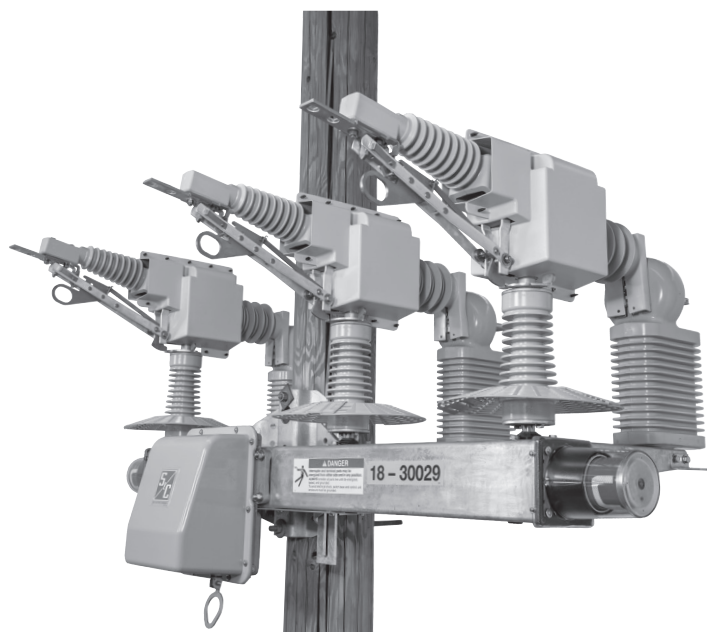


Installation and Operation

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Qualified Persons

 **WARNING**

Only qualified persons who are knowledgeable in the installation, operation, and maintenance of overhead and underground electric distribution equipment, along with all associated hazards, may install, operate, and maintain the equipment covered by this publication. A qualified person is someone who is trained and competent in:

- The skills and techniques necessary to distinguish exposed live parts from nonlive parts of electrical equipment
- The skills and techniques necessary to determine the proper approach distances corresponding to the voltages to which the qualified person will be exposed
- The proper use of special precautionary techniques, personal protective equipment, insulated and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment

These instructions are intended **ONLY** for such qualified persons. They are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

Read this
Instruction Sheet

NOTICE

Thoroughly and carefully read this instruction sheet and all materials included in the product's S&C Instruction Handbook before installing or operating an S&C Scada-Mate SD Switching System. Familiarize yourself with the Safety Information and Safety Precautions on pages 3 through 5. The latest version of this publication is available online in PDF format at sandc.com/en/support/product-literature/.

Retain this
Instruction Sheet

This instruction sheet is a permanent part of your S&C Scada-Mate SD Switching System. Designate a location where you can easily retrieve and refer to this publication.

Proper Application

 **WARNING**

The equipment in this publication is only intended for a specific application. The application must be within the ratings furnished for the equipment. Ratings for the S&C Scada-Mate SD Switching System are listed in the ratings table in Specification Bulletin 775-31. The ratings are also on the nameplate affixed to the product.

Warranty

The warranty and/or obligations described in S&C's Price Sheet 150, "Standard Conditions of Sale – Immediate Purchasers in the United States" (or Price Sheet 153, "Standard Conditions of Sale – Immediate Purchasers Outside the United States"), plus any special warranty provisions, as set forth in the applicable product-line specification bulletin, are exclusive. The remedies provided in the former for breach of these warranties shall constitute the immediate purchaser's or end user's exclusive remedy and a fulfillment of the seller's entire liability. In no event shall the seller's liability to the immediate purchaser or end user exceed the price of the specific product that gives rise to the immediate purchaser's or end user's claim. All other warranties, whether express or implied or arising by operation of law, course of dealing, usage of trade or otherwise, are excluded. The only warranties are those stated in Price Sheet 150 (or Price Sheet 153), and THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY EXPRESS WARRANTY OR OTHER OBLIGATION PROVIDED IN PRICE SHEET 150 (OR PRICE SHEET 153) IS GRANTED ONLY TO THE IMMEDIATE PURCHASER AND END USER, AS DEFINED THEREIN. OTHER THAN AN END USER, NO REMOTE PURCHASER MAY RELY ON ANY AFFIRMATION OF FACT OR PROMISE THAT RELATES TO THE GOODS DESCRIBED HEREIN, ANY DESCRIPTION THAT RELATES TO THE GOODS, OR ANY REMEDIAL PROMISE INCLUDED IN PRICE SHEET 150 (or PRICE SHEET 153.)

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to the S&C Scada-Mate SD Switching System. Familiarize yourself with these types of messages and the importance of these various signal words:

DANGER

“DANGER” identifies the most serious and immediate hazards that will likely result in serious personal injury or death if instructions, including recommended precautions, are not followed.

WARNING

“WARNING” identifies hazards or unsafe practices that can result in serious personal injury or death if instructions, including recommended precautions, are not followed.

CAUTION

“CAUTION” identifies hazards or unsafe practices that can result in minor personal injury if instructions, including recommended precautions, are not followed.

NOTICE

“NOTICE” identifies important procedures or requirements that can result in product or property damage if instructions are not followed.”

Following Safety Instructions

If you do not understand any portion of this instruction sheet and need assistance, contact your nearest S&C Sales Office or S&C Authorized Distributor. Their telephone numbers are listed on S&C’s website sandc.com, or call the S&C Global Monitoring and Support Center at 1-888-762-1100.

NOTICE

Read this instruction sheet thoroughly and carefully before installing your S&C Scada-Mate SD Switching System.

