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Product Description

The 30.5 mm pushbutton line features a zinc die cast construction with chrome-plated housing and mounting nut. The same durable construction is also available with the corrosive resistant E34 line of pushbuttons. See E34 section on **Pages 47-166 – 47-189**.

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.

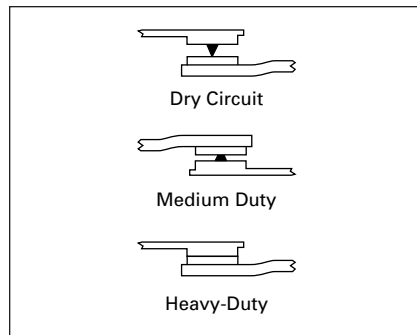
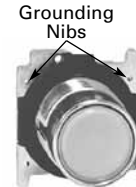


Figure 47-90. Reliability Nibs

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. For operation under a wider range of environmental conditions, logic level contact blocks with inert palladium tipped contacts are recommended.

Grounding Nibs

10250T line operators have "grounding nibs" — four metal points on the operator casting designed to bite through most paints and other coatings on metal panels to enhance the ground connection when the operator is securely tightened.



Grounding Nibs

Diaphragm Seal with Drainage Holes

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 wash-downs, effectively relieving pressure from the internal diaphragm seal, ensuring reliable sealing in applications even beyond NEMA 4.

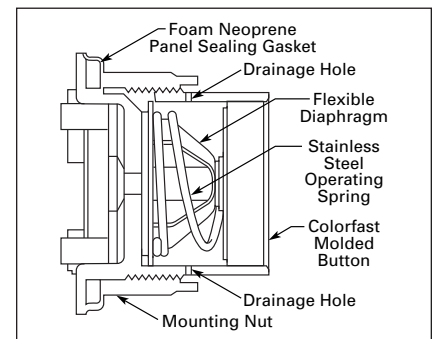
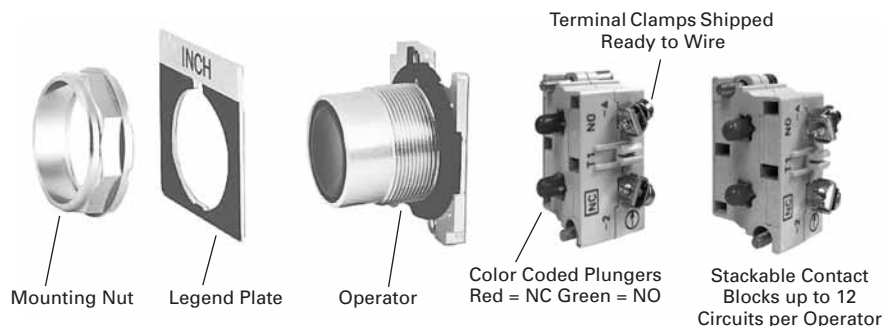


Figure 47-91. Diaphragm Seal



10250T Series

Features

- Heavy-duty zinc die cast construction
- Enclosed silver contacts with reliability nibs
- Diaphragm seals with drainage holes
- Grounding nibs on the operator casing

Benefits

- Reliability nibs improve contact reliability even under dry circuit and fine dust conditions
- Drainage holes prevent buildup of liquid inside the operator which can prevent operation in freezing environments
- Grounding nibs bit through paint and other coatings to provide secure ground

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.

Standards and Certifications

- CE EN60947-5-1
- UL 508 — File No. 131568
- CSA C22.2 No. 14 — File No. LR68551

Ingress Protection

When mounted in similarly rated enclosure —

- Standard Indicating Lights
 - UL (NEMA) Type 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
 - IEC IP65
- All Other Operators
 - UL (NEMA) Type 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 10⁶ operations
 - Contact blocks: 10 x 10⁶ operations
 - PresTest units: 10 x 10⁶ operations
 - Lever and key selector switches: 0.25 x 10⁶ operations
 - Twist to release pushbuttons: 0.3 x 10⁶ operations
- Shock resistance
 - Duration: 20 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

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 mm²) to 2 x 14 AWG (2.5 mm²) conductors
- Torque = 7 lb-in (0.8 Nm)
- Degree of protection against direct electrical contact: IP2X with fingerproof shroud

Light Units

- Transformers: will withstand short circuit for 1 hour per IEC 60997-5-1
- Bulbs — average life
 - Transformer type: 20,000 hrs.
 - Resistor/direct voltage type: 2500 hrs. minimum @ rated V
 - LED: 60,000 to 100,000 hrs.

Electrical Ratings

- Insulation: U_i = 660V AC or DC
- Thermal: I_{th} = 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

- UL rating: A600, P600
 - AC load life duty cycle 1200 operations/hour
 - 10A: 110V pf 0.4 – 1 x 10⁶ operations
 - 5A: 250V pf 0.4 – 1 x 10⁶ operations
 - 2A: 660V pf 0.4 – 1 x 10⁶ operations
- Switching capacity
 - AC15 rated make/break (11 x I_e at 1.1 x U_e)
 - 6A: 120V pf 0.3
 - 4A: 240V pf 0.3
 - 2A: 660V pf 0.3
 - DC13 rated make/break (1.1 x I_e at 1.1 x U_e)
 - 1.0A: 125V L/R ≥ 0.95 at 300 mS
 - .55A: 250V L/R ≥ 0.95 at 300 mS
 - .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

Table 47-171. Contact Block

Description	Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC						
	Volts AC 50 or 60 Hz				Volts DC		
	120	240	480	600	24/28	125	250
Make and Emerg. 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 Emerg. Interrupting Capacity	7200	7200	7200	7200	138	138	138
Normal Load Break	720	720	720	720	138	138	138

**Point-of-Purchase Packaged
Pilot Devices**



Table 47-172. 10250T Point-of-Purchase Packaged Pilot Devices





Product	Description	Catalog Number	Price U.S. \$
Emergency Stop Operators			
Red Non-illuminated Push-Pull	1NO-1NC contact block. Also includes two square engraved legend plates: EMERG. STOP and STOP.	10250T5B62-1-POP	
Red Mushroom Pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: EMERG. STOP and STOP.	10250T32R-POP	
Red Jumbo Mushroom Pushbutton	Engraved EMERG. STOP with 1NO-1NC contact block.	10250T33-POP	
Momentary Pushbuttons			
Black Flush Pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: START and JOG.	10250T30B-POP	
Red Extended Pushbutton	1NO-1NC contact block. Also includes one square engraved legend plate: STOP.	10250T31R-POP	
Indicating Lights			
Red Indicating Light	Full voltage 24V AC/DC with two extra lenses: Green and Amber. Also includes two square engraved legend plates: RUN and JOG.	10250T206NC1N-POP	
Red Indicating Light	Resistor 120V AC/DC with two extra lenses: Green and Amber. Also includes one square engraved legend plate: RUN and JOG.	10250T34R-POP	
Illuminated Pushbuttons			
Red Illuminating Pushbutton	Full voltage 24V AC/DC with 1NO-1NC contact block and two extra lenses: Green and Amber. Also includes one square engraved legend plate: POWER ON.	10250T476C21-1-POP	
Red Illuminating Pushbutton	Resistor 120V AC/DC with 1NO-1NC contact block and two extra lenses: Green and Amber. Also includes one square engraved legend plate: POWER ON.	10250T411C21-1-POP	
Selector Switches			
Black Knob Two-Position Selector Switch	1NO-1NC contact block. Also includes three square engraved legend plates: OFF/ON, HAND/AUTO and RUN/JOG.	10250T20KB-POP	
Black Knob Three-Position Selector Switch	1NO-1NC contact block. Also includes 1 square engraved legend plate: HAND/OFF/AUTO.	10250T22KB-POP	

