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Global Modular 30 mm Pilot Devices—M30 Flat Operators

Contents

Product Description

The new and modern M30 30 mm operators of the Global pilot devices offer a flat design and functionality while withstanding exposure to oil, dirt and water. Ability to be combined with existing traditional and flat designed M22 contact blocks and indicating lights, M30 operators provide modularity, simplicity and elegance for more demanding commercial and industrial applications.

Our new offering includes stainless steel bezel (M30I) options for extended corrosion protection along with the metal bezel (M30C) options for everyday operations.

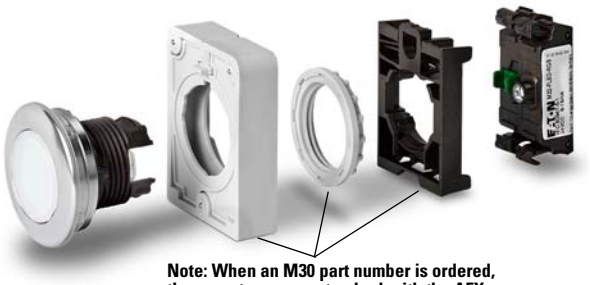
Features

- Flat design for modern look and smooth transition between the machine and the operator
- Compatible with existing M22 contact blocks (M22-K…) and indicating lights for enhanced modularity (M22-LED…) and sustainable inventory management
- Compatible with the new M22 flat contact blocks (M22-FK…) and indicating lights for optimized footprint (M22-FLED-…)
- Stainless steel bezel (M30I) options for extended corrosion protection along with the metal bezel (M30C) options for everyday operations
- AFX mounting system for easy and secure installation
- Robust against vandalism
- Up to IP69K for increased protection
- For M30 CAD drawings, please visit the 3D drawings section under the documentation tab at www.eaton.com/m30
- Refer to Instruction Leaflet IL047019ZU for further details

Standards and Certifications

- All operators and components are IEC/EN 60947 VDE 0660
- All M30 flat operators (for enclosed type devices or flat-front surface mounted devices only) are environmentally rated as Type 1, 3R, 4X, 12 or 13 UL File #: E29184
- All operators carry an IP66 rating with some rated for washdown environments with IP67 and IP69K
- Marine classification societies: Bureau Veritas (BV), Germanischer Lloyd (GL) and Lloyd's Register of Shipping (LR) approved

M30 Flat Operators Use M22 Contact Blocks and Indicating Lights



Note: When an M30 part number is ordered, the operator comes standard with the AFX mounting system, ring and adapter.

M22-LED-W

M22-FLED-_

Light Units ①

Terminal Type	LED Color	Light Unit Voltage	Catalog Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
Screw	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**
Spring-cage	White	12–30 Vac/Vdc	**M22-FLED-W**
	Red		**M22-FLED-R**
	Green		**M22-FLED-G**
	Blue		**M22-FLED-B**
	Red/Green/Yellow	24 Vdc	**M22-FLED-RG** ②
	Red, Green, Blue, Yellow, White, Violet, Turquoise		**M22-FLED-RGB** ②

M22-K10

M22-FK01

Contact Blocks ①

Terminal Type	Contact Configuration ③	Catalog Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**
	NC	**M22-FK01** ④
	NO	**M22-FK10** ④

Notes

① For complete listing of available light units and contact blocks, see Accessories, **Pages V7-T1-105** to **V7-T1-112**.

② Please see color input key on **Page V7-T1-108**.

③ All NC contact blocks are positively driven contact. ⊖

④ Additional contacts may not be stacked behind M22-F type contact blocks, M22-F can be stacked behind standard M22 contacts only.

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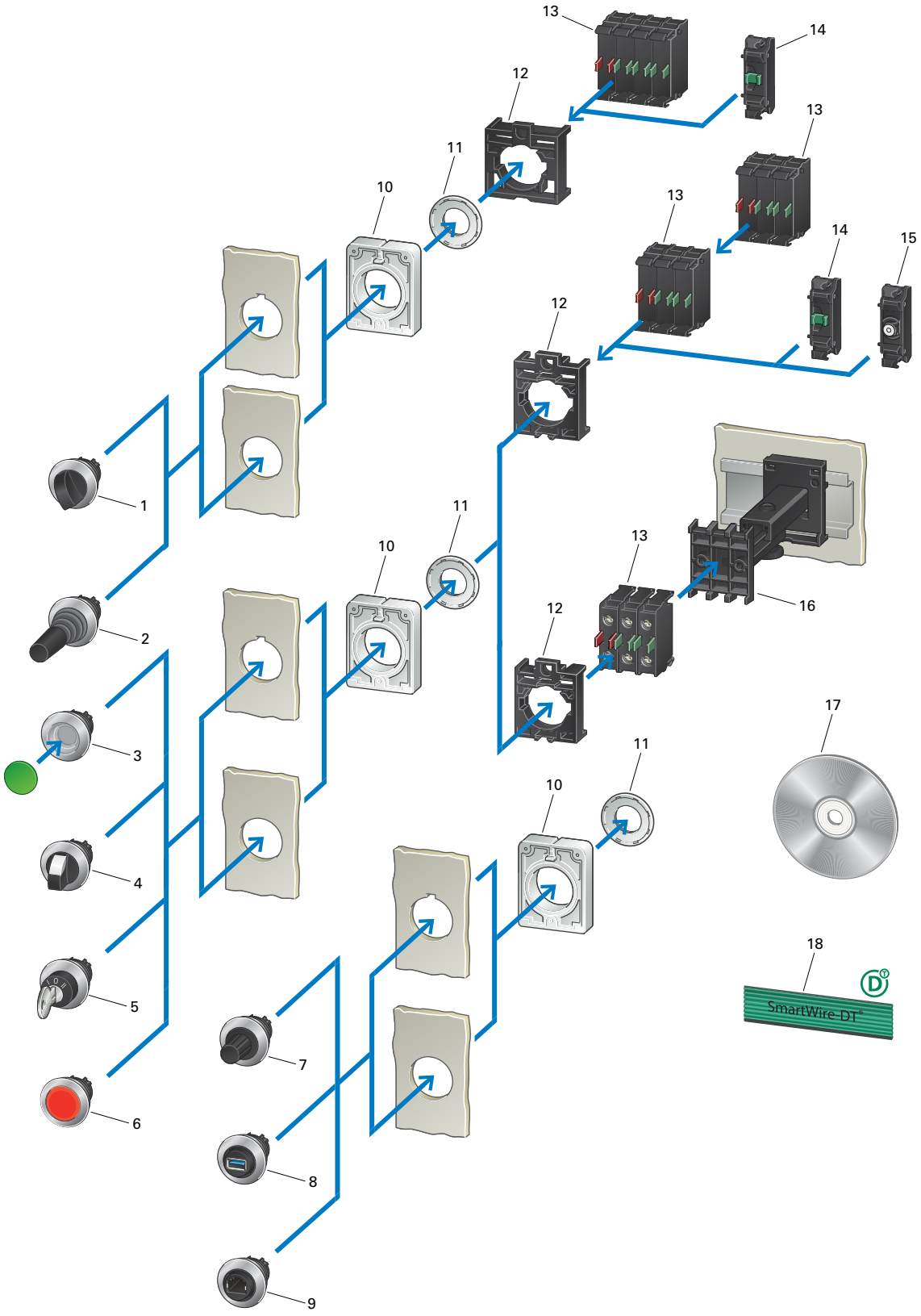
System Overview

Global Modular 30 mm Pilot Devices—M30 Flat Operators



Global Modular 30 mm Pilot Devices—M30 Flat Operators (Legend)

Item	Description
1	**M30 4-Way Selector Switches** 4-positions With rotary head or thumb-grip 0-1-0-2-0-3-0-4 maintained action See **Page V7-T1-165**
2	**M30 Joysticks** 2- or 4-positions See **Page V7-T1-169**
3	**M30 Pushbuttons** Momentary and maintained Flush Colors: White, green, red, yellow, blue, black Illuminated pushbutton actuators Colors: White, green, red, yellow, blue, orange See **Page V7-T1-164**
4	**M30 Selector Switches** 2- and 3-positions With rotary head, thumb-grip Programmable maintained/momentary action Illuminated selector switches with transparent thumb-grip Colors: White, green, red, yellow, blue See **Page V7-T1-165**
5	**M30 Key-Operated Buttons** For individual lock mechanisms 2- or 3-positions Programmable momentary/maintained action and key withdraw Suitable for master key systems See **Page V7-T1-166**
6	**M30 Indicator Lights** Colors: White, green, red, yellow, blue, orange See **Page V7-T1-169**
7	**SmartWire-DT Encoders, M30 Potentiometers** Resistances of 1 kΩ–1 MΩ Three individual connections See **Page V7-T1-171**
8	**M30 Panel Mount Connectors** USB 3.0
9	**M30 Panel Mount Connectors** RJ45

Item	Description
10	**Blanking Plugs** See **Page V7-T1-172**
11	**RMQ-AFX** Anti-rotation tab Included with the equipment supplied with M30 front elements
12	**Threaded Rings** See **Pages V7-T1-116** and **V7-T1-117**
13	**Mounting Adapters** For flush mounting For contact and LED elements See **Page V7-T1-173**
14	**Traditional and flat contact blocks** M30 flat operators are compatible with M22 traditional and flat contact blocks N/C and N/O Universal contacts suitable for use with electronic devices Safety function implemented with positive opening as defined in IEC/EN 60947-5-1 Traditional contact blocks: 2 levels See **Page V7-T1-112**
15	**Traditional and flat LED indicating lights** Cage clamp with push-in terminals M30 flat operators are compatible with M22 traditional and flat indicating lights See **Page V7-T1-113** and **V7-T1-114**
16	**Telescopic Clip** For adjusting the depth of rear mounting devices in CI and CI-K enclosures and cabinets See **Pages V7-T1-117** and **V7-T1-125**
17	**Convenient Labeling** A laser inscription with any text and/or symbol can be added to illuminated and non-illuminated pushbuttons. When ordering, specify inscription per catalog number suffix from the Symbols Library. See **Pages V7-T1-129** through **V7-T1-136**
18	**SmartWire-DT** **Product Characteristics** • Clip-fit assembly modular system • Metal bezel, flus • Mounting hole diameter: 30.5 mm • Minimum grid dimension: 40 x 50 mm • Min. degree of protection: IP66 • Up to 6 contacts per mounting location • For switching differing potential • Approved throughout the world

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Product Selection

M30—Pushbuttons

IP67, IP69K—Metal Bezel—Flush
Front Dimensions: 36 mm Diameter
NEMA Type 1, 3R, 4X, 12 or 13

M30C-FD-

Button Plate	Std. Pack	Catalog Number
Momentary ①②		
●	1 unit	**M30C-FD-S**
○		**M30C-FD-W**
●		**M30C-FD-R**
●		**M30C-FD-G**
●		**M30C-FD-Y**
●		**M30C-FD-B**
●		**M30C-FD-GR**
◎		**M30C-FD-S-X0**
⏽		**M30C-FD-W-X1**
⏚		**M30C-FD-W-X11**
◎		**M30C-FD-R-X0**
⏽		**M30C-FD-G-X1**
⏽		**M30C-FD-B-X217**
▽		**M30C-FD-GR-X66**
Custom		**M30C-FD-ETCH** ③

M30C-FD-X

Without button plate	1 unit	**M30C-FD-X**

M30C-FDR-S

Button Plate	Std. Pack	Catalog Number
Maintained ①②		
●	1 unit	**M30C-FDR-S**
○		**M30C-FDR-W**
●		**M30C-FDR-R**
●		**M30C-FDR-G**
●		**M30C-FDR-Y**
●		**M30C-FDR-B**
◎		**M30C-FDR-S-X0**
⏽		**M30C-FDR-W-X1**
◎		**M30C-FDR-R-X0**
⏽		**M30C-FDR-G-X1**
Custom		**M30C-FDR-ETCH** ③

M30C-FDR-X

Without button plate	1 unit	**M30C-FDR-X**

Notes

① Maintained/momentary action can be changed on device.
② Includes contact block mounting adapter.
③ When ordering, specify inscription per catalog number suffix from the Symbols Library (see **Pages V7-T1-123** to **V7-T1-130**).

M30—Selector Switches

IP64, Metal Bezel

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13
Maintained/momentary action can be changed with M22-XC-Y configuration adapters

Action
= Momentary (MO)
= Maintained (MA)

		Button Plate	Std. Pack	Catalog Number
With Rotary Head	**Two-Position**			
	40°		1 unit	**M30C-FW**
	60°			**M30C-FWR**
		AUTO HAND		**M30C-FWR-X91**
				M30C-FWR-X92
With Thumb-Grip	40°		1 unit	**M30C-FWK**
	60°			**M30C-FWRK**
With Thumb-Grip	60°		1 unit	**M30C-FWKV**
				
With Rotary Head	**Three-Position** ①			
	40° 40°		1 unit	**M30C-FW**
	60° 60°			**M30C-FWR3**
				M30C-FWR3-X7
				M30C-FWR3-X94
With Thumb-Grip	40° 40°		1 unit	**M30C-FWK3**
	60° 60°			**M30C-FWRK3**
	Selectable	Maintained, return from left 40° 0 40° 60° 0 60°		**M30C-FWRK3-1**
		Maintained, return from right 40° 0 40° 60° 0 60°		**M30C-FWRK3-2**
With Rotary Head	**Four-Position** ②③			
			1 unit	**M30C-FWR4**
With Thumb-Grip				**M30C-FWRK4**
				

Notes

① With plunger bridge for middle contact.
② Not compatible with configuration adapters.
③ Use M22-A4 mounting adapter, see **Page V7-T1-172**.

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M30—Key-Operated Buttons

Key-Operated Buttons for Individual Lock Mechanisms

IP64, Metal Bezel

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13
Maintained/momentary action can be changed with M22-XC-Y configuration adapters
Key withdraw can be changed with M22-XC-… configuration adapters

Action
= Momentary (M0)
= Maintained (MA)

Two-Position

Lock Mechanism	Key Withdrawable at Position			Equipment Supplied	Key Code	Std. Pack	Catalog Number
Two-Position							
40°							
—	0	—	—	With one key	MS1	1 unit	**M30C-FWS**
					MS2		**M30C-FWS-MS2**
					MS3		**M30C-FWS-MS3**
					MS4		**M30C-FWS-MS4**
					MS5		**M30C-FWS-MS5**
					MS6		**M30C-FWS-MS6**
					MS7		**M30C-FWS-MS7**
					MS8		**M30C-FWS-MS8**
60°							
—	0	—	I		MS1		**M30C-FWRS**
					MS2		**M30C-FWRS-MS2**
					MS3		**M30C-FWRS-MS3**
					MS4		**M30C-FWRS-MS4**
					MS5		**M30C-FWRS-MS5**
					MS6		**M30C-FWRS-MS6**
					MS7		**M30C-FWRS-MS7**
					MS8		**M30C-FWRS-MS8**
					MS10		**M30C-FWRS-MS10**
—	0	—	—		MS1		**M30C-FWRS-A1**
					MS2		**M30C-FWRS-MS2-A1**
					MS3		**M30C-FWRS-MS3-A1**
					MS4		**M30C-FWRS-MS4-A1**
					MS5		**M30C-FWRS-MS5-A1**
					MS6		**M30C-FWRS-MS6-A1**
					MS7		**M30C-FWRS-MS7-A1**
					MS8		**M30C-FWRS-MS8-A1**
					MS10		**M30C-FWRS-MS10-A1**
—	I	—	II		MS1		**M30C-FWRS-X95**

Two-Position (Ronis 455)

Lock Mechanism	Key Withdrawable at Position			Equipment Supplied	Key Code	Std. Pack	Catalog Number
60°							
Ronis 455	0	—	I	With two keys	MS1	1 unit	**M30C-FWRS-RS**
Ronis 455	0	—	—		MS1		**M30C-FWRS-RS-A1**

IP64, Metal Bezel, continued

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13
Maintained/momentary action can be changed with M22-XC-Y configuration adapters
Key withdraw can be changed with M22-XC-… configuration adapters

Three-Position

Action = Momentary (MO) = Maintained (MA)	Lock Mechanism	Key Withdrawable at Position			Equipment Supplied	Key Code	Std. Pack	Catalog Number
Three-Position								
40° 40°	—	0	—	—	With one key	MS1	1 unit	**M30C-FWS3**
						MS2		**M30C-FWS3-MS2**
						MS3		**M30C-FWS3-MS3**
						MS4		**M30C-FWS3-MS4**
						MS5		**M30C-FWS3-MS5**
						MS6		**M30C-FWS3-MS6**
						MS7		**M30C-FWS3-MS7**
						MS8		**M30C-FWS3-MS8**
60° 60°	Selectable	—	Selectable	—		MS1		**M30C-FWRS3-MS1-A1**
						MS2		**M30C-FWRS3-MS2-A1**
						MS3		**M30C-FWRS3-MS3-A1**
						MS4		**M30C-FWRS3-MS4-A1**
						MS5		**M30C-FWRS3-MS5-A1**
						MS6		**M30C-FWRS3-MS6-A1**
						MS7		**M30C-FWRS3-MS7-A1**
						MS8		**M30C-FWRS3-MS8-A1**
	—	—	Selectable	—		MS1		**M30C-FWRS3-MS1-A2**
						MS2		**M30C-FWRS3-MS2-A2**
						MS3		**M30C-FWRS3-MS3-A2**
						MS4		**M30C-FWRS3-MS4-A2**
						MS5		**M30C-FWRS3-MS5-A2**
						MS6		**M30C-FWRS3-MS6-A2**
						MS7		**M30C-FWRS3-MS7-A2**
						MS8		**M30C-FWRS3-MS8-A2**
	—	—	Selectable	—		MS1		**M30C-FWRS3-MS1-A3**
						MS2		**M30C-FWRS3-MS2-A3**
						MS3		**M30C-FWRS3-MS3-A3**
						MS4		**M30C-FWRS3-MS4-A3**
						MS5		**M30C-FWRS3-MS5-A3**
						MS6		**M30C-FWRS3-MS6-A3**
						MS7		**M30C-FWRS3-MS7-A3**
						MS8		**M30C-FWRS3-MS8-A3**
	—	—	Selectable	—		MS1		**M30C-FWRS3-MS1-A4**
						MS2		**M30C-FWRS3-MS2-A4**
						MS3		**M30C-FWRS3-MS3-A4**
						MS4		**M30C-FWRS3-MS4-A4**
						MS5		**M30C-FWRS3-MS5-A4**
						MS6		**M30C-FWRS3-MS6-A4**
						MS7		**M30C-FWRS3-MS7-A4**
						MS8		**M30C-FWRS3-MS8-A4**

IP64, Metal Bezel, continued

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13
Maintained/momentary action can be changed with M22-XC-Y configuration adapters
Key withdraw can be changed with M22-XC-… configuration adapters

Action: ▷ = Momentary (MO); ⌵ = Maintained (MA)

Three-Position

Action	Lock Mechanism	Key Withdrawable at Position			Equipment Supplied	Key Code	Std. Pack	Catalog Number
Three-Position, continued								
60° ↓ 60°	Selectable	—	Selectable	—	With one key	MS1	1 unit	**M30C-FWRS3-MS1-A5**
						MS2		**M30C-FWRS3-MS2-A5**
						MS3		**M30C-FWRS3-MS3-A5**
						MS4		**M30C-FWRS3-MS4-A5**
						MS5		**M30C-FWRS3-MS5-A5**
						MS6		**M30C-FWRS3-MS6-A5**
						MS7		**M30C-FWRS3-MS7-A5**
						MS8		**M30C-FWRS3-MS8-A5**
	—	—	Selectable	—		MS1		**M30C-FWRS3-MS1-A6**
						MS2		**M30C-FWRS3-MS2-A6**
						MS3		**M30C-FWRS3-MS3-A6**
						MS4		**M30C-FWRS3-MS4-A6**
						MS5		**M30C-FWRS3-MS5-A6**
						MS6		**M30C-FWRS3-MS6-A6**
						MS7		**M30C-FWRS3-MS7-A6**
						MS8		**M30C-FWRS3-MS8-A6**
	—	—	Selectable	—		MS1		**M30C-FWRS3-MS1-A7**
						MS2		**M30C-FWRS3-MS2-A7**
						MS3		**M30C-FWRS3-MS3-A7**
						MS4		**M30C-FWRS3-MS4-A7**
						MS5		**M30C-FWRS3-MS5-A7**
						MS6		**M30C-FWRS3-MS6-A7**
						MS7		**M30C-FWRS3-MS7-A7**
						MS8		**M30C-FWRS3-MS8-A7**

Three-Position (Ronis 455)

Action	Lock Mechanism	Key Withdrawable at Position			Equipment Supplied	Key Code	Std. Pack	Catalog Number
60° ↓ 60°	Ronis 455	0	—	—	With two keys	—	1 unit	**M30C-FWRS3-RS**
						—		**M30C-FWRS3-RS-A1**

Two- or Three-Position

Action	Lock Mechanism	Key Withdrawable at Position			Equipment Supplied	Key Code	Std. Pack	Catalog Number
Two- or Three-Position								
60° ↓ 60°	—	—	Selectable	—	With two keys	MS1	1 unit	**M30C-FWRS3-A1**
						MS2		**M30C-FWRS3-A2**
						MS3		**M30C-FWRS3-A3**
						MS4		**M30C-FWRS3-A4**
						MS5		**M30C-FWRS3-A5**
						MS6		**M30C-FWRS3-A6**
						MS7		**M30C-FWRS3-A7**
						MS10		**M30C-FWRS3-A10**

M30—Joysticks, Indicator Lights and Illuminated Operators

Joystick

Joysticks—IP66, Metal Bezel

With one operating point per operating direction
NEMA Type 1, 3R, 4X, 12 or 13
With metal shaft
Front dimensions: 36 mm diameter

Description	Action = Momentary (MO) = Maintained (MA)	Std. Pack	Catalog Number
Two-position	——	1 unit	**M30C-FWRJS2H**
Three-position	|		**M30C-FWRJS2V**
Four-position	◇		**M30C-FWJS4**

Indicator Lights

Indicator Lights—IP67, Metal Bezel

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13

Lens	Std. Pack	Catalog Number
○	1 unit	**M30C-FL-W**
		M30C-FL-R
		M30C-FL-G
		M30C-FL-Y
		M30C-FL-B
		M30C-FL-A

Illuminated Pushbuttons

Momentary

IP67, IP69K, Metal Bezel, Flush

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13

Button Plate	Std. Pack	Catalog Number
○	1 unit	**M30C-FDL-W**
		M30C-FDL-R
		M30C-FDL-G
		M30C-FDL-Y
		M30C-FDL-B
		M30C-FDL-A
◎		**M30C-FDL-W-X0**
I		**M30C-FDL-W-X1**
◇		**M30C-FDL-W-X100**
◎		**M30C-FDL-R-X0**
I		**M30C-FDL-G-X1**
▭		**M30C-FDL-G-X32**
⏻		**M30C-FDL-Y-X162**
Custom		**M30C-FDL-ETCH** ①
Without button plate	1 unit	**M30C-FDL-X**

Momentary

Maintained

IP67, IP69K, Metal Bezel, Flush

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13

Button Plate	Std. Pack	Catalog Number
○	1 unit	**M30C-FDRL-W**
		M30C-FDRL-R
		M30C-FDRL-G
		M30C-FDRL-Y
		M30C-FDRL-B
		M30C-FDRL-A
◎		**M30C-FDRL-W-X0**
I		**M30C-FDRL-W-X1**
◎		**M30C-FDRL-R-X0**
I		**M30C-FDRL-G-X1**
Custom		**M30C-FDRL-ETCH** ①
Without button plate	1 unit	**M30C-FDRL-X**

Maintained

Note

① When ordering, specify inscription per catalog number suffix from the Symbols Library (see **Pages V7-T1-123** to **V7-T1-130**).

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Illuminated Selector Switches

IP64, Metal Bezel, with Thumb-Grip

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13
Maintained/momentary action can be changed with M22-XC-Y configuration adapters

Momentary

Action = Momentary (MO) = Maintained (MA)	Button Plate	Std. Pack	Catalog Number
Two-Position			
40°	○	1 unit	**M30C-FWLK-W**
	●		**M30C-FWLK-R**
	●		**M30C-FWLK-G**
	●		**M30C-FWLK-Y**
	●		**M30C-FWLK-B**
60°	○	1 unit	**M30C-FWRLK-W**
	●		**M30C-FWRLK-R**
	●		**M30C-FWRLK-G**
	●		**M30C-FWRLK-Y**
	●		**M30C-FWRLK-B**

Momentary

Two-Position (V-Configuration)			
60°	○	1 unit	**M30C-FWLKV-W**
	●		**M30C-FWLKV-R**
	●		**M30C-FWLKV-G**
	●		**M30C-FWLKV-Y**
	●		**M30C-FWLKV-B**

IP64, Metal Bezel, with Thumb-Grip

Front dimensions: 36 mm diameter
NEMA Type 1, 3R, 4X, 12 or 13
Maintained/momentary action can be changed with M22-XC-Y configuration adapters

Momentary

Action = Momentary (MO) = Maintained (MA)	Button Plate	Std. Pack	Catalog Number
Three-Position			
40° 40°	○	1 unit	**M30C-FWLK3-W**
	●		**M30C-FWLK3-R**
	●		**M30C-FWLK3-G**
	●		**M30C-FWLK3-Y**
	●		**M30C-FWLK3-B**
60° 60°	○	1 unit	**M30C-FWRLK3-W**
	●		**M30C-FWRLK3-R**
	●		**M30C-FWRLK3-G**
	●		**M30C-FWRLK3-Y**
	●		**M30C-FWRLK3-B**
Maintained, return from left 0 40° 40° 0 60° 60°	○	1 unit	**M30C-FWRLK3-1-W**
	●		**M30C-FWRLK3-1-R**
	●		**M30C-FWRLK3-1-G**
	●		**M30C-FWRLK3-1-Y**
	●		**M30C-FWRLK3-1-B**
Maintained, return from right 0 40° 40° 0 60° 60°	○	1 unit	**M30C-FWRLK3-2-W**
	●		**M30C-FWRLK3-2-R**
	●		**M30C-FWRLK3-2-G**
	●		**M30C-FWRLK3-2-Y**
	●		**M30C-FWRLK3-2-B**

Potentiometers

IP66, Metal Bezel Potentiometer

Three individual screw connections
NEMA Type 1, 3R, 4X, 12 or 13
Resistance accuracy: ±10% (linear) / Rated power P = 0.5 W

Potentiometer

Resistance (R) kOhm	Scale/Inscription	Contact Sequence	Std. Pack	Catalog Number
1	Standard scale/inscription		1 unit	**M30C-FR1K**
4.7				**M30C-FR4K7**
10				**M30C-FR10K**
47				**M30C-FR47K**
100				**M30C-FR100K**
470				**M30C-FR470K**
2.2				**M30C-FR2K2**
22				**M30C-FR22K**
1000				**M30C-FR1M**
1	Without scale/inscription		1 unit	**M30C-FR1K-BLANK**
2.2				**M30C-FR2K2-BLANK**
4.7				**M30C-FR4K7-BLANK**
10				**M30C-FR10K-BLANK**
22				**M30C-FR22K-BLANK**
47				**M30C-FR47K-BLANK**
100				**M30C-FR100K-BLANK**
470				**M30C-FR470K-BLANK**
1000				**M30C-FR1M-BLANK**

IP65, SmartWire-DT Potentiometer

Only in conjunction with M22-SWD-R function element
NEMA Type 1, 3R, 4X, 12 or 13

M22-R-SWD

Bezel	Contact Sequence	Std. Pack	Catalog Number
Silver bezel (M22)		1 unit	**M22-R-SWD**
Metal bezel (flat front)		1 unit	**M30C-FR-SWD**

IP65, SmartWire-DT Encoders

With actuation function
NEMA Type 1, 3R, 4X, 12 or 13
Only in conjunction with M22-SWD-INC function element

M30C-FINC-SWD

Bezel	Contact Sequence	Std. Pack	Catalog Number
Silver bezel (M22)	—	1 unit	**M22-INC-SWD**
Metal bezel (flat front)	—	1 unit	**M30C-FINC-SWD**

1

Blanking Plugs

Round design, IP67, IP69K
For sealing spare mounting locations

For use with …	Color	Std. Pack	Catalog Number
M22		50 units	**M22-B216388**
		250 units	**M22-B-GVP216389**
		50 units	**M22S-B216390**
		250 units	**M22S-B-GVP216391**
M30		1 unit	**M30C-FB187028**

Technical Data

Global Modular 30 mm Pilot Devices

Description	Unit	Contact Elements M22-(C)K…	M22-FK…	Double Contact Elements M22-CK20/02/11	LED Elements M22(C)-LED…	M22-FLED…	(Illuminated) Pushbuttons, Mushroom Pushbuttons Momentary	Maintained
General								
Standards		IEC/EN 60947-5-1	—	IEC/EN 60947-5-1	IEC/EN 60947-5-1	—	EC/EN 60947-5-1	—
Lifespan, mechanical (operations)	x 10^6	5	1	—	—	—	5	1
Operating frequency (operations)	h	≦ 3600	≦ 3600	≦ 3600	—	—	≦ 3600	≦ 1800
Operating force	N	5	4.5	10	—	—	5	5
Operating torque (screw terminals)	Nm	0.8	—	—	0.8	—	—	—
Degree of protection (IEC/EN 60529)		IP20	IP20	IP20	IP20	IP20	IP67, IP69K	IP67, IP69K
Climatic proofing		Damp heat, constant as defined in IEC 60068-2-7; Damp heat, cyclic as defined in IEC 60068-2-3						
Ambient air temperature, open	°C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Mounting position		Any	Any	Any	Any	Any	Any	Any
Mechanical shock resistance as defined in IEC 60068-2-27 Shock duration: 11 ms, half sine shock	g	30	50	30	30	50	M22: 30 M30: 15	M22: 30 M30: 15
Terminal capacities								
Solid	mm^2	0.75–2.5	2 x 1 (0.2–1.5) 2 x 1 (0.75–1.5) ①	0.5–1.5	0.75–2.5	1 x 1 (0.2– 1.5) 1 x 1 (0.75–1.5) ①	—	—
Stranded	mm^2	0.5–2.5	—	0.5–1.5	0.5–2.5	1 x 1 (0.2–1.5)	—	—
Flexible with ferrule	mm^2	0.5–1.5	2 x 1 (0.25–1) ②	0.5–1.5	—	1 x 1 (0.25–1) ②	—	—

Notes

① Can be plugged without tools.
② Use WAGO Variocrimp 4 crimping tool; please enquire for others.

Global Modular 30 mm Pilot Devices, continued

Description	Unit	Contact Elements M22-(C)K…	M22-FK…	Double Contact Elements M22-CK20/02/11	LED Elements M22(C)-LED…	M22-FLED…	(Illuminated) Pushbuttons, Mushroom Pushbuttons Momentary	Maintained
Contacts								
Rated impulse withstand voltage (U_{imp})	Vac	6000	4000	—	6000	4000	—	—
Rated insulation voltage (U_i)	V	500	250	—	500	250	—	—
Overvoltage category/ degree of pollution		III/3	III/3	—	III/3	III/3	—	—
Control circuit reliability								
At 24 Vdc/5 mA (failure rate)	H_F	< 10^{-7} ①	—	—	—	—	—	—
At 5 Vdc/1 mA (failure rate)	H_F	< 5 x 10^{-6} ②	—	—	—	—	—	—
Max. short-circuit protective device								
Fuseless (part no.)	A	PKZM0–10/FAZ-B6/1	FAZ-B4	—	—	—	—	—
Fuse (gG/gL)		10	4	—	—	—	—	—
Switching Capacity								
Rated operational current								
AC-15: 24 V I_e	A	—	4	—	—	—	—	—
60 V I_e	A	—	4	—	—	—	—	—
100 V I_e	A	—	2	—	—	—	—	—
115 V I_e	A	6	—	—	—	—	—	—
230 V I_e	A	6	1.5	—	—	—	—	—
400 V I_e	A	4	—	—	—	—	—	—
500 V I_e	A	2	—	—	—	—	—	—
DC-13: 24 V I_e	A	3	1.5	—	—	—	—	—
42 V I_e	A	1.7	—	—	—	—	—	—
60 V I_e	A	1.2	0.8	—	—	—	—	—
110 V I_e	A	0.6 (M22-CK...: 0.8)	0.4	—	—	—	—	—
220 V I_e	A	0.3	0.2	—	—	—	—	—
Lifespan, electrical								
AC-15: 230 V/0.5 A (operations)	x 10^6	1.6	—	—	—	—	—	—
230 V/1.0 A (operations)	x 10^6	1	—	—	—	—	—	—
230 V/3.0 A (operations)	x 10^6	0.7	—	—	—	—	—	—
DC-15: 12 V/2.8 A (operations)	x 10^6	1.2	—	—	—	—	—	—

Notes

① < 10^{-7} (i.e., one failure every 107 operations).

② < 5 x 10^{-6} (i.e., one failure every 5 x 106 operations).

1

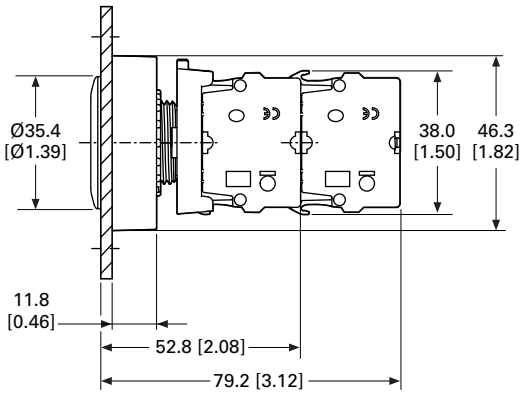
Global Modular 30 mm Pilot Devices, continued

Description	Unit	Double Actuator Pushbuttons	(Illuminated) Selector Switches	Joysticks	Key-Operated Buttons	Indicator Lights Acoustic Devices Potentiometers	Controlled Stop/ Emergency Stop
General							
Standards		IEC/EN 60947-5-1	IEC/EN 60947-5-1	IEC/EN 60947-5-1	IEC/EN 60947-5-1	IEC/EN 60947-5-1	IEC/EN 60947-5-5
Lifespan, mechanical (operations)	x 10^6	0.2	0.1	0.1	0.1	—	0.1
Operating frequency (operations)	h	≤ 3600	≤ 2000	≤ 2000	≤ 100	—	≤ 600
Operating force	N	5	—	5	—	—	50
Operating torque (screw terminals)	Nm	—	0.3	—	0.5	—	—
Degree of protection (IEC/EN 60529)		IP66	M22: IP66 M30: IP64	IP66	M22: IP66 M30: IP64	Indicator lights: IP67 Acoustic devices: IP40 Potentiometers: IP66	IP67, IP69K
Climatic proofing		Damp heat, constant as defined in IEC 60068-2-7; Damp heat, cyclic as defined in IEC 60068-2-3					
Ambient air temperature, open	°C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Mounting position		Any	Any	Any	Any	Any	Any
Mechanical shock resistance as defined in IEC 60068-2-27 Shock duration: 11 ms, half sine shock	g	30	M22: 30 M30: 15	M22: 30 M30: 15	M22: 30 M30: 15	M22: 30 M30: —	50
Terminal capacities							
Solid	mm^2	—	—	—	—	0.5–1.5	—
Stranded	mm^2	—	—	—	—	0.5–1.5	—
Flexible with ferrule	mm^2	—	—	—	—	—	—
Contacts							
Rated impulse withstand voltage (U_{imp})	Vac	—	—	—	—	4000	—
Rated insulation voltage (U_i)	V	—	—	—	—	250	—
Overvoltage category/ degree of pollution		—	—	—	—	III/3	—
Control circuit reliability		—	—	—	—	—	—
At 24 Vdc/5 mA (failure rate)	H_F	—	—	—	—	—	—
At 5 Vdc/1 mA (failure rate)	H_F	—	—	—	—	—	—
Max. short-circuit protective device							
Fuseless (part no.)	A	—	—	—	—	—	—
Fuse (gG/gL)		—	—	—	—	—	—
Switching Capacity							
	A	N/A	N/A	N/A	N/A	N/A	N/A

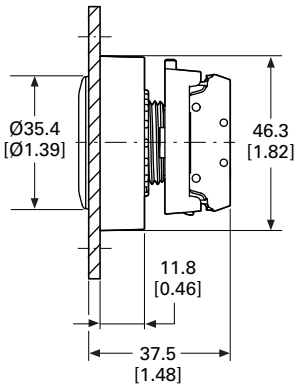
Dimensions

Approximate Dimensions in mm [inches]

M30… with 2 M22-K… Standard Contact Elements

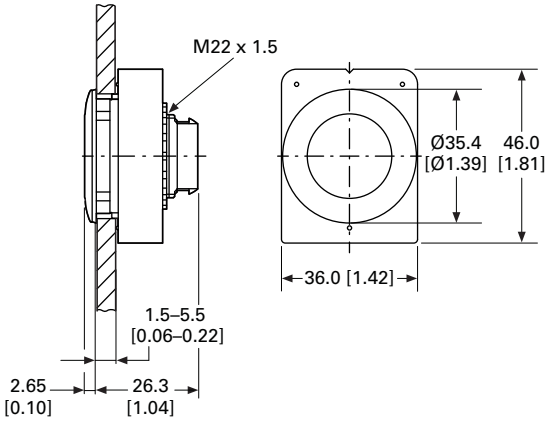


M30… with M22-FK… Flat Rear Contact Elements



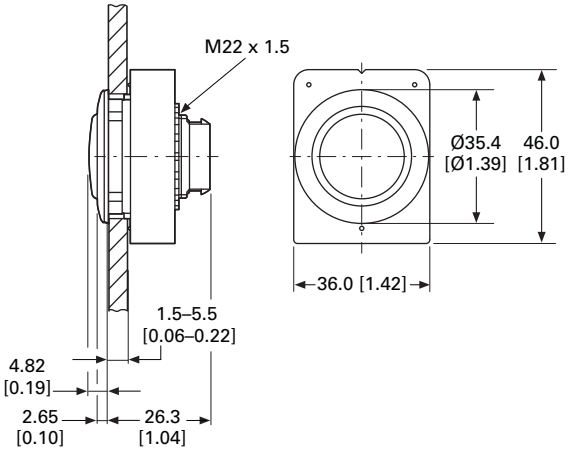
Pushbuttons, Blanking Plug

M30C-FD…, M30C-FB



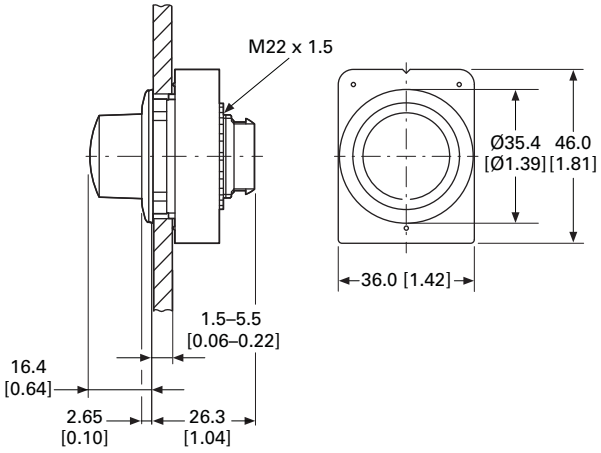
Indicator Lights

M30C-FL…



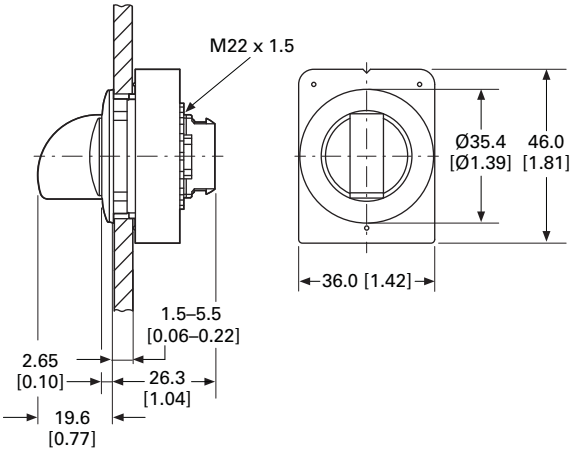
Selector Switches

With Rotary Head M30C-FW…



Illuminated Selector Switches

With Thumb-Grip, Four-Way M30C-FW(L)K(V)-…

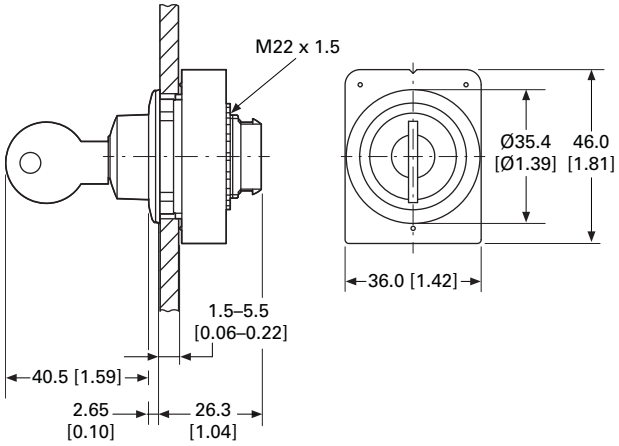


1

Approximate Dimensions in mm [inches]

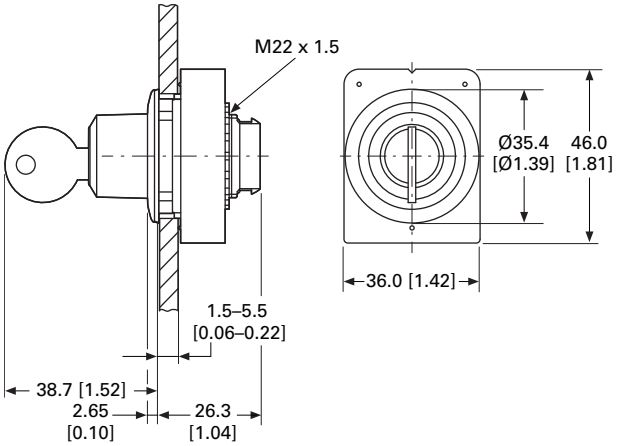
Key-Operated Buttons

M30C-FW(R)S(3)-MS…



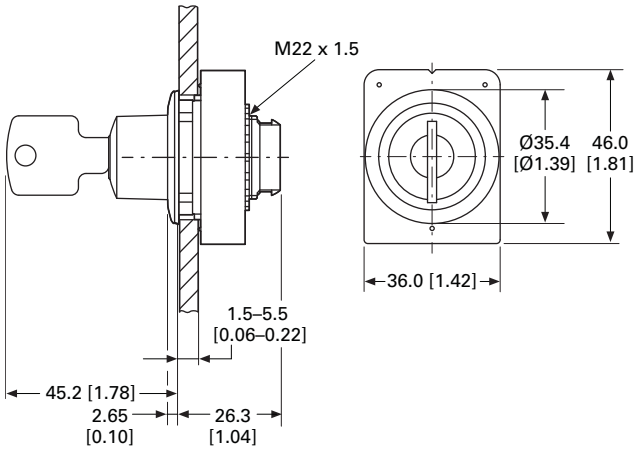
Key-Operated Buttons

M30C-FW(R)S(3)-RS…



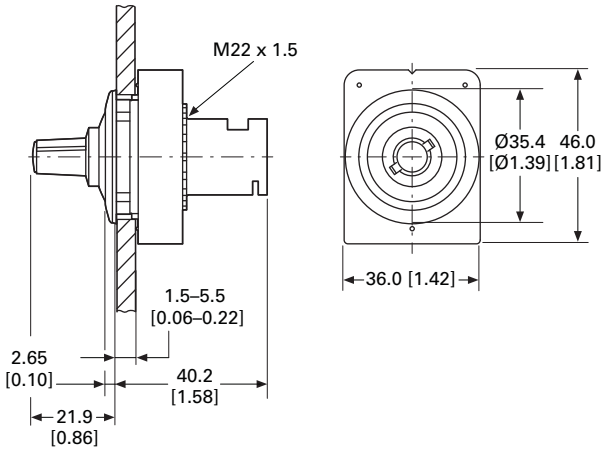
Key-Operated Buttons

M30C-FW(R)S(3)-SA…



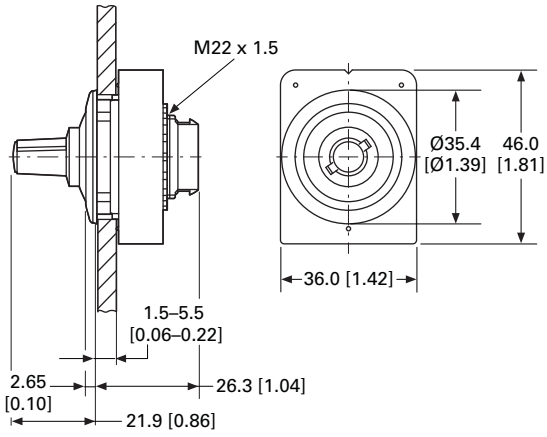
Potentiometers

M30C-FR…



Potentiometers, SmartWire-DT

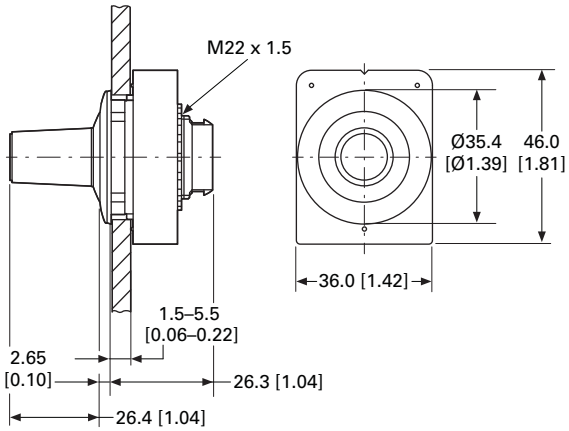
M30C-FR-SWD



Approximate Dimensions in mm [inches]

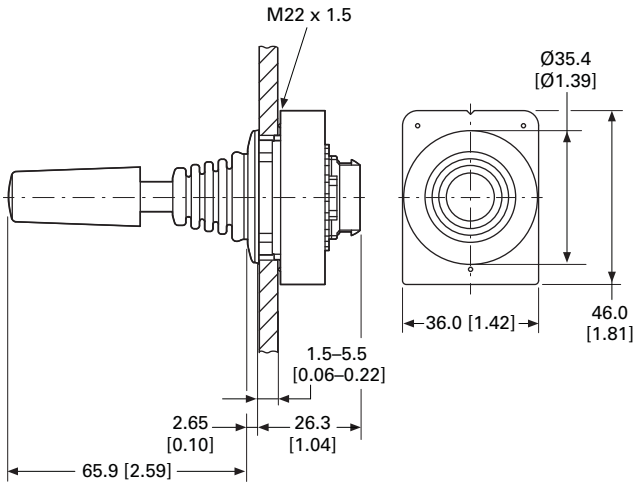
Encoders, SmartWire-DT

M30C-FINC-SWD

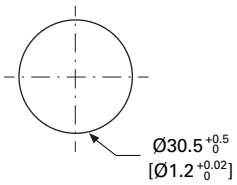


Joysticks

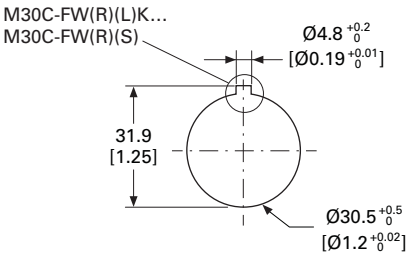
M30C-FW(R)JS…



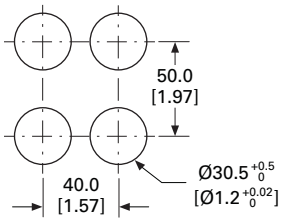
Mounting hole without key slot



Mounting hole with key slot



Grid dimensions for various combinations



Global Compact 30 mm Pilot Devices —C30 Flat with Pigtail

Contents

Product Description

The new and modern all-in-one C30 compact and flat 30 mm pilot devices with pigtail integrate the required cable, connector and housing in one single device.

Ability to provide protection up to IP69K at the front and IP65 at the back make these devices the perfect choice for applications where oil-tight protection from dirt and liquid is a must.

Features

Our product offering includes momentary and maintained operators; illuminated and non-illuminated pushbuttons; illuminated and non-illuminated selector switches and indicating lights. C30 pilot devices come with the following pigtail options:

- P5 for 1 m cable with M12
- P62 for 1 m cable with open wire
- P65 for 3.5 m

C30 compact and flat with pigtail 30 mm pilot devices offer modern look and smooth transition between the machine and the operator.

The cable, plug connector and housing are already integrated and permanently installed for plug and play.

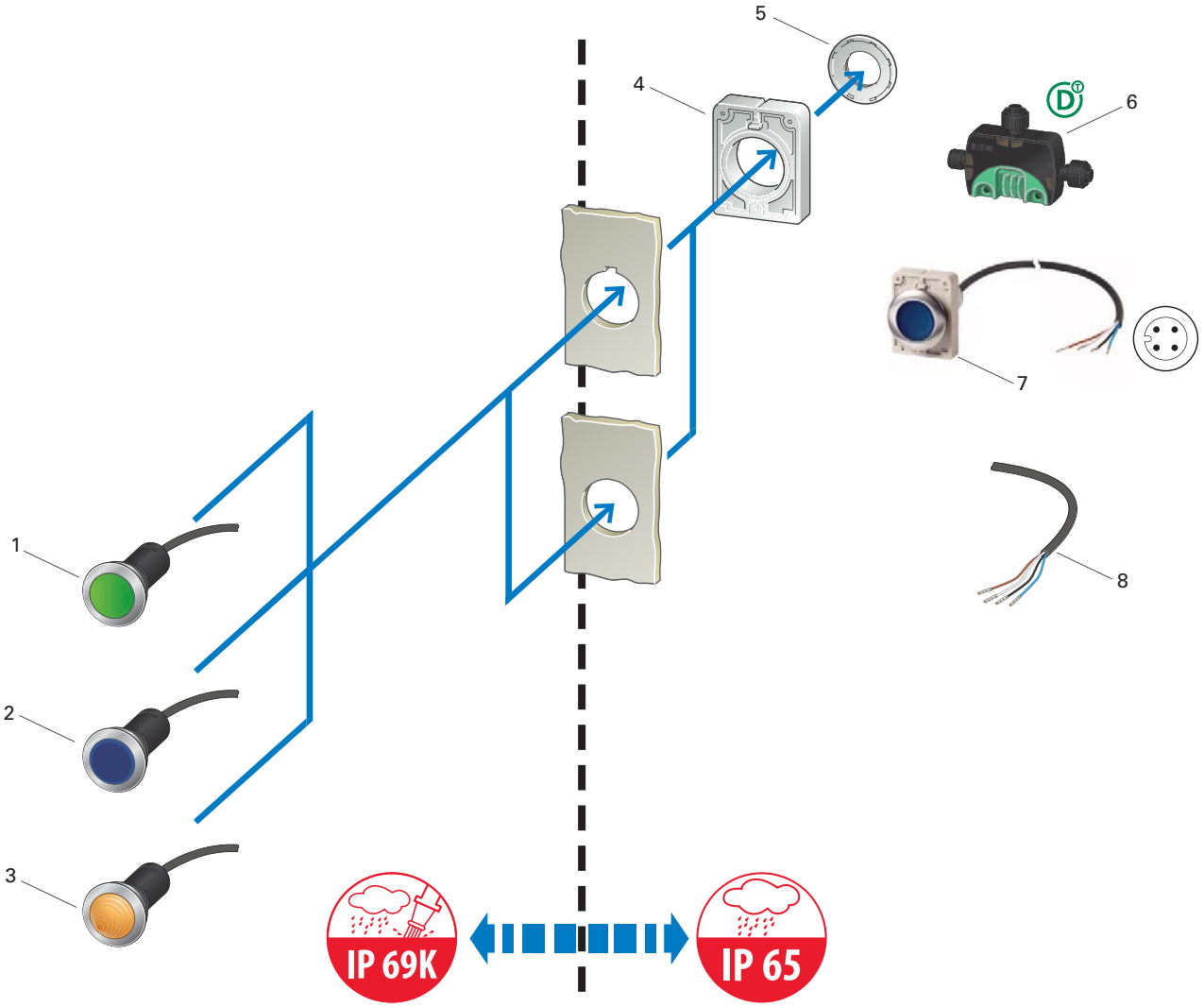
C30 pilot devices are also fully assembled for easy stocking and sustainable inventory management.

Standards and Certifications

- All operators and components are IEC/EN 60947 VDE 0660
- All C30 flat operators (for enclosed type devices or flat-front surface mounted devices only) are environmentally rated as Type 1, 3R, 4X, 12 or 13 UL File #: E29184
- All operators carry an IP66 rating with some rated for washdown environments with IP67 and IP69K
- Marine classification societies: Bureau Veritas (BV), Germanischer Lloyd (GL) and Lloyd's Register of Shipping (LR) approved

System Overview

Global Compact 30 mm Pilot Devices—C30 Flat with Pigtail



Global Compact 30 mm Pilot Devices—C30 Flat with Pigtail (Legend)

Item	Description
1	**C30 Pushbuttons** Momentary and maintained Flush Colors: white, green, red, black With cable (1.5 or 3 m) and plug (M12A, 4-pole) or unterminated cable end (4-pole) See **Page V7-T1-180**
2	**C30 Illuminated Pushbutton Actuators** Momentary and maintained Flush Colors: white, green, red, blue With cable (1.5 or 3 m) and plug (M12A, 4-pole) or unterminated cable end (4-pole) 24 Vac/Vdc See **Page V7-T1-183**
3	**C30 Indicator Lights** Flush Colors: white, green, red, blue, yellow With cable (1.5 or 3 m) and plug (M12A, 4-pole) or unterminated cable end (4-pole) 24 Vac/Vdc See **Page V7-T1-182**
4	**RMQ-AFX Anti-Rotation Tab** Included with C30 compact devices
5	**Threaded Rings** See **Page V7-T1-110**
6	**SmartWire-DT I/O Module** For connecting digital input/output signals to SmartWire-DT IP67
7	**Cable with M12A Plug, 4-Pole**
8	**Cable End Open, 4-Pole**

1

Product Selection

Pushbuttons

30 mm Flat Front—Metal Bezel

IP66, IP67, IP69K (at front), IP65 (at rear)
Flush

Cable (Black) with M12A Plug, 4-Pole

Cable Length (m)	Button Plate	Contact Configuration ① NO = Normally Open Contact	NC = Normally Closed Contact	Contact Sequence ②	Contact Diagram	Std. Pack	Momentary Catalog Number	Maintained Catalog Number
1	Red	—	1NC ⊖	1 / 4	0 2.2 5.5 Zw = 4.5 mm	1 Unit	C30C-FD-R-K01-P5	C30C-FDR-R-K01-P5
	Black						C30C-FD-S-K01-P5	C30C-FDR-S-K01-P5
	Without button plate						C30C-FD-X-K01-P5	C30C-FDR-X-K01-P5
1	Green	1NO	—	1 / 4	0 3.15 5.5	1 Unit	C30C-FD-G-K10-P5	C30C-FDR-G-K10-P5
	White						C30C-FD-W-K10-P5	C30C-FDR-W-K10-P5
	Without button plate						C30C-FD-X-K10-P5	C30C-FDR-X-K10-P5

Notes

① ⊖ = Safety function implemented with positive opening as defined in IEC/EN 60947-5-1.
② Contact sequence: ■ = contact closed; □ = contact open.

30 mm Flat Front—Metal Bezel, continued

IP66, IP67, IP69K (at front), IP65 (at rear)
Flush

Cable (Black) with M12A Plug, 4-Pole

Cable Length (m)	Button Plate	Contact Configuration ① NO = Normally Open Contact	NC = Normally Closed Contact	Contact Sequence ②	Contact Diagram	Std. Pack	Momentary Catalog Number	Maintained Catalog Number
1	●	—	1NC ⊖	BN / BK	0 2.2 5.5 Zw = 4.5 mm	1 Unit	C30C-FD-R-K01-P62	C30C-FDR-R-K01-P62
	●						C30C-FD-S-K01-P62	C30C-FDR-S-K01-P62
	Without button plate						C30C-FD-X-K01-P62	C30C-FDR-X-K01-P62
			2NC ⊖	BN WH / BK BU	0 2.2 5.5 Zw = 4.5 mm		C30C-FD-X-K02-P62	C30C-FDR-X-K02-P62
		1NO	1NC ⊖	BN WH / BK BU	3.15 0 2.2 5.5		C30C-FD-X-K11-P62	C30C-FDR-X-K11-P62
	○	1NO	—	BN / BK	0 3.15 5.5	1 Unit	C30C-FD-G-K10-P62	C30C-FDR-G-K10-P62
	○						C30C-FD-W-K10-P62	C30C-FDR-W-K10-P62
	Without button plate						C30C-FD-X-K10-P62	C30C-FDR-X-K10-P62
		2NO		BN WH / BK BU	0 3.15 5.5		C30C-FD-X-K20-P62	C30C-FDR-X-K20-P62
3.5	●	—	1NC ⊖	BN / BK	0 2.2 5.5 Zw = 4.5 mm	1 Unit	C30C-FD-R-K01-P65	C30C-FDR-R-K01-P65
	●						C30C-FD-S-K01-P65	C30C-FDR-S-K01-P65
	Without button plate						C30C-FD-X-K01-P65	C30C-FDR-X-K01-P65
			2NC ⊖	BN WH / BK BU	0 2.2 5.5 Zw = 4.5 mm		C30C-FD-X-K02-P65	C30C-FDR-X-K02-P65
		1NO	1NC ⊖	BN WH / BK BU	3.15 0 2.2 5.5		C30C-FD-X-K11-P65	C30C-FDR-X-K11-P65
	○	1NO	—	BN / BK	0 3.15 5.5	1 Unit	C30C-FD-G-K10-P65	C30C-FDR-G-K10-P65
	○						C30C-FD-W-K10-P65	C30C-FDR-W-K10-P65
	Without button plate						C30C-FD-X-K10-P65	C30C-FDR-X-K10-P65
		2NO		BN WH / BK BU	0 3.15 5.5		C30C-FD-X-K20-P65	C30C-FDR-X-K20-P65

Notes

① ⊖ = Safety function implemented with positive opening as defined in IEC/EN 60947-5-1.