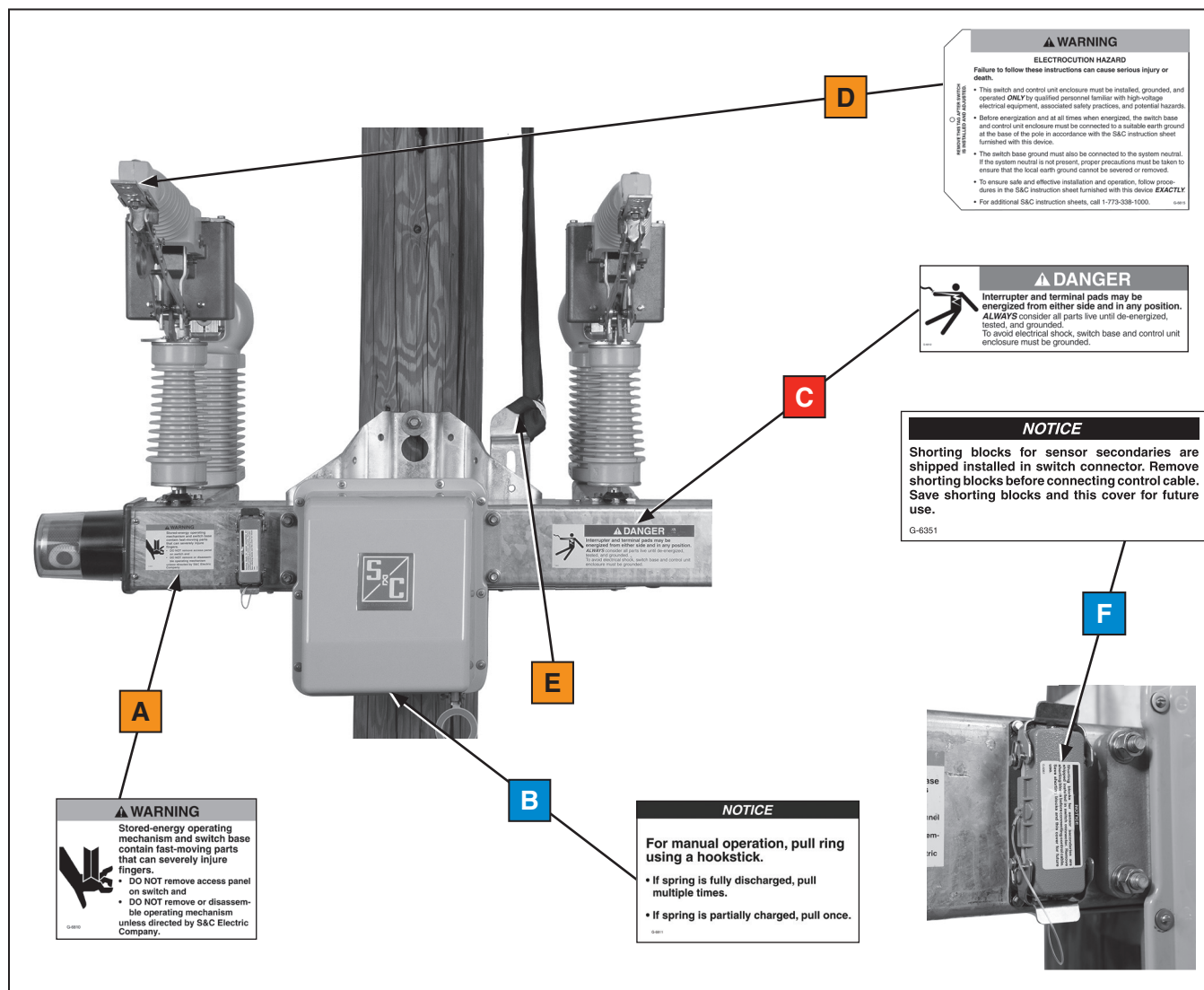


Replacement Instructions and Labels

If you need additional copies of this instruction sheet, contact your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

It is important that any missing, damaged, or faded labels on the equipment be replaced immediately. Replacement labels are available by contacting your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

Location of Safety Labels and Tags



Reorder Information for Safety Labels

Location	Safety Alert Message	Description	Number
A	WARNING	Stored-energy operating mechanism and switch base contain fast-moving parts . . .	G-6810
B	NOTICE	For manual operation, pull ring using a hookstick.	G-6811●
C	DANGER	Interrupter and terminal pads may be energized from either side and in any position.	G-6812■
D	WARNING	Electrocution Hazard—Switch and control unit enclosure must be installed and grounded ONLY by qualified personnel . . .	G-6815▲
E	WARNING	Lifting Instructions	G-9260▲
F	NOTICE	Shorting blocks . . .	G-6351●

- Switches with a hookstick operating mechanism do not have this label.
- This label is on both sides of the switch base on opposite ends.
- ▲ This is a tag to be removed and discarded after the switch is installed and adjusted.

 DANGER	
	Scada-Mate SD Switching Systems carry high voltage. Failure to observe the precautions below will result in serious personal injury or death. Some of these precautions may differ from your company's operating procedures and rules. Where a discrepancy exists, follow your company's operating procedures and rules.
1. QUALIFIED PERSONS. Access to the Scada-Mate SD Switching System must be restricted only to qualified persons. See the "Qualified Persons" section on page 2. 2. SAFETY PROCEDURES. Always follow safe operating procedures and rules. 3. PERSONAL PROTECTIVE EQUIPMENT. Always use suitable protective equipment, such as rubber gloves, rubber mats, hard hats, safety glasses, and flash clothing, in accordance with safe operating procedures and rules. 4. SAFETY LABELS. Do not remove or obscure any of the "DANGER," "WARNING," "CAUTION," or "NOTICE" labels. 5. OPERATING MECHANISM AND BASE. Scada-Mate SD Switching Systems contain fast-moving parts that can severely injure fingers. Do not remove or disassemble operating mechanisms or remove access panels on the Scada-Mate SD switch base unless directed by S&C Electric Company.	6. ENERGIZED COMPONENTS. Always consider all parts live until de-energized, tested, and grounded. 7. GROUNDING. Before energization and at all times when energized, the switch base and control unit enclosure must be connected to suitable earth ground at the base of the pole in accordance with the S&C instruction sheet furnished with this device. The switch base ground must also be connected to the system neutral. If the system neutral is not present, proper precautions must be taken to ensure the local earth ground cannot be severed or removed. 8. LOAD INTERRUPTER SWITCH POSITION. Always confirm the Open/Close position of load-interrupter switches by visually observing the indicator. Interrupters, terminal pads, and disconnect blades on disconnect-style models may be energized from either side of the Scada-Mate SD switch. 9. MAINTAINING PROPER CLEARANCE. Always maintain proper clearance from energized components.

Packing

The S&C Scada-Mate SD switch shipment will include the following items:

- A three-pole group-operated integer style Scada-Mate SD switch, complete with an interphase drive and stored-energy operating mechanism (or hookstick-operating mechanism), factory-assembled on a single base
- Optional features shipped unassembled, such as wildlife protection components, shielded control cable, and surge arrester brackets

A drawing of the switch and wiring diagrams are located in a water-resistant envelope shipped with the switch. Study these drawings carefully and check the parts list to verify all parts were shipped.

