TPB240L**	
		277	**E34XB277L**	**E34TB277L**	—	
		380	**E34XB380L**	**E34TB380L**	**E34TPB380L**	
		480	**E34XB480L**	**E34TB480L**	**E34TPB480L**	
		600	**E34XB600L**	**E34TB600L**	**E34TPB600L**	
Incandescent	Full Voltage AC/DC	6	**E34CB06**	**E34FB06**	**E34FPB06**	#755
		12	**E34CB12**	**E34FB12**	**E34FPB12**	#756
		24	**E34CB24**	**E34FB24**	**E34FPB24**	#757
		32	**E34CB32**	**E34FB32**	**E34FPB32**	#1828
		48	**E34CB48**	**E34FB48**	**E34FPB48**	#1835
	Resistor ② AC/DC	120	**E34SB120**	**E34RB120**	**E34RPB120**	120MB
		240	**E34SB240**	**E34RB240**	**E34RPB240**	120MB
	Transformer AC Only	24	**E34XB024**	—	—	#755
		120	**E34XB120**	**E34TB120**	**E34TPB120**	
		240	**E34XB240**	**E34TB240**	**E34TPB240**	
		277	**E34XB277**	**E34TB277**	—	
		380	**E34XB380**	**E34TB380**	**E34TPB380**	
		480	**E34XB480**	**E34TB480**	**E34TPB480**	
		600	**E34XB600**	**E34TB600**	**E34TPB600**	
	Neon AC/DC	120	—	**E34NB120**	—	NE51H-R-22
		240	—	**E34NB240**	—	NE51H-4-68

① These units do not include lamps. Order LED separately to match lens colour, see **Page 2-156** for LED Selection and **Pages 2-192 – 2-193** for Catalogue Numbering Structure.

② Resistor units are not available for use with LEDs, choose either transformer or full voltage LED style.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Table 2-272. Indicating Light Lens

	Colour	Plastic	Glass ③
		Catalogue Number	Catalogue Number
 *Plastic* *Glass*	Red	**E34H2**	**E34G2**
	Green	**E34H3**	**E34G3**
	Yellow	**E34H4**	**E34G4**
	White	**E34H5**	**E34G5**
	Blue	**E34H6**	**E34G6**
	Amber	**E34H9**	**E34G9**
	Clear	**E34H0**	**E34G0**

③ Glass lens has black anodized aluminum bezel.

Table 2-273. Illuminated Pushbutton Lens

	Colour	Catalogue Number
	Red	**E34V2**
	Green	**E34V3**
	Yellow	**E34V4**
	White	**E34V5**
	Blue	**E34V6**
	Amber	**E34V9**
	Clear	**E34V0**

Table 2-274. PresTest Lens

	Colour	Plastic	Glass ④
		Catalogue Number	Catalogue Number
 *Plastic* *Glass*	Red	**E34V2**	**E34P2**
	Green	**E34V3**	**E34P3**
	Yellow	**E34V4**	**E34P4**
	White	**E34V5**	**E34P5**
	Blue	**E34V6**	**E34P6**
	Amber	**E34V9**	**E34P9**
	Clear	**E34V0**	**E34P0**

④ Glass lens has black anodized aluminum bezel.

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Push-Pull Units

- Two- and Three-Position
- Non-illuminated

Table 2-275. 2-Position Push-Pull Units Non-illuminated — UL (NEMA) 3, 3R, 4, 4X, 12, 13

	Operator Position ①		Button Type/Colour ②	Push-Pull	Contact Type	Mounting Location	
	Pull	Push		Catalogue Number		A	B
							
Maintained Push, Maintained Pull							
	O X	X O	40 mm/Red	**E34GDBC2-1X**	1NO		
			40 mm Engraved EMERGENCY STOP/Red	**E34GDBC2N8-1X**	1NC		
			65 mm Alum. Engraved EMERGENCY STOP/Red	**E34GDBJ2N8-1X**			

① X = closed circuit, O = open circuit.
② To order different type or colour buttons, substitute the underlined characters with appropriate Suffix Code from the table below. Example: E34GDB**C6**-1X.

Table 2-276. 3-Position Push-Pull Units Non-illuminated — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Operator Position ③			Button Type/Colour ④	Push-Pull	Contact Type	Mounting Location	
Pull	Intermediate	Push		Catalogue Number		A	B
							
Maintained Push, Momentary Pull							
X X	O X	O O	40 mm/ Black	**E34GFBC1-3X**	1NC		
			40 mm/Red	**E34GFBC2-3X**	1NC		
			40 mm Engraved EMERGENCY STOP/Red	**E34GFBC2N8-3X**			
Momentary Push, Momentary Pull							
X X	O X	O O	40 mm/Black	**E34GEBC1-3X**	1NC		
			40 mm/Red	**E34GEBC2-3X**	1NC		
O X	O O	X O	40 mm/Black	**E34GHBC1-1X**	1NO		
			40 mm/Red	**E34GHBC2-1X**	1NC		

③ X = closed circuit, O = open circuit.
④ To order different type or colour buttons, substitute the underlined characters with appropriate Suffix Code from the Button and Colour Selection Table below. Example: E34GDB**C6**-1X.

Table 2-277. Button and Colour Selection Table

Standard — 40 mm	Colour	Suffix Code	Catalogue Number	Jumbo Mushroom Head ⑤ (Anodized) Aluminum — 65 mm	Colour	Suffix Code	Catalogue Number
	Black	**C1**	**E34C1**		Red	**J2**	**E34J2**
	Red	**C2**	**E34C2**		Red (EMER. STOP)	**J2N8**	**E34J2N8**
	Red (EMERG. STOP)	**C2N8**	**E34C2N8**				
	Green	**C3**	**E34C3**				
	Blue	**C6**	**E34C6**				

⑤ Anodized aluminum may not be suitable for use on some corrosive applications.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

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Illuminated Push-Pull Units

- Two-Position Maintained
- Illuminated

120V Resistor Illuminated 2-Position Push-Pull — Red (Standard) Catalogue Number E34GDB79M2

Table 2-278. 2-Position Illuminated Maintained Push, Maintained Pull — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Operator Position ①		Lamp	Type	Voltage	Red Standard Push-Pull ②	Contact Type	Mounting Location		LED/Lamp Number
Maintained — Pull	Maintained — Push				Catalogue Number		A	B	
									
O X	X O	LED	Full Voltage	24V AC/DC	**E34GDB97LRD24-1X**	1NO 1NC			Bayonet Base
				120V AC/DC	**E34GDB97LRD2A-1X**				
			Transformer	24V AC	**E34GDB89LRD06-1X**				
				120V AC	**E34GDB63LRD06-1X**				
O X	X O	Incan-descent	Full Voltage	24V AC/DC	**E34GDB79M2-1X**	1NO 1NC			#757
			Resistor	120V AC/DC	**E34GDB80M2-1X**				120MB
			Transformer	24V AC	**E34GDB89M2-1X**				#755
				120V AC	**E34GDB63M2-1X**				

① X = closed circuit, O = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate Suffix Code from Lens and Colour Selection Table below. Example: E34GDB79 **M3**-1X. For LEDs with different voltages see ordering example on **Page 2-175**.

Table 2-279. Lens and Colour Selection Table

Type	Colour	Incand. Suffix Code	LED Suffix Code	Catalogue Number
Standard 	Red	**M2**	**RD**	**E34M2**
	Red (EMER. STOP)	**M2N8**	**ED**	**E34M2N8**
	Green	**M3**	**GD**	**E34M3**
	Blue	**M6**	**LD**	**E34M6**
	Amber	**M9**	**AD**	**E34M9**
	White	**M5**	**WD**	**E34M5**
	Clear	**M0**	**CD**	**E34M0**

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

2

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Illuminated Push-Pull Units (Continued)

- Three-Position Momentary
- Illuminated

120V AC Transformer Illuminated 3-Position Push-Pull — Red (Standard) Catalogue Number E34GHB63M2

Table 2-280. 3-Position Illuminated Momentary Push, Momentary Pull — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Operator Position ①			Lamp	Type	Voltage	Red Standard Push-Pull ②	Contact Type	Mounting Location		LED/Lamp Number
Momentary Pull	Maintained Intermediate	Momentary Push				Catalogue Number		A	B	
										
O X	O O	X O	LED	Full Voltage	24V AC/DC	**E34GHB97LRD24-1X**	1NO 1NC			Bayonet Base
					120V AC	**E34GHB97LRD2A-1X**				
				Trans-former	24V AC	**E34GHB89LRD06-1X**				
					120V AC	**E34GHB63LRD06-1X**				
X X	O X	O O		Full Voltage	24V AC/DC	**E34GEB97LRD24-3X**	1NC 1NC			Bayonet Base
					120V AC	**E34GEB97LRD2A-3X**				
				Trans-former	24V AC	**E34GEB89LRD06-3X**				
					120V AC	**E34GEB63LRD06-3X**				
O X	O O	X O	Incan-descent	Full Voltage	24V AC/DC	**E34GHB79M2-1X**	1NO 1NC			#757
				Resistor	120V AC	**E34GHB80M2-1X**				120MB
				Trans-former	24V AC	**E34GHB89M2-1X**				#755
					120V AC	**E34GHB63M2-1X**				
X X	O X	O O		Full Voltage	24V AC/DC	**E34GEB79M2-3X**	1NC 1NC			#757
				Resistor	120V AC	**E34GEB80M2-3X**				120MB
				Trans-former	24V AC	**E34GEB89M2-3X**				#755
					120V AC	**E34GEB63M2-3X**				

① X = closed circuit, O = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate Suffix Code from Lens and Colour Selection Table on the bottom of **Page 2-171.** Example: E34GEB79**M3**-3X. For LEDs with different voltages see ordering example on **Page 2-175**.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164.**

Accessories ..... **Pages 2-186 – 2-187**
Additional Light Units .... **Page 2-175**
Dimensions ..... **Page 2-190**
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Replacement Lamps/LEDs ..... **Page 2-156**

Illuminated Push-Pull Units (Continued)

- Three-Position — Maintained Push, Momentary Pull
- Illuminated

120V Resistor Illuminated 3-Position Push-Pull — Red (Standard) Catalogue Number E34GFB80M2

Table 2-281. 3-Position Illuminated Maintained Push, Momentary Pull — UL (NEMA) 3, 3R, 4, 4X, 12, 13

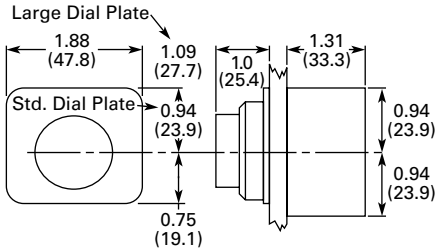
Operator Position ①			Lamp	Type	Voltage	Red Standard Push-Pull ②	Contact Type	Mounting Location		LED/Lamp Number
Momentary Pull	Maintained Intermediate	Maintained Push				Catalogue Number		A	B	
X	O	O	LED	Full Voltage	24V AC/DC	E34GFB97LRD24-3X	1NC			Bayonet Base
X	X	O			120V AC	E34GFB97LRD2A-3X				
				Trans-former	24V AC	E34GFB89LRD06-3X	1NC			
					120V AC	E34GFB63LRD06-3X				
X	O	O	Incan-descent	Full Voltage	24V AC/DC	E34GFB79M2-3X	1NC			#757
X	X	O		Resistor	120V AC	E34GFB80M2-3X				120MB
				Trans-former	24V AC	E34GFB89M2-3X	1NC			#755
					120V AC	E34GFB63M2-3X				

① X = closed circuit, O = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate Suffix Code from table on the bottom of **Page 2-171**. Example: E34GFB79**M3**-3X. For LEDs with different voltages see ordering example on **Page 2-175**.

