EMERSON

501581-000 INSTRUCTION SHEET

APPLETON™ EFS-EFD EDS SERIES CONTROL ASSEMBLIES FOR USE IN CLASS I, GROUP C AND D, CLASS II, GROUP E, F, AND G, AND CLASS III, DIV. 1 AND 2 HAZARDOUS LOCATION

WARNING: Electrical power must be turned OFF before and during installation and maintenance. Failure to follow safety instructions may cause ignition of hazardous atmospheres resulting in serious personal injury and/or property damage.

CAUTION: Care must be taken to prevent the ground surface of the bodies and covers from becoming scratched, dented, or otherwise damaged as this could affect the explosion-proof features of these assemblies.

ASSEMBLY: Check ground surfaces of all components for foreign material prior to assembly. Surfaces must be clean and undamaged. Install the desired cover and device assembly on the body. Secure the cover assembly to the body by tightening the screw provided with the cover.

The following cover with device and combination of cover and device are UL Listed control assemblies when assembled to Appleton listed control assembly bodies. These combinations are suitable for use in hazardous locations as indicated in the metal nameplate of each cover assemblies.

COMBINATION OF †† COVER	DEVICE	FACTORY SEALED	ELECTRICAL RATING ††
EFK-MS-Q	EFS-2MS-Q	NO	2P 30A-250VAC, 20A-600VAC 2HP-230VAC, 3HP-575VAC
EFK-MS-Q	EFS-3MS-Q	NO	3P 30A-250VAC, 20A-600VAC 3HP-125VAC-30, 15HP-600VAC-30
EFK-F34W-Q	EFS-FR3W-Q	NO	3W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EFK-F34W-Q	EFS-FR4W-Q	NO	4W 20A-120VAC, 20A-277VAC 1HP-120VACM, 2HP-240VAC
EFK-F34W-Q	EFS-FR3W-Q	NO	3W 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EFK-F12-Q	EFS-FR1-Q	NO	1P 20A-120VAC, 20A-277VAC 1HP-120VAC,2HP-240VAC
EFK-F12-Q	EFS-FR2-Q	NO	2P 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EFK-F12-Q	EFS-FR13-Q	NO	1P 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EFK-F12-Q	EFS-FR23-Q	NO	2P 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EFK-R34W-Q	EFS-FR3W-Q	NO	3W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EFK-R34W-Q	EFS-FR4W-Q	NO	4W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EFK-R34W-Q	EFS-FR3W-Q	NO	3W 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EFK-R12-Q	EFS-FR1-Q	NO	1P 20A-120VAC, 2HP-240VAC 2HP-230VAC, 3HP-575VAC
EFK-R12-Q	EFS-FR2-Q	NO	2P 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EFK-R12-Q	EFS-FR13-Q	NO	1P 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EFK-R12-Q	EFS-FR23-Q	NO	2P 30A-120VAV, 30A-277VAC 2HP-120VAC 2HP-240VAC

* With or without suffix -TR2, -TR3, -TR4, -TR5
** Heater Table Supplied with these device must be affixed in or near the enclosure for future use
† Blank cover for use single with 2-Gang Body only
†† Device rating must match rating stamped on cover

1-GANG BODY		2-GANG BODY	
EFD150-NL-Q	EFDC150-NL-Q	EFDD250-NL-Q	EFDC250-NL-Q
EFD175-NL-Q	EFDC175-NL-	EFD275-NL-Q	EFDC275-NL-Q
EFD110-NL-Q	EFDC110-NL-Q	EFD210-NL-Q	EFDC210-NL-Q
EFD150A-NL-Q	EFDC150-A-NL-Q	EFD250A-NL-Q	EFDC250A-NL-Q
EFD175A-NL-Q	EFDC175A-NL-Q	EFD275A-NL-Q	EFDC275A-NL-Q
EFD110A-NL-Q	EFDC110A-NL-Q	EFD210A-NL-Q	EFDC210A-NL-Q