Product Selection

Non-illuminated Momentary Pushbutton Units

- Flush, Extended, Mushroom Head or Jumbo Mushroom Head Operators

Table 47-173. Pushbutton Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13







Contact Type	Button Color	Flush Button		Extended Button		Mushroom Button		Jumbo Mushroom ^①	
			Flush Button — Black Cat. No. 10250T23B		Extended Button — Red Cat. No. 10250T31R		Mushroom Button — Red Cat. No. 10250T32R		Jumbo Mushroom — Red Cat. No. 10250T17213-3
		Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
1NO	Black Red Green Yellow Red — Engraved EMERG. STOP	10250T23B 10250T23R 10250T23G 10250T23Y —		10250T25B 10250T112-53 10250T25G 10250T25Y —		10250T26B 10250T122-53 10250T26G 10250T26Y —		10250T27B 10250T172-53 10250T27G 10250T27Y 10250T17213-3	
1NC	Black Red Green Yellow Red — Engraved EMERG. STOP	10250T101-51 10250T102-51 10250T103-51 10250T104-51 —		10250T111-51 10250T25R 10250T113-51 10250T120-51 —		10250T121-51 10250T26R 10250T123-51 10250T124-51 —		10250T171-51 10250T27R 10250T173-51 10250T174-51 10250T29	
1NO-1NC	Black Red Green Yellow Red — Engraved EMERG. STOP	10250T30B 10250T30R 10250T30G 10250T30Y —		10250T31B 10250T31R 10250T31G 10250T31Y —		10250T32B 10250T32R 10250T32G 10250T32Y —		10250T33B 10250T33R 10250T33G 10250T33Y 10250T33	
2NO	Black Red Green Yellow Red — Engraved EMERG. STOP	10250T101-2 10250T102-2 10250T103-2 10250T104-2 —		10250T111-2 10250T112-2 10250T113-2 10250T120-2 —		10250T121-2 10250T122-2 10250T123-2 10250T124-2 —		10250T171-2 10250T172-2 10250T173-2 10250T174-2 10250T17213-2	
2NC	Black Red Green Yellow Red — Engraved EMERG. STOP	10250T101-3 10250T102-3 10250T103-3 10250T104-3 —		10250T111-3 10250T112-3 10250T113-3 10250T120-3 —		10250T121-3 10250T122-3 10250T123-3 10250T124-3 —		10250T171-3 10250T172-3 10250T173-3 10250T174-3 10250T17213-3	

① Anodized aluminum head is not suitable for use in ultraviolet light applications.

Accessories	Pages 47-155 – 47-156
Dimensions	Pages 47-160 – 47-162
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Legend Plates	Pages 47-151 – 47-152
Discount Symbol	1CD1C

Pushbuttons

Table 47-174. Momentary Pushbutton Operators, Non-illuminated — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Color	Catalog Number	Price U.S. \$	
Flush Button ①				
	Black	10250T101		
	Red	10250T102		
	Green	10250T103		
	Yellow	10250T104		
	Gray	10250T105		
	White	10250T106		
	Blue	10250T108		
	Orange	10250T109		
	Extended Button			
	Black	10250T111		
	Red	10250T112		
	Green	10250T113		
	Yellow	10250T120		
	White	10250T116		
	Blue	10250T118		
	Orange	10250T119		
	Half Shrouded Button			
	Black	Vertical	Horizontal	
		10250T501	10250T511	
	Red	10250T502	10250T512	
		10250T503	10250T513	
	Green	10250T504	10250T514	
		10250T505	10250T515	
	Yellow	10250T506	10250T516	
		10250T508	10250T518	
	Gray	10250T509	10250T519	
		White		
	Blue			
	Orange			
	Mushroom Button			
	Black	10250T121		
	Red	10250T122		
	Green	10250T123		
	Yellow	10250T124		
	Blue	10250T129		
Jumbo Mushroom Button ②				
	Black	10250T171		
	Red	10250T172		
	Red (EMERG. STOP)	10250T17213		
	Green	10250T173		
	Yellow	10250T174		
Low Operating Force — Jumbo Mushroom ②③				
	Black	10250ED1164-2		
	Red	10250ED1164-3		
	Green	10250ED1164-4		
	Yellow	10250ED1164-5		
	Clear	10250ED1164		

Note: To order complete assembled unit using one composite Catalog Number, add Contact Block and Legend Plate Suffix to the end of Operator Catalog Number.
Example: 10250T101-1TS33



Operator
10250T101

+



Contact Block
10250T1

+



Legend Plate
10250TS33

① To order operator with factory assembled Extended Retaining Nut, **10250TA12**, for thick panel applications, add Suffix Letter **E** to listed Catalog Number. Example: 10250T101E

② Anodized aluminum head is not suitable for use in ultraviolet light applications.


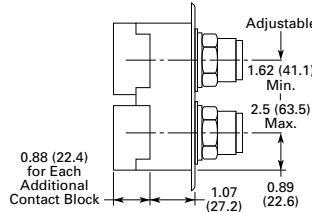
③ Operating Force — Standard = 2.4 lb; Low Force = 1.6 lb.

Accessories **Pages 47-155 – 47-156**
 Contact Blocks **Page 47-148**
 Dimensions **Pages 47-160 – 47-162**
 Enclosures **Pages 47-153 – 47-154**
 Legend Plates **Pages 47-151 – 47-152**
 Discount Symbol **1CD1C**

10250T Series, Interlocked and Padlockable Components

Pushbuttons (Continued)

Table 47-175. Mechanically Interlocked Pushbutton Operators — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Description	Catalog Number	Price U.S. \$	Overall Dimensions in Inches (mm)
	Minimum hole centers 1.62", maximum 250". Mounts in extra deep enclosures only. Black flush and green flush Black flush and long red Black flush and red mushroom head Black flush and lock-down red mushroom head	10250TA66 10250TA67 10250TA68 10250TA69 ①		
	Black flush and red jumbo mushroom head Green flush and long red Black long and long red Green flush and red mushroom head Green flush and black flush	10250TA76 10250TA72 10250TA73 10250TA77 10250TA75		

① NC contacts must be mounted behind lock-down mushroom head operator to ensure lockout.


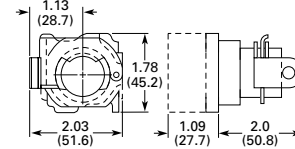
Lockout Pushbutton Operators with Padlock Attachments

The following pushbutton and mushroom operators include an integral padlock attachment for applications requiring lockout/tagout of specific machine functions. They are available in styles which allow locking of a button in the down position

(stopped position) or locking a button in the up position (to prevent starting). Select the **"Hand"** latch type which functions as a momentary pushbutton until the operator presses the button and moves the padlock attachment into position for locking, or choose the

"Spring Loaded" latch type where the padlock attachment springs into place when the button is pressed. Units accept a customer supplied 1/4" padlock.


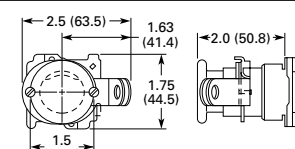

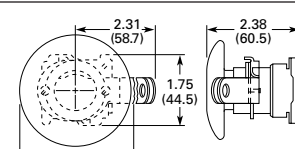
Table 47-176. Padlockable in the Down Position ② — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Operator Type	Color	Latch Type	Catalog Number	Price U.S. \$	Overall Dimensions in Inches (mm)
	Flush Head	Red	Hand	10250TA16		
	Mushroom Head	Red Red	Hand Spring Loaded	10250TA42 10250TA45		
	Jumbo Head ③	Red Red Red (EMERG. STOP)	Hand Spring Loaded Spring Loaded	10250TA52 10250TA55 10250ED952		

② Operators can be latched down without a padlock. Padlock not included.

③ Jumbo mushroom heads are not recommended for use in applications where exposure to ultraviolet light exists.

Table 47-177. Padlockable in the Up Position ④ — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Operator Type	Color	Latch Type	Catalog Number	Price U.S. \$	Overall Dimensions in Inches (mm)
	Mushroom Head	Black Green	Hand Hand	10250TA41 10250TA43		
	Jumbo Mushroom Head ⑤	Black Green Yellow	Hand Hand Hand	10250TA51 10250TA53 10250TA54		

④ Operators can be latched down without a padlock. Padlock not included.

⑤ Jumbo mushroom heads are not recommended for use in applications where exposure to ultraviolet light exists.

Note: Hand Attachment must be manually moved into place for locking. Spring Loaded: when operator is pressed — attachment springs into place. Must be moved manually to release button.

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 Discount Symbol **1CD1C**

Pushbuttons (Continued)

Key Pushbutton Operator

These devices incorporate an integral locking mechanism which enables locking units in various positions (**Locked Down**), locking units to prevent operation (**Locked Up**) or setting unit to lock when the button is pressed (**Push to Lock**), requiring the key to be inserted to return to normal operation. With the key in the center position, these operators function as a normal momentary pushbutton (**Free**).