② Contact sequence: ■ = contact closed; □ = contact open.

1

Indicating Lights

30 mm Flat Front—Metal Bezel

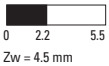
LED Rated Operating Voltage: 24 Vac/Vdc
IP66, IP67, IP69K (at Front), IP65 (at Rear)

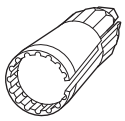
	Connection Type	Cable Length (m)	Lens	LED	Contact Sequence	Std. Pack	Catalog Number
C30C-FL-B-24-P5 	Cable (Black) with M12A Plug 4-Pole	1	Blue	Blue		1 Unit	**C30C-FL-B-24-P5**
			Green	Green			**C30C-FL-G-24-P5**
			Red	Red			**C30C-FL-R-24-P5**
			White	White			**C30C-FL-W-24-P5**
			Yellow	White			**C30C-FL-Y-24-P5**
C30C-FL-B-24-P62 	Cable (Black) with Unterminated End 4-Pole	1	Blue	Blue		1 Unit	**C30C-FL-B-24-P62**
			Green	Green			**C30C-FL-G-24-P62**
			Red	Red			**C30C-FL-R-24-P62**
			White	White			**C30C-FL-W-24-P62**
			Yellow	White			**C30C-FL-Y-24-P62**
		3.5	Blue	Blue		1 Unit	**C30C-FL-B-24-P65**
			Green	Green			**C30C-FL-G-24-P65**
			Red	Red			**C30C-FL-R-24-P65**
			White	White			**C30C-FL-W-24-P65**
			Yellow	White			**C30C-FL-Y-24-P65**

Illuminated Pushbutton Actuators

30 mm Flat Front—Metal Bezel

LED Rated Operating Voltage: 24 Vac/Vdc
IP66, IP67, IP69K (at Front), IP65 (at Rear)
Flush

	Cable Length (m)	Button Plate	LED	Contact Configuration ① NO = Normally Open Contact	Contact Configuration ① NC = Normally Closed Contact	Contact Sequence ②	Contact Diagram	Std. Pack	Momentary Catalog Number	Maintained Catalog Number
Cable (Black) with M12A Plug, 4-Pole 	1	●	●	—	1NC ⊖			1	**C30C-FDL-RK01-24P5**	**C30C-FDRL-RK01-24P5**
		●	●	1NO	—				**C30C-FDL-BK10-24P5**	**C30C-FDRL-BK10-24P5**
		●	●						**C30C-FDL-GK10-24P5**	**C30C-FDRL-GK10-24P5**
		○	○						**C30C-FDL-WK10-24P5**	**C30C-FDRL-WK10-24P5**
Cable (Black) with Unterminated End, 4-Pole 	1	●	●	—	1NC ⊖			1	**C30C-FDL-RK01-24P62**	**C30C-FDRL-RK01-24P62**
		●	●	1NO	—				**C30C-FDL-BK10-24P62**	**C30C-FDRL-BK10-24P62**
		●	●						**C30C-FDL-GK10-24P62**	**C30C-FDRL-GK10-24P62**
		○	○						**C30C-FDL-WK10-24P62**	**C30C-FDRL-WK10-24P62**
	1	●	●	—	1NC ⊖			1	**C30C-FDL-RK01-24P65**	**C30C-FDRL-RK01-24P65**
		●	●	1NO	—				**C30C-FDL-BK10-24P65**	**C30C-FDRL-BK10-24P65**
		●	●						**C30C-FDL-GK10-24P65**	**C30C-FDRL-GK10-24P65**
		○	○						**C30C-FDL-WK10-24P65**	**C30C-FDRL-WK10-24P65**



Mounting Ring Tool

Description	Std. Pack	Catalog Number
For threaded ring; can be used with cordless screwdriver.	1 Unit	**C22-MS**

Notes

① ⊖ = Safety function implemented with positive opening as defined in IEC/EN 60947-5-1.

② Contact sequence: ■ = contact closed; □ = contact open.

1

Technical Data

Global Compact 30 mm Pilot Devices—C30 Flat with Pigtail

Description		Unit	Controlled stop/ emergency switching off buttons	(Illuminated) pushbuttons Momentary/ maintained	Selector switches	Key-operated buttons	Indicator lights
General							
Standards			IEC/EN 60947-5-5 VDE 0660	IEC/EN 60947-5-1 VDE 0660	IEC/EN 60947-5-1 VDE 0660	IEC/EN 60947-5-1 VDE 0660	IEC/EN 60947-5-1 VDE 0660
Lifespan, mechanical	Operations	x 10^6	0.05	5/1	1	0.1	—
Operating frequency	Operations/h		300	3600	2000	100	—
Operating force		N	50	5	—	—	—
Operating torque		Nm	—	—	0.3	0.5	—
Plug tightening torque		Nm	M12 = 1	M12 = 1	M12 = 1	M12 = 1	M12 = 1
Threaded ring tightening torque		Nm	2	2	2	2	2
Climatic proofing							
Damp heat, constant			As defined in IEC 60068-2-78	As defined in IEC 60068-2-78	As defined in IEC 60068-2-78	As defined in IEC 60068-2-78	As defined in IEC 60068-2-78
Damp heat, cyclic			As defined in IEC 60068-2-30	As defined in IEC 60068-2-30	As defined in IEC 60068-2-30	As defined in IEC 60068-2-30	As defined in IEC 60068-2-30
Degree of protection			IP66, IP67, IP69K (at front) IP65 (at rear)	IP66, IP67, IP69K (at front) IP65 (at rear)	IP66, IP67, IP69K (at front) IP65 (at rear)	IP66, IP67, IP69K (at front) IP65 (at rear)	IP66, IP67, IP69K (at front) IP65 (at rear)
Ambient air temperature ①							
Open		°C	–30 – +70	–30 – +70	–30 – +70	–30 – +70	–25 – +70
Storage		°C	–30 – +80	–30 – +80	–30 – +80	–30 – +80	–30 – +80
Mounting position			Any	Any	Any	Any	Any
Mechanical shock resistance for a shock duration of 11 ms		g	>30	>30	>30	>30	>30
Contacts							
Rated impulse withstand voltage	U_{imp}	Vac	M12A/unterminated: 4000	M12A/unterminated: 4000	M12A/unterminated: 4000	M12A/unterminated: 4000	M12A/unterminated: 4000
Rated insulation voltage	U_i	V	M12A/unterminated: 250	M12A/unterminated: 250	M12A/unterminated: 250	M12A/unterminated: 250	M12A/unterminated: 250
Overvoltage category/degree of pollution			III/3	III/3	III/3	III/3	III/3
Control circuit reliability at 17 Vdc/7 mA	HF						
NO (statistically determined)			1 failure per 17 x 10^6 operations	1 failure per 17 x 10^6 operations	1 failure per 17 x 10^6 operations	1 failure per 17 x 10^6 operations	—
NC (statistically determined)			1 failure per 0.9 x 10^6 operations	1 failure per 0.9 x 10^6 operations	1 failure per 0.9 x 10^6 operations	1 failure per 0.9 x 10^6 operations	—
Fuse	gG/gL	A	4	4	4	4	4
Conditional short-circuit current	I_q	kA	1	1	1	1	1
Switching capacity							
Rated operational current	I_e	A					
AC-15: 24 V	I_e	A	4	4	4	4	—
DC-13: 24 V	I_e	A	3	3	3	3	—
Cable characteristics							
Versions			M12A/ unterminated	M12A/ unterminated	M12A/ unterminated	M12A/ unterminated	M12A/ unterminated
Material			PUR	PUR	PUR	PUR	PUR
Diameter	∅	mm	4.7	4.7	4.7	4.7	4.7
Actuator travel and actuation force as per DIN EN 60947-5-1, K.5.4.1			—	—	—	—	—
Positive opening sequence		mm	4.65	4.65	4.65	4.65	—
Maximum travel		mm	5.11	5.7	5.7	5.7	—
Minimum force for positive opening		N	K01 = 15/ K11 = 20/K02 = 34	K01 = 15/ K11 = 20/K02 = 30	K01 = 15/ K11 = 20/K02 = 35	K01 = 15/ K11 = 20/K02 = 36	—

Note

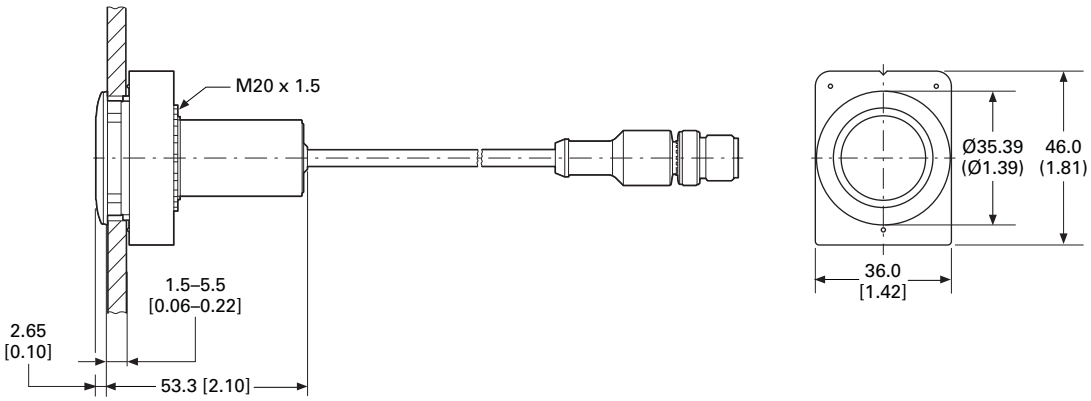
① Applicable for C22 with pigtail options.

Dimensions

Approximate Dimensions in mm [inches]

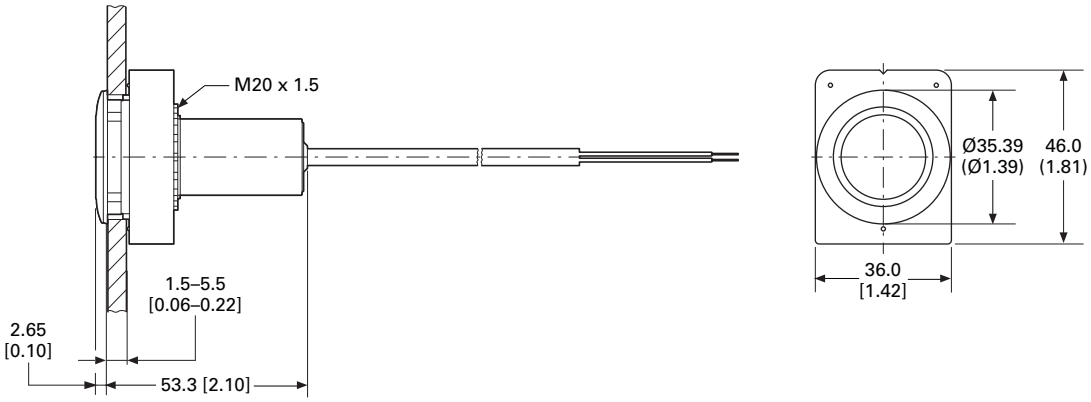
Pushbuttons, M12A

C30C-FD(R)(L)-…-P5



Pushbuttons, Unterminated Cable End

C30C-FD(R)(L)-…-P62/-65

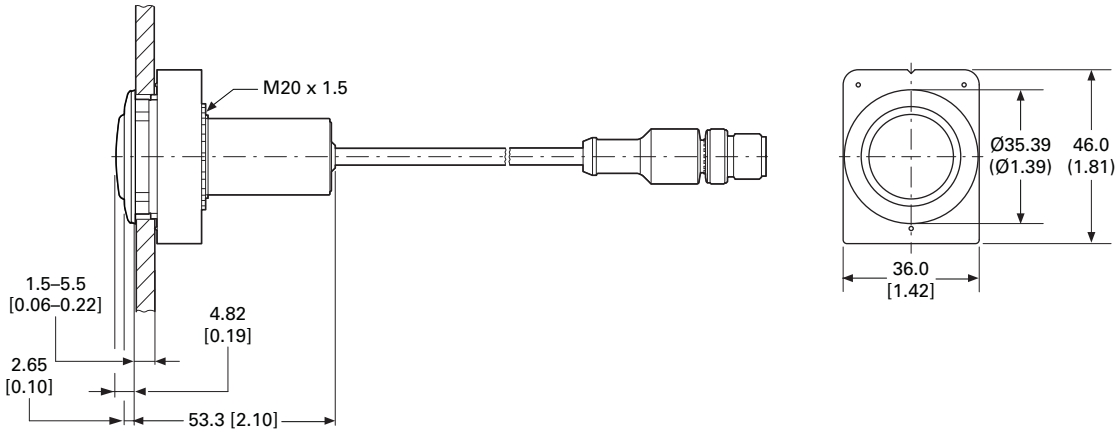


1

Approximate Dimensions in mm [inches]

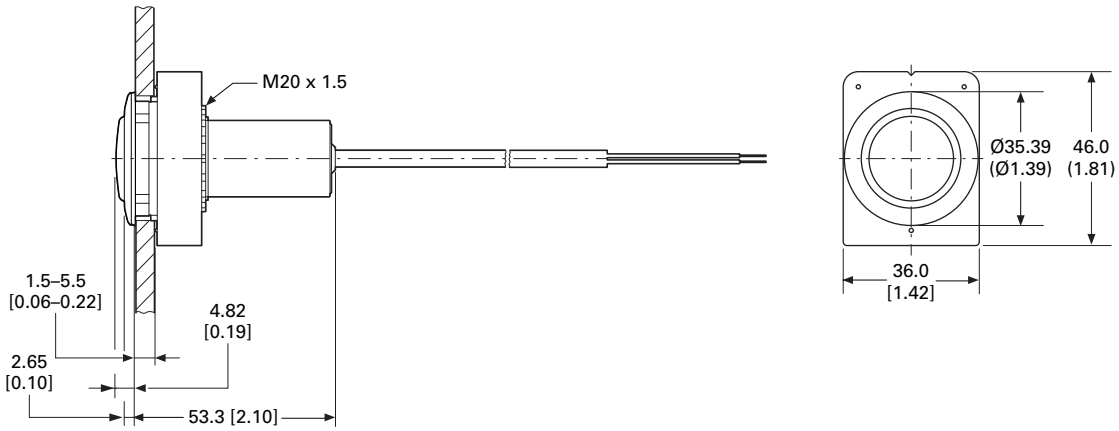
Indicator Lights, M12A

C30C-FL-…-P5



Indicator Lights, Unterminated Cable End

C30C-FL-…-24-P62/-P65



30.5 mm Square Multifunction Watertight/Oiltight—E30

Contents

Product Description

The E30 industrial pushbutton and indicating light line from Eaton's Electrical Sector features a wide selection of square, multifunction operators which conveniently mount in a standard 30.5 mm (1-13/64 in) diameter panel hole. Up to six input and indicating functions can be grouped into a single operating head, saving valuable panel space. Attractive square operator styling, coupled with custom legending of colored buttons and lenses and many special function accessories, makes E30 components ideally suited for use on control consoles and for a variety of industrial OEM applications.

Features

Type E30 control units consist of a basic operator with one or more buttons and lenses and contact block selection dependent on the specific operator configuration.

- **Pushbutton operators** will accommodate up to four single depth stackable contact blocks behind each operating button, up to eight circuits maximum.
- **Indicating lights** are supplied complete with either a transformer light unit up to 600 Vac supply line voltage or full voltage light unit up to 120 Vac/Vdc supply line voltage.
- **Combination pushbutton with indicating light** operators are supplied complete with a transformer or full voltage unit. Contact blocks must be ordered separately, up to four circuits maximum.

Die Cast Construction

Each operator has high pressure type seals to prevent the passage of oil and other contaminants through the operator into the contact structure or panel interior. Each operator uses a Buna N cork gasket between the mounting flange on the operator and the panel to maintain oiltightness.

Standards and Certifications

- UL Listed—File No. E131568
- CSA Certified—File No. LR68551

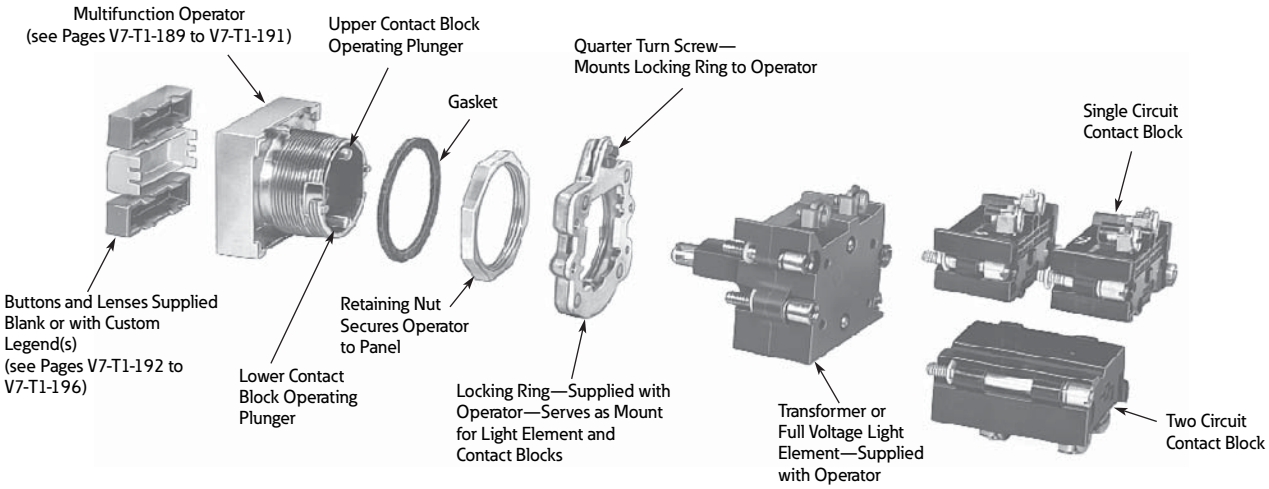
Ingress Protection

- Single and dual indicating lights
  - UL (NEMA) Type 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
- All other operators
  - UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

1

Product Identification

30.5 mm Square Multifunction Watertight/Oiltight



Product Selection

Operators

When Ordering a Complete E30 Control Unit Specify

Catalog Number of …	Ordering Example (E30AB)	
Operator	E30KB130	"START"
Button(s)	E30KB231	"STOP"
Contact block(s)	E30KLA1	1NO
Accessories (if required)	E30KLA2	1NC

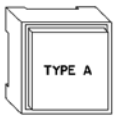
Square Multifunction Operators

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Single Button Operator

Shown with Extended Button

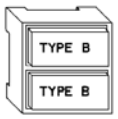
Single Button Operator/without Button (Order Button Separately)

Button Type Required ①	Operation	Special Features	Catalog Number
	Momentary	—	**E30AA**

Two Button Operator

Shown with Extended Buttons

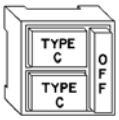
Two Button Operator/without Buttons (Order Buttons Separately)

Button Types Required ①	Operation		Special Features	Catalog Number
	Top Button	Bottom Button		
	Momentary	Momentary	—	**E30AB**
	Momentary	Momentary	With mechanical interlock	**E30AC**
	Maintained (all contacts)	Release (all contacts)	—	**E30AD** ②
	Maintained (all contacts)	Release (all contacts)	With mechanical interlock	**E30AP** ②③

Two Button Operator

Shown with Long Release Bar

Two Button Operator with Long (OFF) Release Bar—Includes OFF Bar/Button (Order Other Buttons Separately)

Button Types Required ④⑤	Operation		Special Features	Catalog Number
	Top Button	Bottom Button		
	Maintained	Maintained	—	**E30AF**
	Maintained	Maintained	With mechanical interlock	**E30AG**
	Maintained	Momentary	With mechanical interlock	**E30AH**
	Maintained (all contacts)	Maintained (bottom contacts only)	Top button operates both top and bottom contacts	**E30AK** ⑥

Notes

① Order from table on **Page V7-T1-192**.

② Limited to two single circuit, one double circuit 600V or two 120V (E30KLA9) contact blocks behind each button.

③ Buttons are interlocked so that one of the two is maintained at all times. Depressing the other button releases the maintained button and maintains the depressed button.

④ Operators are supplied as standard with red extended bar(s) marked "OFF" as shown in sketch. For other colors or markings, contact your nearest Eaton Distributor or call our Customer Service Center 1-800-356-1243. For replacement of standard red release bar, order **E30KR100.**

⑤ Order from table on **Page V7-T1-193**.

⑥ Limited to two single circuit, one double circuit 600V or two 120V (E30KLA9) contact blocks behind each button.

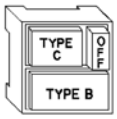
1

Square Multifunction Operators and Indicating Lights
UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two Button Operator with (OFF) Release—Includes OFF Bar/Button(s) (Order Other Buttons Separately)

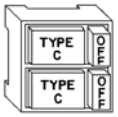
Two Button Operator

Shown with Release Bar for Top Button

Button Types Required ①②	Operation Top Button	Bottom Button	Special Features	Catalog Number
	Maintained	Momentary	Release bar for top button	**E30AL**

Two Button Operator

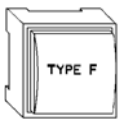
Shown with Release Bars for Each Button

Button Types Required ①②	Operation Top Button	Bottom Button	Special Features	Catalog Number
	Maintained	Maintained	Individual release bars for each button	**E30AN**
	Maintained with interlock	Maintained with interlock	Individual release bars for each button	**E30AM**

Single Indicating Light Unit

Shown with Lens

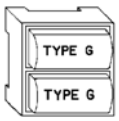
Single Indicating Light Unit/without Lens (Order Lens Separately)

	Type of Light Element: Transformer (60/50 Hertz AC)			Full Voltage (60/50 Hertz AC or DC)		
Lens Type Required ③	Voltage	Lamp Number ④	Catalog Number	Voltage	Lamp Number ④	Catalog Number
	120	#259	**E30BA**	24	24PSB	**E30BJ**
				120	120PSB	**E30BM**

Dual Indicating Light Unit

Shown with Lens

Dual Indicating Light Unit/without Lenses (Order Lenses Separately)

	Type of Light Element: Transformer (60/50 Hertz AC)			Full Voltage (60/50 Hertz AC or DC)		
Lens Types Required ⑤	Voltage	Lamp Number ④	Catalog Number	Voltage	Lamp Number ④	Catalog Number
	120	6PSB	**E30CA**	24	24PSB	**E30CJ**
				120	120PSB	**E30CM**

Notes

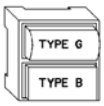
① Order from table on **Page V7-T1-193**.
② Operators are supplied as standard with red extended release bar(s) marked "OFF" as shown in sketch. For other colors or markings, contact your nearest Eaton Distributor or call our Customer Service Center 1-800-356-1243. For replacement of standard red release bar, order **E30KR101**.
③ Order from table on **Page V7-T1-194**.
④ Light units will also accept LED lamps. For LED part numbers, see table on **Page V7-T1-202**.
⑤ Order from table on **Page V7-T1-195**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Single Button Operator and Indicating Light

Shown with Button and Lens

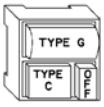
Single Button Operator with Indicating Light/without Button or Lens (Order Button and Lens Separately)

Button and Lens Types Required ①	Operation (Bottom Button)	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ②	Catalog Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalog Number
	Momentary	120	6PSB	**E30DA**	24	24PSB	**E30DX3**
					120	120PSB	**E30DF**

Single Button Operator with Release Bar and Indicating Light

Shown with Button and Lens

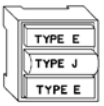
Single Button Operator with (OFF) Release Bar and Indicating Light—Includes OFF Bar/Button (Order Other Button and Lens Separately)

Button and Lens Types Required ①	Operation (Bottom Button)	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ③	Catalog Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalog Number
	Maintained	120	6PSB	**E30DG**	24	24PSB	**E30DX13**
					120	120PSB	**E30DM**

Two Button Operator with Indicating Light

Shown with Button and Lens

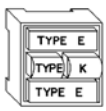
Two Button Operator with Indicating Light/without Buttons or Lens (Order Buttons and Lens Separately)

Button and Lens Types Required ④	Button Operation	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ②	Catalog Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalog Number
	Momentary	120	6PSB	**E30EA**	24	24PSB	**E30EX3**
					120	120PSB	**E30EF**
	Momentary with interlock	120	6PSB	**E30EG**	24	24PSB	**E30EX13**
					120	120PSB	**E30EM**

Two Button Operator with Dual Indicating Lights

Shown with Button and Lens

Two Button Operator with Dual Indicating Lights/without Buttons and Lens

Button and Lens Types Required ①	Button Operation	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ②	Catalog Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalog Number
	Momentary	120	6PSB	**E30JA**	24	24PSB	**E30JX3**
					120	120PSB	**E30JF**

Notes

① Order from tables on **Pages V7-T1-192** to **V7-T1-196**.

② Light units will also accept LED lamps. For LED part numbers, see table on **Page V7-T1-202**.

③ Operators are supplied as standard with red extended release bar(s) marked "OFF" as shown in sketch. For other colors or markings, contact your nearest Eaton Distributor or call our Customer Service Center 1-800-356-1243. For replacement of standard red release bar, order **E30KR101**.

④ Order from tables on **Pages V7-T1-194** and **V7-T1-195**.

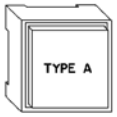
1

Operator Components

Operating Buttons Only

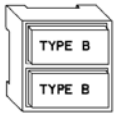
Type A Extended Button

Type A Buttons with Standard Markings ①

Button Application	Color	Marking	Extended Button Catalog Number	Short Button Catalog Number	Color	Marking	Extended Button Catalog Number	Short Button Catalog Number
	Black	Blank	**E30KA100**	**E30KA150**	Green	START	**E30KA330**	**E30KA380**
		START	—	**E30KA180**	Yellow	Blank	**E30KA400**	**E30KA450**
	Red	Blank	**E30KA200**	**E30KA250**	White	Blank	**E30KA500**	**E30KA550**
		EMERG. STOP	**E30KA204**	—	Gray	Blank	**E30KA600**	**E30KA650**
		OFF	**E30KA218**	**E30KA268**	Brown	Blank	**E30KA700**	**E30KA750**
		STOP	**E30KA231**	**E30KA281**	Orange	Blank	**E30KA800**	**E30KA950**
	Green	Blank	**E30KA300**	**E30KA350**	Blue	Blank	**E30KA900**	**E30KA950**

Type B Extended Button

Type B Buttons with Standard Markings ②

Button Application	Color	Marking	Extended Button Catalog Number	Short Button Catalog Number	Color	Marking	Extended Button Catalog Number	Short Button Catalog Number
	Black	Blank	**E30KB100**	**E30KB150**	Black	REVERSE	**E30KB125**	**E30KB175**
		AUTO	**E30KB101**	**E30KB151**		RUN	**E30KB126**	**E30KB176**
		CLOSE	**E30KB102**	**E30KB152**		SLOW	**E30KB128**	**E30KB178**
		DOWN	**E30KB103**	**E30KB153**		START	**E30KB130**	**E30KB180**
		FAST	**E30KB105**	**E30KB155**		TEST	**E30KB132**	**E30KB182**
		FORWARD	**E30KB107**	**E30KB157**		UP	**E30KB134**	**E30KB184**
		HIGH	**E30KB109**	**E30KB159**	Red	Blank	**E30KB200**	**E30KB250**
		IN	**E30KB110**	**E30KB160**		EMERG. STOP	**E30KB204**	—
		INCH	**E30KB111**	**E30KB161**		OFF	**E30KB218**	**E30KB268**
		JOG	**E30KB112**	**E30KB162**		STOP	**E30KB231**	**E30KB281**
		JOG FOR.	**E30KB113**	**E30KB163**	Green	Blank	**E30KB300**	**E30KB350**
		JOG REV.	**E30KB114**	**E30KB164**		START	**E30KB330**	**E30KB380**
		LOW	**E30KB115**	**E30KB165**	Yellow	Blank	**E30KB400**	**E30KB450**
		LOWER	**E30KB116**	**E30KB166**	White	Blank	**E30KB500**	**E30KB550**
		MAN	**E30KB117**	**E30KB167**		AUTO	**E30KB501**	—
		ON	**E30KB119**	**E30KB169**		HAND	**E30KB508**	—
		OPEN	**E30KB120**	**E30KB170**	Gray	Blank	**E30KB600**	**E30KB650**
		OUT	**E30KB121**	**E30KB171**	Brown	Blank	**E30KB700**	**E30KB750**
		RAISE	**E30KB122**	**E30KB172**	Orange	Blank	**E30KB800**	**E30KB850**
		RESET	**E30KB124**	**E30KB174**	Blue	Blank	**E30KB900**	**E30KB950**

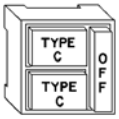
Notes

① Use with operator E30AA, legend characters 3/16 in (4.8 mm) high.

② Use with operators E30AB thru AE, AL and DA thru DF, legend characters 3/16 in (4.8 mm) high.

Type C Extended Button

Type C Buttons with Standard Markings ①

Button Application	Color	Marking	Extended Button Catalog Number	Short Button Catalog Number
	Black	Blank	**E30KC100**	**E30KC150**
		AUTO	**E30KC101**	**E30KC151**
		CLOSE	**E30KC102**	**E30KC152**
		DOWN	**E30KC103**	**E30KC153**
		FAST	**E30KC105**	**E30KC155**
		FORWARD	**E30KC107**	**E30KC157**
		HAND	**E30KC108**	**E30KC158**
		HIGH	**E30KC109**	**E30KC159**
		IN	**E30KC110**	**E30KC160**
		INCH	**E30KC111**	**E30KC161**
		JOG	**E30KC112**	**E30KC162**
		JOG FOR.	**E30KC113**	**E30KC163**
		JOG REV.	**E30KC114**	**E30KC164**
		LOW	**E30KC115**	**E30KC165**
		LOWER	**E30KC116**	**E30KC166**
		MAN	**E30KC117**	**E30KC167**
		ON	**E30KC119**	**E30KC169**
		OPEN	**E30KC120**	**E30KC170**
		OUT	**E30KC121**	**E30KC171**
		RAISE	**E30KC122**	**E30KC172**
	Black	RESET	**E30KC124**	**E30KC174**
		REVERSE	**E30KC125**	**E30KC175**
		RUN	**E30KC126**	**E30KC176**
		SLOW	**E30KC128**	**E30KC178**
		START	**E30KC130**	**E30KC180**
		TEST	**E30KC132**	**E30KC182**
		UP	**E30KC134**	**E30KC184**
	Red	Blank	**E30KC200**	**E30KC250**
		OFF	**E30KC218**	—
		STOP	**E30KC231**	**E30KC281**
	Green	Blank	**E30KC300**	**E30KC350**
		START	**E30KC330**	**E30KC380**
	Yellow	Blank	**E30KC400**	**E30KC450**
	White	Blank	**E30KC500**	**E30KC550**
	Gray	Blank	**E30KC600**	**E30KC650**
	Brown	Blank	**E30KC700**	**E30KC750**
	Orange	Blank	**E30KC800**	**E30KC850**
	Blue	Blank	**E30KC900**	**E30KC950**

Note

① Use with operators E30AF thru AK, AL thru AM and DG thru DM, legend characters 1/8 in (3.2 mm) high.

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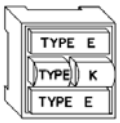
Operating Buttons and Lens Only

Standard Color Buttons and Lens Marking ①

Black lettering on — White, Amber, Yellow and Clear.
White lettering on — Green, Red, Blue, Brown, Black, Orange and Gray.

Type E Button

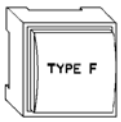
Type E Buttons with Standard Markings ②



Button Application	Color	Marking	Extended Button Catalog Number
	Black	Blank	**E30KE100**
		CLOSE	**E30KE102**
		DOWN	**E30KE103**
		FAST	**E30KE105**
		FORWARD	**E30KE107**
		HIGH	**E30KE109**
		IN	**E30KE110**
		INCH	**E30KE111**
		JOG	**E30KE112**
		JOG FOR.	**E30KE113**
		JOG REV.	**E30KE114**
		LOW	**E30KE115**
		LOWER	**E30KE116**
		ON	**E30KE119**
		OPEN	**E30KE120**
		OUT	**E30KE121**
		PHASE	**E30KE122**
	Black	RESET	**E30KE124**
		REVERSE	**E30KE125**
		RUN	**E30KE126**
		SLOW	**E30KE128**
		START	**E30KE130**
		TEST	**E30KE132**
		UP	**E30KE134**
	Red	Blank	**E30KE200**
		OFF	**E30KE218**
		STOP	**E30KE231**
	Green	Blank	**E30KE300**
		START	**E30KE330**
	Yellow	Blank	**E30KE400**
	White	Blank	**E30KE500**
	Gray	Blank	**E30KE600**
	Brown	Blank	**E30KE700**
	Orange	Blank	**E30KE800**
	Blue	Blank	**E30KE900**

Type F Lens

Type F Lenses with Standard Markings ③



Button Application	Color	Marking	Catalog Number
	Red	Blank	**E30KF10**
		MOTOR RUN	**E30KF11**
		ON	**E30KF12**
		POWER ON	**E30KF13**
	Green	Blank	**E30KF20**
		MOTOR STOP	**E30KF21**
		MOTOR RUN	**E30KF23**
	Green	OFF	**E30KF22**
	Amber	Blank	**E30KF30**
	Blue	Blank	**E30KF40**
	Clear	Blank	**E30KF50**
	White	Blank	**E30KF60**

Notes

① For lenses with special markings or with standard markings but in a different color, refer to instructions on **Pages V7-T1-199** to **V7-T1-201**.
② Use with operators E30EA thru EM, FA thru FM and JA thru JM, legend characters 1/8 in (3.2 mm) high.
③ Use with operators E30BA thru BY, legend characters 3/16 in (4.8 mm) high.

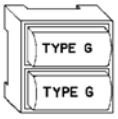
Operating Lens Only

Standard Color Buttons and Lens Marking ①

Black lettering on — White, Amber, Yellow and Clear.
White lettering on — Green, Red, Blue, Brown, Black, Orange and Gray.

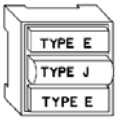
Type G Lens

Type G Lenses with Standard Markings ②

Lens Application	Color	Marking	Catalog Number	Color	Marking	Catalog Number
	Red	Blank	**E30KG10**	Green	OFF	**E30KG22**
		MOTOR RUN	**E30KG11**		READY	**E30KG23**
		ON	**E30KG12**	Amber	Blank	**E30KG30**
		POWER ON	**E30KG13**	Blue	Blank	**E30KG40**
	Green	Blank	**E30KG20**	Clear	Blank	**E30KG50**
		MOTOR RUN	**E30KG24**	White	Blank	**E30KG60**
		MOTOR STOP	**E30KG21**			

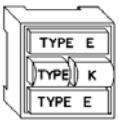
Type J Lens

Type J Lenses with Standard Markings ③

Lens Application	Color	Marking	Catalog Number	Color	Marking	Catalog Number
	Red	Blank	**E30KJ10**	Green	OFF	**E30KJ22**
		MOTOR RUN	**E30KJ11**		ON	**E30KJ24**
		ON	**E30KJ12**	Amber	Blank	**E30KJ30**
		POWER ON	**E30KJ13**	Blue	Blank	**E30KJ40**
		MOTOR STOP	**E30KJ14**	Clear	Blank	**E30KJ50**
	Green	Blank	**E30KJ20**	White	Blank	**E30KJ60**
		MOTOR STOP	**E30KJ21**			
		MOTOR RUN	**E30KJ23**			

Type K Lenses

Type K Lenses with Standard Markings (Sold in Pairs Only) ④

Lens Application	Color		Marking		Catalog Number
	Left Hand Lens	Right Hand Lens	Left Hand Lens	Right Hand Lens	
	Red	Red	ON	ON	**E30KK12**
		Green	ON	OFF	**E30KK13**
	Green		OFF	OFF	**E30KK22**
		Red	OFF	ON	**E30KK23**

Notes

① For lenses with special markings or with standard markings but in a different color, refer to instructions on **Pages V7-T1-199** to **V7-T1-201**.
② Use with operators E30CA thru CM and DA thru DM, legend characters 3/16 in (4.8 mm) high except MOTOR RUN, POWER ON and MOTOR STOP are 1/8 in (3.2 mm) high.
③ Use with operators E30EA thru EM, FA thru FM and GA thru GM, legend characters 1/8 in (3.2 mm) high.
④ Use with operators E30JA thru JW, legend characters 1/8 in (3.2 mm) high

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Type K Lenses

Type K Lenses—Blank (Sold in Pairs Only)

Color			Color		
Left Hand Lens	**Right Hand Lens**	**Catalog Number**	**Left Hand Lens**	**Right Hand Lens**	**Catalog Number**
Red	Red	**E30KK10**	Blue	Red	**E30KK41**
	Green	**E30KK11**		Green	**E30KK42**
	Amber	**E30KK17**		Amber	**E30KK43**
	Blue	**E30KK14**		Blue	**E30KK40**
	Clear	**E30KK15**		Clear	**E30KK45**
	White	**E30KK16**		White	**E30KK46**
Green	Red	**E30KK21**	Clear	Red	**E30KK51**
	Green	**E30KK20**		Green	**E30KK52**
	Amber	**E30KK27**		Amber	**E30KK53**
	Blue	**E30KK24**		Blue	**E30KK54**
	Clear	**E30KK25**		Clear	**E30KK50**
	White	**E30KK26**		White	**E30KK56**
Amber	Red	**E30KK31**	White	Red	**E30KK61**
	Green	**E30KK32**		Green	**E30KK62**
	Amber	**E30KK30**		Amber	**E30KK63**
	Blue	**E30KK34**		Blue	**E30KK64**
	Clear	**E30KK35**		Clear	**E30KK65**
	White	**E30KK36**		White	**E30KK60**

Contact Blocks

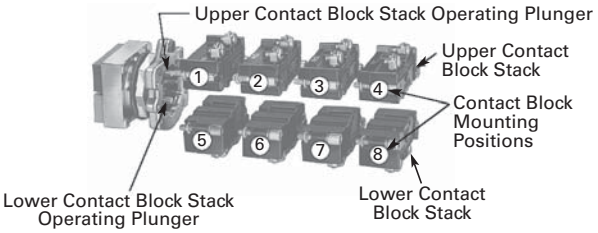
Standard Contact Blocks—Molded, phenolic construction. Enclosed silver contacts with reliability "nibs" that improve the reliability of switching performance under dry circuit, corrosive atmosphere and fine dust conditions. For more extreme conditions, the logic level contact blocks described below are recommended.

Logic Level Contact Blocks—Feature palladium contacts. Palladium, which is more inert than gold, is well suited for voltages and currents approaching zero. When mounted in an enclosure rated for highly corrosive environments, logic level contact blocks can be used where exposure to chemicals may cause failure to other types of materials.

Mounting Limitations

See the contact block mounting limitations for Type E30 pushbutton and combination pushbutton and light operators on this page. Mounting positions 1 thru 8 indicate single depth contact blocks. Each of these positions can represent either a single circuit 600 volt block or a two-circuit 120 volt block. The two-circuit 600 volt block requires two of the numbered positions shown.

Mounting Positions



Catalog Number of Operator	Contact Blocks Can Be Mounted in Positions Listed Below	
	Upper Stack	Lower Stack
E30AA thru **E30AM** ①	1-2-3-4	5-6-7-8
E30BA thru **E30CM**	None	None
E30DA thru **E30DM**	None	5-6-7-8
E30EA thru **E30GM**	2-3-4	6-7-8
E30JA thru **E30JM**	3-4	7-8

Contact Block Selection

Contact Block Type ②

Single Circuit, Screw Terminals

Two Circuit, Screw Terminals

Two Circuit, Quick Connect Terminals

120 Vac Only—Two Circuit

Circuit		Pressure Terminals Standard Catalog Number	Pressure Terminals Logic Level Catalog Number	Quick Connect Terminals ③ Standard Catalog Number
	1NO	**600 Vac, 250 Vdc—Single Circuit**		
		E30KLA1	**E30KLAE1**	**E30KLB1**
	1NC	**E30KLA2**	**E30KLAE2**	**E30KLB2**
	1NO-1NC	**600 Vac, 250 Vdc—Two Circuit**		
		E30KLA3	**E30KLAE3**	**E30KLB3**
	2NO	**E30KLA4**	**E30KLAE4**	**E30KLB4**
	2NC	**E30KLA5**	**E30KLAE5**	**E30KLB5**
Special Contact Operation				
	1NO-1NC Overlapping	**E30KLA6** ④	—	**E30KLB6** ④
	2NO (One early closing)	**E30KLA7** ④	—	**E30KLB7** ④
	2NC (One late opening)	**E30KLA8**	—	**E30KLB8**
	1NO-1NC	**120 Vac Only—Two Circuit**		
		E30KLA9 ⑤	—	**E30KLB9** ⑤

Notes

① Except operator E30AD, AJ or AK which will accommodate contact blocks 1, 2, 5 and 6 only. (See Mounting Positions above.)
② Individually boxed contact blocks master packed 10 per carton.
③ Supplied with non-stacking screws. Limited to 2 contact blocks mounted in positions 1 and 5.
④ Do not use with maintained operators.
⑤ Contacts must be same polarity.

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Accessories

Accessories

	Description	Color/Type	Catalog Number
E30KR_ 	**Collar**—Snap on mounting for assembly in the field. Permits color coding of operator heads. Size: 1-19/32 x 1-19/32 x 9/16 in.	Black	**E30KR1**
		Red	**E30KR2**
		Green	**E30KR3**
		Yellow	**E30KR4**
		White	**E30KR5**
		Gray	**E30KR6**
		Orange	**E30KR8**
		Blue	**E30KR9**
		Brown	**E30KR10**
E30KT_ 	**Shroud**—Similar to collar above except for extension above the face of button to prevent accidental actuation of button. Half shroud with an extension on only half the collar may be positioned to protect top or bottom button.	Full shroud (gray)	**E30KT6**
		Half shroud (gray)	**E30KT7**
E30KR3_ 	**Guard**—Two collars deep, removable slide prevents accidental operation. White slide can be marked with grease pencil.	Red with white slide	**E30KR31**
		Red with clear slide	**E30KR32**
E30KR30 	**Terminal Block**—2 terminals, each will accommodate 2-wire terminations.		**E30KR30**
E30KT_ 	**Padlock Attachment** for locking single button and bottom button of multi-function operators in the depressed position. Locks NC contacts open or early closing NO contacts closed. Cannot be used in conjunction with collar, shroud or boot.	Short button	**E30KT1**
		Extended button	**E30KT2**
E30KT3 	**Transparent Boot**—Guards against ingress of foreign material and freezing rain. **Note:** If this boot is used in conjunction with operator types AD or AE, an extended type button must be used in the top position and a short button in the lower position.		**E30KT3** ①
E30KT_ 	**Square Hole Plug**—		
	Gray enameled		**E30KT4**
	Stainless steel		**E30KT5**
E30KV1 	**Lamp and Lens Removal Tool**—Will not fit Cat. No. E30B light units listed on **Page V7-T1-190**.		**E30KV1**
E22CW 	**Octagonal Wrench** for mounting operators to panel.		**E22CW**
E30KV2 	**Button and Lens Removal Tool**		**E30KV2**

Note

① Color coordinating collars, padlock attachments or legend plates cannot be used with operators equipped with a transparent boot.

Options

Markings and Legend Plates

Buttons or Lenses with Non-Standard Horizontal Markings

Markings not listed as Standard Markings below are considered non-standard. If more than one marking is required on a button or lens, order non-standard markings.

Ordering Instructions

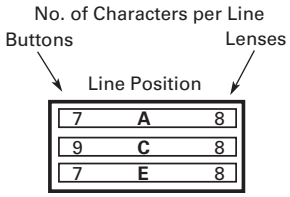
- Specify catalog number of blank button or lens of desired color, plus suffix "STAMP" for non-standard or "STD" for standard markings in order notes. See **Pages V7-T1-192** to **V7-T1-196**.
- Specify size, legend desired and location in order notes by alphas as shown in example.
- Do not exceed maximum number of legend characters per line.

Ordering Example

Green Type B button to be marked with non-standard legend "ALL ELEVATORS DOWN."

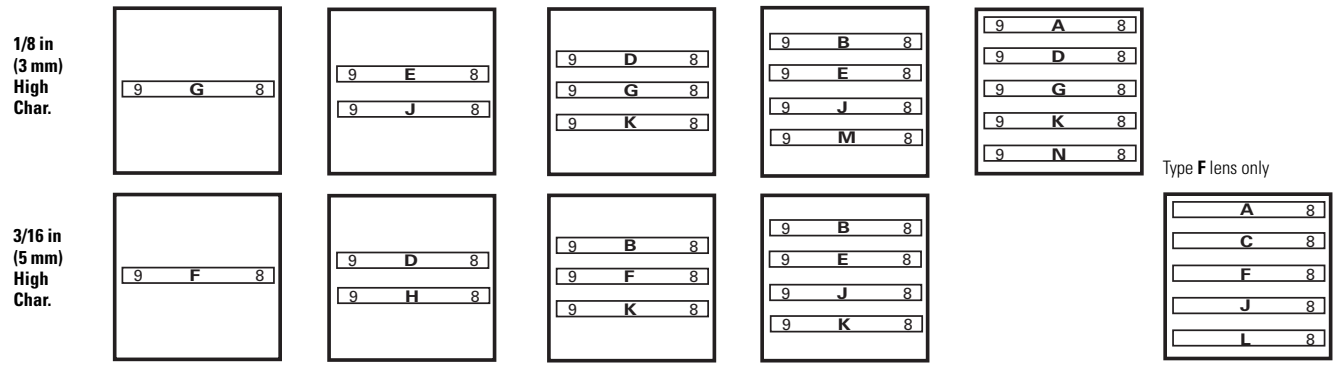
Catalog No.: **E30KB300STAMP**
Letter Size: 1/8 in
Pos. A—ALL
Pos. C—ELEVATORS
Pos. F—DOWN

How to Use the Legend Location Figure

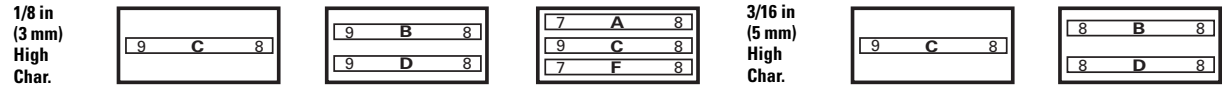


Legend Locations

Type **A** buttons and Type **F** lenses

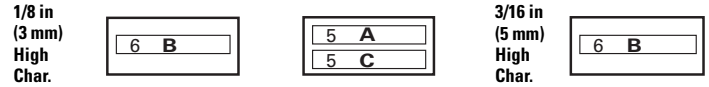


Type **B** buttons and Type **G** lenses

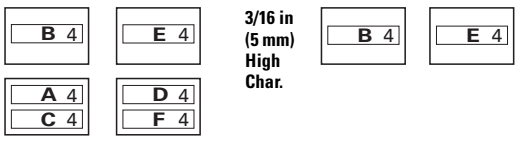


Type **C** buttons

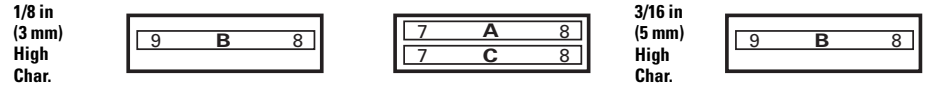
Type **D** buttons



Type **K** buttons



Type **E** buttons and Type **J** lenses

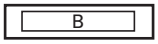


Standard Markings

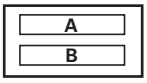
AUTO	EMERG. STOP	HAND	INCH	JOG REV.	MAN.	OPEN	RESET	SLOW	TEST	MOTOR STOP
CLOSE	FAST	HIGH	JOG	LOW	OFF	OUT	REVERSE	START	UP	POWER ON
DOWN	FORWARD	IN	JOG FOR.	LOWER	ON	RAISE	RUN	STOP	MOTOR RUN	READY

Legend Arrangements and Legend Locations

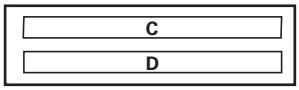
Legend plates
E30KM1 or KM11

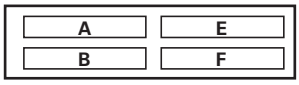


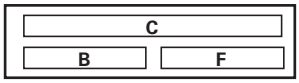
Legend plates
E30KM4 or KM14



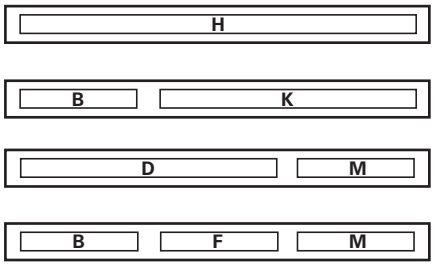
Legend plates
E30KM3 or KM13



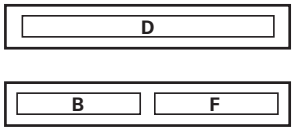




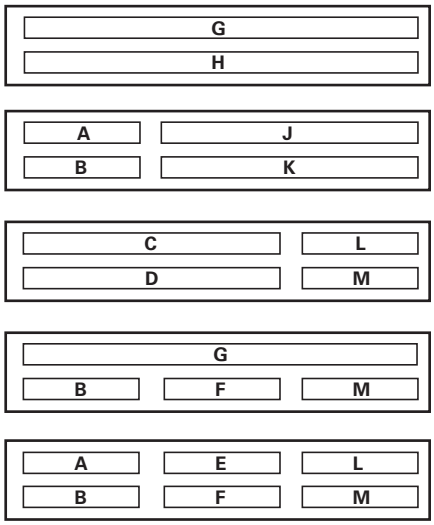
Legend plates
E30KM5 or KM15



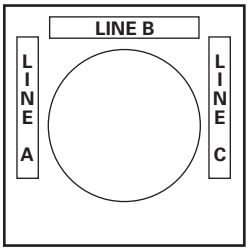
Legend plates
E30KM2 or KM12



Legend plates
E30KM6 or KM16



Legend Plates E30KN76 or KN76B



Legend plates
E30KN76 or KN76B
1/8 in character
size only with a maximum
of six characters.

Maximum Number and Size of Permissible Legend Characters of Custom Stamped Legend Plates

		Size and Maximum Number of Characters Per Line								
		One Span			Two Span			Three Span		
Type	No.of Lines	3/32 in (2.5 mm)	1/8 in (3 mm)	3/16 in (5 mm)	3/32 in (2.5 mm)	1/8 in (3 mm)	3/16 in (5 mm)	3/32 in (2.5 mm)	1/8 in (3 mm)	3/16 in (5 mm)
Standard	1	13	10	10	30	22	22	47	34	34
Large	1	13	10	10	30	23	23	47	36	36
	2	13	10	10	30	23	23	47	36	36

Characters available for non-standard markings
3/32 in (2.5 mm)—1/8 in (3 mm)—3/16 in (5 mm)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	**. / — ,**	**1 2 3 4 5 6 7 8 9 0**

Buttons or Lenses with Non-Standard Vertical Markings

Ordering Instructions

- Specify catalog number of blank button or lens of desired color, selected from listings on **Pages V7-T1-192** to **V7-T1-196**.
- Specify size, legend desired, location and state "vertically marked" in order notes.

Note: Specify either 1/8 or 3/16 in (3.2 or 4.8 mm) character height. Do not exceed maximum number of characters as outlined in table below.

Ordering Example:

Green Type K button to be marked with "RUN" "ON."

Catalog No.: **E30KK20STAMP**
Letter Size: 3/16 in (4.8 mm)
Vertically Marked
Pos. B—RUN
Pos. E—ON

Legend Plates

Legend plates for Type E30 compact pushbutton and indicating light operators hook directly onto the operator and are clamped in place when the operator locking nut behind the panel is secured.

Two and three span plates are designed for use where two or more operators are mounted adjacent to each other **on minimum horizontal mounting centers.** These legend plates mount in the same manner as single span units.

When Ordering Legend Plates with Markings

- Catalog number of blank legend plate
- Insert the following in order notes:
  - Legends required
  - Size of characters—3/32, 1/8, 3/16 in (2.4, 3.2, 4.8 mm)
  - Positions of legends on one line standard and two line large legend plates by alphas as shown in sketches on following page.

Ordering Example:

Three span legend plate to be marked "MASTER CONTROL", "STATION A" and "STATION B."

Catalog No.: **E30KM3STAMP**
Letter Size: 1/8 in (3.2 mm)
Pos. C—MASTER CONTROL
Pos. B—STATION A
Pos. F—STATION B

Maximum Number of Characters

Description	Type	Maximum Number of Characters 1/8 in (3.2 mm)	3/16 in (4.8 mm)
Buttons	A	7	5
	B	7	5
	C	4	3
	D	5	3
	E	7	5
Lenses	F	7	5
	G	7	5
	J	7	5
	K	3	2

Blank Legend Plates and Legend Plates with Markings

	Type	One Span Catalog Number
	Black	
Standard— One Span 	Standard	**E30KM1**
Large—One Span 	Large	**E30KM4**

1

Replacement Parts

Replacement Light Units for E30 Components

Voltage AC and DC	Part Numbers—Receptacles without Lamps Single Indicating Light	Dual Indicating Light	Single Light Single Pushbutton	Single Light Dual Pushbutton	Dual Light Dual Pushbutton
Full Voltage Type					
6V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
12V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
18/24V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
28V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
32V	**57-2579-3A**	**57-2568-2A**	**57-2568-2A**	—	**57-2567**
48V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
120V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
Transformer Type					
120V	**42-2672A**	**42-2663A**	**42-2663A**	**42-2671A**	**42-2664A**
208V	**42-2672-2A**	**42-2663-2A**	**42-2663-2A**	**42-2671-2A**	**42-2664-2A**
240V	**42-2672-3A**	**42-2663-3A**	**42-2663-3A**	**42-2671-3A**	**42-2664-3A**
380V	**42-2672-4A**	**42-2663-4A**	**42-2663-4A**	**42-2671-4A**	**42-2664-4A**
480V	**42-2672-5A**	**42-2663-5A**	**42-2663-5A**	**42-2671-5A**	**42-2664-5A**
600V	**42-2672-6A**	**42-2663-6A**	**42-2663-6A**	**42-2671-6A**	**42-2664-6A**
Description and Part Numbers—Related Parts					
Inner lens	**28-1008**	**28-1010**	**28-1010**	**28-1010**	**28-1010**
Retaining nut	**15-1885**	**15-1885**	**15-1885**	**15-1885**	**15-1885**
Gasket	**16-2092**	**16-2092**	**16-2092**	**16-2092**	**16-2092**
Locking ring	**52-1116**	**52-1116**	**52-1116**	**52-1116**	**52-1116**

Replacement Lamps for E30 Illuminated Operators

Mfg. Lamp Type	Voltage	Base Style	Application	Part Number
6PSB	6V	T2 slide	E30 transformer and full voltage	**28-1022**
12PSB	12V	T2 slide	E30 full voltage	**28-1025**
24PSB	24V	T2 slide	E30 full voltage	**28-1026**
28PSB	28V	T2 slide	E30 full voltage	**28-1027**
48PSB	48V	T2 slide	E30 full voltage	**28-1028**
60PSB	60V	T2 slide	E30 full voltage	**28-1598**
120PSB	120V	T2 slide	E30 full voltage	**28-1029**
#259	6.3V	T3-1/4 wedge	E30 single transformer	**28-949**

Replacement Lamps—Incandescent and LED

Lamp Voltage	Incandescent Lamps Manufacturer's Part Number	Base Style	Eaton's Part Number	LED Lamps Eaton's Part Number Red	Green	Yellow	Blue ①
6	6PSB	T2 slide	**28-1022**	**35-1523**	**35-1523-2**	**35-1523-3**	**35-1523-17**
12	12PSB	T2 slide	**28-1025**	**35-1523-11**	**35-1523-12**	**35-1523-13**	**35-1523-18**
24	24PSB	T2 slide	**28-1026**	**35-1523-4**	**35-1523-5**	**35-1523-6**	**35-1523-19**
28	28PSB	T2 slide	**28-1027**	**35-1523-4**	**35-1523-5**	**35-1523-6**	**35-1523-19**
48	48PSB	T2 slide	**28-1028**	**35-1523-14**	**35-1523-15**	**35-1523-16**	**35-1523-20**
120	120PSB	T2 slide	**28-1029**	**35-1523-7**	**35-1523-8**	**35-1523-9**	**35-1523-21**

Note

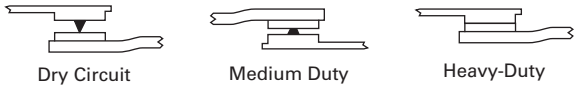
① E30 blue LED bulbs may not provide sufficient intensity for some applications.

Technical Data and Specifications

Operator Specifications

Description	Specification
Climate Conditions	
Operating	–20° to 150°F (–29° to 65°C)
Terminals	
Light units	Terminals are saddle clamp type for 2 stranded or solid wires up to 12 AWG (4.0 mm^2) Torque—7 lb-in (0.8 Nm)
Contact block	Terminals are saddle clamp type for 2 stranded or solid wires up to 12 AWG (4.0 mm^2) Torque—7 lb-in (0.8 Nm)
Materials	
Operator	Zinc base die casting with a copper-nickel-chrome plated finish Withstands the 200 hr. salt spray test in accordance with MIL Spec. QQ-M-151A and NEMA 4X testing.
Internal parts	Including shafts, washers and springs, are made of stainless steel
Buttons and lenses	Colorfast, wear resistant, molded acetal resin
Contact blocks	Made of molded, heat resistant, mineral filled phenolic Contact block plungers are molded of nylon filled phenolic Contacts are silver
Reliability nibs	These nibs combine a scrubbing action with high pressure density when the contacts are closed They push through particles and films found on contact surfaces in industrial environments Reliability nibs self-adjust to the application—dry circuit, normal or heavy-duty

Reliability Nibs



Electrical Ratings

Contact Blocks

Meet or Exceed NEMA Contact Rating Designation A600 and P300

	Vac A600				Vdc P300		
Description	**120V**	**240V**	**480V**	**600V**	**24/28V**	**125V**	**250V**
Make and emergency interrupting capacity (Amps)	60	30	15	12	5.73	1.1	0.55
Normal load break (Amps)	6	3	1.5	1.2	5.73	1.1	0.55
Continuous current (Amps)	10	10	10	10	5	5	5

- UL A600/P300 nominal connect 10A
- 1NO, 1NC, 2NO, 2NC, 1NO-1NC, early make, late break and overlapping configurations
- Mechanical positive drive operation on NC contacts
- Palladium alloy contact for logic level or highly corrosive environments

Maximum Ratings for Logic Level and Hostile Atmosphere Application

Description	Specification
Maximum amperes	0.5A ①
Maximum volts	120 Vac/Vdc

Light Unit

Description	Specification
Bulbs—Average Life	
Transformer type	20,000 hrs.
Resistor/direct voltage type	2,500 hrs. min. at rated voltage
LED	60,000 to 100,000 hrs.

