

## Installation & Maintenance Instructions for FSQC 30 & 60 Ampere Receptacles

RETAIN THIS INSTRUCTION SHEET FOR FUTURE REFERENCE.

For safe installation and operation, please read these instructions carefully and with full understanding.

### FSQC Series

Receptacle interlocked with switch for use in hazardous locations.

### Compliance

UL Standards: 050E, 1010, 1203, 1682, 1686

CSA Standards: No.30, C22.2 No.25, C22.2 No.159

### Electrical Ratings

Maximum Voltage: 600 V ac at 60 Hz

Current: 30 or 60 Amperes

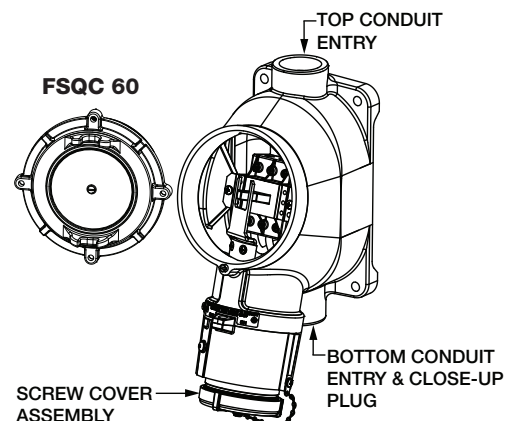
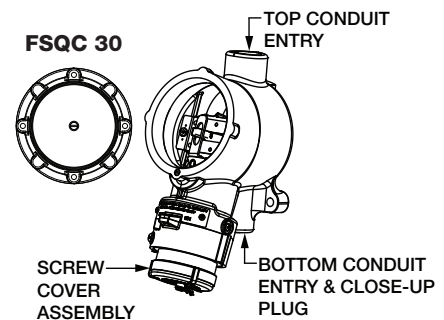
Configuration: 3W, 4P

### Applications

- Designed to supply power to portable or fixed electrical equipment such as motor generator units, welders, pumps, compressors, and similar apparatuses.
- Ideal for use on shipping docks, ports, and other “Ship-to-Shore” applications.
- Suitable for use in locations where a weatherproof enclosure is required.
- Interlocked receptacle design provides use in hazardous locations and rough environments.

### Features

- Rugged and Type 4X watertight enclosure and cover, sealed with an O-ring.
- Grounding Style—Style 2 receptacle ground through shell and extra pole. Receptacle is dead front without plug engaged.
- Arcing Confined—Interlock receptacle design means that all electrical switching is done with an internal switch. The plug cannot be engaged or disengaged with the receptacle when the switch is ON.
- Positive Contact—Brass contacts have integral springs for positive, maintained, electrical contact.
- Receptacle face enables the engagement of plugs for a weatherproof union.
- Positive Ground—Grounding terminal for Style 2 receptacle “makes first, breaks last”.
- Receptacle is designed so that it can only turn ON when the proper mating plug is fully engaged and the padlocking collar is rotated. See Table 7 for a list of the mating plugs.
- Receptacles come with both a flip cover and a screw cover for protection against environmental conditions.
- Cover cannot be removed when the switch is ON.
- P4 Option—Special polarization prevents plug insertion into a receptacle wired for a different voltage.
- Style 2 interlocked receptacles are equipped with contacts designed to provide a safety polarization means called “controlled length” contacts. This feature will not allow the plug grounding contact (Style 2) to touch an energized receptacle “line” contact in the event the plug becomes damaged and/or loses its primary polarization means and/or is rotated into the incorrect position.



# Product Safety Information

## Signal Words Defined

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE** is used to address practices not related to physical injury.

## Safety Instructions

### **⚠ WARNING—MODIFICATIONS**

Do not modify these devices in anyway. Replace any missing or broken parts with proper Appleton replacement parts. Modification of these devices or substitution of parts with non-standard parts may result in serious or fatal person injury from electrocution.

### **⚠ WARNING—PRODUCT DAMAGE**

If any part of the receptacle appears to be missing, broken, or show signs of damage—discontinue use immediately! This condition could cause serious or fatal personal injury due to electrocution and/or equipment damage. Repair with the proper replacement part(s) before continuing service.

### **⚠ WARNING—ENVIRONMENTAL**

To prevent ignition of hazardous atmospheres, do not use in Class II, Group E locations that contain electrically conductive dusts.

### **⚠ WARNING—ELECTRICAL**

Electrical power must be turned OFF before and during installation and maintenance. Failure to do so may result in serious or fatal injuries due to electrocution.