Replacement Keys or Dissimilar Locks for Key Operators Below

Listed operators have identical locks and keys (Key Code H661) Catalog Number 10250ED824. For dissimilar lock and key combinations, see listing on **Page 47-136**.

Table 47-178. Replacement Keys

Description	Catalog Number	Price U.S. \$
Replacement Keys (Code H661)	10250ED824	

Table 47-179. Key Pushbutton Operator — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Key Position and Pushbutton Operations			Key Removal Positions	Vertical Mounting ①		Overall Dimensions in Inches (mm)
					Catalog Number	Price U.S. \$	
	3-Position			All L and R C and R	10250T430 10250T431 10250T432		 Key Operated Pushbutton
	Lock Up	Free	Lock Down				
	Lock Up	Free	Lock Down				
	2-Position			L and C L C and R R C and R R	10250T433 10250T434 10250T435 10250T436 10250T437 10250T438		
	Lock Up	Free	—				
	Lock Up	Free	—				
	—	Free	Lock Down				
	—	Free	Lock Down				
	—	Free	Push to Lock				
	—	Free	Push to Lock				

① Horizontal mounting available on request.

Latch-In, Twist-to-Release Operator

Table 47-180. Operator Only with Button — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Description	Catalog Number	Price U.S. \$	Dimensions in Inches (mm)
	Latch-In, Twist-to-Release Operator with Red Mushroom Head Button	10250ED1043-4		 0.24 (6) → 1.55 (39.3) Spring Return 0.86 (21.8) → 2.37 (60.3) Auto-Latch 1.5 (38.1)

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 Discount Symbol **1CD1C**

10250T Series, Assembled Devices — Illuminated Pushbutton Units

Illuminated Momentary Pushbutton Units

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type
- Plastic Lenses



*24V Full Voltage
 Illuminated Pushbutton — Red
 Catalog Number 10250T476C21-53*

Table 47-181. Illuminated Pushbutton Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Lamp	Type	Voltage	Color	Illuminated Pushbutton						LED/Lamp Number		
				1NO		1NO-1NC		1NC				
				Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$			
LED	Full Voltage	24V AC/DC	Red	10250T397LRD24-53		10250T397LRD24-1		10250T397LRD24-51	Bayonet Base			
			Green	10250T397LGD24-53		10250T397LGD24-1		10250T397LGD24-51				
			Amber	10250T397LAD24-53		10250T397LAD24-1		10250T397LAD24-51				
			Yellow	10250T397LYD24-53		10250T397LYD24-1		10250T397LYD24-51				
			Blue	10250T397LLD24-53		10250T397LLD24-1		10250T397LLD24-51				
			White	10250T397LWD24-53		10250T397LWD24-1		10250T397LWD24-51				
	120V AC	Red	10250T397LRD2A-53		10250T397LRD2A-1		10250T397LRD2A-51					
		Green	10250T397LGD2A-53		10250T397LGD2A-1		10250T397LGD2A-51					
		Amber	10250T397LAD2A-53		10250T397LAD2A-1		10250T397LAD2A-51					
		Yellow	10250T397LYD2A-53		10250T397LYD2A-2		10250T397LYD2A-51					
		Blue	10250T397LLD2A-53		10250T397LLD2A-1		10250T397LLD2A-51					
		White	10250T397LWD2A-53		10250T397LWD2A-1		10250T397LWD2A-51					
Transformer	120V AC	Red	10250T411LRD06-53		10250T411LRD06-1		10250T411LRD06-51					
		Green	10250T411LGD06-53		10250T411LGD06-1		10250T411LGD06-51					
		Amber	10250T411LAD06-53		10250T411LAD06-1		10250T411LAD06-51					
		Yellow	10250T411LYD06-53		10250T411LYD06-1		10250T411LYD06-51					
		Blue	10250T411LLD06-53		10250T411LLD06-1		10250T411LLD06-51					
		White	10250T411LWD06-53		10250T411LWD06-1		10250T411LWD06-51					
Incandescent	Full Voltage	24V AC/DC	Red	10250T476C21-53		10250T476C21-1		10250T476C21-51	#757			
			Green	10250T476C22-53		10250T476C22-1		10250T476C22-51				
			Amber	10250T476C43-53		10250T476C43-1		10250T476C43-51				
			Yellow	10250T476C23-53		10250T476C23-1		10250T476C23-51				
			Blue	10250T476C24-53		10250T476C24-1		10250T476C24-51				
			Clear	10250T476C25-53		10250T476C25-1		10250T476C25-51				
			White	10250T476C26-53		10250T476C26-1		10250T476C26-51				
			Resistor	120V AC/DC	Red	10250T471C21-53		10250T471C21-1			10250T471C21-51	120MB
					Green	10250T471C22-53		10250T471C22-1			10250T471C22-51	
					Amber	10250T471C43-53		10250T471C43-1			10250T471C43-51	
					Yellow	10250T471C23-53		10250T471C23-1			10250T471C23-51	
					Blue	10250T471C24-53		10250T471C24-1			10250T471C24-51	
	Clear	10250T471C25-53				10250T471C25-1		10250T471C25-51				
	Transformer	120 AC	Red	10250T75R ①		10250T76R ①		10250T77R ①	#755			
			Green	10250T75G ①		10250T76G ①		10250T77G ①				
			Amber	10250T75A ①		10250T76A ①		10250T77A ①				
			Yellow	10250T75Y ①		10250T76Y ①		10250T77Y ①				
			Blue	10250T75B ①		10250T76B ①		10250T77B ①				
			Clear	10250T75C ①		10250T76C ①		10250T77C ①				
	White	10250T75W ①		10250T76W ①		10250T77W ①						

① For flashing module Catalog Number 10250TFL1, add Suffix Code FM to listed Catalog Number. Example: 10250T75RFM.



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Indicating Light Units

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type
- Standard and PresTest Types
- Plastic Lenses

PresTest — This device incorporates a press-to-test feature whereby depressing the lens disconnects the light from the source being monitored and connects the lamp to a continuously energized circuit for immediate detection of faulty lamps.

Table 47-182. Indicating Light Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13 ①

Lamp	Type	Voltage	Color	Indicating Light  24V Full Voltage Indicating Light — Red Catalog Number 10250T206NC1N	PresTest  120V AC Transformer PresTest — Green Catalog Number 10250T74NG	LED/Lamp Number
LED	Full Voltage	24V AC/DC	Red Green Amber Yellow Blue White	10250T197LRP24 10250T197LGP24 10250T197LAP24 10250T197LYP24 10250T197LLP24 10250T197LWP24	10250T297LRP24 10250T297LGP24 10250T297LAP24 10250T297LYP24 10250T297LLP24 10250T297LWP24	Bayonet Base
		120V AC	Red Green Amber Yellow Blue White	10250T197LRP2A 10250T197LGP2A 10250T197LAP2A 10250T197LYP2A 10250T197LLP2A 10250T197LWP2A	10250T297LRP2A 10250T297LGP2A 10250T297LAP2A 10250T297LYP2A 10250T297LLP2A 10250T297LWP2A	
	Transformer	120V AC	Red Green Amber Yellow Blue White	10250T181LRP06 10250T181LGP06 10250T181LAP06 10250T181LYP06 10250T181LLP06 10250T181LWP06	10250T221LRP06 10250T221LGP06 10250T221LAP06 10250T221LYP06 10250T221LLP06 10250T221LWP06	
Incandescent	Full Voltage	24V AC/DC	Red Green Amber Yellow Blue Clear White	10250T206NC1N 10250T206NC2N 10250T206NC19N 10250T206NC3N 10250T206NC4N 10250T206NC5N 10250T206NC6N	10250T235NC21 10250T235NC22 10250T235NC43 10250T235NC23 10250T235NC24 10250T235NC25 10250T235NC26	#757
	Transformer ②	120V AC	Red Green Amber Yellow Blue Clear White	10250T34R 10250T34G 10250T34A 10250T34Y 10250T34B 10250T34C 10250T34W	10250T74NR 10250T74NG 10250T74NA 10250T74NY 10250T74NB 10250T74NC 10250T74NW	#755

① Standard indicating lights are rated UL (NEMA) 3S as well.
 ② For flashing lamp add letter F to listed Catalog Number. Example: 10250T34RF.