Note

① Logic level contact blocks are UL A600/P500 rated per table above.

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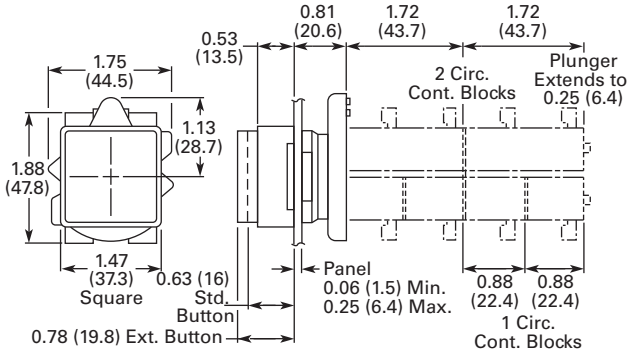
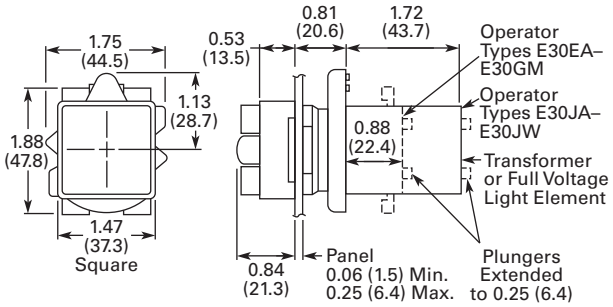
Dimensions

Approximate Dimensions in Inches (mm)

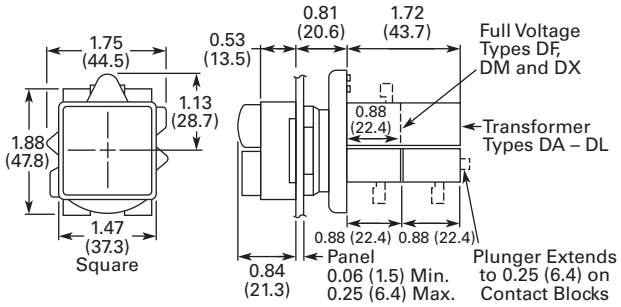
Pushbutton Operators



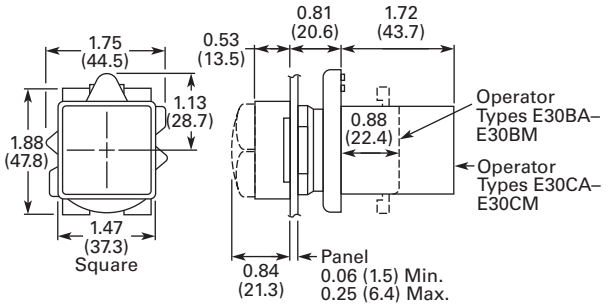
Combination Pushbutton and Indicating Light Operators



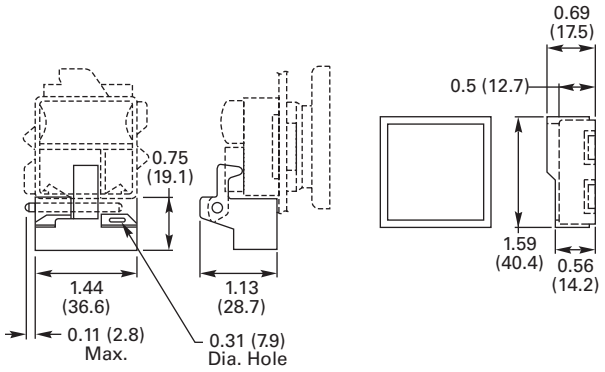
Combination Pushbutton and Indicating Light Operators



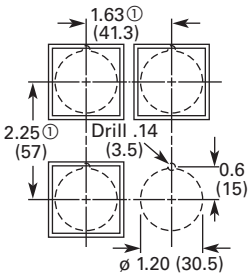
Indicating Light Operators



Padlocking Attachment and Half Shroud E30KT7



Drilling Dimensions—Minimum Spacing ①②

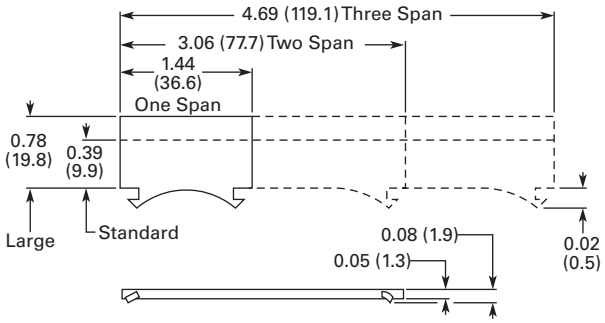


Notes

① Dimensions shown allow adequate space for the addition of one or two high legend plates and color coordinating collars.

② Locating nib hole or notch is 0.136 in (3.5 mm) drill. Alternate to drilling mounting holes use Greenlee Tool Co. punch (No. 730-S) to punch the hole and (No. 730-K) to punch the notch.

Legend Plates



30.5 mm Heavy-Duty Watertight/Oiltight—10250T

Contents

Drawings Online

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 V7-T1-276** to **V7-T1-317**.

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

Application Description

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 EN 60947-5-1 and 60947-5-5
- 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
- Most other operators
  - UL (NEMA) Type 1, 2, 3, 3R, 4, 4X, 12, 13
  - IEC IP65

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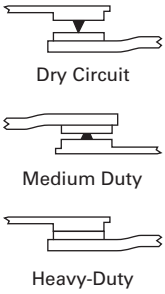
Product Overview

Reliability Nibs

Eaton's 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.

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.

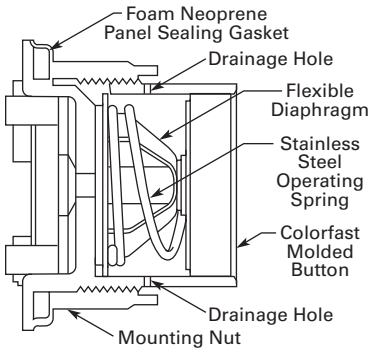
Grounding Nibs

Diaphragm Seal with Drainage Holes

Liquid Drainage

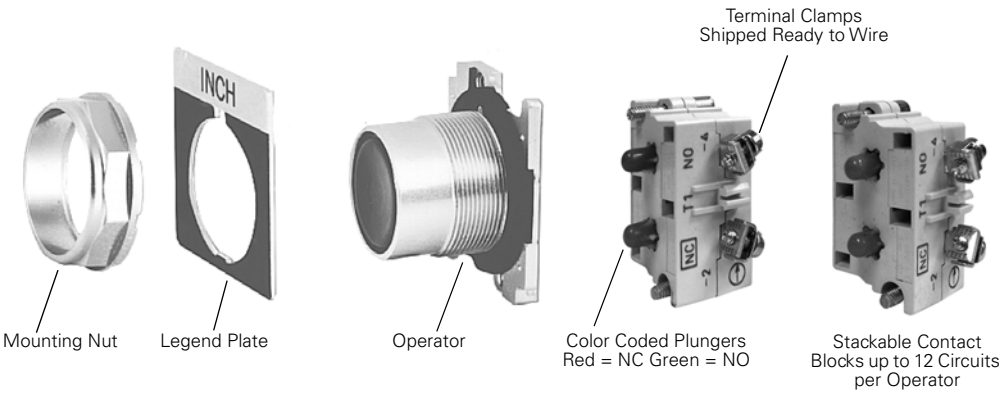
Eaton's pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high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

Diaphragm Seal



Product Identification

30.5 mm Heavy-Duty Watertight/Oiltight—10250T Series



Catalog Number Selection

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

Non-Illuminated Pushbuttons

10250T 10 1 – 1 ①

Operator
10 = Flush
11 = Extended
12 = 40 mm mushroom
17 = 65 mm mushroom
50 = 1/2 shroud vertical mount
51 = 1/2 shroud horizontal mount

Button Color	
1 = Black	**5** = Gray
2 = Red	**6** = White
3 = Green	**8** = Blue
4 = Yellow	**9** = Orange

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

Illuminated and Non-Illuminated Push-Pulls

10250T 5 63 C47 ___ – 1 ①

Operator
5 = Two-position maintained
4 = Three-position mom push-mom pull
9 = Three-position mt push-mom pull
10 = Three-position mom push-mom pull

Incandescent Light Unit	LED Light Unit
Blank = Non-illuminated	**Blank** = Non-illuminated
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	

LED Voltage
Blank = Non-illuminated
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

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

Non-Illuminated	Illuminated		
Button	Incandescent	LED	Lens Type
B60 = Black 40 mm	**C47** =	**RD** =	Red 40 mm
B62 = Red 40 mm	**C53** =	**ED** =	Red 40 mm—"E" STOP
B63 = Red 40 mm—"E" STOP	**C48** =	**GD** =	Green 40 mm
B61 = Green 40 mm	**C49** =	**LD** =	Blue 40 mm
B64 = Blue 40 mm	**C50** =	**AD** =	Amber 40 mm
J60 = Black 65 mm	**C51** =	**WD** =	White 40 mm
J62 = Red 65 mm	**C52** =	**—** =	Clear 40 mm
J63 = Red 65 mm—"E" STOP	**C57** =	**RS** =	Red side light
J61 = Green 65 mm	**C63** =	**ES** =	Red side light—"E" STOP
J64 = Yellow 65 mm	**C58** =	**GS** =	Green side light
	C59 =	**LS** =	Blue side light
	C64 =	**AS** =	Amber side light
	C60 =	**YS** =	Yellow side light
	C61 =	**WS** =	White side light
	C62 =	**—** =	Clear side light
	C65 =	**RH** =	Red heavy-duty
	C66 =	**GH** =	Green heavy-duty
	C67 =	**AH** =	Amber heavy-duty

Note

① Add **X** at end of catalog number to receive parts assembled from factory.

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Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

Illuminated Pushbuttons

10250T 416 C21 ___ – 1 ①

Incandescent Light Unit	LED Light Unit
416= 24V/XFR	**397L**= Full voltage
411= 120V/XFR	**416L**= 24V/XFR
412= 240V/XFR	**411L**= 120V/XFR
419= 277V/XFR	**412L**= 240V/XFR
413= 380V/XFR	**419L**= 277V/XFR
414= 480V/XFR	**413L**= 380V/XFR
415= 600V/XFR	**414L**= 480V/XFR
473= 6V/FV	**415L**= 600V/XFR
474= 12V/FV	
476= 24V/FV	
477= 32V/FV	
478= 48V/FV	
471= 120V/RES	
472= 240V/RES	

Incandescent Lens Color	LED Lens Color
C21= Red	**RD** = Red
C22= Green	**GD** = Green
C23= Yellow	**YD** = Yellow
C26= White	**WD** = White
C24= Blue	**LD** = Blue
C43= Amber	**AD** = Amber
C25= Clear	

LED Voltage
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

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

Standard Indicating Lights, PresTest and Master Test

10250T 203N C1N ___ ①

Light Unit Type	
Standard—Incandescent	**Standard—LED**
181N = 120V/XFR	**181L** = 120V/XFR
182N = 240V/XFR	**182L** = 240V/XFR
198N = 277V/XFR	**198L** = 277V/XFR
183N = 380V/XFR	**183L** = 380V/XFR
184N = 480V/XFR	**184L** = 480V/XFR
185N = 600V/XFR	**185L** = 600V/XFR
203N = 6V/FV	**197L** = Full voltage
204N = 12V/FV	**PresTest—LED**
206N = 24V/FV	**221L** = 120V/XFR
207N = 32V/FV	**222L** = 240V/XFR
208N = 48V/FV	**223L** = 380V/XFR
201N = 120V/RES	**224L** = 480V/XFR
202N = 240V/RES	**225L** = 600V/XFR
226N = 120V/neon	**297L** = Full voltage
227N = 240V/neon	
PresTest—Incandescent	
221N = 120V/XFR	
222N = 240V/XFR	
223N = 380V/XFR	
224N = 480V/XFR	
225N = 600V/XFR	
232N = 6V/FV	
233N = 12V/FV	
235N = 24V/FV	
238N = 32V/FV	
239N = 48V/FV	
231N = 120V/RES	
240N = 240V/RES	
Master Test—Incandescent	
187N = 120V/XFR	
189N = 240 Vac—SS	

LED Voltage
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

Plastic	Glass	Lens Color
Standard/Master—Incandescent		
C1N =	**C7N** =	Red
C2N =	**C8N** =	Green
C3N =	— =	Yellow
C6N =	**C12N** =	White
C4N =	**C10N** =	Blue
C19N =	**C9N** =	Amber
C5N =	**C11N** =	Clear
PresTest—Incandescent		
C21 =	**C13N** =	Red
C22 =	**C14N** =	Green
C23 =	— =	Yellow
C26 =	**C18N** =	White
C24 =	**C16N** =	Blue
C43 =	**C15N** =	Amber
C25 =	**C17N** =	Clear

Plastic	Glass	Lens Color
Standard/Master/PresTest—LED		
RP =	**RG** =	Red
GP =	**GG** =	Green
YP =	— =	Yellow
WP =	**WG** =	White
LP =	**LG** =	Blue
AP =	**AG** =	Amber

Note

① Add **X** at end of catalog number to receive parts assembled from factory.

Product Selection

Point-of-Purchase Packaging

Point-of-Purchase Packaged Pilot Device

10250T Point-of-Purchase Packaged Pilot Devices

Product	Description	Catalog Number
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**
Red illuminated mushroom pushbutton	LED Full voltage 24 Vac/Vdc with 1NO-1NC contact block. Also includes two square engraved legend plates: EMERG. STOP and STOP.	**10250T597LED24-1-POP**
Red illuminated mushroom pushbutton	LED Full voltage 120 Vac/Vdc with 1NO-1NC contact block. Also includes two square engraved legend plates: EMERG. STOP and STOP.	**10250T597LED2A-1-POP**
Momentary Pushbuttons		
Black flush pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: START and JOG.	**10250T30B-POP**
Green flush pushbutton		**10250T30G-POP**
Red flush pushbutton	1NO-1NC contact block. Also includes one square engraved legend plate: START and JOG.	**10250T30R-POP**
Black extended pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: START and JOG.	**10250T31B-POP**
Green extended pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: START and JOG.	**10250T31G-POP**
Red extended pushbutton	1NO-1NC contact block. Also includes one square engraved legend plate: STOP.	**10250T31R-POP**
Indicating Lights		
Red indicating momentary light	Full voltage 24 Vac/Vdc with two extra lenses: Green and amber. Also includes two square engraved legend plates: RUN and JOG.	**10250T206NC1N-POP**
Red indicating momentary light	Resistor 120 Vac/Vdc with two extra lenses: Green and Amber. Also includes one square engraved legend plate: RUN and JOG.	**10250T34R-POP**
Red indicating light w/LED bulb	Full voltage 24 Vac/Vdc with two extra lenses: Green and amber. Also includes two square engraved legend plates: RUN and JOG.	**10250T197LRP24-POP**
Red indicating light w/LED bulb	Resistor 120 Vac/Vdc with two extra lenses: Green and Amber. Also includes one square engraved legend plate: RUN and JOG.	**10250T181LRP06-POP**
Illuminated Pushbuttons		
Red illuminating monetary pushbutton	Full voltage 24 Vac/Vdc 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 monetary pushbutton	Resistor 120 Vac/Vdc with 1NO-1NC contact block and two extra lenses: Green and amber. Also includes one square engraved legend plate: POWER ON.	**10250T411C21-1-POP**
Red illuminating momentary pushbutton w/LED bulb	Full voltage 24 Vac/Vdc with 1NO-1NC contact block and two extra lenses: Green and amber. Also includes one square engraved legend plate: POWER ON.	**10250T397LRD24-1-POP**
Red illuminating momentary pushbutton w/LED bulb	Full voltage 120 Vac/Vdc with 1NO-1NC contact block and two extra lenses: Green and amber. Also includes one square engraved legend plate: POWER ON.	**10250T397LRD2A-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	2NO-2NC contact blocks. Also includes 1 square engraved legend plate: HAND/OFF/AUTO.	**10250T22KB-POP**
Black knob three-position selector switch	2NO contact blocks. Also includes legend plate: HAND/OFF/AUTO	**10250T21KB-POP**

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Non-Illuminated Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Flush Button

Extended Button

Mushroom Button

Jumbo Mushroom

Pushbutton Units—Flush, Extended, Mushroom Head or Jumbo Mushroom Head Operators

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

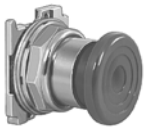
Note

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

Pushbuttons

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Momentary Pushbutton Operators, Non-illuminated

	Button	Color	Catalog Number	
10250T10_ 	Flush button ①	Black	**10250T101**	
		Red	**10250T102**	
		Green	**10250T103**	
		Yellow	**10250T104**	
		Gray	**10250T105**	
		White	**10250T106**	
		Blue	**10250T108**	
		Orange	**10250T109**	
10250T11_ 	Extended button	Black	**10250T111**	
		Red	**10250T112**	
		Green	**10250T113**	
		Yellow	**10250T120**	
		White	**10250T116**	
		Blue	**10250T118**	
		Orange	**10250T119**	
10250T5_ 	Half shrouded button		**Vertical**	**Horizontal**
		Black	**10250T501**	**10250T511**
		Red	**10250T502**	**10250T512**
		Green	**10250T503**	**10250T513**
		Yellow	**10250T504**	**10250T514**
		Gray	**10250T505**	**10250T515**
		White	**10250T506**	**10250T516**
		Blue	**10250T508**	**10250T518**
		Orange	**10250T509**	**10250T519**
10250T12_ 	Mushroom button	Black	**10250T121**	
		Red	**10250T122**	
		Green	**10250T123**	
		Yellow	**10250T124**	
		Blue	**10250T129**	
10250T17_ 	Jumbo mushroom button ②	Black	**10250T171**	
		Red	**10250T172**	
		Red (EMERG. STOP)	**10250T17213**	
		Green	**10250T173**	
		Yellow	**10250T174**	
10250ED1164_ 	Low operating force—jumbo mushroom ②③	Black	**10250ED1164-2**	
		Red	**10250ED1164-3**	
		Green	**10250ED1164-4**	
		Yellow	**10250ED1164-5**	
		Clear	**10250ED1164**	

Notes

① To order operator with factory assembled extended retaining nut, **10250TA12**, for thick panel applications, add suffix letter **E** to listed catalog number. Example: 10250T101**E**.

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.

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

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Mechanically Interlocked Pushbutton Operators

10250TA_

Description	Catalog Number
Black flush and green flush	**10250TA66**
Black flush and long red	**10250TA67**
Black flush and red mushroom head	**10250TA68**
Black flush and lock-down red mushroom head	**10250TA69** ①
Black flush and red jumbo mushroom head	**10250TA76**
Green flush and long red	**10250TA72**
Black long and long red	**10250TA73**
Green flush and red mushroom head	**10250TA77**
Green flush and black flush	**10250TA75**

Lockout Pushbutton Operators with Padlock Attachments

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

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 in padlock.

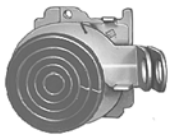
Padlockable in the Down Position ②

10250TA16

Operator Type	Color	Latch Type	Catalog Number
Flush head	Red	Hand	**10250TA16**
Mushroom head	Red	Hand	**10250TA42**
	Red	Spring loaded	**10250TA45**
Jumbo head ③	Red	Hand	**10250TA52**
	Red	Spring loaded	**10250TA55**
	Red (EMERG. STOP)	Spring loaded	**10250ED952**

Padlockable in the Up Position ②

10250TA4_



10250TA5_

Operator Type	Color	Latch Type	Catalog Number
Mushroom head	Black	Hand	**10250TA41**
	Green	Hand	**10250TA43**
Jumbo mushroom head ③	Black	Hand	**10250TA51**
	Green	Hand	**10250TA53**
	Yellow	Hand	**10250TA54**

Notes

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.

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

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.

Key Pushbutton Operator

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

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 V7-T1-234.**

Replacement Keys

Description	Catalog Number
Replacement keys (code H661)	**10250ED824**

10250T43_

Key Pushbutton Operator

Key Position and Pushbutton Operations			Key Removal Positions	Vertical Mounting ① Catalog Number
↖	↑	↗		
Three-Position				
Lock up	Free	Lock down	All	**10250T430**
Lock up	Free	Lock down	L and R	**10250T431**
Lock up	Free	Lock down	C and R	**10250T432**
Two-Position				
Lock up	Free	—	L and C	**10250T433**
Lock up	Free	—	L	**10250T434**
—	Free	Lock down	C and R	**10250T435**
—	Free	Lock down	R	**10250T436**
—	Free	Push to lock	C and R	**10250T437**
—	Free	Push to lock	R	**10250T438**

Latch-In, Twist-to-Release Operator

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

10250ED1043-4

Operator Only with Button

Description	Catalog Number
Latch-in, twist-to-release operator with red mushroom head button	**10250ED1043-4**

Note

① Horizontal mounting available on request.

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Illuminated Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- LED or incandescent
- Full voltage, resistor or transformer type
- Plastic lenses

24V Full Voltage Illuminated Pushbutton

Illuminated Pushbutton Units

Type	Voltage	Color	LED/Lamp Number	Illuminated Pushbutton 1NO Catalog Number	1NO-1NC Catalog Number	1NC Catalog Number
LED Lamp						
Full voltage	24 Vac/Vdc	Red	Bayonet base	**10250T397LRD24-53**	**10250T397LRD24-1**	**10250T397LRD24-51**
		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**
	120 Vac/Vdc	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	120 Vac	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 Lamp						
Full voltage	24 Vac/Vdc	Red	#757	**10250T476C21-53**	**10250T476C21-1**	**10250T476C21-51**
		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	120 Vac/Vdc	Red	120MB	**10250T471C21-53**	**10250T471C21-1**	**10250T471C21-51**
		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**
		White		**10250T471C26-53**	**10250T471C26-1**	**10250T471C26-51**
Transformer	120 Vac	Red	#755	**10250T75R** ①	**10250T76R** ①	**10250T77R** ①
		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

Note

① For flashing module catalog number 10250TFL1, add suffix code **FM** to listed catalog number. Example: 10250T75R**FM**.

Indicating Light Units ①

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- 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.

24V Full Voltage Illuminated Light

120 Vac Transformer PresTest

Indicating Light Units

Type	Voltage	Color	LED/Lamp Number	Indicating Light Catalog Number	PresTest Catalog Number
LED Lamp					
Full voltage	24 Vac/Vdc	Red	Bayonet base	**10250T197LRP24**	**10250T297LRP24**
		Green		**10250T197LGP24**	**10250T297LGP24**
		Amber		**10250T197LAP24**	**10250T297LAP24**
		Yellow		**10250T197LYP24**	**10250T297LYP24**
		Blue		**10250T197LLP24**	**10250T297LLP24**
		White		**10250T197LWP24**	**10250T297LWP24**
	120 Vac	Red		**10250T197LRP2A**	**10250T297LRP2A**
		Green		**10250T197LGP2A**	**10250T297LGP2A**
		Amber		**10250T197LAP2A**	**10250T297LAP2A**
		Yellow		**10250T197LYP2A**	**10250T297LYP2A**
		Blue		**10250T197LLP2A**	**10250T297LLP2A**
		White		**10250T197LWP2A**	**10250T297LWP2A**
Transformer	120 Vac	Red		**10250T181LRP06**	**10250T221LRP06**
		Green		**10250T181LGP06**	**10250T221LGP06**
		Amber		**10250T181LAP06**	**10250T221LAP06**
		Yellow		**10250T181LYP06**	**10250T221LYP06**
		Blue		**10250T181LLP06**	**10250T221LLP06**
		White		**10250T181LWP06**	**10250T221LWP06**
Incandescent Lamp					
Full voltage	24 Vac/Vdc	Red	#757	**10250T206NC1N**	**10250T235NC21**
		Green		**10250T206NC2N**	**10250T235NC22**
		Amber		**10250T206NC19N**	**10250T235NC43**
		Yellow		**10250T206NC3N**	**10250T235NC23**
		Blue		**10250T206NC4N**	**10250T235NC24**
		Clear		**10250T206NC5N**	**10250T235NC25**
		White		**10250T206NC6N**	**10250T235NC26**
Resistor	120 Vac/Vdc	Red	120MB	**10250T201NC1N**	**10250T231NC21**
		Green		**10250T201NC2N**	**10250T231NC22**
		Amber		**10250T201NC19N**	**10250T231NC43**
		Yellow		**10250T201NC3N**	**10250T231NC23**
		Blue		**10250T201NC4N**	**10250T231NC24**
		Clear		**10250T201NC5N**	**10250T231NC25**
		White		**10250T201NC6N**	**10250T231NC26**
Transformer ②	120 Vac	Red	#755	**10250T34R**	**10250T74NR**
		Green		**10250T34G**	**10250T74NG**
		Amber		**10250T34A**	**10250T74NA**
		Yellow		**10250T34Y**	**10250T74NY**
		Blue		**10250T34B**	**10250T74NB**
		Clear		**10250T34C**	**10250T74NC**
		White		**10250T34W**	**10250T74NW**

Notes

① Standard indicating lights are rated UL (NEMA) 3S as well.

② For flashing lamp add letter **F** to listed catalog number. Example: 10250T34R**F**.

1

Illuminated Pushbuttons and Indicating Lights

- LED or incandescent
- Full voltage, resistor or transformer type

Illuminated Pushbutton

Indicating Light

PresTest

Master Test

Operators without Lens

Type	Voltage	LED/Lamp Number	Illuminated Pushbutton Catalog Number	Indicating Light Catalog Number	PresTest Catalog Number	Master Test Catalog Number
Incandescent Unit						
Full voltage AC/DC	6	#755	**10250T473**	**10250T203N**	**10250T232N**	—
	12	#756	**10250T474**	**10250T204N**	**10250T233N**	—
	24	#757	**10250T476**	**10250T206N**	**10250T235N**	—
	32	#1828	**10250T477**	**10250T207N**	**10250T238N**	—
	48	#1835	**10250T478**	**10250T208N**	**10250T239N**	—
Resistor AC/DC ②	120	120MB	**10250T471**	**10250T201N**	**10250T231N**	—
	240	120MB	**10250T472**	**10250T202N**	**10250T240N**	—
Transformer AC only ③	24	#755	**10250T416**	—	—	—
	120		**10250T411**	**10250T181N**	**10250T221N**	—
	240		**10250T422**	**10250T182N**	**10250T222N**	—
	277		**10250T419**	**10250T198N**	—	—
	380		**10250T413**	**10250T183N**	**10250T223N**	—
	480		**10250T414**	**10250T184N**	**10250T224N**	—
	600		**10250T415**	**10250T185N**	**10250T225N**	—
Neon AC/DC ④	120	NE51H-R22	—	**10250T226N**	—	—
	240	NE51H-R68	—	**10250T227N**	—	—
Solid-state 50/60 Hz only	120	120MB	—	—	—	**10250T189N**
LED (LEDs not included) ①						
Full voltage	—	Bayonet base	**10250T397L**	**10250T197L**	**10250T297L**	—
Transformer AC only	24		**10250T416L**	—	—	—
	120		**10250T411L**	**10250T181L**	**10250T221L**	—
	240		**10250T412L**	**10250T182L**	**10250T222L**	—
	277		**10250T419L**	**10250T198L**	—	—
	380		**10250T413L**	**10250T183L**	**10250T223L**	—
	480		**10250T414L**	**10250T184L**	**10250T224L**	—
	600		**10250T415L**	**10250T185L**	**10250T225L**	—

Notes

① These units do not include lamps. Order LED separately to match lens color. See **Page V7-T1-261** for LED Selection and **Page V7-T1-208** 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: 10250T181N**F.**

④ Resistant to shock and vibration. For best illumination use amber, yellow or clear lens.

Plastic

Glass

Indicating and MasterTest Lenses

Color	Plastic Catalog Number	Glass Catalog Number
Red	**10250TC1N**	**10250TC7N**
Green	**10250TC2N**	**10250TC8N**
Amber	**10250TC19N**	**10250TC9N**
Yellow	**10250TC3N**	—
Blue	**10250TC4N**	**10250TC10N**
Clear	**10250TC5N**	**10250TC11N**
White	**10250TC6N**	**10250TC12N**

10250TC2_

Illuminated Pushbutton Lenses

Color	Catalog Number
Red	**10250TC21**
Green	**10250TC22**
Yellow	**10250TC23**
Amber	**10250TC43**
Blue	**10250TC24**
Clear	**10250TC25**
White	**10250TC26**

Plastic

Glass

PresTest Lenses

Color	Plastic Catalog Number	Glass Catalog Number
Red	**10250TC21**	**10250TC13N**
Green	**10250TC22**	**10250TC14N**
Amber	**10250TC43**	**10250TC15N**
Yellow	**10250TC23**	—
Blue	**10250TC24**	**10250TC16N**
Clear	**10250TC25**	**10250TC17N**
White	**10250TC26**	**10250TC18N**

1

Push-Pull Emergency Stops (Compliant with IEC 60947-5-5)

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two- and three-position
- Non-illuminated
- LONC contact block

10250T579C47-71X

Two-Position Push-Pull Units

Operator Position ①

Pull	Push	Button Type/Color	Lamp	Type	Voltage	Catalog Number
X	0	40 mm red—illuminated	Incandescent	Transformer	120 Vac/Vdc	**10250T563C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Transformer	120 Vac/Vdc	**10250T563C53-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Transformer	120 Vac/Vdc	**10250T563LED06-71X**
X	0	40 mm red—illuminated	Incandescent	Full voltage	24 Vdc	**10250T579C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Full voltage	24 Vdc	**10250T579C53-71X**
X	0	40 mm red—illuminated	Incandescent	Resistor	120 Vac/Vdc	**10250T580C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Resistor	120 Vac/Vdc	**10250T580C53-71X**
X	0	40 mm red—illuminated	Incandescent	Transformer	24 Vac	**10250T589C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Transformer	24 Vac	**10250T589C53-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Transformer	24 Vac	**10250T589LED06-71X**
X	0	40 mm red—illuminated	LED	Transformer	24 Vac	**10250T589LRD06-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Full voltage	24 Vdc	**10250T597LED24-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Full voltage	120 Vac/Vdc	**10250T597LED2A-71X**
X	0	40 mm red—illuminated	LED	Full voltage	24 Vdc	**10250T597LRD24-71X**
X	0	40 mm red—illuminated	LED	Full voltage	120 Vac/Vdc	**10250T597LRD2A-71X**
X	0	40 mm red	—	—	—	**10250T5B62-71X**
X	0	40 mm red—EMERG. STOP	—	—	—	**10250T5B63-71X**
X	0	65 mm red	—	—	—	**10250T5J62-71X**
X	0	65 mm red—EMERG. STOP	—	—	—	**10250T5J63-71X**

Note

① X = closed circuit, 0 = open circuit.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two-Position Push-Pull Units

	Operator Position ① Pull	Push	Button Type/Color ②	Contact Type	Mounting Location A	Mounting Location B	Catalog Number ②
	Two-Position Maintained Push, Maintained Pull						
10250T5B62-1X 	0 X	X 0	40 mm/red	1NO			**10250T5B62-1X**
				1NC			
10250T5B63-1X 	0 X	X 0	40 mm engraved EMERG. STOP/red	1NO			**10250T5B63-1X**
				1NC			
10250T5J63-1X 	0 X	X 0	65 mm aluminum engraved EMERG. STOP/red	1NO			**10250T5J63-1X**
				1NC			
10250ED1080-2 	0 X	X 0	65 mm aluminum engraved EMERG. STOP/red	1NO			**10250ED1080-2**
			Special security jumbo mushroom head	1NC			

Button and Color Selection

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

Notes

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. Example: 10250T5**B64**-1X.

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

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

10250T_

Three-Position Push-Pull Units

Operator Position ①

Pull	Intermediate	Push	Button Type/Color ②	Contact Type	Mounting Location A	Mounting Location B	Catalog Number ②
Maintained Push, Momentary Pull							
X	0	0	40 mm/black	1NC	○ | ○		**10250T9B60-3X**
X	X	0	40 mm/red	1NC		○ | ○	**10250T9B62-3X**
			40 mm engraved EMERG. STOP/red				**10250T9B63-3X**
Momentary Push, Momentary Pull							
X	0	0	40 mm/black	1NC	○ | ○		**10250T4B60-3X**
X	X	0	40 mm/red	1NC		○ | ○	**10250T4B62-3X**
0	0	X	40 mm/black	1NO	| ○		**10250T10B60-1X**
X	0	0	40 mm/red	1NC		○ | ○	**10250T10B62-1X**

Button and Color Selection

Standard

Color	Suffix Code	Catalog Number
Standard—40 mm		
Red	**B62**	**10250TB62**
Red (EMERG. STOP)	**B63**	**10250TB63**
Green	**B61**	**10250TB61**
Black	**B60**	**10250TB60**
Blue	**B64**	**10250TB64**

Jumbo Mushroom Head

Jumbo Mushroom Head ③ (Anodized) Aluminum—65 mm		
Red	**J62**	**10250TJ62**
Red (EMERG. STOP)	**J63**	**10250TJ63**
Green	**J61**	**10250TJ61**
Black	**J60**	**10250TJ60**
Yellow	**J64**	**10250TJ64**

Notes

① X = closed circuit, 0 = open circuit.

② To order different type or color buttons, substitute the underlined characters with appropriate suffix code from the table. Example: 10250T5**B64**-1X.

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

Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- LED or incandescent
- Full voltage, resistor or transformer type
- Two-position maintained

Two-Position Push-Pull Operator

Two-Position Illuminated Maintained Push, Maintained Pull

Operator Position ①

Maintained—Pull	Maintained—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalog Number ②
0	X	LED	Full Voltage	24 Vac/Vdc	1NO			Bayonet base	**10250T597LRD24-1X**
X	0			120 Vac/Vdc	1NC				**10250T597LRD2A-1X**
			Transformer	24 Vac					**10250T589LRD06-1X**
				120 Vac					**10250T563LRD06-1X**
0	X	Incandescent	Full voltage	24 Vac/Vdc	1NO			#757	**10250T579C47-1X**
X	0		Resistor	120 Vac/Vdc	1NC			120MB	**10250T580C47-1X**
			Transformer	24 Vac				#755	**10250T589C47-1X**
				120 Vac					**10250T563C47-1X**

10250ED137_

Jumbo Lens Illuminated E-Stops

Lamp	Button Type/Color	Type	Voltage	Contact Type	Catalog Number
LED	Two-position illuminated maintained push/pull—50 mm jumbo lens/red	Full voltage	24 Vac/Vdc	1NO 1NC	**10250ED1375**
LED	Three-position illuminated momentary push/pull—50 mm jumbo lens/red	Full voltage	24 Vac/Vdc	1NC 1NC	**10250ED1376**
LED	Three-position illuminated momentary push/pull—50 mm jumbo lens/red	Full voltage	24 Vac/Vdc	1NO 1NC	**10250ED1377**
LED	Three-position illuminated maintained push/momentary pull—50 mm lens/red	Full voltage		1NO 1NC	**10250ED1378**

Notes

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 next page. Example: 10250T579**C63**-1X. For LEDs with different voltages see ordering example on **Page V7-T1-227**.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Lens and Color Selection

Standard

Side-Lighted Aluminum

Aluminum Transparent Center

Jumbo Lens

Color	Incandescent Suffix Code	LED Suffix Code	Catalog Number
Standard—40 mm			
Red	**C47**	**RD**	**10250TC47**
Red (EMERG. 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 ①			
Red	**C57**	**RS**	**10250TC57**
Red (EMERG. 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 ①			
Red	**C65**	**RH**	**10250TC65**
Green	**C66**	**GH**	**10250TC66**
Amber	**C67**	**AH**	**10250TC67**
Jumbo Lens—50 mm			
Red	—	—	**10250TC77**

Note

① Clear anodized aluminum and colored lens.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Three-Position Push-Pull Operator

Three-Position Illuminated Momentary Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/ Lamp Number	Red Standard Push-Pull Catalog Number ③
0 X	0 0	X 0	LED	Full voltage	24 Vac/Vdc	1NO			Bayonet base	**10250T1097LRD24-1X**
					120 Vac	1NC				**10250T1097LRD2A-1X**
				Transformer	24 Vac					**10250T1089LRD06-1X**
					120 Vac					**10250T1063LRD06-1X**
X X	0 X	0 0		Full voltage	24 Vac/Vdc	1NC			Bayonet base	**10250T497LRD24-3X**
					120 Vac	1NC				**10250T497LRD2A-3X**
				Transformer	24 Vac					**10250T489LRD06-3X**
					120 Vac					**10250T463LRD06-3X**
0 X	0 0	X 0	Incan-descent	Full voltage	24 Vac/Vdc	1NO			#757	**10250T1079C47-1X**
				Resistor	120 Vac	1NC			120MB	**10250T1080C47-1X**
				Transformer	24 Vac				#755	**10250T1089C47-1X**
					120 Vac					**10250T1063C47-1X**
X X	0 X	0 0		Full voltage	24 Vac/Vdc	1NC			#757	**10250T479C47-3X**
				Resistor	120 Vac	1NC			120MB	**10250T480C47-3X**
				Transformer	24 Vac				#755	**10250T489C47-3X**
					120 Vac					**10250T463C47-3X**

Three-Position Push-Pull Operator

Three-Position Illuminated Maintained Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/ Lamp Number	Red Standard Push-Pull Catalog Number ②
X X	0 X	0 0	LED	Full voltage	24 Vac/Vdc	1NC			Bayonet base	**10250T997LRD24-3X**
					120 Vac	1NC				**10250T997LRD2A-3X**
				Transformer	24 Vac					**10250T989LRD06-3X**
					120 Vac					**10250T963LRD06-3X**
X X	0 X	0 0	Incan-descent	Full voltage	24 Vac/Vdc	1NC			#757	**10250T979C47-3X**
				Resistor	120 Vac	1NC			120MB	**10250T980C47-3X**
				Transformer	24 Vac				#755	**10250T989C47-3X**
					120 Vac					**10250T963C47-3X**

Notes

① X = closed circuit, 0 = open circuit.

② To order different type or color lens, substitute the underlined characters with appropriate suffix code from table on **Page V7-T1-222.** Example: 10250T1079**C53**-1X. For LEDs with different voltages see ordering example on **Page V7-T1-227**.

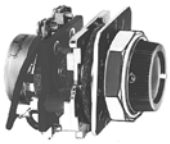
③ To order different type or color lens, substitute the underlined characters with appropriate suffix code from table on **Page V7-T1-222**. Example: 10250T979**C53**X. For LEDs with different voltages see ordering example on **Page V7-T1-227**.

1

Potentiometers

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Vertical or Horizontal ①
One-Hole Mounting



Potentiometer with Knob and Standard Dial Plate—Linear Type ±10%

Potentiometer Ohms	Catalog Number
2 Watt (60V Max.) Single Potentiometer with Standard Aluminum Dial Plate ②③	
1000	**10250T331**
2500	**10250T332**
5000	**10250T338**
10000	**10250T333**
25000	**10250T334**
50000	**10250T335**
Operator only ④	**10250T330**
Alternative—black plastic large legend with standard markings	**E34LP99**

Notes

① Shown with standard aluminum dial plate.

② 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 ③ below.

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

④ For use with commercially purchased potentiometers having shaft dimensions per dimension drawing on **Page V7-T1-271**.

Push-Pull Operators

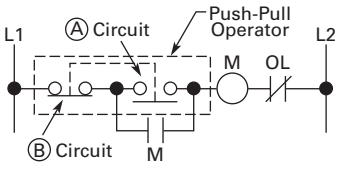
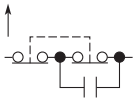
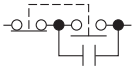
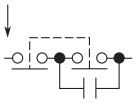
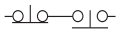
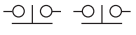
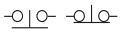
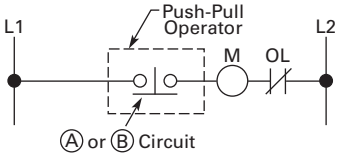
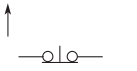
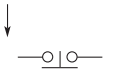
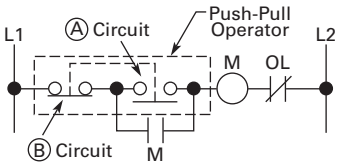
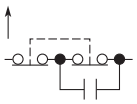
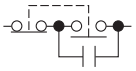
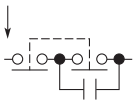
An illuminated push-pull pushbutton unit, arranged for one-hole mounting, can replace two pushbuttons and a pilot light or the non-illuminated form can replace two pushbuttons. These units are available in three basic types:

- **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.

Two-Position Maintained Push-Pull ①

Typical Applications

Control	Line—Diagram	Operator	Circuits	Operator Mode		
Three-wire three-position momentary		Momentary push and pull 10250T4	2NC contact block 10250T3	START (mom.) 	Normal pos. (maint.) 	STOP (mom.) 
		Momentary push and pull 10250T10	1NO-1NC contact block 10250T1			
Two-wire two-position maintained		Maintained push and pull 10250T5	1NC contact block 10250T51	START (maint.) 	No intermediate position	STOP (maint.) 
Three-wire momentary pull maintained push		Maintained push and momentary pull 10250T9	2NC contact block 10250T3	START (mom.) 	Normal pos. (maint.) 	STOP (maint.) 

Notes

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

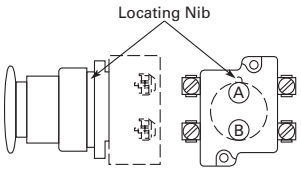
① Shown without button on lens.

1

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 table below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open).

Contact Circuit Locations



10250T579C47-71X

Push-Pull Operator Components

Type of Operator	Operator Position and Circuit Arrangement: Out—Pull Contact Block Mounting Location A		B	Intermediate A		B	In—Push A		B	Contact Block ①	Catalog Number
Two-Position Operator without Lens											
Maintained push-pull	0 X	or	0 X	No intermediate position			X 0	or	X 0	1NO 1NC	**10250T5**
	0 X		0 X				X 0		X 0	2NO 2NC	
Maintained push-pull with anti-theft jumbo mushroom	0 X	or	0 X	No intermediate position			X 0	or	X 0	1NO 1NC	**10250ED1080**
	0 X		0 X				X 0		X 0	2NO 2NC	
Three-Position Operator without Lens											
Momentary push-pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**10250T4** ①
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Maintained push-momentary pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**10250T9** ①
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Momentary push-pull	0 X	or	0 X	0 0	or	0 0	X 0	or	X 0	1NO 1NC	**10250T10** ①
	0 X		0 X	0 0		0 0	X 0		X 0	2NO 2ND	

Note

① Maximum of two blocks, four circuits. Special function contact blocks shown on **Page V7-T1-257** CANNOT be used with three-position push-pull operators 10250T4, 10250T9 or 10250T10.

Push-Pull Light Units, Lenses and Buttons

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—6 Vac/Vdc
12—12 Vac/Vdc
24—24 Vac/Vdc
48—48 Vac/Vdc
60—60 Vac/Vdc
2A—120 Vac
2D—120 Vdc

Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	LED/Lamp Number	Catalog Number
LED (LEDs not included) ①	Full voltage	—	Bayonet base	**10250T97L**
	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	120MB	**10250T80**
		240		**10250T81**
	Transformer AC only 50/60 Hz	24	#755	**10250T89**
		120		**10250T63**
		208		**10250T64**
		240		**10250T65**
		277		**10250T82**
		380		**10250T66**
		480		**10250T67**
		600		**10250T68**

Note

① These units do not include lamps. Order LED separately to match lens color, see **Page V7-T1-261**.

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Alternate Lenses for Illuminated Push-Pull Devices

Lens Color	Incandescent Suffix Code	LED Suffix Code ①	Catalog Number
Standard			
			
Red	**C47**	**RD**	**10250TC47**
Red (EMERG. 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 Anodized Aluminum Ring			
			
Red	**C57**	**RS**	**10250TC57**
Red (EMERG. 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**
Heavy-Duty Aluminum			
			
Heavy-Duty Aluminum with Transparent Center			
Red	**C65**	**RH**	**10250TC65**
Green	**C66**	**GH**	**10250TC66**
Amber	**C67**	**AH**	**10250TC67**
White	**C68**	—	**10250TC68**
Jumbo Lens			
			
Jumbo Lens—50 mm			
Red	—	—	**10250TC77**

Buttons for Non-Illuminated Push-Pull Devices

Color	Suffix Code	Catalog Number
Standard		
		
Red	**B62**	**10250TB62**
Red (EMERG. STOP)	**B63**	**10250TB63**
Green	**B61**	**10250TB61**
Black	**B60**	**10250TB60**
Blue	**B64**	**10250TB64**
Jumbo Mushroom Head ② **(Anodized) Aluminum**		
		
Red	**J62**	**10250TJ62**
Red (EMERG. STOP)	**J63**	**10250TJ63**
Green	**J61**	**10250TJ61**
Black	**J60**	**10250TJ60**
Yellow	**J64**	**10250TJ64**

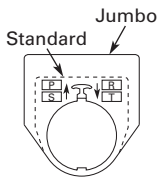
Notes

① Suffix codes should only be used for assembling composite catalog numbers. To order lens above, order by catalog number.

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

Legend Plates

For a complete listing of available legend plates see **Pages V7-T1-252** to **V7-T1-254**.



Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two-, three- and four-position maintained
- Non-illuminated and illuminated

Two-Position Maintained Switch

Two-Position Selector Switch

Operator Position ①		Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Non-Illuminated Black Knob Catalog Number ③	Non-Illuminated Black Lever Catalog Number ③	Illuminated—120V Transformer Red Knob Catalog Number ③	Illuminated—120V Transformer Red Lever Catalog Number ③
X	0	M M	1NC			10250T20K**B**	10250T20L**B**	10250ED1117-K**R**	10250ED1117-L**R**
0	X		1NO						

Three-Position Maintained Switch

Three-Position Selector Switch

Operator Position ①			Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Non-Illuminated Black Knob Catalog Number ③	Non-Illuminated Black Lever Catalog Number ③	Illuminated—120V Transformer Red Knob Catalog Number ③	Illuminated—120V Transformer Red Lever Catalog Number ③
X	0	0	M M M	1NO			10250T21K**B**	10250T21L**B**	10250ED1117-2K**R**	10250ED1117-2L**R**
0	0	X		1NO						
X	0	0		1NO			10250T22K**B**	10250T22L**B**	10250ED1117-3K**R**	10250ED1117-3L**R**
0	X	0		2NC (Series)						
0	0	X		1NO						

Three-Position Maintained Switch

Four-Position Selector Switch

Operator Position ①				Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Non-Illuminated Black Knob Catalog Number ③	Non-Illuminated Black Lever Catalog Number ③	Illuminated—120V Transformer Red Knob Catalog Number ③	Illuminated—120V Transformer Red Lever Catalog Number ③
X	0	0	0	M M M M	1NC			10250T46K**B**	10250T46L**B**	10250ED1117-4K**R**	10250ED1117-4L**R**
0	X	0	0		1NO						
0	0	X	0		1NO						
0	0	0	X		1NC						

Color Selection

Illuminated

Color	Code Letter	Color	Code Letter	Color	Code Letter
Red	**R**	White	**W**	Amber	**A**
Green	**G**	Blue	**B**	Clear	**C**

Non-Illuminated

Color	Code Letter	Color	Code Letter	Color	Code Letter
Black	**B**	Green	**G**	Blue	**L**
Red	**R**	White	**W**	Orange	**O**

Notes

① X = closed circuit, 0 = open circuit.

② M = Maintained.

③ To order different type or color selector switch, substitute the underlined character with appropriate suffix code from the Color Selection table. Example: 10250T20K**G**.

1

Selector Switch Selection

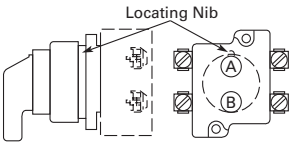
Cam and Contact Block Selection

Selector switches in their varied forms (two-position, three-position and four-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" table (**Page V7-T1-232**) 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.

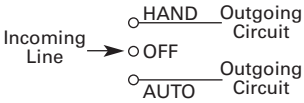
Contact Circuit Locations



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 center 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 tables on the following pages list 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 show all the "X-O" combinations. For the purpose of this example, the applicable portion of those tables is shown on this page.

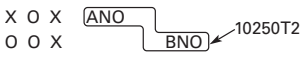
Now to make the cam selection, make a simple worksheet such as:

	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 colors or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page V7-T1-234**. For the example in step 4 you may want a three-position maintained black knob, cam 3—Catalog Number 10250T1323.

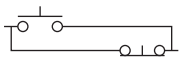
The Complete Switch:
10250T1323 with one 10250T2 or, for one composite catalog number, 10250T21KB found on **Page V7-T1-229.**

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

Wiring of Jumper Connections


Series Connection


Parallel Connection

Four-position selector switches are limited to four contact blocks.

Contact Blocks
For selection and number of available contact blocks per operator, see **Pages V7-T1-257** to **V7-T1-260**.

Example Selection Table

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

Two-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	NC	or	NC
2	O	X	NO	or	NO

Note
① Wired in series.

1

Three-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 Mounting Location Top Plunger A	Operator with Cam Code #2 Mounting Location Bottom Plunger B	Operator with Cam Code #3 Mounting Location Top Plunger A	Operator with Cam Code #3 Mounting Location Bottom Plunger B
1	X	0	0	NO	NC	NO	
2	X	X	0		NC		NC
3	X	0	X	NO		NO NO	
4	0	0	X		NO		NO
5	0	X	X	NC	NO	NC	
6	0	X	0	NC		NC	NC

Four-Position Switch—Contact Block Selection

No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function Mounting Location Top Plunger A	Contact Blocks Required to Accomplish Circuit Function Mounting Location Bottom Plunger B
1	X	0	0	0	NC	
2	0	X	0	0		NO
3	0	0	X	0	NO	
4	0	0	0	X		NC
5	X	0	0	X	NC	NC
6	0	X	X	0	NO	NO
7	0	0	X	X	NO	NC
8	X	X	0	0	NC	NO
9	0	X	0	X		NO NC

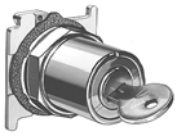
No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function Mounting Location Top Plunger A	Contact Blocks Required to Accomplish Circuit Function Mounting Location Bottom Plunger B
10	X	0	X	0	NC NO	
11	X	X	X	0	NC NO	NO
12	0	X	X	X	NO	NC NO
13	X	0	X	X	NO NC	NC
14	X	X	0	X	NC	NO NC

Selector Switch Operators

Key Operators

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two-Position Maintained ①



Key Operators with Cam

Positions	Operator Action ②	Cam Code ③	Optional Key Removal Positions ④	Vertical Mounting Catalog Number	Horizontal Mounting Catalog Number
Two-position—60° throw	M M	1	1, 2, 3	**10250T1511_**	**10250T1611_**
	M S	1	2	**10250T1571_**	**10250T1581_**
Three-position—60° throw	M M M	2	1–7	**10250T1522_**	**10250T1622_**
		3		**10250T1523_**	**10250T1623_**
	S M M	2	1, 4, 5	**10250T1532_**	**10250T1632_**
		3		**10250T1533_**	**10250T1633_**
	S M S	2	4	**10250T1542_**	**10250T1642_**
		3		**10250T1543_**	**10250T1643_**
	M M S	2	2, 4, 6	**10250T1652_**	**10250T1662_**
		3		**10250T1653_**	**10250T1663_**
Four-position—40° throw	M M M M	7	7	**10250T1677_**	**10250T1687_**

Notes

① Horizontal mount, key removal #1 keyed selector switch, cam 1 shown.

② M = Maintained. S = Spring return in direction of arrow (R).

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages V7-T1-230**, **V7-T1-231** and **V7-T1-232**.

④ Choose key removal position required for application from table on **Page V7-T1-234**. Add key removal code no. to listed catalog number. Example: 10250T1511**2**.

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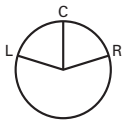
Key Removal Positions



Code Suffix	Key Removal Position
1	Right only
2	Left only
3	Right and left
4	Center only
5	Right and center
6	Left and center
7	All positions

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

Replacement Keys or Dissimilar Locks for Key Operators

Operators listed on **Page V7-T1-234** have identical locks and keys (Key Code H661) Catalog Number 10250ED824. For dissimilar lock and key combinations, see listing on this page.

Replacement Key

Description	Catalog Number
Replacement keys (code H661)	**10250ED824**

Selector Switch Operators with Dissimilar Locks and Keys (UL [NEMA] 4, 4X and 13)

The locks in all key operators listed on **Pages V7-T1-213, V7-T1-234** and **V7-T1-371** are identical and use key code number H661. Two keys are supplied with every lock. For additional code number H661 keys, order **Catalog Number 10250ED824**. For others, order 10250ED1130 and designate lock number. When dissimilar locks for each operator or each group of operators are required, select from the lock and key combination listed below. **When Ordering Operator Only** or a complete control unit with a substitute lock, order from table below and add "except Lock and Key Code No. …"

"H" Series Locks without Master Key—with Key Slot Cover

Lock and Key Code Numbers

H501	H635	H663
H620	H639	H675
H621	H643	H683
H634	H654	H688

"M" Series Locks with Master Key—with Key Slot Cover

Lock and Key Code Numbers

MD1	MD14	ME8	MJ6
MD2	MD15	ME11	MJ10
MD3	MD16	ME16	MJ11
MD4	MD19	ME17	MJ13
MD5	MD20	ME18	MJ15
MD7	ME2	ME19	MJ16
MD9	ME3	MJ1	MD17
MD10	ME5	MJ3	
MD11	ME6	MJ4	
MD13	ME7	MJ5	

Master Keys for Above Locks

Application	Catalog Number
For code:	
MD1–MD20	10250ED825-3
ME2–ME18	10250ED825-4
MJ1–MJ16	10250ED825-5

Selector Switch Operators with Caps

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Selector Switch Operators with Caps

Positions	Operator Action ②	Black Knob Selector Switch—Vertical Mounting ③ Cam Code ④	Black Knob Selector Switch—Vertical Mounting ③ Catalog Number	Black Lever Selector Switch—Vertical Mounting ③ Cam Code ④	Black Lever Selector Switch—Vertical Mounting ③ Catalog Number
Two-Position Maintained ①	Two-position—60° throw	1	**10250T1311**	1	**10250T3011**
	M S	1	**10250T1371**	1	**10250T3071**
Three-Position Maintained ⑤	Three-position—60° throw	2	**10250T1322**	2	**10250T3022**
	M M	3	**10250T1323**	3	**10250T3023**
	S M	2	**10250T1332**	2	**10250T3032**
	S M	3	**10250T1333**	3	**10250T3033**
	S S	2	**10250T1342**	2	**10250T3042**
	S S	3	**10250T1343**	3	**10250T3043**
	M S	2	**10250T1352**	2	**10250T3052**
	M S	3	**10250T1353**	3	**10250T3053**
	Four-position—40° throw	7	**10250T1367**	7	**10250T3067**

Notes

① Black knob selector switch, cam 1 shown.
② M = Maintained. S = Spring return in direction of arrow (R).
③ Field convertible to horizontal mounting or order operator only and separate operator cap.
④ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages V7-T1-230**, **V7-T1-231** and **V7-T1-232**.
⑤ Black lever selector switch, cam 3 shown.

Selector Switch Operators without Caps

Operators can be ordered with caps assembled to them by adding the code number from the table on this page to the end of catalog number below.
Example: 10250T4011**KB**

Two-Position Selector Switch Maintained

Selector Switch Operators without Caps

Positions	Operator Action ①	Cam Code ②	Catalog Number
Two-position—60° throw	M M	1	**10250T4011**
	M S	1	**10250T4081**
Three-position—60° throw	M M M	2	**10250T4022**
		3	**10250T4023**
	M S M	2	**10250T4032**
		3	**10250T4033**
	M S S	2	**10250T4042**
		3	**10250T4043**
	M M S	2	**10250T4052**
		3	**10250T4053**
Four-position—40° throw	M M M M	7	**10250T4067**

Knob

Lever

Lever for Use with Maintained Operators

Coin Slot

Operating Caps

Color	Knob Catalog and Code Number	Lever Catalog and Code Number	Color	Lever ③ Catalog and Code Number	Coin Slot Catalog and Code Number
Black	**10250TKB**	**10250TLB**	Black	**10250TSB**	**10250TCB**
Red	**10250TKR**	**10250TLR**	Red	**10250TSR**	**10250TCR**
Green	**10250TKG**	**10250TLG**	Green	**10250TSG**	**10250TCG**
Yellow	**10250TKY**	**10250TLY**	Yellow	**10250TSY**	**10250TCY**
White	**10250TKW**	**10250TLW**	White	**10250TSW**	**10250TCW**
Gray	**10250TKA**	**10250TLA**	Gray	**10250TSA**	**10250TCA**
Blue	**10250TKL**	**10250TLL**	Blue	**10250TSL**	**10250TCL**
Orange	**10250TKD**	**10250TLO**	Orange	**10250TSO**	**10250TCO**

Notes

① M = Maintained. S = Spring return in direction of arrow (R).
② For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages V7-T1-230**, **V7-T1-231** and **V7-T1-232**.
③ Designed for added ingress protection. For use in maintained operators only.