When sensors are furnished with the switch, a yellow card containing magnitude ratios and phase-angle measurements for S&C Current Sensor(s) or S&C Current/Voltage Sensors is included in the water-resistant envelope. These values must be programmed into the remote terminal unit (RTU) installed with the switch, if applicable, to apply correction for the unit-to-unit variations in the sensors. The S&C Sensor information is also stamped onto a plate mounted on the side of the sensor terminal pad. Refer to the instruction sheet provided with the control unit for further information.

Inspection

Examine the shipment for external evidence of damage as soon after receipt as possible, preferably before removal from the carrier's conveyance. Check the bill of lading to make sure the listed shipping skids, crates, and containers listed therein are present.

If there is visible loss and/or damage:

1. Notify the delivering carrier immediately.
2. Ask for a carrier inspection.
3. Note condition of shipment on all copies of the delivery receipt.
4. File a claim with the carrier.

If concealed damage is discovered:

1. Notify the delivering carrier within 15 days of receipt of shipment.
2. Ask for a carrier inspection.
3. File a claim with the carrier.

Also notify S&C Electric Company in all instances of loss and/or damage.

Handling

Follow these steps when handling an S&C Scada-Mate SD switch:

STEP 1. Uncrate the switch. The crate is designed to be moved and lifted using a lift truck. Indentations on the bottom of the crate are provided for inserting the lift-truck forks. See Figure 1.

Switches in the compact-crossarm upright and compact-crossarm upright—extra mounting-pole clearance configurations are provided with a single-point retractable lifting bracket that is permanently attached to the switch base. See Figure 2.

STEP 2. Secure the lifting slings to the switch before unbolting the switch from the crate. Remove all packing materials before lifting the switch.

NOTICE

Do not lift the switch by rigging on the switch pole bases, the interrupters, the wooden pole packing crate, the sensors, or the interrupter OPEN/CLOSE indicator. Damage to the switch may result.

CAUTION

Do not use the lifting bracket to lift the crated switch from the truck or other conveyance. The lifting bracket will only hold the weight of the switch and will **NOT** hold the weight of the crated switch and associated packing materials.

Failure to uncrate the switch before lifting may cause damage to the switch or personal injury.

WARNING

To maintain proper electrical clearance, make sure the lifting bracket is placed in the retracted position after the installation.

Failure to do so may increase the risk of flashover.

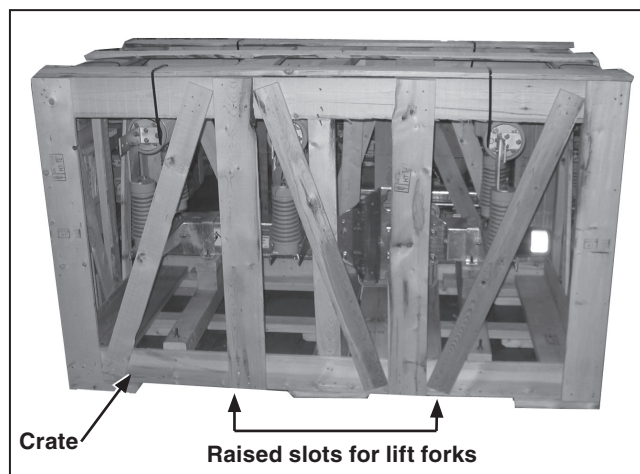


Figure 1. A Scada-Mate SD switch in its shipping crate.

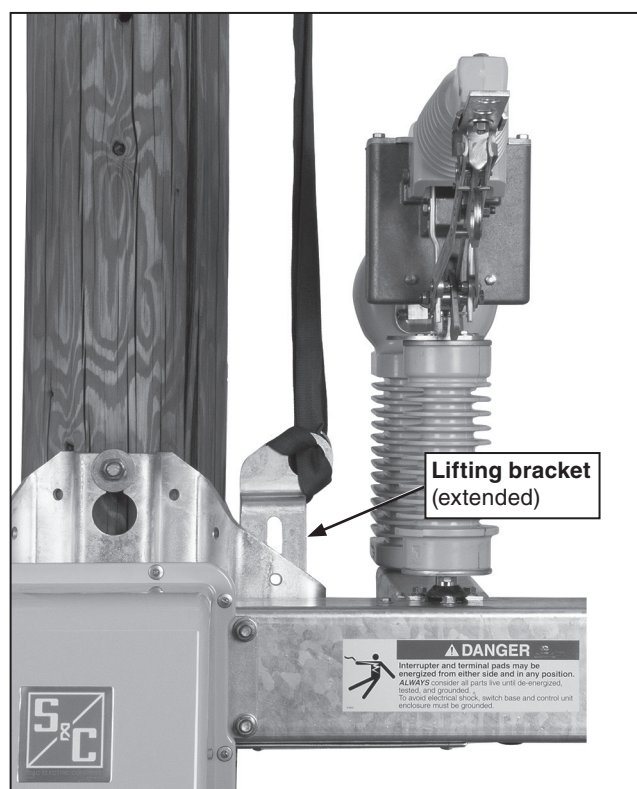


Figure 2. The location of lifting bracket. The switch should only be lifted at this point.

Inserting Pole-Mounting Hardware

Follow these steps when installing the pole-mounting hardware:

STEP 3. Drill two $\frac{1}{4}$ -inch (17-mm) diameter holes in the front of the utility pole at the desired height for mounting the switch. See Figure 3. Refer to the catalog drawing. The centerline-to-centerline distance of the holes must be 14 inches (356 mm).

STEP 4. Insert two $\frac{5}{8}$ -inch diameter through bolts (not furnished) in the holes drilled in Step 3. Secure these bolts loosely with necessary washers and nuts in such a manner the heads of the bolts project sufficiently, approximately 3 inches (76 mm), from the face of the pole to engage the switch pole-saddle. See Figure 3.

NOTICE

When mounting the switch to a wood pole, it is recommended that suitably sized square washers be placed under the nuts against the wood pole. The use of spring-type washers between the square washers and nuts is also recommended to compensate for wood-pole shrinkage and maintain fastener tightness.