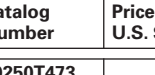
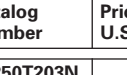
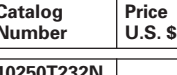
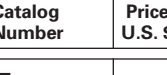
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10250T Series, Illuminated Components

Illuminated Pushbuttons and Indicating Lights

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type

Table 47-183. Operators without Lens

Light Unit Type	Type	Voltage	Illuminated Pushbutton		Indicating Light		PresTest		Master Test		LED/Lamp Number
											
			Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	
Incandescent	Full Voltage AC/DC	6	10250T473		10250T203N		10250T232N		—		#755
		12	10250T474		10250T204N		10250T233N		—		#756
		24	10250T476		10250T206N		10250T235N		—		#757
		32	10250T477		10250T207N		10250T238N		—		#1828
		48	10250T478		10250T208N		10250T239N		—		#1835
	Resistor ^② AC/DC	120	10250T471		10250T201N		10250T231N		—		120MB
		240	10250T472		10250T202N		10250T240N		—		120MB
	Transformer AC Only ^③	24	10250T416		—		—		—		#755
		120	10250T411		10250T181N		10250T221N		—		
		240	10250T422		10250T182N		10250T222N		—		
		277	10250T419		10250T198N		—		—		
		380	10250T413		10250T183N		10250T223N		—		
		480	10250T414		10250T184N		10250T224N		—		
	Neon ^④ AC/DC	120	—		10250T226N		—		—		NE51H-R22
240		—		10250T227N		—		—		NE51H-R68	
Solid-State 50/60 Hz Only	120	—		—		—		10250T189N		120MB	
LED (LEDs not included) ^①	Full Voltage	—	10250T397L		10250T197L		10250T297L		—		Bayonet Base
		24	10250T416L		—		—		—		
	Transformer AC Only	120	10250T411L		10250T181L		10250T221L		—		
		240	10250T412L		10250T182L		10250T222L		—		
		277	10250T419L		10250T198L		—		—		
		380	10250T413L		10250T183L		10250T223L		—		
		480	10250T414L		10250T184L		10250T224L		—		
		600	10250T415L		10250T185L		10250T225L		—		

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- ① These units do not include lamps. Order LED separately to match lens color. See Page 47-157 for LED Selection and Page 47-165 for Catalog Numbering System.
- ② Resistor units are not available for use with LEDs, choose either transformer or full voltage LED style.
- ③ For flashing lamp, add letter F to listed Catalog Number. Example: 10250T181NF.
- ④ Resistant to shock and vibration. For best illumination use amber, yellow or clear lens.

Table 47-184. Indicating and Master Test Lenses


	Color	Plastic		Glass	
		Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
	Red	10250TC1N		10250TC7N	
	Green	10250TC2N		10250TC8N	
	Amber	10250TC19N		10250TC9N	
	Yellow	10250TC3N		—	
	Blue	10250TC4N		10250TC10N	
	Clear	10250TC5N		10250TC11N	
	White	10250TC6N		10250TC12N	

Table 47-186. PresTest Lenses



	Color	Plastic		Glass	
		Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
	Red	10250TC21		10250TC13N	
	Green	10250TC22		10250TC14N	
	Amber	10250TC43		10250TC15N	
	Yellow	10250TC23		—	
	Blue	10250TC24		10250TC16N	
	Clear	10250TC25		10250TC17N	
	White	10250TC26		10250TC18N	

Table 47-185. Illuminated Pushbutton Lenses

	Color	Catalog Number	Price U.S. \$
	Red	10250TC21	
	Green	10250TC22	
	Yellow	10250TC23	
	Amber	10250TC43	
	Blue	10250TC24	
	Clear	10250TC25	
	White	10250TC26	

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Push-Pull Units

- Two- and Three-Position
- Non-illuminated

Table 47-187. 2-Position Push-Pull Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

	Operator Position ①		Button Type/Color ②	Push-Pull		Contact Type	Mounting Location	
	Pull	Push		Catalog Number	Price U.S. \$		A	B

2-Position Maintained Push, Maintained Pull

	O X	X O	40 mm/Red	<u>10250T5B62</u> -1X		1NO 1NC		
	O X	X O	40 mm Engraved EMERG. STOP/Red	<u>10250T5B63</u> -1X		1NO 1NC		
	O X	X O	65 mm Alum. Engraved EMERG. STOP/Red	<u>10250T5J63</u> -1X		1NO 1NC		
	O X	X O	65 mm Alum. Engraved EMERG. STOP/Red Special Security Jumbo Mushroom Head	<u>10250ED1080</u> -2		1NO 1NC		

Table 47-188. 3-Position Pull-Pull Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Operator Position ①			Button Type/Color ②	Push-Pull		Contact Type	Mounting Location	
Pull	Intermediate	Push		Catalog Number	Price U.S. \$		A	B

3-Position Maintained Push, Momentary Pull

X X	O X	O O	40 mm/ Black	<u>10250T9B60</u> -3X		1NC 1NC		
			40 mm/Red	<u>10250T9B62</u> -3X				
			40 mm Engraved EMERG. STOP/Red	<u>10250T9B63</u> -3X				

3-Position Momentary Push, Momentary Pull

X X	O X	O O	40 mm/Black	<u>10250T4B60</u> -3X		1NC 1NC		
			40 mm/Red	<u>10250T4B62</u> -3X				
O X	O O	X O	40 mm/Black	<u>10250T10B60</u> -1X		1NO 1NC		
			40 mm/Red	<u>10250T10B62</u> -1X				

① X = closed circuit, O = open circuit.

② To order different type or color buttons, substitute the underlined characters with appropriate Suffix Code from the table below.
Example: 10250T5B64-1X.

Table 47-189. Button and Color Selection Table

Standard — 40 mm	Color	Suffix Code	Catalog Number	Price U.S. \$	Jumbo Mushroom Head ③ (Anodized) Aluminum — 65 mm	Color	Suffix Code	Catalog Number	Price U.S. \$
	Red Red (EMERG. STOP) Green Black Blue	B62 B63 B61 B60 B64	10250TB62 10250TB63 10250TB61 10250TB60 10250TB64			Red Red (EMERG. STOP) Green Black Yellow	J62 J63 J61 J60 J64	10250TJ62 10250TJ63 10250TJ61 10250TJ60 10250TJ64	

③ Anodized aluminum head is not suitable for use in ultraviolet light applications.

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10250T Series, Assembled Devices — Illuminated Push-Pull Units

Illuminated Push-Pull Units

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type
- Two-Position Maintained



2-Position Push-Pull Operator with Red Button (Standard) and Full Voltage Light Unit

Table 47-190. 2-Position Illuminated Maintained Push, Maintained Pull — UL (NEMA) Type 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				Catalog Number	Price U.S. \$		A	B	
O	X	LED	Full Voltage	24V AC/DC	<u>10250T597LRD24-1X</u>		1NO 1NC			Bayonet Base
X	O			120V AC/DC	<u>10250T597LRD2A-1X</u>					
			Transformer	24V AC	<u>10250T589LRD06-1X</u>					
				120V AC	<u>10250T563LRD06-1X</u>					
O	X	Incandescent	Full Voltage	24V AC/DC	<u>10250T579C47-1X</u>		1NO 1NC			#757
X	O			120V AC/DC	<u>10250T580C47-1X</u>					120MB
			Transformer	24V AC	<u>10250T589C47-1X</u>					#755
				120V AC	<u>10250T563C47-1X</u>					

① X = closed circuit, O = open circuit.

② To order different type or color lens, substitute the underlined characters with appropriate Suffix Code from table below. Example: 10250T579C63-1X. For LEDs with different voltages see ordering example on Page 47-131.

Table 47-191. Lens and Color Selection Table

Type	Lens Color	Incand. Suffix Code	LED Suffix Code	Catalog Number	Price U.S. \$	
Standard – 40 mm 	Red	C47	RD	10250TC47		
	Red (EMERGENCY STOP)	C53	ED	10250TC53		
	Green	C48	GD	10250TC48		
	Blue	C49	LD	10250TC49		
	Amber	C50	AD	10250TC50		
	White	C51	WD	10250TC51		
	Clear	C52	CD	10250TC52		
	Side-Lighted Aluminum – 40 mm ③ 	Red	C57	RS	10250TC57	
Red (EMERGENCY STOP)		C63	ES	10250TC63		
Green		C58	GS	10250TC58		
Blue		C59	LS	10250TC59		
Amber		C64	AS	10250TC64		
Yellow		C60	YS	10250TC60		
White		C61	WS	10250TC61		
Clear		C62	CS	10250TC62		
Aluminum Transparent Center – 40 mm ③ 		Red	C65	RH	10250TC65	
		Green	C66	GH	10250TC66	
	Amber	C67	AH	10250TC67		

③ Clear anodized aluminum and colored lens.