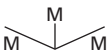
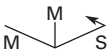
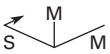
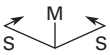
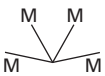
1

Illuminated Selector Switch Operators

Illuminated Selector Switches without Caps

Two-Position Selector Switch Maintained

Operator without Knob or Lever

Positions	Operator Action ①	Transformer Type—50/60 Hz 6 Volt #755 Lamp: Cam Code ②	Voltage	Code Number and Catalog Number ③	Full Voltage Type—AC or DC ④ Lamps: 6V—#755, 12V—#756, 24V—#757, 48V—#1835, 120/240V—120MB: Cam Code ②	Voltage	Code Number and Catalog Number ③
Two-position—60° throw		1	24	**10250T5961**	1	6	**10250T6201**
			120	**10250T5971**		12	**10250T6211**
			208	**10250T6511**		24	**10250T6221**
			240	**10250T5981**		48	**10250T6231**
			380	**10250T5991**		120	**10250T6361**
			480	**10250T6001**		240 ⑤	**10250T6371**
			600	**10250T6011**			
Three-position—60° throw		+ 2 or 3	24	**10250T602_**	+ 2 or 3	6	**10250T624_**
			120	**10250T603_**		12	**10250T625_**
			208	**10250T652_**		24	**10250T626_**
			240	**10250T604_**		48	**10250T627_**
			380	**10250T605_**		120	**10250T638_**
			480	**10250T606_**		240 ⑤	**10250T639_**
			600	**10250T607_**			
		+ 2 or 3	24	**10250T654_**	+ 2 or 3	6	**10250T612_**
			120	**10250T620_**		12	**10250T632_**
			208	**10250T655_**		24	**10250T642_**
			240	**10250T656_**		48	**10250T672_**
			380	**10250T657_**		120	**10250T622_**
			480	**10250T658_**		240	**10250T682_**
			600	**10250T659_**			
		+ 2 or 3	24	**10250T660_**	+ 2 or 3	6	**10250T613_**
			120	**10250T621_**		12	**10250T633_**
			208	**10250T661_**		24	**10250T643_**
			240	**10250T662_**		48	**10250T673_**
			380	**10250T663_**		120	**10250T623_**
			480	**10250T664_**		240	**10250T683_**
			600	**10250T665_**			
		+ 2 or 3	24	**10250T614_**	+ 2 or 3	6	**10250T628_**
			120	**10250T615_**		12	**10250T629_**
			208	**10250T653_**		24	**10250T630_**
			240	**10250T616_**		48	**10250T631_**
			380	**10250T617_**		120	**10250T640_**
			480	**10250T618_**		240 ⑤	**10250T641_**
			600	**10250T619_**			
Four-position—40° throw		7	24	**10250T6087**	7	6	**10250T6327**
			120	**10250T6097**		12	**10250T6337**
			208	**10250T6547**		24	**10250T6347**
			240	**10250T6107**		48	**10250T6357**
			380	**10250T6117**		120	**10250T6427**
			480	**10250T6127**		240 ⑤	**10250T6437**
			600	**10250T6137**			

Notes

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

② For selection of the proper cam and contact block, to obtain the proper circuit sequence, see selection tables on **Pages V7-T1-230**, **V7-T1-231** and **V7-T1-232**.

③ Operator includes lens gasket and lens attachment screws.

④ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page V7-T1-261**.

⑤ Resistor type. May generate excess heat if used in high density.

Knob

Lever

Illuminated Knobs and Levers

Color ①	Knob Code Number and Catalog Number	Lever Code Number and Catalog Number
Red	**10250TER**	**10250TFR**
Green	**10250TEG**	**10250TFG**
Yellow	**10250TEA**	**10250TFA**
Blue	**10250TEL**	**10250TFL**
Clear	**10250TEC**	**10250TFC**
White	**10250TEW**	**10250TFW**
Amber	**10250TEM**	**10250TFM**

Joystick Units

Two-Position Joystick

Joystick Units—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Operator Position ②

Up	Center	Down	Operator Action ③	Contact Type	Mounting Location A	Mounting Location B	Two-Position Assembled Unit Catalog Number ④
X	0	0	M S	1NC			**10250T452-3X**
0	0	X	M S	1NC			

Notes

① Amber, clear and white lenses have a black arrow (pointer), red, green and blue lenses have a white arrow (pointer).
② X = closed circuit, 0 = open circuit.
③ M = Maintained. S = Spring return in direction of arrow (R).
④ Field convertible momentary to maintained or vice versa.

1

Joysticks

Two-Position Joystick Operators

The device mounts in the standard 30.5 mm mounting hole. Allow sufficient panel space for lever movement.

The maximum travel of the knob operator (full up to full down) is 2.2 in (24°) momentary, 2.5 in (30°) maintained, but ample space for lever operation must be allowed. These operators are field convertible from momentary to maintained operation or vice versa.

The use of NC contacts is preferred because they provide positive drive contact opening and a direct relationship between lever movement and affected terminal, i.e., up movement affects the top terminals.

Application Caution

Joystick operators are not recommended on certain DC applications above 24 Vdc which may involve lightly engaging the contacts (teasing) to achieve speed control, positioning, jogging, etc. Excessive arcing and deterioration of the contacts will occur.

Two-Position Joystick Operator

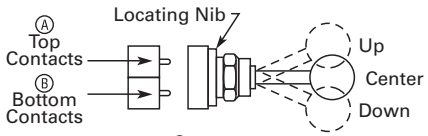
Two-Position Joystick Operators—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Contact Block Limitations	Two-Position Operator Only—AC Applications Only Description ①	Catalog Number
Momentary Mode 4NC contact blocks max. 3NO contact blocks max.	Momentary up and down	**10250T452**
	Maintained up—momentary down	**10250T4521**
	Maintained down—momentary up	**10250T4522**
Maintained Mode 2 contact blocks max.	Maintained up and down	**10250T4525**

Contact Block Operation and Selection

Handle Position ② Up	Center	Down	Contact Block Type ④	Mounting Location ②③ Top A	Bottom B	Catalog Number
X	0	0	1NC			**10250T51**
0	0	X	1NC			**10250T51**
0	X	0	2LONC (Series)			**10250T45**
X	0	0	1NC			**10250T3**
0	0	X	1NC			
X	X	0	1LONC			**10250T45**
0	X	X	1LONC			
X	0	0	1NC			**10250T44** ⑤
0	0	X	1NO			
0	0	X	1NC			
X	0	0	1NO			

A and B Mounting Location



Up
NC Contact at Top Is Closed, NO at Bottom Is Closed

Center
All NC and NO Contacts Are Open (1/2 Way), Late Opening NC Is Closed

Down
NC Contact at Bottom Is Closed, NO at Top Is Closed

Notes

① Field convertible momentary to maintained or vice versa. To expedite shipment of maintained types, order momentary operator 10250T452 which is a stocked device.
② Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.
③ See above for "A" and "B" mounting location.
④ NO = normally open, NC = normally closed, LONC = late opening normally closed.
⑤ Four circuits in single block depth—rated 300V max.

Four-Position Joystick Operators

The joystick operated control unit is intended for AC application only. For other use, see **Application Caution** on preceding page.

The panel area required for the four-position operator is equivalent to two standard pushbutton operators.

The latch holds the lever in the center position. The trigger latch must be released before lever can moved into any position.

Four-Position Joystick Operator

Four-Position Joystick Operator with Latch

Four-Position Joystick Operators—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Contact Block Limitations	Description ①	Catalog Number
Operator Only—AC Application Only		
Four contact blocks max.—two in each position	Four-position—without latch	**10250T451_**
	Four-position—with latch	**10250T461_**
Hole Plug		
Four contact blocks max.—two in each position	To plug unused hole	**10250TA7**

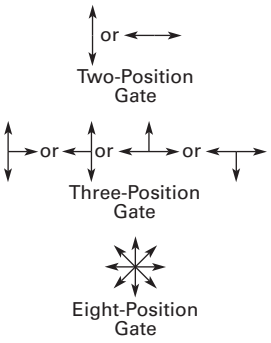
Field Conversion—Gate

The factory assembled four-position operator is assembled with a gate arranged for four handle positions.

Handle Positions

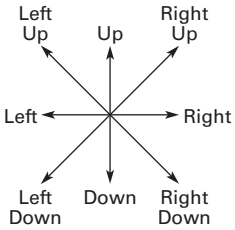
Three additional gates, supplied with every operator, allow on the job conversion to three- or eight-position operation as illustrated.

Two-, Three- or Eight-Position Operation



The eight-position gate controls the four functions shown as "Up," "Down," "Left" and "Right." The remaining four diagonal positions each actuate two adjacent functions; for example, "Left Down" actuates both "Left" and "Down." The operator may be arranged for spring return of handle to center position, or maintained in up to eight positions (see description of maintained position operator).

Adjacent Functions



Maintained Position

For maintained position (non-spring return), locate required maintained position or positions of operating lever and add appropriate suffix number to the catalog number selected from the table above.

Maintained Positions

Maintained Positions				Suffix
Up	Down	Left	Right	Number
X	—	—	—	**1**
—	—	—	—	**2**
—	X	—	—	**3**
—	—	X	—	**4**
—	—	—	—	**5**
X	—	X	—	**6**
X	—	—	X	**7**
—	X	X	—	**8**
—	X	—	X	**9**
—	—	X	X	**10**
X	X	X	—	**11**
X	X	—	X	**12**
X	—	X	X	**13**
—	X	X	X	**14**
X	X	X	X	**15**

On an eight-position gate, when an adjacent vertical and horizontal position are both maintained, the included diagonal position is also maintained.

Note

① Momentary operators—spring return to center. For maintained operators add suffix code from table on this page. Example: 10250T451**10**. Operator without latch, maintained in left and right positions.

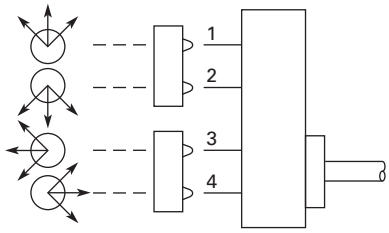
1

Contact Block Operation

Contact blocks mount directly to the back of the operator. For reliable operation, the maximum number of contact blocks that should be installed behind each operator lever is two (four total).

The figure below identifies the circuits activated by each of the eight possible lever positions. Contact block plungers 1, 2, 3, 4 are depressed (change state) when handle is in the position indicated by arrows below.

Circuit Activation



Note: Joystick in its resting state, center position, does not activate contact block plungers.

Ordering Example:

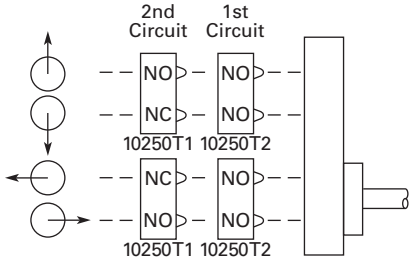
Suppose you are looking for a four-position momentary joystick without a latch and the following circuit arrangements.
X = Closed Circuit, O = Open Circuit.

Example Circuit Arrangements

Circuit	Up	Down	Left	Right
1st	X	X	X	X
2nd	X	O	O	X

The contact blocks and their mounting locations would be as follows:

Example Contact Blocks and Locations



A complete bill of material for this example would include:

Example Order

Qty.	Catalog Number
1	**10250T451**
2	**10250T2**
2	**10250T1**

Blank Legend Plates for Joystick Operators

When ordering engraved legend plates, order by catalog number and insert the following into order notes:

- Legend required
- Size of characters: 3/16, 1/8, 3/32 in (4.8, 3.2, 2.4 mm)
- Location by letter (A–N)

Locations K and M can accommodate up to two lines horizontally; L and N up to two lines vertically.

Maximum number of characters:

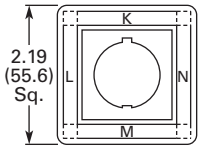
- Horizontal
  3/16 in—13, 1/8 in—14, 3/32 in—19
- Vertical
  3/16 in—10, 1/8 in—13, 3/32 in—14

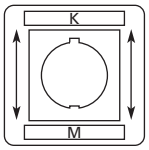
Ordering Example:

Two-position legend plate to be marked "UP" "DOWN."

Catalog No. **10250TJ2S4STAMP**
Letter Size: 3/16 in (4.8 mm)
Pos. K—UP
Pos. M—DOWN

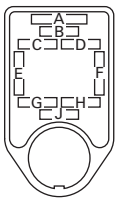
Two-Position

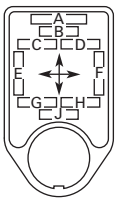




Catalog Number	Catalog Number
Blank Plate	
10250TJS3	**10250TJS4**
Engraved Plate	
10250TJS3STAMP	**10250TJS4STAMP**

Four-Position





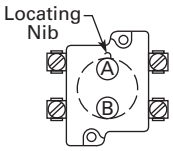
Catalog Number	Catalog Number
Blank Plate	
10250TJS1	**10250TJS2**
Engraved Plate	
10250TJS1STAMP	**10250TJS2STAMP**

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.

Mounting Location



Roto-Push—Black Flush Button

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

Typical Applications (Most Common Examples)	Operator Position ① Collar Left Normal	Collar Left Depressed	Collar Right Normal	Collar Right Depressed	Contact Type	Mounting Location A	Mounting Location B	Catalog Number ②
Two-Position								
FORWARD/REVERSE; HIGH/LOW; OPEN/CLOSE; UP/DOWN; etc.	0 0	0 X	0 0	X 0	1NO 1NO			**10250T2411-2**
JOG/RUN; MAN./AUTO; etc.	0 0	X 0	0 X	X X	1NO 1NO			**10250T24111-2**
RUN/JOG; START/JOG; etc.	0 X	X X	0 0	X 0	1NO 1NC			**10250T24111-1**
SAFE/RUN; etc.	0 0	0 0	0 X	X X	1NO 1NO			**10250T2415-2**

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.

Red Long

Rotates to a Latch-Out Mode

Color and Type of Button	Contact Block	Vertical Mounting Catalog Number
Red long	1NC	**10250T72**
	2NC	**10250T73**

Notes

① X = closed circuit, 0 = open circuit.

② Roto-Push assembled with contact blocks.

1

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: 10250T241**1**.
- Catalog number(s) for contact blocks and legend plates if required.
- To select the cam and contact blocks needed for two-position and three-position switches, use the tables on following pages.

Operator and Cam

Operator and Cam

Color and Type of Button	Cam Code No. Select from Tables	Vertical Mounting Catalog and Code Number	Horizontal Mounting Catalog and Code Number
Black flush	+ 1 to 18	**10250T241_**	**10250T251_**
Red flush ①		**10250T242_**	**10250T252_**
Green flush		**10250T243_**	**10250T253_**
Black long		**10250T261_**	**10250T271_**
Red long ①		**10250T262_**	**10250T272_**
Green long		**10250T263_**	**10250T273_**

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

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.

Special Roto Latch—Red Long Button

Special Rotor Latch—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Color and Type of Button	Vertical Mounting Catalog Number
Red long	**10250T3213**
Black long	**10250T3214**

Note

① Not to be used for emergency stop application.

Cam and Contact Block Selection for Two-Position Roto-Push

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	Cam Code 1	Cam Code 2	Cam Code 3	Cam Code 4	Cam Code 5	Cam Code 6
1	0	0	0	X	A NO	A NO	—	—	A NO	—
2	0	0	X	0	—	—	—	A NC B NO	A NC B NO	—
3	0	0	X	X	—	—	—	—	B NO	A NO
4	0	X	0	0	B NO	A NC B NO	—	—	—	A NC B NO
5	0	X	0	X	A NO B NO	B NO	—	A NO	—	—
6	0	X	X	0	—	—	—	—	—	—
7	0	X	X	X	—	—	A or B NO	B NO	—	B NO
8	X	0	0	0	—	—	A or B NC	B NC	—	B NC
9	X	0	0	X	—	—	—	—	—	—
10	X	0	X	0	A NC B NC	B NC	—	A NC	—	—
11	X	0	X	X	B NC	A NO B NC	—	—	—	A NO B NC
12	X	X	0	0	—	—	—	—	B NC	A NC
13	X	X	0	0	—	—	—	A NO B NC	A NO B NC	—
14	X	X	X	0	A NC	A NC	—	—	A NC	—

Series and Parallel Connections

A NO
B NC

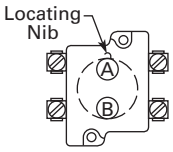
Series Connection

A NO
B NC

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.

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.

Note

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

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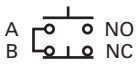
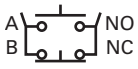
Cam and Contact Block Selection for Two-Position Roto-Push, continued

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	Cam Code 10	Cam Code 11	Cam Code 12	Cam Code 13	Cam Code 14
15	0	0	0	X	—	A NO B NO	—	—	—
16	0	0	X	0	—	A NC B NO	A NC	A or B NC	A NC
17	0	0	X	X	B NO	B NO	—	—	—
18	0	X	0	0	A NO	A NO B NC	—	—	B NO
19	0	X	0	X	—	A NO	B NO	—	—
20	0	X	X	0	—	—	—	—	A NC B NO
21	0	X	X	X	A NO B NO	A NO B NO	A NC B NO	—	—
22	X	0	0	0	A NC B NC	A NC B NC	A NO B NC	—	—
23	X	0	0	X	—	—	—	—	A NO B NC
24	X	0	X	0	—	A NC	B NC	—	—
25	X	0	X	X	A NC	A NO B NO	—	—	B NC
26	X	X	0	0	B NC	B NC	—	—	—
27	X	X	0	0	—	A NO B NC	A NO	A or B NO	A NO
28	X	X	X	0	—	A NC B NC	—	—	—

Series and Parallel Connections



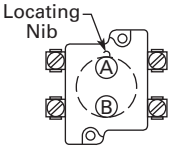
Series Connection



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.

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.

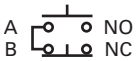
Note

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

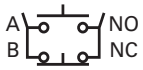
Cam and Contact Block Selection for Three-Position Roto-Push

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	N	D	Cam Code 7	Cam Code 8	Cam Code 9	Cam Code 15 ②	Cam Code 16	Cam Code 17	Cam Code 18
1	0	0	0	0	0	X	A NO B NO	A NC B NO	—	B NO ②	B NO	—	A NC B NO
2	0	0	0	0	X	X	—	—	B NO	—	—	A NO	—
3	0	0	0	X	0	0	—	—	A NO B NC	—	—	—	A NO B NO
4	0	0	0	X	0	X	—	—	—	—	—	—	B NO
5	0	0	0	X	X	X	—	—	A NO ②	—	—	—	—
6	0	0	X	X	0	0	—	A NO B NO	—	—	—	—	—
7	0	0	X	X	0	X	—	B NO	—	—	—	—	—
8	0	0	X	X	X	0	A NC B NO	—	—	—	—	—	—
9	0	0	X	X	X	X	B NO	—	—	—	—	—	—
10	0	X	0	0	0	0	A NO B NC	A NO B NC	—	A NO ②	A NO	B NO	A NO B NC
11	0	X	0	0	0	X	A NO	—	—	A NO B NO	A NO B NO	—	—
12	0	X	0	0	X	X	—	—	—	—	—	A NO B NO	—
13	0	X	0	X	0	0	—	—	—	—	—	—	A NO
14	0	X	0	X	0	X	—	—	—	—	—	—	A NO B NO
15	0	X	X	X	0	0	—	A NO	—	—	—	—	—
16	0	X	X	X	0	X	—	A NO B NO	—	—	—	—	—
17	0	X	X	X	X	X	A NO B NO	—	—	—	—	—	—

Series and Parallel Connections



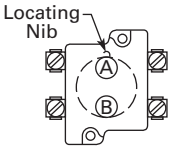
Series Connection



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.

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.

Notes

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

② Limited to 4 contact blocks. See Note on **Page V7-T1-258**.

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Cam and Contact Block Selection for Three-Position Roto-Push, continued

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	N	D	Cam Code 7	Cam Code 8 ②	Cam Code 9	Cam Code 15	Cam Code 16	Cam Code 17	Cam Code 18
18	X	0	0	0	0	0	A NC B NC	—	—	—	—	—	—
19	X	0	0	0	X	X	—	A NC	—	—	—	—	—
20	X	0	0	0	X	0	—	A NC B NC	—	—	—	—	—
21	X	0	X	X	0	0	—	—	—	—	—	A NC B NC	—
22	X	0	X	X	X	X	A NC B NO	A NC B NO	—	—	A NC	B NC	A NC B NO
23	X	0	X	X	X	0	A NC	—	—	—	A NC B NC	—	—
24	X	0	X	0	X	0	—	—	—	A NC B NC	—	—	A NC B NC
25	X	0	X	0	X	X	—	—	—	A NC ②	—	—	A NC
26	X	X	0	0	0	0	B NC	—	A NC ②	—	—	—	—
27	X	X	0	0	0	X	A NO B NC	—	—	—	—	—	—
28	X	X	0	0	X	0	—	B NC	—	—	—	—	—
29	X	X	0	0	X	X	—	A NC B NO	A NC B NO	—	—	—	—
30	X	X	X	X	0	0	—	—	B NC	—	—	A NC	—
31	X	X	X	X	X	0	A NC B NC	A NO B NC	—	—	B NC	—	A NO B NC
32	X	X	X	0	X	0	—	—	—	B NC ②	—	—	B NC
33	X	X	X	0	X	X	—	—	—	A NO B NC	—	—	A NC B NC

Series and Parallel Connections

A NO
B NC

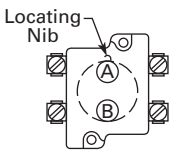
Series Connection

A NO
B NC

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.

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.

Notes

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

② Limited to 4 contact blocks. See Note on **Page V7-T1-258.**

Accessories

Padlocks not included with padlocking attachments. For operators with built-in padlock attachment, see **Page V7-T1-212**.

Accessories

	Description	Catalog Number
	Padlock Attachments	
10250TA2 	**Padlocking Attachment for Flush Pushbutton Operators** Permits locking NC contacts in open position with 1/4 in padlock. Will not lock NO contact.	**10250TA2**
10250TA26 	**Padlocking Attachment for Use with Extended Pushbutton** Permits locking NC contacts in open position with 1/4 in padlock.	**10250TA26**
10250TA36 	**Padlocking Cover Guard** Cover locked over flush button makes it unaccessible or on extended button locks NC contacts open. Takes 1/4 in shank size padlock.	**10250TA36**
10250TA38 	**Padlock Hasp or Flip-Up Guard** When used with a 1/4 in padlock, makes flush and long button and knob selector switch unaccessible, but not locked down. Without the padlock, it is a flip-up guard. Padlock hasp can be removed before assembly.	**10250TA38**
10250TA63 	**Padlocking Attachment for Use with Flexible Weather Resistant Boot** Used on long button operators. Stainless steel. Use only for locking NC contacts open.	**10250TA63**
10250TA64 	**Padlock Attachment** For use with illuminated pushbuttons and maintained push-pull operators having standard button or lens only. Use 1/4 in padlock. Locks in down position only.	**10250TA64**
10250TA11 	**Padlocking Attachment for Non-Illuminated Knob Selector Switches** Provision for up to 5, 1/4 in padlocks.	**10250TA11**

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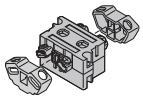
Accessories, continued

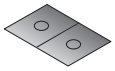
	Description	Catalog Number
	Shrouds and Guards	
10250TA6 	**Shroud for Mushroom Head Operator** Prevents accidental operation. (Not for push-pull operators.)	**10250TA6**
10250TA12 	**Extended Retaining Nut** Replaces standard nut and provides guard for flush head pushbutton operators.	**10250TA12**
10250TA15 	**Guard for Illuminated Pushbutton**	**10250TA15**
10250TA56_ 	**Shroud** For jumbo mushroom head operator.	
	Gray	**10250TA56**
	Yellow	**10250TA56Y**
10250ED1241 	**Half Shroud**—Yellow For jumbo mushroom head operator.	**10250ED1241**
10250TA101 	**Fingerproof Shroud**—10 per package Fits new style contact blocks and light units.	**10250TA101**
	Boots	
10250TA_ 	**Flexible Weather Resistant Boot** For use with button operators (extended buttons preferred). Temperature to –25°F (–32°C). (See **Page V7-T1-251** for 10250TA96 Tightening Tool.)	
	Black	**10250TA3**
	Red	**10250TA4** ①
	Green	**10250TA10**
10250TA25 	**Transparent Boot** For regular illuminated pushbutton operators and PresTest— Temperature to –38°F (–39°C). ②	**10250TA25**
10250TA4_ 	**Boot for Flush Pushbutton**	
	Clear	**10250TA46**
	Black	**10250TA47**
	Red	**10250TA48**
	Green	**10250TA49**

Notes

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.

Accessories, continued

	Description	Catalog Number
	Hardware and Kits	
10250TK3 	**Thrust Washers**— To meet Ford Motor Co. mounting specifications.	**10250TK3**
10250TK5 	**Contact Block Tape Seal**— Seals plunger openings on last contact block. Order in multiples of 10 pieces.	**10250TK5**
56-9337 	**Selector Switch Operator Gasket**— Seals out dust from getting in-between the cam and contact block plungers. Supplied as standard with all selector switches.	**56-9337**
10250TA3_ 	**Special Retaining Nut**— To accommodate thick panel:	
	Indicating lights	**10250TA30**
	PresTest, pushbuttons and selector switches	**10250TA31**
10250TA62 	**Terminal Block**— Two terminals, each will accommodate two wire terminations.	**10250TA62**
10250TA8 	**Spacer Ring**— Used when legend plate is not required.	**10250TA8**
10250TA79 	**Stacking Screw**— Replaces transformer mounting screws on indicating light so terminal block 10250TA62 can be mounted to light to support and connect a series resistor. This screw also fits all contact blocks. Order in multiples of 10.	**10250TA79**
10250TA2_ 	**Base Mounting Spacers** ①	
	Equivalent to contact block in depth (one block deep).	**10250TA22**
	Complete with screws, washers, etc. (two block deep).	**10250TA23**
10250TKG_ 	**Grounding Kits**— Kits consist of a ring connector and a #6 screw for mounting connector to rear of contact block mounting screw.	
	All components except standard indicating lights and PresTest indicating lights.	**10250TKG1**
	Standard indicating lights	**10250TKG2** ②
	PresTest indicating lights	**10250TKG3** ②
10250TA7_ 	**Contact Block Terminal Jumpers**— Available in multiples of 100 only.	
	Terminal to terminal—within block (short)	
	100 per pkg.	**10250TA70**
	1000 per pkg.	**10250TA70-2**
	Terminal to terminal—block to block (long)	
	100 per pkg.	**10250TA71**
	1000 per pkg.	**10250TA71-2**

Notes

① Component only. Not to be used for custom built (factory assembled) stations.

② Not suitable for single contact block depth cast enclosure. Cover is too thick.

Accessories, continued

	Description	Catalog Number
	Special Operators and Attachments	
10250TA5 	**Wobble Stick** Complete with retaining nut—fits standard button.	**10250TA5**
10250TA14 	**Lever Operator** For use with two vertically mounted flush pushbuttons.	**10250TA14**
10250TA_ 	**Maintained Contact Attachment Release Button Assembly** ① Mechanically interlocks with another pushbutton and contact block (not included). Provides mode indication. Minimum hole centers 1.62 in (41.1 mm), maximum 2.313 in (58.8 mm).	
	Black	**10250TA17**
	Red	**10250TA18**
	Green	**10250TA19**
	Yellow	**10250TA20**
	Same with Long Button—Black	**10250TA39**
10250TA1 	**Maintained Contact Attachment** ① Mechanically interlocks two buttons and provides position indication for one. Use with two pushbutton operators and one or more contact blocks.	**10250TA1**
10250TA13 	**Roto-Push Lever Operator**— Used to provide lever operation for Roto-Push operators.	**10250TA13**
	Special Light Modules	
10250TA79 	**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.	
	48 Vdc	**10250TMT8**
10250TFL_ 	**Flasher Module**— Changes any AC illuminated device to a controlled flashing light. Fits 10250T, E30 and E34 devices.	
	24V	**10250TFL2**
	120V	**10250TFL1**
10250ED986-4 	**Flashing Incandescent Lamp**— For use with 120V transformer type or 6V full voltage type indicating lights including PresTest and most E29 devices.	**10250ED986-4**

Note

① Not suitable for single contact block depth cast enclosure. Cover is too thick.

Accessories, continued

	Description	Catalog Number
	Hole Plugs	
10250TA7 	**Plug**— For unused holes—steel, painted gray (stainless steel, use **E30KT5**, see **Page V7-T1-198**)	**10250TA7**
	Tools	
10250TA95 	Octagonal 10250T (notched to fit over selector switch lever), E29 and E30	**10250TA95**
E22CW 	E22, E30, E34 and octagonal 10250T (will not fit over selector switch levers)	**E22CW**
10250TA96 	**Tool for Tightening Boots**— Used to install boot Catalog Numbers 10250TA3, A4, A10 and A25.	**10250TA96**
10250TA102 	**10250T, E34 Allen Wrench**— Used for removal of jumbo mushroom head.	**10250TA102**
10250TA74 	**Lamp Removal Tools**— For transformer type illuminated pushbuttons, push-pull and selector switches. Fits #12 lamp.	**10250TA74**
E30KV1 	For full voltage and resistor type illuminated pushbuttons, push-pull and selector switches and E30.	**E30KV1**
E29KLT 	Standard indicating lights. Fits #44, #755, #6S6 and #10S6.	**E29KLT**

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Options

Legend Plates

Legend Plates with Standard Markings

The legend plates listed below are sized for all standard commercial enclosures and Eaton's cast enclosures. For vertical spacing less than 1.75 in, replace the **S** in the catalog number with **MS**, or the **M** with **P** (except push-pull). No change in price. The smaller size legend plates, "MS" or "P" size, have limited space for legend.

Square Legend Plate

1/2 Round Legend Plate

For Pushbutton Operators and Indicating Lights—Standard

Legend	Color of Field	Square ① Catalog Number	1/2 Round Catalog Number	Legend	Color of Field	Square ① Catalog Number	1/2 Round Catalog Number
Blank—see table on Page V7-T1-254.							
Letters on Legend Plates Below are 3/16 in High							
CLAMP	Black	**10250TS90**	**10250TM90**	OFF	Red	**10250TS24**	**10250TM24**
CLOSE		**10250TS73**	**10250TM11**	ON	Black	**10250TS25**	**10250TM25**
DOWN		**10250TS74**	**10250TM12**	OPEN		**10250TS26**	**10250TM26**
EMERG. STOP	Red	**10250TS13**	**10250TM13**	OUT		**10250TS27**	**10250TM27**
FAST	Black	**10250TS75**	**10250TM14**	POWER ON		**10250TS80**	**10250TM80**
FASTER		**10250TS87**	**10250TM87**	RAISE		**10250TS28**	**10250TM28**
FEEDER ON		**10250TS94**	**10250TM94**	READY		**10250TS86**	**10250TM86**
FEEDER OFF		**10250TS95**	**10250TM95**	RESET		**10250TS29**	**10250TM29**
FORWARD		**10250TS15**	**10250TM15**	REVERSE		**10250TS30**	**10250TM30**
HIGH		**10250TS16**	**10250TM16**	RUN		**10250TS31**	**10250TM31**
IN		**10250TS17**	**10250TM17**	SAFE		**10250TS85**	**10250TM85**
INCH		**10250TS18**	**10250TM18**	SLOW		**10250TS32**	**10250TM32**
JOG		**10250TS19**	**10250TM19**	SLOWER		**10250TS88**	**10250TM88**
JOG FOR.		**10250TS20**	**10250TM20**	START		**10250TS33**	**10250TM33**
JOG REV.		**10250TS21**	**10250TM21**	STOP	Red	**10250TS34**	**10250TM34**
LOW		**10250TS22**	**10250TM22**	TEST	Black	**10250TS83**	**10250TM83**
LOWER		**10250TS23**	**10250TM23**	TRANSFER		**10250TS93**	**10250TM93**
LUBE-FAIL		**10250TS92**	**10250TM92**	TRIP		**10250TS84**	**10250TM84**
MOTOR RUN		**10250TS81**	**10250TM81**	UNCLAMP		**10250TS91**	**10250TM91**
MOTOR STOP		**10250TS82**	**10250TM82**	UP		**10250TS35**	**10250TM35**

Blank Plastic Legend Plates—Square

Color Lettering	Field	Standard Catalog Number	Jumbo ② Catalog Number	Extra Large Catalog Number
Black	White or silver ③	**10250TSP76**	**10250TLP76**	**10250TEP76**
White	Red or black ③	**10250TSP77**	**10250TLP77**	**10250TEP77**

Notes

① Square legend plates have a satin aluminum field. Color is on lower portion.
② Cannot be used on cast enclosures except for top row. Suitable for most sheet metal enclosures.
③ If legend plate is to be engraved, specify field color required.

Square Legend Plate

1/2 Round Legend Plate

For Selector Switch and Roto-Push Operators—Standard Size

Legend	Color of Field	Square ① Catalog Number	1/2 Round Catalog Number
Blank—see table on Page V7-T1-254.			
2-Position—5/32 in High Lettering			
FOR. REV.	Black	**10250TS38**	**10250TM38**
HAND AUTO		**10250TS39**	**10250TM39**
HIGH LOW		**10250TS40**	**10250TM40**
JOG RUN		**10250TS41**	**10250TM41**
MAN. AUTO		**10250TS67**	**10250TM67**
OFF ON		**10250TS42**	**10250TM42**
OPEN CLOSE		**10250TS43**	**10250TM43**
RUN JOG		**10250TS44**	**10250TM44**
SAFE RUN		**10250TS45**	**10250TM45**
START JOG		**10250TS46**	**10250TM46**
START STOP		**10250TS47**	**10250TM47**
UP DOWN		**10250TS48**	**10250TM48**
3-Position—1/8 in High Lettering			
AUTO OFF HAND	Black	**10250TS49**	**10250TM49**
FOR. OFF REV.		**10250TS50**	**10250TM50**
FOR. SAFE REV.		**10250TS69**	**10250TM69**
HAND OFF AUTO		**10250TS51**	**10250TM51**
MAN. OFF AUTO		**10250TS68**	**10250TM68**
OPEN OFF CLOSE		**10250TS53**	**10250TM53**
RUN SAFE JOG		**10250TS70**	**10250TM70**
UP OFF DOWN		**10250TS54**	**10250TM54**
ON STOP SAFE	Red	**10250TS71**	**10250TM71**

70 mm Round—Plastic Legend Plate

45 mm and 70 mm Plastic—Round

Color Lettering	Field	Catalog Number
45 mm		
Blank	Yellow or red ②	**10250TRP78**
70 mm		
Blank	Yellow or red ②	**10250TRP76**
Red EMERG. STOP	Yellow	**10250TRP79**

For Push-Pull Units ③

Legend	Color of Field	Square ① Catalog Number	1/2 Round Catalog Number
Standard Size—Letters on Legend Plates Below are 3/32 in High			
PULL START/PUSH STOP	Green/red	**10250TPP2**	**10250TR2**
PUSH ON/PULL OFF	Black	**10250TPP5**	**10250TR5**
PULL OPEN/PUSH CLOSE	Black	**10250TPP8**	**10250TR8**
PULL UP/PUSH DOWN	Black	**10250TPP11**	**10250TR11**
Jumbo Size—Letters on Legend Plates Below are 1/8 in High			
PULL START/PUSH STOP	Green/red	**10250TPP3**	**10250TR3**
PULL ON/PUSH OFF	Black	**10250TPP6**	**10250TR6**
PULL OPEN/PUSH CLOSE	Black	**10250TPP9**	**10250TR9**
PULL UP/PUSH DOWN	Black	**10250TPP12**	**10250TR12**

Notes

① Square legend plates have a satin aluminum field. Color is on lower portion.
② If legend plate is to be engraved, specify field color required.
③ All push-pull legend plates include the symbols ≠ Ø in the center of the plate.

1

Legend Plates with Non-Standard Markings

When Ordering Specify

- Catalog number of blank plate phase plus Suffix "STAMP."
- Insert the following into Order Notes: legend, letter size and locations (letters A–W)—combine letters for definitive locations as shown.

Ordering Example:

Catalog No.:
10250TS36STAMP
Letter Size: 3/32 in (2.4 mm)
Pos. A—POWER HOUSE
Pos. B—START PUMP 1

Legend Characters Available

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z / - . , 1 2 3 4 5 6 7 8 9 0

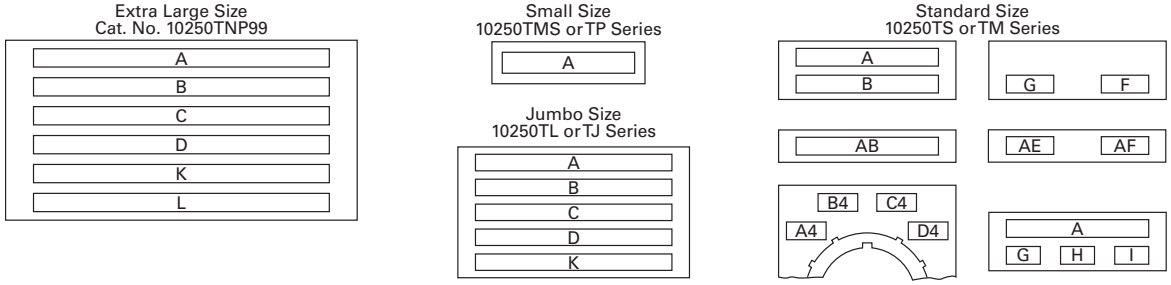
Legend characters on black and red plates are white—on satin aluminum plates, characters are black.

Blackening Kit

Solution blackens aluminum exposed by engraving process. Must be applied immediately after engraving. 0.3 oz. bottle—sufficient for approximately 1100 legend plates.

Catalog Number: **10250TBK**

Legend Positions



Blank and Custom Engraved Legend Plates

Style	Color	Small Catalog Number	Standard Catalog Number	Jumbo ② Catalog Number	Extra Large ③ Catalog Number	Four-Position Selector Switch Custom ④ Catalog Number	Four-Position Selector Switch Standard Catalog Number	Push-Pull with Symbols ① Standard Catalog Number	Push-Pull with Symbols ① Jumbo ② Catalog Number
Square ⑤	Black	**10250TMS36**	**10250TS36**	**10250TL36**	—	**10250TS76**	**10250TS72**	**10250TPP17**	**10250TPP18**
	Red	**10250TMS37**	**10250TS37**	**10250TL37**	—	—	—	—	—
	Green/red	—	—	—	—	—	—	**10250TPP20**	**10250TPP21**
	Satin alum.	—	—	—	**10250TNP99**	—	—	—	—
1/2 Round	Black	**10250TP36**	**10250TM36**	**10250TJ36**	—	—	**10250TM72**	**10250TR17**	**10250TR18**
	Red	**10250TP37**	**10250TM37**	**10250TJ37**	—	—	—	—	—
	Green/red	—	—	—	—	—	—	**10250TR20**	**10250TR21**
	Satin alum.	—	**10250TM89**	**10250TJ89**	—	—	—	—	—

Maximum Characters per Legend Plate and Approximate Dimensions

Top (Aluminum and Plastic)	Approximate Dimensions in Inches (mm) Width	Height	Style	Character Size 3/32 in High Number of Lines	3/32 in High Number of Characters	1/8 in High Number of Lines	1/8 in High Number of Characters	3/16 in High Number of Lines	3/16 in High Number of Characters
Small ⑥	1.59 (40.4)	1.59 (40.4)	Square	1	17	—	—	—	—
			1/2 Round	1	15	1	12	1	9
Standard and custom	1.75 (44.5)	1.75 (44.5)	Square	2	18	2	13	1	9
			1/2 Round	2	15	2	12	1	9
Jumbo ⑦	2.19 (55.6)	2.19 (55.6)	Square	5	23	3	18	2	12
			1/2 Round	5	19	4	15	2	11
Extra large ③	2.44 (62.0)	2.44 (62.0)	Square	6	25	3	18	3	12

Notes

① All push-pull legend plates include the symbols ≠ Ø in the center of the plate.
② Cannot be used on cast enclosures except for top row. Suitable for most sheet metal enclosures.
③ When used to meet Ford Motor Co. specifications, specify engraved legend. Cannot be used on standard cast or sheet metal enclosures.
④ Slightly larger than standard size for legends requiring more space—fits cast enclosures.
⑤ Square legend plates have a satin aluminum field. Color is on lower portion.
⑥ Recommended only when mounting on minimum centers (less than 1-3/4 in [44.5 mm] vertical centers).
⑦ Can be used on top row only of any enclosure.

Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

Enclosures (Case and Cover)—Surface Mounting ①

	Number of Elements	One Contact Block Depth Catalog Number	Two Contact Block Depth Catalog Number
Die Cast Enclosure 	**Die Cast Enclosure—In-Line** ②③④ **NEMA 4, 4X, 12, 13**		
	1	**10250TN1**	**10250TN11**
	2	**10250TN2**	**10250TN12**
	3	**10250TN3**	**10250TN13**
	4	—	**10250TN14**
Polyester Enclosure 	**Polyester** ④**—In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
Stainless Steel Enclosure 	**Stainless Steel** ④⑤**—In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

Dimensions, see **Page V7-T1-268**.

Mounting Instructions

Two-position joystick must be used with two contact block deep enclosures (maximum number of contact blocks = 1). Four-position joysticks cannot be used within these enclosures.

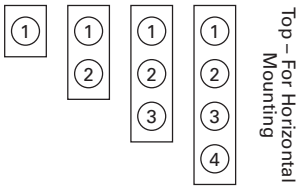
One and Two Contact Block Depth Enclosures

One Contact Block Depth Enclosure

Two Contact Block Depth Enclosure

Enclosure Layouts

Top – For Vertical Mounting



Top – For Horizontal Mounting

Notes

① For spacing increments, see **Page V7-T1-256.**
② All die cast enclosures can be converted to base mounting of contact blocks, with spacers 10250TA22 or 10250TA23. See listing on **Page V7-T1-249.**
③ When used with E30 pushbuttons, only the one element enclosure can be used.
④ When used with resistor light units, only the 2 contact block depth enclosure can be used.
⑤ 14 gauge, type 304.

1

Die Cast and Stainless Steel—Flush Mount, Covers Only

Flush Mounting Covers

Covers Only—Flush Mounting

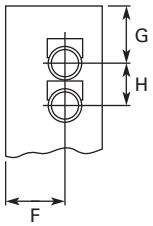
Number of Elements	Catalog Number	Catalog Number
Flush Die Cast Covers		
	In-Line Deep Cover	**In-Line Flat Cover**
1	**10250TF11**	**10250TF1**
2	**10250TF12**	**10250TF2**
3	**10250TF13**	**10250TF3**
4	**10250TF14**	**10250TF4**
In-Line Stainless Steel Flush Plates ①		
	With Pullbox	**Without Pullbox**
1	**10250TS10**	**10250TS1**
2	**10250TS11**	**10250TS2**
3	**10250TS12**	**10250TS3**
4	**10250TS14**	**10250TS4**
Dimensions, see **Page V7-T1-269**.		

Spacing Increments

Approximate Dimensions in Inches (mm)

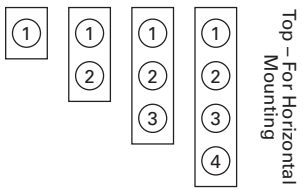
Type	F	G	H
Die cast	2.44 (62.0)	2.5 (63.5)	1.88 (47.8)
Polyester	1.88 (47.8)	Min. 2.13 (54.1)	2.25 (57.2)
Stainless steel	1.69 (42.9)	Min. 1.73 (43.9)	2.25 (57.2)

Spacing Increments for Enclosures



Enclosure Layouts

Top – For Vertical Mounting



Note

① Not oiltight. NEMA 1 applications only.

Contact Blocks

Standard Contact Blocks

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

Logic Level Contact Blocks

- UL A600/P600 rated
- Color-coded plungers
- Inert palladium knife-blade contacts
- Gray (opaque) housings
- Pressure plate or spade terminals

Special Function Contact Blocks

- UL A600/P600 rated
- Color-coded plungers
- Silver contact tips with "reliability nibs"
- Gray (opaque) housings
- Pressure plate terminals only

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 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
Pushbuttons	6
Push-pull operators	2
Roto-push operators	4
Two- or three-position selector switches	6
Four-position selector switches	4
Joysticks	4

1

10250T1

Contact Blocks

Symbol	Circuit	Description ①	Standard Pressure Terminal Catalog Number	Standard Spade Terminal ② Catalog Number	Logic Level Pressure Terminal Catalog Number	Logic Level Spade Terminal ② Catalog Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51**	**10250T59**	**10250T51E**	**10250T59E**
Blank No Plunger	1NO	Stack up to six blocks six circuits) unless otherwise noted.	**10250T53**	**10250T60**	**10250T53E**	**10250T60E**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1**	**10250T40**	**10250T1E**	**10250T40E**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3**	**10250T42**	**10250T3E**	**10250T42E**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2**	**10250T41**	**10250T2E**	**10250T41E**
Special Function Blocks ③						
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71** ③	—	**10250T71E** ③	—
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47** ③④	—	**10250T47E** ③	—
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57** ③④	—	**10250T57E** ③	—
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45** ③	—	**10250T45E** ③	—
	LONC-ECNO	Overlapping contacts. Stack up to four 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 four blocks unless otherwise noted.	**10250T44** ⑤	—		

Notes

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 in (63.5 mm). Not suitable for use in 10250T or E34 enclosures. Also available in amber housing. Not available with fingerproof shrouds.

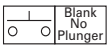
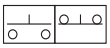
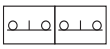
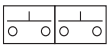
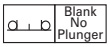
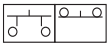
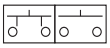
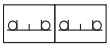
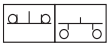
③ Special function contact blocks are not suitable for use with roto-push operators, three-position push-pull operators, or four-position selector switches.

④ ECNO contact blocks are not suitable for use with two-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 three-position push-pull operators only on low voltage (30V or less) circuits. Fingerproof shrouds not available.

10250T1CP

Contact Blocks with Fingerproof Shrouds

Symbol	Circuit	Description ①	Standard Pressure Terminal ② Catalog Number	Logic Level Pressure Terminal ② Catalog Number
	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51P**	**10250T51EP**
	1NO	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T53P**	**10250T53EP**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1P**	**10250T1EP**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3P**	**10250T3EP**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2P**	**10250T2EP**
Special Function Blocks ③				
	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71P** ④	**10250T71EP** ④
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47P** ③④	**10250T47EP** ④
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57P** ③④	**10250T57EP** ④
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45P** ④	**10250T45EP** ④
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55P** ③④	**10250T55EP** ④

Notes

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 catalog number e.g. 10250T51**CP**.

③ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

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

1

10250T1C

Amber Contact Blocks

Symbol	Circuit	Description ①	Standard Pressure Terminal ② Catalog Number	Standard Spade Terminal ③ Catalog Number	Logic Level Pressure Terminal ② Catalog Number	Logic Level Spade Terminal ③ Catalog Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51C**	**10250T59C**	**10250T51EC**	**10250T59EC**
Blank No Plunger	1NO	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T53C**	**10250T60C**	**10250T53EC**	**10250T60EC**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1C**	**10250T40C**	**10250T1EC**	**10250T40EC**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3C**	**10250T42C**	**10250T3EC**	**10250T42EC**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2C**	**10250T41C**	**10250T2EC**	**10250T41EC**
Special Function Blocks ③						
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71C** ④	—	**10250T71EC** ④	—
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47C** ④⑤	—	**10250T47EC** ④	—
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57C** ④⑤	—	**10250T57EC** ④	—
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45C** ④	—	**10250T45EC** ④	—
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55C** ④⑤	—	**10250T55EC** ④	—

Notes

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 amber contact blocks with fingerproof shrouds, change suffix to **CP** in the catalog number e.g. 10250T51**CP**. Not available with spade terminals.

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 in (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, three-position push-pull operators, or four-position selector switches.

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

Replacement Parts

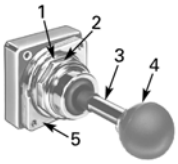
Replacement Lamps—For 10250T Illuminated Operators

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**

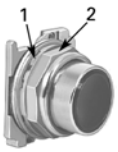
Standard LED Lamp

Replacement LED Lamps—For 10250T, E34 and E22 Units

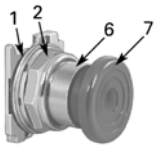
Voltage	Color	Continuous AC/DC Catalog Number	Flashing AC Catalog Number	Flashing DC Catalog Number
6–12V	Red	**E22LED612RN**	**E22LED006RAF**	**E22LED006RDF**
	Orange	**E22LED612ON**	**E22LED006OAF**	**E22LED006ODF**
	Yellow	**E22LED612YN**	**E22LED006YAF**	**E22LED006YDF**
	Green	**E22LED612GN**	**E22LED006GAF**	**E22LED006GDF**
	Blue	**E22LED612BN**	**E22LED006BAF**	**E22LED006BDF**
	White	**E22LED612WN**	**E22LED006WAF**	**E22LED006WDF**
24V	Red	**E22LED024RN**	**E22LED024RAF**	**E22LED024RDF**
	Orange	**E22LED024ON**	**E22LED024OAF**	**E22LED024ODF**
	Yellow	**E22LED024YN**	**E22LED024YAF**	**E22LED024YDF**
	Green	**E22LED024GN**	**E22LED024GAF**	**E22LED024GDF**
	Blue	**E22LED024BN**	**E22LED024BAF**	**E22LED024BDF**
	White	**E22LED024WN**	**E22LED024WAF**	**E22LED024WDF**
48V	Red	**E22LED048RN**	**E22LED048RAF**	**E22LED048RDF**
	Orange	**E22LED048ON**	**E22LED048OAF**	**E22LED048ODF**
	Yellow	**E22LED048YN**	**E22LED048YAF**	**E22LED048YDF**
	Green	**E22LED048GN**	**E22LED048GAF**	**E22LED048GDF**
	Blue	**E22LED048BN**	**E22LED048BAF**	**E22LED048BDF**
	White	**E22LED048WN**	**E22LED048WAF**	**E22LED048WDF**
60V	Red	**E22LED060RN**	**E22LED060RAF**	**E22LED060RDF**
	Orange	**E22LED060ON**	**E22LED060OAF**	**E22LED060ODF**
	Yellow	**E22LED060YN**	**E22LED060YAF**	**E22LED060YDF**
	Green	**E22LED060GN**	**E22LED060GAF**	**E22LED060GDF**
	Blue	**E22LED060BN**	**E22LED060BAF**	**E22LED060BDF**
	White	**E22LED060WN**	**E22LED060WAF**	**E22LED060WDF**
120V	Red	**E22LED120RN**	**E22LED120RAF**	**E22LED120RDF**
	Orange	**E22LED120ON**	**E22LED120OAF**	**E22LED120ODF**
	Yellow	**E22LED120YN**	**E22LED120YAF**	**E22LED120YDF**
	Green	**E22LED120GN**	**E22LED120GAF**	**E22LED120GDF**
	Blue	**E22LED120BN**	**E22LED120BAF**	**E22LED120BDF**
	White	**E22LED120WN**	**E22LED120WAF**	**E22LED120WDF**



Two-Position Joystick Operator

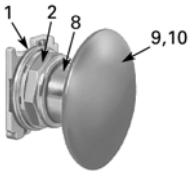


Flush Head Pushbutton Operator

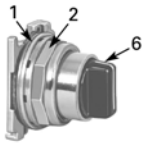


Mushroom Head Pushbutton Operator

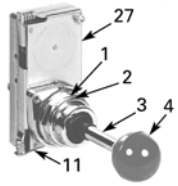
Mushroom Head Operator with Padlock Attachment



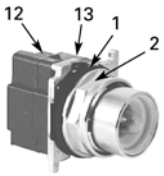
Jumbo Mushroom Head Operator



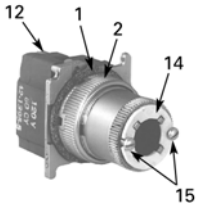
Knob-Operated Selector Switch Operator



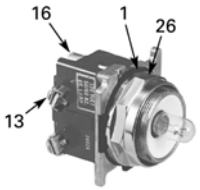
Four-Position Joystick Operator (without Latch)



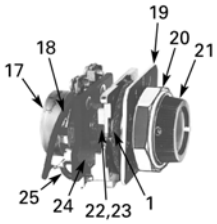
Illuminated Pushbutton Operator



Full Voltage, Resistor and Transformer Type Illuminated Selector Switch



Transformer Type Indicating Light



Potentiometers

10250T Style Operator Replacement Parts

Item No.	Description	No. Req.	Part Number
1	Gasket	1	**16-1548**
2	Mounting nut	1	**15-1530**
3	Handle	1	**24-5045**
4	Knob	1	**53-3157**
	Knob (not shown) for joystick operator with latch	1	**53-3159**
5	Common gate (supplied with operator)	2	**16-3400**
6	Set screw (#6-32 x 0.250 in long hollow hex)	2	**11-2014**
7	Mushroom head button (includes [2] Item 6)	1	**As Req. Below**
	Black	—	**53-1317**
	Red	—	**53-1317-2**
	Yellow	—	**53-1317-3**
	Green	—	**53-1317-4**
	Blue	—	**53-1317-22**
8	Set screw (#10-32 x 0.250 in long hollow hex)	2	**11-544**
9	Jumbo mushroom head button (aluminum—includes [2] Item 8)	1	**As Req. Below**
	Red	—	**53-1317-9**
	Black	—	**53-1317-10**
	Yellow	—	**53-1317-11**
	Green	—	**53-1317-12**
10	Jumbo mushroom head button (aluminum—red EMERG. STOP) does not include Item 8	1	**53-1349-18**
11	Position gate:		
	Two-position	1	**54-7278**
	Three-position	1	**54-7173**
	Four-position	1	**54-12278**
	Eight-position	1	**54-12279**
12	Mounting screw (#6-32 x 0.710 in long)	2	**10250TA79**
	Washer	2	**16-2038**
13	Terminal screw and lug (captive)	Req.	**80-5502KIT**

Item No.	Description	No. Req.	Part Number
14	Gasket (supplied with basic unit)	1	**32-803**
15	Round head screw (#4-40 x 0.344 in long) (supplied with basic unit)	2	**11-4553**
16	Mounting screw	2	**11-1632**
17	Simple potentiometer (does not include items 18, 28 or 29)	1	**As Req. Below**
	1,000 ohms	—	**41-782-2**
	2,500 ohms	—	**41-782-3**
	5,000 ohms	—	**41-782-10**
	10,000 ohms	—	**41-782-4**
	25,000 ohms	—	**41-782-5**
	50,000 ohms	—	**41-782-6**
18	Connector (includes screw and lug)	2	**25-1851**
19	Indicating plate	1	**As Req. Above**
	Standard size (without legend)	—	**30-4460**
	Large size (specify legend)	—	**10250TR30**
20	Retaining nut	1	**15-1547**
21	Knob	1	**53-1314**
	Socket set screw (#6-32 x 0.250 in long)	2	**11-2014**
22	Coupling	1	**29-3749-2**
23	Set screw (#6-32 x 0.188 in long)	1	**11-1199**
24	Spacer	2	**56-1066-18**
25	Connector (includes screw and lug)	1	**25-1851-2**
26	Mounting nut	1	**15-1938**
27	Four-position joystick operating mechanism (complete)	1	**24-6565**
28	Four-position joystick operating mechanism (not shown) (with latch) complete	1	**24-6565-2**
29	Spring loaded latch	1	**52-1214-2**
30	Hand operated latch	1	**52-913-3**

Technical Data and Specifications

Mechanical Ratings

Description	Specification
Frequency of Operation	
All pushbuttons	6000 operations/hr.
Key and lever selection 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	20 ms ≥5g

General Specifications

Description	Specification
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 at 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 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 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 at rated voltage
LED	60,000 to 100,000 hrs.

1

Electrical Ratings

Description	Specification
Insulation	U_i = 660 Vac or Vdc
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, 660 Vac, 460 Vdc, BS88-2, IEC 60269-2-1
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	600V pf 0.4—1 x 10^6 operations
Switching capacity	
AC 15 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
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	120 Vac/Vdc

Electrical Ratings—Contact Block

	50 Vac or 60 Hz				Vdc		
Description	**120**	**240**	**480**	**600**	**24/28**	**125**	**250**
Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC							
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

Mounting Options

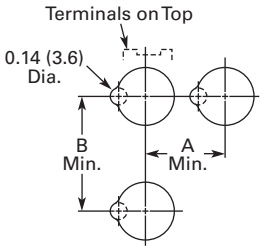
Panel Thickness

- Minimum: 0.06 in (1.6 mm)
- Maximum: 0.25 in (8 mm) including legend plate
- Maximum can be increased to 0.375 in (15.9 mm) using optional retaining nut
  - Indicating light: 10250TA30
  - Pushbutton/selector switch: 10250TA31

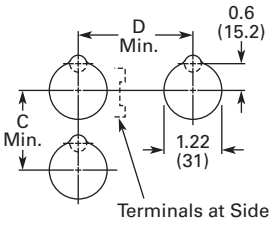
Mounting Matrix

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)

Mounting Options in Inches (mm)



Horizontal Mounting

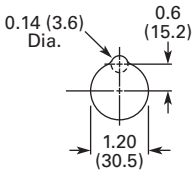


Vertical Mounting

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.

Locating nib hole or notch is 0.14 in (3.6 mm) #29 drill.