Potentiometers

Table 2-282. Potentiometer with Knob and Standard Dial Plate — Linear Type ±10% — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Vertical or Horizontal One-Hole Mounting	Potentiometer Ohms	2 Watt (60V Max.) Single Potentiometer with Standard Aluminum Dial Plate ③④ Catalogue Number	Dimensions in Inches (mm)
 ***With Standard Aluminum Dial Plate***	1000	**E34PDB1F1**	 **Potentiometer**
	2500	**E34PDB1F2**	
	5000	**E34PDB1F5**	
	10000	**E34PDB1F10**	
	25000	**E34PDB1F25**	
	50000	**E34PDB1F50**	
	Operator Only ⑤	**E34PDB1A0**	
	Alternative – Black Plastic Large Legend with Standard Markings	**E34LP99**	

③ Large dial plate with space for legend is available at no charge. To order, add Suffix **36** to Catalogue Number. Example: E34PDB1F1**36**. To order separately, see footnote ④ below.

④ Large dial plate has space at top for 15 letters. 3/32 inch high. For custom stamped legend plates, order legend plate as separate item **10250TR30** and specify stamping.

⑤ For use with commercially purchased potentiometers having shaft dimensions per dimension drawing on **Page 2-160**.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Accessories . . . . . **Pages 2-186 – 2-187**
Additional Light Units . . . . . **Page 2-175**
Dimensions. . . . . **Page 2-190**
Enclosures . . . . . **Pages 2-184 – 2-185**
Legend Plates . . . . . **Page 2-183**
Replacement Lamps/LEDs . . . . . **Page 2-156**

2-Position Maintained Push-Pull without Button on Lens Catalogue Number E34GDB

Push-Pull Operators

An illuminated Push-Pull pushbutton unit, arranged for one-hole mounting, can replace two pushbuttons and a pilot light or the non-illuminated form can replace two pushbuttons. These units are available in three basic types:

- **Maintained** — (Two-Position). Maintains in the pulled or pushed position until manually actuated to the opposite mode.
- **Momentary** — (Three-Position). Spring returns to an intermediate position when pulled or pushed and released.
- **Momentary Pull, Maintained Push** — (Three-Position). Spring returns to intermediate position when pulled. Maintains in pushed position until manually returned to intermediate (ready to reset) position. Maintained stop holds circuit open and will prevent other series connected operators from starting the system.

The Operators, Buttons, Contact Blocks, etc., are offered as building block components that can be intermixed to satisfy many requirements. This minimizes the need for a varied and costly inventory.

Application Guide

To assist in the selection of contact blocks, the sketch to the right shows pictorially by symbols **A** and **B** locations of contact circuits after assembly of contact blocks and adapter to the operator. The chart below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open)

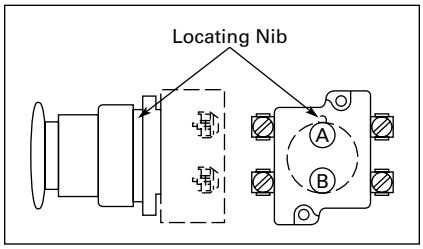


Figure 2-122. Contact Circuit Locations

Table 2-283. Push-Pull Operator Components

Type of Operator	Catalogue Number	Contact Block Max. of 2 Blocks, 4 Circuits ①	Operator Position and Circuit Arrangement					
			Out — Pull		Intermediate		In — Push	
								
			Contact Block Mounting Location					
			A	B	A	B	A	B
2-Position Operator without Lens								
Maintained Push-Pull	**E34GDB**	1NO 1NC	O X	or O X	No Intermediate Position		X O	or X O
		2NO 2NC	O X	O X			X O	X O
3-Position Operator without Lens								
Momentary Push-Pull	**E34GEB** ①	1NO 1NC	O X	or O X	O O	or O X	X O	or O O
Maintained Push-Momentary Pull	**E34GFB** ①	2NO 2NC	O X	O X	O O	O X	X O	O O
Momentary Push-Pull	**E34GHB** ①	1NO 1NC	O X	or O X	O O	or O O	X O	or X O
		2NO 2NC	O X	O X	O O	O O	X O	X O

① Special function contact blocks shown on **Page 2-181** CANNOT be used with 3-position push-pull operators E34GEB, E34GFB or E34GHB.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Note: See Typical Applications on **Page 2-128**.

Button or Lens ..... **Page 2-175**
Contact Blocks..... **Page 2-181**
Dimensions..... **Page 2-190**
Enclosures ..... **Pages 2-184 – 2-185**
Legend Plates..... **Page 2-183**

Push-Pull Operators (Continued)

Push-Pull Light Units, Lenses and Buttons

Table 2-284. Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	Catalogue Number	LED/Lamp Number
LED (LEDs not included) ①	Full Voltage	—	**10250T97L**	Bayonet Base
	Transformer AC Only 50/60 Hz	24	**10250T89L**	
		120	**10250T63L**	
		208	**10250T64L**	
		240	**10250T65L**	
		277	**10250T82L**	
		380	**10250T66L**	
		480	**10250T67L**	
		600	**10250T68L**	
Incandescent	Full Voltage AC or DC	6	**10250T69**	#755
		12	**10250T70**	#756
		24/28	**10250T79**	#757
		32	**10250T83**	#1828
	Resistor AC or DC	120	**10250T80**	120MB
		240	**10250T81**	
	Transformer AC Only 50/60 Hz	24	**10250T89**	#755
		120	**10250T63**	
		208	**10250T64**	
		240	**10250T65**	
		277	**10250T82**	
		380	**10250T66**	
		480	**10250T67**	
		600	**10250T68**	

① These units do not include lamps. Order LED separately to match lens colour from chart at right.

Table 2-285. Buttons for Non-illuminated Push-Pull Devices

	Colour	Incand. Suffix Code	Catalogue Number
	Black	**C1**	**E34C1**
	Red	**C2**	**E34C2**
	Red (EMERG. STOP)	**C2N8**	**E34C2N8**
	Green	**C3**	**E34C3**
	Blue	**C6**	**E34C6**
	Jumbo — Red ②	**J2**	**E34J2**
	Jumbo — Red (EMERGENCY STOP)	**J2N8**	**E34J2N8**

② Anodized aluminum may not be suitable for use on some corrosive applications.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Table 2-286. Alternate Lenses for Illuminated Push-Pull Devices

	Colour	Incand. Suffix Code	LED Suffix Code ③	Catalogue Number
	Red	**M2**	**RD**	**E34M2**
	Red (EMERG. STOP)	**M2N8**	**ED**	**E34M2N8**
	Green	**M3**	**GD**	**E34M3**
	Blue	**M6**	**LD**	**E34M6**
	Amber	**M9**	**AD**	**E34M9**
	White	**M5**	**WD**	**E34M5**
	Clear	**M0**	—	**E34M0**

③ Suffix Codes should only be used for assembling composite Catalogue Numbers. To order lens, order by Catalogue Number.

Table 2-287. LED Selection Table

Voltage	Colour	Catalogue Number
6-12V AC/DC	Red	**E22LED612RN**
	Orange	**E22LED612ON**
	Yellow	**E22LED612YN**
	Green	**E22LED612GN**
	Blue	**E22LED612BN**
	White	**E22LED612WN**
24V AC/DC	Red	**E22LED024RN**
	Orange	**E22LED024ON**
	Yellow	**E22LED024YN**
	Green	**E22LED024GN**
	Blue	**E22LED024BN**
	White	**E22LED024WN**
48V AC/DC	Red	**E22LED048RN**
	Orange	**E22LED048ON**
	Yellow	**E22LED048YN**
	Green	**E22LED048GN**
	Blue	**E22LED048BN**
	White	**E22LED048WN**
60V AC/DC	Red	**E22LED060RN**
	Orange	**E22LED060ON**
	Yellow	**E22LED060YN**
	Green	**E22LED060GN**
	Blue	**E22LED060BN**
	White	**E22LED060WN**
120V AC/DC	Red	**E22LED120RN**
	Orange	**E22LED120ON**
	Yellow	**E22LED120YN**
	Green	**E22LED120GN**
	Blue	**E22LED120BN**
	White	**E22LED120WN**

Note: For a complete listing of all LEDs available, see **Page 2-164**.

Ordering example with one composite number:

Non-illuminated E34GDB + E34C2 + 10250T1 =
E34GDBC2-1X

Incandescent E34GDB + 10250T79 + E34M2 + 10250T1 =
E34GDB79M2-1X

LED E34GDB + 10250T97L + E34M2 + Voltage Code + 10250T1 =
E34GDB97LRD24-1X

06 — 6V AC/DC
12 — 12V AC/DC
24 — 24V AC/DC
48 — 48V AC/DC
60 — 60V AC/DC
2A — 120V AC
2D — 120V DC

Contact Blocks..... **Page 2-181**
Dimensions..... **Page 2-190**
Enclosures ..... **Pages 2-184 – 2-185**
Legend Plates..... **Page 2-183**
Replacement Lamps/LEDs..... **Page 2-156**

Selector Switch Units

- Two-, Three- and Four-Position Maintained
- Non-illuminated and Illuminated

2-Position Maintained Switch

4-Position Maintained Switch

Table 2-288. 2-Position Selector Switch — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Operator Position ①		Operator Action ②	Non-illuminated		Illuminated — 120V Transformer		Contact Type	Mounting Location		Cam Code
			Black Knob ③	Black Lever ③	Red Knob ③	Red Lever ③				
			Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number		A	B	
X O	O X	M M	E34VFBK1-1X	E34VFBL1-1X	E34VFB120ER-1X	E34VFB120FR-1X	1NC 1NO			1

① X = closed circuit, O = open circuit.
② M = Maintained.
③ To order different type or colour selector switch, substitute the underlined character with appropriate Suffix Code from the Colour Selection table. Example: E34VFBK2-X1.