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Illuminated Push-Pull Units (Continued)

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type
- Three-Position Momentary



3-Position Push-Pull Operator with Red Button (Standard) and Transformer Light Unit

Table 47-192. 3-Position Illuminated Momentary Push, Momentary Pull — UL (NEMA) Type 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				Catalog Number	Price U.S. \$		A	B				
			LED	Full Voltage	24V AC/DC	10250T1097LRD24-1X	1NO 1NC			Bayonet Base				
O	O	X			120V AC	10250T1097LRD2A-1X								
X	O	O			24V AC	10250T1089LRD06-1X								
X	O	O			120V AC	10250T1063LRD06-1X								
X X	O X	O O		Transformer	24V AC	10250T497LRD24-3X	1NC 1NC				Bayonet Base			
					120V AC	10250T497LRD2A-3X								
					24V AC	10250T489LRD06-3X								
					120V AC	10250T463LRD06-3X								
O X	O O	X O	Incandescent	Full Voltage	24V AC/DC	10250T1079C47-1X	1NO 1NC			#757				
					120V AC	10250T1080C47-1X				120MB				
					24V AC	10250T1089C47-1X				#755				
					120V AC	10250T1063C47-1X								
				X X	O X	O O	Transformer	Full Voltage	24V AC/DC	10250T479C47-3X	1NC 1NC			#757
									120V AC	10250T480C47-3X				120MB
									24V AC	10250T489C47-3X				#755
									120V AC	10250T463C47-3X				

① X = closed circuit, O = open circuit.

② To order different type or color lens, substitute the underlined characters with appropriate Suffix Code from table on the bottom of Page 47-126. Example: 10250T1079C53-1X. For LEDs with different voltages see ordering example on Page 47-131.

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Illuminated Push-Pull Units
(Continued)

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type
- Three-Position — Maintained Push, Momentary Pull



3-Position Push-Pull Operator with Red Button (Standard) and Full Voltage Light Unit

Table 47-193. 3-Position Illuminated Maintained Push, Momentary Pull — UL (NEMA) Type 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				Catalog Number	Price U.S. \$		A	B		
X X	O X	O O	LED	Full Voltage	24V AC/DC	<u>10250T997LRD24-3X</u>		1NC 1NC			Bayonet Base	
					120V AC	<u>10250T997LRD2A-3X</u>						
					Transformer	24V AC	<u>10250T989LRD06-3X</u>					
					120V AC	<u>10250T963LRD06-3X</u>						
X X	O X	O O	Incan- descent	Full Voltage	24V AC/DC	<u>10250T979C47-3X</u>		1NC 1NC			#757	
					Resistor	120V AC	<u>10250T980C47-3X</u>					120MB
					Transformer	24V AC	<u>10250T989C47-3X</u>					#755
						120V AC	<u>10250T963C47-3X</u>					

① X = closed circuit, O = open circuit.

② To order different type or color lens, substitute the underlined characters with appropriate Suffix Code from table on the bottom of **Page 47-126**. Example: 10250T979C53-3X. For LEDs with different voltages see ordering example on **Page 47-131**.

Potentiometers

Table 47-194. Potentiometer with Knob and Standard Dial Plate — Linear Type ±10% — UL (NEMA) Type 3, 3R, 4, 12, 13

Vertical or Horizontal One-Hole Mounting	Potentiometer Ohms	2 Watt (60V Max.) Single Potentiometer with Standard Aluminum Dial Plate ^{③④}		Dimensions in Inches (mm)
		Catalog Number	Price U.S. \$	
	1000	<u>10250T331</u>		<p style="text-align: center;">Potentiometer</p>
	2500	<u>10250T332</u>		
	5000	<u>10250T338</u>		
10000	<u>10250T333</u>			
25000	<u>10250T334</u>			
50000	<u>10250T335</u>			
	Operator Only ^⑤	<u>10250T330</u>		
	Alternative — Black Plastic Large Legend with Standard Markings	<u>E34LP99</u>		

③ Large dial plate with space for legend is available at no charge. To order, add suffix **36** to Catalog Number. Example: 10250T331**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 47-161**.

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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.



2-Position Maintained Push-Pull without Button on Lens
Catalog Number 10250T5

Table 47-195. Typical Applications

Control	Line – Diagram	Operator	Circuits	Operator Mode		
3-Wire 3-Position Momentary		Momentary Push & Pull 10250T4	2NC Contact Block 10250T3	START (Mom.) 	Normal Pos. (Maint.) 	STOP (Mom.)
		Momentary Push & Pull 10250T10	1NO-1NC Contact Block 10250T1			
2-Wire 2-Position Maintained		Maintained Push & Pull 10250T5	1NC Contact Block 10250T51	START (Maint.) 	No Intermediate Position	STOP (Maint.)
3-Wire Momentary Pull Maintained Push		Maintained Push & Momentary Pull 10250T9	2NC Contact Block 10250T3	START (Mom.) 	Normal Pos. (Maint.) 	STOP (Maint.)

Note: A and B circuits shown in the application illustrations are defined in the "Application Guide" on the following page.

10250T Series, Push-Pull Components

Push-Pull Operators (Continued)

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)

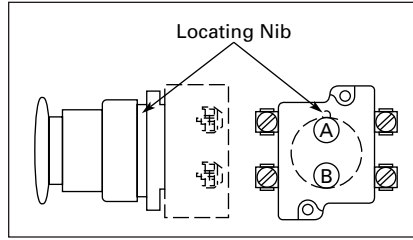


Figure 47-92. Contact Circuit Locations

Table 47-196. Push-Pull Operator Components

Type of Operator	Catalog Number	Price U.S. \$	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	10250T5		1NO 1NC	O or X	O X	No Intermediate Position		X or O	X O
Maintained Push-Pull with Anti-Theft Jumbo Mushroom	10250ED1080		1NO 1NC 2NO 2NC	O or X	O X	No Intermediate Position		X or O	X O
3-Position Operator without Lens									
Momentary Push-Pull	10250T4 ①		1NO 1NC	O or X	O X	O or O	O X	X or O	O O
Maintained Push-Momentary Pull	10250T9 ①		2NO 2NC	O X	O X	O O	O X	X O	O O
Momentary Push-Pull	10250T10 ①		1NO 1NC 2NO 2NC	O or X	O X	O or O	O O	X or O	X O

① Special function contact blocks shown on Page 47-148 CANNOT be used with 3-position push-pull operators 10250T4, 10250T9 or 10250T10.

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Push-Pull Operators (Continued)

Push-Pull Light Units, Lenses and Buttons

Table 47-197. Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	Catalog Number	Price U.S. \$	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		
12			10250T70			
24/28			10250T79			
32			10250T83			
Resistor AC or DC		120	10250T80		#755	
		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 color, see Page 47-157.

Ordering example with one composite number:

Non-illuminated **10250T5 + 10250TB62 + 10250T1 = 10250T5B62-1X**

Incandescent **10250T5 + 10250T79 + 10250TC47 + 10250T1 = 10250T579C47-1X**

LED **10250T5 + 10250T97L + 10250TC47 + Voltage Code + 10250T1 = 10250T597LRD24-1X**



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

Table 47-198. Alternate Lenses for Illuminated Push-Pull Devices

	Color	Incand. Suffix Code	LED ② Suffix Code	Catalog Number	Price U.S. \$	
	Standard					
	Red	C47	RD	10250TC47		
	Red (EMER. STOP)	C53	ED	10250TC53		
	Green	C48	GD	10250TC48		
	Blue	C49	LD	10250TC49		
	Amber	C50	AD	10250TC50		
	White	C51	WD	10250TC51		
	Clear	C52	—	10250TC52		
	Side-Lighted Anodized Aluminum Ring					
	Red	C57	RS	10250TC57		
	Red (EMER. STOP)	C63	ES	10250TC63		
	Green	C58	GS	10250TC58		
	Blue	C59	LS	10250TC59		
	Amber	C64	AS	10250TC64		
	Yellow	C60	YS	10250TC60		
	White	C61	WS	10250TC61		
		Clear	C62	—	10250TC62	
		Heavy-Duty Aluminum with Transparent Center				
Red		C65	RH	10250TC65		
Green		C66	GH	10250TC66		
Amber		C67	AH	10250TC67		
Blue		C69	—	10250TC69		
White		C68	—	10250TC68		

② Suffix Codes should only be used for assembling composite Catalog Numbers. To order lens above, order by Catalog Number.