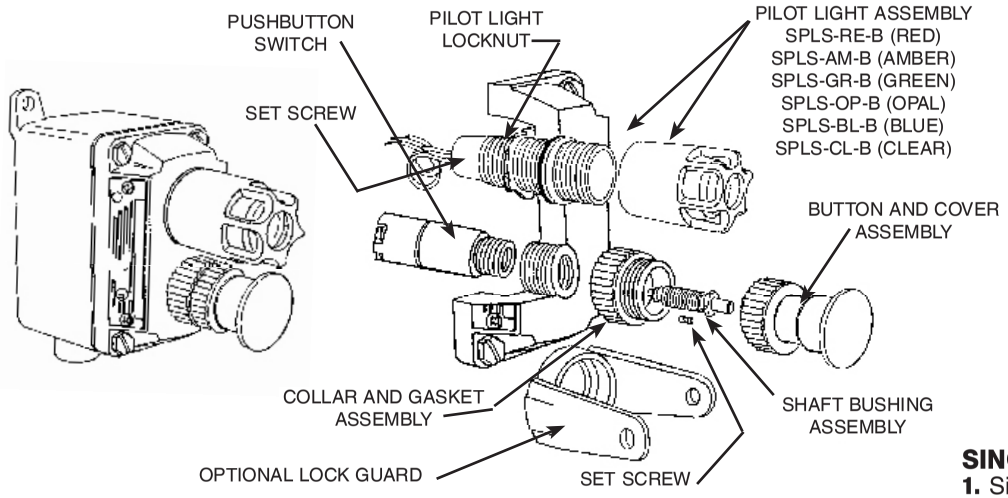
3 DEVICE BODY		2 -GANG TANDEM BODY ***	
EFDL50-Q	EFDCL50-Q	EFDT50-NL-Q	EFDCT50-NL-Q
EFDL75-Q	EFDCLO75-Q	EFDT75-NL-Q	EFDCT75-NL-Q
EFDL10-0	EFDCL10-Q	EFDT10-NL-Q	EFDCT10-NL-Q

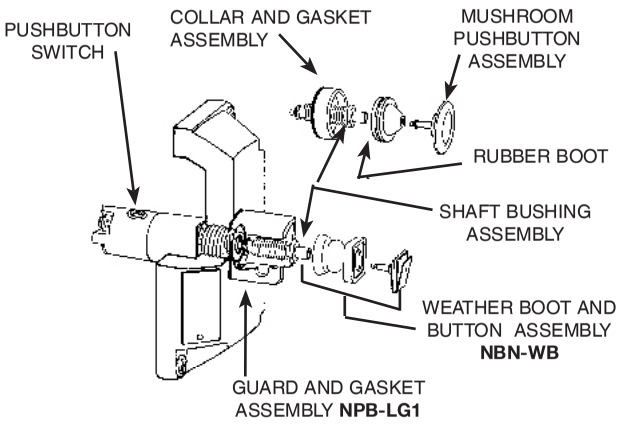
*** **WARNING:** To prevent ignition of Group C and D atmospheres, seals must be installed within five (5) feet on each conduit opening.

FACTORY SEALED COVER WITH DEVICE	ELECTRICAL RATING ††
EFKB-12	PUSH BUTTON SWITCH 600 VAC MAX HVY. PILOT DUTY PILOT LIGHT 125 VAC MAX 60 HZ
EFKB-35	
EFKB-102	
EFKB-345	
EFJB-DU1	
EFKB-DU2	
EFKB-JI *	
EFKB-J1DU1	
EFKB-J1U1	
EFKB-J1U2	
EFKB-J2	
EFKB637-SRC	
EFKB-U1	
EFKB-U2	
ESKB-B-Q †	
EFKB-SMPB	
EFKL-U3	
EFKL-J3	
EFKL-J1U2	
EFKL-J2U1	
EFKL-J1DU2	
EFKB-PC120	125VAC-60HZ 100VA-LOAD
EFKB-PC277	277VAC-60HZ 100VA-LOAD
EDK-F23W-Q	3W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EDK-F24W-Q	4W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EDK-F33W-Q	3W 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EDK-F21-Q	1P 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EDK-F22-Q	2P 20A-120VAC, 20A-277VAC 1HP-120VQAC, 2HP-240VAC
EDK-F31-Q	1P 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EDK-F32-Q	2P 30A-120VAC, 30A-277VAC 2HP-120VAC 2HP-240VAC
EDK-R23W-Q	3W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EDK-R24W-Q	4W 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EDK-R33W-Q	3W 30A-120VAC. 301A-277VAC 2HP-120VAC, 2HP-240 VAC
EDK-R21-Q	1P 20A-120VAC, 20A-277VAC 1HP-120VAC, 2HP-240VAC
EDK-R22-Q	2P 20A-120VAC, 2HP-240VAC 1HP-120VAC, 2HP-240VAC
EDK-R31-Q	1P 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-240VAC
EDK-R32-Q	2P 30A-120VAC, 30A-277VAC 2HP-120VAC, 2HP-24-VAC
EDK-1MSAB-Q **	1P 1HP-115230VAC
EDK-1MSW-Q **	1P 1HP-115/230VAC. 1/4HP-32VDC 1/4HP-250VDC
EDK-2MSAB-Q**	2P 1HP-115/230VAC, 1/4HP-32VDC 3/4HP-250VDC
EDK-2MSW-Q **	2P 1HP-115/23VAC, 1/4HP-32VDC 1HP-125VDC, 1HP-250VDC
EFK-RU1-Q	600 VAC MAX
EFK-RU2-Q	HVY. PILOT DUTY