### **⚠ WARNING—WIRING**

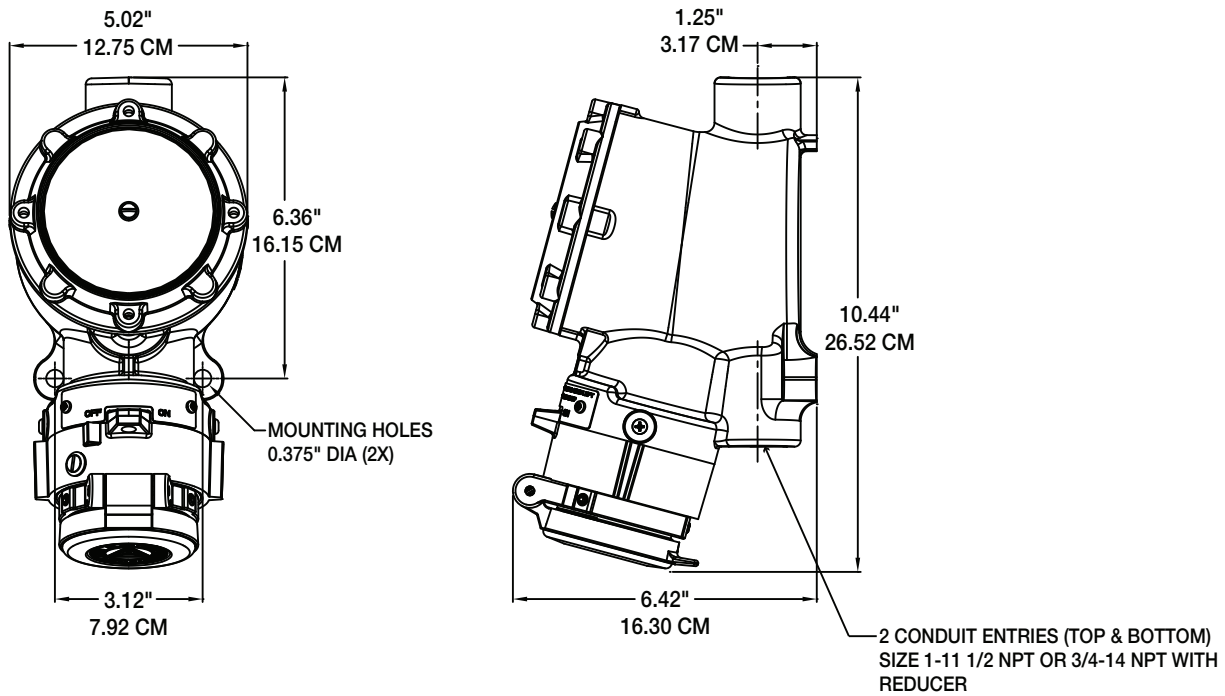
Use only copper cable or wire per the National Electric Code (NEC) for the given ampere rating of the receptacle.

### **⚠ WARNING—WIRING**

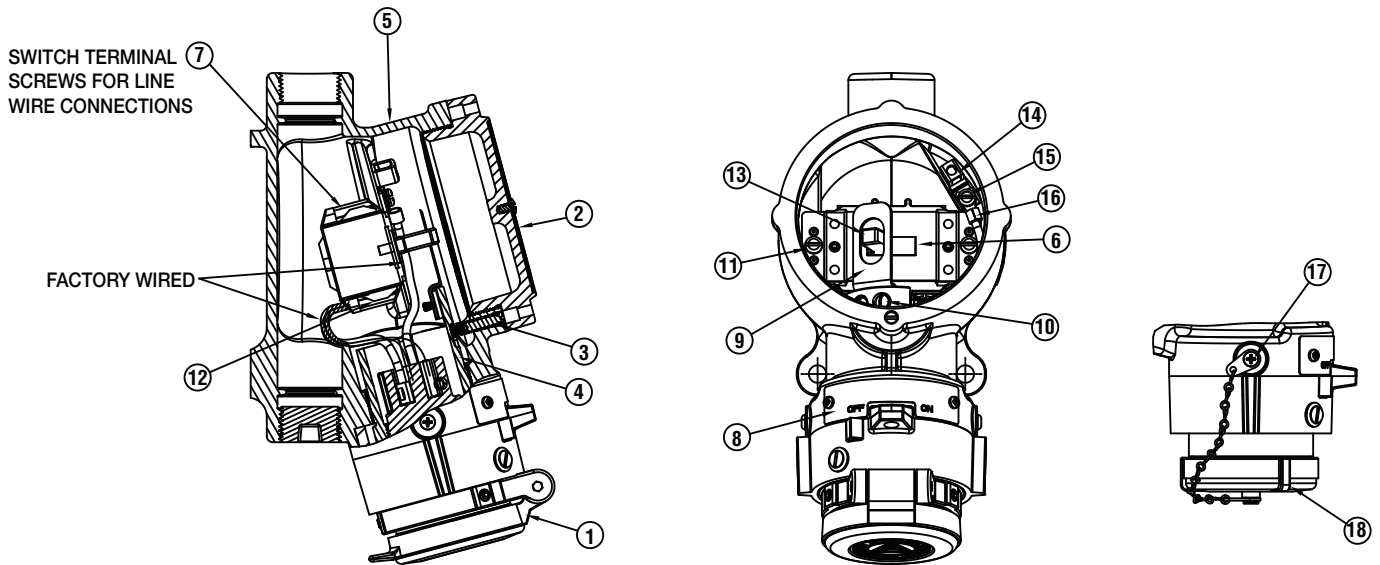
A wiring scheme must be followed so that the same color wire is always put into the same numbered contact opening in all plugs, connectors, and receptacles in the system. This will help to eliminate possibilities for equipment damage and/or personal injuries due to electrocution.