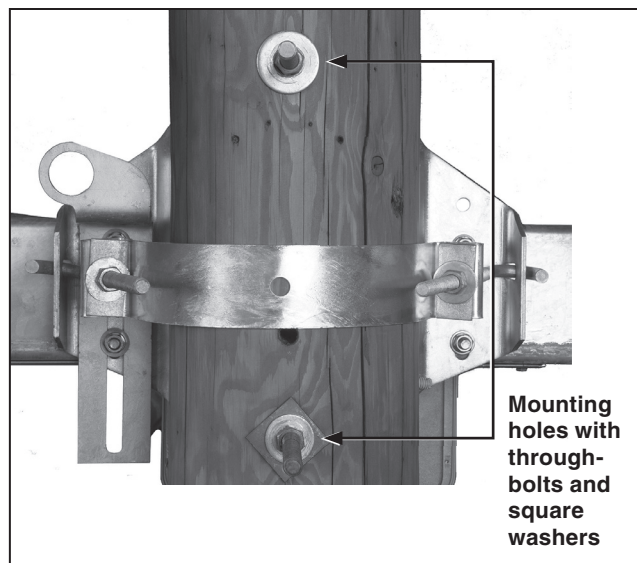


Figure 3. Drill two holes as specified on the catalog drawing. Insert the through-bolts.

Switch Installation

Follow these steps when installing the Scada-Mate SD switch:

STEP 5. Handle and lift the switch per the “Handling” section on page 7. When the switch is hoisted to mounting level, guide the switch so the through-bolts projecting from the utility pole slip into the holes in the pole-saddle. The saddle has a keyhole and an open slotted hole for this purpose. Lower the switch slightly so it bears on the through-bolts. Fully tighten the through-bolts, making sure the flat washer for each bolt is between the bolt head and the pole-saddle. See Figures 4 and 5.

NOTICE

Do not lift the switch by rigging on the switch pole bases, the interrupters, the sensors, or the interrupter OPEN/CLOSE indicator. Damage to the switch may result.

CAUTION

Do not use the lifting bracket to lift the crated switch from the truck or other conveyance. The lifting bracket will **ONLY** hold the weight of the switch and will **NOT** hold the weight of associated packing materials.

Failure to uncrate the switch before lifting may cause damage to the switch or personal injury.

Installing the Optional Pole Band and J-Bolts

Conduct the following steps to install the optional pole band and J-bolts:

STEP 6. Secure the optional pole band to the pole-saddle using the J-bolts provided. Two $\frac{1}{4} \times 1 \times 3$ -inch (6 × 25 × 76-mm) stiffening blocks are furnished to be used behind the pole-band flanges and underneath the J-bolt nuts. Fully tighten the nuts. Attach the pole band to the back side of the pole through the hole in the center of the band using one of the three $\frac{1}{2}$ -inch diameter lag screws provided. See Figure 5. Then, attach the pole-saddle to the pole using the two remaining $\frac{1}{2}$ -inch diameter lag screws.

STEP 7. When all nuts and lag screws have been fully tightened, remove the hoisting sling from the lifting bracket. Push the lifting bracket downward to lower it.

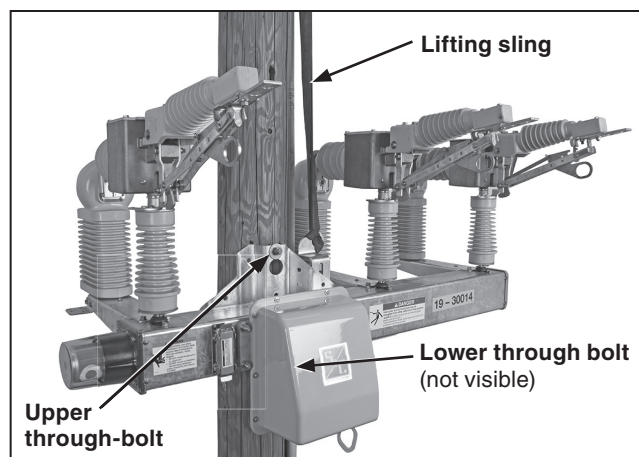


Figure 4. Slide the pole saddle onto the extended through-bolts.

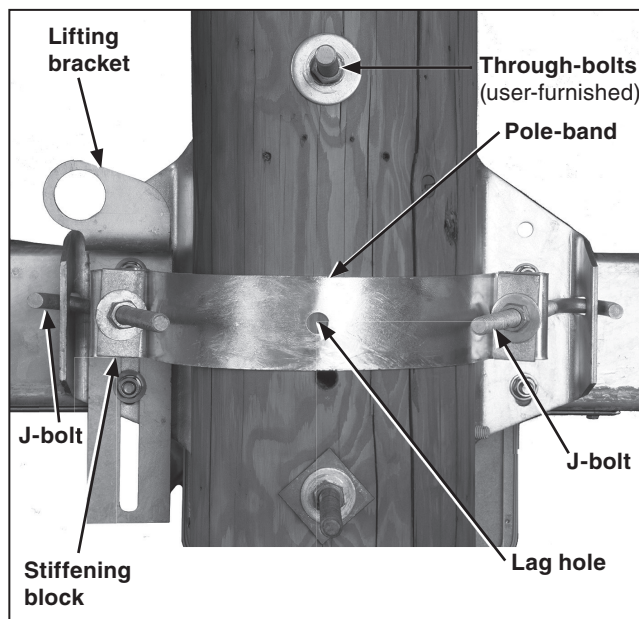


Figure 5. Rear of the pole showing the mounting hardware and the optional J-bolts and pole band.

⚠ WARNING

To maintain proper electrical clearance, make sure the lifting bracket is placed in the retracted position after the installation.

Failure to do so may increase the risk of flashover.

Optional extension link assemblies, if supplied, are shipped assembled to the switch.

Grounding the Switch

Use the following procedure when grounding the Scada-Mate SD switch:

STEP 8. A grounding lug is provided with the switch and should be installed in the hole on the pole-saddle. See Figure 6. It is essential to ground the switch to maintain sensor accuracy, prevent damage to the control cable from lightning strikes or energy surges, and to direct any surge path through the ground, and not through the control unit, where damage or personal injury may occur. Ground the switch by solidly connecting the end of a number 2 AWG wire (or two number 6 AWG wires, or wires having an equivalent cross-sectional area) to the grounding lug on the pole-saddle. See Figure 6.

Insert the ground wire into the ground-lug hole and tighten the nut on the rear of the pole-saddle. Connect the ground wire(s) to a suitable earth ground at the base of the pole and bond them to the system neutral, if present. Proper precautions must be taken to ensure the local earth ground cannot be severed or removed.

