

EFS explosionproof control stations

Fully assembled factory sealed devices for Group B applications

Cl. I, Div. 1 & 2, Groups B, C, D
Cl. II, Div. 1, Groups E, F, G
Cl. II, Div. 2, Groups F, G
Cl. III
NEMA 3, 7BCD, 9EFG

Explosionproof
Dust-ignitionproof
Raintight
Wet Locations

4C

Applications:

Factory sealed control stations are installed in a rigid metallic conduit system for surface mounting adjacent to, or remote from, equipment being controlled, and are used:

- In areas which are hazardous due to the presence of flammable vapors, gases or highly combustible dusts
- To prevent arcing of enclosed device from causing ignition of a specific hazardous atmosphere, or atmospheres, external to the enclosure
- In industrial areas such as chemical plants, oil and gas refineries, paint and varnish manufacturing plants, gasoline bulk loading terminals, grain elevators, grain processing industries, coal processing or handling areas, or metal handling or finishing areas
- In non-hazardous areas where sturdy, durable enclosures are required

Pushbutton control stations are used:

- In conjunction with magnetic starters or contactors for control of motors

Pilot lights are used:

- To visually indicate at a remote location that the desired function is being performed

Features:

- Factory sealed devices have many distinct advantages:
 - Reduce installation problems
 - Eliminate external seals
 - Lower installation costs
 - Improve safety
- Small, compact enclosures with accurately ground flange on both body and cover for flamtight joint
- Mounting lugs and taper tapped hubs with integral bushings
- Large machine screws for fastening covers to bodies
- Lockout provisions on front operated pushbutton (marked "STOP" and "OFF") and selector switch covers
- Close tolerances in machining of wide, mating flanges and journalled shafts and bearings for front button operation, produces flamtightness of enclosure joints
- Dead end (EFS) or through feed (EFSC) hubs – 1/2" to 1" sizes
- When "STOP" is indicated, button is automatically red; when "START" is indicated, button is automatically green; otherwise, black buttons are standard

Standard materials:

- Bodies and covers – Feraloy iron alloy or copper-free aluminum
- Operating shafts and shaft bushings – stainless steel
- Pushbutton guards – type 6/6 nylon

Standard finishes:

- Feraloy iron alloy – electrogalvanized and aluminum acrylic paint
- Copper-free aluminum – natural
- Type 6/6 nylon – black
- Stainless steel – natural



Certifications and compliances:

NEC/CEC:

- Class I, Divisions 1 & 2, Groups B, C, D
- Class II, Division 1, Groups E, F, G
- Class II, Division 2, Groups F, G
- Class III

UL standard:

- UL1203

CSA standard:

- C22.2 No. 30

Environmental ratings:

- NEMA/EMAC 3, 7BCD, 9EFG
- -25°C to +40°C standard; -50°C to +60°C with optional suffix (see below)

Options:

Description	Suffix
• Bodies and covers – copper-free aluminum.....	SA
• Extended temperature range (-50°C to +60°C).....	XT

Available on pushbuttons, pilot lights and selector switches only

Pushbuttons:

- Momentary red emergency "STOP" button.....**S111**
Front operated mushroom button, breaks normally closed contacts only
- Lockout provision on front operated pushbutton cover.....**S153**
Standard on buttons marked "OFF" and "STOP"
- Maintained red emergency "STOP" button with lockout.....**S769**
Front operated mushroom button breaks normally closed and makes normally open contacts (push to stop)
Lockout is standard (will not fit with a pilot light if transformer is required)

Pilot lights:

- LED pilot lights in place of standard incandescent pilot lamps.. **LED**
- 24 VDC operation on pilot lights.....**S300**

Three-position selector switches with modified operation:

- Momentary contact clockwise operation, spring return to center, maintained contact counterclockwise operation.....**S634**
- Momentary contact counterclockwise operation, spring return to center, maintained contact clockwise operation.....**S635**
- Spring return to center from left and right.....**S842**

Accessories (ordered separately):

Description	Cat. #
• Stainless steel ID holder.....	DSD SID K1

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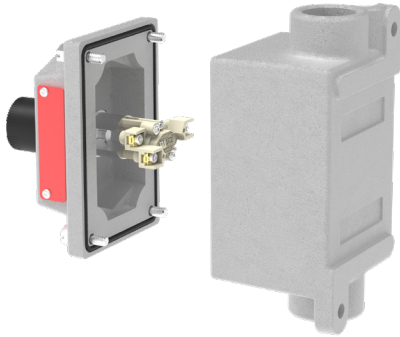
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Methods of factory sealing:

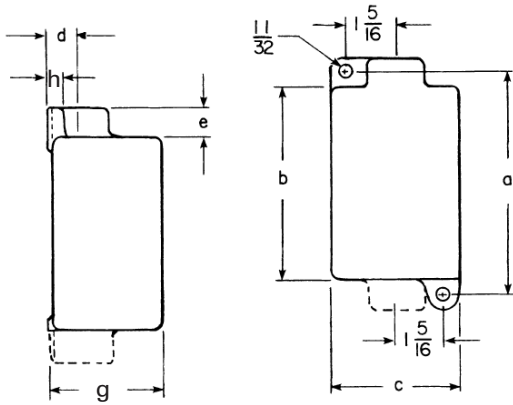
EFS

Factory sealed EFS pilot light, pushbutton and selector switch control stations do not need external sealing^A. Device contacts are factory sealed in explosionproof ESWP contact blocks. Small, compact enclosures have accurately ground wide flanges on both the body and cover for a flamtight joint.