# Drawings

**Figure 1: FSQC 30 A Dimensions (Shown with flip cover for maximum space consideration)**



**Figure 2: FSQC 30 A Details & Parts List**



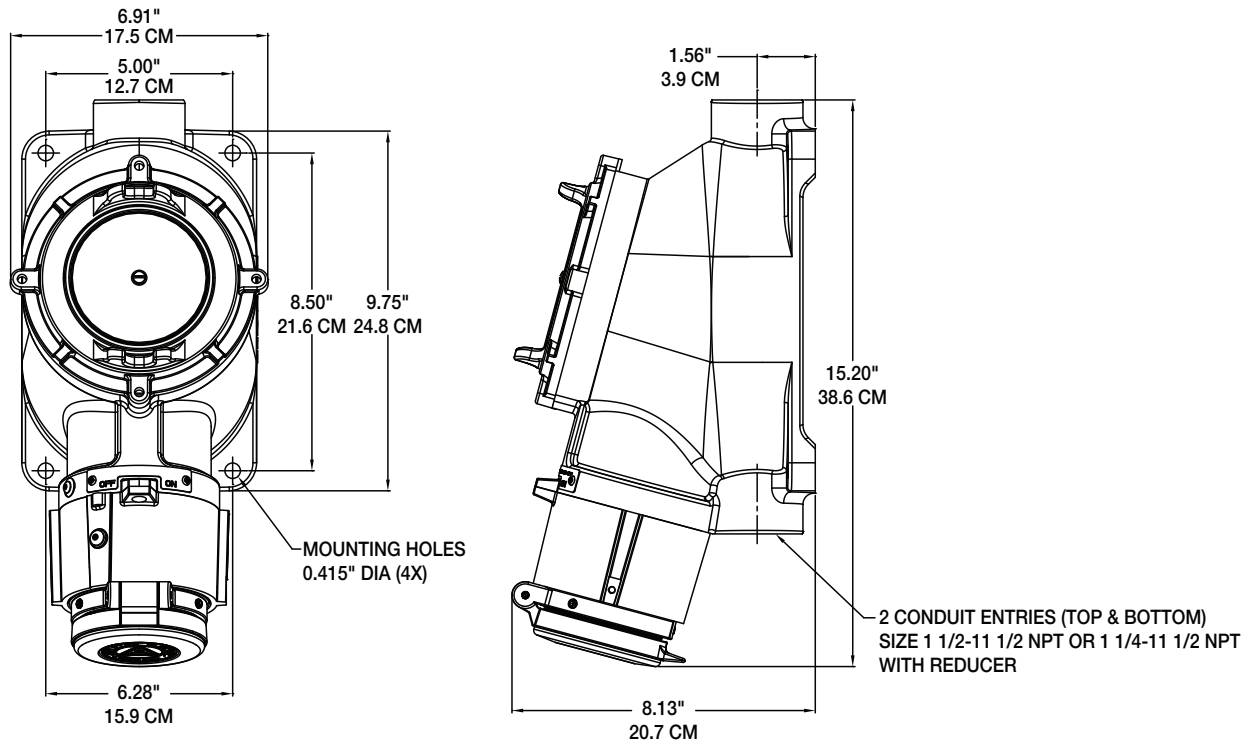
**Table 1: FSQC 30 A Parts List**

Item #	Part Description	Item #	Part Description	Item #	Part Description
1	Receptacle flip cover*	7	Line side pressure screws	13	Disconnect switch
2	Enclosure cover	8	ON/OFF nameplate	14	Ground lug & screw
3	Locking screw	9	Load side pressure screws	15	Ground lug wire screw
4	Receptacle housing body	10	Switch actuating fork	16	Ground lug wire
5	Enclosure	11	Switch actuator screws	17	Screw
6	Switch plate	12	Switch mounting screws	18	Screw cover assembly*