Drilling Dimensions in Inches (mm)

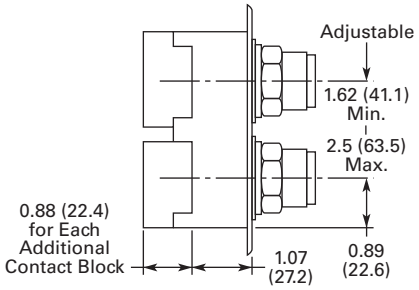


1

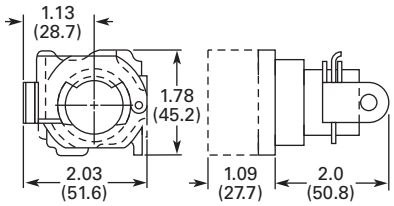
Dimensions

Approximate Dimensions in Inches (mm)

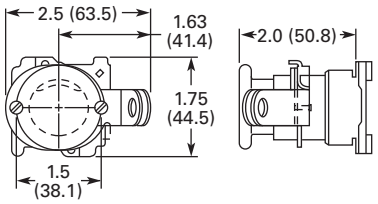
Mechanically Interlocked Pushbutton Operators



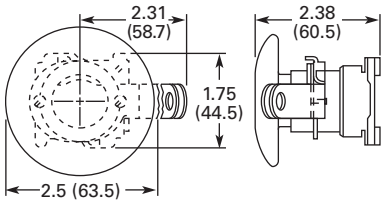
Lockout Pushbutton Operator Padlockable in the Down Position



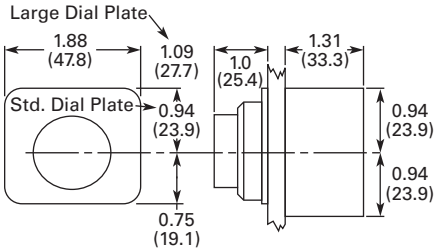
Lockout Pushbutton Operator Padlockable in the Up Position—Mushroom Head



Lockout Pushbutton Operator Padlockable in the Up Position—Jumbo Mushroom Head

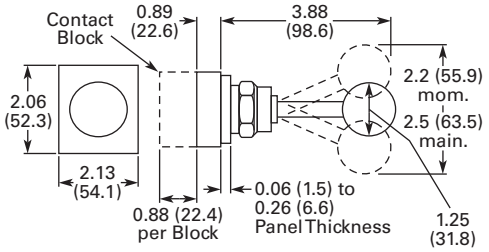


Potentiometer

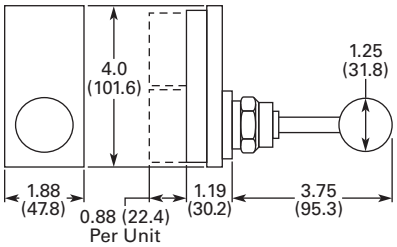


Potentiometer	A	B	C
2 watt single	1.31 (33.3)	0.94 (23.9)	0.94 (23.9)
25 watt—up to 25 mohms	2.38 (60.5)	1.19 (30.2)	0.81 (20.6)
50 mohms	2.56 (65.0)	1.69 (42.9)	1.25 (31.8)

Two-Position Joystick Operator

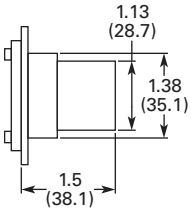


Four-Position Joystick Operator

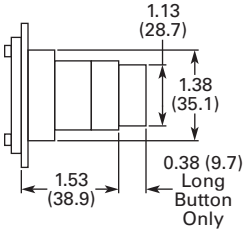


Approximate Dimensions in Inches (mm)

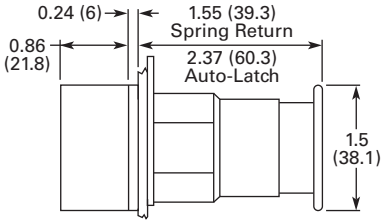
Key Operated Pushbutton Operator



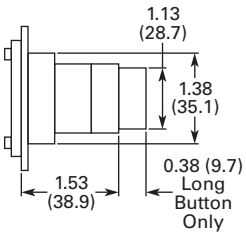
Operator and Cam



Latch-In, Twist-to-Release Operator Only with Button



Special Rotor Latch

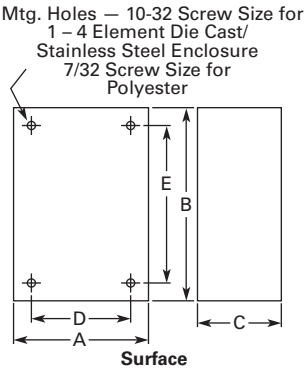


1

Approximate Dimensions in Inches (mm)

Surface Mounting

Die Cast, Polyester and Stainless Steel Enclosures



Number of Elements	Element Arrangement	Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Die Cast							
1	In-line	3.88 (98.6)	4.00 (101.6)	3.00 (76.3) ①	2.69 (68.3)	3.25 (82.6)	3/4
2		3.88 (98.6)	5.88 (149.4)	3.00 (76.3) ①	2.69 (68.3)	5.13 (130.3)	
3		3.88 (98.6)	7.75 (196.9)	3.00 (76.3) ①	2.69 (68.3)	7.00 (177.8)	1
4		3.88 (98.6)	9.63 (244.6)	3.00 (76.3) ①	2.69 (68.3)	8.88 (225.6)	
Polyester							
1	In-line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	②
2		3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3		3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4		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)	②
2		3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3		3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4		3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	

Notes

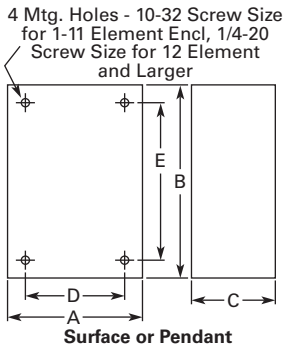
① Depth given is for two contact block deep stations. One contact block deep stations subtract 3/4 in (19.1 mm).

② No conduit entrance holes provided. Drill as required.

Approximate Dimensions in Inches (mm)

Flush Mounting

Die Cast and Stainless Steel Covers Only



Surface or Pendant

Number of Elements	Wide A	High B	Deep C	Mounting D	E
Die Cast					
1	3.88 (98.6)	4.00 (101.6)	0.25 (6.4) ①	3.50 (88.9)	3.63 (92.2)
2	3.88 (98.6)	5.88 (149.4)	0.25 (6.4) ①	3.50 (88.9)	5.50 (139.7)
3	3.88 (98.6)	7.75 (196.9)	0.25 (6.4) ①	3.50 (88.9)	6.00 (152.4)
4	3.88 (98.6)	9.63 (244.6)	0.25 (6.4) ①	3.50 (88.9)	9.25 (235.0)
Stainless Steel					
1	5.00 (127.0)	5.00 (127.0)	2.50 (63.5) ②	3.25 (82.6)	1.88 (47.8)
2	5.00 (127.0)	6.88 (174.8)	2.50 (63.5) ②	3.25 (82.6)	3.63 (92.2)
3	5.00 (127.0)	8.63 (219.2)	2.50 (63.5) ②	3.25 (82.6)	5.50 (139.7)
4	5.00 (127.0)	10.50 (266.7)	2.50 (63.5) ②	3.25 (82.6)	7.25 (184.2)

Notes

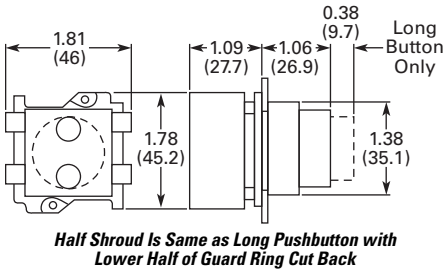
① Depth given is for flat cover. Deep cover is 3/4 in (19.1 mm) deeper.

② Depth given includes pull box.

1

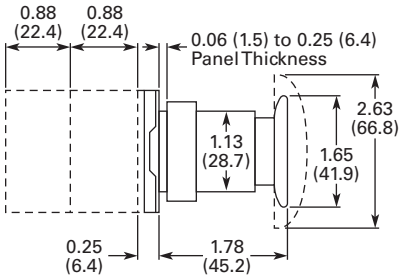
Approximate Dimensions in Inches (mm)

Flush and Long Pushbutton Half Shroud

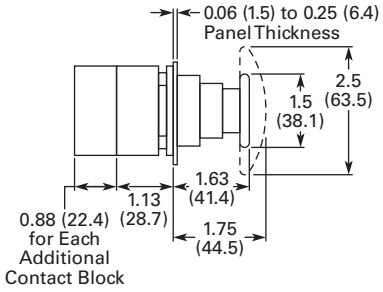


Half Shroud Is Same as Long Pushbutton with Lower Half of Guard Ring Cut Back

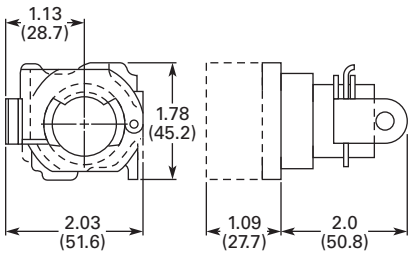
Push-Pull Switch



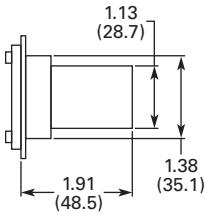
Mushroom and Jumbo Head Pushbutton



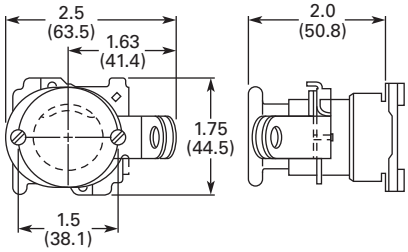
Flush Pushbutton Operator with Padlock Attachment



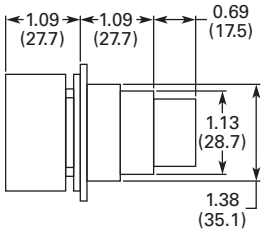
Pushbutton with Cylinder Lock



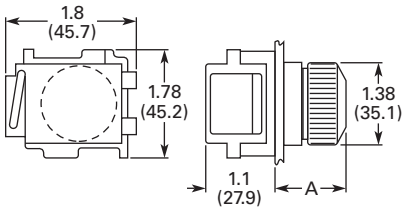
Mushroom Head Pushbutton Operator with Padlock Attachment



Illuminated Pushbutton

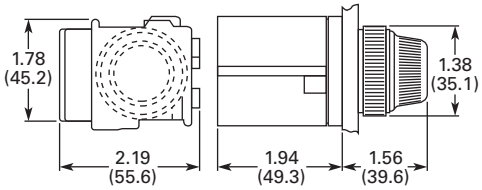


Indicating Light—Transformer Type

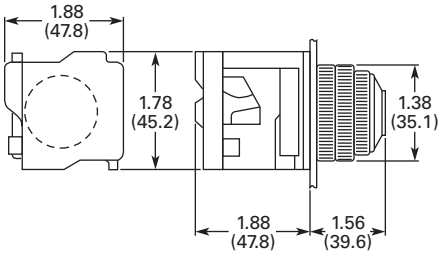


Approximate Dimensions in Inches (mm)

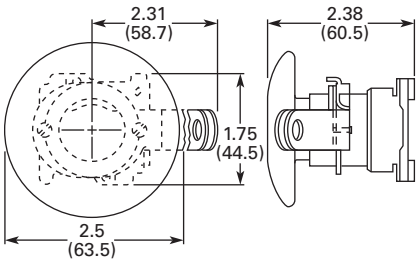
PresTest Indicating Light—Transformer Type



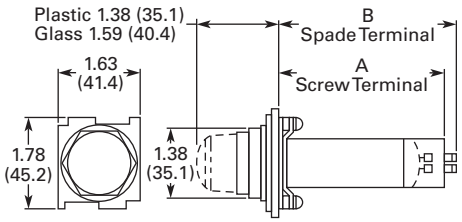
PresTest Indicating Light—Resistor Type



Jumbo Mushroom Head Pushbutton Operator with Padlock Attachment

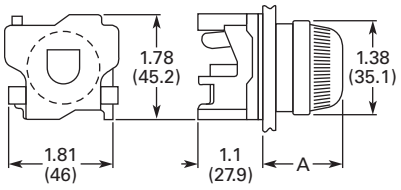


Master Test Indicating Light



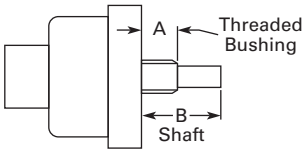
Description	B	C
Relay type	4.38 (111.2)	4.28 (108.7)
Solid-state type	2.94 (74.7)	2.88 (73.2)

Indicating Light—Resistor and Neon Type



Lens	A
Plastic	1.38 (35.1)
Glass	1.56 (39.6)

Potentiometer Shaft



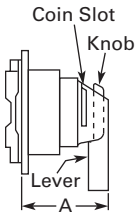
Shaft Dimensions of Potentiometer That C-H Operator Will Accept

Operator Catalog Number	A	B
10250T330	0.38 (9.7) dia. x 0.38 (9.7) long	0.25 (6.4) dia. x 0.63 (16) long

1

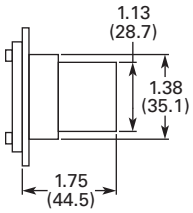
Approximate Dimensions in Inches (mm)

Coin Operated Selector Switch

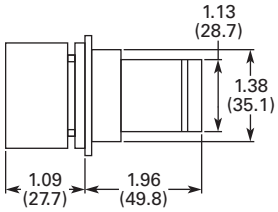


Operator	Dim. A
Knob	1.38 (35.1)
Lever	1.50 (38.1)
Coin slot	1.38 (35.1)

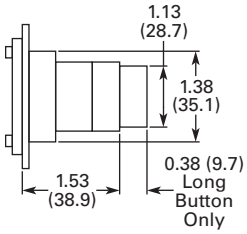
Key Operated Selector Switch



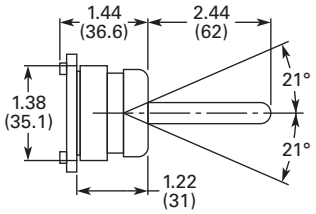
Illuminated Selector Switch



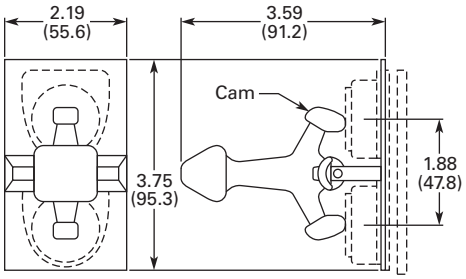
Roto-Push



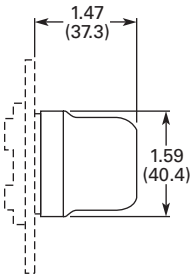
Wobble Stick Catalog No. 10250TA5



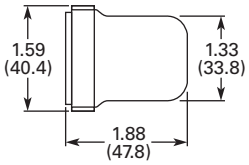
Lever Operator—For Use with Two Vertically Mounted Flush Pushbuttons Catalog No. 10250TA14



Flexible Boot—For Protecting Flush or Long Pushbutton Catalog No. 10250TA3 Typical

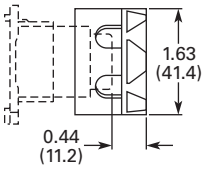


Transparent Flexible Boot—For Illuminated Pushbutton Catalog No. 10250TA25

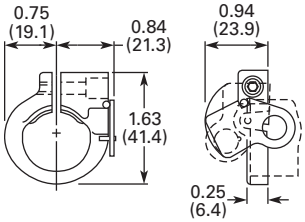


Approximate Dimensions in Inches (mm)

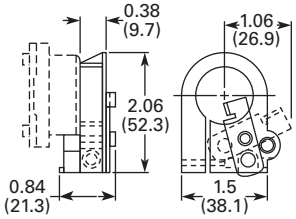
Padlock Attachment—For Knob Selector Switch Catalog No. 10250TA11



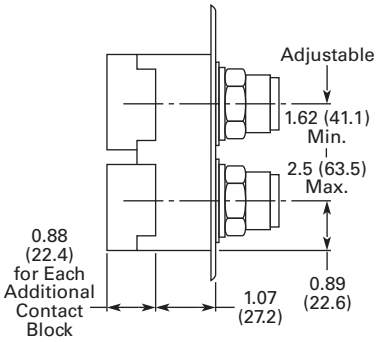
Padlock Attachment—For Flush Pushbutton Catalog No. 10250TA2



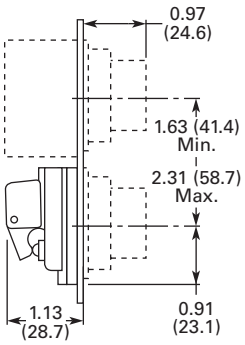
Padlock Attachment—For Extended Pushbutton Catalog No. 10250TA26



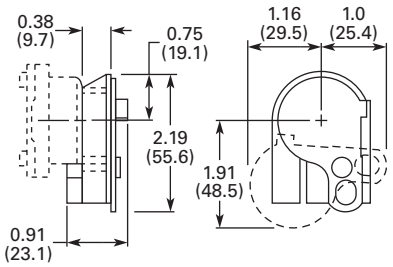
Maintained Pushbutton Catalog No. 10250TA66 Typical



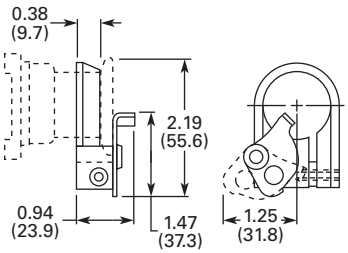
Maintained Contact Attachment Catalog No. 10250TA17 Typical



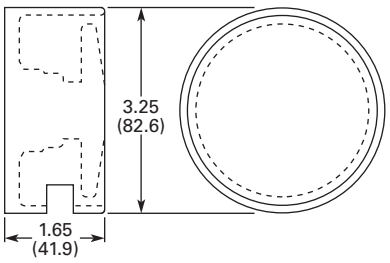
Padlock Cover Guard for Flush Pushbutton Catalog No. 10250TA36



Padlock Attachment for Maintained Push-Pull Operator Catalog No. 10250TA64



Protecting Shroud for Jumbo Mushroom Head Button Catalog No. 10250TA56



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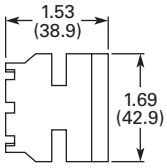
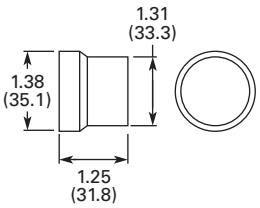
Approximate Dimensions in Inches (mm)

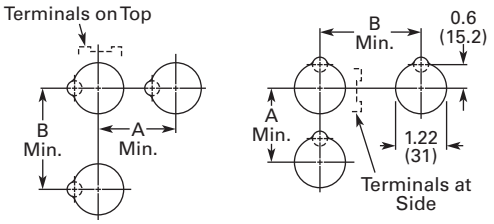
Protecting Shroud for Mushroom Head Button Catalog No. 10250TA6



Extended Retaining Nut Catalog No. 10250TA12

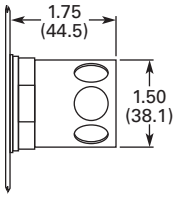


Panel Drilling and Minimum Spacing

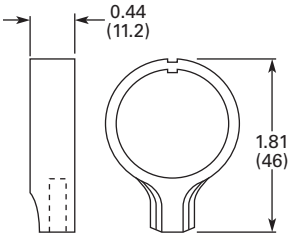


Horizontal Rows **Vertical Rows**

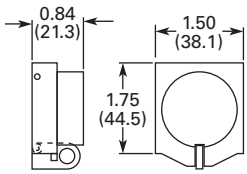
Protecting Shroud for Illuminated Pushbutton Catalog No. 10250TA15



Lever for Roto-Push Operator Catalog No. 10250TA13



Padlock Hasp or Flip-Up Guard Catalog No. 10250TA38



Legend Plate	A Min.	B Min.
1 or 2 Circuit Contact Blocks		
Small or none	1.63 (41.4)	2.25 (57.2)
Standard	1.75 (44.5)	2.25 (57.2)
Jumbo ①	2.25 (57.2)	2.25 (57.2)
Extra large	2.50 (63.5)	2.60 (66.0)
4 Circuit Contact Block 10250T44		
Small or none	1.88 (47.8)	2.25 (57.2)
Standard	1.88 (47.8)	2.25 (57.2)
Jumbo ①	2.25 (57.2)	2.25 (57.2)
Extra large	2.50 (63.5)	2.60 (66.0)

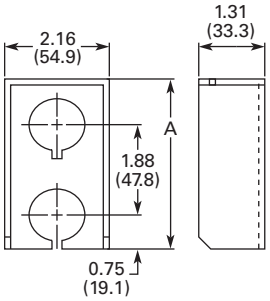
Notes

Locating nib hole or notch is 1.36–1.4 in (34.5–35.6 mm) #29 drill.

① If jumbo plates are to be placed one above the other vertically, add 0.13 (3.3) to minimum dimensions listed.

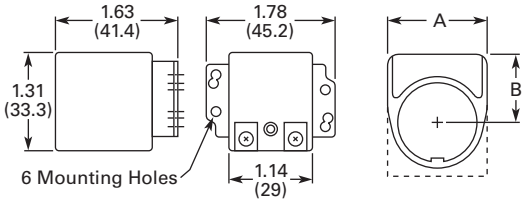
Approximate Dimensions in Inches (mm)

Multiple Button Guard



Number of Elements	A
2	4.0 (101.6)
3	5.88 (149.4)
4	7.88 (200.2)
7	13.38 (339.9)

Master Test Module, Flasher Module and Legend Plate



Master Test Module, Flasher Module | **Legend Plate**

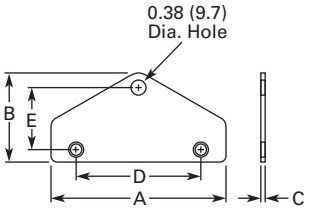
Legend Plate	A	B
1/2 Round Legend Plates		
Small	1.56 (39.6)	0.91 (23.1)
Standard	1.59 (40.4)	1.07 (27.2)
Jumbo	2.06 (52.3)	1.53 (38.9)
Square Legend Plates		
Small	1.59 (40.4) sq.	0.90 (22.9)
Standard	1.75 (44.5) sq.	1.06 (26.9) ①
Jumbo	2.19 (55.6) sq.	1.50 (38.1)
Extra large	2.44 (62.0) sq.	1.63 (41.4)

Notes

Locating nib hole or notch is 1.36–1.4 in (34.5–35.6 mm) #29 drill.

① For plastic legend plate, Dimension B is 1.12 (28.4).

Chain Hook Bracket



Enclosure Size (No. of Elements)	Wide A	High B	Deep C	Mounting D	E
2, 3 and 4	3.75 (95.3)	1.94 (49.3)	0.13 (3.3)	2.69 (68.3)	1.38 (35.1)
6 and 7	4.0 (101.6)	2.19 (55.6)	0.13 (3.3)	2.88 (73.2)	1.63 (41.4)

30.5 mm Corrosion Resistant Watertight/Oiltight—E34

Contents

Product Description

Eaton's 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.)

Features

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

Standards and Certifications

- CE EN60947-5-1 and 60947-5-5
- 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) 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

Product Overview

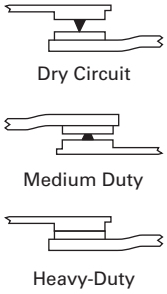
Ultraviolet Light

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 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.

Reliability Nibs

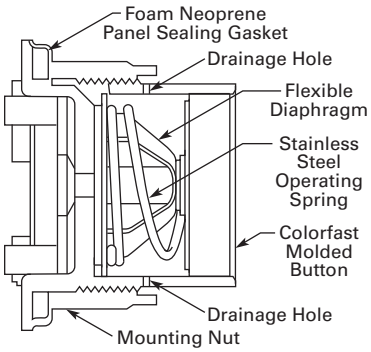


Diaphragm Seal with Drainage Holes

Liquid Drainage

Eaton's 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.

Diaphragm Seal



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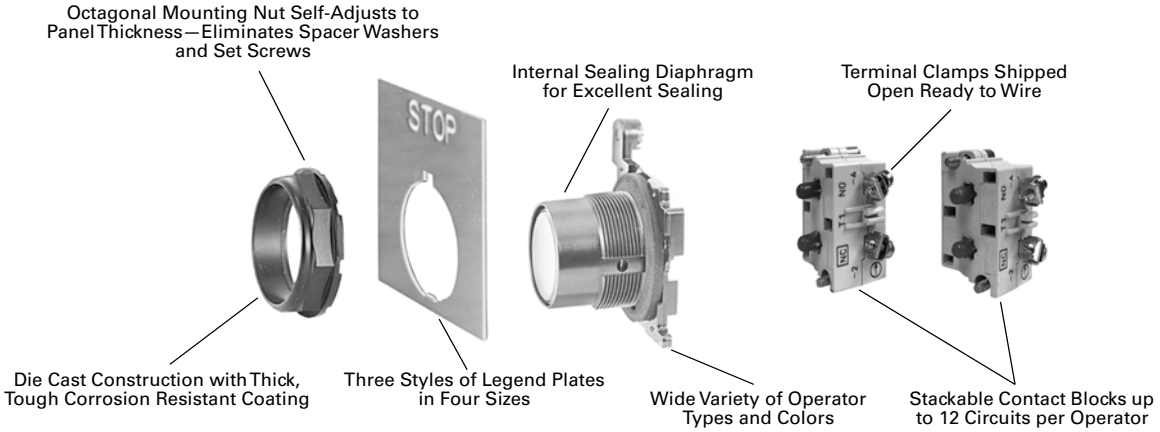
Product Identification

30.5 mm Corrosion Resistant Watertight/Oiltight—E34 Series



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Catalog Number Selection

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

Non-Illuminated Pushbuttons

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

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

Illuminated and Non-Illuminated Push-Pulls

E34 GDB 63 M2 ___ – 1 ①

Operator
GDB = Two-position maintained
GEB = Three-position mom push-mom pull
GFB = Three-position mt push-mom pull
GHB = Three-position mom push-mom pull

Incandescent Light Unit	LED Light Unit
Blank = Non-illuminated	**Blank** = Non-illuminated
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	

LED Voltage
Blank = Non-illuminated
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

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

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			

Note

① Add **X** at end of catalog number to receive parts assembled from factory.

1

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

Illuminated Pushbuttons

E34 XB 24 V2 ___ – 1 ①

Light Unit Type

XB = Transformer
CB = Full voltage
SB = Resistor

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	**397L** = Full voltage
12 = 12V/FV	
24 = 24V/FV	
32 = 32V/FV	
48 = 48V/FV	
120 = 120V/RES	
240 = 240V/RES	

Circuit

Blank = Operator only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

LED Voltage

Blank = Incandescent	**48** = 48 Vac/Vdc
06 = 6 Vac/Vdc	**60** = 60 Vac/Vdc
12 = 12 Vac/Vdc	**2A** = 120 Vac
24 = 24 Vac/Vdc	**2D** = 120 Vdc

Incandescent Lens Color	LED Lens Color
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	

Standard Indicating Lights, PresTest and Master Test

E34 FB06 H2 ___ ①

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 = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

Plastic	Glass	Lens Color	Plastic	Glass	Lens Color
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			

Note

① Add **X** at end of catalog number to receive parts assembled from factory.

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

Ordering Complete Devices

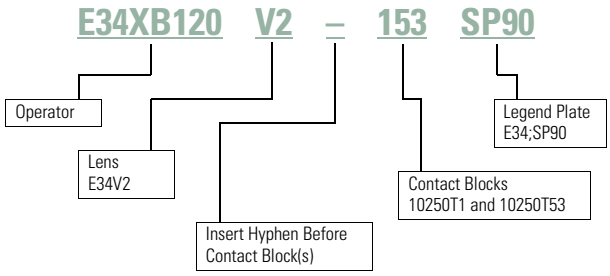
Complete E34 pushbuttons, indicating lights and/or selector switch operators including contact block(s) and legend plate can be ordered using a single composite catalog number. The individually packaged components will be shipped unassembled in a single overpack carton marked with the composite catalog number.

Ordering Example

Illuminated Pushbutton Device—Catalog Number E34XB120V2-153SP90

For a complete Catalog Number breakdown, see **Pages V7-T1-279** to **V7-T1-280.**

For Complete E34 Device Ordering



1

Product Selection

Non-Illuminated Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Flush Button

Extended Button

Mushroom Button

Jumbo Mushroom

Pushbutton Units

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

Plastic Lens Indicating Light Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

24V Full Voltage Indicating Light

Indicating Light Units

Type	Voltage	Color	LED/Lamp Number	Indicating Light ① Catalog Number
LED Lamp				
Full voltage	24 Vac/Vdc	Red	Bayonet base	**E34FB197LRP24**
		Green		**E34FB197LGP24**
		Amber		**E34FB197LAP24**
	120 Vac	Red		**E34FB197LRP2A**
		Green		**E34FB197LGP2A**
		Amber		**E34FB197LAP2A**
Incandescent Lamp				
Full voltage	24 Vac/Vdc	Red	#757	**E34FB24H2X**
		Green		**E34FB24H3X**
		Amber		**E34FB24H9X**
Resistor	120 Vac/Vdc	Red	120MB	**E34RB120H2X**
		Green		**E34RB120H3X**
		Amber		**E34RB120H9X**
Transformer	120 Vac 50/60 Hz	Red	#755	**E34TB120H2X**
		Green		**E34TB120H3X**
		Amber		**E34TB120H9X**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

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

Pushbuttons

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Momentary Pushbutton Operators, Non-Illuminated

	Button	Color	Catalog Number	
E34PB_ 	Flush button	Black	**E34PB1**	
		Red	**E34PB2**	
		Green	**E34PB3**	
		Yellow	**E34PB4**	
		White	**E34PB5**	
		Blue	**E34PB6**	
		Gray	**E34PB7**	
		Orange	**E34PB8**	
E34EB_ 	Extended button	Black	**E34EB1**	
		Red	**E34EB2**	
		Green	**E34EB3**	
		Yellow	**E34EB4**	
		White	**E34EB5**	
		Blue	**E34EB6**	
		Gray	**E34EB7**	
		Orange	**E34EB8**	
E34EHB_ 	Half shrouded button		**Vertical**	**Horizontal**
		Black	**E34EVB1**	**E34EHB1**
		Red	**E34EVB2**	**E34EHB2**
		Green	**E34EVB3**	**E34EHB3**
		Yellow	**E34EVB4**	**E34EHB4**
		White	**E34EVB5**	**E34EHB5**
		Blue	**E34EVB6**	**E34EHB6**
		Gray	**E34EVB7**	**E34EHB7**
		Orange	**E34EVB8**	**E34EHB8**
E34LB_ 	Mushroom button	Black	**E34LB1**	
		Red	**E34LB2**	
		Green	**E34LB3**	
		Yellow	**E34LB4**	
		Blue	**E34LB6**	
E34JB_ 	Anodized aluminum jumbo mushroom button ①	Black	**E34JB1**	
		Red	**E34JB2**	
		Red (Engraved EMERG. STOP)	**E34JB2N8**	
		Green	**E34JB3**	
		Yellow	**E34JB4**	

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

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

1

Illuminated Pushbuttons and Indicating Lights

Illuminated Pushbutton

Indicating Light

PresTest

Operators without Lens

Type	Voltage	Lamp Number	Illuminated Pushbutton Catalog Number	Indicating Light Catalog Number	PresTest Catalog Number
LED Lamp (LEDs not included) ①					
Full voltage	—	Bayonet base	**E34CB497L**	**E34FB197L**	**E34FPB297L**
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 Lamp					
Full voltage AC/DC	6	#755	**E34CB06**	**E34FB06**	**E34FPB06**
	12	#756	**E34CB12**	**E34FB12**	**E34FPB12**
	24	#757	**E34CB24**	**E34FB24**	**E34FPB24**
	32	#1828	**E34CB32**	**E34FB32**	**E34FPB32**
	48	#1835	**E34CB48**	**E34FB48**	**E34FPB48**
Resistor AC/DC ②	120	120MB	**E34SB120**	**E34RB120**	**E34RPB120**
	240		**E34SB240**	**E34RB240**	**E34RPB240**
Transformer AC only	24	#755	**E34XB024**	—	—
	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	NE51H-R-22	—	**E34NB120**	—
	240	NE51H-4-68	—	**E34NB240**	—

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① These units do not include lamps. Order LED separately to match lens color, see **Page V7-T1-261** for LED Selection and **Pages V7-T1-279** to **V7-T1-280** for Catalog Numbering Selection.

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

Indicating Light Lens

Plastic

Glass

Color	Plastic Catalog Number	Glass ① Catalog Number
Red	**E34H2**	**E34G2**
Green	**E34H3**	**E34G3**
Yellow	**E34H4**	**E34G4**
White	**E34H5**	**E34G5**
Blue	**E34H6**	**E34G6**
Ambler	**E34H9**	**E34G9**
Clear	**E34H0**	**E34G0**

Illuminated Pushbutton Lens

E34V_

Color	Catalog Number
Red	**E34V2**
Green	**E34V3**
Yellow	**E34V4**
White	**E34V5**
Blue	**E34V6**
Ambler	**E34V9**
Clear	**E34V0**

PresTest Lens

Plastic

Glass

Color	Plastic Catalog Number	Glass ① Catalog Number
Red	**E34V2**	**E34P2**
Green	**E34V3**	**E34P3**
Yellow	**E34V4**	**E34P4**
White	**E34V5**	**E34P5**
Blue	**E34V6**	**E34P6**
Ambler	**E34V9**	**E34P9**
Clear	**E34V0**	**E34P0**

Note

① Glass lens has black anodized aluminum bezel.

1

Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two- and three-position
- Non-illuminated

Two-Position Push-Pull Unit

Two-Position Push-Pull Units, Non-Illuminated

Operator Position ① Pull	Push	Button Type/Color ②	Contact Type	Mounting Location A	Mounting Location B	Catalog Number
Maintained Push, Maintained Pull						
0	X	40 mm/red	1NO			**E34GDBC2-1X**
X	0	40 mm engraved EMERG. STOP/red	1NC			**E34GDBC2N8-1X**
		65 mm aluminum engraved EMERG. STOP/red				**E34GDBJ2N8-1X**

Three-Position Push-Pull Unit

Three-Position Push-Pull Units, Non-Illuminated

Operator Position ① Pull	Intermediate	Push	Button Type/Color ②	Contact Type	Mounting Location A	Mounting Location B	Catalog Number
Maintained Push, Momentary Pull							
X	0	0	40 mm/black	1NC			**E34GFBC1-3X**
X	X	0	40 mm/red	1NC			**E34GFBC2-3X**
			40 mm engraved EMERG. STOP/red				**E34GFBC2N8-3X**
Momentary Push, Momentary Pull							
X	0	0	40 mm/black	1NC			**E34GEBC1-3X**
X	X	0	40 mm/red	1NC			**E34GEBC2-3X**
0	0	X	40 mm/black	1NO			**E34GHBC1-1X**
X	0	0	40 mm/red	1NC			**E34GHBC2-1X**

Button and Color Selection

Standard

Color	Suffix Code	Catalog Number
Standard—40 mm		
Black	**C1**	**E34C1**
Red	**C2**	**E34C2**
Red (EMERG. STOP)	**C2N8**	**E34C2N8**
Green	**C3**	**E34C3**
Blue	**C6**	**E34C6**

Jumbo Mushroom Head

Jumbo Mushroom Head ③ (Anodized) Aluminum—65 mm		
Red	**J2**	**E34J2**
Red (EMERG. STOP)	**J2N8**	**E34J2N8**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① X = closed circuit, 0 = open circuit.

② To order different type or color buttons, substitute the underlined characters with appropriate suffix code from the table. Example: E34GDB**C6**-1X.

③ Anodized aluminum may not be suitable for use on some corrosive applications.

1

Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two-position maintained
- Illuminated

Illuminated Push-Pull Unit

Two-Position Illuminated Maintained Push, Maintained Pull

Operator Position ①

Maintained—Pull	Maintained—Intermediate	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalog Number ②
0 X	X 0	LED	Full voltage	24 Vac/Vdc	1NO			Bayonet base	**E34GDB97LRD24-1X**
				120 Vac/Vdc	1NC				**E34GDB97LRD2A-1X**
			Transformer	24 Vac					**E34GDB89LRD06-1X**
				120 Vac					**E34GDB63LRD06-1X**
0 X	X 0	Incan-descent	Full voltage	24 Vac/Vdc	1NO			#757	**E34GDB79M2-1X**
			Resistor	120 Vac/Vdc	1NC			120MB	**E34GDB80M2-1X**
			Transformer	24 Vac				#755	**E34GDB89M2-1X**
				120 Vac					**E34GDB63M2-1X**

Standard

Lens and Color Selection

Color	Incandescent Suffix Code	LED Suffix Code	Catalog 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**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① X = closed circuit, 0 = open circuit.

② To order different type or color lens, substitute the underlined characters with appropriate suffix code from Lens and Color Selection table above. Example: E34GDB79**M3**-1X. For LEDs with different voltages see ordering example on **Page V7-T1-293**.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Three-position maintained
- Illuminated

Illuminated Push-Pull Unit

Three-Position Illuminated Momentary Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalog Number ②
0 X	0 0	X 0	LED	Full voltage	24 Vac/Vdc	1NO			Bayonet base	**E34GHB97LRD24-1X**
					120 Vac	1NC				**E34GHB97LRD2A-1X**
				Trans-former	24 Vac					**E34GHB89LRD06-1X**
					120 Vac					**E34GHB63LRD06-1X**
X X	0 X	0 0		Full voltage	24 Vac/Vdc	1NC			Bayonet base	**E34GEB97LRD24-3X**
					120 Vac	1NC				**E34GEB97LRD2A-3X**
				Trans-former	24 Vac					**E34GEB89LRD06-3X**
					120 Vac					**E34GEB63LRD06-3X**
0 X	0 0	X 0	Incan-descent	Full voltage	24 Vac/Vdc	1NO			#757	**E34GHB79M2-1X**
				Resistor	120 Vac	1NC			120MB	**E34GHB80M2-1X**
				Trans-former	24 Vac				#755	**E34GHB89M2-1X**
					120 Vac					**E34GHB63M2-1X**
X X	0 X	0 0		Full voltage	24 Vac/Vdc	1NC			#757	**E34GEB79M2-3X**
				Resistor	120 Vac	1NC			120MB	**E34GEB80M2-3X**
				Trans-former	24 Vac				#755	**E34GEB89M2-3X**
					120 Vac					**E34GEB63M2-3X**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① X = closed circuit, O = open circuit.

② To order different type or color lens, substitute the underlined characters with appropriate suffix code from Lens and Color Selection table on the bottom of **Page V7-T1-287.** Example: E34GEB79**M3**-3X. For LEDs with different voltages see ordering example on **Page V7-T1-293**.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Three-position—maintained push, momentary pull
- Illuminated

Illuminated Push-Pull Unit

Three-Position Illuminated Maintained Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalog Number ②
X X	0 X	0 0	LED	Full voltage	24 Vac/Vdc	1NC	○ | ○		Bayonet base	**E34GFB97LRD24-3X**
					120 Vac	1NC		○ | ○		**E34GFB97LRD2A-3X**
				Trans-former	24 Vac					**E34GFB89LRD06-3X**
					120 Vac					**E34GFB63LRD06-3X**
X X	0 X	0 0	Incan-descent	Full voltage	24 Vac/Vdc	1NC	○ | ○		#757	**E34GFB79M2-3X**
				Resistor	120 Vac	1NC		○ | ○	120MB	**E34GFB80M2-3X**
				Trans-former	24 Vac				#755	**E34GFB89M2-3X**
					120 Vac					**E34GFB63M2-3X**

Vertical or Horizontal One-Hole Mounting ③

Potentiometers

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Potentiometer with Knob and Standard Dial Plate—Linear Type ±10%

Potentiometer Ohms	Catalog Number
2 Watt (60V Max.) Single Potentiometer with Standard Aluminum Dial Plate ④⑤	
1000	**E34PDB1F1**
2500	**E34PDB1F2**
5000	**E34PDB1F5**
10000	**E34PDB1F10**
25000	**E34PDB1F25**
50000	**E34PDB1F50**
Operator only ⑥	**E34PDB1A0**
Alternative—black plastic large legend with standard markings	**E34LP99**

Dimensions, see **Page V7-T1-314**.

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① X = closed circuit, 0 = 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 V7-T1-287**.
Example: E34GFB79**M3**-3X. For LEDs with different voltages see ordering example on **Page V7-T1-293**.

③ Shown with standard aluminum dial plate.

④ Large dial plate with space for legend is available at no charge. To order, add suffix **36** to catalog number.
Example: E34PDB1F1**36**. To order separately, see footnote ⑤ below.

⑤ Large dial plate has space at top for 15 letters. 3/32 in high. For custom stamped legend plates, order legend plate as separate item **10250TR30** and specify stamping.

⑥ For use with commercially purchased potentiometers having shaft dimensions per dimension drawing on **Page V7-T1-266**.

1

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:

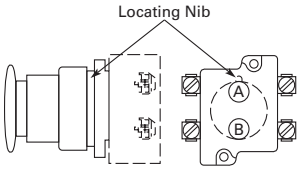
- **Maintained**—(Two-position). Maintains in the pulled or pushed position until manually actuated to the opposite mode.
- **Momentary**—(Three-position). Spring returns to an intermediate position when pulled or pushed and released.
- **Momentary Pull, Maintained Push**—(Three-position). Spring returns 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 below shows pictorially by symbols **A** and **B** locations of contact circuits after assembly of contact blocks and adapter to the operator. The table below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open).

Contact Circuit Locations



Two-Position Maint. Push-Pull ①

Push-Pull Operator Components

Type of Operator	Operator Position and Circuit Arrangement: Out—Pull Contact Block Mounting Location A		B	Intermediate A		B	In—Push A		B	Contact Block ②	Catalog Number
Two-Position Operator without Lens											
Maintained push-pull	0 X	or	0 X	No intermediate position			X 0	or	X 0	1NO 1NC	**E34GDB**
	0 X		0 X				X 0		X 0	2NO 2NC	
Three-Position Operator without Lens											
Momentary push-pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**E34GEB** ②
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Maintained push-momentary pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**E34GFB** ②
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Momentary push-pull	0 X	or	0 X	0 0	or	0 0	X 0	or	X 0	1NO 1NC	**E34GHB** ②
	0 X		0 X	0 0		0 0	X 0		X 0	2NO 2NC	

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

See Typical Applications on **Page V7-T1-225**.

① Shown without button on lens.

② Maximum of two blocks, four circuits. Special function contact blocks shown on **Page V7-T1-308** CANNOT be used with three-position push-pull operators E34GEB, E34GFB or E34GHB.

1

Push-Pull Light Units, Lenses and Buttons

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—6 Vac/Vdc
12—12 Vac/Vdc
24—24 Vac/Vdc
48—48 Vac/Vdc
60—60 Vac/Vdc
2A—120 Vac
2D—120 Vdc

Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	LED/Lamp Number	Catalog Number
LED (LEDs not included) ①	Full voltage	—	Bayonet base	**10250T97L**
	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	#755 #756 #757 #1828	**10250T69**
		12		**10250T70**
		24/28		**10250T79**
		32		**10250T83**
	Resistor AC or DC	120	120MB	**10250T80**
		240		**10250T81**
	Transformer AC only 50/60 Hz	24	#755	**10250T89**
		120		**10250T63**
		208		**10250T64**
		240		**10250T65**
		277		**10250T82**
		380		**10250T66**
		480		**10250T67**
		600		**10250T68**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① These units do not include lamps. Order LED separately to match lens color from chart on **Page V7-T1-293**

Buttons for Non-Illuminated Push-Pull Devices

Standard

Jumbo Mushroom Head

Color	Incandescent Suffix Code	Catalog Number
Standard Button		
Black	**C1**	**E34C1**
Red	**C2**	**E34C2**
Red (EMERG. STOP)	**C2N8**	**E34C2N8**
Green	**C3**	**E34C3**
Blue	**C6**	**E34C6**
Jumbo Mushroom Head		
Red ①	**J2**	**E34J2**
Red (EMERG. STOP)	**J2N8**	**E34J2N8**

Alternate Lenses for Illuminated Push-Pull Devices

E34M_

Color	Incandescent Suffix Code	LED Suffix Code ②	Catalog 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**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① Anodized aluminum may not be suitable for use on some corrosive applications.

② Suffix codes should only be used for assembling composite catalog numbers. To order lens, order by catalog number.

Standard LED Lamp

LED Selection

Voltage	Color	Catalog Number	Voltage	Color	Catalog Number
6 Vac/Vdc suitable for use with transformers	Red	**E22LED006RN**	60 Vac/Vdc	Red	**E22LED060RN**
	Orange	**E22LED006ON**		Orange	**E22LED060ON**
	Yellow	**E22LED006YN**		Yellow	**E22LED060YN**
	Green	**E22LED006GN**		Green	**E22LED060GN**
	Blue	**E22LED006BN**		Blue	**E22LED060BN**
	White	**E22LED006WN**		White	**E22LED060WN**
12 Vac/Vdc	Red	**E22LED012RN**	120 Vac	Red	**E22LED120RA**
	Orange	**E22LED012ON**		Orange	**E22LED120OA**
	Yellow	**E22LED012YN**		Yellow	**E22LED120YA**
	Green	**E22LED012GN**		Green	**E22LED120GA**
	Blue	**E22LED012BN**		Blue	**E22LED120BA**
	White	**E22LED012WN**		White	**E22LED120WA**
24 Vac/Vdc	Red	**E22LED024RN**	120 Vdc	Red	**E22LED120RD**
	Orange	**E22LED024ON**		Orange	**E22LED120OD**
	Yellow	**E22LED024YN**		Yellow	**E22LED120YD**
	Green	**E22LED024GN**		Green	**E22LED120GD**
	Blue	**E22LED024BN**		Blue	**E22LED120BD**
	White	**E22LED024WN**		White	**E22LED120WD**
48 Vac/Vdc	Red	**E22LED048RN**			
	Orange	**E22LED048ON**			
	Yellow	**E22LED048YN**			
	Green	**E22LED048GN**			
	Blue	**E22LED048BN**			
	White	**E22LED048WN**			

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Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two-, three- and four-position—maintained
- Non-illuminated and illuminated

Two-Position Maint. Switch Knob

Two-Position Selector Switch

Operator Position ①		Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Cam Code	Non-Illuminated Black Knob Catalog Number ③	Non-Illuminated Black Lever Catalog Number ③	Illuminated—120V Transformer Red Knob Catalog Number ③	Illuminated—120V Transformer Red Lever Catalog Number ③
X	0	M M	1NC			1	**E34VFBK1-1X**	**E34VFBL1-1X**	**E34VFB120ER-1X**	**E34VFB120FR-1X**
0	X		1NO							

Three-Position Maint. Switch Knob

Three-Position Selector Switch

Operator Position ①			Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Cam Code	Non-Illuminated Black Knob Catalog Number ③	Non-Illuminated Black Lever Catalog Number ③	Illuminated—120V Transformer Red Knob Catalog Number ③	Illuminated—120V Transformer Red Lever Catalog Number ③
X	0	0	M M	1NO			3	**E34VHBK1-2X**	**E34VHBL1-2X**	**E34VHB120TER-2X**	**E34VHB120TFR-2X**
0	0	X		1NO							
X	0	0		1NO			3	**E34VHBK1-23X**	**E34VHBL1-23X**	**E34VHB120TER-23X**	**E34VHB120TFR-23X**
0	X	0		2NC (Series)							
0	0	X		1NO							

Four-Position Maint. Switch Lever

Four-Position Selector Switch

Operator Position ①				Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Cam Code	Non-Illuminated Black Knob Catalog Number ③	Non-Illuminated Black Lever Catalog Number ③	Illuminated—120V Transformer Red Knob Catalog Number ③	Illuminated—120V Transformer Red Lever Catalog Number ③
X	0	0	0	M M	1NC			7	**E34VTBK1-23X**	**E34VTBL1-23X**	**E34VRB120TER-23X**	**E34VRB120TFR-23X**
0	X	0	0		1NO							
0	0	X	0		1NO							
0	0	0	X		1NC							

Color Selection, Non-Illuminated

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

Notes

For Light Unit Voltage Suffix and Knobs, Levers tables, see **Page V7-T1-300**.

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① X = closed circuit, 0 = open circuit.

② M = Maintained.

③ To order different type or color selector switch, substitute the underlined character with appropriate suffix code from the Color Selection table. Example: E34VFBK**2**-X1.

Selector Switch Selection

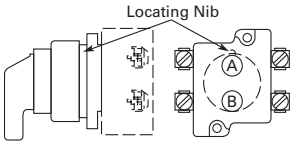
Cam and Contact Block Selection

Selector switches in their varied forms (two-position, three-position and four-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 V7-T1-297**) 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.

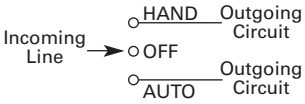
Contact Circuit Locations



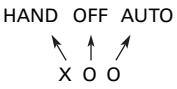
Systematic Approach

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:

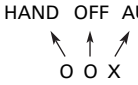


Step 2: "X-O" Pattern.
From the elementary diagram, you can construct an "X-O" diagram which describes when the contacts are to be closed (X) or open (O) in the various positions of the switch. The "X-O" for the **HAND** circuit looks like this:



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

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



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 tables on the following pages list 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.

1

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 show all the "X-O" combinations. For the purpose of this example, the applicable portion of those tables is shown on this page.

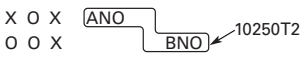
Now to make the cam selection, make a simple worksheet such as:

	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 colors or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page V7-T1-298**. For the example in step 4, you may want a three-position maintained black knob, cam 3—Catalog Number E34VHBK1.

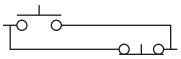
The Complete Switch:
E34VHBK1 with one 10250T2 or, for one composite catalog number, E34VHBK1-Y1 found on **Page V7-T1-295.**

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

Wiring of Jumper Connections


Series Connection


Parallel Connection

Four-position selector switches are limited to four contact blocks.

Contact Blocks
For selection and number of available contact blocks per operator, see **Page V7-T1-307**.

Example Selection Table

No.	"X-0" Pattern			Cam Code #2 Top A	Cam Code #2 Bottom B	Cam Code #3 Top A	Cam Code #3 Bottom B
1	X	0	0	① NO	NC	NO	—
4	0	0	X	—	NO	—	NO

Two-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	0	NC	or	NC
2	0	X	NO	or	NO

Note
① Wired in series.

Three-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 Mounting Location Top Plunger A	Bottom Plunger B	Operator with Cam Code #3 Mounting Location Top Plunger A	Bottom Plunger B
1	X	0	0	NO	NC	NO	
2	X	X	0		NC		NC
3	X	0	X	NO		NO	NO
4	0	0	X		NO		NO
5	0	X	X	NC	NO	NC	
6	0	X	0	NC		NC	NC

Four-Position Switch—Contact Block Selection

No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function Mounting Location Top Plunger A	Bottom Plunger B
1	X	0	0	0	NC	
2	0	X	0	0		NO
3	0	0	X	0	NO	
4	0	0	0	X		NC
5	X	0	0	X	NC	NC
6	0	X	X	0	NO	NO
7	0	0	X	X	NO	NC
8	X	X	0	0	NC	NO
9	0	X	0	X		NO NC
10	X	0	X	0	NC NO	
11	X	X	X	0	NC NO	NO
12	0	X	X	X	NO	NC NO
13	X	0	X	X	NO NC	NC
14	X	X	0	X	NC	NO NC

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Selector Switch Operators

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two-Position Knob Selector Switch

Operators with Knob Assembled

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

Key Operators

Three-Position Keyed Selector Switch

Key Operators with Cam and Cap

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

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

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

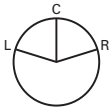
② Field convertible to horizontal mounting.

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages V7-T1-295** to **V7-T1-297**.

④ For other colors of either the knob or lever, replace the underlined characters of the catalog number with the appropriate suffix code from Alternate Knob and Lever table on **Page V7-T1-299**. Example: E34VFB**L2**.

⑤ Choose key removal position required for application from table on **Page V7-T1-299**. Add key removal code number to listed catalog number. Example: E34KFB**2**.

Key Removal Positions ①



Code Suffix	Key Removal Position
1	Right only
2	Left only
3	Right and left
4	Center only
6	Left and center
7	All positions

Dissimilar Locks and Keys

Listed operators have identical locks and keys (Key Code H661), Catalog Number **10250ED824**. For dissimilar lock and key combinations, see **Page V7-T1-234**.

E34K_

E34L_

E34A_

Alternate Knobs and Levers for Operators ②

Color	Knob Suffix Code	Knob Catalog Number	Lever Suffix Code	Lever Catalog Number	Lever Designed for Added Ingress Protection ③ Suffix Code	Lever Designed for Added Ingress Protection ③ Catalog 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**
Gray	**K7**	**E34K7**	**L7**	**E34L7**	**A7**	**E34A7**
Orange	**K8**	**E34K8**	**L8**	**E34L8**	**A8**	**E34A8**

Notes

① Key removal in "spring return from" positions not recommended.
② See operators on **Page V7-T1-298**.
③ For use on maintained operators only.

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Illuminated Selector Switch Operators

120 Vac Transformer Selector Switch, Cam 1

Operator without Knob or Lever

Positions	Operator Action	Transformer Type—50/60 Hz 6V #755 Lamp Catalog Number ③④		Full Voltage Type—AC or DC ① Lamps—#755, #757, #1835, 120MB ② Catalog Number ④	
Two-position—60° throw	M M	**Cam Code 1** ⑤		**Cam Code 1** ⑤	
		E34VFB_		**E34SFB_**	
Three-position—60° throw	M M M	**Cam Code 2** ⑤	**Cam Code 3** ⑤	**Cam Code 2** ⑤	**Cam Code 3** ⑤
		E34VGB_	**E34VHB_**	**E34SGB_**	**E34SHB_**
	M M S	**E34VNB_** ⑥	**E34VPB_** ⑥	**E34SNB_** ⑦	**E34SPB_** ⑦
	M S M	**E34VJB_** ⑥	**E34VKB_** ⑥	**E34SJB_** ⑦	**E34SKB_** ⑦
	M S S	**E34VLB_**	**E34VMB_**	**E34SLB_**	**E34SMB_**
Four-position—40° throw	M M M M	**E34VRB_**	—	**E34SRB_**	—

Knob

Lever

Knobs and Levers

Color ⑨	Knob Catalog Number and Code Number	Lever Catalog 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**

Light Unit Voltage Suffix

Add to operator Catalog Number listed in table above.

Type of Light Unit			
Transformer Type 50/60 Hz		Full Voltage Type AC or DC ①	
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 ⑧	**240**
600	**600**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages V7-T1-205** to **V7-T1-275**.

① Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page V7-T1-261**.
② 120MB lamps are used on both 120V and 240V operators.
③ Operator includes lens gasket and lens attachment screws.
④ Add suffix code for light unit voltage to listed catalog number from Light Unit Voltage Suffix table above.
Example: For 24V transformer type light unit, order E34VFB**024**.
⑤ For selection of the proper cam and contact block required to obtain a specific circuit sequence, see selection tables on **Pages V7-T1-295** to **V7-T1-297**.
⑥ 120 and 240V transformer only.
⑦ 120 full voltage only.
⑧ Resistor type. May generate excess heat if used in high density.
⑨ Amber, clear and white lenses have a black arrow (R). Red, green and blue lenses have a white arrow (R).

Accessories

Accessories

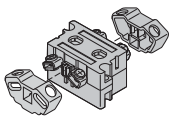
	Description	Catalog Number
E34TA2 	**Padlocking Attachment for Flush Pushbutton Operators.** Permits locking NC contacts in open position with 1/4 in padlock. Will not lock NO contact.	**E34TA2**
10250TA_ 	**Flexible Weather Resistant Boot** for use with flush pushbutton operators.	
	Clear	**10250TA46**
	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
E34TA3_ 	**Special Retaining Nut**—to accommodate thick panel.	
	Indicating light	**E34TA30**
	PresTest, pushbuttons and selector switches	**E34TA31**
E34TA6 	**Shroud for Mushroom Head Operator**—prevents accidental operation. (Not for push-pull operators.)	**E34TA6**
E34TA12 	**Extended Retaining Nut**—replaces standard nut and provides guard for flush type pushbutton operators.	**E34TA12**
E34TA15 	**Guard for illuminated pushbutton**	**E34TA15**
E34TA11 	**Padlocking Attachment** for non-illuminated knob selector switches—accommodates up to five, 1/4 in padlocks.	**E34TA11**

Notes

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.

Accessories, continued

	Description	Catalog Number
E34TK3 	**Thrust Washer**—To meet Ford Motor Company mounting specifications.	**E34TK3**
10250TA7_ 	**Contact Block Terminal Jumps**—Available in multiples of 100 only.	
	Terminal to terminal—within block (short):	
	100 per package	**10250TA70**
	1000 per package	**10250TA70-2**
	Terminal to terminal—block to block (long):	
	100 per package	**10250TA71**
	1000 per package	**10250TA71-2**
10250TMT8 	**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.	
	48 Vdc	**10250TMT8**
10250TFL_ 	**Flasher Module**—Internal Form C relay suitable for AC applications. One unit required for each operator in master test circuit.	
	24 Vac	**10250TFL2**
	120 Vac	**10250TFL1**
E22CW 	**Panel Mounting Nut Wrench**—E22, E30, E34 and octagonal 10250T.	**E22CW**
10250TA101 	**Fingerproof Shroud**—10 per package Fits new style contact blocks and light units.	**10250TA101**

1

Options

Legend Plates ①

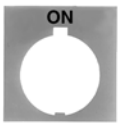
Field Color

Legend plates can be supplied printed on black, red, silver or white field. To order legend printed on a color other than indicated—add suffix code to the end of the catalog 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.

Standard



Jumbo

For Pushbutton Operators and Indicating Lights

Legend	Color of Field	Standard ② Catalog Number	Jumbo Catalog Number	Legend	Color of Field	Standard ② Catalog Number	Jumbo Catalog Number
Letters on Legend Plates Below are 3/16 in High							
CLAMP	Black	**E34SP90**	**E34LP90**	OFF	Red	**E34SP24**	**E34LP24**
CLOSE		**E34SP73**	**E34LP73**	ON	Black	**E34SP25**	**E34LP25**
DOWN		**E34SP74**	**E34LP74**	OPEN		**E34SP26**	**E34LP26**
EMERG. STOP	Red	**E34SP13**	**E34LP13**	OUT		**E34SP27**	**E34LP27**
FAST	Black	**E34SP75**	**E34LP75**	POWER ON		**E34SP80**	**E34LP80**
FASTER		**E34SP87**	**E34LP87**	RAISE		**E34SP28**	**E34LP28**
FEEDER ON		**E34SP94**	**E34LP94**	READY		**E34SP86**	**E34LP86**
FEEDER OFF		**E34SP95**	**E34LP95**	RESET		**E34SP29**	**E34LP29**
FORWARD		**E34SP15**	**E34LP15**	REVERSE		**E34SP30**	**E34LP30**
HIGH		**E34SP16**	**E34LP16**	RUN		**E34SP31**	**E34LP31**
IN		**E34SP17**	**E34LP17**	SAFE		**E34SP85**	**E34LP85**
INCH		**E34SP18**	**E34LP18**	SLOW		**E34SP32**	**E34LP32**
JOG		**E34SP19**	**E34LP19**	SLOWER		**E34SP88**	**E34LP88**
JOG FOR.		**E34SP20**	**E34LP20**	START		**E34SP33**	**E34LP33**
JOG REV.		**E34SP21**	**E34LP21**	STOP	Red	**E34SP34**	**E34LP34**
LOW		**E34SP22**	**E34LP22**	TEST	Black	**E34SP83**	**E34LP83**
LOWER		**E34SP23**	**E34LP23**	TRANSFER		**E34SP93**	**E34LP93**
LUBE-FAIL		**E34SP92**	**E34LP92**	TRIP		**E34SP84**	**E34LP84**
MOTOR RUN		**E34SP81**	**E34LP81**	UNCLAMP		**E34SP91**	**E34LP91**
MOTOR STOP		**E34SP82**	**E34LP82**	UP		**E34SP35**	**E34LP35**

Blank Plastic Legend Plates—Square ③

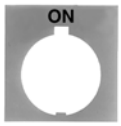
Color Lettering	Field Side 1	Side 2	Standard Catalog Number	Jumbo Catalog Number	Extra Large Catalog Number
Black	White	Silver	**10250TSP76**	**10250TLP76**	**10250TEP76**
White	Red	Black	**10250TSP77**	**10250TLP77**	**10250TEP77**

Notes

① For dimensions, see **Page V7-T1-280**.
② 3/32 in high lettering.
③ Legend plates with non-standard markings or aluminum legend plates see 10250T listing on **Page V7-T1-254**.