⚠ WARNING

Before energization and at all times when energized, the Scada-Mate SD Switch base and control unit enclosure, if provided, must be connected to a suitable earth ground at the base of the pole and bonded to the system neutral, if present, in accordance with this instruction sheet. Proper precautions must be taken to ensure the local earth ground cannot be severed or removed.

Failure to observe these instructions can result in serious personal injury or death.

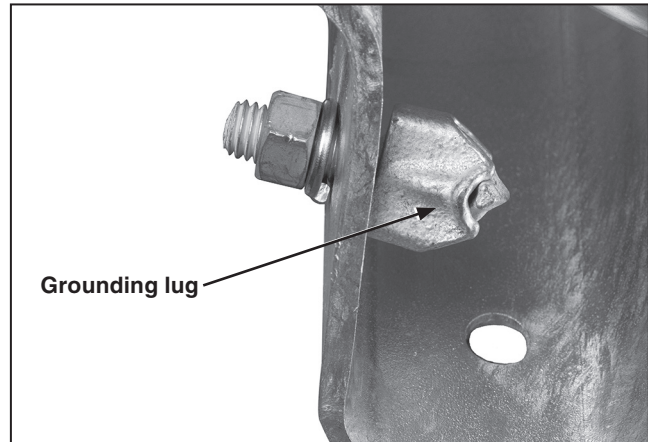


Figure 6. The grounding lug.

Installing Surge Arresters

Use the following procedure when installing surge arresters on a Scada-Mate SD Switching System:

STEP 9. Install surge arresters (customer furnished), if applicable, using the mounting provisions provided. Surge arrester brackets are provided on the pole-saddle side of the switch and are optionally available on the front side of the switch. Each surge arrester bracket has three $\frac{1}{16}$ -inch (14-mm) diameter holes. Mount the surge arrester using one of the holes and connect the surge arrester ground to one of the other holes. When properly installed and connected, the surge arresters are grounded through the switch base. A separate ground wire can be run for the arresters at user discretion. See Figure 7.

Preparing Connector and Terminal Pad Surfaces

Before installing connectors on the terminal pads, use the following procedure to prepare their surfaces:

STEP 10. Do not wire-brush Scada-Mate SD switch terminal pads. They are plated, and wire brushing will scratch the protective coating. Apply a coating of high-voltage connector grease to these pads before securing the connectors to the terminal pads. See Figures 8 and 9.

STEP 11. Securely tighten the connector using customer-supplied $\frac{1}{2}$ —13 UNC hardware. Typical tightening torque may vary depending on the hardware type and material. Check with the manufacturer for correct torque.

STEP 12. Prepare the conductors using established procedures before clamping them in their respective connectors. Torque S&C connectors to between 40 and 50 ft-lbs.

CAUTION

DO NOT apply excessive load to the terminal pads.

The jumper connections should be in line with and level to the terminal pad bolt holes before securing the jumper fasteners to the terminal pad. Large pull-off forces may misalign the blades with the stationary contacts or prevent proper closing.

Do not exceed 90 lbs. in line and 30 lbs. perpendicular to the terminal pad. (IEEE Standard ANSI C37.32-1996, Section 8.8.2.2.)

Misaligned contacts may overheat, causing arcing and damage to the switch. Damage to equipment and injury to operating personnel may result.

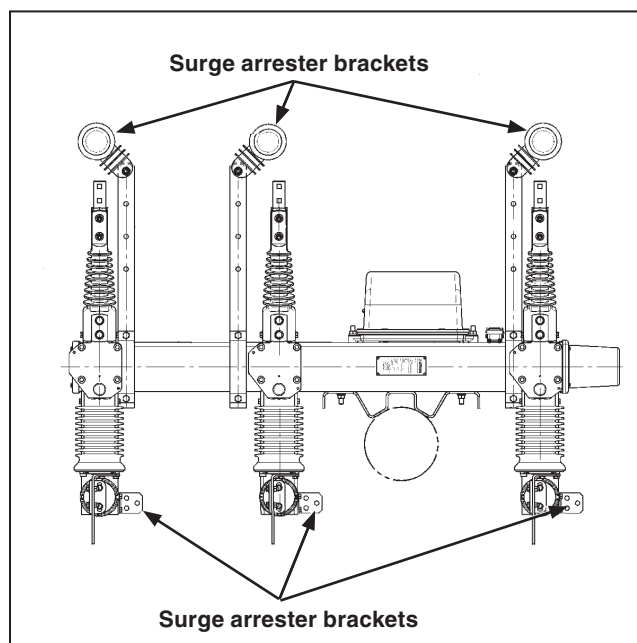


Figure 7. A typical surge arrester mounting arrangement. (Optional disconnect and front brackets shown.)

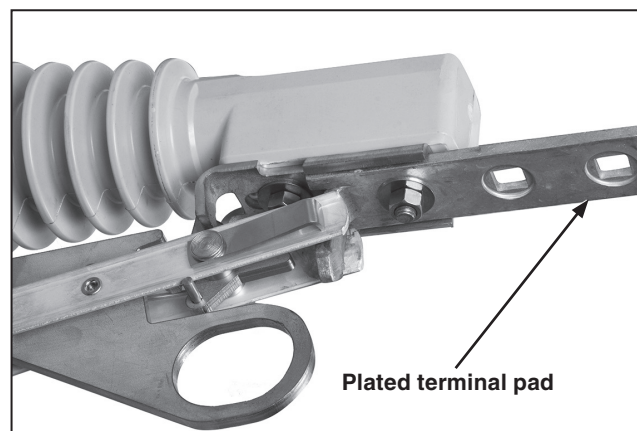


Figure 8. The Scada-Mate SD switch terminal pad. The disconnect pad is shown. Do not wire-brush the surfaces.

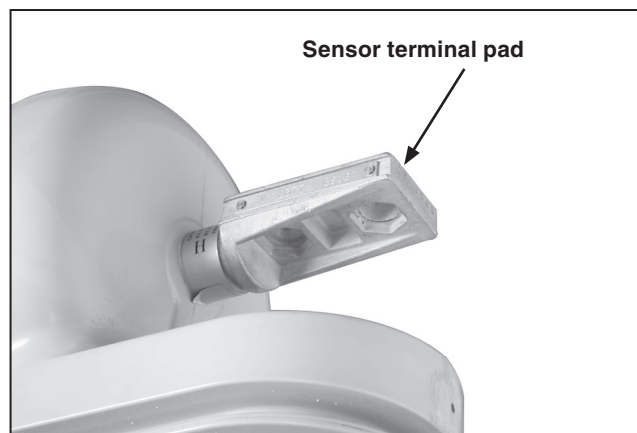


Figure 9. The sensor terminal pad. Do not wire-brush the surfaces.