Table 47-199. Buttons for Non-illuminated Push-Pull Devices

	Color	Suffix Code	Catalog Number	Price U.S. \$
	Standard			
	Red	B62	10250TB62	
	Red (EMER. STOP)	B63	10250TB63	
	Green	B61	10250TB61	
	Black	B60	10250TB60	
	Blue	B64	10250TB64	
	Jumbo Mushroom Head (Anodized) Aluminum ③			
	Red	J62	10250TJ62	
	Red (EMER. STOP)	J63	10250TJ63	
	Green	J61	10250TJ61	
	Black	J60	10250TJ60	
	Yellow	J64	10250TJ64	

③ Anodized aluminum head is not suitable for use in ultraviolet light applications.

Legend Plates

For a complete listing of available Legend Plates see Pages 47-151 – 47-152.

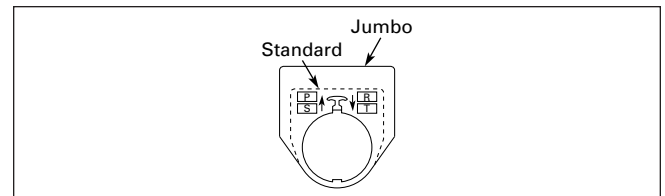


Figure 47-93. Legend Plates

Contact Blocks Page 47-148
 Dimensions Pages 47-160 – 47-162
 Enclosures Pages 47-153 – 47-154
 Legend Plates Pages 47-151 – 47-152
 Discount Symbol 1CD1C

10250T Series, Assembled Devices — Roto-Push Units

Roto-Push® Units

Two-Position Momentary

Complete assembled Two-Position Roto-Push Units are listed below. These operators have black flush buttons and are arranged for vertical mounting. Order legend plates separately.

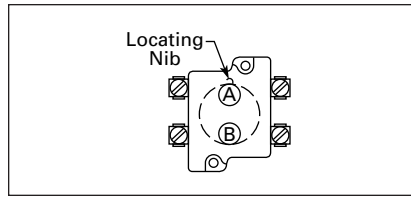



Figure 47-103. Mounting Location

Table 47-228. Roto-Push Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13


	Typical Applications (Most Common Examples)	Operator Position ①				Roto-Push Assembled with Contact Blocks		Contact Type	Mounting Location	
		Collar Left		Collar Right		Catalog Number	Price U.S. \$		A	B
		Normal	Depressed	Normal	Depressed					
2-Position										
	FORWARD/REVERSE; HIGH/LOW; OPEN/CLOSE; UP/DOWN; etc.	O	O	O	X	10250T2411-2		1NO		
	JOG/RUN; MAN./AUTO; etc.	O	X	O	O	10250T24111-2		1NO 1NO		
	RUN/JOG; START/JOG; etc.	O	X	O	X	10250T24111-1		1NO 1NC		
	SAFE/RUN; etc.	O	O	O	X	10250T2415-2		1NO 1NO		

① X = Closed Circuit, O = Open Circuit.

Two-Position Latched

The Two-Position Roto-Push Latch Unit is fully assembled and only requires a legend plate for a great variety of applications. When the selector collar is in the extreme left position, the button is in the free or normal position and can be operated as a standard pushbutton. Rotating the collar to the extreme right position automatically depresses and latches the button in the depressed position. The white filled groove in the button indicates the selector collar position. The selector collar has spring return to the left position except when in the extreme right latched position.

Table 47-229. Rotates to a Latch-Out Mode

Color and Type of Button	Contact Block	Vertical Mounting	
		Catalog Number	Price U.S. \$
	1NC 2NC	10250T72 10250T73	

Accessories **Pages 47-155 – 47-156**
 Additional Circuit Arrangements **Pages 47-133 – 47-134**
 Dimensions **Pages 47-160 – 47-162**
 Enclosures **Pages 47-153 – 47-154**
 Legend Plates **Pages 47-151 – 47-152**
 Discount Symbol **1CD1C**

Roto-Push Operators

Roto-Push Components

A Roto-Push control unit combines the function of a pushbutton and a selector switch. The contacts are operated by the combined action of rotating the outer collar and pushing a button contained in the collar.

In selecting the cam and contact blocks for the listed function, the analysis involves considering the function with the collar rotated to the given position with the button free (designated as "N") and then in that same position with the button depressed (designated "D"). This is done for each rotational position of the collar.

When Ordering Specify

- Catalog Number of Operator with Cam Code Suffix from tables below and on following pages, Example: 10250T2411.
- Catalog Number(s) for Contact Blocks and Legend Plates if required.
- To select the cam and contact blocks needed for 2-position and 3-position switches, use the tables on following pages.



**Operator and Cam
10250T2411**

Table 47-230. Operator and Cam

Color and Type of Button	Vertical Mounting	Horizontal Mounting	Cam Code No. Select from Tables	Price U.S. \$	Overall Dimensions in Inches (mm)
	Catalog and Code Number	Catalog and Code Number			
Black Flush Red Flush ① Green Flush Black Long Red Long ① Green Long	10250T241_ 10250T242_ 10250T243_ 10250T261_ 10250T262_ 10250T263_	10250T251_ 10250T252_ 10250T253_ 10250T271_ 10250T272_ 10250T273_	+ 1 to 18		

① Not to be used for Emergency Stop application.

Two-Position Roto-Push Operator — Rotates to a Latch-Out Mode



**Special Roto Latch —
Red Long Button
Catalog Number
10250T3213**

Special Rotor Latch

This differs from the other Roto-Push operators in that as the collar is rotated to the right it depresses the button and releases the button when rotated left. But the button in the released position can be momentarily

pushed independent of the collar or its position. As the button is depressed by rotating the collar, the button also rotates and indicates its mode by a white line on the button face. This button can be used as an emergency stop or latched stop.

Table 47-231. Special Rotor Latch — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Color and Type of Button	Vertical Mounting		Overall Dimensions in Inches (mm)
	Catalog Number	Price U.S. \$	
Red Long Black Long	10250T3213 10250T3214		

Contact Blocks **Page 47-148**
 Enclosures **Pages 47-153 – 47-154**
 Legend Plates **Pages 47-151 – 47-152**
 Discount Symbol **1CD1C**

Roto-Push Operators (Continued)

Table 47-232. Cam and Contact Block Selection for Two-Position Roto-Push

Combination Number	Collar Position		Cam Code 1	Cam Code 2	Cam Code 3	Cam Code 4	Cam Code 5	Cam Code 6
	Circuit Sequence ①							
	N	D						
1	O O	O X	A	A	—	—	A	—
2	O O	X O	—	—	—	A NC B NO	A NC B NO	—
3	O O	X X	—	—	—	—	B NO	A NO
4	O X	O O	B NO	A NC B NO	—	—	—	A NC B NO
5	O X	O X	A NO B NO	B NO	—	A NO	—	—
6	O X	X O	—	—	—	—	—	—
7	O X	X X	—	—	A or B NO	B NO	—	B NO
8	X O	O O	—	—	A or B NC	B	—	B
9	X O	O X	—	—	—	—	—	—
10	X O	X O	A NC B NC	B	—	A	—	—
11	X O	X X	B	A NO B NC	—	—	—	A NO B NC
12	X X	O O	—	—	—	—	B	A
13	X X	O X	—	—	—	A NO B NC	A NO B NC	—
14	X X	X O	A	A	—	—	A	—

① N = Button in free or normal position. D = Button depressed.