1

Standard



Jumbo

For Selector Switch Operators

Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number
Two-Position—3/16 in High Lettering			
FOR. REV.	Black	**E34SP38**	**E34LP38**
HAND AUTO		**E34SP39**	**E34LP39**
HIGH LOW		**E34SP40**	**E34LP40**
JOG RUN		**E34SP41**	**E34LP41**
MAN. AUTO		**E34SP67**	**E34LP67**
OFF ON		**E34SP42**	**E34LP42**
OPEN CLOSE		**E34SP43**	**E34LP43**
RUN JOG		**E34SP44**	**E34LP44**
SAFE RUN		**E34SP45**	**E34LP45**
START JOG		**E34SP46**	**E34LP46**
START STOP		**E34SP47**	**E34LP47**
UP DOWN		**E34SP48**	**E34LP48**

Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number
Three-Position—3/16 in High Lettering			
AUTO OFF HAND	Black	**E34SP49**	**E34LP49**
FOR. OFF REV.		**E34SP50**	**E34LP50**
FOR. SAFE REV.		**E34SP69**	**E34LP69**
HAND OFF AUTO		**E34SP51**	**E34LP51**
MAN. OFF AUTO		**E34SP68**	**E34LP68**
OPEN OFF CLOSE		**E34SP53**	**E34LP53**
RUN SAFE JOG		**E34SP70**	**E34LP70**
UP OFF DOWN		**E34SP54**	**E34LP54**
ON STOP SAFE		**E34SP71**	**E34LP71**

For Push-Pull Units

Legend	Color of Field	Standard ① Catalog Number	Jumbo ② Catalog Number
PULL ON/PUSH OFF	Black	**E34PP5**	**E34R5**
PULL OPEN/PUSH CLOSE	Black	**E34PP8**	**E34R8**
PULL UP/PUSH DOWN	Black	**E34PP11**	**E34R11**

Notes

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

Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

Enclosures (Case and Cover)—Surface Mounting ①

	Number of Elements	One Contact Block Depth Catalog Number	Two Contact Block Depth Catalog Number
Die Cast Enclosure 	**Die Cast Enclosure—In-Line** ②③ **NEMA 4, 4X, 12, 13**		
	1	**E34N1**	**E34N11**
	2	**E34N2**	**E34N12**
	3	**E34N3**	**E34N13**
	4	—	**E34N14**
Polyester Enclosure 	**Polyester—In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
Stainless Steel Enclosure 	**Stainless Steel** ④ **—In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

Dimensions, see **Page V7-T1-314**.

Mounting Instructions

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

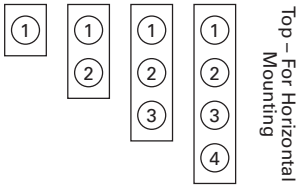
One and Two Contact Block Depth Enclosures

One Contact Block Depth Enclosure

Two Contact Block Depth Enclosure

Enclosure Layouts

Top – For Vertical Mounting



Top – For Horizontal Mounting

Notes

① For spacing increments, see **Page V7-T1-306**.
② All die cast enclosures can be converted to base mounting of contact blocks with spacers 10250TA22 or 10250TA23. See listing on **Page V7-T1-249.**
③ When used with E30 pushbuttons, only the one element enclosure can be used.
④ 14 gauge, type 304.

1

Die Cast and Stainless Steel—Flush Mount, Covers Only ①

Flush Mounting Covers

Covers Only—Flush Mounting

Number of Elements	Catalog Number	Catalog Number
Flush Die 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 ②		
	With Pullbox	**Without Pullbox**
1	**10250TS10**	**10250TS1**
2	**10250TS11**	**10250TS2**
3	**10250TS12**	**10250TS3**
4	**10250TS14**	**10250TS4**

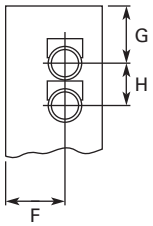
Dimensions, see **Page V7-T1-315**.

Spacing Increments

Approximate Dimensions in Inches (mm)

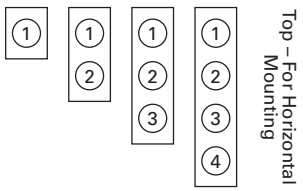
Type	F	G	H
Die cast	2.44 (62.0)	2.5 (63.5)	1.88 (47.8)
Polyester	1.88 (47.8)	Min. 2.13 (54.1)	2.25 (57.2)
Stainless steel	1.69 (42.9)	Min. 1.73 (43.9)	2.25 (57.2)

Spacing Increments for Enclosures



Enclosure Layouts

Top – For Vertical Mounting



Notes

① These E34 die cast covers feature a corrosion resistant coating identical to the finish on the E34 operators except gray in color.

② Not oiltight. NEMA 1 applications only.

Contact Blocks

Standard Contact Blocks

- UL A600/P600 rated
- Color-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 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
Pushbuttons	6
Push-pull operators	2
Roto-push operators	4
Two- or three-position selector switches	6
Four-position selector switches	4
Joysticks	4

1

10250T1

Contact Blocks

Symbol	Circuit	Description ①	Standard Pressure Terminal Catalog Number	Standard Spade Terminal ② Catalog Number	Logic Level Pressure Terminal Catalog Number	Logic Level Spade Terminal ② Catalog Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51**	**10250T59**	**10250T51E**	**10250T59E**
Blank No Plunger	1NO	Stack up to six blocks six circuits) unless otherwise noted.	**10250T53**	**10250T60**	**10250T53E**	**10250T60E**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1**	**10250T40**	**10250T1E**	**10250T40E**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3**	**10250T42**	**10250T3E**	**10250T42E**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2**	**10250T41**	**10250T2E**	**10250T41E**
Special Function Blocks ③						
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71** ③	—	**10250T71E** ③	—
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47** ③④	—	**10250T47E** ③	—
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57** ③④	—	**10250T57E** ③	—
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45** ③	—	**10250T45E** ③	—
	LONC-ECNO	Overlapping contacts. Stack up to four 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 four blocks unless otherwise noted.	**10250T44** ⑤	—		

Notes

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 in (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, three-position push-pull operators, or four-position selector switches.

④ ECNO contact blocks are not suitable for use with two-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 three-position push-pull operators only on low voltage (30V or less) circuits.

10250T1CP

Contact Blocks with Fingerproof Shrouds

Symbol	Circuit	Description ①	Standard Pressure Terminal ② Catalog Number	Logic Level Pressure Terminal ② Catalog Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51P**	**10250T51EP**
Blank No Plunger	1NO	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T53P**	**10250T53EP**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1P**	**10250T1EP**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3P**	**10250T3EP**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2P**	**10250T2EP**
Special Function Blocks ③				
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71P** ④	**10250T71EP** ④
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47P** ③④	**10250T47EP** ④
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57P** ③④	**10250T57EP** ④
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45P** ④	**10250T45EP** ④
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55P** ③④	**10250T55EP** ④

Replacement Parts

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**

Notes

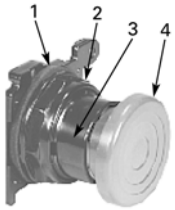
① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

② To order contact blocks with translucent amber housing, change suffix P to **CP** in catalog number, e.g., 10250T51**CP**.

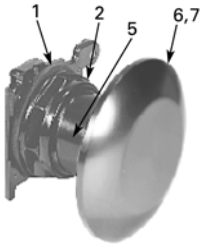
③ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

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

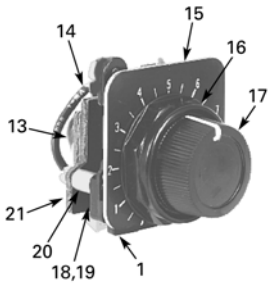
Flush Head Pushbutton Operator



Mushroom Head Pushbutton Operator

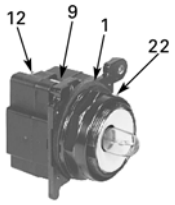


Jumbo Mushroom Head Operator

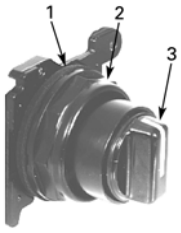


Potentiometers

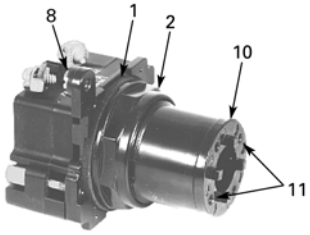
Illuminated Pushbutton Operator



Transformer Type Indicating Light



Knob-Operated Selector Switch Operator



Full Voltage, Resistor and Transformer Type Illuminated Selector Switch

E34 Style Operator Replacement Parts

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 in long hollow hex)	2	**11-2014**
4	Mushroom head button (includes [2] item 5)	1	**As Req. Below**
	Black	—	**53-1317**
	Red	—	**53-1317-2**
	Yellow	—	**53-1317-3**
	Green	—	**53-1317-4**
	Blue	—	**53-1317-22**
5	Set screw (#10-32 x 0.250 in long hollow hex)	2	**11-544**
6	Jumbo mushroom head button (aluminum—includes [2] item 5)	1	**As Req. Below**
	Red	—	**53-1317-9**
	Black	—	**53-1317-10**
	Yellow	—	**53-1317-11**
	Green	—	**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 in long)	2	**10250TA79**
	Washer	2	**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 in 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	**As Req. Below**
	1,000 ohms	—	**41-782-2**
	2,500 ohms	—	**41-782-3**
	5,000 ohms	—	**41-782-10**
	10,000 ohms	—	**41-782-4**
	25,000 ohms	—	**41-782-5**
	50,000 ohms	—	**41-782-6**
14	Connector (includes screw and lug)	2	**25-1851**
15	Indicating plate	1	**As Req. Above**
	Standard size (without legend)	—	**30-4460**
	Large size (specify legend)	—	**10250TR30**
16	Retaining nut	1	**15-1547-3**
17	Knob	1	**53-1314**
	Socket set screw (#6-32 x 0.250 in long)	1	**11-2014**
18	Coupling	1	**11-2014**
			29-3749-2
19	Set screw (#6-32 x 0.188 in 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**

Technical Data and Specifications

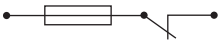
Mechanical Ratings

Description	Specification
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

General Specifications

Description	Specification
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 at 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 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 fingerproof shroud
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 at rated V
LED	60,000 to 100,000 hrs.

Electrical Ratings

Description	Specification
Insulation	U_i = 660 Vac or Vdc
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, 660 Vac, 460 Vdc, BS88-2, IEC 60269-2-1
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	600V pf 0.4—1 x 10^6 operations
Switching capacity	
AC 15 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
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	120 Vac/Vdc
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, Vac/Vdc.
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.

Electrical Ratings—Contact Block

Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC

	50 Vac or 60 H				Vdc		
Description	**120**	**240**	**480**	**600**	**24/28**	**125**	**250**
Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC							
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

Mounting Options

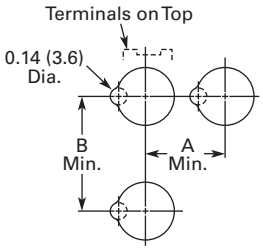
Panel Thickness

- Minimum: 0.06 in (1.6 mm)
- Maximum: 0.25 in (8 mm) including legend plate
- Maximum can be increased to 0.375 in (15.9 mm) using optional retaining nut
  - Indicating light: 10250TA30
  - Pushbutton/selector switch: 10250TA31

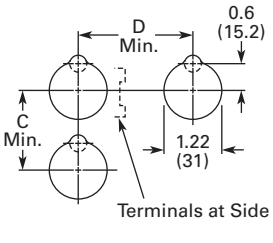
Mounting Matrix

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)

Mounting Options in Inches (mm)



Horizontal Mounting

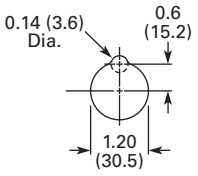


Vertical Mounting

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.

Locating nib hole or notch is 0.14 in (3.6 mm) #29 drill.

Drilling Dimensions in Inches (mm)

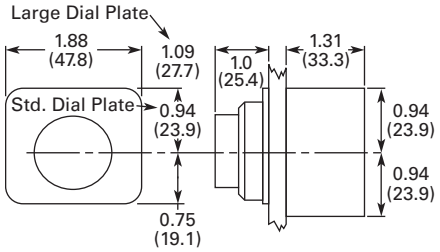


1

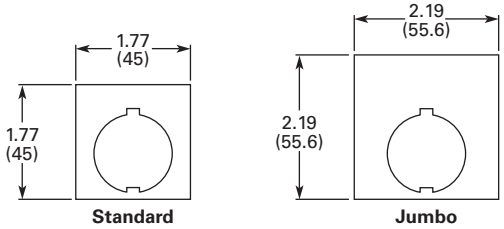
Dimensions

Approximate Dimensions in Inches (mm)

Potentiometer

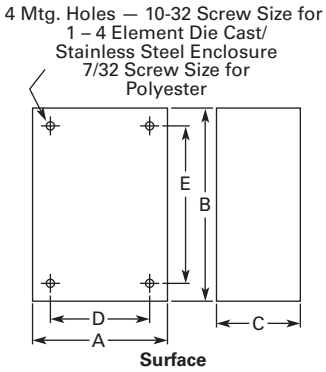


Legend Plates



Surface Mounting

Die Cast, Polyester and Stainless Steel Enclosures



Number of Elements	Element Arrangement	Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Die Cast							
1	In-line	3.88 (98.6)	4.00 (101.6)	3.00 (76.3) ①	2.69 (68.3)	3.25 (82.6)	3/4
2		3.88 (98.6)	5.88 (149.4)	3.00 (76.3) ①	2.69 (68.3)	5.13 (130.3)	
3		3.88 (98.6)	7.75 (196.9)	3.00 (76.3) ①	2.69 (68.3)	7.00 (177.8)	1
4		3.88 (98.6)	9.63 (244.6)	3.00 (76.3) ①	2.69 (68.3)	8.88 (225.6)	
Polyester							
1	In-line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	②
2		3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3		3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4		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)	②
2		3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3		3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4		3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	

Notes

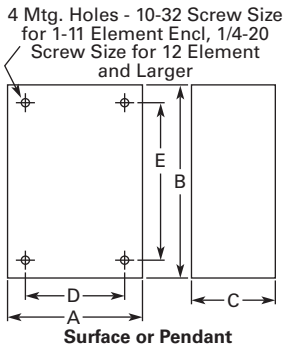
① Depth given is for two contact block deep stations. One contact block deep stations subtract 3/4 in (19.1 mm).

② No conduit entrance holes provided. Drill as required.

Approximate Dimensions in Inches (mm)

Flush Mounting

Die Cast and Stainless Steel Covers Only



Surface or Pendant

Number of Elements	Wide A	High B	Deep C	Mounting D	E
Die Cast					
1	3.88 (98.6)	4.00 (101.6)	0.25 (6.4) ①	3.50 (88.9)	3.63 (92.2)
2	3.88 (98.6)	5.88 (149.4)	0.25 (6.4) ①	3.50 (88.9)	5.50 (139.7)
3	3.88 (98.6)	7.75 (196.9)	0.25 (6.4) ①	3.50 (88.9)	6.00 (152.4)
4	3.88 (98.6)	9.63 (244.6)	0.25 (6.4) ①	3.50 (88.9)	9.25 (235.0)
Stainless Steel					
1	5.00 (127.0)	5.00 (127.0)	2.50 (63.5) ②	3.25 (82.6)	1.88 (47.8)
2	5.00 (127.0)	6.88 (174.8)	2.50 (63.5) ②	3.25 (82.6)	3.63 (92.2)
3	5.00 (127.0)	8.63 (219.2)	2.50 (63.5) ②	3.25 (82.6)	5.50 (139.7)
4	5.00 (127.0)	10.50 (266.7)	2.50 (63.5) ②	3.25 (82.6)	7.25 (184.2)

Notes

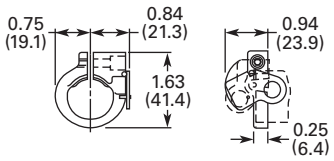
① Depth given is for flat cover. Deep cover is 3/4 in (19.1 mm) deeper.

② Depth given includes pull box.

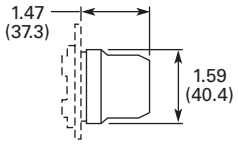
1

Approximate Dimensions in Inches (mm)

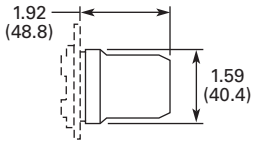
Padlocking Attachment for Flush Pushbutton Operators



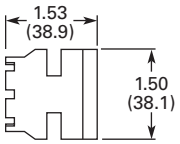
Flexible Weather Resistant Boot



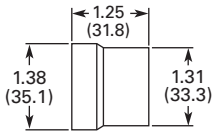
Transparent Boot



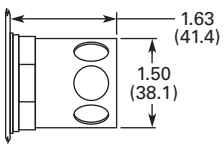
Shroud for Mushroom Head Operator



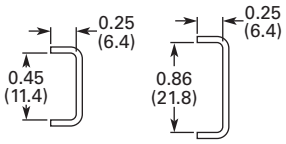
Extended Retaining Nut



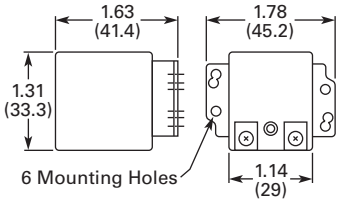
Guard for Illuminated Pushbutton



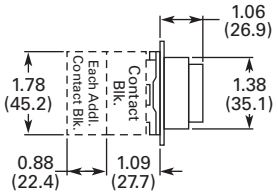
Contact Block Terminal Jumps



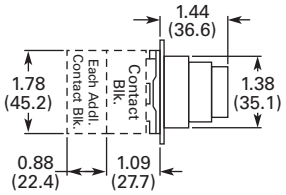
Master Test Module and Flasher Module



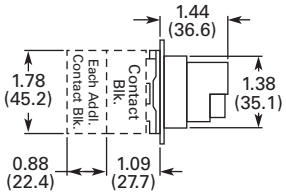
Flush Pushbutton



Extended Pushbutton

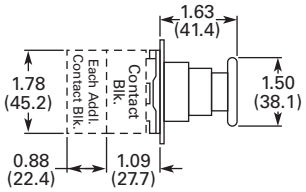


Half Shroud Pushbutton

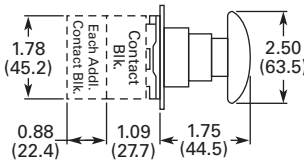


Approximate Dimensions in Inches (mm)

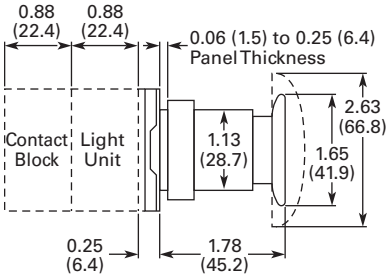
Mushroom Pushbutton



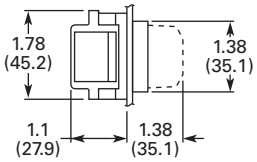
Jumbo Mushroom Pushbutton



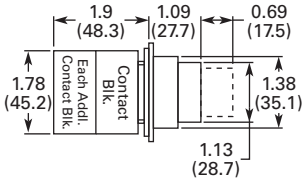
Push-Pull Switch



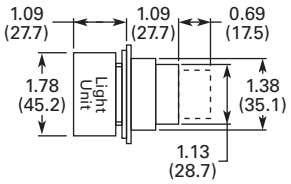
Indicating Light



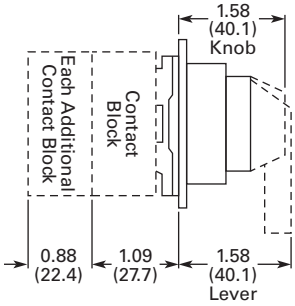
PresTest Indicating Light



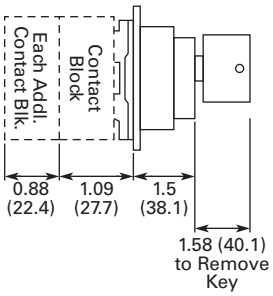
Illuminated Pushbutton



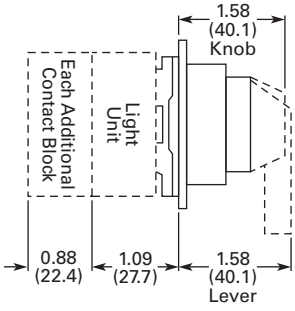
Selector Switch



Key Selector Switch



Illuminated Selector Switch



Contents

Product Description

The HT800 Series from Eaton's Electrical Sector is a family of 30.5 mm pushbutton devices which includes momentary, illuminated and mushroom head pushbuttons, selector switches, indicating lights and push-pull switches. The HT800 devices have a familiar appearance found in most industrial applications and are suitable for replacement of several other manufacturers' 30.5 mm pushbutton devices.

Features

- Anodized aluminum mounting rings
- Watertight double V-gasket seals
- Extended height bulbs
- Transparent housing contact blocks
- Color-coded contact blocks
- Gold-plated contacts (on low voltage contact block)
- Reliability ridge on movable contact
- Stackable screw-mounted contact blocks
- Contact blocks can be mounted in left/right or top/bottom positions
- Standard NC contact opens before NO contact closes (break before make operation)
- Bright and long lasting LED indicating lights in six colors
- Field convertible maintained selector switches—from two- to three-position and vice versa
- Field selectable knob/lever mounting positions—at any 22.5° increment

Benefits

- Corrosion resistant NEMA 4X finish
- Watertight and oiltight NEMA 4, 13 ingress protection
- Increased side illumination of indicating lights and illuminated pushbuttons
- Easy visual inspection of contact conditions
- Easily identifiable NO (white) or NC (black) contact blocks
- Gold-plated contacts suitable for logic level circuits
- Reliability ridge penetrates contamination buildup on stationary contacts
- Left/right or top/bottom mounted contact blocks allow correct positioning in retrofit applications
- All-purpose selector switches are convertible and can rotate in 22.5° increments to suit panel layouts

Standards and Certifications

- UL508 per File No. E131568
- CSA C22.2 No. 14 per File No. LR68551

Ingress Protection

- UL (NEMA) Type 1, 2, 3, 3R, 4, 4X, 12 and 13 when mounted in similarly rated enclosures

1

Catalog Number Selection

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

HT800 Pushbuttons, Push-Pulls and Indicating Lights

HT8 GB R AB T1

Style
Pushbuttons
AA = Flush
AB = Extended
AE = Mushroom head
Illuminated Pushbuttons
GB = Illuminated PB
Push-Pull Operators
CB = Two-position, maintained
Indicating Lights
HF = Full voltage/resistor type
HB = Transformer type
Push-to-Test Operators
GT = All types

Button Color
G = Green
H = Black
R = Red

Lens Color
A = Amber/Orange
B = Blue
C = Clear
G = Green
R = Red
W = White
Y = Yellow

Contact Block Location (viewed from rear) ①	
Left Side	**Right Side**
A = NO	**A5** = NO
A2 = 2NO	**A6** = 2NO
B1 = NC	**B** = NC
B2 = 2NC	**B6** = 2NC
C = NOEM	**C5** = NOEM
C2 = 2 NOEM	**C6** = 2 NOEM
D1 = NCLB	**D** = NCLB
D2 = 2NCLB	**D6** = 2NCLB
E1 = NOEM-NCLB	**E5** = NOEM-NCLB
F1 = NO and NC	**Q1** = NO and NC
F4 = 1NO-1NC	

Light Unit Type/Voltage
F3 = 24V FV, LED
F7 = 120V FV, LED
L1 = 120V transformer, LED
T1 = 120V transformer, incandescent
V3 = 24V FV, incandescent
V7 = 120V res., incandescent

HT800 Selector Switch

HT8 JA H 3A F1Q1

Operator
JA = Two-pos., knob, maint.
JB = Three-pos., knob, maint.
JC = Four-pos., knob, maint.
JD = Two-pos., lever, maint.
JE = Three-pos., lever, maint.
JF = Four-pos., lever, maint.
JK = Two-pos., knob, spr. rtn., left
JL = Two-pos., lever, spr. rtn., left
JN = Two-pos., knob, spr. rtn., right
JP = Two-pos., lever, spr. rtn., right
JR = Three-pos., knob, spr. rtn., left
JS = Three-pos., lever, spr. rtn., left
JU = Three-pos., knob, spr. rtn., right
JV = Three-pos., lever, spr. rtn., right
JX = Three-pos., knob, spr. rtn., both
JY = Three-pos., lever, spr. rtn., both
LN = Four-pos., knob, spr. rtn., pos 1 to 2
LP = Four-pos., lever, spr. rtn., pos 1 to 2
LR = Four-pos., knob, spr. rtn., pos 4 to 3
LS = Four-pos., lever, spr. rtn., pos 4 to 3

Switch Color
H = Black

Cam Location/Type
1D = For all three-pos.
3A = For all two-pos.
8E = For all four-pos.

Contact Block Location (viewed from rear) ②	
Left Side	**Right Side**
A = NO	**A5** = NO
A2 = 2NO	**A6** = 2NO
B1 = NC	**B** = NC
B2 = 2NC	**B6** = 2NC
C = NOEM	**C5** = NOEM
C2 = 2 NOEM	**C6** = 2 NOEM
D1 = NCLB	**D** = NCLB
D2 = 2NCLB	**D6** = 2NCLB
E1 = NOEM-NCLB	**E5** = NOEM-NCLB
F1 = NO and NC	**Q1** = NO and NC
F4 = 1NO-1NC	

Notes

① Maximum of four contact blocks per side or a total of eight contact blocks recommended.

② Maximum of two contact blocks per side or a total of four contacts blocks recommended.

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Product Selection

Momentary Pushbutton Units, Non-Illuminated

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- Flush, extended or 40 mm mushroom head operators

HT800 Pushbuttons

HT800 Pushbuttons—Point-of-Purchase Units

Description	Catalog Number
Two-position maintained selector switch 1NO/1NC contact block, three square legend plates: OFF ON, MAN. AUTO, UP DOWN	**HT8JAH3AAB-POP**
Three-position maintained selector switch, black knob, 1NO/1NC contact block, three square legend plates: HAND OFF AUTO, FOR. OFF REV., OPEN OFF CLOSE	**HT8JBH1DAB-POP**
Three-position selector switch, spring return from left and right, black knob, 1NO/1NC contact block, three square legend plates: UP OFF DOWN, FOR OFF REV., OPEN OFF CLOSE	**HT8JXH1DAB-POP**
Red push-pull emergency stop, 1NO/1NC contact block, three square legend plates: STOP, EMERG. STOP, OFF	**HT8CBRAB-POP**
Illuminated push-pull maintained red pushbutton, 120V full voltage low profile LED, three square legend plates: STOP, EMERG. STOP, OFF	**HT8FBRABFL7-POP**
Illuminated push-pull maintained red pushbutton, 24V full voltage low profile LED, three square legend plates: STOP, EMERG. STOP, OFF	**HT8FBRABFL3-POP**
Green flush pushbutton, 1NO/1NC contact block, three square legend plates: START, ON, RUN	**HT8AAGAB-POP**
Black flush pushbutton, 1NO/1NC contact block, three square legend plates: RESET, JOG, OPEN	**HT8AAHAB-POP**
Red flush pushbutton, 1NO/1NC contact block, three square legend plates: STOP, CLOSE, OFF	**HT8AARAB-POP**
Red extended pushbutton, 1NO/1NC contact block, three square legend plates: STOP, CLOSE, OFF	**HT8ABRAB-POP**
Black extended pushbutton, 1NO/1NC contact block, three square legend plates: RESET, JOG, OPEN	**HT8ABHAB-POP**
Green extended pushbutton, 1NO/1NC contact block, three square legend plates: START, ON, RUN	**HT8ABGAB-POP**
Illuminated green pushbutton, 120 V full voltage incandescent, 1NO/1NC contact block, three square legend plates: START, ON, RUN	**HT8GBGABV7-POP**
Illuminated green pushbutton, 24 V full voltage incandescent, 1NO/1NC contact block, three square legend plates: START, ON, RUN	**HT8GBGABV3-POP**
Illuminated green pushbutton, 24 V full voltage LED, 1NO/1NC contact block, three square legend plates: START, ON, RUN	**HT8GBGABF3-POP**
Illuminated green pushbutton, 120 V full voltage LED, 1NO/1NC contact block, three square legend plates: START, ON, RUN	**HT8GBGABF7-POP**

Flush Head Operator

Extended Head Operator

40 mm Mushroom Head Operator

Momentary Contact Pushbutton Units, Non-Illuminated

Contact Type	Button Color	Flush Head Catalog Number	Extended Head Catalog Number	Mushroom Head (40 mm) Catalog Number
No contact	Black	**HT8AAH**	**HT8ABH**	**HT8AEH**
	Red	**HT8AAR**	**HT8ABR**	**HT8AER**
	Green	**HT8AAG**	**HT8ABG**	**HT8AEG**
1NO	Black	**HT8AAHA**	**HT8ABHA**	**HT8AEHA**
	Red	**HT8AARA**	**HT8ABRA**	**HT8AERA**
	Green	**HT8AAGA**	**HT8ABGA**	**HT8AEGA**
1NC	Black	**HT8AAHB**	**HT8ABHB**	**HT8AEHB**
	Red	**HT8AARB**	**HT8ABRB**	**HT8AERB**
	Green	**HT8AAGB**	**HT8ABGB**	**HT8AEGB**
1NO-1NC	Black	**HT8AAHAB**	**HT8ABHAB**	**HT8AEHAB**
	Red	**HT8AARAB**	**HT8ABRAB**	**HT8AERAB**
	Green	**HT8AAGAB**	**HT8ABGAB**	**HT8AEGAB**
2NO-2NC	Black	**HT8AAHF1Q1**	**HT8ABHF1Q1**	**HT8AEHF1Q1**
	Red	**HT8AARF1Q1**	**HT8ABRF1Q1**	**HT8AERF1Q1**
	Green	**HT8AAGF1Q1**	**HT8ABGF1Q1**	**HT8AEGF1Q1**

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Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- Incandescent or LED
- Full voltage or transformer type
- 24V and 120V

Illuminated Pushbutton Operator

Illuminated Pushbuttons

Type	Volts	Lens Color	Operator Only Catalog Number	1NO Catalog Number	1NC Catalog Number	1NO-1NC Catalog Number	2NO-2NC Catalog Number
Incandescent Lamp							
Full voltage	120 Vac/Vdc	No lens ①	**HT8GBFV**	—	—	—	—
		Red	**HT8GBRV7**	**HT8GBRAV7**	**HT8GBRBV7**	**HT8GBRABV7**	**HT8GBRF1Q1V7**
		Green	**HT8GBGV7**	**HT8GBGAV7**	**HT8GBGBV7**	**HT8GBGABV7**	**HT8GBGF1Q1V7**
		Amber	**HT8GBAV7**	**HT8GBAAV7**	**HT8GBABV7**	**HT8GBAABV7**	**HT8GBAF1Q1V7**
		Clear	**HT8GBCV7**	**HT8GBCAV7**	**HT8GBCBV7**	**HT8GBCABV7**	**HT8GBCF1Q1V7**
		White	**HT8GBWV7**	**HT8GBWAV7**	**HT8GBWBV7**	**HT8GBWABV7**	**HT8GBWF1Q1V7**
		Yellow	**HT8GBYV7**	**HT8GBYAV7**	**HT8GBYBV7**	**HT8GBYABV7**	**HT8GBYF1Q1V7**
		Blue	**HT8GBBV7**	**HT8GBBAV7**	**HT8GBBBV7**	**HT8GBBABV7**	**HT8GBBF1Q1V7**
	24 Vac/Vdc	No lens ①	**HT8GBFV**	—	—	—	—
		Red	**HT8GBRV3**	**HT8GBRAV3**	**HT8GBRBV3**	**HT8GBRABV3**	**HT8GBRF1Q1V3**
		Green	**HT8GBGV3**	**HT8GBGAV3**	**HT8GBGBV3**	**HT8GBGABV3**	**HT8GBGF1Q1V3**
		Amber	**HT8GBAV3**	**HT8GBAAV3**	**HT8GBABV3**	**HT8GBAABV3**	**HT8GBAF1Q1V3**
		Clear	**HT8GBCV3**	**HT8GBCAV3**	**HT8GBCBV3**	**HT8GBCABV3**	**HT8GBCF1Q1V3**
		White	**HT8GBWV3**	**HT8GBWAV3**	**HT8GBWBV3**	**HT8GBWABV3**	**HT8GBWF1Q1V3**
		Yellow	**HT8GBYV3**	**HT8GBYAV3**	**HT8GBYBV3**	**HT8GBYABV3**	**HT8GBYF1Q1V3**
		Blue	**HT8GBBV3**	**HT8GBBAV3**	**HT8GBBBV3**	**HT8GBBABV3**	**HT8GBBF1Q1V3**
Transformer	120 Vac	No lens ①	**HT8GBT1**	—	—	—	—
		Red	**HT8GBRT1**	**HT8GBRAT1**	**HT8GBRBT1**	**HT8GBRABT1**	**HT8GBRF1Q1T1**
		Green	**HT8GBGT1**	**HT8GBGAT1**	**HT8GBGBT1**	**HT8GBGABT1**	**HT8GBGF1Q1T1**
		Amber	**HT8GBAT1**	**HT8GBAAT1**	**HT8GBABT1**	**HT8GBAABT1**	**HT8GBAF1Q1T1**
		Clear	**HT8GBCT1**	**HT8GBCAT1**	**HT8GBCBT1**	**HT8GBCABT1**	**HT8GBCF1Q1T1**
		White	**HT8GBWT1**	**HT8GBWAT1**	**HT8GBWBT1**	**HT8GBWABT1**	**HT8GBWF1Q1T1**
		Yellow	**HT8GBYT1**	**HT8GBYAT1**	**HT8GBYBT1**	**HT8GBYABT1**	**HT8GBYF1Q1T1**
		Blue	**HT8GBBT1**	**HT8GBBAT1**	**HT8GBBBT1**	**HT8GBBABT1**	**HT8GBBF1Q1T1**

Note

① Light unit base operator without lens or bulb.

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

Illuminated Pushbutton Operator

Illuminated Pushbuttons, continued

Type	Volts	Lens Color	Operator Only Catalog Number	1NO Catalog Number	1NC Catalog Number	1NO-1NC Catalog Number	2NO-2NC Catalog Number
LED							
Full voltage	120 Vac/Vdc	No lens ①	**HT8GBFV**	—	—	—	—
		Red	**HT8GBRF7**	**HT8GBRAF7**	**HT8GBRBF7**	**HT8GBRABF7**	**HT8GBRF1Q1F7**
		Green	**HT8GBGF7**	**HT8GBGAF7**	**HT8GBGBF7**	**HT8GBGABF7**	**HT8GBGF1Q1F7**
		Amber	**HT8GBAF7**	**HT8GBAAF7**	**HT8GBABF7**	**HT8GBAABF7**	**HT8GBAF1Q1F7**
		Clear	**HT8GBCF7**	**HT8GBCAF7**	**HT8GBCBF7**	**HT8GBCABF7**	**HT8GBCF1Q1F7**
		White	**HT8GBWF7**	**HT8GBWAF7**	**HT8GBWBF7**	**HT8GBWABF7**	**HT8GBWF1Q1F7**
		Yellow	**HT8GBYF7**	**HT8GBYAF7**	**HT8GBYBF7**	**HT8GBYABF7**	**HT8GBYF1Q1F7**
		Blue	**HT8GBBF7**	**HT8GBBAF7**	**HT8GBBBF7**	**HT8GBBABF7**	**HT8GBBF1Q1F7**
	24 Vac/Vdc	No lens ①	**HT8GBFV**	—	—	—	—
		Red	**HT8GBRF3**	**HT8GBRAF3**	**HT8GBRBF3**	**HT8GBRABF3**	**HT8GBRF1Q1F3**
		Green	**HT8GBGF3**	**HT8GBGAF3**	**HT8GBGBF3**	**HT8GBGABF3**	**HT8GBGF1Q1F3**
		Amber	**HT8GBAF3**	**HT8GBAAF3**	**HT8GBABF3**	**HT8GBAABF3**	**HT8GBAF1Q1F3**
		Clear	**HT8GBCF3**	**HT8GBCAF3**	**HT8GBCBF3**	**HT8GBCABF3**	**HT8GBCF1Q1F3**
		White	**HT8GBWF3**	**HT8GBWAF3**	**HT8GBWBF3**	**HT8GBWABF3**	**HT8GBWF1Q1F3**
		Yellow	**HT8GBYF3**	**HT8GBYAF3**	**HT8GBYBF3**	**HT8GBYABF3**	**HT8GBYF1Q1F3**
		Blue	**HT8GBBF3**	**HT8GBBAF3**	**HT8GBBBF3**	**HT8GBBABF3**	**HT8GBBF1Q1F3**
Transformer	120 Vac	No lens ①	**HT8GBT1**	—	—	—	—
		Red	**HT8GBRL1**	**HT8GBRAL1**	**HT8GBRBL1**	**HT8GBRABL1**	**HT8GBRF1Q1L1**
		Green	**HT8GBGL1**	**HT8GBGAL1**	**HT8GBGBL1**	**HT8GBGABL1**	**HT8GBGF1Q1L1**
		Amber	**HT8GBAL1**	**HT8GBAAL1**	**HT8GBABL1**	**HT8GBAABL1**	**HT8GBAF1Q1L1**
		Clear	**HT8GBCL1**	**HT8GBCAL1**	**HT8GBCBL1**	**HT8GBCABL1**	**HT8GBCF1Q1L1**
		White	**HT8GBWL1**	**HT8GBWAL1**	**HT8GBWBL1**	**HT8GBWABL1**	**HT8GBWF1Q1L1**
		Yellow	**HT8GBYL1**	**HT8GBYAL1**	**HT8GBYBL1**	**HT8GBYABL1**	**HT8GBYF1Q1L1**
		Blue	**HT8GBBL1**	**HT8GBBAL1**	**HT8GBBBL1**	**HT8GBBABL1**	**HT8GBBF1Q1L1**

Note

① Light unit base operator without lens or bulb.

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Guarded Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- Incandescent or LED
- Full voltage or transformer type
- 24V and 120V

Guarded Illuminated Pushbutton Operator

Guarded Illuminated Pushbuttons

Type	Volts	Lens Color	Operator Only Catalog Number	1NO Catalog Number	1NC Catalog Number	1NO-1NC Catalog Number	2NO-2NC Catalog Number
Incandescent Lamp							
Full voltage	120 Vac/Vdc	No lens ①	**HT8GDFV**	—	—	—	—
		Red	**HT8GDRV7**	**HT8GDRAV7**	**HT8GDRBV7**	**HT8GDRABV7**	**HT8GDRF1Q1V7**
		Green	**HT8GDGV7**	**HT8GDGAV7**	**HT8GDGBV7**	**HT8GDGABV7**	**HT8GDGF1Q1V7**
		Amber	**HT8GDAV7**	**HT8GDAAV7**	**HT8GDABV7**	**HT8GDAABV7**	**HT8GDAF1Q1V7**
		Clear	**HT8GDCV7**	**HT8GDVAV7**	**HT8GDCBV7**	**HT8GDCABV7**	**HT8GDCF1Q1V7**
		White	**HT8GDWV7**	**HT8GDWAV7**	**HT8GDWBV7**	**HT8GDWABV7**	**HT8GDWF1Q1V7**
		Yellow	**HT8GDYV7**	**HT8GDYAV7**	**HT8GDYBV7**	**HT8GDYABV7**	**HT8GDYF1Q1V7**
		Blue	**HT8GDBV7**	**HT8GDBAV7**	**HT8GDBBV7**	**HT8GDBABV7**	**HT8GDBF1Q1V7**
	24 Vac/Vdc	No lens ①	**HT8GDFV**	—	—	—	—
		Red	**HT8GDRV3**	**HT8GDRAV3**	**HT8GDRBV3**	**HT8GDRABV3**	**HT8GDRF1Q1V3**
		Green	**HT8GDGV3**	**HT8GDGAV3**	**HT8GDGBV3**	**HT8GDGABV3**	**HT8GDGF1Q1V3**
		Amber	**HT8GDAV3**	**HT8GDAAV3**	**HT8GDABV3**	**HT8GDAABV3**	**HT8GDAF1Q1V3**
		Clear	**HT8GDCV3**	**HT8GDVAV3**	**HT8GDCBV3**	**HT8GDCABV3**	**HT8GDCF1Q1V3**
		White	**HT8GDWV3**	**HT8GDWAV3**	**HT8GDWBV3**	**HT8GDWABV3**	**HT8GDWF1Q1V3**
		Yellow	**HT8GDYV3**	**HT8GDYAV3**	**HT8GDYBV3**	**HT8GDYABV3**	**HT8GDYF1Q1V3**
		Blue	**HT8GDBV3**	**HT8GDBAV3**	**HT8GDBBV3**	**HT8GDBABV3**	**HT8GDBF1Q1V3**
Transformer	120 Vac	No lens ①	**HT8GDT1**	—	—	—	—
		Red	**HT8GDRT1**	**HT8GDRAT1**	**HT8GDRBT1**	**HT8GDRABT1**	**HT8GDRF1Q1T1**
		Green	**HT8GDGT1**	**HT8GDGAT1**	**HT8GDGBT1**	**HT8GDGABT1**	**HT8GDGF1Q1T1**
		Amber	**HT8GDAT1**	**HT8GDAAT1**	**HT8GDABT1**	**HT8GDAABT1**	**HT8GDAF1Q1T1**
		Clear	**HT8GDCT1**	**HT8GDCAT1**	**HT8GDCBT1**	**HT8GDCABT1**	**HT8GDCF1Q1T1**
		White	**HT8GDWT1**	**HT8GDWAT1**	**HT8GDWBT1**	**HT8GDWABT1**	**HT8GDWF1Q1T1**
		Yellow	**HT8GDYT1**	**HT8GDYAT1**	**HT8GDYBT1**	**HT8GDYABT1**	**HT8GDYF1Q1T1**
		Blue	**HT8GDBT1**	**HT8GDBAT1**	**HT8GDBBT1**	**HT8GDBABT1**	**HT8GDBF1Q1T1**

Note

① Light unit base operator without lens or bulb.

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

Guarded Illuminated Pushbutton Operator

Guarded Illuminated Pushbuttons, continued

Type	Volts	Lens Color	Operator Only Catalog Number	1NO Catalog Number	1NC Catalog Number	1NO-1NC Catalog Number	2NO-2NC Catalog Number
LED							
Full voltage	120 Vac/Vdc	No lens ①	**HT8GDFV**	—	—	—	—
		Red	**HT8GDRF7**	**HT8GDRAF7**	**HT8GDRBF7**	**HT8GDRABF7**	**HT8GDRF1Q1F7**
		Green	**HT8GDGF7**	**HT8GDGAF7**	**HT8GDGBF7**	**HT8GDGABF7**	**HT8GDGF1Q1F7**
		Amber	**HT8GDAF7**	**HT8GDAAF7**	**HT8GDABF7**	**HT8GDAABF7**	**HT8GDAF1Q1F7**
		Clear	**HT8GDCF7**	**HT8GDCAF7**	**HT8GDCBF7**	**HT8GDCABF7**	**HT8GDCF1Q1F7**
		White	**HT8GDWF7**	**HT8GDWAF7**	**HT8GDWBF7**	**HT8GDWABF7**	**HT8GDWF1Q1F7**
		Yellow	**HT8GDYF7**	**HT8GDYAF7**	**HT8GDYBF7**	**HT8GDYABF7**	**HT8GDYF1Q1F7**
		Blue	**HT8GDBF7**	**HT8GDBAF7**	**HT8GDBBF7**	**HT8GDBABF7**	**HT8GDBF1Q1F7**
	24 Vac/Vdc	No lens ①	**HT8GDFV**	—	—	—	—
		Red	**HT8GDRF3**	**HT8GDRAF3**	**HT8GDRBF3**	**HT8GDRABF3**	**HT8GDRF1Q1F3**
		Green	**HT8GDGF3**	**HT8GDGAF3**	**HT8GDGBF3**	**HT8GDGABF3**	**HT8GDGF1Q1F3**
		Amber	**HT8GDAF3**	**HT8GDAAF3**	**HT8GDABF3**	**HT8GDAABF3**	**HT8GDAF1Q1F3**
		Clear	**HT8GDCF3**	**HT8GDCAF3**	**HT8GDCBF3**	**HT8GDCABF3**	**HT8GDCF1Q1F3**
		White	**HT8GDWF3**	**HT8GDWAF3**	**HT8GDWBF3**	**HT8GDWABF3**	**HT8GDWF1Q1F3**
		Yellow	**HT8GDYF3**	**HT8GDYAF3**	**HT8GDYBF3**	**HT8GDYABF3**	**HT8GDYF1Q1F3**
		Blue	**HT8GDBF3**	**HT8GDBAF3**	**HT8GDBBF3**	**HT8GDBABF3**	**HT8GDBF1Q1F3**
Transformer	120 Vac	No lens ①	**HT8GDT1**	—	—	—	—
		Red	**HT8GDRL1**	**HT8GDRAL1**	**HT8GDRBL1**	**HT8GDRABL1**	**HT8GDRF1Q1L1**
		Green	**HT8GDGL1**	**HT8GDGAL1**	**HT8GDGBL1**	**HT8GDGABL1**	**HT8GDGF1Q1L1**
		Amber	**HT8GDAL1**	**HT8GDAAL1**	**HT8GDABL1**	**HT8GDAABL1**	**HT8GDAF1Q1L1**
		Clear	**HT8GDCL1**	**HT8GDCAL1**	**HT8GDCBL1**	**HT8GDCABL1**	**HT8GDCF1Q1L1**
		White	**HT8GDWL1**	**HT8GDWAL1**	**HT8GDWBL1**	**HT8GDWABL1**	**HT8GDWF1Q1L1**
		Yellow	**HT8GDYL1**	**HT8GDYAL1**	**HT8GDYBL1**	**HT8GDYABL1**	**HT8GDYF1Q1L1**
		Blue	**HT8GDBL1**	**HT8GDBAL1**	**HT8GDBBL1**	**HT8GDBABL1**	**HT8GDBF1Q1L1**

Note

① Light unit base operator without lens or bulb.

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Indicating Light Units

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- Incandescent or LED
- Full voltage or transformer type
- Standard and PresTest types
- 24V and 120V

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.

Indicating Light Unit

PresTest Light Unit

Indicating Light Units

Type	Volts	Lens Color	Indicating Light Catalog Number	PresTest Catalog Number
Incandescent				
Full voltage	120 Vac/Vdc	No lens ①	**HT8HFFV**	**HT8GTFV**
		Red	**HT8HFRV7**	**HT8GTRV7**
		Green	**HT8HFGV7**	**HT8GTGV7**
		Amber	**HT8HFAV7**	**HT8GTAV7**
		Clear	**HT8HFCV7**	**HT8GTCV7**
		White	**HT8HFWV7**	**HT8GTWV7**
		Yellow	**HT8HFYV7**	**HT8GTYV7**
		Blue	**HT8HFBV7**	**HT8GTBV7**
	24 Vac/Vdc	No lens ①	**HT8HFFV**	**HT8GTFV**
		Red	**HT8HFRV3**	**HT8GTRV3**
		Green	**HT8HFGV3**	**HT8GTGV3**
		Amber	**HT8HFAV3**	**HT8GTAV3**
		Clear	**HT8HFCV3**	**HT8GTCV3**
		White	**HT8HFWV3**	**HT8GTWV3**
		Yellow	**HT8HFYV3**	**HT8GTYV3**
		Blue	**HT8HFBV3**	**HT8GTBV3**
Transformer	120 Vac 50/60 Hz	No lens ①	**HT8HBT1**	**HT8GTT1**
		Red	**HT8HBRT1**	**HT8GTRT1**
		Green	**HT8HBGT1**	**HT8GTGT1**
		Amber	**HT8HBAT1**	**HT8GTAT1**
		Clear	**HT8HBCT1**	**HT8GTCT1**
		White	**HT8HBWT1**	**HT8GTWT1**
		Yellow	**HT8HBYT1**	**HT8GTYT1**
		Blue	**HT8HBBT1**	**HT8GTBT1**

Note

① Light unit base operator without lens or bulb.

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

Indicating Light Unit

PresTest Light Unit

Indicating Light Units, continued

Type	Volts	Lens Color	Indicating Light Catalog Number	PresTest Catalog Number
LED				
Full voltage	120 Vac/Vdc	No lens ①	**HT8HFFV**	**HT8GTFV**
		Red	**HT8HFRF7**	**HT8GTRF7**
		Green	**HT8HFGF7**	**HT8GTGF7**
		Amber	**HT8HFAF7**	**HT8GTAF7**
		Clear	**HT8HFCF7**	**HT8GTCF7**
		White	**HT8HFWF7**	**HT8GTWF7**
		Yellow	**HT8HFYF7**	**HT8GTYF7**
		Blue	**HT8HFBF7**	**HT8GTBF7**
	24 Vac/Vdc	No lens ①	**HT8HFFV**	**HT8GTFV**
		Red	**HT8HFRF3**	**HT8GTRF3**
		Green	**HT8HFGF3**	**HT8GTGF3**
		Amber	**HT8HFAF3**	**HT8GTAF3**
		Clear	**HT8HFCF3**	**HT8GTCF3**
		White	**HT8HFWF3**	**HT8GTWF3**
		Yellow	**HT8HFYF3**	**HT8GTYF3**
		Blue	**HT8HFBF3**	**HT8GTBF3**
Transformer	120 Vac 50/60 Hz	No lens ①	**HT8HBT1**	**HT8GTT1**
		Red	**HT8HBRL1**	**HT8GTRL1**
		Green	**HT8HBGL1**	**HT8GTGL1**
		Amber	**HT8HBAL1**	**HT8GTAL1**
		Clear	**HT8HBCL1**	**HT8GTCL1**
		White	**HT8HBWL1**	**HT8GTWL1**
		Yellow	**HT8HBYL1**	**HT8GTYL1**
		Blue	**HT8HBBL1**	**HT8GTBL1**

Note

① Light unit base operator without lens or bulb.

1

Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- 40 mm mushroom head
- Two-position maintained
- Non-illuminated

Round Head Two-Position Push-Pull Unit

Flat Head Two-Position Push-Pull Unit

Two-Position Push-Pull, Maintained, Non-Illuminated

	Operator Position—Maintained				
				Round Head Mushroom Head Button	Flat Head Mushroom Head Button
Contact Type	Out	In	Button Color	Catalog Number	Catalog Number
No contact	—	—	Black	**HT8CBH**	**HT8DBH**
			Red	**HT8CBR**	**HT8DBR**
			Green	**HT8CBG**	**HT8DBG**
NO	0	X	Black	**HT8CBHA**	**HT8DBHA**
			Red	**HT8CBRA**	**HT8DBRA**
			Green	**HT8CBGA**	**HT8DBGA**
NC	X	0	Black	**HT8CBHB**	**HT8DBHB**
			Red	**HT8CBRB**	**HT8DBRB**
			Green	**HT8CBGB**	**HT8DBGB**
NO-NC	0 X	X 0	Black	**HT8CBHAB**	**HT8DBHAB**
			Red	**HT8CBRAB**	**HT8DBRAB**
			Green	**HT8CBGAB**	**HT8DBGAB**
NCLB ①	X	0	Black	**HT8CBHD1B**	**HT8DBHD1B**
NC	X	0	Red	**HT8CBRD1B**	**HT8DBRD1B**
			Green	**HT8CBGD1B**	**HT8DBGD1B**
NCLB ①	X	0	Black	**HT8CBHD1D**	**HT8DBHD1D**
NCLB ①	X	0	Red	**HT8CBRD1D**	**HT8DBRD1D**
			Green	**HT8CBGD1D**	**HT8DBGD1D**

Note

① NCLB = normally closed late break.

Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- Incandescent or LED
- Full voltage or transformer type
- 24V and 120V

Illuminated Push-Pull Unit

Illuminated Push-Pull Units

Type	Volts	Lens Color	Operator Only Catalog Number	1NO Catalog Number	1NC Catalog Number	1NO-1NC Catalog Number	2NCLB Catalog Number
Incandescent Lamp							
Full voltage	120 Vac/Vdc	Red	**HT8FBRV7**	**HT8FBRAV7**	**HT8FBRBV7**	**HT8FBRABV7**	**HT8FBRD1DV7**
		Green	**HT8FBGV7**	**HT8FBGAV7**	**HT8FBGBV7**	**HT8FBGABV7**	**HT8FBGD1DV7**
	24 Vac/Vdc	Red	**HT8FBRV3**	**HT8FBRAV3**	**HT8FBRBV3**	**HT8FBRABV3**	**HT8FBRD1DV3**
		Green	**HT8FBGV3**	**HT8FBGAV3**	**HT8FBGBV3**	**HT8FBGABV3**	**HT8FBGD1DV3**
Transformer	120 Vac	Red	**HT8FBRT1**	**HT8FBRAT1**	**HT8FBRBT1**	**HT8FBRABT1**	**HT8FBRD1DT1**
		Green	**HT8FBGT1**	**HT8FBGAT1**	**HT8FBGBT1**	**HT8FBGABT1**	**HT8FBGD1DT1**
LED Lamp							
Full voltage	120 Vac/Vdc	Red	**HT8FBRF7**	**HT8FBRAF7**	**HT8FBRBF7**	**HT8FBRABF7**	**HT8FBRD1DF7**
		Green	**HT8FBGF7**	**HT8FBGAF7**	**HT8FBGBF7**	**HT8FBGABF7**	**HT8FBGD1DF7**
	24 Vac/Vdc	Red	**HT8FBRF3**	**HT8FBRAF3**	**HT8FBRBF3**	**HT8FBRABF3**	**HT8FBRD1DF3**
		Green	**HT8FBGF3**	**HT8FBGAF3**	**HT8FBGBF3**	**HT8FBGABF3**	**HT8FBGD1DF3**
Transformer	120 Vac	Red	**HT8FBRL1**	**HT8FBRAL1**	**HT8FBRBL1**	**HT8FBRABL1**	**HT8FBRD1DL1**
		Green	**HT8FBGL1**	**HT8FBGAL1**	**HT8FBGBL1**	**HT8FBGABL1**	**HT8FBGD1DL1**

Note: Complete illuminated push-pull switches will not fit in a standard 3 in deep enclosure.