Table 2-289. 3-Position Selector Switch — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Operator Position ④			Operator Action ⑤	Non-illuminated		Illuminated — 120V Transformer		Contact Type	Mounting Location		Cam Code
				Black Knob ⑥	Black Lever ⑥	Red Knob ⑥	Red Lever ⑥				
				Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number		A	B	
X O	O O	O X		E34VHBK1-2X	E34VHBL1-2X	E34VHB120TER-2X	E34VHB120TFR-2X	1NO 1NO			3
X O O	O X O	O O X	M M M	E34VHBK1-23X	E34VHBL1-23X	E34VHB120TER-23X	E34VHB120TFR-23X	1NO 2NC (Series) 1NO			3

④ X = closed circuit, O = open circuit.
⑤ M = Maintained.
⑥ To order different type or colour selector switch, substitute the underlined character with appropriate Suffix Code from the Colour Selection table. Example: E34VFBK2-X1.

Table 2-290. 4-Position Selector Switch — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Operator Position ⑦				Operator Action ⑧	Non-illuminated		Illuminated — 120V Transformer		Contact Type	Mounting Location		Cam Code
					Black Knob ⑨	Black Lever ⑨	Red Knob ⑨	Red Lever ⑨				
					Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number		A	B	
X O O O	O X O O	O O X O	O O O X	M M M M	E34VTBK1-23X	E34VTBL1-23X	E34VRB120TER-23X	E34VRB120TFR-23X	1NC 1NO 1NO 1NC			7

⑦ X = closed circuit, O = open circuit.
⑧ M = Maintained.
⑨ To order different type or colour selector switch, substitute the underlined character with appropriate Suffix Code from the Colour Selection table. Example: E34VFBK2-X1.

Table 2-291. Colour Selection, Non-illuminated

Colour	Code Letter
Black	**1**
Red	**2**
Green	**3**
Yellow	**4**
White	**5**
Blue	**6**
Grey	**7**
Orange	**8**

Note: For Light Unit Voltage Suffix and Knobs, Levers tables, see **Page 2-180**.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Accessories ..... **Pages 2-186 – 2-187**
Additional Circuit Arrangements ..... **Pages 2-177 – 2-178**
Dimensions ..... **Page 2-190**
Enclosures ..... **Pages 2-184 – 2-185**
Legend Plates ..... **Page 2-183**

E34 Series

Selector Switch Selection

Cam and Contact Block Selection

Selector switches in their varied forms (2-position, 3-position and 4-position) are a big factor contributing to the great flexibility of control that a well rounded line of "pushbuttons" can achieve. Because of their flexibility, they tend to cause difficulty with product selection and application. The following systematic approach should simplify that task.

Cam and contact block selection is better understood if you:

- Work with each incoming and outgoing wire/circuit separately.
- Recognize the terms NO and NC only identify the type of contact by its mode before mounting to the operator. The "X-O" chart (**Page 2-178**) shows how that contact will act after assembly to the operator with the selected cam shape. X = closed circuit, O = open circuit.
- Up to six NO or NC contacts may be mounted behind each plunger location for a total of twelve contacts. Single circuit contact blocks have only one plunger with the other side of the block "open." Therefore, single circuit contact blocks transmit motion to blocks behind them only for the position containing the circuit.
- Each cam has two separate lobes, each of which operates one of the two contact block plungers independently of each other. Those are identified as position A (locating nib side) and position B (opposite of locating nib). The position designations give direction in selecting and mounting of the contact blocks (see Illustration below).

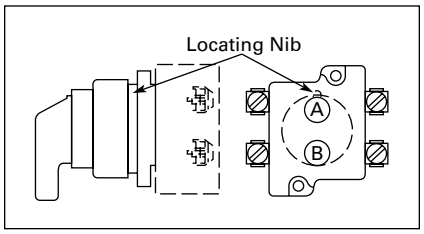
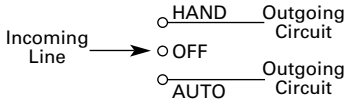


Figure 2-123. Contact Circuit Locations

Systematic Approach

Application: **HAND-OFF-AUTO** Selector Switch. In this circuit, one incoming line is distributed to two other outgoing circuits by the switch. The two circuits can be looked at individually.

Step 1: Elementary Diagram.
Construct on paper, or in your mind, a simple elementary diagram of the switching scheme as follows:



Step 2: "X-O" Pattern.
From the elementary diagram, you can construct an "X-O" diagram which describes when the contacts are to be closed (X) or open (O) in the various positions of the switch. The "X-O" for the **HAND** circuit looks like this:

HAND OFF AUTO
X O O

In this circuit, you want a contact closed on the left (HAND) but open in the centre and right.

For the **AUTO** circuit, the "X-O" diagram would look like this:

HAND OFF AUTO
O O X

Putting them together, the complete "X-O" diagram is:

X O O
O O X

Once the "X-O" diagram has been generated, the next step is to select the cam and contact block, or blocks, needed to perform the desired "X-O" functions. The selection table on the following page lists the various types (shapes) of cams by number to choose from and the type of contact and position to achieve the function outlined in your "X-O" diagram.

Step 3: Cam Selection.
The cam you select determines the operation of all contact blocks mounted to the operator. It is selected on the basis that it provides the simplest circuitry for the desired "X-O" diagram. The selection tables of the following page show all the "X-O" combinations. For the purpose of this example, the applicable portion of those charts is shown in **Table 2-292**.

Table 2-292. Example Selection Table

No.	"X-O" Pattern	Cam Code #2		Cam Code #3	
		Top A	Bottom B	Top A	Bottom B
1	X O O	① NO	NC	NO	
4	O O X		NO		NO

① Wired in series.

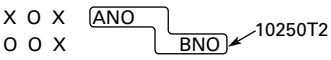
Now to make the cam selection, make a simple worksheet such as:

	Cam 2	Cam 3
X O O	(A)NO – (B)NC	**(A)NO**
O O X	(B)NO	**(B)NO**

It becomes immediately obvious that cam 3 is the better choice for two reasons, (1) the series combination can be avoided making it simpler to wire, (2) only two contacts are required, which is less expensive than the three contacts required by cam 2.

Step 4: Contact Block Selection.
Having selected the cam, contact block selection is simply a matter of gathering the A position and B position circuits into pairs which make up the most convenient contact block arrangement. If there is an imbalance in the number of circuits under A or B, then single circuit blocks must be selected for these leftover circuits.

Back to the worksheet, having selected cam 3 do this:



Step 5: Selector Switch Operator.
Lastly, you have to choose from the many types of operators — knob and lever in various colours or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page 2-179**. For the above example you may want a 3-position maintained black knob, cam 3 — Catalogue Number E34VHBK1.

The Complete Switch: E34VHBK1 with one 10250T2 or, for one composite catalogue number, E34VHBK1-Y1 found on **Page 2-176.**

Selector Switch Selection (Continued)

Table 2-293. 2-Position Selector Switch Contact Block Selection

No.	Desired Circuit and Operator Position		Contact Blocks Required to Accomplish Circuit Function	
			Top Plunger A	Bottom Plunger B
1	X	O	or NC	NC
2	O	X	or NO	NO

Diagrams

Circuits shown illustrate connections to obtain a selector switch circuit combination and are shown with their appropriate line diagrams. Field wiring of jumper connections required as shown.

X = Closed Circuit
O = Open Circuit

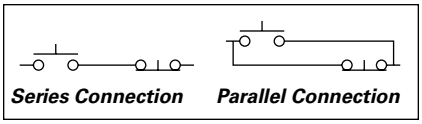


Figure 2-124. Wiring of Jumper Connections

Note: 4-Position Selector Switches limited to 4 contact blocks.

Contact Blocks

For selection and number of available contact blocks per operator, see **Page 2-181**.

Table 2-294. 3-Position Switch — Cam and Contact Block Selection

No.	Desired Circuit and Operator Position			Contact Blocks Required to Accomplish Circuit Function (Jumpers must be installed where indicated)			
				Operator with Cam Code #2		Operator with Cam Code #3	
				Mounting Location		Mounting Location	
				Top Plunger A	Bottom Plunger B	Top Plunger A	Bottom Plunger B
1	X	O	O	NO NC		NO	
2	X	X	O		NC		NC
3	X	O	X	NO		NO NO	
4	O	O	X		NO		NO
5	O	X	X	NC NO		NC	
6	O	X	O	NC		NC NC	

Table 2-295. 4-Position Switch — Contact Block Selection

No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function		Combination No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function	
					Mounting Location							Mounting Location	
					Top Plunger A	Bottom Plunger B						Top Plunger A	Bottom Plunger B
1	X	O	O	O	NC		10	X	O	X	O	NC NO	
2	O	X	O	O		NO							
3	O	O	X	O	NO		11	X	X	X	O	NC NO NO	
4	O	O	O	X		NC							
5	X	O	O	X	NC NC		12	O	X	X	X	NO NC NO	
6	O	X	X	O	NO NO								
7	O	O	X	X	NO NC		13	X	O	X	X	NO NC NC	
8	X	X	O	O	NC NO								
9	O	X	O	X		NO NC	14	X	X	O	X	NC NO NC	

2-Position Maintained Black Knob Selector Switch — Cam 1 Catalogue Number E34VFBK1

3-Position Maintained Keyed Selector Switch Catalogue Number E34KGHB1

Selector Switch Operators

Table 2-296. Operators with Knob Assembled — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Positions	Operator Action ①	Black Knob Selector Switch — Vertical Mounting ③	
		Cam Code ②	Catalogue Number ④
2-Position — 60°Throw	M M	1	**E34VFBK1**
	M S	1	**E34VEBK1**
3-Position — 60°Throw	M M M	2 3	**E34VGBK1** **E34VHBK1**
	M S M	2 3	**E34VJBK1** **E34VKBK1**
	M S S	2 3	**E34VLBK1** **E34VMBK1**
	M M S	2 3	**E34VNBK1** **E34VPBK1**
4-Position — 40°Throw	M M M M	7	**E34VTBK1**

① M = Maintained. S = Spring return in direction of arrow (→).

