

EFD/EFDB and EDS Series Factory Sealed Control Stations

Explosionproof, Dust-Ignitionproof

NEC:

Class I, Division 1 and 2, Groups B+, C, D
 Class II, Division 1 and 2, Groups E, F, G
 Class III
 NEMA 3, 7CD, 9EFG

Applications

- Push buttons and selector switches are used in conjunction with contactors or magnetic starters for remote control of motors. They provide circuit control and/or selection.
- Pilot lights provide visual assurance that an electrical function is being performed at a remote or local location.
- EFD/EFDB and EDS factory sealed control stations confine arcing of device within the enclosure, preventing ignition of ignitable atmospheres during control operation of motors and other equipment.
- Used in classified areas where flammable vapors, gases or highly combustible dusts are present.
- For installation in chemical and petrochemical plants, refineries, and other process industries.

Features

- EFD/EFDB Push Buttons and Selector Switches
 - Eliminate need for adding sealing fittings and compound at each conduit entrance.
 - Heavy-duty push buttons, 10 Amp, 600 Vac rated.
 - Dozens of possible combinations of push buttons, pilot lights and selector switches.
 - Smooth, rounded integral bushing in each EFD/EFDB hub protects conductor insulation.
 - Accurately tapped, tapered hubs for tight, rigid joints and ground continuity.
 - Stainless steel push button shaft operates within stainless steel bushing assuring long, maintenance free operation.
 - Push button and selector switch contacts are silver cadmium oxide which are "sealed" in lower phenolic chamber isolated from corrosive elements. Assures positive contact and long, trouble-free operation.
 - Enclosed stainless steel helper spring prevents accidental operation of push button in severe vibration installations.
 - Push button models also available with dust cap for use in areas where excessive dust, moisture or corrosive conditions are encountered.
 - Corrosion resistant captive stainless steel hex head cap screws hold EFKB covers to body.
 - All EFD/EFDB momentary push buttons are supplied with lockout type guards as standard. Hole in guard will accept locks with up to 1/4" hasp. Permits locking of push button to prevent unauthorized operation.
 - Clearly marked terminals with brass screws assure quick, easy wiring.
- EFD/EFDB Pilot Lights
 - Factory sealed pilot lights supplied with red jewel/guard assembly and 120 Vac/Vdc, 50/60 Hz, 6 Watt, Type 6S6 lamp.
 - Models also available in combination with factory sealed push buttons and selector switches.
- EFD/EFDB Selector Switches
 - Factory sealed selector switches furnished with nylon cam-operated, heavy-duty push buttons for either 2-position or 3-position maintained contact operation.
 - High thermal and arc resistance, high dielectric strength.
- EDS Push Buttons
 - Factory sealed — eliminates need for adding sealing fittings and compound at each conduit entrance.
 - Heavy duty, 10 Amp, 600 Vac.
 - Switch is enclosed in separate sealing chamber.



EFDB Push Button



EFDB Photocontrol



EDS Rocker Arm Push Button



EFDB Push Button with Dust Cap



EFD Combination Pilot Light and Push Buttons



EFD Pilot Light



EFDB Selector Switch



EFDB Maintained Push Button

- Sealing chamber has smooth, double flanges that mate both to cover and mounting enclosure to provide flame-tight joints.
- Pigtail leads from push buttons are factory sealed in sealing well.
- Stainless steel hex head screws attach sealing chamber to cover and mounting enclosure.
- Side rocker arm push button has lockout holes.
- EFD/EFDB backbox supplied with internal ground screw.

Standard Materials

- EFDB control stations: malleable iron body with copperfree (4/10 of 1% max.) aluminum cover
- SPBB push button: copperfree (4/10 of 1% max.) aluminum upper barrel and phenolic lower barrel with nylon plastic button (dust cap models have neoprene buttons)
- SPLN/SPLS pilot light: copperfree (4/10 of 1% max.) aluminum guard and body assembly; steel clamping ring; and tempered glass jewel
- SSBA selector switch: copperfree (4/10 of 1% max.) aluminum operator mechanism, nylon cam, and sealed phenolic contact block
- EDS control stations: malleable iron body and cover; copperfree (4/10 of 1% max.) aluminum sealing chamber; and nylon operating handle

Standard Finishes

♦ Select items suitable for Class I, Division 1 and 2, Groups B, C and D; Class II, Groups E, F and G and Class III. See product selection pages for suitable items.