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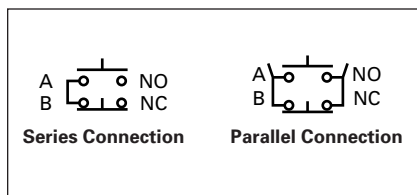


Figure 47-104. Series and Parallel Connections

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

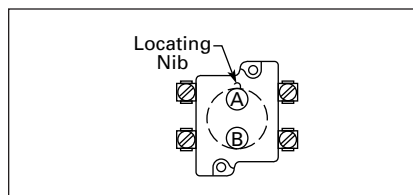


Figure 47-105. Circuit Location

Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator. **Figure 47-104** illustrates this pictorially.

Roto-Push Operators (Continued)

Table 47-232. Cam and Contact Block Selection for Two-Position Roto-Push (Continued)

Combination Number	Collar Position		Cam Code 10	Cam Code 11	Cam Code 12	Cam Code 13	Cam Code 14
	Circuit Sequence ①						
N D		N D					
15	O O	O X	—		—	—	—
16	O O	X O	—		A	A or B NC	A
17	O O	X X	B	B	—	—	—
18	O X	O O	A		—	—	B
19	O X	O X	—	A	B	—	—
20	O X	X O	—	—	—	—	
21	O X	X X				—	—
22	X O	O O				—	—
23	X O	O X	—	—	—	—	
24	X O	X O	—	A	B	—	—
25	X O	X X	A		—	—	B
26	X X	O O	B	B	—	—	—
27	X X	O X	—		A	A or B NO	A
28	X X	X O	—		—	—	—

① N = Button in free or normal position. D = Button depressed.

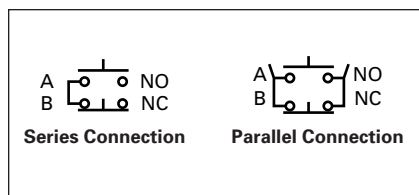


Figure 47-106. Series and Parallel Connections

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

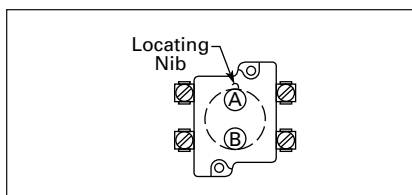


Figure 47-107. Circuit Location

Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator. **Figure 47-106** illustrates this pictorially.

10250T Series, Roto-Push Components

Roto-Push Operators (Continued)

Table 47-233. Cam and Contact Block Selection for Three-Position Roto-Push

Combination Number	Collar Position			Cam Code 7	Cam Code 8	Cam Code 9 ①	Cam Code 15 ①	Cam Code 16	Cam Code 17	Cam Code 18
	Circuit Sequence ②									
	N D	N D	N D							
1	O O	O O	O X			—			—	
2	O O	O O	X X	—	—		—	—		—
3	O O	O X	O O	—	—		—	—	—	
4	O O	O X	O X	—	—	—	—	—	—	
5	O O	O X	X X	—	—		—	—	—	—
6	O O	X X	O O	—		—	—	—	—	—
7	O O	X X	O X	—		—	—	—	—	—
8	O O	X X	X O		—	—	—	—	—	—
9	O O	X X	X X		—	—	—	—	—	—
10	O X	O O	O O			—				
11	O X	O O	O X		—	—			—	—
12	O X	O O	X X	—	—	—	—	—		—
13	O X	O X	O O	—	—	—	—	—	—	
14	O X	O X	O X	—	—	—	—	—	—	
15	O X	X X	O O	—		—	—	—	—	—
16	O X	X X	O X	—		—	—	—	—	—
17	O X	X X	X X		—	—	—	—	—	—

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① Limited to 4 contact blocks. See Note on Page 47-148.
② N = Button in free or normal position. D = Button depressed.

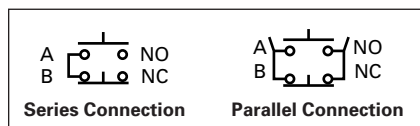


Figure 47-108. Series and Parallel Connections

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

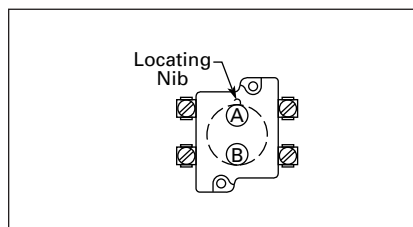


Figure 47-109. Circuit Location

Letters “A” and “B” represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator. **Figure 47-108** illustrates this pictorially.

Contact Blocks..... **Page 47-148**

Roto-Push Operators (Continued)

Table 47-233. Cam and Contact Block Selection for Three-Position Roto-Push (Continued)

Combination Number	Collar Position			Cam Code 7	Cam Code 8 ①	Cam Code 9	Cam Code 15	Cam Code 16	Cam Code 17	Cam Code 18	
	Circuit Sequence ②										
N	D	N	D	N	D	N	D	N	D		
18	X	O	O	O	O	O	O	O	O	O	
19	X	O	O	O	X	X	X	X	X	X	
20	X	O	O	O	X	O	X	O	X	O	
21	X	O	X	X	O	O	O	O	O	O	
22	X	O	X	X	X	X	X	X	X	X	
23	X	O	X	X	X	O	X	O	X	O	
24	X	O	X	O	X	O	X	O	X	O	
25	X	O	X	O	X	X	X	X	X	X	
26	X	X	O	O	O	O	O	O	O	O	
27	X	X	O	O	O	X	X	O	X	O	
28	X	X	O	O	X	O	X	O	X	O	
29	X	X	O	O	X	X	X	O	X	O	
30	X	X	X	X	O	O	O	O	O	O	
31	X	X	X	X	X	O	X	O	X	O	
32	X	X	X	O	X	O	X	O	X	O	
33	X	X	X	O	X	X	X	O	X	O	

① Limited to 4 contact blocks.

② N = Button in free or normal position. D = Button depressed.

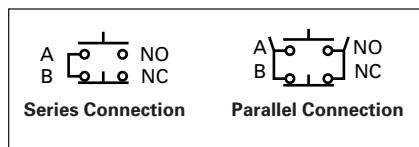


Figure 47-110. Series and Parallel Connection

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

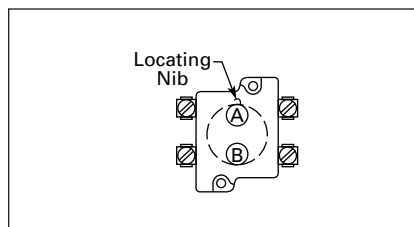


Figure 47-111. Circuit Location

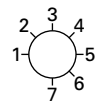
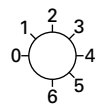
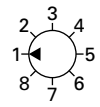
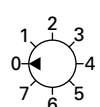
Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator. **Figure 47-110** illustrates this pictorially.

Contact Blocks **Page 47-148**

Rotary Cam Selector Switch Units (Continued)

- Plastic Operators
- Black or Chrome Bezel
- Seven- and Eight-Position
- Knob, Lever or Key Version
- Non-illuminated

Table 47-74. Seven- and Eight-Position Selector Switch Units — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Contact block ratings, see Page 47-95. Includes contact blocks. Components overpacked in a single carton.	Terminal Numbers	Contact Sequence O = Circuit Open; X = Circuit Closed	Switch Position (45° Lever Throw Between Each Position)	Operator Type	Black Bezel		Chrome Bezel	
					Catalog Number ①	Price U.S. \$	Catalog Number ①	Price U.S. \$
Seven-Position Maintained								
		0 1 2 3 4 5 6 7		Lever Knob Key ②	E22JDB7W1 E22LDB7W1 E22KDB7W8		E22JD7W1 E22LD7W1 E22KD7W8	
1-2		X O O O O O O O						
5-6		O X O O O O O O						
9-10		O O X O O O O O						
13-14		O O O X O O O O						
3-4		O O O O X O O O						
7-8		O O O O O X O O						
11-12		O O O O O O X						
		0 1 2 3 4 5 6 7		Lever Knob Key ②	E22JDB7Y1 E22LDB7Y1 E22KDB7Y8		E22JD7Y1 E22LD7Y1 E22KD7Y8	
1-2		O X O O O O O O						
5-6		O O X O O O O O						
9-10		O O O X O O O O						
11-12		O O O O X O O O						
3-4		O O O O O X O O						
7-8		O O O O O O X						
Eight-Position Maintained								
		0 1 2 3 4 5 6 7 8		Lever Knob Key ②	E22JDB8W1 E22LDB8W1 E22KDB8W8		E22JD8W1 E22LD8W1 E22KD8W8	
1-2		X O O O O O O O						
5-6		O X O O O O O O						
9-10		O O X O O O O O						
13-14		O O O X O O O O						
3-4		O O O O X O O O						
7-8		O O O O O X O O						
11-12		O O O O O O X						
15-16		O O O O O O X						
		0 1 2 3 4 5 6 7 8		Lever Knob Key ②	E22JDB8Y1 E22LDB8Y1 E22KDB8Y8		E22JD8Y1 E22LD8Y1 E22KD8Y8	
1-2		O X O O O O O O						
5-6		O O X O O O O O						
9-10		O O O X O O O O						
13-14		O O O O X O O O						
3-4		O O O O O X O O						
7-8		O O O O O O X						
11-12		O O O O O O X						



① Listed selector switches are supplied as standard with Black levers or knobs. To select an alternate color, change the last digit in the listed Catalog Number using Code Number from following table. Example: E22LDN2 — four-position selector switch with Red knob.
 ② Key removable in all maintained positions (no alternates).