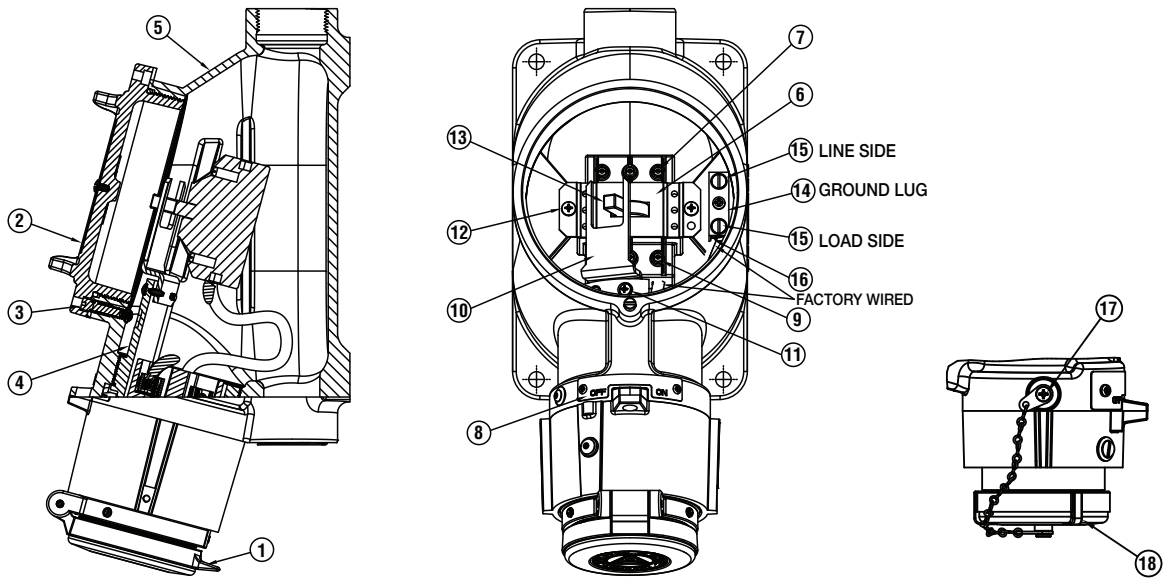
\*Choose Item #1 or #18 based on the application.

# Drawings

**Figure 3: FSQC 60 A Dimensions (Shown with flip cover for maximum space consideration)**



**Figure 4: FSQC 60 A Details & Parts List**



Item #	Part Description	Item #	Part Description	Item #	Part Description
1	Receptacle flip cover*	7	Line side pressure screws	13	Disconnect switch
2	Enclosure cover	8	ON/OFF nameplate	14	Ground lug & screw
3	Locking screw	9	Load side pressure screws	15	Ground lug wire screw
4	Receptacle housing body	10	Switch actuating fork	16	Ground lug wire
5	Enclosure	11	Switch actuator screws	17	Screw
6	Switch plate	12	Switch mounting screws	18	Screw cover assembly*

\*Choose Item #1 or #18 based on the application.

# Installation

## **⚠ WARNING**

Electrical power must be turned OFF before and during installation and maintenance. Failure to do so may result in serious or fatal injuries due to electrocution.

## **⚠ CAUTION**

Before starting the installation, ensure the receptacle assembly is suitable for the intended location according to the National Electrical Code or Canadian Electrical Code. If the receptacle assembly is not suitable, serious damage and injuries may result. Owners are responsible for damages or injuries if these rules are not followed.

## **Prepare the Mounting Position**

1. The receptacle assembly must be mounted on two 5/16 inch (for 30 A) or four 3/8 inch (for 60 A) steel, hex head bolts per ANSI B18.6.3 and securely fastened to a wall, column, strut, or other vertical structure, in one plane, which is capable of supporting the receptacle and its associated conduit and wiring.

**NOTE:** Bolts are not provided with the receptacle assembly.

2. Prepare the structure for mounting bolts by drilling, tapping, using securing nuts, or another method of providing thread anchors for the bolts. See Figures 1 and 3 for the dimensions of the receptacle.

3. Install the bolts, leaving 1 inch under the heads. The bolts must be engaged at least five full threads.

## **Mounting the Receptacle**

### **⚠ WARNING**

Before mounting the receptacle, ensure that the enclosed switch is in the “OFF” position.

1. Place the receptacle assembly on the previously prepared mounting bolts, with the receptacle flip cover at the lower-most position. Make sure that the bolt shanks are in the mounting holes. Tighten the bolts to 10 to 15 ft.-lb. torque for 30 A or 18 to 20 ft.-lb. torque for 60 A.

## **Opening the Receptacle Cover**

### **⚠ WARNING**

Ensure that the enclosed switch is in the “OFF” position.

1. Referring to Figures 2 and 4, turn the cover locking screw (Item #3) clockwise (inwards) until it enters into the groove of the receptacle housing body (Item #4). This prevents the enclosure cover (Item #2) from rotating and simultaneously locks the receptacle interior rotation (also toggling of the switch).

2. Turn the enclosure cover counterclockwise (outward) to completely remove it from the enclosure.

3. After removal, we recommend that the enclosure cover be placed with the outer surface down, on a clean surface. Protect the enclosure cover with a tarp or covering to ensure that it remains clean and functional.

## **Conduit Installation**

### **⚠ CAUTION**

For Group B locations, install sealing fittings within 4 inches (for 30 A) or 18 inches (for 60 A) of each conduit entry per the National Electrical Code requirements. For Group C and D locations, install sealing fittings within 18 inches of each conduit entry per the National Electrical Code requirements. Please note that both conduit entries must be used.