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- EFD/EFDB control stations: body, triple-coat—(1) zinc electroplate, (2) chromate, and (3) epoxy powder coat
- SPBB push button, SPLN/SPLS pilot light and SSBA selector switch: natural finish
- EDS control stations: body and cover: triple-coat—(1) zinc electroplate, (2) chromate, and (3) epoxy powder coat sealing chamber, natural finish

Options

- 1- or 2-gang copperfree (4/10 of 1% max.) aluminum bodies and covers available. Add suffix — **A**.
- Three position selector switches with modified operation.
 - Momentary contact right position, spring return to center, maintained contact left position. Add suffix — **SRC**.
 - Momentary contact left position, spring return to center, maintained contact right position. Add suffix — **SLC**.
 - Alternate contacts add suffix — **ALT**.
- EFD/EFDB selector switch lockout locks two or three position handle in any position. Add suffix — **LD**.
- Push button front operated mushroom head (momentary contact): Order by suffixes for desired color as follows:
 - Red — **NMRBRE**
 - Green — **NMRBGR**
 - Black — **NMRBBL**
- EFD/EFDB pilot light jewel/guard assembly. Order by suffixes if color desired is other than red, as follows:
 - Amber — **JGBA**
 - Blue — **JGBB**
 - Clear — **JGBC**
 - Green — **JGBG**;
 - Opal — **JGBO**
- For colored LED jewel/guard assembly, order by suffixes:
 - Red — **LEDR**
 - Green — **LEDG**
 - Amber — **LEDA**
- EFD/EFDB pilot light transformers for single pilot light per gang. Order by suffix:

Primary Voltage	Lamp Voltage	Suffix
220	120	-TR-2
277	120	-TR-3
440	120	-TR-4
550	120	-TR-5

- EFD and EDS units may be supplied with brazed hubs as 3-, 4-, and 5-gang in a variety of hub configurations. See Ordering Information page for how to order these and other "custom" units by adding suffixes to mounting body catalog numbers.
- Securing Rod for EFD/EFDB Push Button Lockout Guard. Add suffix — **SR**.
- NPBRKT** Nameplate Mounting Bracket to make circuit description/identification easy.
 - Pre-drilled holes in bottom of bracket allow direct mounting to control stations with existing cover bolts.
 - Pre-drilled holes in middle of bracket allow mounting of customer's circuit identification nameplate; epoxy glue may also be used for mounting (phenolic nameplate not included).
 - Bracket eliminates costly field installation of drilling and tapping to accommodate circuit identification nameplate.
 - Brackets fit side-by-side on 2-, 3- and 4-gang boxes and 3-devices.

NEC Certifications and Compliances

- UL Standards: UL 508, UL 698, UL 1203
- UL Listed: E10449, E81751

Related Products

- For Hazardous Location Photocontrols, see *Lighting Section*.

Illustrated Features



EDS factory sealed rocker arm push button control station — shows separate sealing chamber and device construction. Rocker arm has holes for lock.

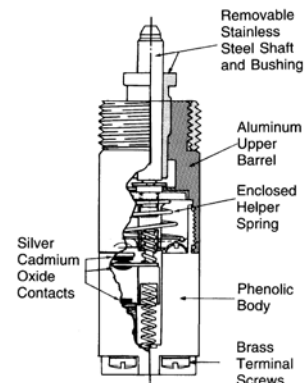


Securing Rod for EFD/EFDB Push Button Lockout Guard — available as an optional item as catalog number NBL-SR (single guard only) or add Suffix — SR to push button catalog number. Lockout Guard, furnished as standard with the EFD/EFDB push button, may also be padlocked.



SPBB factory sealed push button used in EFD/EFDB Series — standard type and unit with dust cap.