② For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and table on **Pages 2-177 – 2-178**.

③ Field convertible to Horizontal Mounting.

④ For other colours of either the knob or lever, replace the underlined characters of the Catalogue Number with the appropriate Suffix Code from Alternate Knob and Lever Table below. Example: E34VFB**L2**.

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Table 2-297. Key Operators with Cam and Cap — UL (NEMA) 3, 3R, 4, 4X, 12, 13

Positions	Operator Action ⑤	Cam Code ⑥	Key Removal Positions ⑦	Vertical Mounting Catalogue Number	Horiz. Mounting Catalogue Number
2-Position — 60°Throw	M M	1	1, 2, 3	**E34KFB_**	**E34KFHB_**
	M S	1	2	**E34KEB_**	**E34KEHB_**
3-Position — 60°Throw	M M M	2 3	1 – 7	**E34KGB_** **E34KHB_**	**E34KGHB_** **E34KHHB_**
	M S M	2 3	1, 4, 5	**E34KJB_** **E34KKB_**	**E34KJHB_** **E34KKHB_**
	M S S	2 3	4	**E34KLB_** **E34KMB_**	**E34KLHB_** **E34KMHB_**
	M M S	2 3	2, 4, 6	**E34KNB_** **E34KPB_**	**E34KNHB_** **E34KPHB_**
4-Position — 40°Throw	M M M M	7	7	**E34KTB_**	**E34KTHB_**

⑤ M = Maintained. S = Spring return in direction of arrow (→).

⑥ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and table on **Pages 2-177 – 2-178**.

⑦ Choose key removal position required for application from **Table 2-298**. Add key removal Code No. to listed Catalogue Number. Example: E34KFB**2**.

Table 2-298. Key Removal Positions

Code Suffix	Key Removal Positions	Code Suffix	Key Removal Positions
1	Right Only	**5**	Right & Centre
2	Left Only	**6**	Left & Centre
3	Right & Left	**7**	All Positions
4	Centre Only		

Note: Key removal in "spring return from" positions not recommended.

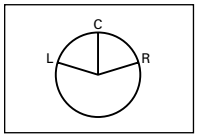


Figure 2-125. Key Removal Positions

Dissimilar Locks and Keys

Listed operators have identical locks and keys (Key Code H661), Catalogue Number **10250ED824.** For dissimilar lock and key combinations, see **Page 2-135.**

Table 2-299. Alternate Knobs and Levers for Operators Above

Colour	Knob		Lever		Lever Designed for Added Ingress Protection ⑧	
	Suffix Code	Catalogue Number	Suffix Code	Catalogue Number	Suffix Code	Catalogue Number
Black	**K1**	**E34K1**	**L1**	**E34L1**	**A1**	**E34A1**
Red	**K2**	**E34K2**	**L2**	**E34L2**	**A2**	**E34A2**
Green	**K3**	**E34K3**	**L3**	**E34L3**	**A3**	**E34A3**
Yellow	**K4**	**E34K4**	**L4**	**E34L4**	**A4**	**E34A4**
White	**K5**	**E34K5**	**L5**	**E34L5**	**A5**	**E34A5**
Blue	**K6**	**E34K6**	**L6**	**E34L6**	**A6**	**E34A6**
Grey	**K7**	**E34K7**	**L7**	**E34L7**	**A7**	**E34A7**
Orange	**K8**	**E34K8**	**L8**	**E34L8**	**A8**	**E34A8**

⑧ For use on maintained operators only.

Accessories ..... **Page 2-186 – 2-187**
Dimensions ..... **Page 2-190**
Legend Plates ..... **Page 2-183**

2-Position Maintained
120V AC Transformer
Selector Switch, Cam 1
Catalogue Number E34VFB120

Illuminated Selector Switch Operators

Table 2-300. Operator without Knob or Lever

Positions	Operator Action	Transformer Type — 50/60 Hz		Full Voltage Type — AC or DC ③	
		6 Volt #755 Lamp		Lamps — #755, #757, #1835, 120MB ④	
		Catalogue Number ①⑤		Catalogue Number ⑤	
2-Position — 60°Throw	M M	Cam Code 1 ②		Cam Code 1 ②	
		E34VFB_		E34SFB_	
3-Position — 60°Throw	M M M	Cam Code 2 ②	Cam Code 3 ②	Cam Code 2 ②	Cam Code 3 ②
		E34VGB_	E34VHB_	E34SGB_	E34SHB_
	M M S	E34VNB_ ⑥	E34VPB_ ⑥	E34SNB_ ⑦	E34SPB_ ⑦
	S M M	E34VJB_ ⑥	E34VKB_ ⑥	E34SJB_ ⑦	E34SKB_ ⑦
	S M S	E34VLB_	E34VMB_	E34SLB_	E34SMB_
4-Position — 40°Throw	M M M M	E34VRB_	—	E34SRB_	—

① Operator includes lens gasket and lens attachment screws.
② For selection of the proper cam and contact block required to obtain a specific circuit sequence, see selection table on **Pages 2-177 – 2-178.**
③ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed in **Page 2-156.**
④ 120MB lamps are used on both 120V and 240V operators.
⑤ Add Code Suffix for Light Unit Voltage to listed Catalogue Number from Light Unit Voltage Suffix Table at bottom of page.
Example: For 24V transformer type light unit, order E34VFB**024**.
⑥ 120 and 240V transformer only.
⑦ 120 full voltage only.

Table 2-301. Light Unit Voltage Suffix — Add to operator Catalogue Number listed in table above.

Type of Light Unit			
Transformer Type 50/60 Hz		Full Voltage Type AC or DC ⑧	
Voltage	Suffix Code	Voltage	Suffix Code
24	**024**	6	**06**
120	**120**	12	**12**
208	**208**	24	**24**
240	**240**	48	**48**
380	**380**	120	**120**
480	**480**	240 ⑨	**240**
600	**600**		

⑧ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed in **Page 2-156.**
⑨ Resistor type. May generate excess heat if used in high density.

Table 2-302. Knobs, Levers

	Colour ⑩	Knob	Lever
		Catalogue Number and Code Number	
	Red	**10250TER**	**10250TFR**
	Green	**10250TEG**	**10250TFG**
	Yellow	**10250TEA**	**10250TFA**
	Blue	**10250TEL**	**10250TFL**
	Clear	**10250TEC**	**10250TFC**
	White	**10250TEW**	**10250TFW**
	Amber	**10250TEM**	**10250TFM**

⑩ Amber, clear and white lenses have a black arrow (pointer). Red, green and blue lenses have a white arrow (pointer).

Note: Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages 2-114 – 2-164**.

Contact Blocks . . . . . **Page 2-181**
Dimensions . . . . . **Page 2-190**
Enclosures . . . . . **Pages 2-184 – 2-185**
Legend Plates . . . . . **Page 2-183**

Contact Blocks

Standard Contact Blocks

- UL A600/P600 rated
- Colour-coded plungers – red/green for NC/NO circuits
- Silver contact tips with "reliability nibs"
- Black (opaque) or amber (translucent) housings
- Pressure plate or spade terminals
- Fingerproof shrouds (for pressure terminals only)

Logic Level Contact Blocks

- UL A600/P600 rated
- Black plungers
- Inert palladium knife-blade contacts
- Black (opaque) housings
- Pressure plate or spade terminals
- Fingerproof shrouds not available

Special Function Contact Blocks

- UL A600/P600 rated
- Black plungers
- Silver contact tips with "reliability nibs"
- Black (opaque) housings
- Pressure plate terminals only
- Fingerproof shrouds not available

Special Purpose Contact Block

- Maximum 300V rated
- Black plungers
- Silver contact tips with "reliability nibs"
- Black (opaque) housings
- Pressure plate terminals only
- Fingerproof shrouds not available

Reliability Nibs

Reliability nibs are the hallmark of Eaton's Cutler-Hammer contact blocks. A pointed silver nib on the contact tip ensures reliable switching from logic level (5V) up to 600V applications. Therefore standard contact blocks can be used for most logic level applications where the contacts are not exposed to any harsh environmental conditions.

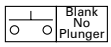
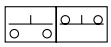
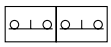
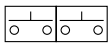
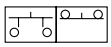
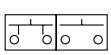
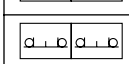
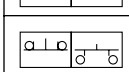
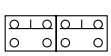
Palladium Contacts

Palladium, which is more inert than gold, is well suited for voltages and currents approaching zero and is recommended for applications where environmental conditions are a factor.

Maximum Contact Block Mounting per Operator Type

Operator	Max. Stack	Operator	Max. Stack
Pushbuttons	6	2- or 3-Position Selector Switches	6
Push-Pull Operators	2	4-Position Selector Switches	4
Roto-Push Operators	4	Joysticks	4

Table 2-303. Contact Blocks

Symbol	Circuit	Description/ Notes ①  *10250T1*	Standard		Logic Level	
			Pressure Terminals	Spade Terminals ②	Pressure Terminals	Spade Terminals ②
			Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	1NC	Stack up to 6 blocks (6 circuits) unless otherwise noted.	**10250T51**	**10250T59**	**10250T51E**	**10250T59E**
	1NO	Stack up to 6 blocks (6 circuits) unless otherwise noted.	**10250T53**	**10250T60**	**10250T53E**	**10250T60E**
	NO-NC	Stack up to 6 blocks (12 circuits) unless otherwise noted.	**10250T1**	**10250T40**	**10250T1E**	**10250T40E**
	2NC	Stack up to 6 blocks (12 circuits) unless otherwise noted.	**10250T3**	**10250T42**	**10250T3E**	**10250T42E**
	2NO	Stack up to 6 blocks (12 circuits) unless otherwise noted.	**10250T2**	**10250T41**	**10250T2E**	**10250T41E**
Special Function Blocks ③						
	LONC	Late opening NC. Stack up to 6 blocks (6 circuits) unless otherwise noted.	**10250T71** ③	—	**10250T71E** ③	—
	ECNO -NC	Early closing NO and standard NC. Stack up to 6 blocks unless otherwise noted.	**10250T47** ③④	—	**10250T47E** ③	—
	ECNO -NO	Early closing NO and standard NO. Stack up to 4 blocks unless otherwise noted.	**10250T57** ③④	—	**10250T57E** ③	—
	2LONC	Two late opening NC contacts. Stack up to 6 blocks unless otherwise noted.	**10250T45** ③	—	**10250T45E** ③	—
	LONC-ECNO	Overlapping contacts. Stack up to 4 blocks unless otherwise noted.	**10250T55** ③④	—	**10250T55E** ③	—
Special Purpose Blocks ⑤						
	2NO-2NC	Four circuits in single block depth. Rated 300V max. Stack up to 4 blocks unless otherwise noted.	**10250T44** ⑤	—		

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

② Contact blocks with spade terminals are limited to a maximum of one contact block per operator and minimum spacing between devices is 2.5" (63.5 mm). Not suitable for use in 10250T or E34 enclosures. Also available in amber housing. Not available with fingerproof shrouds.