**NOTE:** Two 1 inch to 3/4 inch (for 30 A) or 1-1/2 inch to 1-1/4 inch (for 60 A) reducer bushings can be used to reduce the conduit entry size to 3/4 inch (for 30 A) or 1-1/4 inch (for 60 A) if desired. The reducer bushings are not supplied with the receptacle.

1. Conduit entries are provided on both the top and bottom of the enclosure (see Figures 1 and 3).

2. Make sure all conduit entries are clean and free of debris before installing the conduit and close-up plugs.

3. On all conduits, reducer bushings, and close-up plugs, grease must be used to completely seal out water.

**NOTE:** We recommend applying Appleton thread lubricant (part number TLC-3) on threads in three generous lines, running parallel to the thread axis and spaced equidistant around the thread.

4. Conduits and close-up plugs must be turned in until snug and then 1/2 turn further with a wrench. Make sure any installed breathers and drains are tightened in the same manner.

**NOTE:** Do not over-tighten, as damage to the housing threads or any reducer bushings may occur.

5. At this point, ensure that all threaded holes in the housing are closed (including openings for breathers and drains) to prevent entry of rain, splashed water, and hose directed water, and also to comply with Class I and Class II hazardous location requirements.

## Wiring

### **⚠ WARNING**

Use copper conductors only, suitable for at least 75°C (167°F) for 30 A or 90°C (194°F) for 60 A. Do not use aluminum wiring, as dangerous overheating and fire may result.

1. Feed the power supply wiring into the enclosure through the conduit entries.
2. Strip the individual conductors per Table 3.

Ampere Rating	Strip Length (in.)	Wire Range (AWG)	Torque Value (in.-lb.)
30	5/8	#10	20
	5/8	#8	25
60	5/8	#6	45
	5/8	#4	45

3. Referring to Figures 2 and 4, connect wires to the proper terminals of the switch by loosening (but not removing) the line side pressure screws (Item #7). Insert conductors, including all strand switch terminals, according to your established wiring scheme.
4. Connect the ground wire to the line ground lug (Item #14).
5. Tighten the screws to the values shown in Table 3.

## Electrical Testing

All wiring must be checked and tested to ensure that all circuits are according to plan and that there are no unwanted opens, shorts or grounds.

Do not apply power until the following steps are completed:

1. Test to verify correct phasing and ground connections.
2. Test insulation resistance by meggering, high voltage, or hi-pot test, to ensure that the system does not have any short circuits or unwanted grounds.

## Clean the Receptacle Cover & Enclosure

Before replacing or closing the receptacle cover, it is strongly recommended that all dirt, debris, and other foreign materials be removed from the enclosure interior. This action should be taken to help keep the breathers and drains from being plugged by these materials.

1. Make sure the enclosure top face is clean. Wipe it with a clean, dry cloth to remove any foreign materials.
2. Clean the mating surface of the receptacle cover in the same manner, while being careful not to damage the O-ring.

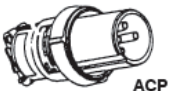
## Close the Receptacle Cover

1. Apply a thin film of conductive grease (Appleton part number TLC-3 is recommended) on the threads of the housing. The purpose of this grease is to further ensure against water migration through the receptacle cover and housing joint. Grease should be reapplied each time the receptacle cover is opened.
2. Place/affix the cleaned receptacle cover in the enclosure by turning it clockwise. Ensure that more than seven threads are engaged and that the cover sits face-to-face with the enclosure.
3. Referring to Figures 2 and 4, align the cover locking screw (Item #3) with one of the nearest holes on the cover flange.
4. Turn the cover locking screw counterclockwise (outward) all the way. This will lock the cover in place and will release the receptacle interior so that the switch can be operated.

# Operation

## Plugs

The FSQC receptacle is designed to accept the clamping rings of ACP plugs (see Table 4). Clamping rings fit onto the receptacle to form a watertight Type 4X assembly with plug-in use. When the plug is withdrawn from the receptacle that has the flip cover option installed, the gasketed cover automatically closes tightly against the receptacle opening, providing weatherproof Type 3R protection. When the plug is withdrawn from the receptacle that has the screw cover option installed, the gasketed cover screws tightly against the receptacle opening, providing weathertight Type 4X protection.

Table 4: ACP Plugs			
 ACP	Cable Diameter (in.)	FSQC 30 A	FSQC 60 A
		Plug Part Number	Plug Part Number
	0.390–1.375	ACP3034BC	ACP6034BC

### NOTES:

- The Appleton FSQC receptacles and ACP plugs are UL Listed combinations.
- Receptacles with the P4 option have the interior rotated 22 1/2 degrees for special polarization applications. They are compatible only with Appleton plugs with the P4 option.

## Operating

1. Verify that the enclosed switch is in the “OFF” position. The “arrow” on the receptacle collar should be in line with the “OFF” marking on the nameplate.
2. Align and insert the mating plug fully inside the receptacle. Rotate the receptacle collar clockwise until the “arrow” indicates “ON”. The plug is now mechanically locked into the receptacle.
3. Tighten the clamping ring of the plug to the receptacle.