SPBB Design Features



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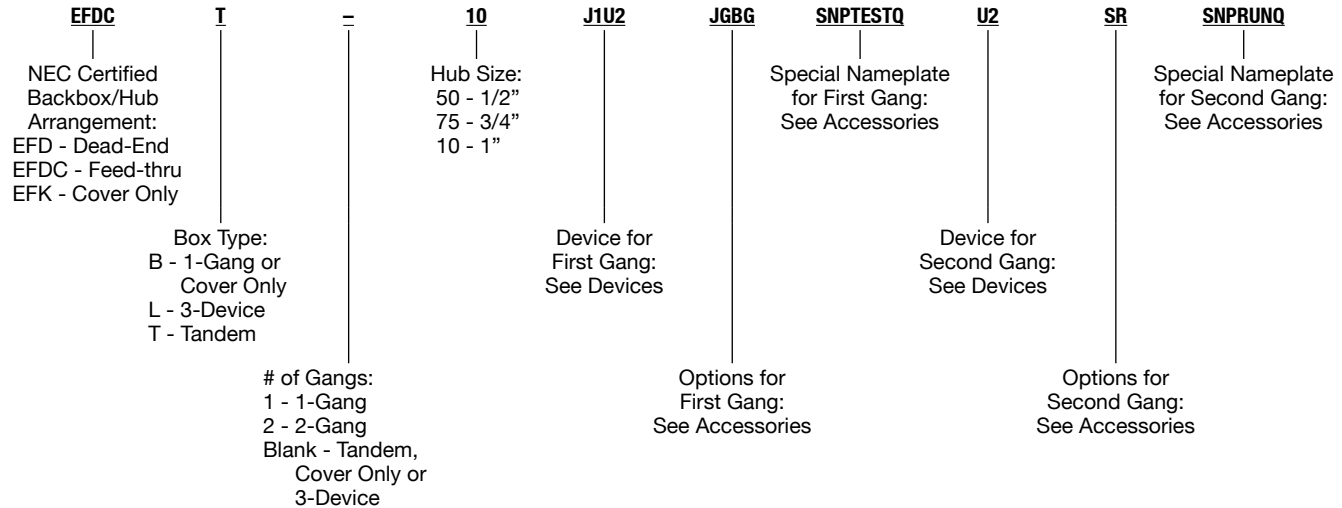
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Catalog Numbering Guide



Full Catalog # EFDCT10-J1U2-JGBG-SNPTESTQ-U2-SNPTESTQ-SNPRUNQ

Feed-Thru Tandem Box with 1" Hubs.
 In Gang #1: 2 Momentary Push Buttons and a Green Pilot Light.
 In Gang #2: 2 Momentary Push Buttons with One Securing Rod.
 With Special "Test" and "Run" Push Button Nameplates.

Options

Options Description	Suffix
Momentary Push Button Securing Rod	SR
Selector Switch Lockout	LD
Spring Return From Right Selector Switch (3 Positions Only)	SRC
Spring Return From Left Selector Switch (3 Positions Only)	SLC
Alternate Contacts Selector Switch	ALT
Change One Red Lens to Green Lens	JGBG
Change One Red Lens to Opal Lens	JGBO
Change One Red Lens to Amber Lens	JGBA
Change One Red Lens to Blue Lens	JGBB
Change One Red Lens to Clear Lens	JGBC
Add 220/120 Vac Transformer (J1 Device Only)	TR2
Add 277/120 Vac Transformer (J1 Device Only)	TR3
Add 440/120 Vac Transformer (J1 Device Only)	TR4
Add 550/120 Vac Transformer (J1 Device Only)	TR5
Change One Red Pilot to Red LED	LEDR
Change One Red Lens to Green LED	LEDG
Change One Red Lens to Amber LED	LEDA
Add Red Mushroom Head to Momentary Push Button	NMRBRE
Add Black Mushroom Head to Momentary Push Button	NMRBBL
Add Green Mushroom Head to Momentary Push Button	NMRBGR
Locking Guard for Maintained Push Button	SMPBLG