Dimensions^B (in inches):

Back boxes

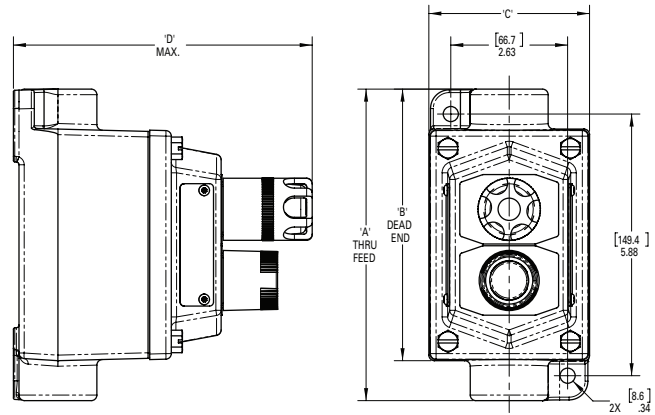


Typical body side view

Front view

Control station type	a	b	c	d	e	g	h
EFS single-gang	5.88	5.03	3.44	1.00	0.94	2.47	0.47

Control stations



Control station type	A	B	C	D max.
EFS single-gang	6.78	6.03	3.44	6.79

^AFor control stations with 1" hub size, external conduit seal required in Division 1, Group B applications within 5 feet (1.5 meters) of enclosure.

^BDimensions are approximate, not for construction purposes.

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Fully assembled factory sealed pushbutton stations

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Pushbutton stations – front operated, 600 VAC heavy duty



EFS2192
(standard black pushbutton)



EFSC215

Ordering information[Ⓐ]:

Number of buttons	1	2	2	1	1
Normal position	1 circuit universal	2 circuits universal	2 circuits [Ⓑ]	2 circuits universal	2 circuits [Ⓑ]
Marking	Specify	Specify	START-STOP unless otherwise specified	Specify	Specify
Diagram					

Hub size	Cat. #	Cat. #	Cat. #	Cat. #	Cat. #
Dead end					
1/2"	EFS1184 [Ⓐ]		EFS115 [Ⓐ]		EFS1155 [Ⓐ]
3/4"	EFS2184 [Ⓐ]	EFS2190 [Ⓐ]	EFS215 [Ⓐ]	EFS2192 [Ⓐ]	EFS2155 [Ⓐ]
1"	EFS3184 [Ⓐ]	EFS3190 [Ⓐ]	EFS315 [Ⓐ]	EFS3192 [Ⓐ]	EFS3155 [Ⓐ]
Through feed					
1/2"	EFSC1184 [Ⓐ]	EFSC1190 [Ⓐ]	EFSC115 [Ⓐ]	EFSC1192 [Ⓐ]	EFSC1155 [Ⓐ]
3/4"	EFSC2184 [Ⓐ]	EFSC2190 [Ⓐ]	EFSC215 [Ⓐ]	EFSC2192 [Ⓐ]	EFSC2155 [Ⓐ]
1"	EFSC3184 [Ⓐ]	EFSC3190 [Ⓐ]	EFSC315 [Ⓐ]	EFSC3192 [Ⓐ]	EFSC3155 [Ⓐ]

[Ⓐ]Specify indicating plate markings, if desired. Typical indicating plate markings are listed below:

START	OFF	RESET	LIGHT ON
STOP	RUN	TRIP	HAND
ON	JOG	TEST	AUTOMATIC
EMERGENCY	OPEN	DOWN	RAISE
FORWARD	CLOSE	IN	LOWER
REVERSE	UP	OUT	

Options:

- | Description | Suffix |
|--|-------------|
| • Bodies and covers – copper-free aluminum..... | SA |
| • Extended temperature range (-50°C to +60°C)..... | XT |
| • Momentary red emergency "STOP" button..... | S111 |
| <i>Front operated mushroom button, breaks normally closed contacts only</i> | |
| • Lockout provision on front operated pushbutton cover..... | S153 |
| <i>Standard on buttons marked "OFF" and "STOP"</i> | |
| • Maintained red emergency "STOP" button with lockout..... | S769 |
| <i>Front operated mushroom button breaks normally closed and makes normally open contacts (push to stop)</i> | |
| <i>Lockout is standard</i> | |

[Ⓐ]For pushbuttons with 1" hub size, external conduit seal required in Division 1, Group B applications within 5 feet (1.5 meters) of enclosure.

[Ⓑ]Two universal contact blocks, must be wired as two circuits, with one normally open and one normally closed.

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Pilot lights – 110-600 VAC; 24V AC/DC (optional)

Pilot lights listed below are factory sealed and do not require external seals^A.