### NOTES:

- To turn OFF, loosen the clamping ring and turn the receptacle collar counterclockwise until it cannot go any further. The “arrow” should be in line with the “OFF” marking on the nameplate.
- A hole is provided in the receptacle collar and enclosure for the use of padlocks to “lockout” unauthorized movement of the plug from the “OFF” position.
- The receptacle collar must be fully rotated ON/OFF as indicated on the nameplate to have the switch turn ON/OFF properly. This can be checked by listening to the switch “click” during each ON/OFF cycle.

# Maintenance

## **⚠ WARNING**

Electrical power must be turned OFF before and during installation and maintenance. Failure to do so may result in serious or fatal injuries due to electrocution.

The receptacle must be inspected regularly. Schedule of inspections is determined by frequency of use and environmental conditions. We recommend that inspections be carried out at least once a year and that an electrical preventive maintenance program (e.g. National Fire Protection Bulletin NFPA No. 70B) be followed in addition to the steps below.

### During the inspections, perform the following steps:

1. Inspect/ensure that all conductor terminations are secure. Re-torque to values given previously in these instructions if necessary.  
**NOTE:** Discoloration due to excessive heat is an indicator of possible problems and should be investigated and repaired as necessary.
2. Check grounding and bonding effectiveness/continuity. Re-torque connections to original values if necessary.
3. Check gaskets for damage and replace as necessary.
4. Inspect breathers and drains for proper function. Clean or replace as necessary.
5. Check all conduits and close-up plugs for tightness and re-torque as necessary.
6. Clean interior of all foreign materials.
7. Make sure all openings are closed.
8. Cover bolts must be tightened AND the cover locking screw engaged inside the cover.
9. Make sure the receptacle assembly nameplate remains clean and legible. **Do not paint the nameplate.**

### NOTES:

- The receptacle insulator and contacts are not serviceable; consult with the factory.



## Service

### ⚠ WARNING

Electrical power must be turned OFF before and during installation and maintenance. Failure to do so may result in serious or fatal injuries due to electrocution.

### ⚠ WARNING

If any part of the receptacle appears to be missing, broken, or show signs of damage—discontinue use immediately! This condition could cause serious or fatal personal injury due to electrocution and/or equipment damage. Repair with the proper replacement part(s) before continuing service.

## Disconnect Switch

Disconnect switches occasionally fail and need to be replaced. The disconnect switch used in this receptacle can be replaced with the same type and brand as factory installed and will not affect the UL Listing.

To replace the disconnect switch:

1. Referring to Figures 2 and 4, remove the switch actuating fork (Item #10) by loosening the switch actuator screws (Item #11).
2. Loosen the line side pressure screws (Item #7) and remove the line side wires from the disconnect switch (Item #13).
3. Remove the disconnect switch by taking out the switch mounting screws (Item #12). Remember the orientation of the “arrow” on receptacle collar with respect to the switch position. The “arrow” must indicate that the receptacle is OFF when the disconnect switch is in the “OFF” position.
4. Take the disconnect switch out of the enclosure. Loosen the load side pressure screws (Item #9) and remove the load side wires.
5. Replace the disconnect switch with the same type as shown in Table 5 and reverse the steps above. Make sure to reconnect the wires to the same locations as before disassembly.

Disconnect Switch Part Number			Ampere Ratings	Number of Poles
Appleton	Leviton	Hubbell/Bryant		
59501735000	MS303-DS	HBL7810D/30003D	30	3
59301608001	---	HBL7863FWD/60003FWD	60	3

6. Torque the switch mounting screws to 20–25 in.-lb. to fasten the disconnect switch inside the enclosure (Item #5).
7. Torque the line and load pressure screws to 25 in.-lb. for 30 A or 35 in.-lb. for 60 A to hold the wires in place.
8. Conduct electrical tests. Refer to “Electrical Testing” on page 6 for details.

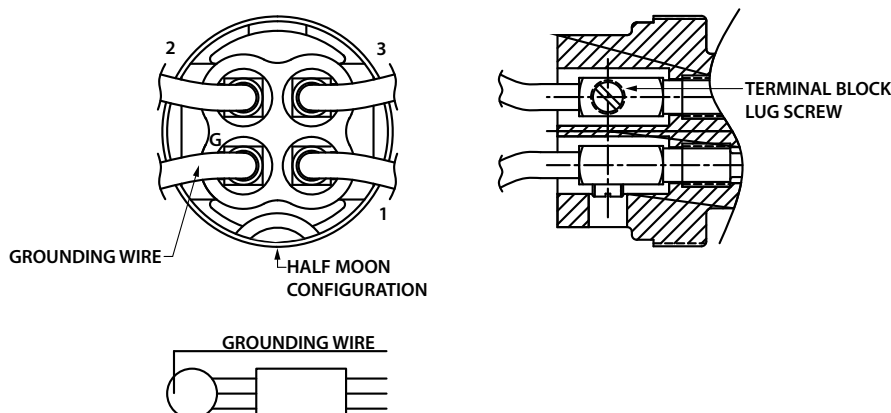
## Terminal Block Interior

If applicable, tighten the terminal block lug screws to 40–45 in.-lb. torque for #6–#2 AWG wire range or 35–40 in.-lb. torque for #14–#6 AWG wire range.