Installation of Pushbutton Switch and Pilot Light in ESKB Series Covers
Explosion-Proof and Dust-Ignition-Proof

501581-000





MUSHROOM PUSH BUTTON ASSEMBLY
NMRB-BL (BLACK)
NMRB-GR (GREEN)
NMRB-RE (RED)

GUARD AND GASKET ASSEMBLY **NPB-LG1**

MAINTAINED CONTACT PUSHBUTTON SWITCH AND PILOT LIGHT

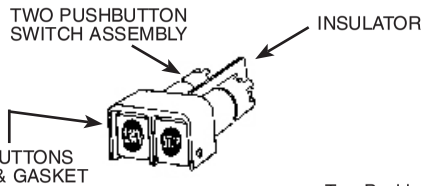
1. Pilot light must be installed in 3/4"-14NPSM opening.
2. Assemble a 3/4" to 1/2" reducer (see note) onto Pushbutton switch (when using 3/4"-14NPSM opening) and proceed with step 3 thru 5
3. Unscrew button and cover assembly from collar. Remove set screw from collar. Use a 1/2" nut driver to remove shaft bushing and shaft from push assembly. (Set these parts aside for later reassembly in step 5.)
4. Thread Push Button from inside of cover until front of pushbutton is flush with face of cover.
5. Insert shaft into bushing. Put shaft bushing assembly thru hole in collar and thread bushing into pushbutton opening. Hold pushbutton from inside of cover to prevent it from turning. If a Lockout Guard is used, put shaft bushing assembly thru collar and lockout.
6. Tighten shaft bushing with 1/2" nut driver to "lock" pushbutton in place, thread set screw onto collar along side of hex flat of shaft bushing.
7. Thread Button and cover assembly onto collar until fully seated.
8. Check pushbutton switch and pilot light electrically and mechanically for proper operation.

CAUTION: WHEN CHECKING PUSHBUTTON ELECTRICALLY GUARD OR COLLAR ---------- MUST BE INSTALLED IN THE INTENDED MANNER AS SHOWN.

SINGLE PUSHBUTTON SWITCH WITH ONE BUTTON GUARD

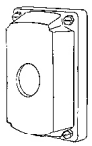
1. Single pushbutton with one button guard must be installed in 3/4"-14NPSM opening using 3/4" to 1/2" reducer.
2. Assemble a 3/4" to 1/2" reducer onto Pushbutton switch (when using 3/4"-14NPSM opening) and proceed with step 3 thru 5
3. Remove set screw from guard, use a 1/2" nut driver to remove shaft bushing and shaft from pushbutton assembly (set aside for later assembly).
4. Thread pushbutton from inside of cover until front of pushbutton is flush with face of cover
5.–Insert shaft into bushing. Put shaft bushing assembly thru hole in guard and thread bushing into pushbutton opening. Hold pushputton from inside of cover to prevent it from turning.
6. Tighten shaft bushing with a 1/2" nut driver to "lock" pushbutton switch in place. Thread setscrew onto collar along side of hex flat on shaft bushing.
7.–Press Weather Boot and Button assembly in shaft hole until fully seated.
8. Check pushbutton switch electrically and mechanically for proper operation.