Lamps are 6 watt, miniature bayonets, incandescent lamps for use on 110-125 volt circuits. LED pilot lights can be provided in place of standard incandescent lamps by adding suffix 'LED' after the color symbols.

Enclosures with single pilot covers **only** can be equipped with a transformer for each lamp for high voltages as shown.



EFS21524 J1



EFS21561 J1 J3

Ordering information:

Enclosure with single pilot light

Hub size	Cat. #
Dead end	
1/2"	EFS11524 ①
3/4"	EFS21524 ①
1"	EFS31524 ①
Through feed	
1/2"	EFSC11524 ①
3/4"	EFSC21524 ①
1"	EFSC31524 ①

Enclosure with double pilot lights

Hub size	Cat. #
Dead end	
1/2"	EFS11561 ①
3/4"	EFS21561 ①
1"	EFS31561 ①
Through feed	
1/2"	EFSC11561 ①
3/4"	EFSC21561 ①
1"	EFSC31561 ①

① Add color symbol for each pilot light

Color	Symbol
Red	J1
Green	J3
Amber	J6
Clear	J10
Blue	J11

Example: EFS11561 with red and green lights is EFS11561 J1 J3.

Options:

Description	Suffix
• Bodies and covers – copper-free aluminum.....	SA
• Extended temperature range (-50°C to +60°C).....	XT
• LED pilot lights in place of standard incandescent pilot lamps..	LED
• 24V AC/DC operation on pilot lights.....	S300
• Pilot lights for circuit voltages up to 600V maximum.....	See table below

Transformers – voltages above 125:

Nom. volts 50-60 Hz transformer	Primary voltage range	Suffix
220/110	220-240	T2
440/110	440-480	T4
550/110	550-600	T5

^A For pilot lights with 1" hub size, external conduit seal required in Division 1, Group B applications within 5 feet (1.5 meters) of enclosure.

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Fully assembled factory sealed selector switches

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Selector switches – maintained contact, 600 VAC heavy duty

Furnished with pushbuttons, cam actuated by a maintained contact selector mechanism to operate in the sequences shown in the diagrams below.

Specify indicating plate markings. See table below listings.



EFS21274

Ordering information^A:

Single-gang

Style	Switch position			Enclosure with switch		
	Position 1	Position 2	Position 3	Hub size	Cat. # Dead end	Cat. # Through feed
Two-position, two circuit	A1			1/2"	EFS11271 [ⓐ]	EFSC11271 [ⓐ]
	A2			3/4"	EFS21271 [ⓐ]	EFSC21271 [ⓐ]
				1"	EFS31271 [ⓐ]	EFSC31271 [ⓐ]
Two-position, four circuit	A1			1/2"	EFS11272 [ⓐ]	EFSC11272 [ⓐ]
	A2			3/4"	EFS21272 [ⓐ]	EFSC21272 [ⓐ]
	B1			1"	EFS31272 [ⓐ]	EFSC31272 [ⓐ]
	B2					
Three-position, two circuit ^B	A1			1/2"	EFS11273 [ⓐ]	EFSC11273 [ⓐ]
	A2			3/4"	EFS21273 [ⓐ]	EFSC21273 [ⓐ]
				1"	EFS31273 [ⓐ]	EFSC31273 [ⓐ]
Three-position, four circuit ^B	A1			1/2"	EFS11274 [ⓐ]	EFSC11274 [ⓐ]
	A2			3/4"	EFS21274 [ⓐ]	EFSC21274 [ⓐ]
	B1			1"	EFS31274 [ⓐ]	EFSC31274 [ⓐ]
	B2					
	A1			1/2"	EFS11275 [ⓐ]	EFSC11275 [ⓐ]
	A2			3/4"	EFS21275 [ⓐ]	EFSC21275 [ⓐ]
	B1			1"	EFS31275 [ⓐ]	EFSC31275 [ⓐ]
	B2					

[ⓐ] Specify indicating plate markings, if desired. Typical indicating plate markings are listed below:

Two-position		
RUN, JOG	FAST, SLOW	IN, OUT
HAND, AUTOMATIC	OPEN, CLOSE	RAISE, LOWER
FORWARD, REVERSE	UP, DOWN	START, STOP
	ON, OFF	
Three-position		
RUN, OFF, JOG	1, OFF, 2	
HAND, OFF, AUTOMATIC	OPEN, OFF, CLOSE	
FORWARD, OFF, REVERSE	UP, OFF, DOWN	
FAST, OFF, SLOW		

Options:

- | | |
|--|---------------|
| Description | Suffix |
| • Bodies and covers – copper-free aluminum..... | SA |
| • Extended temperature range (-50°C to +60°C)..... | XT |
| Three-position selector switches with modified operation: | |
| • Momentary contact clockwise operation, spring return to center, maintained contact counterclockwise operation..... | S634 |
| • Momentary contact counterclockwise operation, spring return to center, maintained contact clockwise operation..... | S635 |
| • Spring return to center from left and right..... | S842 |

^A For selector switches with 1" hub size, external conduit seal required in Division 1, Group B applications within 5 feet (1.5 meters) of enclosure.

^B Suffixes S634, S635 and S842 may be used with these catalog numbers.