### ⚠ WARNING

Failure to tighten the terminal block lug screws to the above torque values may result in over stressed wire terminations, which could cause the conductors to pull out of the terminal block and cause serious/fatal injuries due to electrocution.

## Figure 5: Receptacle Phase Designation—3 Wire, 4 Pole





## Ground Lug

1. Referring to Figures 2 and 4, loosen the ground lug screw (Item #14) and remove the ground wire from the ground lug (Item #14).
2. Remove the ground lug screw from the receptacle housing body (Item #4).
3. Replace the ground lug. See Table 6 for the replacement part number.
4. Torque the ground lug screw to 20–25 in.-lb. to fasten it to the receptacle housing body.
5. Reconnect the ground wire to the ground lug and tighten the ground lug wire screw (Item #15) to the values shown in Table 3.

## Screw Cover Assembly

1. Referring to Figures 2 and 4, remove the screw (Item #17) that fastens the end of the chain to the enclosure.
2. Unscrew the screw cover assembly (Item #18) from the receptacle housing.
3. Replace the screw cover assembly by reversing the steps above. See Table 6 for the replacement part number.
4. Torque the screw to 15 to 20 in.-lb.

## Replacement Parts

Figures 2 & 4 Item #	Part Description	FSQC 30 A	FSQC 60 A	Quantity per Assembly
		Appleton Part Number	Appleton Part Number	
1	Flip cover assembly	PTSC30	PTSC60B	1
13	Disconnect switch, 3-Pole	59501735000	69301608001	1
14	Ground lug	69303327000	59304638000	1
18	Screw cover assembly	PTTC30	PTTC60B	1
---	Lubricant	TLC-3	TLC-3	1
---	Instruction sheet	69303302000	69303302000	1

## Appendix A: FSQC Receptacle Covers

### Ratings

FSQC with Standard Flip Cover is UL Listed for: Class I, Division 1 and 2, Groups B, C, D; Class II, Division 1 and 2, Groups F, G  
NEMA Type Designation: TYPE 3R Raintight; TYPE 5; NEMA 12; Hazardous Area

FSQC with Optional Screw Cover is UL Listed for: Class I, Division 1 and 2, Groups B, C, D; Class II, Division 1 and 2, Groups F, G  
NEMA Type Designation: TYPE 3, 3R Outdoor Raintight; TYPE 4, 4X Watertight, Corrosion Resistant; TYPE 5; NEMA 12; Hazardous Area

## Appendix B: Intermateability Chart

Appleton Receptacle Rating	Appleton Receptacle Part Number	Appleton Plug Rating	Appleton Plug Part Number	Crouse-Hinds Plug Part Number
600 V ac, 30 A, 20 HP	FSQC3430	600 V ac, 30 A, 20 HP	ACP3034BC	APJ3485
600 V ac, 60 A, 30 HP	FSQC5640	600 V ac, 60 A, 30 HP	ACP6034BC	APJ6485

### NOTES:

- The Appleton FSQC receptacles and ACP plugs are UL Listed combinations.
- The Appleton FSQC receptacle with Crouse-Hinds UL listed APJ series plugs are UL Classified combinations.
- FSQC receptacle and APJ plugs are classified for Class I, Division 1, Groups B, C, and D.
- Receptacles with the P4 option have the interior rotated 22 1/2 degrees for special polarization applications. They are compatible only with Appleton plugs with the P4 option or Crouse-Hinds plugs with the S4 option.

## Appendix C: Auxiliary Switch

The auxiliary switch is designed for use with appropriate monitoring equipment to provide remote status detection of the receptacle.

### Electrical Rating

Maximum Voltage: 250 V ac

Current: 10 Amperes

Wire Size Range: 16–14 AWG

Wire Type: Stranded copper conductor

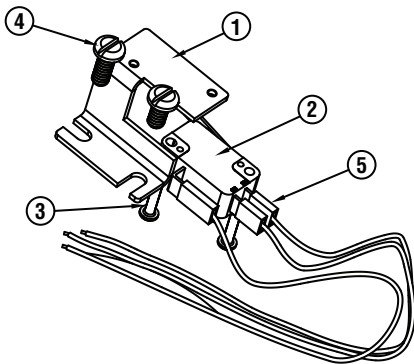
### Features

- The auxiliary switch has one normally open (NO) and one normally closed (NC) contact.
- The auxiliary switch can be wired to activate a remote detection device, signaling whether or not the switch is energized.