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Devices	Available in 1-G, 2-G, Tandem	Available in 3-Device	Suffix
One Pilot Light (Red Standard)	Y		J1
Two Pilot Lights	Y		J2
One Pilot Light and One Momentary Push Button	Y		J1U1
One Pilot Light and Two Momentary Push Buttons	Y	Y	J1U2
One Pilot Light and One Maintained Push Button	Y		J1UM1
One Pilot Light and One Dust Cap Push Button	Y		J1DU1
One Pilot Light and One 12 Selector Switch (2 Position, 2 Circuit)	Y		J112
One Pilot Light and One 35 Selector Switch (2 Position, 4 Circuit)	Y		J135
One Pilot Light and One 102 Selector Switch (3 Position, 2 Circuit)	Y		J1102
One Pilot Light and One 345 Selector Switch (3 Position, 4 Circuit)	Y		J1345
One Monetary Push Button	Y		U1
Two Monetary Push Buttons	Y		U2
Two Side-By-Side Momentary Push Buttons	Y		U2DBL
Three Monetary Push Buttons	Y	Y	U3
One Momentary Push Button and One Maintained Push Button	Y		U1UM1
One Momentary Push Button and One Dust Cap Push Button	Y		U1DU1
One Momentary Push Button and One 12 Selector Switch (2 Position, 2 Circuit)	Y		U112
One Momentary Push Button and One 35 Selector Switch (2 Position, 4 Circuit)	Y		U135
One Momentary Push Button and One 102 Selector Switch (3 Position, 2 Circuit)	Y		U1102
One Momentary Push Button and One 345 Selector Switch (3 Position, 4 Circuit)	Y		U1345
One Maintained Push Button (Mushroom Head - Red)	Y		UM1
Two Maintained Push Button	Y		UM2
One Maintained and One Dust Cap Push Button	Y		UM1DU1
One Maintained Push Button and One 12 Selector Switch (2 Position, 2 Circuit)	Y		UM112
One Maintained Push Button and One 35 Selector Switch (2 Position, 4 Circuit)	Y		UM135
One Maintained Push Button and One 102 Selector Switch (3 Position, 2 Circuit)	Y		UM1102
One Maintained Push Button and One 345 Selector Switch (3 Position, 4 Circuit)	Y		UM1345
One Dust Cap Push Button	Y		DU1
Two Dust Cap Push Buttons	Y		DU2
One Dust Cap and One 12 Selector Switch (2 Position, 2 Circuit)	Y		DU112
One Dust Cap and One 35 Selector Switch (2 Position, 4 Circuit)	Y		DU135
One Dust Cap and One 102 Selector Switch (3 Position, 2 Circuit)	Y		DU1102
One Dust Cap and One 345 Selector Switch (3 Position, 4 Circuit)	Y		DU1345
One 12 Selector Switch (2 Position, 2 Circuit)	Y		12
One 35 Selector Switch (2 Position, 4 Circuit)	Y		35
One 102 Selector Switch (3 Position, 2 Circuit)	Y		102
One 345 Selector Switch (3 Position, 4 Circuit)	Y		345
120 Vac Photocell	Y		PC120
277 Vac Photocell	Y		PC277
Three Dust Cap Push Buttons		Y	DU3
One Momentary and Two Maintained Push Buttons		Y	U1UM2
Two Momentary and One Maintained Push Buttons	Y	Y	U2UM1
Three Maintained Push Buttons		Y	UM3
Three Pilot Lights		Y	J3
Two Pilot Lights and One Momentary Push Button		Y	J2U1
One Pilot Light and Two Dust Cap Push Buttons		Y	J1DU2
Two Pilot Lights and One Dust Cap Push Button		Y	J2DU1
One Pilot Light and Two Maintained Push Buttons		Y	J1UM2
Two Pilot Lights and One Maintained Push Button		Y	J2UM1

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Nameplates ①

Description	Suffix
Mushroom Head Push Buttons (Maintained and Momentary)	
Start	MNPSTQ
Stop	MNPSPQ
Emergency Stop	MNPESTPQ
Blank	MNPBQ
Pilot Light Nameplates	
Blank	LNPBQ
Forward	LNPFWQ
Jog	LNPJOGQ
Run	LNPRUNQ
Stop	LNPSPQ
Start	LNPSTQ
Down	LNPDOWNQ
Fast	LNPFASTQ
Slow	LNPSLOWQ
Raise	LNPRAISEQ
Lower	LNPLOWERQ
Reset	LNPRESETQ
Off	LNPOFFQ
On	LNPONQ
Reverse	LNPREVQ
Close	LNPCLOSEQ
Open	LNPOPENQ
Up	LNPUPQ
Test	LNPTTESTQ
Low	LNPLOWQ
High	LNPHIGHQ
Two Position Selection Switch Nameplates	
Forward—Reverse	SLNPFRQ
Hand—Auto ②	SLNPHAQ
On—Off	SLNPOO
Start—Stop	SLNPSS
Blank	SLNPBQ
Up—Down	SLNPUDQ
Run—Jog	SLNPRJQ
Auto—Hand	SLNPAHQ
Off—Remote	SLNPORQ