③ Special function contact blocks are not suitable for use with roto-push operators, 3-position push-pull operators, or 4-position selector switches.

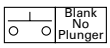
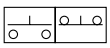
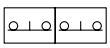
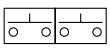
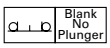
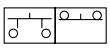
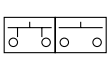
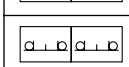
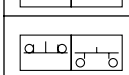
④ ECNO contact blocks are not suitable for use with 2-position joysticks or when operators are used with padlock attachments.

⑤ Special purpose 10250T44 contact blocks are not suitable on selector switches or roto-push operators. Okay to use with 3-position push-pull operators only on low voltage (30V or less) circuits.

Ratings. . . . . **Page 2-115**
Dimensions. . . . . **Pages 2-159 – 2-161**

Contact Blocks (Continued)

Table 2-304. Contact Blocks with Fingerproof Shrouds

Symbol	Circuit	Description/ Notes ①  *10250T1CP*	Standard Pressure Terminals ② Catalogue Number	Logic Level Pressure Terminals ② Catalogue Number
	1NC	Stack up to 6 blocks (6 circuits) unless otherwise noted.	**10250T51P**	**10250T51EP**
	1NO	Stack up to 6 blocks (6 circuits) unless otherwise noted.	**10250T53P**	**10250T53EP**
	NO-NC	Stack up to 6 blocks (12 circuits) unless otherwise noted.	**10250T1P**	**10250T1EP**
	2NC	Stack up to 6 blocks (12 circuits) unless otherwise noted.	**10250T3P**	**10250T3EP**
	2NO	Stack up to 6 blocks (12 circuits) unless otherwise noted.	**10250T2P**	**10250T2EP**
Special Function Blocks ④				
	LONC	Late opening NC. Stack up to 6 blocks (6 circuits) unless otherwise noted.	**10250T71P** ④	**10250T71EP** ④
	ECNO-NC	Early closing NO and standard NC. Stack up to 6 blocks unless otherwise noted.	**10250T47P** ④ ⑤	**10250T47EP** ④
	ECNO-NO	Early closing NO and standard NO. Stack up to 4 blocks unless otherwise noted.	**10250T57P** ④ ⑤	**10250T57EP** ④
	2LONC	Two late opening NC contacts. Stack up to 6 blocks unless otherwise noted.	**10250T45P** ④	**10250T45EP** ④
	LONC-ECNO	Overlapping contacts. Stack up to 4 blocks unless otherwise noted.	**10250T55P** ④ ⑤	**10250T55EP** ④

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

② To order contact blocks with translucent amber housing, change Suffix P to **CP** in Catalogue Number e.g. 10250T51**CP**.

③ Contact blocks with spade terminals are limited to a maximum of one contact block per operator and minimum spacing between devices is 2.5″ (63.5 mm). Not suitable for use in 10250T or E34 enclosures. Also available in amber housing. Not available with fingerproof shrouds.

④ Special function contact blocks are not suitable for use with roto-push operators, 3-position push-pull operators, or 4-position selector switches.

⑤ ECNO contact blocks are not suitable for use with 2-position joysticks or when operators are used with padlock attachments.

Ratings . . . . . **Page 2-166**
Dimensions . . . . . **Pages 2-159 – 2-161**

Options

Legend Plates

Field Colour

Legend plates can be supplied printed on black, red, silver or white field. To order legend printed on a colour other than indicated — add Suffix Code to the end of the Catalogue Number as follows:

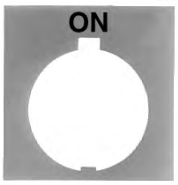
"R" for Red field;
"W" for White field; or
"S" for Silver field.

Example: E34SP26**R** — Standard plate with red field marked OPEN.

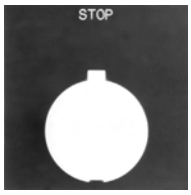
Table 2-305. For Pushbutton Operators and Indicating Lights

Legend	Colour of Field	Catalogue Number	
		Standard ①	Jumbo
Letters on Legend Plates Below are 3/16" High			
CLAMP	Black	**E34SP90**	**E34LP90**
CLOSE	Black	**E34SP73**	**E34LP73**
DOWN	Black	**E34SP74**	**E34LP74**
EMERG. STOP	Red	**E34SP13**	**E34LP13**
FAST	Black	**E34SP75**	**E34LP75**
FASTER	Black	**E34SP87**	**E34LP87**
FEEDER ON	Black	**E34SP94**	**E34LP94**
FEEDER OFF	Black	**E34SP95**	**E34LP95**
FORWARD	Black	**E34SP15**	**E34LP15**
HIGH	Black	**E34SP16**	**E34LP16**
IN	Black	**E34SP17**	**E34LP17**
INCH	Black	**E34SP18**	**E34LP18**
JOG	Black	**E34SP19**	**E34LP19**
JOG FOR.	Black	**E34SP20**	**E34LP20**
JOG REV.	Black	**E34SP21**	**E34LP21**
LOW	Black	**E34SP22**	**E34LP22**
LOWER	Black	**E34SP23**	**E34LP23**
LUBE-FAIL	Black	**E34SP92**	**E34LP92**
MOTOR RUN	Black	**E34SP81**	**E34LP81**
MOTOR STOP	Black	**E34SP82**	**E34LP82**
OFF	Red	**E34SP24**	**E34LP24**
ON	Black	**E34SP25**	**E34LP25**
OPEN	Black	**E34SP26**	**E34LP26**
OUT	Black	**E34SP27**	**E34LP27**
POWER ON	Black	**E34SP80**	**E34LP80**
RAISE	Black	**E34SP28**	**E34LP28**
READY	Black	**E34SP86**	**E34LP86**
RESET	Black	**E34SP29**	**E34LP29**
REVERSE	Black	**E34SP30**	**E34LP30**
RUN	Black	**E34SP31**	**E34LP31**
SAFE	Black	**E34SP85**	**E34LP85**
SLOW	Black	**E34SP32**	**E34LP32**
SLOWER	Black	**E34SP88**	**E34LP88**
START	Black	**E34SP33**	**E34LP33**
STOP	Red	**E34SP34**	**E34LP34**
TEST	Black	**E34SP83**	**E34LP83**
TRANSFER	Black	**E34SP93**	**E34LP93**
TRIP	Black	**E34SP84**	**E34LP84**
UNCLAMP	Black	**E34SP91**	**E34LP91**
UP	Black	**E34SP35**	**E34LP35**

① 3/32" high lettering.



Standard



Jumbo

Table 2-306. For Selector Switch Operators

Legend	Colour of Field	Catalogue Number	
		Standard	Jumbo
2 Position — 3/16" High Lettering			
FOR. REV.	Black	**E34SP38**	**E34LP38**
HAND AUTO	Black	**E34SP39**	**E34LP39**
HIGH LOW	Black	**E34SP40**	**E34LP40**
JOG RUN	Black	**E34SP41**	**E34LP41**
MAN. AUTO	Black	**E34SP67**	**E34LP67**
OFF ON	Black	**E34SP42**	**E34LP42**
OPEN CLOSE	Black	**E34SP43**	**E34LP43**
RUN JOG	Black	**E34SP44**	**E34LP44**
SAFE RUN	Black	**E34SP45**	**E34LP45**
START JOG	Black	**E34SP46**	**E34LP46**
START STOP	Black	**E34SP47**	**E34LP47**
UP DOWN	Black	**E34SP48**	**E34LP48**
3 Position — 3/16" High Lettering			
AUTO OFF HAND	Black	**E34SP49**	**E34LP49**
FOR. OFF REV.	Black	**E34SP50**	**E34LP50**
FOR. SAFE REV.	Black	**E34SP69**	**E34LP69**
HAND OFF AUTO	Black	**E34SP51**	**E34LP51**
MAN. OFF AUTO	Black	**E34SP68**	**E34LP68**
OPEN OFF CLOSE	Black	**E34SP53**	**E34LP53**
RUN SAFE JOG	Black	**E34SP70**	**E34LP70**
UP OFF DOWN	Black	**E34SP54**	**E34LP54**
ON STOP SAFE	Black	**E34SP71**	**E34LP71**

Table 2-307. For Push-Pull Units

Legend	Colour of Field	Catalogue Number	
		Standard ②	Jumbo ③
PULL ON/ PUSH OFF	Black	**E34PP5**	**E34R5**
PULL OPEN/ PUSH CLOSE	Black	**E34PP8**	**E34R8**
PULL UP/ PUSH DOWN	Black	**E34PP11**	**E34R11**

② 3/32 inch (2.4 mm) high lettering.
③ 1/8 inch (3.2 mm) high lettering.

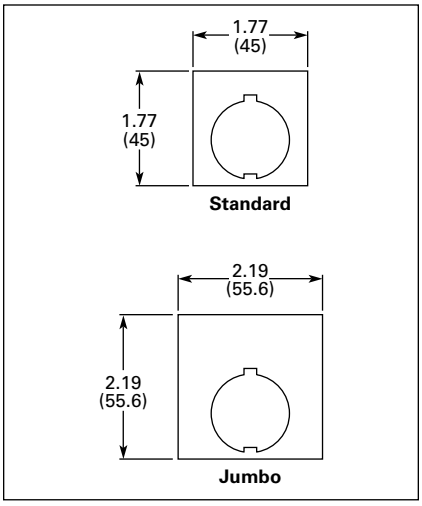


Figure 2-126. Approximate Dimensions in Inches (mm)

Table 2-308. Blank Plastic Legend Plates — Square

Colours			Catalogue Number		
Lettering	Field		Standard	Jumbo	Extra Large
	Side 1	Side 2			
Black	White	Silver	**10250TSP76**	**10250TLP76**	**10250TEP76**
White	Red	Black	**10250TSP77**	**10250TLP77**	**10250TEP77**

Legend Plates with Non-standard Markings or Aluminum Legend Plates

See 10250T listing on **Page 2-151**.