### Catalog Numbers

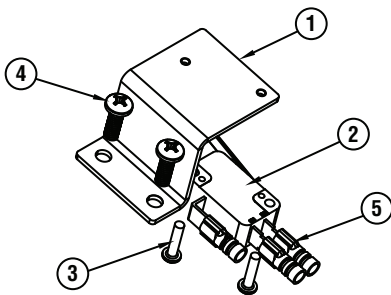
- FSQC3430 (30 A receptacle) uses catalog number AUX30 auxiliary switch.
- FSQC5640 (60 A receptacle) uses catalog number AUX60 auxiliary switch.

### Figure 6: Auxiliary Switch Assembly & Parts List for 30 A



Item #	Part Description	Appleton Part Number	Quantity per Assembly
1	Mounting bracket	69303338000	1
2	Auxiliary switch	69303320000	1
3	Screw, 4-40 x 1/2"	69P05117000	2
4	Mounting screw, 10-24 x 1/2"	69P05865000	2
5	Wire assembly	N/A	1

### Figure 7: Auxiliary Switch Assembly & Parts List for 60 A



Item #	Part Description	Appleton Part Number	Quantity per Assembly
1	Mounting bracket	69303321000	1
2	Auxiliary switch	69303320000	1
3	Screw, 4-40 x 1/2"	69P05117000	2
4	Mounting screw, 10-24 x 3/8"	69P04639001	2
5	Quick disconnect terminal	69303339000	3

## Wiring

### ⚠ WARNING

Electrical power must be turned OFF before and during installation and maintenance. Failure to do so may result in serious or fatal injuries due to electrocution.

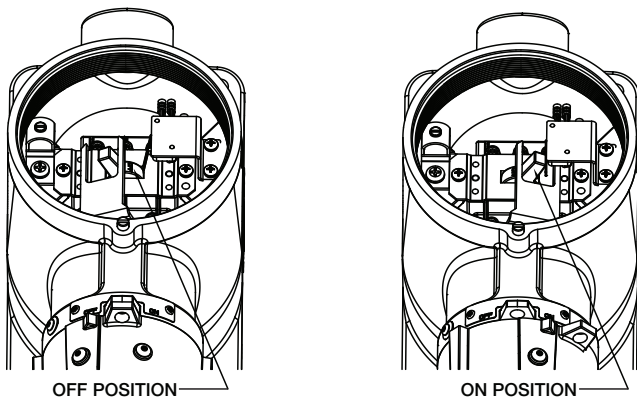
After proper installation of the FSQC receptacle, follow the steps below to wire the auxiliary switch:

1. Verify that the branch electrical power to the receptacle is turned OFF.
2. Turn the receptacle collar to the “OFF” position.
3. Open the receptacle cover.
4. Carefully run the wiring, in an approved method, from the remote detection equipment into the enclosure.
5. Determine whether the normally open (NO) or normally closed (NC) contacts of the auxiliary switch will be used.
6. Strip 3/8 inch of the wire insulator from the end of each wire.
7. For 30 A: Connect the incoming wire(s) to the auxiliary switch wires (see Figure 6 Item #5).  
For 60 A: Connect the incoming wire(s) to the auxiliary switch disconnect terminals (see Figure 7 Item #5). Properly crimp the terminals.

### Installing the Auxiliary Switch (Field Installations)

1. Referring to Figures 6 or 7, mount the auxiliary switch (Item #2) to the mounting bracket (Item #1) using the two screws (Item #3).
2. Referring to Figures 6 or 7, mount the mounting bracket to the receptacle enclosure using the two mounting screws (Item #4).
3. Adjust the location of the mounting bracket as needed to ensure that the auxiliary switch will be actuated by the motion of the switch actuating fork.
4. See “Wiring” for additional installation steps.

**Figure 8: Auxiliary Switch Installed**



## Testing

1. With the branch electrical power remaining OFF, test the auxiliary switch by turning the receptacle collar from the “OFF” to “ON” position. Verify that this motion will actuate the auxiliary switch.

**NOTE:** A proper amperage plug must be engaged in the receptacle to enable the movement of the receptacle collar from the “OFF” to “ON” position.

## Operation

Before power is applied to the auxiliary switch:

1. The wiring must be checked and tested to ensure that all circuits are according to plan and that there are no unwanted opens, shorts, or grounds.
2. Turn the receptacle collar to the “ON” position.

Except as expressly provided by Appleton Grp, LLC (Appleton), Appleton products are intended for ultimate purchase by industrial users and for operation by persons trained and experienced in the use and maintenance of this equipment and not for consumers or consumer use. Appleton warranties DO NOT extend to, and no reseller is authorized to extend Appleton's warranties to any consumer. While every precaution has been taken to ensure accuracy and completeness in this manual, Appleton Grp, LLC, assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions. Specifications are subject to change without notice. The Appleton and Emerson logos are registered in the U.S. Patent and Trademark Office. All other product or service names are the property of their registered owners. ©2015 Appleton Grp, LLC. All rights reserved.