Description	Suffix
Three Position Selection Switch Nameplates	
Forward—Off—Reverse	SLNPFORQ
Hand—Off—Auto ②	SLNPHOAQ
Run—Off—Jog	SLNPROJQ
Blank	SLNPB3
Reverse—Off—Forward	SLNPROFQ
Auto—Off—Hand	SLNPAOHQ
Hand—Off—Remote	SLNPHORQ
1—Off—2	SLNP102Q
Jog—Off—Run	SLNPJORQ
Stop—Run—Start	SLNPSRSQ
Local—Off—Remote	SLNPLOQ
Momentary Push Buttons	
<i>For Rectangular Weatherboot Style Only (Not for round weatherboot style)</i>	
Blank ②	SNPBQ
Forward	SNPFWQ
Jog	SNPJOGQ
Run	SNPRUNQ
Stop ②	SNPSPQ
Start ②	SNPSTQ
Down	SNPDOWNQ
Fast	SNPFASTQ
Slow	SNPSLOWQ
Raise	SNPRAISEQ
Lower	SNPLOWERQ
Reset	SNPRESETQ
Off	SNPOFFQ
On	SNPONQ
Reverse	SNPREVQ
Close	SNPCLOSEQ
Open	SNPOPENQ
Up	SNPUPQ
Test	SNPTTESTQ
Low	SNPLOWQ
High	SNPHIGHQ

① Custom nameplates are not available.












② Included as standard (no need to use suffix).

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EFKB Covers With Pilot Lights and/or Push Buttons. For EFD Bodies

NEC:
 Class I, Division 1 and 2, Groups C, D
 Class II, Division 1 and 2, Groups E, F, G
 Class III

Description		Nameplate Marking	Catalog Number
Cover complete with Push Button — Factory Sealed — Momentary Contact ①②			
<i>For use on standard EFD bodies</i>			
		1 Circuit Universal	Start/Stop
		2 Circuit Universal	Start/Stop
EFKB-U1	EFKB-U2		EFKB-U1
			EFKB-U2
Cover complete with Red Mushroom Head Push Button — Factory Sealed — Maintained Contact ①②			
<i>For use on standard EFD bodies – Emergency Stop Nameplate</i>			
		1 Circuit Universal (Red)	Emergency Stop
			EFKB-UM1
Cover complete with Pilot Lights — Factory Sealed — Momentary Contact ①②			
<i>6 Watt, 120 Vac, Type 6S6 Lamp. For use on standard EFD bodies</i>			
		One pilot light (red jewel ③) and two universal push buttons	Start/Stop
J1U2	J1U1	One pilot light (red jewel ③) and one universal push button	Start/Stop
		One pilot light (red jewel ③) and one universal push button—dust cap	Start/Stop
J1	J2	One pilot light (red jewel ③)	Start/Stop
		Two pilot lights (red jewels ③)	Start/Stop
		Photocontrol relay cover (120 Vac)	EFKB-PC120
		Photocontrol relay cover (208-277 Vac)	EFKB-PC277
	PC		

① All covers are copperfree aluminum. Supplied with four captive stainless steel bolts.
 ② When installed on a single gang box the cover assembly is suitable for use in Group B environments but will not be marked Group B.
 ③ Colored jewels, pilot lights and LED's listed under accessories and parts

EFD/EFDB and EDS Series Factory Sealed Control Stations

EFD Cast Device Box Ordering Information. Blank Bodies for Brazed Threaded Hubs

1-, 2-, 3-, 4- and 5-Gang Boxes. Brazed Threaded Hubs for Rigid Conduit, 1/2" thru 1"; Brazed Union Hubs, 1/2" thru 1".

NEC:

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- Class II, Division 1 and 2, Groups E, F, G
- Class III
- NEMA 7CD, 9EFG

Determine catalog number as follows:

- (1) Select EFD device box catalog number;
- (2) Select "Standard Hub Arrangement Diagram" number; and
- (3) Select symbols that represent hub sizes from "Symbol Table." (Use "0" where no hub is required, and separate the various divisions of the complete catalog number by dashes.)

Example

The blank body device box selected is EFD3NL and the hub arrangement is diagram #8. Hub "a" is to be 3/4" brazed threaded; hub "b", 1" brazed threaded; hub "c", 3/4" brazed threaded; hub "d", no hub is required; and hub "e", 1" brazed union.