Commande d'étiquettes. . . . . **Page A-2**

Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

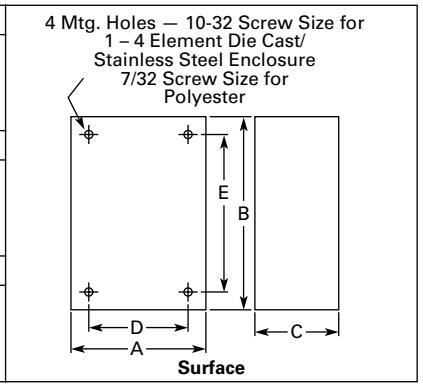
Table 2-309. Enclosures (Case and Cover) — Surface Mounting ①

	Number of Elements	1 Contact Block Depth	2 Contact Block Depth
		Catalogue Number	Catalogue Number
 Die Cast Enclosure — Cat. No. E34N11	**Cast Enclosure — In-Line ②③ NEMA 4, 4X, 12, 13**		
	1	**E34N1**	**E34N11**
	2	**E34N2**	**E34N12**
	3	**E34N3**	**E34N13**
	4	**E34N4**	**E34N14**
 Polyester Enclosure — Cat. No. E34N52	**Polyester — In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
 Stainless Steel Enclosure — Cat. No. 10250TN35	**Stainless Steel ④ — In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

① For spacing increments, see **Page 2-185**.
② All cast enclosures can be converted to base mounting of contact blocks, with spacers 10250TA22 or 10250TA23. See listing on **Page 2-155.**
③ When used with E30 pushbuttons, only the one element enclosure can be used.
④ 14 gauge, type 304.

Table 2-310. Approximate Dimensions

Number of Elements	Element Arrangement	Surface Mounting Dimensions in Inches (mm) Wide A	High B	Deep C	Mounting D	Mounting E	Conduit Entrance
Cast							
1	In-Line	3.88 (98.6)	4.0 (101.6)	3.0 (76.3) ⑥	2.69 (68.3)	3.25 (82.6)	3/4
2	In-Line	3.88 (98.6)	5.88 (149.4)	3.0 (76.3) ⑥	2.69 (68.3)	5.13 (130.3)	3/4
3	In-Line	3.88 (98.6)	7.75 (196.9)	3.0 (76.3) ⑥	2.69 (68.3)	7.0 (177.8)	1
4	In-Line	3.88 (98.6)	9.63 (244.6)	3.0 (76.3) ⑥	2.69 (68.3)	8.88 (225.6)	1
Polyester							
1	In-Line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	⑤
2	In-Line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3	In-Line	3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4	In-Line	3.81 (96.8)	11.13 (282.7)	3.38 (85.9)	2.94 (74.7)	9.38 (238.3)	
Stainless Steel							
1	In-Line	3.00 (76.2)	3.50 (88.9)	3.00 (76.2)	1.50 (38.1)	4.25 (108.0)	⑤
2	In-Line	3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3	In-Line	3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4	In-Line	3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	



⑤ No conduit entrance holes provided. Drill as required.
⑥ Depth given is for two contact block deep stations. One contact block deep stations subtract 3/4 inch (19.1 mm).

Note: These E34 Die Cast Enclosures feature a corrosion resistant coating identical to finish on the E34 operators except grey in colour. Not for use in ultraviolet light applications.

One Contact Block Depth Enclosure

Two Contact Block Depth Enclosure

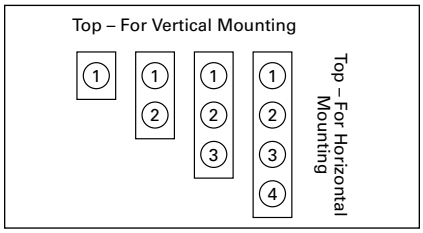


Figure 2-127. Enclosure Layouts

Enclosures (Continued)

Die Cast and Stainless Steel — Flush Mount, Covers Only

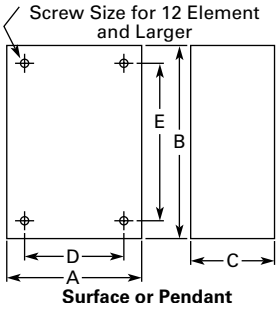
These E34 Die Cast Covers feature a corrosion resistant coating identical to the finish on the E34 operators except grey in colour.

Table 2-311. Covers Only — Flush Mounting

	Number of Elements	Catalogue Number	Catalogue Number
 Flat Cover Deep Cover		Flush Cast Covers	
		In-Line Deep Cover	In-Line Flat Cover
	1	E34F11	E34F1
	2	E34F12	E34F2
	3	E34F13	E34F3
	4	E34F14	E34F4
		In-Line Stainless Steel Flush Plates ①	
		With Pullbox	Without Pullbox
	1	10250TS10	10250TS1
	2	10250TS11	10250TS2
	3	10250TS12	10250TS3
	4	10250TS14	10250TS4

① Not oiltight. NEMA 1 applications only.

Table 2-312. Approximate Dimensions

Number of Elements	Flush Mounting					Approximate Dimensions
	Dimensions in Inches (mm)					
	Wide A	High B	Deep C	Mounting		
				D	E	
Cast						
1	3.88 (98.6)	4.0 (101.6)	0.25 (6.4) ②	3.50 (88.9)	3.63 (92.2)	
2	3.88 (98.6)	5.88 (149.4)	0.25 (6.4) ②	3.50 (88.9)	5.50 (139.7)	
3	3.88 (98.6)	7.75 (196.9)	0.25 (6.4) ②	3.50 (88.9)	6.0 (152.4)	
4	3.88 (98.6)	9.63 (244.6)	0.25 (6.4) ②	3.50 (88.9)	9.25 (235)	
Stainless Steel						
1	5.0 (127)	5.0 (127)	2.50 (63.5) ③	3.25 (82.6)	1.88 (47.8)	
2	5.0 (127)	6.88 (174.8)	2.50 (63.5) ③	3.25 (82.6)	3.63 (92.2)	
3	5.0 (127)	8.63 (219.2)	2.50 (63.5) ③	3.25 (82.6)	5.50 (139.7)	
4	5.0 (127)	10.50 (266.7)	2.50 (63.5) ③	3.25 (82.6)	7.25 (184.2)	

② Depth given is for flat cover. Deep cover 3/4 inch (19.1 mm) deeper.
③ Depth given includes pull box.

Table 2-313. Spacing Increments

Type	Approximate Dimensions in Inches (mm)		
	F	G	H
Cast	2.44 (62)	2.5 (63.5)	1.88 (47.8)
Polyester	1.88 (47.8)	Min. 2.13 (54.1)	2.25 (57.2)
Stainless Steel	1.69 (42.9)	Min. 1.73 (43.9)	2.25 (57.2)

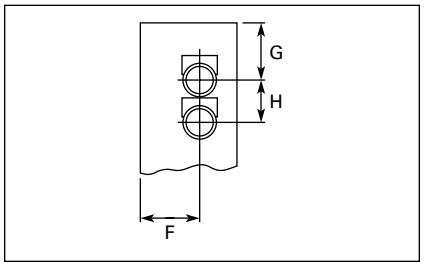


Figure 2-128. Spacing Increments for Enclosures

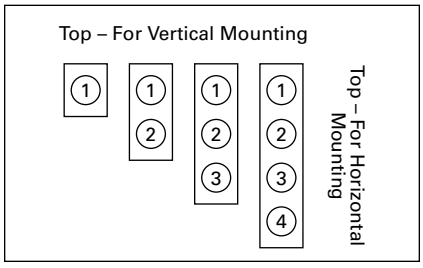
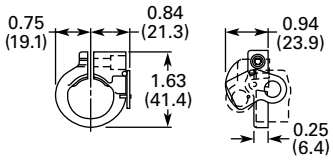
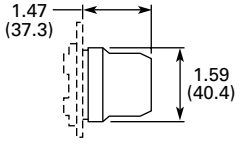
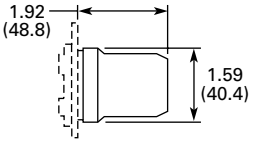
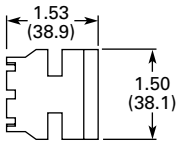
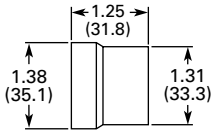
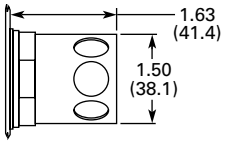


Figure 2-129. Enclosure Layouts

Accessories

Table 2-314. Accessories

Description		Catalogue Number	Overall Dimensions in Inches (mm)
	**Padlocking Attachment for Flush Pushbutton Operators.** Permits locking NC contacts in open position with 1/4" padlock. Will not lock NO contact.	**E34TA2**	
	**Flexible Weather Resistant Boot** for use with flush pushbutton operators. — Clear	**10250TA46**	
	— Black	**10250TA47**	
	— Red	**10250TA48**	
	— Green	**10250TA49**	
	Flexible Weather Resistant Boot for use with button operators (extended buttons preferred). — Black	**10250TA3**	
	— Red	**10250TA4** ①	
	— Green	**10250TA10**	
	— Clear	**10250TA85**	
	Transparent Boot for regular, illuminated pushbutton operators and PresTest.	**10250TA25** ②	
	**Special Retaining Nut** — to accommodate thick panel. Indicating light, PresTest, pushbuttons and selector switches	**E34TA30** **E34TA31**	
	**Shroud for Mushroom Head Operator** — prevents accidental operation. (Not for Push-Pull operators.)	**E34TA6**	
	**Extended Retaining Nut** — Replaces standard nut and provides guard for flush type pushbutton operators.	**E34TA12**	
	**Guard for Illuminated Pushbutton**	**E34TA15**	
	**Padlocking Attachment** for non-illuminated knob selector switches — accommodates up to 5, 1/4" padlocks.	**E34TA11**	

① Should not be used on flush button for STOP function.
② Not suitable for single contact block depth cast enclosure. Cover is too thick.