Illuminated Push-Pull Units with Low Profile Light Units

Type	Voltage	Color	Fingersafe	Operator Only Catalog Number	1NO Catalog Number	1NC Catalog Number	1NO-1NC Catalog Number	2NCLB Catalog Number	1NO-1NCLB Catalog Number
LED Lamp									
Full voltage	120 Vac/Vdc	Red	Yes	**HT8FBRFL7P**	**HT8FBRAFL7P**	**HT8FBRBFL7P**	**HT8FBRABFL7P**	**HT8FBRD1DFL7P**	**HT8FBRD1BFL7P**
		Red	No	**HT8FBRFL7**	**HT8FBRAFL7**	**HT8FBRBFL7**	**HT8FBRABFL7**	**HT8FBRD1DFL7**	**HT8FBRD1BFL7**
	24 Vac/Vdc	Red	Yes	**HT8FBRFL3P**	**HT8FBRAFL3P**	**HT8FBRBFL3P**	**HT8FBRABFL3P**	**HT8FBRD1DFL3P**	**HT8FBRD1BFL3P**
		Red	No	**HT8FBRFL3**	**HT8FBRAFL3**	**HT8FBRBFL3**	**HT8FBRABFL3**	**HT8FBRD1DFL3**	**HT8FBRD1BFL3**
Incandescent									
Full voltage	120 Vac/Vdc	Red	Yes	**HT8FBRVL7P**	**HT8FBRAVL7P**	**HT8FBRBVL7P**	**HT8FBRABVL7P**	**HT8FBRD1DVL7P**	**HT8FBRD1BVL7P**
		Red	No	**HT8FBRVL7**	**HT8FBRAVL7**	**HT8FBRBVL7**	**HT8FBRABVL7**	**HT8FBRD1DVL7**	**HT8FBRD1BVL7**
	24 Vac/Vdc	Red	Yes	**HT8FBRVL3P**	**HT8FBRAVL3P**	**HT8FBRBVL3P**	**HT8FBRABVL3P**	**HT8FBRD1DVL3P**	**HT8FBRD1BVL3P**
		Red	No	**HT8FBRVL3**	**HT8FBRAVL3**	**HT8FBRBVL3**	**HT8FBRABVL3**	**HT8FBRD1DVL3**	**HT8FBRD1BVL3**

1

Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

- Two-, three- and four-position
- Non-illuminated

Standard Knob Operator

Standard Lever Operator

Two-Position Selector Switch Units, Non-Illuminated

Contact Type	Operator Position ①		Operating Mode ②		Standard Black Knob Catalog Number	Standard Black Lever Catalog Number
No contacts	—	—	M	M	**HT8JAH3A**	**HT8JDH3A**
			S	M	**HT8JKH3A**	**HT8JLH3A**
			M	S	**HT8JNH3A**	**HT8JPH3A**
1NO	0	X	M	M	**HT8JAH3AA5**	**HT8JDH3AA5**
			S	M	**HT8JKH3AA5**	**HT8JLH3AA5**
			M	S	**HT8JNH3AA5**	**HT8JPH3AA5**
2NO	X 0	0 X	M	M	**HT8JAH3AAA5**	**HT8JDH3AAA5**
			S	M	**HT8JKH3AAA5**	**HT8JLH3AAA5**
			M	S	**HT8JNH3AAA5**	**HT8JPH3AAA5**
2NO-2NC	X 0 0 X	0 X X 0	M	M	**HT8JAH3AF1Q1**	**HT8JDH3AF1Q1**
			S	M	**HT8JKH3AF1Q1**	**HT8JLH3AF1Q1**
			M	S	**HT8JNH3AF1Q1**	**HT8JPH3AF1Q1**

Standard Knob Operator

Standard Lever Operator

Three-Position Selector Switch Units, Non-Illuminated

Contact Type	Operator Position ①			Operating Mode ②			Standard Black Knob Catalog Number	Standard Black Lever Catalog Number
No contacts	—	—	—	M	M	M	**HT8JBH1D**	**HT8JEH1D**
				S	M	M	**HT8JRH1D**	**HT8JSH1D**
				M	M	S	**HT8JUH1D**	**HT8JVH1D**
				S	M	S	**HT8JXH1D**	**HT8JYH1D**
2NO	X 0	0 0	0 X	M	M	M	**HT8JBH1DAA5**	**HT8JEH1DAA5**
				S	M	M	**HT8JRH1DAA5**	**HT8JSH1DAA5**
				M	M	S	**HT8JUH1DAA5**	**HT8JVH1DAA5**
				S	M	S	**HT8JXH1DAA5**	**HT8JYH1DAA5**
2NO-2NC ③	X 0 0	0 X 0	0 0 X	M	M	M	**HT8JBH1DF1Q1**	**HT8JEH1DF1Q1**
				S	M	M	**HT8JRH1DF1Q1**	**HT8JSH1DF1Q1**
				M	M	S	**HT8JUH1DF1Q1**	**HT8JVH1DF1Q1**
				S	M	S	**HT8JXH1DF1Q1**	**HT8JYH1DF1Q1**
2NO-2NC	X 0 0 X	0 X 0 X	0 X X 0	M	M	M	**HT8JBH1DF1Q1**	**HT8JEH1DF1Q1**
				S	M	M	**HT8JRH1DF1Q1**	**HT8JSH1DF1Q1**
				M	M	S	**HT8JUH1DF1Q1**	**HT8JVH1DF1Q1**
				S	M	S	**HT8JXH1DF1Q1**	**HT8JYH1DF1Q1**

Notes

① X = closed circuit, 0 = open circuit.

② M = Maintained, S = Momentary.

③ For 0X0, NC contacts must be wired in series—see Three-Position Selector Switch table on **Page V7-T1-332**.

UL (NEMA) Type 3, 3R, 4, 4X, 12 and 13

Standard Knob Operator

Standard Lever Operator

Four-Position Selector Switch Units, Non-Illuminated

Contact Type	Operator Position ①				Operating Mode ②				Standard Black Knob Catalog Number	Standard Black Lever Catalog Number
No contacts	—	—	—	—	M	M	M	M	**HT8JCH8E**	**HT8JFH8E**
					S	M	M	M	**HT8LNH8E**	**HT8LPH8E**
					M	M	M	S	**HT8LRH8E**	**HT8LSH8E**
2NO-2NC	X 0 0 0	0 X 0 0	0 0 X 0	0 0 0 X	M	M	M	M	**HT8JCH8EF1Q1**	**HT8JFH8EF1Q1**
					S	M	M	M	**HT8LNH8EF1Q1**	**HT8LPH8EF1Q1**
					M	M	M	S	**HT8LRH8EF1Q1**	**HT8LSH8EF1Q1**

Notes

① X = closed circuit, 0 = open circuit.

② M = Maintained, S = Momentary.

1

Selector Switch Contact Block Selection

For Two-, Three- and Four-Position Selector Switches

Two-Position Selector Switch (Cam Code 3A)

Operator Position

		Left		Right
X	0	 NO	or	 NC
0	X	 NC	or	 NO

Three-Position Selector Switch (Cam Code 1D)

Operator Position

			Left	Right
X	0	0	 NO	—
0	X	0	 NC	 NC
0	0	X	—	 NO
0	X	X	 NC	—
X	X	0	—	 NC

Four-Position Selector Switch (Cam Code 8E)

Operator Position

				Left	Right
X	0	0	0	 NO	—
0	X	0	0	 NC	—
0	0	X	0	—	 NO
0	0	0	X	—	 NC

Accessories

HT800 Accessories

	Description	Catalog Number
HT8A15 	**Illuminated Pushbutton Guard**	**HT8A15**
HT8WRENCH 	**Wrench Tool**	**HT8WRENCH**
HT8LAMPTOOL 	**Lamp/Bulb Removal Tool**	**HT8LAMPTOOL**
HT8X1 	**Thrust Washer (Anti-rotation)** (Included with every operator)	**HT8X1**
HT8X2 	**Trim Ring** (Included with every operator)	**HT8X2**
HT8X3 	**Sealing/Spacer Washer** (Five included with every operator)	**HT8X3**
HT8GR1 	**Grounding Kit for Pushbuttons and Selector Switches** (Included with every operator)	**HT8GR1**
HT8GR2 	**Grounding Kit for Indicating Lights** (Included with indicating lights)	**HT8GR2**

Light Units

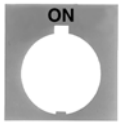
Light Unit	Type	Voltage	Catalog Number
	Full voltage	24 Vac/Vdc	**HT8F3V3**
		120 Vac/Vdc	**HT8F7V8**
	Transformer	120 Vac	**HT8L1T1**

1

Options

Legend Plates ①

Standard

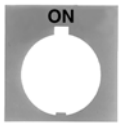


Jumbo

For Pushbutton Operators and Indicating Lights

Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number	Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number
Letters on Legend Plates Below are 3/16 in High							
CLAMP	Black	**HT8SP90**	**HT8LP90**	OFF	Red	**HT8SP24**	**HT8LP24**
CLOSE		**HT8SP73**	**HT8LP73**	ON	Black	**HT8SP25**	**HT8LP25**
DOWN		**HT8SP74**	**HT8LP74**	OPEN		**HT8SP26**	**HT8LP26**
EMERG. STOP		**HT8SP13**	**HT8LP13**	OUT		**HT8SP27**	**HT8LP27**
FAST		**HT8SP75**	**HT8LP75**	POWER ON		**HT8SP80**	**HT8LP80**
FASTER		**HT8SP87**	**HT8LP87**	RAISE		**HT8SP28**	**HT8LP28**
FEEDER ON		**HT8SP94**	**HT8LP94**	READY		**HT8SP86**	**HT8LP86**
FEEDER OFF		**HT8SP95**	**HT8LP95**	RESET		**HT8SP29**	**HT8LP29**
FORWARD		**HT8SP15**	**HT8LP15**	REVERSE		**HT8SP30**	**HT8LP30**
HIGH		**HT8SP16**	**HT8LP16**	RUN		**HT8SP31**	**HT8LP31**
IN		**HT8SP17**	**HT8LP17**	SAFE		**HT8SP85**	**HT8LP85**
INCH		**HT8SP18**	**HT8LP18**	SLOW		**HT8SP32**	**HT8LP32**
JOG		**HT8SP19**	**HT8LP19**	SLOWER		**HT8SP88**	**HT8LP88**
JOG FOR.		**HT8SP20**	**HT8LP20**	START		**HT8SP33**	**HT8LP33**
JOG REV.		**HT8SP21**	**HT8LP21**	STOP	Red	**HT8SP34**	**HT8LP34**
LOW		**HT8SP22**	**HT8LP22**	TEST	Black	**HT8SP83**	**HT8LP83**
LOWER		**HT8SP23**	**HT8LP23**	TRANSFER		**HT8SP93**	**HT8LP93**
LUBE-FAIL		**HT8SP92**	**HT8LP92**	TRIP		**HT8SP84**	**HT8LP84**
MOTOR RUN		**HT8SP81**	**HT8LP81**	UNCLAMP		**HT8SP91**	**HT8LP91**
MOTOR STOP		**HT8SP82**	**HT8LP82**	UP		**HT8SP35**	**HT8LP35**

Standard



Jumbo

For Selector Switch Operators

Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number	Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number
Two-Position—3/16 in High Lettering				**Three-Position—3/16 in High Lettering**			
FOR. REV.	Black	**HT8SP38**	**HT8LP38**	AUTO OFF HAND	Black	**HT8SP49**	**HT8LP49**
HAND AUTO		**HT8SP39**	**HT8LP39**	FOR. OFF REV.		**HT8SP50**	**HT8LP50**
HIGH LOW		**HT8SP40**	**HT8LP40**	FOR. SAFE REV.		**HT8SP69**	**HT8LP69**
JOG RUN		**HT8SP41**	**HT8LP41**	HAND OFF AUTO		**HT8SP51**	**HT8LP51**
MAN. AUTO		**HT8SP67**	**HT8LP67**	MAN. OFF AUTO		**HT8SP68**	**HT8LP68**
OFF ON		**HT8SP42**	**HT8LP42**	OPEN OFF CLOSE		**HT8SP53**	**HT8LP53**
OPEN CLOSE		**HT8SP43**	**HT8LP43**	RUN SAFE JOG		**HT8SP70**	**HT8LP70**
RUN JOG		**HT8SP44**	**HT8LP44**	UP OFF DOWN		**HT8SP54**	**HT8LP54**
SAFE RUN		**HT8SP45**	**HT8LP45**	ON STOP SAFE		**HT8SP71**	**HT8LP71**
START JOG		**HT8SP46**	**HT8LP46**				
START STOP		**HT8SP47**	**HT8LP47**				
UP DOWN		**HT8SP48**	**HT8LP48**				

For Push-Pull Units

Legend	Color of Field	Standard ② Catalog Number	Jumbo ③ Catalog Number
ON/OFF	Black	**HT8PP5**	**HT8R5**
OPEN/CLOSE		**HT8PP8**	**HT8R8**
UP/DOWN		**HT8PP11**	**HT8R11**

Blank Plastic Legend Plates—Square

Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number
Black	White/Silver	**HT8SP76**	**HT8LP76**
White	Red/ Black	**HT8SP77**	**HT8LP77**

Notes

① For dimensions, see **Page V7-T1-342**.
② 3/32 in high lettering.
③ 1/8 in high lettering.

Legend Plates with Non-Standard Markings

When Ordering Specify

- Catalog number of blank plate.
- Insert the following into Order Notes: legend, letter size and locations. See information below.

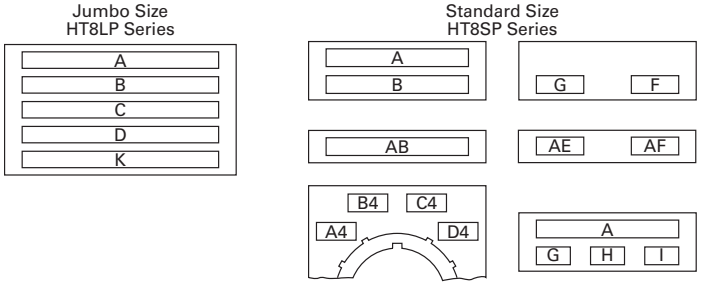
Ordering Example:

Catalog no.: **HT85P76STAMP**
Letter size: 3/32 in (2.4 mm)
Pos. A—POWER HOUSE
Pos. B—START PUMP 1

Legend Characters Available

A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z / - . , 1
2 3 4 5 6 7 8 9 0

Legend Positions



Blank Plastic Legend Plates for Non-Standard Markings—Plastic

Legend	Color of Field	Standard Catalog Number	Jumbo Catalog Number
Black	White/Silver	**HT8SP76STAMP**	**HT8LP76STAMP**
White	Red/Black	**HT8SP77STAMP**	**HT8LP77STAMP**

Maximum Characters per Legend Plate and Approximate Dimensions

Top (Aluminum and Plastic)	Style	Character Size 3/32 in High Number of Lines	3/32 in High Number of Characters	1/8 in High Number of Lines	1/8 in High Number of Characters	3/16 in High Number of Lines	3/16 in High Number of Characters
Standard	Square	2	18	2	13	1	9
Jumbo ①	Square	5	23	3	18	2	12

Note

① Can be used on top row only of any enclosure.

1

Contact Blocks

NO Contact Block

NC Contact Block

Contact Blocks ①②

Description/Function	Contact Type	Without Guard Catalog Number	Fingerproof Catalog Number
Standard normally open contact	NO	**HT8A**	**HT8AP**
Standard normally closed contact	NC	**HT8B**	**HT8BP**
Normally open early make contact will make circuit before standard NO contact. DC ratings do not apply.	NOEM	**HT8C**	**HT8CP**
Normally closed late break contact will open after standard NC contact. DC ratings do not apply.	NCLB	**HT8D**	**HT8DP**
Logic level, low voltage NO contact. Gold plated contacts.	NO	**HT8E**	**HT8EP**

Contact Block Location (Viewed from Rear) Suffix Codes ③④

Left Side	Right Side
A = NO	**A5** = NO
A2 = 2NO	**A6** = 2NO
B1 = NC	**B** = NC
B2 = 2NC	**B6** = 2NC
C = NOEM	**C5** = NOEM
C2 = 2 NOEM	**C6** = 2 NOEM
D1 = NCLB	**D** = NCLB
D2 = 2 NCLB	**D6** = 2 NCLB
E1 = NOEM-NCLB	**E5** = NOEM-NCLB
F1 = NO and NC	**Q1** = NO and NC
F4 = 1NO-1NC	

Notes

① See **Page V7-T1-338** for contact block electrical ratings.
② Maximum of four contact blocks per side or a total of eight contact blocks recommended.
③ Maximum of two contact blocks per side or a total of four contact blocks recommended.
④ Standard contact blocks without fingerproof protection.

Replacement Parts

Replacement Bulbs and LEDs

Incandescent Bulb

LED Bulb

Voltage	Color	Catalog Number
Incandescent		
6V	—	**HT8BULBV1**
24V	—	**HT8BULBV3**
120V	—	**HT8BULBV7**
LED		
6–12V (For use with transformers with 6V secondary winding)	Red	**HT8LEDRF1**
	Green	**HT8LEDGF1**
	Amber/orange	**HT8LEDAF1**
	White/clear	**HT8LEDWF1**
	Yellow	**HT8LEDYF1**
	Blue	**HT8LEDBF1**
24V	Red	**HT8LEDRF3**
	Green	**HT8LEDGF3**
	Amber/orange	**HT8LEDAF3**
	White/clear	**HT8LEDWF3**
	Yellow	**HT8LEDYF3**
	Blue	**HT8LEDBF3**
120V	Red	**HT8LEDRF7**
	Green	**HT8LEDGF7**
	Amber/orange	**HT8LEDAF7**
	White/clear	**HT8LEDWF7**
	Yellow	**HT8LEDYF7**
	Blue	**HT8LEDBF7**

Replacement Lenses

Color	Indicating Lights Catalog Number	PresTest Lights Illuminated Pushbuttons Catalog Number
Amber	**HT8LA**	**HT8BA**
Blue	**HT8LB**	**HT8BB**
Clear	**HT8LC**	**HT8BC**
Green	**HT8LG**	**HT8BG**
Red	**HT8LR**	**HT8BR**
White	**HT8LW**	**HT8BW**
Yellow	**HT8LY**	**HT8BY**

1

Technical Data and Specifications

HT800—Specifications

Description	Specification
Mechanical Ratings	
Frequency of operation	
Pushbuttons	6,000 operations per hour
Selector switches	3,000 operations per hour
Push-pull operators	3,000 operations per hour
Mechanical endurance/life	
Pushbuttons	10 x 10^6 operations 6K ops/hr with 6 NO on left and 6 NC on right
Selector switches	250 x 10^3 operations 3K ops/hr with 2 NO on left and 2 NC on right
Push-pull operators	250 x 10^3 operations 3K ops/hr with 6 NO on left and 6 NC on right
Climatic Conditions	
Operating temperature	10° to 140°F (–12° to 60°C)
Storage temperature	–40° to 176°F (–40° to 80°C)
Altitude	6,562 ft (2,000m)
Humidity	95% RH at 60°C
Terminals	
Contact blocks	#6-32 posidrive saddle clamp type, 1 x 16 AWG to 2 x 14 AWG, 12 in-lbs max.
Light units	#6-32 posidrive saddle clamp type, 1 x 22 AWG to 2 x 14 AWG, 7 in-lbs max.
Electrical Ratings	
Standard contact blocks UL (NEMA) rating	See table below.
Logic level contact block power rating	5V 1 mA (minimum) 28V 500 mA (maximum)

Electrical Ratings—HT800 Standard Contact Blocks, UL Rating

Description/Function	Contact Type	AC	DC	Catalog Number
Standard normally open contact	NO	A600 ①	P600 ②	**HT8A**
Standard normally closed contact	NC	A600 ①	P600 ②	**HT8B**
Normally open early make contact will make circuit before standard NO contact. DC ratings do not apply.	NOEM	A600 ①	—	**HT8C**
Normally closed late break contact will open after standard NC contact. DC ratings do not apply.	NCLB	A600 ①	—	**HT8D**
Logic level, low voltage NO contact. Gold plated contacts.	NO	5V 1 mA (minimum) 28V 500 mA (maximum)		**HT8E**

UL A600 and P600 Ratings

	50 Vac or 60 Hz				Vdc ③		
Description	**120**	**240**	**480**	**600**	**125**	**250**	**600**
Make and emerg. interrupting capacity (amp)	60	30	15	12	1.1	0.55	0.2
Normal load break (amp)	6	3	1.5	1.2	1.1	0.55	0.2
Thermal current (amp)	10	10	10	10	5	5	5
Voltamperes:							
Make and emerg. interrupting capacity	7200	7200	7200	7200	138 ④	138 ④	138 ④
Normal load break	720	720	720	720	138	138	138

Notes

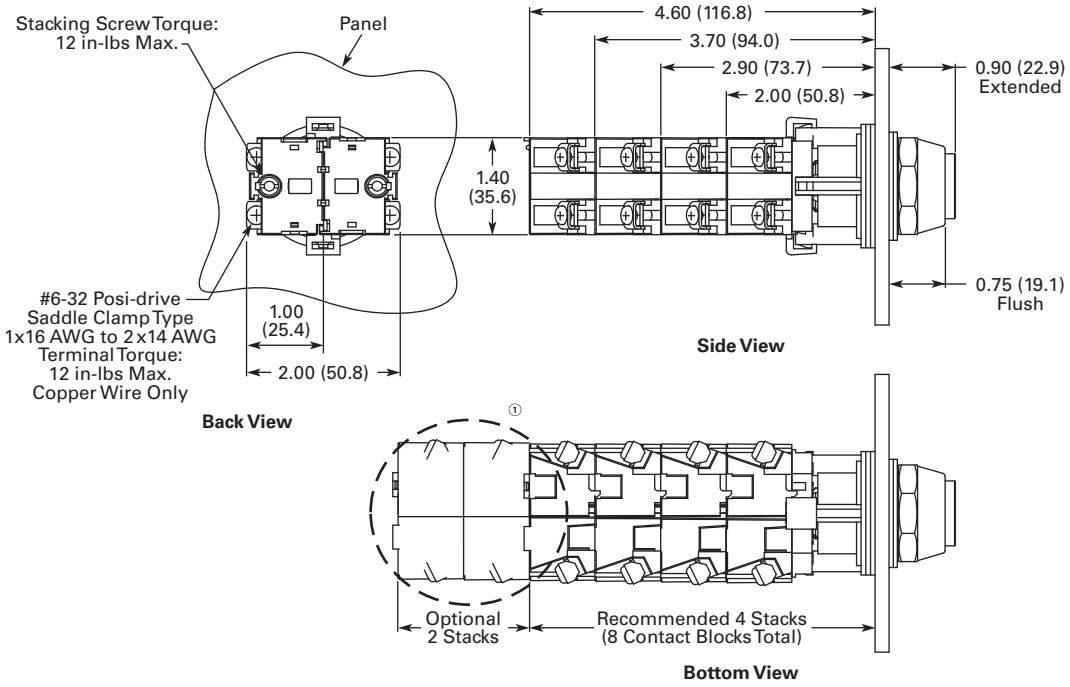
① Heavy-duty.
② Standard-duty.
③ DC ratings do not apply to NOEM (Normally Open Early Make) and NCLB (Normal Closed Late Break) contact blocks HT8C and HT8D.
④ Maximum make or break volt-amperes at 300V or less.

Dimensions

Approximate Dimensions in Inches (mm)

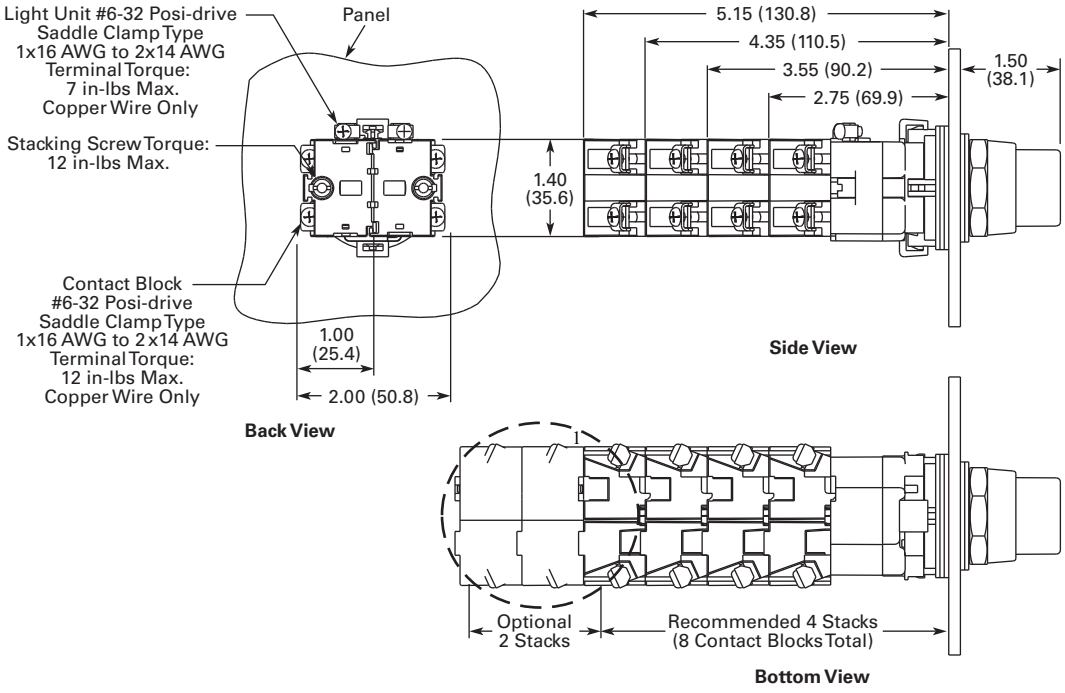
Momentary Pushbuttons—Non-Illuminated

Back, side and bottom views of pushbutton operator with attached contact blocks.



Illuminated Pushbuttons

Back, side and bottom views of pushbutton operator with attached contact blocks.



Note

① Recommended maximum of four tandem stacks of contact blocks behind operator. At users' discretion, two additional tandem stacks may be added.

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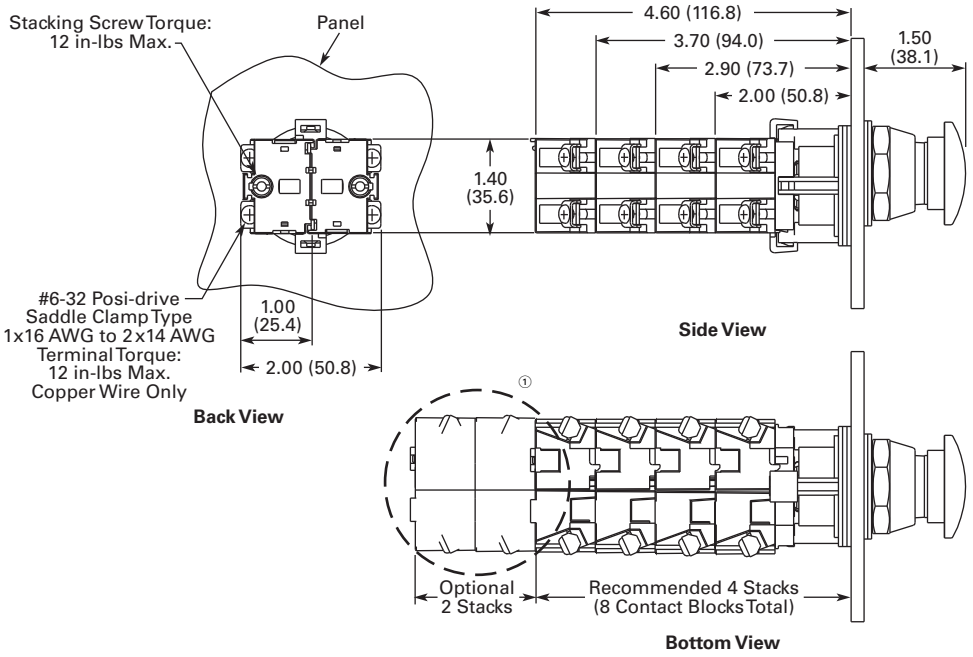
Approximate Dimensions in Inches (mm)

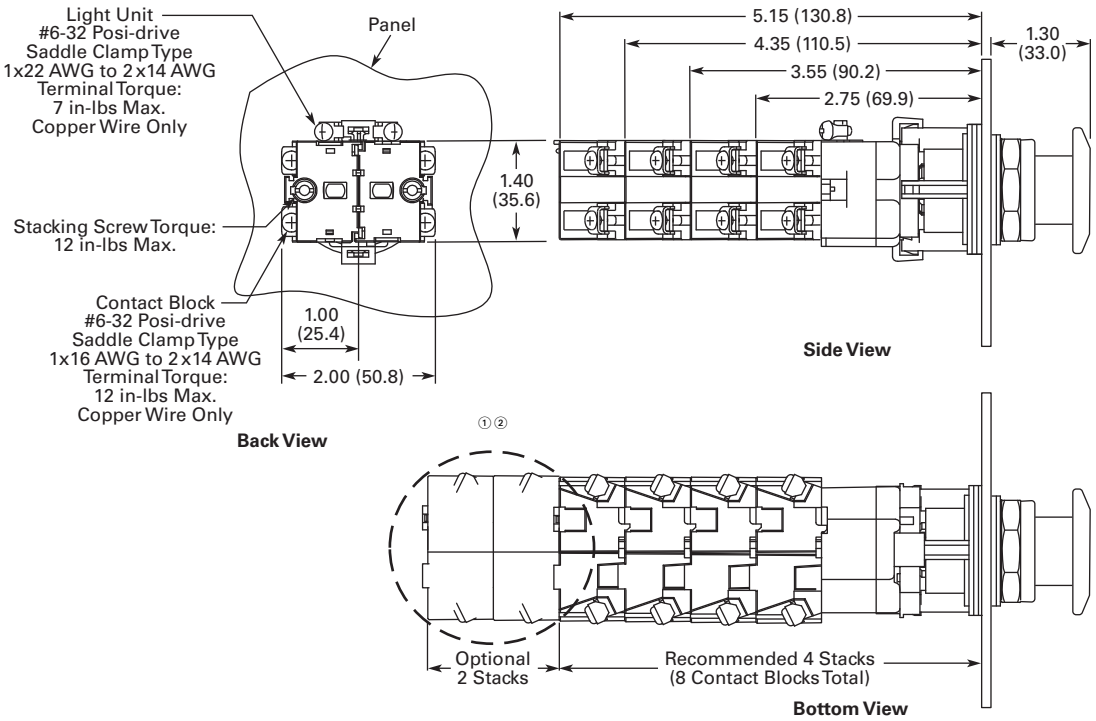
Mushroom Head Pushbuttons and Round Head MRH Push-Pull Operators

Back, side and bottom views of mushroom head operator with attached contact blocks.



Illuminated and Non-Illuminated Flat Head MRH Push-Pull Operators

Back, side and bottom views of push-pull operator with attached contact blocks.



Notes

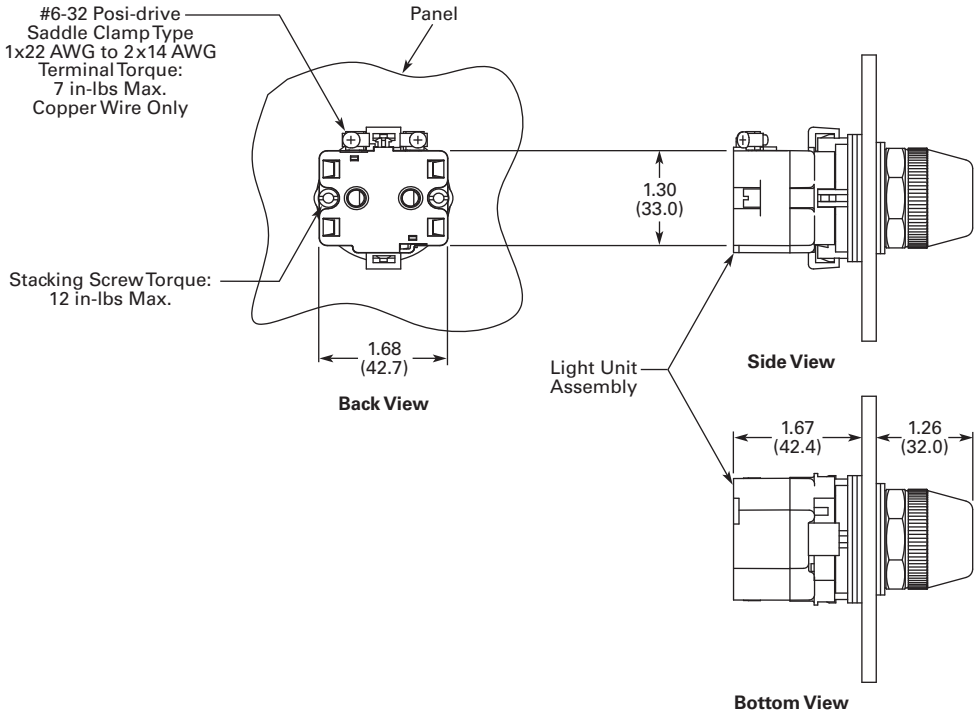
① Recommended maximum of four tandem stacks of contact blocks behind operator. At users' discretion, two additional tandem stacks may be added.

② Contact blocks mount directly to operator adaptor in non-illuminated version.

Approximate Dimensions in Inches (mm)

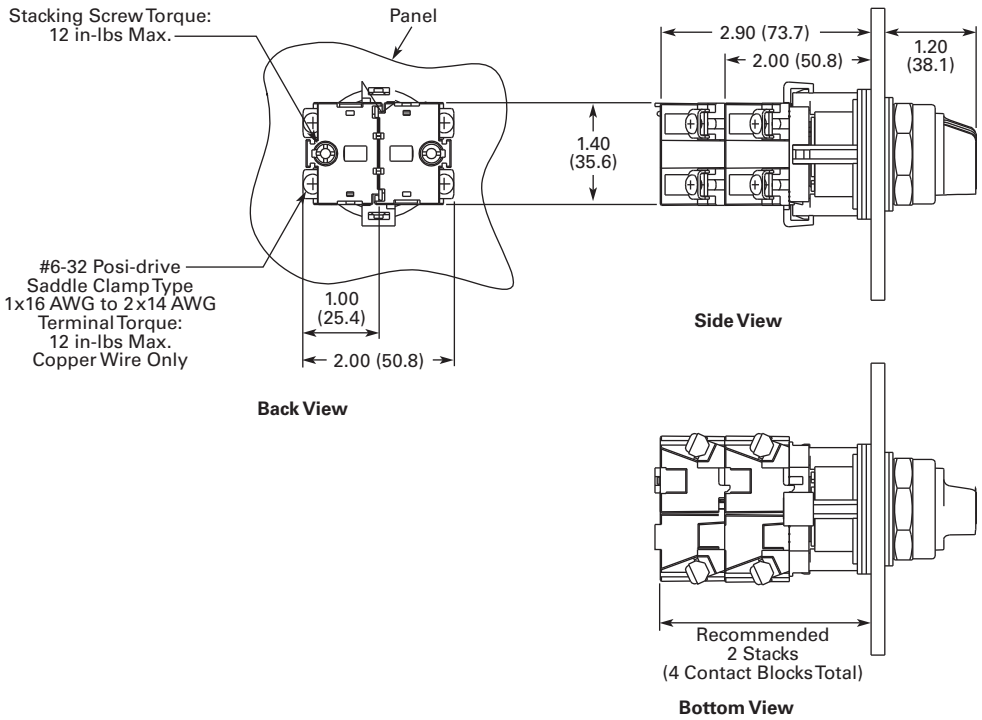
Indicating Lights

Back, side and bottom views of indicating light operator with attached contact blocks.



Selector Switches

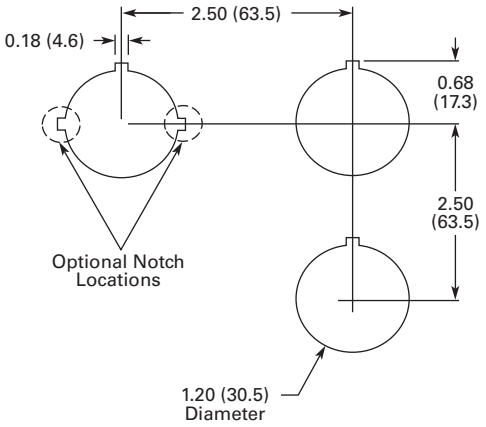
Back, side and bottom views of selector switch operator with attached contact blocks.



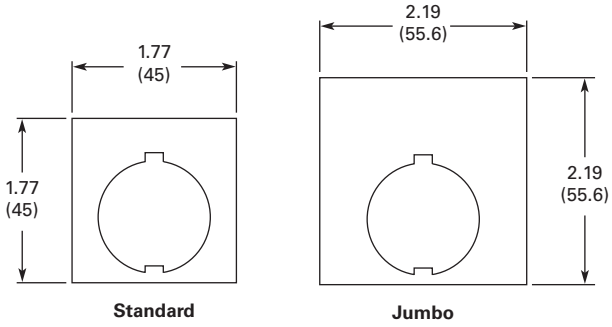
1

Approximate Dimensions in Inches (mm)

Mounting Matrix and Minimum Panel Spacing Requirements



Legend Plates



Contents

Product Description

All the Industry-Proven Quality of Eaton's 10250T and E34 Series of Logic Devices, plus Class I Division 2 Certification

The **10250T1H** consists of a normally open-normally closed factory sealed contact block that is UL Listed for use in Class I, Division 2, Groups B, C and D (NEC 500–503)—Class I, Zone 2, IIB + H2 (NEC 505) hazardous locations and is rated for both NEMA A600 and NEMA Q300. 10250T and E34 illuminated components have also been UL Listed for use in Class I, Division 2, Groups B, C and D (NEC 500–503)—Class I, Zone 2, IIB + H2 (NEC 505).

This, combined with the industry-proven Eaton 10250T 30.5 mm pushbutton line, offers a complete solution to Division 2 hazardous location requirements.

Single composite catalog numbers for complete assembled stations and operators for use in Division 2 hazardous locations are featured throughout this section.

Features

- Factory sealed contact blocks
- Heavy-duty zinc die cast construction
- NEMA rated 1, 2, 3, 3R, 4, 4X, 12, 13
- Front-of-panel drainage holes
- Grounding nibs on the operator casing
- Solid thermosetting cathodic epoxy coating on E34
- Corrosion resistance in E34

Benefits

- Pushbutton for hazardous locations
- Drainage holes prevent buildup of liquid inside the operator which can prevent operation in freezing environments
- Grounding nibs bite through paint and other coatings to provide secure ground
- Suitable for corrosive environments (E34 only)
- Earth terminal provides additional grounding point and allows for daisy chain grounding (E34 line)

Standards and Certifications

- UL 508—File No. E131568
- UL 1604—File No. E10323
- CSA Certified C22.2 No.14—File No. LR 68551
- CSA Certified C22.2 No. 213-M1987—File No. LR 20713

Ingress Protection

- Standard indicating lights
  - UL (NEMA) Type 3, 3R, 3S, 4, 4X, 12, 13
  - IEC IP65
- All other operators
  - UL (NEMA) Type 3, 3R, 4, 4X, 12, 13
  - IEC IP65

1

Product Overview

Operator

The 30.5 mm 10250T pushbutton line features a zinc die cast construction with chrome-plated housing and mounting nut.

Eaton's 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 epoxy coating is not recommended for use in applications where exposure to ultraviolet light exists—use NEMA 4X 10250T operators.

Ratings

Our Class I Division 2 line of pushbuttons are UL Listed (NEMA type) 1, 2, 3, 3R, 4, 4X, 12 and 13. Our Class I Division 2 E34 line meets IEC 947-1 IP66 standards and the cathodic coating meets FDA 3A sanitary chemical resistance requirements. For a complete listing of all applicable ratings see **Pages V7-T1-379** to **V7-T1-380.**

10250T Grounding Nibs

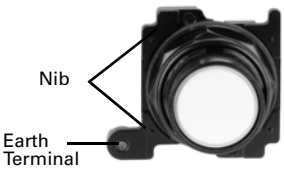
10250T line operators have "grounding nibs"—four metal points on the operator casting designed to bite through most paints and other coatings on metal panels to enhance the grounding connection when the operator is securely tightened.

10250T Grounding Nibs

E34 Grounding Nibs

E34 line of operators is equipped with a ground screw terminal as part of its die cast construction. This earthing terminal provides an easily accessible point for grounding operators when used in a painted or nonmetallic enclosure and eliminates the need for extra kits when daisy chain grounding is required.

E34 Grounding Nibs

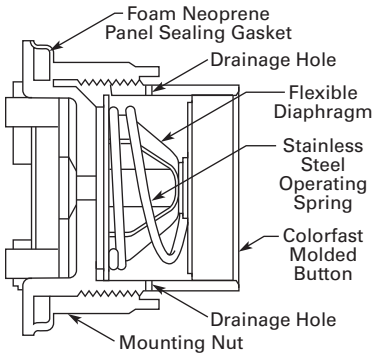


Diaphragm Seal with Drainage Holes

Liquid Drainage

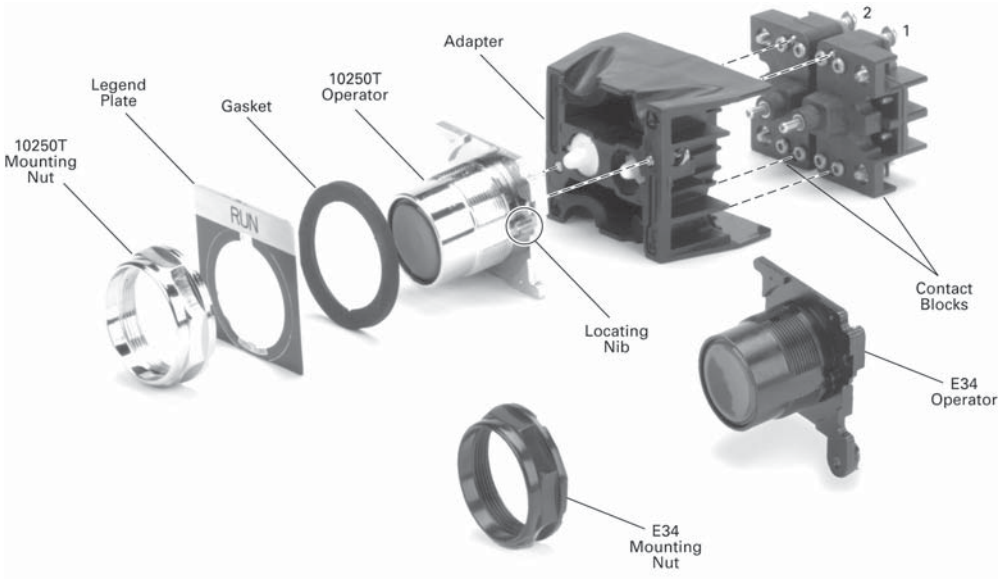
Eaton's pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high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

Diaphragm Seal



Product Identification

30.5 mm Class I Division 2 Hazardous Locations



Catalog Number Selection

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

Non-Illuminated Assembled Operators

10250T 718 E J

Operator Type
10250T = Heavy-duty oiltight
E34EX = Corrosion resistant oiltight

Operator and Contact Block	
706 = Flush 1NO-1NC	**722** = 2P SS MT XO,0X-CAM1
707 = Flush 2NO-2NC	**723** = 2P SS MT XO,0X,XO,0X-CAM1
708 = Extended 1NO-1NC	**724** = 2P SS SPR-R XO,0X-CAM1
709 = Extended 2NO-2NC	**725** = 2P SS SPR-R XO,0X,XO,0X-CAM1
710 = Mushroom 1NO-1NC	**726** = 3P SS MT XOO,00X-CAM3
711 = Mushroom 2NO-2NC	**727** = 3P SS MT XOO,0XO,00X-CAM3
712 = JMB mushroom 1NO-1NC	**728** = 3P SS SPR-L XOO,00X-CAM3
713 = JMB mushroom 2NO-2NC	**729** = 3P SS SPR-L XOO,0XO,00X-CAM3
714 = 2P MT push-pull 1NO-1NC	**730** = 3P SS SPR-L&R XOO,00X-CAM3
715 = 2P MT push-pull 2NO-2NC	**731** = 3P SS SPR-L&R XOO,0XO,00X-CAM3
716 = 3P MT push-mom pull 1NO-1NC	**732** = 3P SS SPR-R XOO,00X-CAM3
717 = 3P MT push-mom pull 2NO-2NC	**733** = 3P SS SPR-R XOO,0XO,00X-CAM3
718 = 3P mom push-pull 1NO-1NC	**743** = 4P SS MT XOOO,0XOO,00XO,000X-CAM7
721 = 3P mom push-pull 2NO-2NC	

Button Color
B = Black
R = Red
G = Green
Y = Yellow
W = White
L = Blue
N = Orange
E = Red EMERG. STOP
T = Keyed-SS

ACC/SS Type
Blank = None
J = JMB push-pull
B = Booted-FL/EXT
G = Guarded-FL
K = Knob-SS
L = Lever-SS
A = Lever W/IP-SS
C = Coin-SS
Keyed-SS

Cam
1
2
3
7

Key Removal
1 = RT only
2 = LT only
3 = RT and LT
4 = CT only
5 = RT and CT
6 = LT and CT
7 = All

1

Product Selection

Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

10250T Flush Button

E34 Flush Button

10250T Extended Button

E34 Extended Button

Non-Illuminated Flush and Extended Pushbuttons

Contact Type	Button Color ①	Flush Button 10250T Catalog Number	Flush Button E34 Catalog Number	Extended Button 10250T Catalog Number	Extended Button E34 Catalog Number
1NO-1NC	Black	**10250T706B**	**E34EX706B**	**10250T708B**	**E34EX708B**
	Red	**10250T706R**	**E34EX706R**	**10250T708R**	**E34EX708R**
	Green	**10250T706G**	**E34EX706G**	**10250T708G**	**E34EX708G**
2NO-2NC	Black	**10250T707B**	**E34EX707B**	**10250T709B**	**E34EX709B**
	Red	**10250T707R**	**E34EX707R**	**10250T709R**	**E34EX709R**
	Green	**10250T707G**	**E34EX707G**	**10250T709G**	**E34EX709G**

Color Selection

Color	Suffix Code	Color	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L** ②
Green	**G**	Orange ③	**N**
Yellow	**Y**	Red (EMERG. STOP) ④	**E**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different color guarded button, simply substitute the underlined character in catalog number with appropriate suffix code from Color Selection table above. Example: 10250T710**Y**.

② Blue not available on jumbo mushroom pushbutton.

③ Orange is only available on flush or extended pushbuttons.

④ Red with EMERG. STOP engraved on button head for jumbo mushroom pushbutton only.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

10250T Mushroom Button

E34 Mushroom Button

10250T Jumbo Mushroom Button

E34 Jumbo Mushroom Button

Non-Illuminated Mushroom and Jumbo Mushroom Pushbuttons

		Mushroom Button		Jumbo Mushroom Button	
Contact Type	Button Color ①	10250T Catalog Number	E34 Catalog Number	10250T ② Catalog Number	E34 ② Catalog Number
1NO-1NC	Black	**10250T710B**	**E34EX710B**	**10250T712B**	**E34EX712B**
	Red	**10250T710R**	**E34EX710R**	**10250T712R**	**E34EX712R**
	Green	**10250T710G**	**E34EX710G**	**10250T712G**	**E34EX712G**
2NO-2NC	Black	**10250T711B**	**E34EX711B**	**10250T713B**	**E34EX713B**
	Red	**10250T711R**	**E34EX711R**	**10250T713R**	**E34EX713R**
	Green	**10250T711G**	**E34EX711G**	**10250T713G**	**E34EX713G**

Color Selection

Color	Suffix Code	Color	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L** ③
Green	**G**	Orange ④	**N**
Yellow	**Y**	Red (EMERG. STOP) ⑤	**E**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different color guarded button, simply substitute the underlined character in catalog number with appropriate suffix code from Color Selection table above. Example: 10250T710**Y**.

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

③ Blue not available on jumbo mushroom pushbutton.

④ Orange is only available on flush or extended pushbuttons.

⑤ Red with EMERG. STOP engraved on button head for jumbo mushroom pushbutton only.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Non-illuminated
- Booted or guarded

Booted Flush Button

Booted Extended Button

Guarded Extended Button

10250T Pushbuttons Booted and Guarded

Contact Type	Button Color	Booted Flush Button Catalog Number	Booted Extended Button Catalog Number	Guarded Extended Button ① Catalog Number
1NO-1NC	Black	**10250T706BB**	**10250T708BB**	**10250T706BG**
	Red	**10250T706RB** ②	**10250T708RB**	**10250T706RG**
	Green	**10250T706GB**	**10250T708GB**	**10250T706GG**
2NO-2NC	Black	**10250T707BB**	**10250T709BB**	**10250T707BG**
	Red	**10250T707RB** ②	**10250T709RB**	**10250T707RG**
	Green	**10250T707GB**	**10250T709GB**	**10250T707GG**

Color Selection

Color	Suffix Code	Color	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L**
Green	**G**	Orange	**N**
Yellow	**Y**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different color guarded button, simply substitute the underlined character in catalog number with appropriate suffix code from Color Selection table above. Example: 10250T706**Y**G.

② Red booted flush pushbutton is not recommended for STOP function.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Non-illuminated
- Booted or guarded

Booted Flush Button

Booted Extended Button

Guarded Extended Button

E34 Pushbuttons Booted and Guarded

Contact Type	Button Color	Booted Flush Button Catalog Number	Booted Extended Button Catalog Number	Guarded Extended Button ① Catalog Number
1NO-1NC	Black	**E34EX706BB**	**E34EX708BB**	**E34EX706BG**
	Red	**E34EX706RB** ②	**E34EX708RB**	**E34EX706RG**
	Green	**E34EX706GB**	**E34EX708GB**	**E34EX706GG**
2NO-2NC	Black	**E34EX707BB**	**E34EX709BB**	**E34EX707BG**
	Red	**E34EX707RB** ②	**E34EX709RB**	**E34EX707RG**
	Green	**E34EX707GB**	**E34EX709GB**	**E34EX707GG**

Color Selection

Color	Suffix Code	Color	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L**
Green	**G**	Orange	**N**
Yellow	**Y**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different color guarded button, simply substitute the underlined character in catalog number with appropriate suffix code from Color Selection table above. Example: 10250T706**Y**G.

② Red booted flush pushbutton is not recommended for STOP function.

1

Non-Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, and 13

10250T Flush Button

E34 Flush Button

10250T Extended Button

E34 Extended Button

10250T Half Shrouded Button

E34 Half Shrouded Button

Non-Illuminated Pushbuttons, Momentary Contact

Color	Flush Button 10250T ① Catalog Number	Flush Button E34 Catalog Number	Extended Button 10250T Catalog Number	Extended Button E34 Catalog Number	Half Shrouded Button 10250T Vertical Catalog Number	Half Shrouded Button 10250T Horizontal Catalog Number	Half Shrouded Button E34 Vertical Catalog Number	Half Shrouded Button E34 Horizontal Catalog Number
Black	**10250T101**	**E34PB1**	**10250T111**	**E34EB1**	**10250T501**	**10250T511**	**E34EVB1**	**E34EHB1**
Red	**10250T102**	**E34PB2**	**10250T112**	**E34EB2**	**10250T502**	**10250T512**	**E34EVB2**	**E34EHB2**
Green	**10250T103**	**E34PB3**	**10250T113**	**E34EB3**	**10250T503**	**10250T513**	**E34EVB3**	**E34EHB3**
Yellow	**10250T104**	**E34PB4**	**10250T120**	**E34EB4**	**10250T504**	**10250T514**	**E34EVB4**	**E34EHB4**
Gray	**10250T105**	**E34PB5**	—	**E34EB5**	**10250T505**	**10250T515**	**E34EVB5**	**E34EHB5**
White	**10250T106**	**E34PB6**	**10250T116**	**E34EB6**	**10250T506**	**10250T516**	**E34EVB6**	**E34EHB6**
Blue	**10250T108**	**E34PB7**	**10250T118**	**E34EB7**	**10250T508**	**10250T518**	**E34EVB7**	**E34EHB7**
Orange	**10250T109**	**E34PB8**	**10250T119**	**E34EB8**	**10250T509**	**10250T519**	**E34EVB8**	**E34EHB8**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order operator with factory assembled extended retaining nut, 10250TA12, for thick panel applications, add suffix letter **E** to listed catalog number.

UL (NEMA) Type 3, 3R, 4, 4X, 12, and 13

10250T Mushroom Button

E34 Mushroom Button

10250T Jumbo Mushroom Button

E34 Jumbo Mushroom Button

Mushroom Head Non-Illuminated Pushbuttons, Momentary Contact

	Mushroom Button		Anodized Aluminum Jumbo Mushroom Button	
Color	10250T Catalog Number	E34 Catalog Number	10250T ① Catalog Number	E34 ② Catalog Number
Black	**10250T121**	**E34LB1**	**10250T171**	**E34JB1**
Red	**10250T122**	**E34LB2**	**10250T172**	**E34JB2**
Red (EMERG. STOP)	—	—	**10250T17213**	**E34JB2N8**
Green	**10250T123**	**E34LB3**	**10250T173**	**E34JB3**
Yellow	**10250T124**	**E34LB4**	**10250T174**	**E34JB4**
Blue	**10250T129**	**E34LB6**	—	—

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

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

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

1

Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Illuminated
- Plastic lenses

10250T8_

E34EX8_

Illuminated Pushbuttons

Type	Voltage	Color	Contact	10250T LED/Lamp Number	10250T Catalog Number ①	E34 LED/Lamp Number	E34 Catalog Number ①
LED Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	Bayonet base	**10250T828RD24**	Bayonet base	**E34EX828RD24**
		Green			**10250T828GD24**		**E34EX828GD24**
		Amber			**10250T828AD24**		**E34EX828AD24**
	120 Vac	Red	1NO-1NC		**10250T828RD2A**		**E34EX828RD2A**
		Green			**10250T828GD2A**		**E34EX828GD2A**
		Amber			**10250T828AD2A**		**E34EX828AD2A**
Transformer	120 Vac	Red	1NO-1NC		**10250T802RD06**	Bayonet base 6 Vac	**E34EX802RD06**
		Green			**10250T802GD06**		**E34EX802GD06**
		Amber			**10250T802AD06**		**E34EX802AD06**
Incandescent Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	#757	**10250T818RD**	#757	**E34EX818RD**
		Green			**10250T818GD**		**E34EX818GD**
		Amber			**10250T818AD**		**E34EX818AD**
Resistor	120 Vac/Vdc	Red	1NO-1NC	120MB	**10250T824RD**	120MB	**E34EX824RD**
		Green			**10250T824GD**		**E34EX824GD**
		Amber			**10250T824AD**		**E34EX824AD**
Transformer	120 Vac	Red	1NO-1NC	#755	**10250T802RD**	#755 6 Vac	**E34EX802RD**
		Green			**10250T802GD**		**E34EX802GD**
		Amber			**10250T802AD**		**E34EX802AD**

10250TC_

E34V _

Lens Selection

Color	Suffix Code	Catalog Number	Color	Suffix Code	Catalog Number
10250T			**E34**		
Red	**R**	**10250TC21**	Red	**R**	**E34V2**
Green	**G**	**10250TC22**	Green	**G**	**E34V3**
Yellow	**Y**	**10250TC23**	Yellow	**Y**	**E34V4**
Amber	**A**	**10250TC43**	Amber	**A**	**E34V9**
Blue	**L**	**10250TC24**	Blue	**L**	**E34V6**
Clear	**C**	**10250TC25**	Clear	**C**	**E34V0**
White	**W**	**10250TC26**	White	**W**	**E34V5**

Note

① To order different color lens, simply substitute the underlined character in the catalog number with appropriate suffix code from Lens Selection table above. Example: 10250T828**Y**D24.

1

Guarded Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Guarded illuminated
- Plastic lenses

10250T8_

E34EX8_

Guarded Illuminated Pushbuttons

Type	Voltage	Color	Contact	10250T LED/Lamp Number	10250T Catalog Number ①	E34 LED/Lamp Number	E34 Catalog Number ①
LED Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	Bayonet base	**10250T828RG24**	Bayonet base	**E34EX828RG24**
		Green			**10250T828GG24**		**E34EX828GG24**
		Amber			**10250T828AG24**		**E34EX828AG24**
	120 Vac	Red	1NO-1NC		**10250T828RG2A**		**E34EX828RG2A**
		Green			**10250T828GG2A**		**E34EX828GG2A**
		Amber			**10250T828AG2A**		**E34EX828AG2A**
Transformer	120 Vac	Red	1NO-1NC		**10250T802RG06**		**E34EX802RG06**
		Green			**10250T802GG06**		**E34EX802GG06**
		Amber			**10250T802AG06**		**E34EX802AG06**
Incandescent Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	#757	**10250T818RG**	#757	**E34EX818RG**
		Green			**10250T818GG**		**E34EX818GG**
		Amber			**10250T818AG**		**E34EX818AG**
Resistor	120 Vac/Vdc	Red	1NO-1NC	120MB	**10250T824RG**	120MB	**E34EX824RG**
		Green			**10250T824GG**		**E34EX824GG**
		Amber			**10250T824AG**		**E34EX824AG**
Transformer	120 Vac	Red	1NO-1NC	#755	**10250T802RG**	#755 6 Vac	**E34EX802RG**
		Green			**10250T802GG**		**E34EX802GG**
		Amber			**10250T802AG**		**E34EX802AG**

10250TC2_

E34V_

Lens Selection

Color	Suffix Code	10250T Catalog Number	Color	Suffix Code	E34 Catalog Number
10250T			**E34**		
Red	**R**	**10250TC21**	Red	**R**	**E34V2**
Green	**G**	**10250TC22**	Green	**G**	**E34V3**
Yellow	**Y**	**10250TC23**	Yellow	**Y**	**E34V4**
Amber	**A**	**10250TC43**	Amber	**A**	**E34V9**
Blue	**L**	**10250TC24**	Blue	**L**	**E34V6**
Clear	**C**	**10250TC25**	Clear	**C**	**E34V0**
White	**W**	**10250TC26**	White	**W**	**E34V5**

Note

① To order different color lens, simply substitute the underlined character in the catalog number with appropriate suffix code from Lens Selection table above. Example: 10250T828**Y**D24.

1

Indicating Light Units

UL (NEMA) Type 3, 3R, 3S, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Standard
- Plastic lenses

10250T_

E34_

Indicating Lights

Type	Voltage	Color	LED/Lamp Number	10250T Catalog Number ①	E34 Catalog Number ①
LED Lamp					
Full voltage	24 Vac/Vdc	Red	Bayonet base	**10250T197HLRP24**	**E34FB197HLRP24**
		Green		**10250T197HLGP24**	**E34FB197HLGP24**
		Amber		**10250T197HLAP24**	**E34FB197HLAP24**
	120 Vac	Red		**10250T197HLRP2A**	**E34FB197HLRP2A**
		Green		**10250T197HLGP2A**	**E34FB197HLGP2A**
		Amber		**10250T197HLAP2A**	**E34FB197HLAP2A**
Transformer	120 Vac	Red		**10250T181HLRP06**	**E34TB120HLRP06**
		Green		**10250T181HLGP06**	**E34TB120HLGP06**
		Amber		**10250T181HLAP06**	**E34TB120HLAP06**
Incandescent Lamp					
Full voltage	24 Vac/Vdc	Red	#757	**10250T206HRP**	**E34FB24HRP**
		Green		**10250T206HGP**	**E34FB24HGP**
		Amber		**10250T206HAP**	**E34FB24HAP**
Resistor	120 Vac/Vdc	Red	120MB	**10250T201HRP**	**E34RB120HRP**
		Green		**10250T201HGP**	**E34RB120HGP**
		Amber		**10250T201HAP**	**E34RB120HAP**
Transformer	120 Vac	Red	#755	**10250T181HRP**	**E34TB120HRP**
		Green		**10250T181HGP**	**E34TB120HGP**
		Amber		**10250T181HAP**	**E34TB120HAP**

Plastic

Glass

Lens Selection

Color	Plastic Suffix Code	Plastic Catalog Number	Glass Suffix Code	Glass Catalog Number	Color	Plastic Suffix Code	Plastic Catalog Number	Glass Suffix Code	Glass Catalog Number
10250T					**E34**				
Red	**RP**	**10250TC1N**	**RG**	**10250TC7N**	Red	**RP**	**E34H2**	**RG**	**E34G2**
Green	**GP**	**10250TC2N**	**GG**	**10250TC8N**	Green	**GP**	**E34H3**	**GG**	**E34G3**
Amber	**AP**	**10250TC19N**	**AG**	**10250TC9N**	Amber	**AP**	**E34H9**	**AG**	**E34G9**
Yellow	**YP**	**10250TC3N**	—	—	Yellow	**YP**	**E34H4**	**YG**	**E34G4**
Blue	**LP**	**10250TC4N**	**LG**	**10250TC10N**	Blue	**LP**	**E34H6**	**LG**	**E34G6**
Clear	**CP**	**10250TC5N**	**CG**	**10250TC11N**	Clear	**CP**	**E34H0**	**CG**	**E34G0**
White	**WP**	**10250TC6N**	**WG**	**10250TC12N**	White	**WP**	**E34H5**	**WG**	**E34G5**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different color lens, simply substitute the underlined characters in the catalog number with appropriate suffix code from the Lens Selection table above. Example: 10250T201HYP.