Installing Optional Wildlife Protection Components

If the Scada-Mate SD Switch is supplied with optional wildlife protection (catalog number suffix “-W”), all protective components are assembled to the switch except those for the terminal pads. The terminal pad components are shipped unassembled from the switch and must be installed after the conductors are attached to the terminal pads. For installation instructions refer to S&C Drawing RD-6794.

STEP 13. To install the optional wildlife protection components, first, prepare the surfaces of the terminal pads and connectors as described in Step 10 on page 11. Then, attach the connectors to the terminal pads and connect the conductors or cables.

NOTICE

Only S&C connectors catalog numbers 474R1, 474R2 and 4581, as well as compression connectors, can be used with optional wildlife protection.

STEP 14. Secure the wildlife-protection covers in place by snapping the fasteners provided as shown on RD-6794.

Installing the Control Unit

Before connecting the control cable and energizing the Scada-Mate SD switch, install the control unit to be used with the switch. Also complete all connections associated with the control unit. This instruction sheet provides a general overview of the installation of control units of S&C manufacture. Refer to the instruction sheet included with your control unit for more information.

Use the following procedure when installing the control unit for power-controlled Scada-Mate SD switches:

STEP 15. Ground the enclosure by solidly connecting one number 6 AWG wire (or wires of equivalent cross-sectional area) to the ground lug on the back of the enclosure. Solidly connect the enclosure ground wire to the switch ground wire(s). See Figure 10.

WARNING

Before energization and at all times when energized, the Scada-Mate SD switch base and control unit enclosure must be connected to a suitable earth ground at the base of the pole and bonded to the system neutral, if present. Proper precautions must be taken to ensure the local earth ground cannot be severed or removed.

Failure to observe these instructions can result in serious personal injury or death.

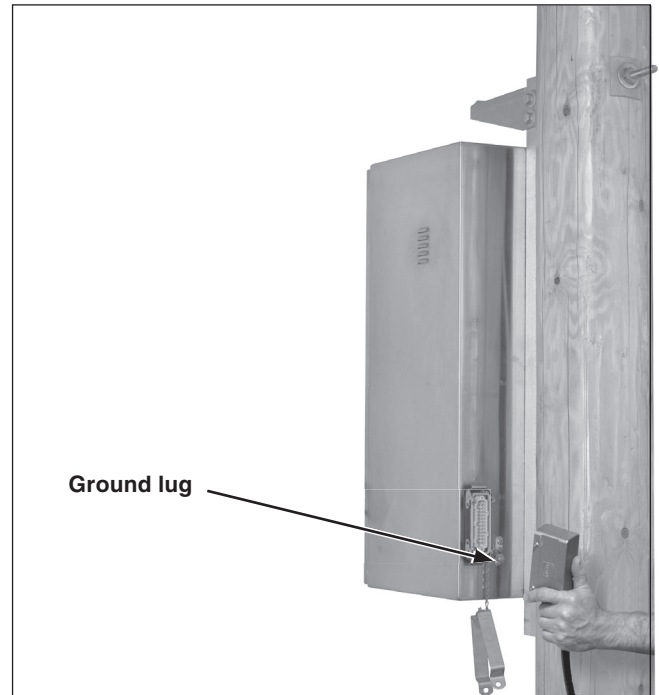


Figure 10. Ground the enclosure.

Connecting the Control Cable

Use the following procedure to connect the control cable for power-controlled Scada-Mate SD switches:

NOTICE

Shorting blocks for sensor secondaries are shipped installed in the switch connector. Remove the shorting blocks before connecting the control cable. Save the shorting blocks and cable plug cover for future use.

STEP 16. An optional liquid-tight control cable may be included with the Scada-Mate SD switch for connection of the switch to the control unit.

- (a) Remove the control cable from its shipping carton.
- (b) The control cable is provided with a multi-pin connector plug (male) for connection to the switch and a multi-pin connector receptacle (female) for connection to the control unit. Locate the connector receptacle on the front of the switch base and remove the dust cover.
- (c) Remove the sensor shorting blocks from the receptacle and attach the control-cable plug.
- (d) Secure the connection with the connector clips.
- (e) Retain the dust cover and sensor shorting blocks for future use. See Figure 11.

STEP 17. Locate the receptacle on the back of the control unit enclosure.

- (a) Remove the dust cover, and attach the control-cable connector plug.
- (b) Secure the connection with the connector clips.
- (c) Retain the dust cover for future use. See Figure 12.

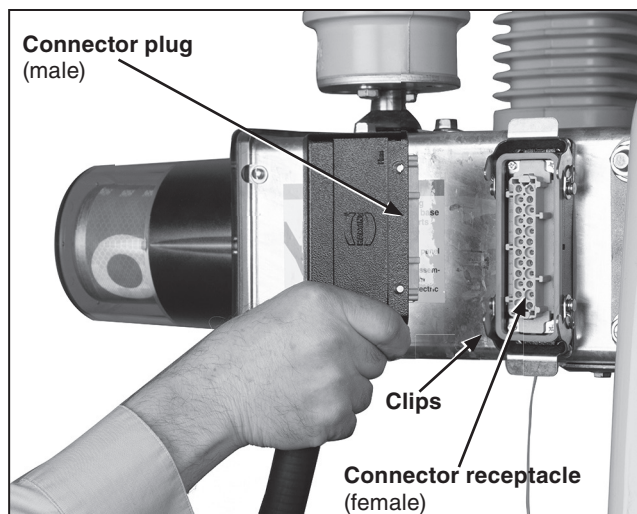


Figure 11. Plug the connector into the socket and secure with the clips.