The complete catalog number will be: **EFD-3NL-8-23203E**

If a "Standard Hub Arrangement" is not suitable for the application, or when hubs are to be more accurately spaced, submit sketch locating hubs (1) from centerlines of walls and (2) from outside back of box (or from mounting lug surface if lugs are supplied).

All hubs will be located in centerlines of walls and evenly spaced unless otherwise specified.

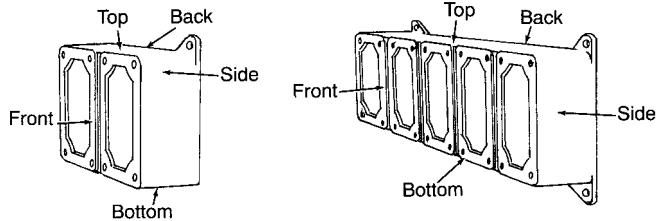
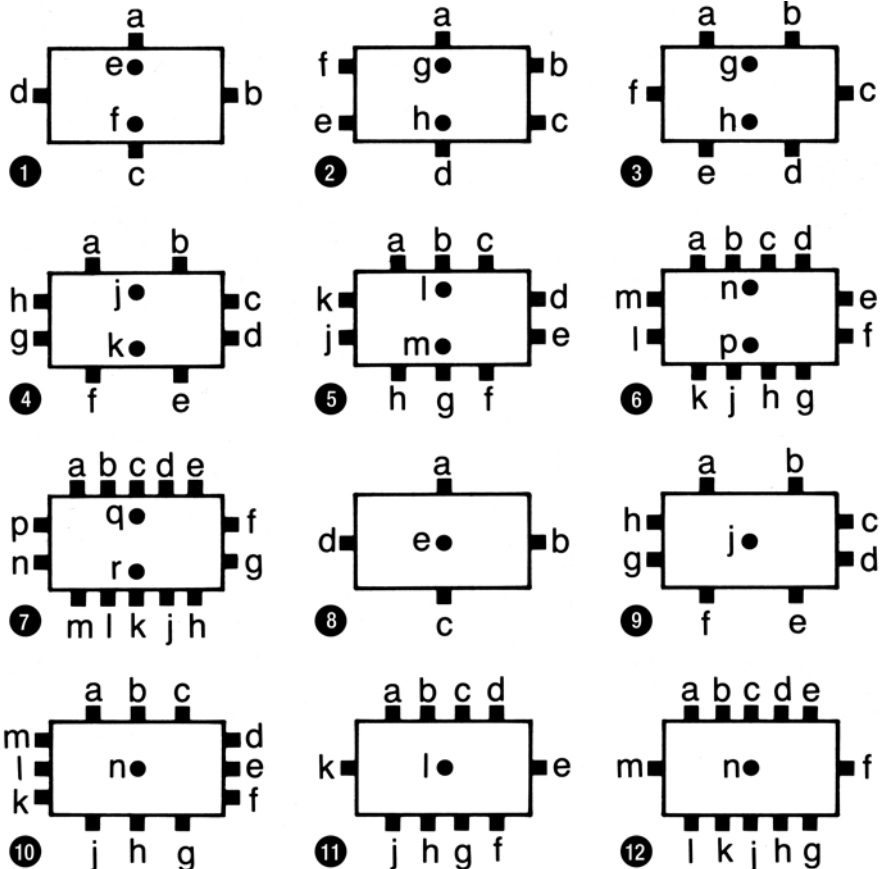
Symbol Table

Hub Size (Inches)	Brazed Threaded Hub Symbol	Brazed Union Hub Symbol
Blank	0	0
1/2	1	1E
3/4	2	2E
1	3	3E

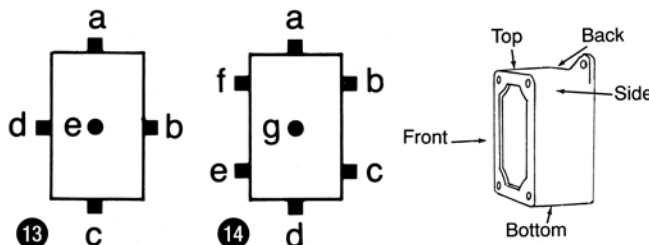
Standard Hub Arrangement Diagrams

Hub "a" is always TOP of box

2-, 3-, 4- and 5-Gang (Front View)