1

Illuminated Pushbuttons and Indicating Lights

NEC Class I Division 2, Groups B, C and D

10250T Illuminated Pushbutton

E34 Illuminated Pushbutton

10250T Indicating Light

E34 Indicating Light

Operators without Lenses

Type	Voltage	LED/Lamp Number	Illuminated Pushbutton 10250T Catalog Number	Illuminated Pushbutton E34 Catalog Number	Indicating Light 10250T Catalog Number	Indicating Light E34 Catalog Number
LED Light Unit Type (LEDs not included) ①						
Full voltage	—	Bayonet base	**10250T397HL**	**E34CB497HL**	**10250T197HL**	**E34FB197HL**
Transformer AC only	24		**10250T416HL**	**E34XB024HL**	—	—
	120		**10250T411HL**	**E34XB120HL**	**10250T181HL**	**E34TB120HL**
	240		**10250T412HL**	**E34XB240HL**	**10250T182HL**	**E34TB240HL**
	277		**10250T419HL**	**E34XB277HL**	**10250T198HL**	**E34TB277HL**
	380		**10250T413HL**	**E34XB380HL**	**10250T183HL**	**E34TB380HL**
	480		**10250T414HL**	**E34XB480HL**	**10250T184HL**	**E34TB480HL**
	600		**10250T415HL**	**E34XB600HL**	**10250T185HL**	**E34TB600HL**
Incandescent Light Unit Type						
Full voltage AC/DC	6	#755	**10250T473H**	**E34CB06H**	**10250T203H**	**E34FB06H**
	12	#756	**10250T474H**	**E34CB12H**	**10250T204H**	**E34FB12H**
	24	#757	**10250T476H**	**E34CB24H**	**10250T206H**	**E34FB24H**
	32	#1828	**10250T477H**	**E34CB32H**	**10250T207H**	**E34FB32H**
	48	#1835	**10250T478H**	**E34CB48H**	**10250T208H**	**E34FB48H**
Resistor ② AC/DC	120	120MB	**10250T471H**	**E34SB120H**	**10250T201H**	**E34RB120H**
	240	120MB	**10250T472H**	**E34SB240H**	**10250T202H**	**E34RB240H**
Transformer AC only	24	#755	**10250T416H**	**E34XB024H**	—	—
	120		**10250T411H**	**E34XB120H**	**10250T181H**	**E34TB120H**
	240		**10250T412H**	**E34XB240H**	**10250T182H**	**E34TB240H**
	277		**10250T419H**	**E34XB277H**	**10250T198H**	**E34TB277H**
	380		**10250T413H**	**E34XB380H**	**10250T183H**	**E34TB380H**
	480		**10250T414H**	**E34XB480H**	**10250T184H**	**E34TB480H**
	600		**10250T415H**	**E34XB600H**	**10250T185H**	**E34TB600H**
Neon AC/DC	120	NE51H-R-22	—	—	**10250T226H**	**E34NB120H**
	240	NE51H-4-68	—	—	**10250T227H**	**E34NB240H**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① These units do not include lamps. Order LED separately to match lens color from the LED Selection table on **Page V7-T1-365.**

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

Indicating Light Lenses

Plastic

10250TC_

E34H_

Glass

10250TC_

E34G_

Color	10250T Catalog Number	E34 Catalog Number
Plastic		
Red	**10250TC1N**	**E34H2**
Green	**10250TC2N**	**E34H3**
Amber	**10250TC19N**	**E34H9**
Yellow	**10250TC3N**	**E34H4**
Blue	**10250TC4N**	**E34H6**
Clear	**10250TC5N**	**E34H0**
White	**10250TC6N**	**E34H5**
Glass		
Red	**10250TC7N**	**E34G2**
Green	**10250TC8N**	**E34G3**
Amber	**10250TC9N**	**E34G9**
Yellow	—	**E34G4**
Blue	**10250TC10N**	**E34G6**
Clear	**10250TC11N**	**E34G0**
White	**10250TC12N**	**E34G5**

Illuminated Pushbutton Lenses

10250TC_

E34V_

Color	10250T Catalog Number	E34 Catalog Number
Red	**10250TC21**	**E34V2**
Green	**10250TC22**	**E34V3**
Yellow	**10250TC23**	**E34V4**
Amber	**10250TC43**	**E34V9**
Blue	**10250TC24**	**E34V6**
Clear	**10250TC25**	**E34V0**
White	**10250TC26**	**E34V5**

1

Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two- and three-position
- Non-illuminated

10250T71_

E34EX71_

Two-Position Maintained Push, Maintained Pull

Operator Function (Position) ①

Maintained—Pull	Maintained—Push	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalog Number	Red Standard Push-Pull ② E34 Catalog Number
0	X	1NO			**10250T714R**	**E34EX714R**
X	0	1NC				
0	X	2NO			**10250T715R**	**E34EX715R**
X	0	2NC				
0	X					
X	0					

10250T71_

E34EX71_

Three-Position Maintained Push, Momentary Pull

Operator Function (Position) ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ③ 10250T Catalog Number	Red Standard Push-Pull ③ E34 Catalog Number
0	0	X	1NO			**10250T716R**	**E34EX716R**
X	0	0	1NC				
X	0	0	1NC			**10250T717R**	**E34EX717R**
X	X	0	1NC				

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② To order different type or color buttons, simply substitute underlined character with appropriate suffix code from the Button and Color Selection table on **Page V7-T1-358**. Example: 10250T714**G**.

③ To order different type or color buttons, simply substitute underlined character with appropriate suffix code from the Button and Color Selection table on **Page V7-T1-358**. Example: 10250T716**G**.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two- and three-position
- Non-illuminated

10250T7_

E34EX7_

Three-Position Momentary Push, Momentary Pull

Operator Function (Position) ①						Red Standard Push-Pull ②	
Momentary—Pull	Maintained—Intermediate	Momentary—Push	Contact Type	Mounting Location ① 1	2	10250T Catalog Number	E34 Catalog Number
0 X	0 0	X 0	1NO 1NC			**10250T718R**	**E34EX718R**
X X	0 X	0 0	1NC 1NC			**10250T721R**	**E34EX721R**

Button and Color Selection

Standard

Jumbo Mushroom Head

Color	Suffix Code	10250T Catalog Number	E34 Catalog Number
Standard			
Red	**R**	**10250TB62**	**E34C2**
Red (EMERG. STOP)	**E**	**10250TB63**	**E34C2N8**
Green	**G**	**10250TB61**	**E34C3**
Black	**B**	**10250TB60**	**E34C1**
Blue	**L**	**10250TB64**	**E34C6**
Jumbo Mushroom Head (Anodized) Aluminum			
Red	**RJ**	**10250TJ62**	**E34J2**
Red (EMERG. STOP)	**EJ**	**10250TJ63**	**E34J2N8**
Green	**GJ**	**10250TJ61**	—
Black	**BJ**	**10250TJ60**	—
Yellow	**YJ**	**10250TJ64**	—

Notes

① Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.

② To order different type or color buttons, simply substitute underlined character with appropriate suffix code from the Button and Color Selection table above. Example: 10250T718**G**.

1

Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two-position maintained
- Illuminated

10250T8_

E34EX8_

Two-Position Illuminated Maintained Push, Maintained Pull

Operator Function (Position) ①						Red Standard Push-Pull ②	
Maintained—Pull	Maintained—Push	Type	Voltage	Contact Type	Mounting Location ① 1 2	10250T Catalog Number	E34 Catalog Number
LED Lamp							
0	X	Full voltage	24 Vac/Vdc	1NO 1NC		**10250T853RD24**	**E34EX853RD24**
X	0		120 Vac			**10250T853RD2A**	**E34EX853RD2A**
		Transformer	24 Vac			**10250T843RD06**	**E34EX843RD06**
			120 Vac			**10250T844RD06**	**E34EX844RD06**
Incandescent Lamp							
0	X	Full voltage	24 Vac/Vdc	1NO 1NC		**10250T849RD**	**E34EX849RD**
X	0	Resistor	120 Vac/Vdc			**10250T851RD**	**E34EX851RD**
		Transformer	24 Vac			**10250T843RD**	**E34EX843RD**
			120 Vac			**10250T844RD**	**E34EX844RD**

Lens and Color Selection

Standard

Side-Lighted (Anodized) Aluminum

HD Aluminum with Transparent Center

Color	10250T Suffix Code	10250T Catalog Number	E34 Suffix Code	E34 Catalog Number
Standard				
Red	**RD**	**10250TC47**	**RD**	**E34M2**
Red (EMERG. STOP)	**ED**	**10250TC53**	**ED**	**E34M2N8**
Green	**GD**	**10250TC48**	**GD**	**E34M3**
Blue	**LD**	**10250TC49**	**LD**	**E34M6**
Amber	**AD**	**10250TC50**	**AD**	**E34M9**
White	**WD**	**10250TC51**	**WD**	**E34M5**
Clear	**CD**	**10250TC52**	**CD**	**E34M0**
Side-Lighted (Anodized) Aluminum				
Red	**RS**	**10250TC57**	—	—
Red (EMERG. STOP)	**ES**	**10250TC63**	—	—
Green	**GS**	**10250TC58**	—	—
Blue	**LS**	**10250TC59**	—	—
Amber	**AS**	**10250TC64**	—	—
Yellow	**YS**	**10250TC60**		
White	**WS**	**10250TC61**	—	—
Clear	**CS**	**10250TC62**	—	—
Heavy-Duty Aluminum with Transparent Center				
Red	**RH**	**10250TC65**	—	—
Green	**GH**	**10250TC66**	—	—
Amber	**AH**	**10250TC67**	—	—

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② To order different type or color lens, simply substitute the underlined characters with appropriate suffix code from the Lens and Color Selection table above. Example: 10250T851**GS**.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Three-position—maintained push, momentary pull
- Illuminated

10250T8_

E34EX8_

Three-Position Illuminated Maintained Push, Momentary Pull

Operator Function (Position) ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Type	Voltage	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalog Number	Red Standard Push-Pull ② E34 Catalog Number
LED Lamp									
0	0	X	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T864RD24**	**E34EX864RD24**
X	0	0		120 Vac				**10250T864RD2A**	**E34EX864RD2A**
			Transformer	24 Vac				**10250T854RD06**	**E34EX854RD06**
				120 Vac				**10250T855RD06**	**E34EX855RD06**
X	0	0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T875RD24**	**E34EX875RD24**
X	X	0		120 Vac				**10250T875RD2A**	**E34EX875RD2A**
			Transformer	24 Vac				**10250T865RD06**	**E34EX865RD06**
				120 Vac				**10250T866RD06**	**E34EX866RD06**
Incandescent Lamp									
0	0	X	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T860RD**	**E34EX860RD**
X	0	0	Resistor	120 Vac				**10250T862RD**	**E34EX862RD**
			Transformer	24 Vac				**10250T854RD**	**E34EX854RD**
				120 Vac				**10250T855RD**	**E34EX855RD**
X	0	0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T871RD**	**E34EX871RD**
X	X	0	Resistor	120 Vac				**10250T873RD**	**E34EX873RD**
			Transformer	24 Vac				**10250T865RD**	**E34EX865RD**
				120 Vac				**10250T866RD**	**E34EX866RD**

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② To order different type or color lens, simply substitute the underlined characters with appropriate suffix code from the Lens and Color Selection table on the bottom of **Page V7-T1-359.** Example: 10250T862**AS**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

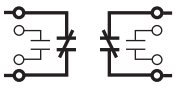
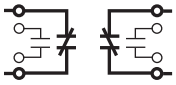
- Three-position—momentary
- Illuminated

10250T8_

E34EX8_

Three-Position Illuminated Momentary Push, Momentary Pull

Operator Function (Position) ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Type	Voltage	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalog Number	Red Standard Push-Pull ② E34 Catalog Number
LED Lamp									
0	0	X	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T886RD24**	**E34EX886RD24**
X	0	0		120 Vac				**10250T886RD2A**	**E34EX886RD2A**
			Transformer	24 Vac				**10250T876RD06**	**E34EX876RD06**
				120 Vac				**10250T877RD06**	**E34EX877RD06**
X	0	0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T897RD24**	**E34EX897RD24**
X	X	0		120 Vac				**10250T897RD2A**	**E34EX897RD2A**
			Transformer	24 Vac				**10250T887RD06**	**E34EX887RD06**
				120 Vac				**10250T888RD06**	**E34EX888RD06**
Incandescent Lamp									
0	0	X	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T882RD**	**E34EX882RD**
X	0	0	Resistor	120 Vac				**10250T884RD**	**E34EX884RD**
			Transformer	24 Vac				**10250T876RD**	**E34EX876RD**
				120 Vac				**10250T877RD**	**E34EX877RD**
X	0	0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T893RD**	**E34EX893RD**
X	X	0	Resistor	120 Vac				**10250T895RD**	**E34EX895RD**
			Transformer	24 Vac				**10250T887RD**	**E34EX887RD**
				120 Vac				**10250T888RD**	**E34EX888RD**

Notes

① Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.

② To order different type or color lens, simply substitute the underlined characters with appropriate suffix code from the Lens and Color Selection table on the bottom of **Page V7-T1-359.** Example: 10250T862**AS**.

1

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:

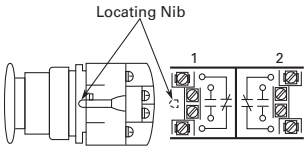
- **Maintained**—(Two-position). Maintains in the pulled or pushed position until manually actuated to the opposite mode.
- **Momentary**—(Three-position). Spring returns to an intermediate position when pulled or pushed and released.
- **Momentary Pull, Maintained Push**—(Three-position). Spring returns 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 below shows pictorially by symbols **1** and **2** locations of contact circuits after assembly of contact blocks and adapter to the operator. The table below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open).

Locating Nibs



10250T_

E34G_

Push-Pull Operator Components

Type of Operator	Contact Block	Operator Position and Circuit Arrangement: Out—Pull — Contact Block Mounting Location 1	2	Intermediate 1	2	In—Push 1	2	10250T Catalog Number	E34 Catalog Number
Two-Position Operator without Lens									
Maintained push-pull	1NO 1NC	0 X	or 0 X	No intermediate position		X 0	or X 0	**10250T5**	**E34GDB**
	2NO 2NC	0 X	0 X			X 0	X 0		
Three-Position Operator without Lens									
Momentary push-pull	1NO 1NC	0 X	or 0 X	0 0	or 0 X	X 0	or 0 0	**10250T4**	**E34GEB**
Maintained push-momentary pull	2NO 2NC	0 X	0 X	0 0	0 X	X 0	0 0	**10250T9**	**E34GFB**
Momentary push-pull	1NO 1NC	0 X	or 0 X	0 0	or 0 0	X 0	or X 0	**10250T10**	**E34GHB**
	2NO 2NC	0 X	0 X	0 0	0 0	X 0	X 0		

Note

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

Push-Pull Light Units, Lenses and Buttons

NEC Class I Division 2 Groups B, C and D

Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	LED/Lamp Number	Catalog Number
LED (LEDs not included) ①	Full voltage	—	Bayonet base	**10250T97HL**
	Transformer AC only 50/60 Hz	24		**10250T89HL**
		120		**10250T63HL**
		208		**10250T64HL**
		240		**10250T65HL**
		277		**10250T82HL**
		380		**10250T66HL**
		480		**10250T67HL**
		600		**10250T68HL**
Incandescent	Full voltage AC or DC	6	#755 #756 #757 #1828	**10250T69H**
		12		**10250T70H**
		24/28		**10250T79H**
		32		**10250T83H**
	Resistor AC or DC	120	120MB	**10250T80H**
		240		**10250T81H**
	Transformer AC only 50/60 Hz	24	#755	**10250T89H**
		120		**10250T63H**
		208		**10250T64H**
		240		**10250T65H**
		277		**10250T82H**
		380		**10250T66H**
		480		**10250T67H**
		600		**10250T68H**

Note

① These units do not include lamps. Order LED separately to match lens color from table on **Page V7-T1-365**.

Alternate Lenses for Illuminated Push-Pull Devices

Standard

Color	10250T Catalog Number	E34 Catalog Number
Standard		
Red	**10250TC47**	**E34M2**
Red (EMERG. STOP)	**10250TC53**	**E34M2N8**
Green	**10250TC48**	**E34M3**
Blue	**10250TC49**	**E34M6**
Amber	**10250TC50**	**E34M9**
White	**10250TC51**	**E34M5**
Clear	**10250TC52**	**E34M0**
Side-Lighted Anodized Aluminum Ring		
Red	**10250TC57**	—
Red (EMERG. STOP)	**10250TC63**	—
Green	**10250TC58**	—
Blue	**10250TC59**	—
Amber	**10250TC64**	—
Yellow	**10250TC60**	—
White	**10250TC61**	—
Clear	**10250TC62**	—
Heavy-Duty Aluminum with Transparent Center		
Red	**10250TC65**	—
Green	**10250TC66**	—
Amber	**10250TC67**	—

Side-Lighted (Anodized) Aluminum

HD Aluminum with Transparent Center

Buttons for Non-Illuminated Push-Pull Devices

Standard

Color	10250T Catalog Number	E34 Catalog Number
Standard		
Red	**10250TB62**	**E34C2**
Red (EMERG. STOP)	**10250TB63**	**E34C2N8**
Green	**10250TB61**	**E34C3**
Black	**10250TB60**	**E34C1**
Blue	**10250TB64**	**E34C6**
Jumbo Mushroom Head (Anodized) Aluminum ①		
Red	**10250TJ62**	**E34J2**
Red (EMERG. STOP)	**10250TJ63**	**E34J2N8**
Green	**10250TJ61**	—
Black	**10250TJ60**	—
Yellow	**10250TJ64**	—

Jumbo Mushroom Head

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

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

Standard LED Lamp

LED Selection

Voltage	Color	Catalog Number
6 Vac/Vdc suitable for use with transformers	Red	**E22LED006RN**
	Orange	**E22LED006ON**
	Yellow	**E22LED006YN**
	Green	**E22LED006GN**
	Blue	**E22LED006BN**
	White	**E22LED006WN**
12 Vac/Vdc	Red	**E22LED012RN**
	Orange	**E22LED012ON**
	Yellow	**E22LED012YN**
	Green	**E22LED012GN**
	Blue	**E22LED012BN**
	White	**E22LED012WN**
24 Vac/Vdc	Red	**E22LED024RN**
	Orange	**E22LED024ON**
	Yellow	**E22LED024YN**
	Green	**E22LED024GN**
	Blue	**E22LED024BN**
	White	**E22LED024WN**
48 Vac/Vdc	Red	**E22LED048RN**
	Orange	**E22LED048ON**
	Yellow	**E22LED048YN**
	Green	**E22LED048GN**
	Blue	**E22LED048BN**
	White	**E22LED048WN**
60 Vac/Vdc	Red	**E22LED060RN**
	Orange	**E22LED060ON**
	Yellow	**E22LED060YN**
	Green	**E22LED060GN**
	Blue	**E22LED060BN**
	White	**E22LED060WN**
120 Vac	Red	**E22LED120RA**
	Orange	**E22LED120OA**
	Yellow	**E22LED120YA**
	Green	**E22LED120GA**
	Blue	**E22LED120BA**
	White	**E22LED120WA**
120 Vdc	Red	**E22LED120RD**
	Orange	**E22LED120OD**
	Yellow	**E22LED120YD**
	Green	**E22LED120GD**
	Blue	**E22LED120BD**
	White	**E22LED120WD**

Note

For a complete listing of all LEDs available, see **Page V7-T1-261**.

1

Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two- and three-position
- Non-illuminated

Two-Position Selector Switch—Non-Illuminated

10250T72_

E34EX72_

Operator Position ①		Operator Action ②	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Cam Code	Black Knob—Selector Switch ③ 10250T Catalog Number	Black Knob—Selector Switch ③ E34 Catalog Number
X	0	M M	1NC			1	**10250T722BK**	**E34EX722BK**
0	X		1NO					
		M S					**10250T724BK**	**E34EX724BK**
X	0	M M	1NC			1	**10250T723BK**	**E34EX723BK**
0	X		1NO					
X	0		1NC					
0	X		1NO				**10250T725BK**	**E34EX725BK**
		M S						

Three-Position Selector Switch—Non-Illuminated

10250T_

Operator Position ①			Operator Action ②	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Cam Code	Black Knob—Selector Switch ④ 10250T Catalog Number	Black Knob—Selector Switch ④ E34 Catalog Number
X	0	0	M M M	1NO			3	**10250T726BK**	**E34EX726BK**
0	0	X		1NO					
			M S M					**10250T728BK**	**E34EX728BK**
			M S S					**10250T730BK**	**E34EX730BK**
			M M S					**10250T732BK**	**E34EX732BK**
X	0	0	M M M	1NO			3	**10250T727BK**	**E34EX727BK**
0	X	0		1NC-1NC (Series)					
0	0	X		1NO					
			M S M					**10250T729BK**	**E34EX729BK**
			M S S					**10250T731BK**	**E34EX731BK**
			M M S					**10250T733BK**	**E34EX733BK**

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② M = Maintained. S = Spring return in direction of arrow (→).

③ To order different type or color selector switch, simply substitute the underlined characters with appropriate suffix code from the table on **Page V7-T1-367.**
Example: 10250T722**LL**. For keyed selector switch, substitute the underlined characters with **T_ (cam)+_ (key removal position)**. Example: 10250T722**T13**.

④ To order different type or color selector switch, simply substitute the underlined characters with appropriate suffix code from the Switch and Color Selection table on **Page V7-T1-367**.
Example: 10250T726**LL**. For keyed selector switch, substitute the underlined characters with **T_ (cam)+_ (key removal position).** Example: 10250T726**T13**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Four-position maintained
- Non-illuminated

10250T743_

E34EX743_

Four-Position Selector Switch—Non-Illuminated

Operator Position ①				Operator Action ②	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Cam Code	Black Knob—Selector Switch ③ 10250T Catalog Number	Black Knob—Selector Switch ③ E34 Catalog Number
X	0	0	0	M M	1NC			7	**10250T743BK**	**E34EX743BK**
0	X	0	0		1NO					
0	0	X	0		1NO					
0	0	0	X	M M	1NC					

Knob

Lever

Coin Slot ⑤

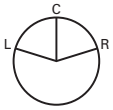
Switch and Color Selection

Color	Knob Suffix Code	Lever Suffix Code	Lever ④ Suffix Code	Coin Slot ⑤ Suffix Code
Black	**BK**	**BL**	**BA**	**BC**
Red	**RK**	**RL**	**RA**	**RC**
Green	**GK**	**GL**	**GA**	**GC**
Yellow	**YK**	**YL**	**YA**	**YC**
White	**WK**	**WL**	**WA**	**WC**
Gray	**AK**	**AL**	**AA**	**AC**
Blue	**LK**	**LL**	**LA**	**LC**
Orange	**NK**	**NL**	**NA**	**NC**

Key Operated Selection

Number of Position	Operator Action ⑥	Suffix and Removal Position
2	M M	T1 + 1, 2, 3
	M ← S	T1 + 2
3	M M M	T3 + 1–7
	S → M M	T3 + 1, 4, 5
	S → M ← S	T3 + 4
	M M ← S	T3 + 2, 4, 6
4	MMMM	T7 + 7

Key Removal Positions ⑦



Code Suffix	Key Removal Position
1	Right only
2	Left only
3	Right and left
4	Center only
6	Left and center
7	All positions

Notes

① Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.
② M = Maintained.
③ To order different type or color selector switch, simply substitute the underlined characters with appropriate suffix code from the Switch and Color Selection table above. Example: 10250T743**LL**. For keyed selector switch, substitute the underlined characters with **T_ (cam) + _ (key removal position).** Example: 10250T743**T77**.
④ Designed for added ingress protection. For use in maintained operators only.
⑤ 10250T only.
⑥ M = Maintained. S = Spring return in direction of arrow (→).
⑦ Key removal in "spring return from" positions not recommended.

1

Selector Switch Selection

10250T

E34

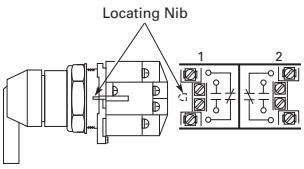
Cam and Contact Block Selection

Selector switches in their varied forms (two-position, three-position, and four-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" table (**Page V7-T1-370**) shows how that contact will act after assembly to the operator with the selected cam shape. X = closed circuit, O = open circuit.
- One NO-NC contact block may be mounted behind each plunger of the mounting adapter for a total of four circuits.
- 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 1 (locating nib side) and position 2 (opposite of locating nib). The position designations give direction in selecting and mounting of the contact blocks.

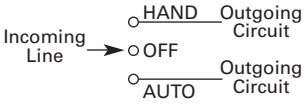
Contact Circuit Locations



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 center 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 tables on the following pages list 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 show all the "X-O" combinations. For the purpose of this example, the applicable portion of those tables is shown on this page.

Now to make the cam selection, make a simple worksheet such as below. (1) or (2) = mounting location from chart above:

	Cam 2	Cam 3
X O O	(1)NO-(2)NC ①	**(1)NO**
O O X	(2)NO	**(2)NO**

It becomes obvious that cam 3 is the better choice because the series connection can be avoided, making it simpler to wire.

Step 4: Contact Block Selection.
Having selected the cam, contact block selection is simply a matter of determining if you require one NO-NC contact block (Cat. No 10250T1H) or two. Given the limitations of the factory sealed contact block and the desired "X-O" application, you may have circuits that will not be needed—as seen here with the two additional NC circuits. (1) or (2) = mounting location from chart above.

Qty	Catalog No.	Cam 3	
2	10250TIH	**(1)NO**	(2)NC
		(1)NC	**(2)NO**

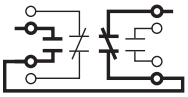
Step 5: Selector Switch Operator.
Lastly, you have to choose from the many types of operators—knob and lever in various colors or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page V7-T1-371**. For the example in step 4, you may want a three-position maintained black knob, cam 3—Catalog Number 10250T1323 (or 34VHBK1).

The Complete Switch:
10250T1323 (or 34VHBK1) with two 10250T1H or for one composite catalog number—10250T726BK (or E34EX726BK) found on **Page V7-T1-366.**

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

X = Closed circuit
O = Open circuit

Example Selection Table

No.	Desired Circuit and Operator Position			Cam Code #2 Contact Blocks and Mounting Location		Cam Code #3 Contact Blocks and Mounting Location	
				1	2	1	2
1	X	O	O	 NO	NC ①	NO	—
4	O	O	X	—	 NO	—	 NO

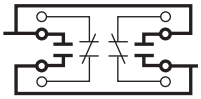
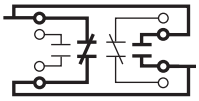
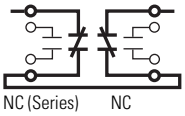
Note
① Wired in series.

1

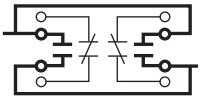
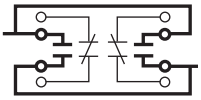
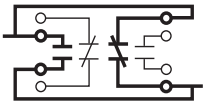
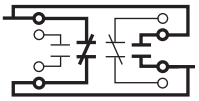
Two-Position Selector Switch

Number	Desired Circuit and Operator Position		Cam Code #1 Contact Blocks and Mounting Location 1	2
1	X	0	 NC	 NC
2	0	X	 NO	 NO

Three-Position Selector Switch

No.	Desired Circuit and Operator Position			Cam Code #2 Contact Blocks and Mounting Location 1	2	Cam Code #3 Contact Blocks and Mounting Location 1	2
1	X	0	0	 NO (Series)	NC	 NO	—
2	X	X	0	—	 NC	—	 NC
3	X	0	X	 NO	—	 NO (Parallel)	NO
4	0	0	X	—	 NO	—	 NO
5	0	X	X	 NC (Parallel)	NO	 NC	—
6	0	X	0	 NC	—	 NC (Series)	NC

Four-Position Selector Switch

Number	Desired Circuit and Operator Position				Cam Code #7 Contact Blocks and Mounting Location 1	2
1	X	0	0	0	 NC	—
2	0	X	0	0	—	 NO
3	0	0	X	0	 NO	—
4	0	0	0	X	—	 NC
5	X	0	0	X	 NC (Parallel)	NC
6	0	X	X	0	 NO (Parallel)	NO
7	0	0	X	X	 NO (Parallel)	NC
8	X	X	0	0	 NC (Parallel)	NO
9	0	X	0	X	—	 NO/NC (Parallel)
10	X	0	X	0	 NO/NC (Parallel)	—

Selector Switch Operators

10250T Selector Switch Operators with Caps

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Black Knob Selector Switch

Black Lever Selector Switch

10250T Selector Switch Operators with Caps

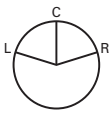
Positions	Operator Action ①	Black Knob Selector Switch—Vertical Mounting ② Cam Code ③	Black Knob Selector Switch—Vertical Mounting ② Catalog Number	Black Lever Selector Switch—Vertical Mounting ② Cam Code ③	Black Lever Selector Switch—Vertical Mounting ② Catalog Number
Two-position—60° throw		1	**10250T1311**	1	**10250T3011**
		1	**10250T1371**	1	**10250T3071**
Three-position—60° throw		2	**10250T1322**	2	**10250T3022**
		3	**10250T1323**	3	**10250T3023**
		2	**10250T1332**	2	**10250T3032**
		3	**10250T1333**	3	**10250T3033**
		2	**10250T1342**	2	**10250T3042**
		3	**10250T1343**	3	**10250T3043**
		2	**10250T1352**	2	**10250T3052**
		3	**10250T1353**	3	**10250T3053**
Four-position—40° throw		7	**10250T1367**	7	**10250T3067**

Horizontal Mounting

10250T Key Operators with Cam

Positions	Operator Action ①	Cam Code ③	Optional Key Removal Positions ④	Vertical Mounting Catalog Number ④	Horizontal Mounting Catalog Number ④
Two-position—60° throw		1	1, 2, 3	**10250T1511_**	**10250T1611_**
		1	2	**10250T1571_**	**10250T1581_**
Three-position—60° throw		2	1–7	**10250T1522_**	**10250T1622_**
		3		**10250T1523_**	**10250T1623_**
		2	1, 4, 5	**10250T1532_**	**10250T1632_**
		3		**10250T1533_**	**10250T1633_**
		2	4	**10250T1542_**	**10250T1642_**
		3		**10250T1543_**	**10250T1643_**
		2	2, 4, 6	**10250T1652_**	**10250T1662_**
		3		**10250T1653_**	**10250T1663_**
Four-position—40° throw		7	7	**10250T1677_**	**10250T1687_**

Key Removal Positions



Key Removal Positions ⑤

Code Suffix	Key Removal Position	Code Suffix	Key Removal Position
1	Right only	**5**	Right and center
2	Left only	**6**	Left and center
3	Right and left	**7**	All positions
4	Center only		

Replacement Keys or Dissimilar Locks for Above Key Operators

Listed operators have identical locks and keys (Key Code H661) Catalog Number 10250ED824.

Replacement Keys

Description	Catalog Number
Replacement keys (code **H661**)	**10250ED824**

Notes

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

② Field convertible to horizontal mounting or order operator only and separate operator cap.

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and table on **Pages V7-T1-368** to **V7-T1-370**.

④ Choose key removal position required for application from table above. Add key removal code no. to listed catalog number. Example: 10250T1511**2**.

⑤ Key removal in "spring return from" positions not recommended.

1

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Black Knob Selector Switch

E34 Selector Switch Operators with Knob Assembled

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

E34KFB_

E34 Key Operators with Cam and Cap

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

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Page V7-T1-371**.

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

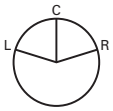
② Field convertible to horizontal mounting.

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and table on **Pages V7-T1-368** to **V7-T1-370**.

④ For other colors of either knob or lever, replace the underlined characters of the catalog number with the appropriate suffix code from Alternate Knobs and Levers table on **Page V7-T1-373**. Example: E34VFB**L2**.

⑤ Choose key removal position required for application from table on **Page V7-T1-373**. Add key removal code no. to listed catalog number. Example: E34KFB**2**.

Key Removal Positions



Key Removal Positions

Code Suffix	Key Removal Position	Code Suffix	Key Removal Position
1	Right only	**5**	Right and center
2	Left only	**6**	Left and center
3	Right and left	**7**	All positions
4	Center only		

Knob

Lever

Lever for Added Ingress Protection

Alternate Knobs and Levers for Operators ①

Color	Knob Suffix Code	Knob Catalog Number	Lever Suffix Code	Lever Catalog Number	Lever Designed for Added Ingress Protection ② Suffix Code	Lever Designed for Added Ingress Protection ② Catalog 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**
Gray	**K7**	**E34K7**	**L7**	**E34L7**	**A7**	**E34A7**
Orange	**K8**	**E34K8**	**L8**	**E34L8**	**A8**	**E34A8**

Notes

① Key removal in "spring return from" positions not recommended.

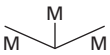
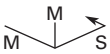
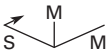
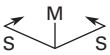
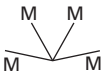
② For use on maintained operators only.

1

Illuminated Selector Switch Operators

Two-Position Maint. Selector Switch

10250T Illuminated Selector Switch Operator Only without Knob or Lever

Position	Operator Action ①	Transformer Type—50/60 Hz, 6V #755 Lamp: Cam Code ③	Voltage	Catalog and Code Number ②	Full Voltage Type—AC or DC ④, Lamps: 6V—#755, 12V—#756, 24V—#757, 48V—#1835, 120/240V—120MB: Cam Code ③	Voltage	Catalog and Code Number ②
Two-position—60° throw		1	24	**10250T5961H**	1	6	**10250T6201H**
			120	**10250T5971H**		12	**10250T6211H**
			208	**10250T6511H**		24	**10250T6221H**
			240	**10250T5981H**		48	**10250T6231H**
			380	**10250T5991H**		120	**10250T6361H**
			480	**10250T6001H**		240 ⑤	**10250T6371H**
			600	**10250T6011H**			
Three-position—60° throw		+ 2 or 3	24	**10250T602_H**	+ 2 or 3	6	**10250T624_H**
			120	**10250T603_H**		12	**10250T625_H**
			208	**10250T652_H**		24	**10250T626_H**
			240	**10250T604_H**		48	**10250T627_H**
			380	**10250T605_H**		120	**10250T638_H**
			480	**10250T607_H**		240 ⑤	**10250T639_H**
			600	**10250T607_H**			
		+ 2 or 3	120	**10250T620_H**	+ 2 or 3	120	**10250T622_H**
			240	**10250T656_H**			
		+ 2 or 3	120	**10250T621_H**	+ 2 or 3	120	**10250T623_H**
			240	**10250T662_H**			
		+ 2 or 3	24	**10250T614_H**	+ 2 or 3	6	**10250T628_H**
			120	**10250T615_H**		12	**10250T629_H**
			208	**10250T653_H**		24	**10250T630_H**
			240	**10250T616_H**		48	**10250T631_H**
			380	**10250T617_H**		120	**10250T640_H**
			480	**10250T618_H**		240 ⑤	**10250T641_H**
			600	**10250T619_H**			
Four-position—40° throw		7	24	**10250T6087H**	7	6	**10250T6327H**
			120	**10250T6097H**		12	**10250T6337H**
			208	**10250T6547H**		24	**10250T6347H**
			240	**10250T6107H**		48	**10250T6357H**
			380	**10250T6117H**		120	**10250T6427H**
			480	**10250T6127H**		240 ⑤	**10250T6437H**
			600	**10250T6137H**			

Knob

Lever

Knobs and Levers

Color ⑥	Knob Catalog and Code Number	Lever Catalog and Code Number	Color ⑥	Knob Catalog and Code Number	Lever Catalog and Code Number
Red	**10250TER**	**10250TFR**	Clear	**10250TEC**	**10250TFC**
Green	**10250TEG**	**10250TFG**	White	**10250TEW**	**10250TFW**
Yellow	**10250TEA**	**10250TFA**	Amber	**10250TEM**	**10250TFM**
Blue	**10250TEL**	**10250TFL**			

Notes

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 table on **Page V7-T1-370**.
③ Operator includes lens gasket and lens attachment screws.
④ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page V7-T1-261**.
⑤ Resistor type. May generate excess heat if used in high density.
⑥ Amber, clear and white lenses have a black arrow (pointer), red, green and blue lenses have a white arrow (pointer).

120 Vac Transformer Selector Switch, Cam 1

Illuminated Selector Switch Operator Only without Knob or Lever

Positions	Operator Action	Transformer Type—50/60 Hz 6V #755 Lamp Catalog Number ①②		Full Voltage Type—AC or DC ③ Lamps—#755, #757, #1835, 120MB ④ Catalog Number ②	
Two-position—60° throw	M M	Cam Code 1 ⑤		Cam Code 1 ⑤	
		E34VFB_H		E34SFB_H	
Three-position—60° throw	M M M	Cam Code 2 ⑤	Cam Code 3 ⑤	Cam Code 2 ⑤	Cam Code 3 ⑤
		E34VGB_H	E34VHB_H	E34SGB_H	E34SHB_H
	M M S	E34VNB_H ⑥	E34VPB_H ⑥	E34SNB_H ⑦	E34SPB_H ⑦
	S M M	E34VJB_H ⑥	E34VKB_H ⑥	E34SJB_H ⑦	E34SKB_H ⑦
	S M S	E34VLB_H	E34VMB_H	E34SLB_H	E34SMB_H
Four-position—40° throw	M M M M	E34VRB_H	—	E34SRB_H	—

Knob

Lever

Knobs and Levers

Color ⑨	Knob Catalog Number and Code Number	Lever Catalog 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**

Light Unit Voltage Suffix

Add to operator catalog number listed in table above.

Type of Light Unit			
Transformer Type 50/60 Hz		Full Voltage Type AC or DC ③	
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 ⑧	**240**
600	**600**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Page V7-T1-374**.

① Operator includes lens gasket and lens attachment screws.

② Replace underscore with proper voltage suffix code from Light Unit Voltage Suffix table above. Example: three-position maintained with 120V transformer type light unit: E34VGB**120**H.

③ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page V7-T1-261**.

④ 120MB lamps are used on both 120V and 240V operators.

⑤ For selection of the proper cam and contact block required to obtain a specific circuit sequence, see selection table on **Page V7-T1-370.**

⑥ 120 and 240V transformer only.

⑦ 120 full voltage only.

⑧ Resistor type. May generate excess heat if used in high density.

⑨ Amber, clear and white lenses have a black arrow (pointer). Red, green and blue lenses have a white arrow (pointer).

1

Options

Contact Blocks and Mounting Adapters

NEC Class I Division 2, Groups B, C and D

Contact Block

Contact Block

Description	Catalog Number
Class I Division 2 factory sealed contact block with 1NO-1NC	**10250T1H**

Dimensions, see **Page V7-T1-381**.

Mounting Adapter

Mounting Adapter

Description	Catalog Number
Mounting adapter for pushbuttons	**10250TD2**
Mounting adapter for selector switches	**10250TD3**

Dimensions, see **Page V7-T1-381**.

Mounting Adapters with Contact Block(s)—Overpacked

Description	Catalog Number
Pushbutton adapter with 1NO-1NC	**10250TD21H**
Pushbutton adapter with 2 (1NO-1NC)	**10250TD21H1H**
Selector switch adapter with 1NO-1NC	**10250TD31H**
Selector switch adapter with 2 (1NO-1NC)	**10250TD31H1H**

Mounting and Assembly

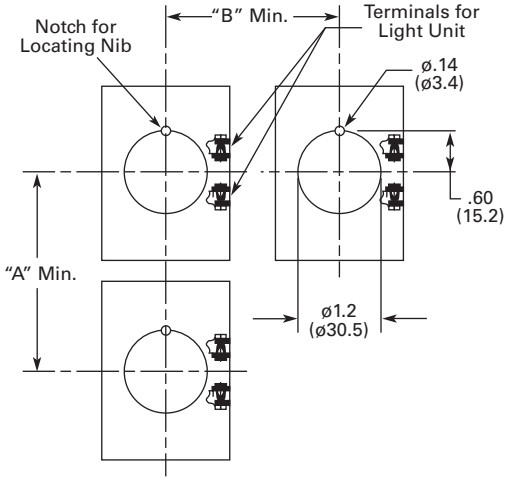
Panel Thickness

- Minimum: 0.06 in (1.6 mm)
- Maximum: 0.25 in (8 mm) including legend plate
- Maximum can be increased to 0.375 in (15.9 mm) using optional retaining nut
  - Indicating light: 10250TA30/E34TA30
  - Pushbutton/selector switch: 10250TA31/E34TA31

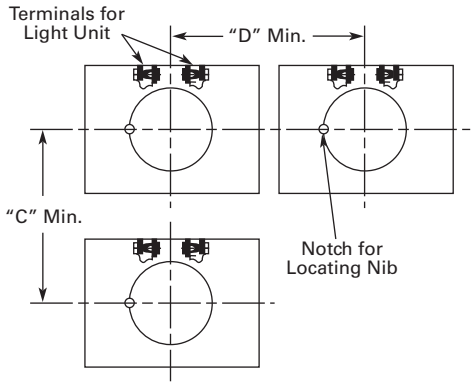
Mounting Matrix

Legend Plate	Dimensions in Inches (mm) A	B	C	D
Small	2.87 (72.6)	2.25 (57.2)	2.25 (57.2)	2.87 (72.6)
Jumbo	2.87 (72.6)	2.32 (58.6)	2.32 (58.6)	2.87 (72.6)
Extra large	2.87 (72.6)	2.56 (65.2)	2.52 (64.1)	2.87 (72.6)

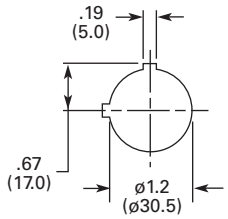
Panel Spacing and Drilling



Drilling for One Hole Mounting and Dimensions for Minimum Spacing in Vertical Rows.

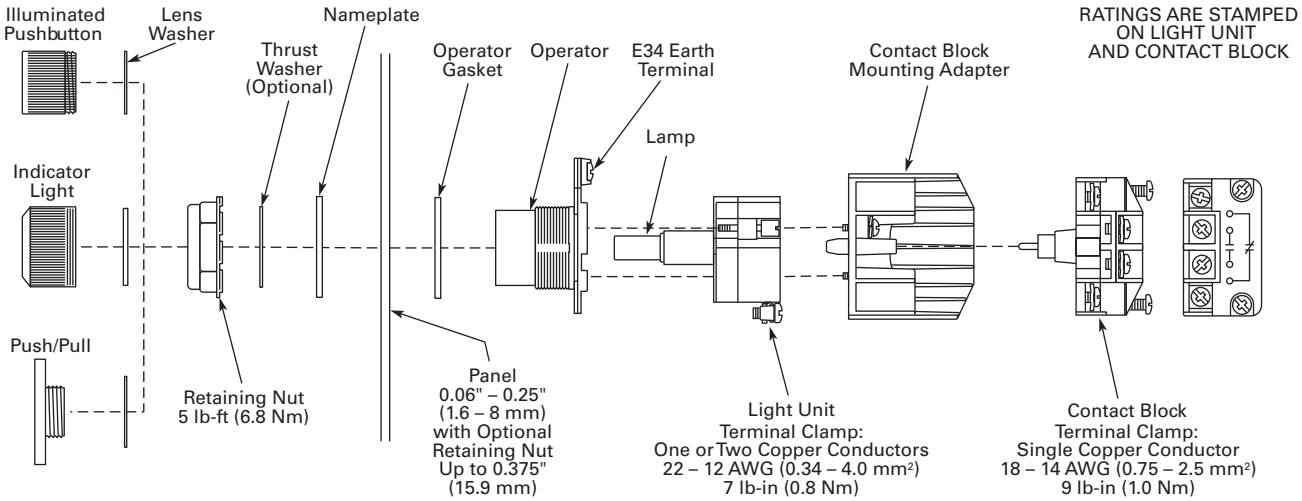


Drilling for One Hole Mounting and Dimensions for Minimum Spacing in Horizontal Rows.



NOTE: Suitable for Use in This Alternate Mounting Hole.

Operator Assembly



1

Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

Enclosures (Case and Cover)—Surface Mounting ①

	Number of Elements	10250T Catalog Number	E34 Catalog Number
Die Cast Enclosure 	**Die Cast Enclosure—Deep Cover—In-Line NEMA 4, 4X, 12, 13**		
	1	**10250TN11**	**E34N11**
	2	**10250TN12**	**E34N12**
	3	**10250TN13**	**E34N13**
	4	**10250TN14**	**E34N14**
Polyester Enclosure 	**Polyester—In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
Stainless Steel Enclosure 	**Stainless Steel** ②**—In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

Dimensions, see **Page V7-T1-381**.

Notes

① For spacing increments, see **Page V7-T1-256**.

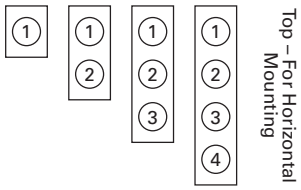
② 14 gauge, type 304.

Application Notes:

1. Operators need to be mounted in their horizontal orientation for all enclosures. For die cast enclosures remove locating nib on operators and use thrust washer (Catalog Number 10250TK3).
2. Polyester enclosures must be used when mounting illuminated operators.

Enclosure Layouts

Top – For Vertical Mounting



Top – For Horizontal Mounting

Technical Data and Specifications

Mechanical Ratings

Description	Specification
Frequency of Operation	
All pushbuttons	6000 operations/hr.
Key and lever selector switches	3000 operations/hr.
Life	
Pushbuttons	10 x 10^6 operations
Contact block	10 x 10^6 operations
Key and lever selector switches	0.25 x 10^6 operations
Shock Resistance	
Duration/force	20 ms ≥5g

Climatic Conditions

Description	Specification
Operating temperature	32° to 140°F (0° to 66°C)
Storage temperature	–40° to 176°F (–40° to 80°C)
Altitude	6,562 ft (2,000m)
Humidity	Max. 95% RH at 60°C

Terminals

Description	Specification
Light Units	
Clamps	Terminals are saddle clamp type for 1 x 22 AWG (0.34 mm^2) to 2 x 14 AWG (4.0 mm^2) conductors
Torque	7 lb-in (0.8 Nm)
Degree of protection against direct electrical contact	IP2X with fingerproof shroud
Contact Blocks	
Clamps	Terminals are stainless steel saddle clamp type for 1 x 18–14 AWG (0.75–2.5 mm^2) solid or stranded copper conductor
Torque	9 lb-in (1.0 Nm) with size 2 Phillips screwdriver
Degree of protection against direct electrical contact	IP2X with fingerproof shroud

Electrical Ratings

Description	Specification
Light Units	
Bulbs—average life:	
Transformer type	20,000 hrs.
Resistor/direct voltage type	2500 hrs. minimum at rated voltage
LED	60,000 to 100,000 hrs.

Electrical Ratings—Contact Block

Meet or Exceed NEMA Contact Rating Designations A600 and Q300

	A600 (AC)				Q300 (DC)	
Description	**120V**	**240V**	**480V**	**600V**	**125V**	**250V**
Make and emerg. interrupting capacity (amps)	60	30	15	12	0.55	0.27
Normal load break (amps)	6	3	1.5	1.2	0.55	0.27
Thermal current (amps)	10	10	10	10	2.5	2.5
Voltamperes:						
Maximum make	7200	7200	7200	7200	69	69
Maximum break	720	720	720	720	69	69

Temperature Codes

All illuminated devices have operating temperatures below 100°C except for the following catalog numbers with temperature codes per NEC table 500.5(d) and UL 1604:

10250T	E34	Temp. Code
10250T201H	**E34RB120H**	**T3C**
10250T202H	**E34RB240H**	**T3A**
10250T471H	**E34SB120H**	**TC3**
10250T472H	**E34SB240H**	**T3B**
10250T80H	—	**T3C**
10250T81H	—	**T3B**
All selector switches w/120 MB lamp		**T3C**
All illuminated devices with lamp 1835		**T4A**

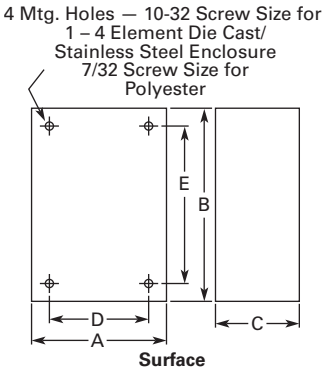
Note: For additional technical information, see Publication Number **TD.7.4.T.E.04**.

Dimensions

Approximate Dimensions in Inches (mm)

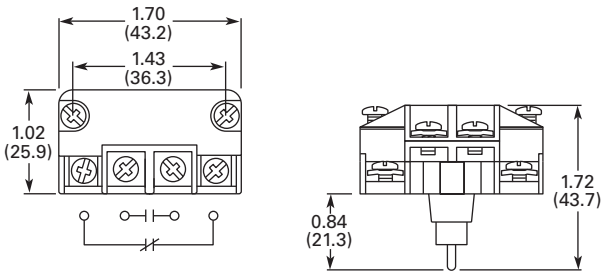
Surface Mounting

Die Cast, Polyester and Stainless Steel Enclosures

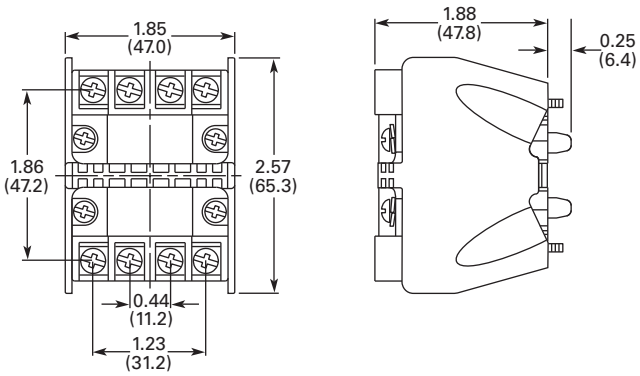


Number of Elements	Element Arrangement	Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Die Cast							
1	In-line	3.88 (98.6)	4.00 (101.6)	3.00 (76.3)	2.69 (68.3)	3.25 (82.6)	3/4
2		3.88 (98.6)	5.88 (149.4)	3.00 (76.3)	2.69 (68.3)	5.13 (130.3)	
3		3.88 (98.6)	7.75 (196.9)	3.00 (76.3)	2.69 (68.3)	7.00 (177.8)	1
4		3.88 (98.6)	9.63 (244.6)	3.00 (76.3)	2.69 (68.3)	8.88 (225.6)	
Polyester							
1	In-line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	①
2		3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3		3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4		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)	①
2		3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3		3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4		3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	

Contact Block



Mounting Adapter



Note

① No conduit entrance holes provided. Drill as required.

1

Ratings

Summary of NEC Article 500

The NEC Article 500 explains in great detail the requirements for the installation of wiring and electrical equipment in hazardous locations. The purpose of this summary is for general reference only, the National Electrical Code along with other applicable authorities having jurisdiction over the site should be the installer's guidelines when wiring or installing electrical equipment in any hazardous or potentially hazardous location.

Class I, Division 2 Definition

Class I, Division 2 covers hazardous locations where flammable gases, vapors or volatile liquids are handled either in a closed system, or confined within suitable enclosures, or where hazardous concentrations are normally prevented by positive mechanical ventilation. Areas adjacent to Division 1 locations, into which gases might occasionally flow, would also belong to Division 2 (NEC (500.5[b])).

Hazardous Location

Any area where there is the possibility of explosion and fire resulting from the presence of flammable vapors, liquids or gas, or combustible dust or fibers.

Summary of NEC Article 505

The NEC also classifies hazardous locations for flammable gases and vapors into zones under NEC 505. This system is more in line with the European Standards, CENELEC and IEC, with the major difference being that NEC 505 only classifies gases and vapors while CENELEC and IEC also include dusts.

Summary of Classifications

NEC 500–503

Class	Division	Group
I. Gas	1. Hazard may exist—May exist in atmosphere under normal operating conditions	A. Acetylene
		B. Hydrogen and manufactured gases containing 30% hydrogen by volume (e.g. butadiene, ethylene oxide, propylene oxide)
		C. Petrochemicals (e.g. carbon monoxide, ether, ethylene, hydrogen sulfide, morpholine, cyclopropane)
		D. Petrochemicals (e.g. gasoline, benzene, butane, propane, acetone, ammonia, vinyl chloride)
	2. Potential hazard—May be present in atmosphere only under abnormal circumstances OR location adjacent to Class I, Division 1 location	A. Acetylene
		B. Hydrogen and manufactured gases containing 30% hydrogen by volume (e.g. butadiene, ethylene oxide, propylene oxide)
		C. Petrochemicals (e.g. carbon monoxide, ether, ethylene, hydrogen sulfide, morpholine, cyclopropane)
		D. Petrochemicals (e.g. gasoline, benzene, butane, propane, acetone, ammonia, vinyl chloride)
II. Dust	1. Hazard may exist—May exist in atmosphere under normal operating conditions	E. Conductive and combustible dust (resistivity $<10^5$ ohm/cm) (metal dusts)
		F. Carbonaceous dusts (resistivity $>10^2$ ohms/cm but $\leq 10^8$ ohms/cm) (e.g. carbon black, coke dust, coal)
		G. Non-conductive combustible dust (resistivity $\geq 10^5$ ohms/cm) (e.g. grain dust, flour, starch, sugar, plastics)
	2. Potential hazard—May be present in atmosphere only under abnormal circumstances	F. Carbonaceous dusts (resistivity $>10^2$ ohms/cm but $\leq 10^8$ ohms/cm) (e.g. carbon black, coke dust, coal)
		G. Non-conductive combustible dust (resistivity $\geq 10^5$ ohms/cm) (e.g. grain dust, flour, starch, sugar, plastics)
III. Fibers	1. Production areas	Easily ignitable fibers or flyings
	2. Handling and storage areas	Easily ignitable fibers or flyings

NEC 505

Class	Zone	Group
I. Gas	0. Continuously present or present for long periods of time	IIC. Acetylene, hydrogen or equivalent hazard
		IIB. Acetaldehyde, ethylene or equivalent hazard
		IIA. Acetone, ammonia, ethyl alcohol, gasoline, methane, propane or equivalent hazard
	1. Likely to exist under normal operating or maintenance conditions or adjacent to Zone 0	IIC. Acetylene, hydrogen or equivalent hazard
		IIB. Acetaldehyde, ethylene or equivalent hazard
		IIA. Acetone, ammonia, ethyl alcohol, gasoline, methane, propane or equivalent hazard
	2. Not likely to occur in normal operation and if they do occur will only exist for short period or adjacent to Zone 1	IIC. Acetylene, hydrogen or equivalent hazard
		IIB. Acetaldehyde, ethylene or equivalent hazard
		IIA. Acetone, ammonia, ethyl alcohol, gasoline, methane, propane or equivalent hazard

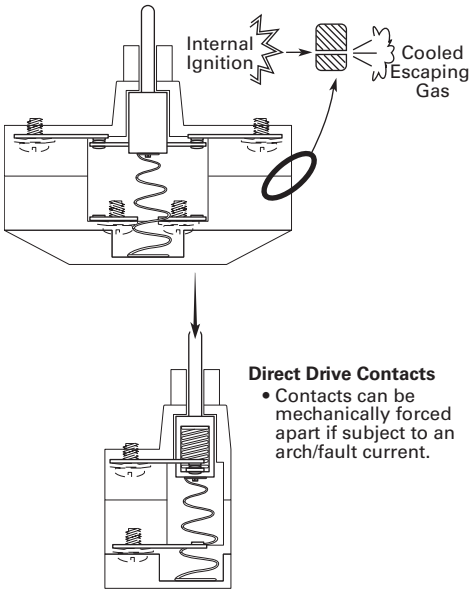
Note

For additional information on grouping of compounds, see NFPA 497M-1991 and NFPA 325-1994.

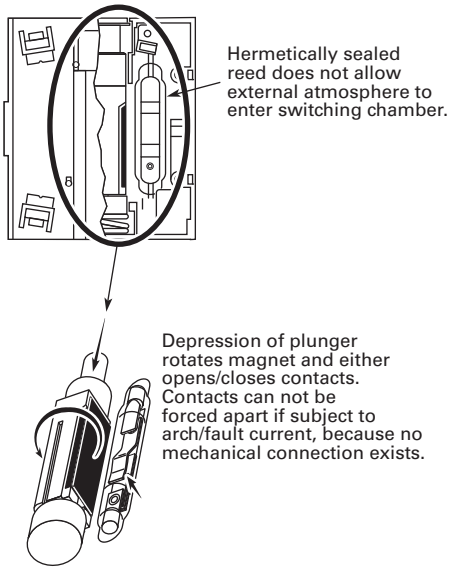
Summary of Basic Methods Available for Class I, Division 2 Locations

Method	Features Configuration	Advantages	Disadvantages
Factory sealed contact block	Closed-ended labyrinth contact block with an incendive circuit incapable of external ignition	Higher continuous carrying amperages—up to 10A Direct drive contacts—contacts can be forced open Suitable for use in all enclosures Best suited for motor control applications	May not be suitable for logic level circuits
Hermetically sealed block	Reed switch sealed against an external atmosphere	Suitable for low energy level circuits Suitable for use in all enclosures	Lower continuous carrying amperages are not suitable for motor control applications (typically 3A to 5A rated) Contacts cannot be forced open Permanent magnet attracts metallic dust and filings that can reduce the electrical creepage distance between live terminals
Explosion proof enclosures (Class I, Division 1 and 2)	Enclosures capable of withstanding an internal explosion while preventing external ignition. Enclosures designed for Class I, Division 1 can safely be used in Class I, Division 2	Higher level of protection than required for Class I Division 2	Higher material and installation costs Conduit sealing is still required Time consuming maintenance

Factory Sealed Contact Blocks



Hermetically Sealed Reed Contact Block



Explosion Proof Enclosure