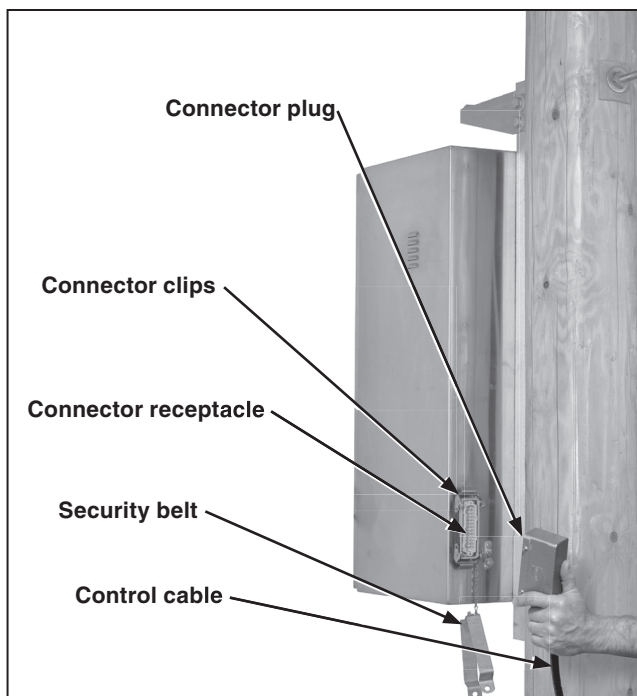


Figure 12. Connecting the control cable to the control unit enclosure.

STEP 18. Form a drip loop with the control cable where it attaches to the control unit.

- (a) Maintain a 9-inch (229-mm) minimum radius when bending the control cable at the drip loop and at the switch connection.
- (b) Attach the control cable along the length of the utility pole and secure the control cable to the utility pole using suitable guards or clamps.
- (c) Form a coil with any excess control cable, maintaining a 9-inch (229 mm) minimum radius, and secure it to the utility pole. See Figure 13.

STEP 19. A stainless steel security belt is included with the control unit for padlocking the multi-pin connector to the control unit. See Figure 12 on page 14. Place the security belt around the connector between the connector clips and the enclosure, and insert a padlock (not furnished) through the holes provided. See Figure 13.

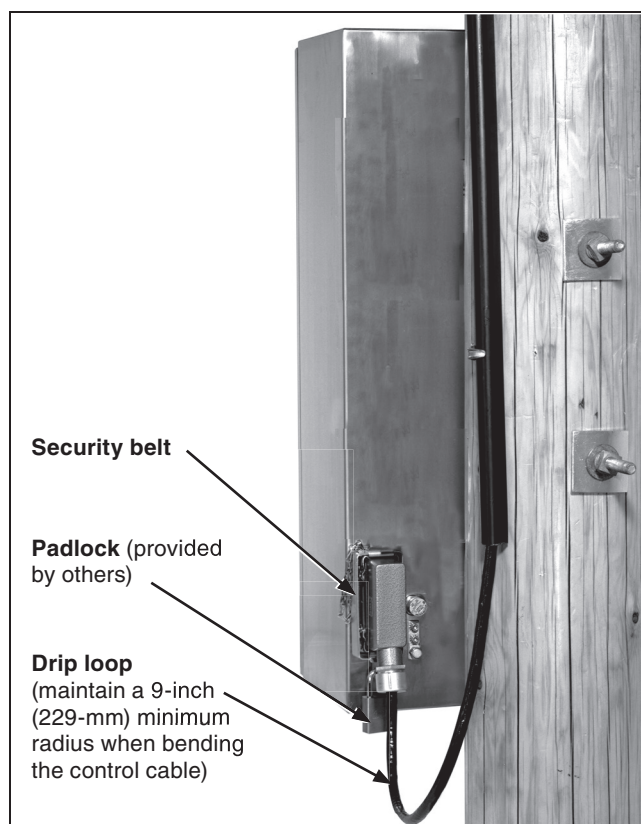


Figure 13. Connecting the control cable to the control unit enclosure.

Power-Operated Switch Energization

⚠ WARNING

Before energization and at all times when energized, the Scada-Mate SD switch base and control unit enclosure, if provided, must be connected to a suitable earth ground at the base of the pole and bonded to the system neutral, if present. Proper precautions must be taken to ensure that the local earth ground cannot be severed or removed.

Failure to observe these instructions can result in serious personal injury or death.

⚠ CAUTION

The stored-energy operating mechanism and the switch base contain fast-moving parts that can severely injure fingers. Do not remove or disassemble the operating mechanism or remove the access panel on the switch base unless directed by S&C Electric Company.

Use the following procedure to energize the power-operated switch:

STEP 20. After making all user connections to the control unit, if applicable, in accordance with the S&C instruction sheet covering the applicable control unit, or the manufacturer's instruction sheet, energize the Scada-Mate SD switch according to standard operating practices. For power-operated switches, confirm the power and selector switches are in the correct position and the appropriate LEDs are illuminated as detailed in the instruction sheet for the applicable control unit. See Figure 14.

⚠ DANGER

The interrupters and terminal pads of the Scada-Mate SD switch may be energized from either side and in any position. Before inspecting, servicing, or repairing this switch or working on the conductors on either side of the switch, test for voltage using proper high-voltage test equipment. Then, install suitable grounding equipment.

Failure to observe these precautions may result in serious injury or death.



Figure 14. S&C Model 6801 Automatic Switch Control.

Pushbutton Operation

Use the following procedure to operate the various Scada-Mate SD switch pushbuttons:

STEP 21. All S&C control units and most control units of other manufacture have a **Local/Remote** feature. To operate, place the LOCAL/REMOTE switch inside the control unit to the **Local** position. Refer to the instruction sheet furnished with the control unit. The switch can now only be operated locally.

Then, press the OPEN or CLOSE pushbutton as appropriate. See Figure 15. The interrupter OPEN/CLOSED indicator on the end of the Scada-Mate SD switch base indicates interrupter contact position: the target with an “O” indicates the interrupters are in the **Open** position; the target with a “C” indicates the interrupters are in the **Closed** position. The indicator does not show status of the disconnects.

Remote Operation

Use the following procedure to set up the Scada-Mate SD switch for remote operation:

STEP 22. Place the LOCAL/REMOTE switch inside the control unit in the **Remote** position. Refer to the instruction sheet furnished with the control unit.

The Scada-Mate SD switch can now only be operated by remote supervisory control. By using the SCADA system, the dispatcher can test the electrical operation of the switch and the entire SCADA control path, including communications. See Figure 15. The interrupter OPEN/CLOSED indicator on the end of the Scada-Mate SD switch base indicates interrupter contact position: the target with an “O” indicates the interrupters are in the **Open** position; the target with a “C” indicates the interrupters are in the **Closed** position. The indicator does not show the status of the disconnects. See Figure 16.



The switch control includes OPEN/CLOSE pushbuttons, switch-position indicating lamps, disconnect closed and latched indicating lamps, a LOCAL/REMOTE switch, and an operation counter

Figure 15. Operating the switch using the LOCAL/REMOTE switch inside the CCU.