DOUBLE PUSHBUTTON WITH TWO BUTTON GUARD



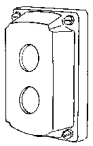
1. Double Pushbutton assembly, with two button guard must be installed into two 1/2" -14 NPSM openings (approximately 1-1/6" apart).
2. Proceed as in steps (2) through (6) above. Be sure insulator is in place.

One Pushbutton Switch Cover or one Pilot Light ESKB-1PB

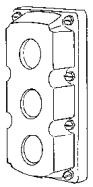


3/4" 14 NPSM Tapped Hole

Two Pushbutton Switch Cover or Two Pilot Light Cover ESKB-2PB

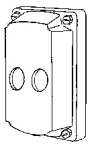


3/4" 14 NPSM Tapped Holes



Three Pushbutton Switch Cover or Pilot Light Two P. B. Switch Cover EFKL-3HQ

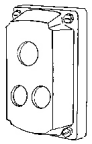
Two Pushbutton Switch Cover



ESKB-2SP

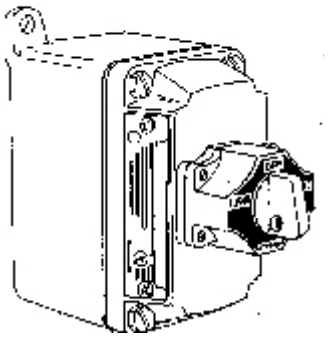
1/2" 14 NPSM Tapped Holes

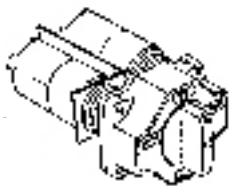
One Pilot Light Two Pushbutton Switch Cover ESKB-3JPB

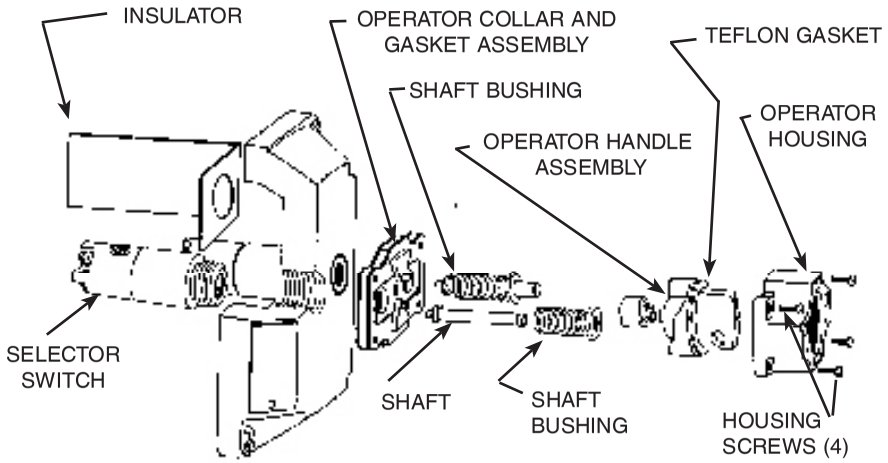


3/4" 14 NPSM Tapped Hole
1/2" 14 NPSM Tapped Holes

Installation of Selector Switch in ESKB Series Covers Explosion-Proof and Dust-Ignition-Proof

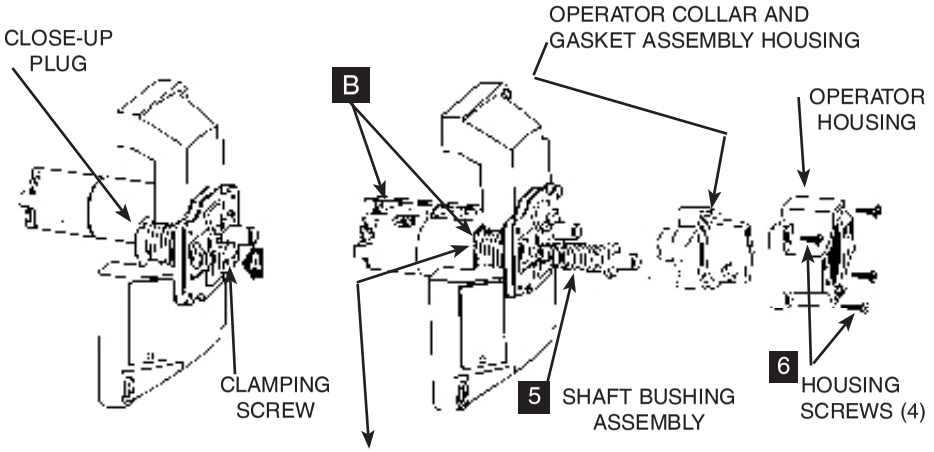






A. If one Selector Switch is to be installed, close up remaining 1/2" opening from inside of cover with close-up plug provided. Tighten securely with screwdriver. Tighten clamping screw to insure water tightness.