Table 2-314. Accessories (Continued)

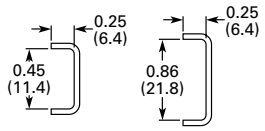
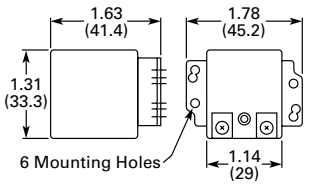
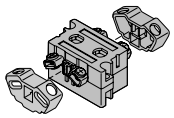
Description		Catalogue Number	Overall Dimensions in Inches (mm)
	**Thrust Washer** — To meet Ford Motor Company mounting specifications.	**E34TK3**	
	**Contact Block Terminal Jumps** — Available in multiples of 100 only. Term. to Term. — Within Block (short): 100 per package 1000 per package Terminal to Terminal — Block to Block (long): 100 per package 1000 per package	 **10250TA70** **10250TA70-2** **10250TA71** **10250TA71-2**	
	**Master Test (Dual Input) Module** — Internal Form C relay suitable for either AC or DC applications. Total electrical isolation between monitored and test circuit. Fits all illuminated 10250T, E22, E30 and E34 devices. 24V AC 120V AC 24V DC 48V DC	 **10250TMT2** **10250TMT1** **10250TMT7** **10250TMT8**	
	**Flasher Module** — Internal Form C relay suitable for AC applications. One unit required for each operator in master test circuit. 24V AC 120V AC	 **10250TFL2** **10250TFL1**	
	**Panel Mounting Nut Wrench** — E22, E30, E34 and Octagonal 10250T.	**E22CW**	
	**Fingerproof Shroud** — 10 per Package Fits new style contact blocks and light units.	**10250TA101**	

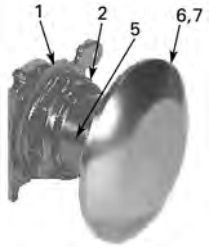
Table 2-315. Replacement Lamps — For E34 Illuminated Operators

Mfg. Lamp Type	Voltage	Base Style	Application	Part Number
120MB	120V	T 3-1/4 Bayonet	10250T Resistor Indicating Light	**28-3044**
#267	6.3V	T 3-1/4 Bayonet	10250T Flasher	**10250ED986-4**
#755	6.3V	T 3-1/4 Bayonet	10250T Transformer, PresTest and Full Voltage	**28-2202**
#756	12V	T 3-1/4 Bayonet	10250T Full Voltage	**28-5184**
#757	24V	T 3-1/4 Bayonet	10250T Full Voltage	**28-5185**
#1828	32V	T 3-1/4 Bayonet	10250T Full Voltage	**28-5186**
#1835	55V	T 3-1/4 Bayonet	10250T Resistor	**28-5187**
NE48	120V	T 4-1/2 Bayonet	10250T Neon	**28-494**
NE51H-R22	120V	T 3-1/4 Bayonet	10250T Neon	**28-3754**
NE51H-R68	240V	T 3-1/4 Bayonet	10250T Neon	**28-3755**

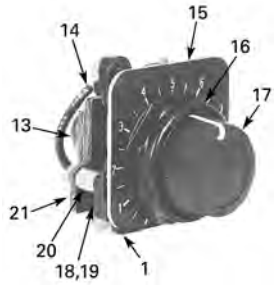
Renewal Parts

Flush Head Pushbutton Operator

Mushroom Head Pushbutton Operator



Jumbo Mushroom Head Operator



Potentiometers

Illuminated Pushbutton Operator

Transformer Type Indicating Light

Knob-Operated Selector Switch Operator

Full Voltage, Resistor and Transformer Type Illuminated Selector Switch

2

Table 2-316. Numbers Listed Are for E34 Style Operators

Item No.	Description	No. Req.	Part Number
1	Gasket	1	**16-1548**
2	Mounting Nut	1	**15-1530-4**
3	Set Screw (#6-32 x 0.250" Long Hollow Hex)	2	**11-2014**
4	Mushroom Head Button (Includes (2) Item 5) Black Red Yellow Green Blue	1 — — — — —	As Req. Below **53-1317** **53-1317-2** **53-1317-3** **53-1317-4** **53-1317-22**
5	Set Screw (#10-32 x 0.250" Long Hollow Hex)	2	**11-544**
6	Jumbo Mushroom Head Button (Aluminum — Includes (2) Item 5) Red Black Yellow Green	1 — — — —	As Req. Below **53-1317-9** **53-1317-10** **53-1317-11** **53-1317-12**
7	Jumbo Mushroom Head Button (Aluminum — Red EMERG. STOP) Does Not Include Item 5	1	**53-1349-18**
8	Mounting Screw (#6-32 x 0.710" Long) Washer	2 2	**10250TA79** **16-2038**
9	Terminal Screw and Lug (Captive)	Req.	**80-5502**
10	Gasket (Supplied with Basic Unit)	1	**32-803**
11	Round Head Screw (#4-40 x 0.344" Long) (Supplied with Basic Unit)	2	**11-4553**

Item No.	Description	No. Req.	Part Number
12	Mounting Screw	2	**11-1632**
13	Simple Potentiometer (Does Not Include Items 18, 28 or 29) 1,000 Ohms 2,500 Ohms 5,000 Ohms 10,000 Ohms 25,000 Ohms 50,000 Ohms	1 — — — — — —	As Req. Below **41-782-2** **41-782-3** **41-782-10** **41-782-4** **41-782-5** **41-782-6**
14	Connector (Includes Screw and Lug)	2	**25-1851**
15	Indicating Plate Standard Size (Without Legend) Large Size (Specify Legend)	1 — —	As Req. Above **30-4460** **10250TR30**
16	Retaining Nut	1	**15-1547-3**
17	Knob Socket Set Screw (#6-32 x 0.250" Long)	1 1	**53-1314** **11-2014**
18	Coupling	1 1	**11-2014** **29-3749-2**
19	Set Screw (#6-32 x 0.188" Long)	1	**11-1199**
20	Spacer	2	**56-1066-18**
21	Connector (Includes Screw and Lug)	1	**25-1851-2**
22	Mounting Nut	1	**15-1938-2**

① Contact the Customer Support Centre at 1-800-268-3578.

Mounting

Panel Thickness

- Minimum: 0.06 inch (1.6 mm)
- Maximum: 0.25 inch (8 mm) including legend plate
- Maximum can be increased to 0.375 inch (15.9 mm) using optional retaining nut
  - Indicating light: E34TA30
  - Pushbutton/selector switch: E34TA31

Table 2-317. Mounting Matrix

Legend Plate	Dimensions in Inches (mm)			
	A	B	C	D
Small	1.63 (41.3)	2.25 (57.2)	2.25 (57.2)	1.63 (41.3)
Medium	1.75 (44.5)	2.25 (57.2)	2.25 (57.2)	1.75 (44.5)
Large	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)

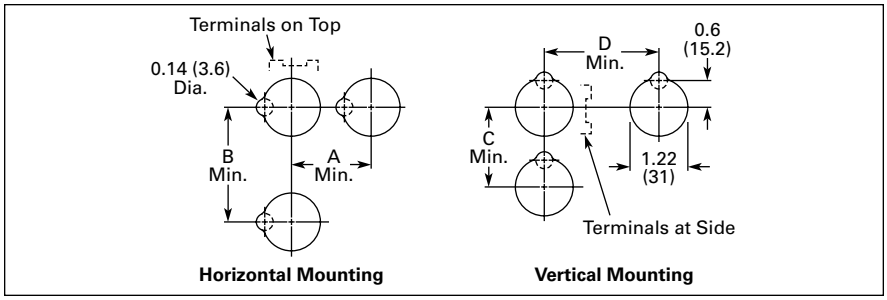


Figure 2-130. Mounting Options in Inches (mm)

Horizontal mounting means terminals are located top and bottom of contact block. Vertical mounting means terminals are left and right of contact block. This allows close spacing of adjacent operators with easy access to terminals.

Note: Locating nib hole or notch is 0.14 inch (3.6 mm)

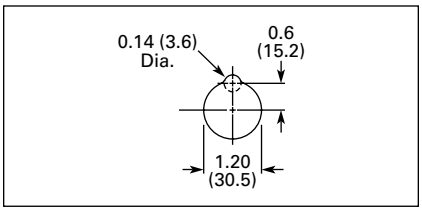


Figure 2-131. Drilling Dimensions in Inches (mm)