1-Gang (Front View)



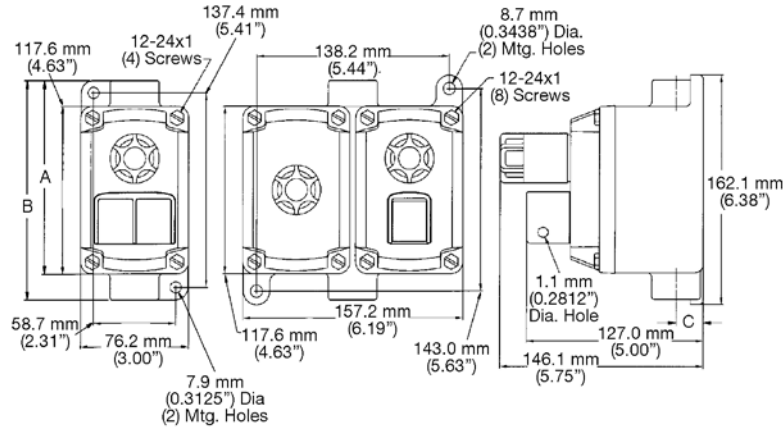
EFD/EFDB and EDS Series Factory Sealed Control Stations

EFD/EFDB 1- and 2-Gang

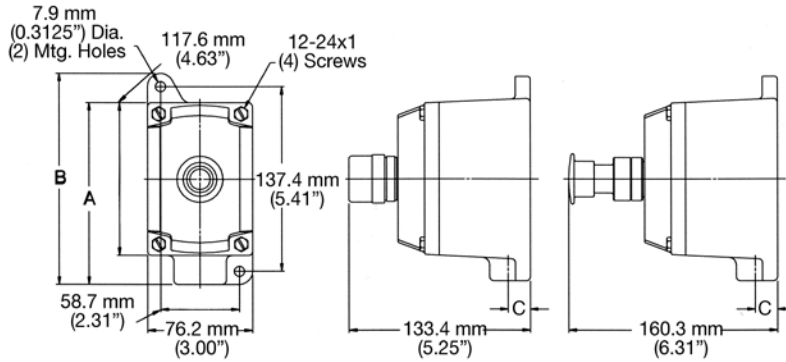
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Dimensions in Millimeters (Inches)

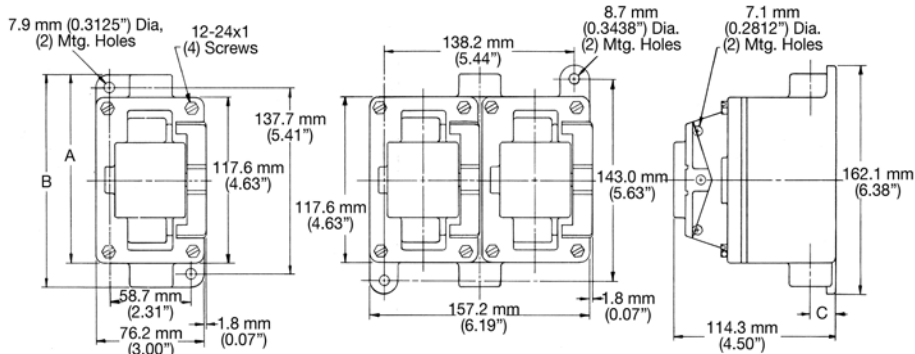
EFD/EFDB — 1- and 2-Gang Combination Pilot Light and Push Buttons



EFD/EFDB — 1-Gang Dust Cap Push Button and 1-Gang Maintained Contact Push Button



EDS — 1- and 2-Gang Rocker Arm Push Button



Hub Size (Inches)	Dimensions in Millimeters (Inches)		
	A	B	C
1/2 and 3/4	136.7 (5.38)	155.7 (6.13)	19.8 (0.78)
1	139.7 (5.50)	160.3 (6.31)	23.9 (0.94)