B. If two Selector Switches are to be installed, make sure insulator is in place.

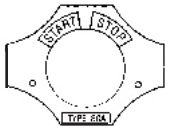


NOTE: Threaded aluminum shell of Selector Switch Assembly **MUST TOUCH** the under side of operator collar gasket for proper operation of mechanism.

SELECTOR SWITCH

1. Selector Switch must be installed in 1/2"-14NPSM opening(s).
2. Remove four housing screws, operator housing and handle assembly.
3. Use 1/2" nut driver to remove shaft bushing.
4. Place operator collar and gasket assembly on face of cover and line up openings with the two 1/2" threaded holes in cover. Thread in Selector Switch from inside of cover. (See Note)
5. Insert shaft through shaft bushing. While holding Selector Switch, thread shaft/bushing assembly through collar into Selector Switch and tighten bushing securely.
6. Insert operator handle and teflon gasket in operator housing. With arrow in operator handle pointing to "OFF" marking on nameplate, press operator housing down firmly on operator collar and fasten in place with (4) housing screws.
7. Check Selector Switches electrically and mechanically for proper operation.

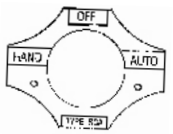
TWO POSITION NAMEPLATE



START - STOP

AUTO	OFF	**SLNP-AO**
AUTO	HAND	**SLNP-AH**
OFF	REM	**SLNP-OR**
RUN	JOG	**SLNP-RJ**
START	STOP	**SLNP-SS**
ON	OFF	**SLNP-OO**
UP	DOWN	**SLNP-UD**
FWD	REV	**SLNP-FR**
HAND	AUTO	**SLNP-HA**
BLANK	BLANK	**SLNP-B**

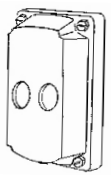
THREE POSITION NAMEPLATE



HAND - OFF -AUTO

LOCAL	OFF	REM	**SLNP-LOR**
HAND	OFF	REM	**SLNP-HOR**
REV	OFF	FWD	**SLNP-ROF**
AUTO	OFF	HAND	**SLNP-AOH**
JOG	OFF	RUN	**SLNP-JOR**
STOP	RUN	START	**SLNP-SRS**
–	–	–	**SLNP-B3**
1	OFF	2	**SLNP102**
FWD	OFF	REV	**SLNP-FOR**
HAND	OFF	AUTO	**SLNP-HOA**
RUN	OFF	JOG	**SLNP-ROJ**

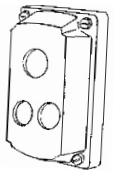
SELECTOR SWITCH COVERS



ESKB-2SP

Two 1/2" tapped holes

PILOT LIGHT AND SELECTOR SWITCH COVERS



ESKB-3JPB

One 3/4" tapped hole on top
Two 1/2" tapped holes on bottom

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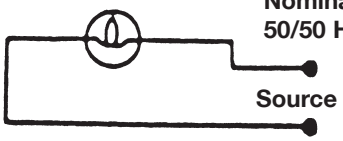
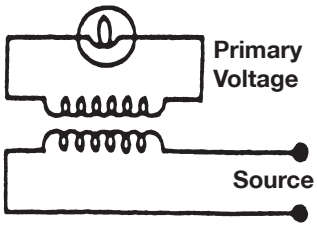
PILOT LIGHTS



Nominal 120V



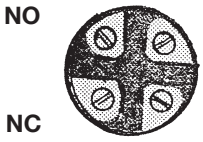
Nominal 220, 440, 550V

Pilot Light Transformer Voltages above 125 volts	
Nominal Volts 50/60 Hertz Transformer	Primary Voltage Range
220-110	220-240
440-110	440-480
550-110	550-600

SELECTOR SWITCHES

Style	Left Position	Center Position	Right Position
2 Position 2 Circuit		None	
2 Position 4 Circuit		None	
3 Position 2 Circuit			
3 Position 4 Circuit			