Dimensions

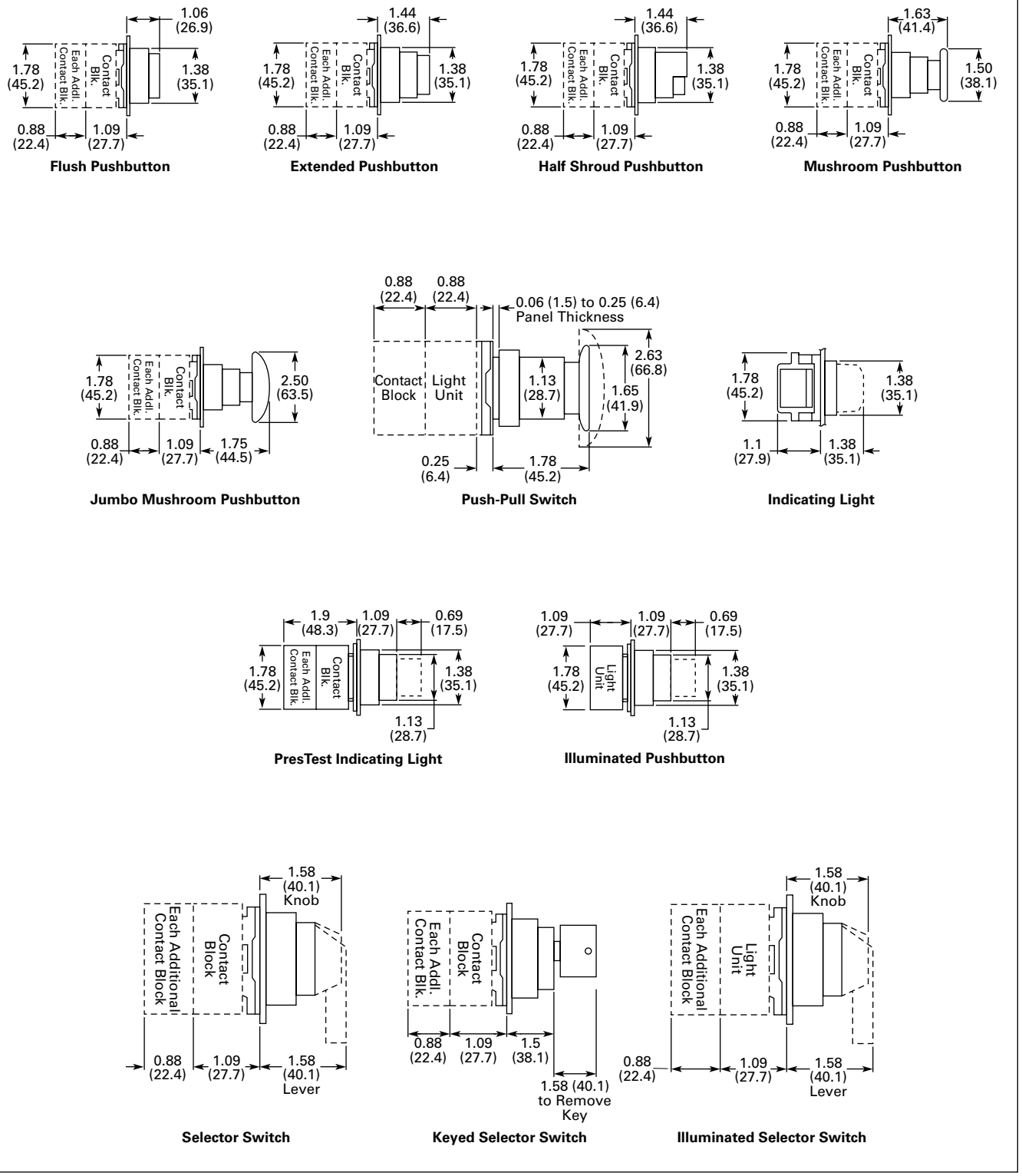


Figure 2-132. Approximate Dimensions in Inches (mm)

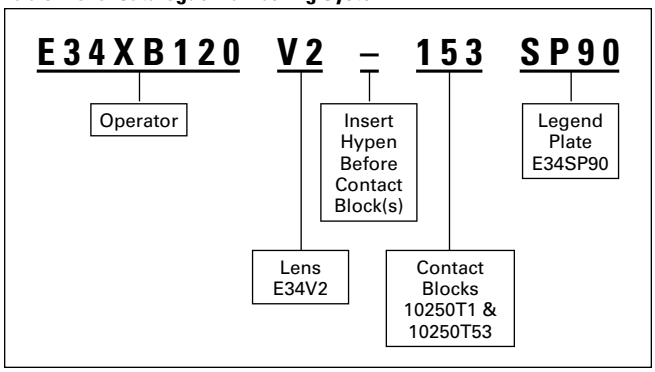
Ordering Complete Devices

Complete E34 Pushbuttons, Indicating Lights and/or Selector Switch operators including contact block(s) and legend plate can be ordered using a single composite catalogue number. The individually packaged components will be shipped unassembled in a single overpack carton marked with the composite Catalogue Number.

Ordering Example

Illuminated Pushbutton Device
Catalogue Number E34XB120V2-153SP90

Table 2-318. Catalogue Numbering System



For a complete Catalogue Number breakdown, see **Pages 2-192 – 2-193.**

Catalogue Number Structure

Table 2-319. Non-illuminated Pushbuttons Catalogue Numbering System

E34 PB 1 – 1 ①

Operator
PB = Flush
EB = Extended
LB = 40 mm Mushroom
JB = 65 mm Mushroom
EVB = 1/2 Shroud Vertical Mount
EHB = 1/2 Shroud Horizontal Mount

Button Colour
1 = Black
2 = Red
3 = Green
4 = Yellow
7 = Grey
5 = White
6 = Blue
8 = Orange

Circuit
Blank = Operator Only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

① Add **X** at end of Catalogue Number to receive parts assembled from factory.

Table 2-320. Illuminated and Non-illuminated Push-Pulls Catalogue Numbering System

E34 GDB 63 M2 ___ – 1 ②

Operator
GDB = 2-Position Maintained
GEB = 3-Position Mom Push-Mom Pull
GFB = 3-Position MT Push-Mom-Pull
GHB = 3-Position Mom Push-Mom Pull

Incandescent Light Unit	LED Light Unit
Blank = Non-ill.	**Blank** = Non-ill.
89 = 24V/XFR	**89L** = 24V/XFR
63 = 120V/XFR	**63L** = 120V/XFR
64 = 208V/XFR	**64L** = 208V/XFR
65 = 240V/XFR	**65L** = 240V/XFR
82 = 277V/XFR	**82L** = 277V/XFR
66 = 380V/XFR	**66L** = 380V/XFR
67 = 480V/XFR	**67L** = 480V/XFR
68 = 600V/XFR	**68L** = 600V/XFR
69 = 6V/FV	**97L** = Full Voltage
70 = 12V/FV	
79 = 24V/FV	
83 = 32V/FV	
80 = 120V/RES	
81 = 240V/RES	

Circuit
Blank = Operator Only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

LED Voltage
Blank = Non-ill.
Blank = Incand.
06 = 6V AC/DC
12 = 12V AC/DC
24 = 24V AC/DC
48 = 48V AC/DC
60 = 60V AC/DC
2A = 120V AC
2D = 120V DC

Non-illuminated	Illuminated		
Button	Incandescent	LED	Lens Type
C1 = Black 40 mm	**M2** =	**RD** =	Red 40 mm
C2 = Red 40 mm	**M2N8** =	**ED** =	Red 40 mm – "E" STOP
C2N8 = Red 40 mm – "E" STOP	**M3** =	**GD** =	Green 40 mm
C3 = Green 40 mm	**M6** =	**LD** =	Blue 40 mm
C6 = Blue 40 mm	**M9** =	**AD** =	Amber 40 mm
– = Black 65 mm	**M5** =	**WD** =	White 40 mm
J2 = Red 65 mm	**M0** =	**–** =	Clear 40 mm
J2N8 = Red 65 mm – "E" STOP			
– = Green 65 mm			
– = Yellow 65 mm			

② Add **X** at end of Catalogue Number to receive parts assembled from factory.

Table 2-321. Illuminated Pushbuttons Catalogue Numbering System

E34 XB 24 V2 ___ – 1 ①

Light Unit Type
XB = Transformer
CB = Full Voltage
SB = Resistor

Circuit
Blank = Operator Only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

Incandescent Light Unit	LED Light Unit
024 = 24V/XFR	**024L** = 24V/XFR
120 = 120V/XFR	**120L** = 120V/XFR
240 = 240V/XFR	**240L** = 240V/XFR
277 = 277V/XFR	**277L** = 277V/XFR
380 = 380V/XFR	**380L** = 380V/XFR
480 = 480V/XFR	**480L** = 480V/XFR
600 = 600V/XFR	**600L** = 600V/XFR
06 = 6V/FV	**497L** = Full Voltage
12 = 12V/FV	
24 = 24V/FV	
32 = 32V/FV	
48 = 48V/FV	
120 = 120V/RES	
240 = 240V/RES	

LED Voltage	
Blank = Incand.	**48** = 48V AC/DC
06 = 6V AC/DC	**60** = 60V AC/DC
12 = 12V AC/DC	**2A** = 120V AC
24 = 24V AC/DC	**2D** = 120V DC

Incandescent Lens Colour	LED Lens Colour
V2 = Red	**RD** = Red
V3 = Green	**GD** = Green
V4 = Yellow	**YD** = Yellow
V5 = White	**WD** = White
V6 = Blue	**LD** = Blue
V9 = Amber	**AD** = Amber
V0 = Clear	

① Add **X** at end of Catalogue Number to receive parts assembled from factory.

Table 2-322. Standard Indicating Lights, PresTest and Master Test Catalogue Numbering System

E34 FB06 H2 ___ ②

Light Unit Type	
Standard – Incandescent	**Standard – LED**
TB120 = 120V/XFR	**TB120L** = 120V/XFR
TB240 = 240V/XFR	**TB240L** = 240V/XFR
TB277 = 277V/XFR	**TB277L** = 277V/XFR
TB380 = 380V/XFR	**TB380L** = 380V/XFR
TB480 = 480V/XFR	**TB480L** = 480V/XFR
TB600 = 600V/XFR	**TB600L** = 600V/XFR
FB06 = 6V/FV	**FB197L** = Full Voltage
FB12 = 12V/FV	**PresTest – LED**
FB24 = 24V/FV	**TPB120L** = 120V/XFR
FB32 = 32V/FV	**TPB240L** = 240V/XFR
FB48 = 48V/FV	**TPB380L** = 380V/XFR
RB120 = 120V/RES	**TPB480L** = 480V/XFR
RB240 = 240V/RES	**TPB600L** = 600V/XFR
NB120 = 120V/Neon	**FPB297L** = Full Voltage
NB240 = 240V/Neon	
PresTest – Incandescent	
TPB120 = 120V/XFR	
TPB240 = 240V/XFR	
TPB380 = 380V/XFR	
TPB480 = 480V/XFR	
TPB600 = 600V/XFR	
FPB06 = 6V/FV	
FPB12 = 12V/FV	
FPB24 = 24V/FV	
FPB32 = 32V/FV	
FPB48 = 48V/FV	
RPB120 = 120V/RES	
RPB240 = 240V/RES	

LED Voltage
Blank = Incand.
06 = 6V AC/DC
12 = 12V AC/DC
24 = 24V AC/DC
48 = 48V AC/DC
60 = 60V AC/DC
2A = 120V AC
2D = 120V DC

Plastic	Glass	Lens Colour	Plastic	Glass	Lens Colour
Standard/Master – Incandescent			**Standard/Master/PresTest – LED**		
H2 =	**G2** = Red		**RP** =	**RG** = Red	
H3 =	**G3** = Green		**GP** =	**GG** = Green	
H4 =	**G4** = Yellow		**YP** =	**YG** = Yellow	
H5 =	**G5** = White		**WP** =	**WG** = White	
H6 =	**G6** = Blue		**LP** =	**LG** = Blue	
H9 =	**G9** = Amber		**AP** =	**AG** = Amber	
H0 =	**G0** = Clear				
PresTest – Incandescent					
V2 =	**P2** = Red				
V3 =	**P3** = Green				
V4 =	**P4** = Yellow				
V5 =	**P5** = White				
V6 =	**P6** = Blue				
V9 =	**P9** = Amber				
V0 =	**P0** = Clear				

② Add **X** at end of Catalogue Number to receive parts assembled from factory.