EFD/EFDB and EDS Series Factory Sealed Control Stations

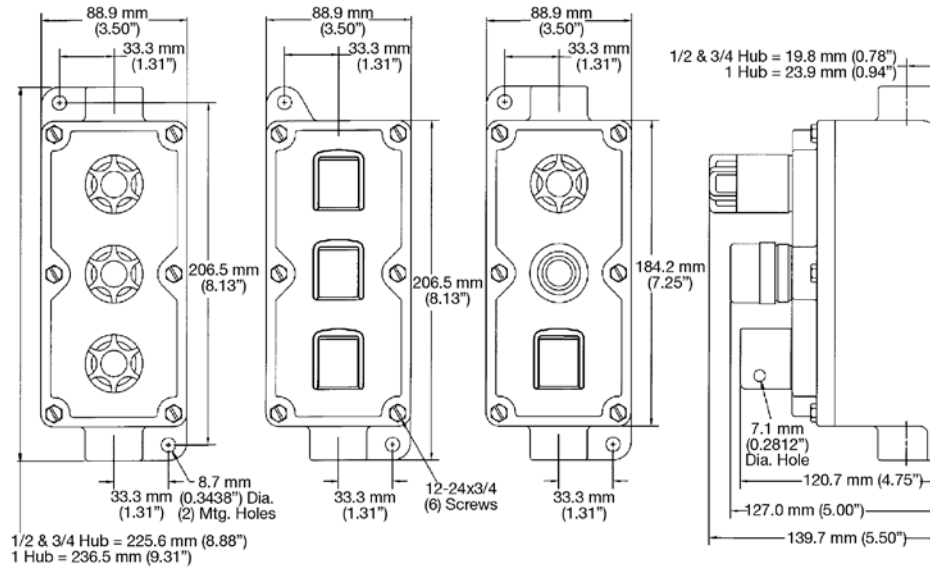
EFD 3-Device and 2-Gang Tandem

NEC:

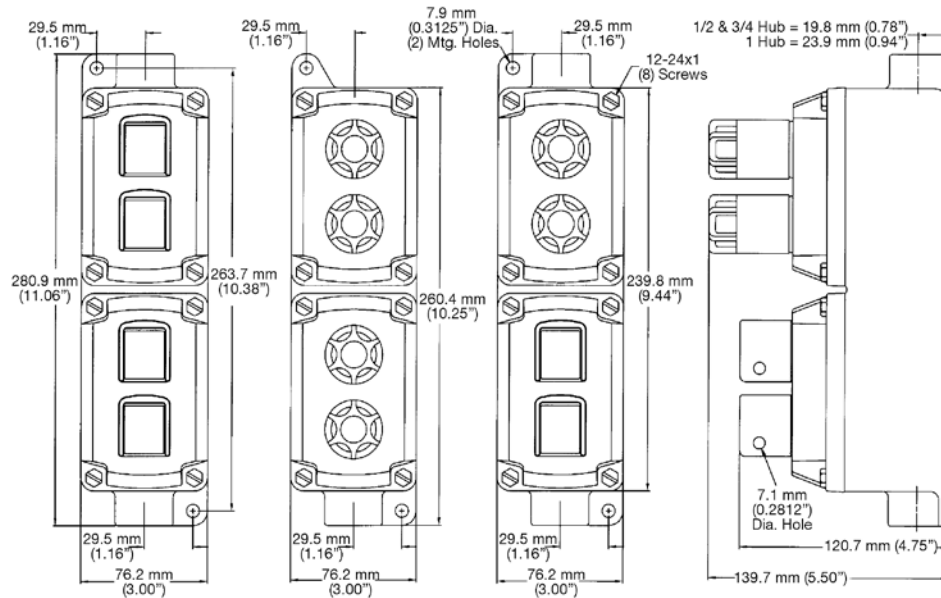
Class I, Division 1 and 2, Groups C, D
 Class II, Division 1 and 2, Groups E, F, G
 Class III
 NEMA 7CD, 9EFG

Dimensions in Millimeters (Inches)

EFD — 3-Device Pilot Light and Push Buttons



EFD — 2-Gang Tandem Pilot Light and Push Buttons



Appleton

CONTROLS: NEC/CEC EXPLOSIONPROOF CONTROL STATIONS AND SWITCHES

EFD/EFDB and EDS Series Factory Sealed Control Stations

Mounting Bracket

NEC:
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Class II, Division 1 and 2, Groups E, F, G
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Dimensions in Millimeters (Inches)

NPBRKT Nameplate Mounting Bracket