Pushbutton Stations and Selector Switches Screw Terminals



NC= Normally Closed
NO= Normally Open

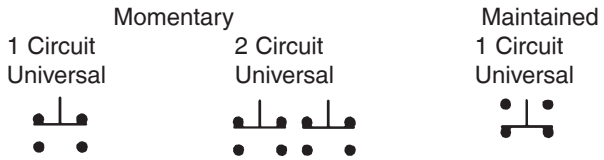
Factory Sealed Pushbutton Switch is supplied with optional Crimp-Type Terminal

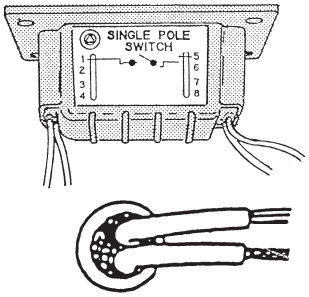
Strip the insulation on each conductor wire back 3/8".

Use a slotted head screwdriver to loosen the field wiring terminal screws the required 3 or 4 turns.

Insert the bare wire conductor(s) on either side of the terminal screw(s), under the terminal wire screw(s), and securely tighten the screw(s). **NOTE: Do Not** exceed 15 in, lbs. of torque.

PUSHBUTTON STATIONS





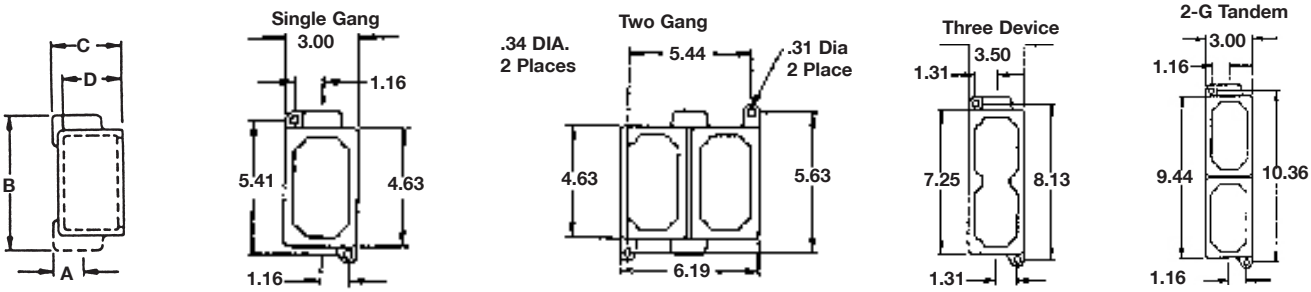
EDS snap switch (toggle) sealing well with wiring diagram.

Pilot lights and sealing wells are furnished with pigtail leads for field connection by use of wire nuts.

⚠ WARNING

Always disconnect primary power source before opening the enclosure for inspection or service.

1. Frequent inspection should be made. A schedule for maintenance checks should be determined by the environment and frequency of use. It is recommended that inspection should occur at least once a year.
2. Perform visual, electrical and mechanical checks on all components on a regular base.
3. Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts or leakage evidenced by water or corrosion in the interior.
4. Electrical check to make sure that all connections are clean and tight, and that contacts in the components make or break as required.
5. Mechanically check that all parts are properly assembled, and that operating mechanisms move freely.



Hub (in.)	Single Gang Dim. A	Single Gang Dim. B	Single Gang Dim. C	Single Gang Dim. D	Two Gang Dim. A	Two Gang Dim. B	Two Gang Dim. C	Two Gang Dim. D	Three Device Dim. A	Three Device Dim. B	Three Device Dim. C	Three Device Dim. D	2-G Tandem Dim. A	2-G Tandem Dim. B	2-G Tandem Dim. C	2-G Tandem Dim. D
1/2	.76	6.13	2.50	2.25	.76	6.13	2.50	2.31	.88	9.00	2.50	2.34	.76	11.06	2.50	2.34
3/4	.76	6.13	2.50	2.25	.76	6.13	2.50	2.31	.88	9.00	2.50	2.34	.76	11.06	2.50	2.34
1	.94	6.31	2.50	2.34	.94	6.31	2.50	2.31	1.00	9.00	2.50	2.34	.94	11.06	2.50	2.34