Color	Code	Color	Code	Color	Code	Color	Code	Color	Code	Color	Code	Color	Code	Color	Code
Black	1	Red	2	Green	3	Yellow	4	White	5	Blue	6	Gray	7	Orange	8

Contact Block Ratings **Page 47-95**
 Custom Ordering **Page 47-96**
 Discount Symbol **1CD1**

E22 and EM22 Series, Specialty Operators

Specialty Operators

Table 47-75. Potentiometers with Knob Operator ① — **UL (NEMA) Type 3, 3R, 4, 4X, 12, 13**

	Ohms	0.5 Watt Max./120V Max.						2 Watt Max./120V Max.					
		E22 Plastic — Black Bezel		E22 Plastic — Chrome Bezel		EM22 Metal — Chrome Bezel		E22 Plastic — Black Bezel		E22 Plastic — Chrome Bezel		EM22 Metal — Chrome Bezel	
		Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
 Order Legend Plate from Below	1,000	E22PXB1C1		E22PX1C1		EM22PX1C1		E22PXB1F1		E22PX1F1		EM22PX1F1	
	2,500	E22PXB1C2		E22PX1C2		EM22PX1C2		E22PXB1F2		E22PX1F2		EM22PX1F2	
	5,000	E22PXB1C5		E22PX1C5		EM22PX1C5		E22PXB1F5		E22PX1F5		EM22PX1F5	
	10,000	E22PXB1C10		E22PX1C10		EM22PX1C10		E22PXB1F10		E22PX1F10		EM22PX1F10	
	25,000	E22PXB1C25		E22PX1C25		EM22PX1C25		E22PXB1F25		E22PX1F25		EM22PX1F25	
	50,000	E22PXB1C50		E22PX1C50		EM22PX1C50		E22PXB1F50		E22PX1F50		EM22PX1F50	
	Operator Only	E22PXB1C0		E22PX1C0		EM22PX1C0		E22PXB1F0		E22PX1F0		EM22PX1F0	

① Potentiometers are not IP1X or IP2X rated.

Table 47-76. Potentiometer Legend Plate

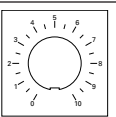



	Description	Catalog Number	Price U.S. \$
	Potentiometer Legend Plate	E22NJP99	

Table 47-77. Flush Pushbutton Operators with Mechanical Push Rod — **UL (NEMA) Type 3, 3R, 4, 4X, 12, 13**

	Description	Color	Plastic — Black Bezel		Plastic — Chrome Bezel	
			Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
	25 mm Diameter Flush Pushbutton Operators supplied with Mechanical Push Rod — Suitable for external mechanical reset of overload relays. Push rod must be cut to desired length.	Gray Blue Red Blue (RESET)	E22PB7L E22PB6L E22PB2L E22PB6N29L		E22P7L E22P6L E22P2L E22P6N29L	

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Table 47-78. Wobble Stick Operator — **UL (NEMA) 3, 3R, 4, 4X, 12, 13**

	Description	Catalog Number	Price U.S. \$
E22 Series 	E22 Series — Plastic Wobble Stick — Allows activation of controls by pushing stick in any direction.	E22WS	
EM22 Series 	EM22 Series — Metal Wobble Stick — Allows activation of controls by pushing stick in any direction.	EM22WS	

Note: For Rear of Panel Extensions, see **Table 47-128** on **Page 47-94**.

Dimensions **Page 47-89**
 Contact Blocks..... **Page 47-69**
 Enclosures **Pages 47-87 – 47-88**
 Legend Plates..... **Pages 47-79 – 47-85**
 Suffix Codes **Page 47-98**
 Discount Symbol **1CD1**

Double Headed Pushbuttons

Table 47-79. Illuminated and Non-illuminated Double Headed Pushbuttons — UL (NEMA) Type 1; IP40

	Description	Operator Colors	Marking	Plastic — Black Bezel		Dimensions
				Catalog Number	Price U.S. \$	
	Non-illuminated Double Headed Pushbutton	Green — Red	Unmarked	E22DB1A11		
		Green — Red	I	E22DB1A21		
	Non-illuminated Double Headed Pushbutton with 1NO and 1NC Contact Block	Green — Red	Unmarked	E22DB1A11C		
		Green — Red	I	E22DB1A21C		
	Illuminated Double Headed Pushbutton with Clear Lens ^①	Green — Red	Unmarked	E22DB1A10		
		Green — Red	I	E22DB1A20		
	Illuminated Double Headed Pushbutton with Clear Lens, ^① and 120V Transformer Light Unit ^②	Green — Red	Unmarked	E22DB1A10X11		
		Green — Red	I	E22DB1A20X11		
	Illuminated Double Headed Pushbutton with Clear Lens, ^① 120V Transformer Light Unit ^② and 1NO and 1NC Contact Block	Green — Red	Unmarked	E22DB1A10X11C		
		Green — Red	I	E22DB1A20X11C		

① For lens colors other than clear, replace the 0 above with the appropriate Color Code from Table 47-83 on Page 47-66.

② For light units other than 120V transformer, replace the X11 code above with the appropriate Suffix from Table 47-81 on Page 47-66.

Table 47-80. Illuminated and Non-illuminated Double Headed Pushbuttons — UL (NEMA) Type 3, 3R, 4, 4X, 12, 13; IP65 ^⑤

	Description	Operator Colors	Marking	Plastic — Black Bezel		Dimensions
				Catalog Number	Price U.S. \$	
	Non-illuminated Double Headed Pushbutton	Green — Red	Unmarked	E22DB1B11		
		Green — Red	O	E22DB1B21		
	Non-illuminated Double Headed Pushbutton with 1NO and 1NC Contact Block	Green — Red	Unmarked	E22DB1B11C		
		Green — Red	O	E22DB1B21C		
	Illuminated Double Headed Pushbutton with Clear Lens ^③	Green — Red	Unmarked	E22DB1B10		
		Green — Red	O	E22DB1B20		
	Illuminated Double Headed Pushbutton with Clear Lens, ^③ and 120V Transformer Light Unit ^④	Green — Red	Unmarked	E22DB1B10X11		
		Green — Red	O	E22DB1B20X11		
	Illuminated Double Headed Pushbutton with Clear Lens, ^③ 120V Transformer Light Unit ^④ and 1NO and 1NC Contact Block	Green — Red	Unmarked	E22DB1B10X11C		
		Green — Red	O	E22DB1B20X11C		

③ For lens colors other than clear, replace the 0 above with the appropriate Color Code from Table 47-83 on Page 47-66.

④ For light units other than 120V transformer, replace the X11 code above with the appropriate Suffix from Table 47-81 on Page 47-66.

⑤ IP65 or UL (NEMA) Type 3, 3R, 4, 4X, 12, 13 versions include protective silicon boot E22DBB.

Note: Add Contact Block Suffix from table on Page 47-98 to operator Catalog Number to order as a complete device. Example: E22DB1A11B = non-illuminated double headed pushbutton, unmarked, IP40 with 1NC contact block.

Contact Blocks Page 47-69
 Enclosures Pages 47-87 – 47-88
 Suffix Codes Page 47-98
 Discount Symbol 1CD1