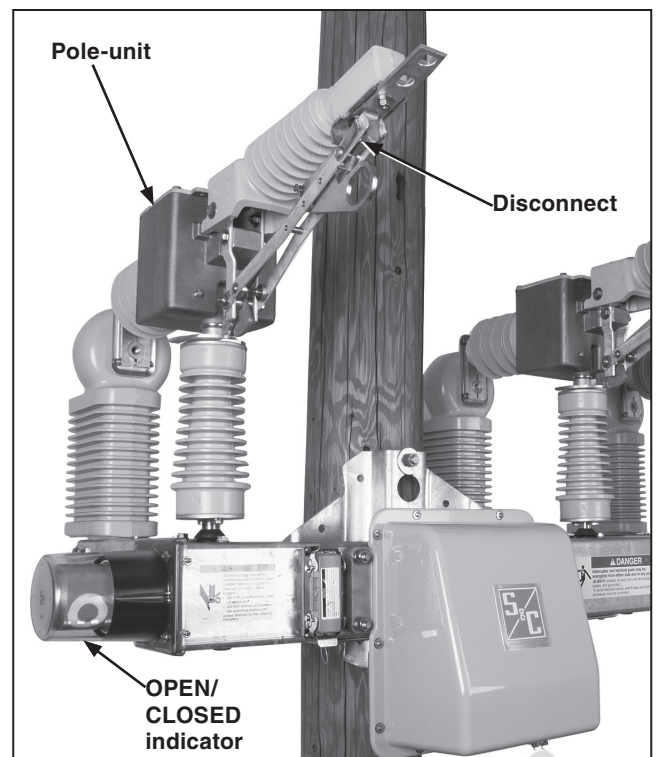


Figure 16. The optional disconnect.

Optional Disconnect Operation

The optional disconnects for the Scada-Mate SD switch are single-phase disconnects. Each disconnect is operated separately from the other. Unless specified otherwise, the disconnects will be pre-installed to the switch terminal pads. See Figure 16 on page 17.

Users will need to implement operating procedures to ensure all three disconnects are closed before the switch is closed and all disconnects are only opened after the switch has been opened. The disconnects mechanically interlock with the switch, preventing the closing of the switch unless all three disconnects are closed. The disconnects are blocked from opening when the switch is closed. Even with this feature, users must establish operating procedures to ensure all disconnects are open when the switch is open before a true three-phase “visible-break” is attained.

To manipulate the disconnect operating ring, follow the procedure below using a conventional insulated hookstick or S&C Universal Pole and Pole Extension (if required) fitted with a heavy-duty hook-tool such as the S&C Substation Prong or equivalent.

STEP 23. Verify the switch is open by checking the OPEN/CLOSE indicator on the end of the switch. See Figure 17. Place the LOCAL/ REMOTE switch inside the control unit in the **Local** position before operating the disconnect. Refer to the instruction sheet furnished with the control unit. Now the switch can only be operated locally.

STEP 24. Open the disconnect by pulling down on the operating ring. See Figure 18. The latch will release and the disconnect can be pulled open. Disengage the hookstick from the operating ring. Repeat with the remaining two disconnects.

The switch is interlocked in the **Open** state while the disconnects are in the fully **Open** position.

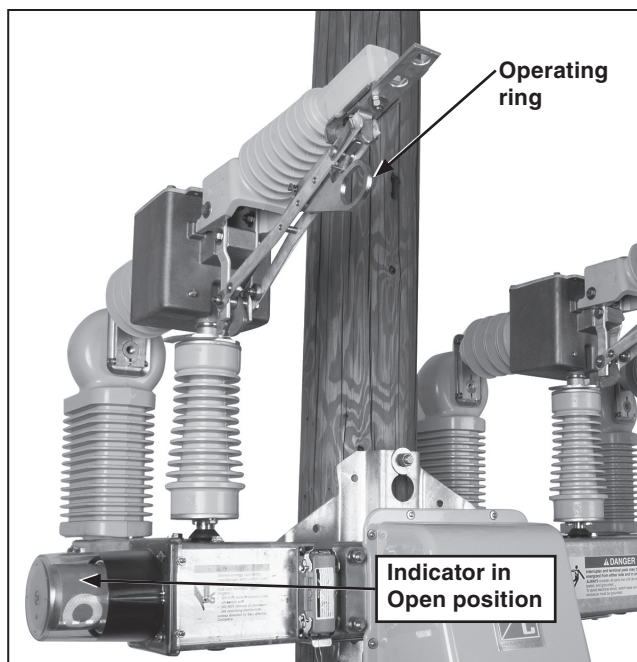


Figure 17. The Scada-Mate SD switch in the Open position.

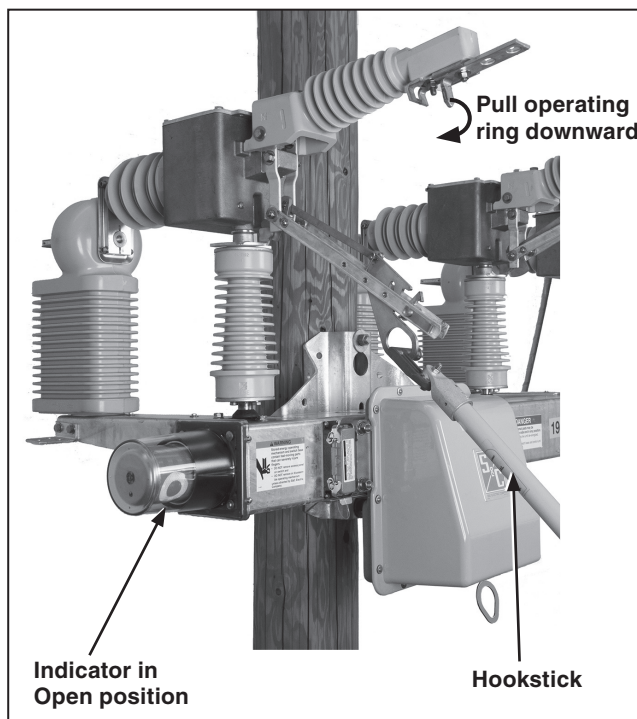


Figure 18. Open the disconnect by pulling the operating ring downward with a hookstick.

STEP 25. Close the disconnect by pushing the operating ring into the contact. See Figure 19. When the blade contact latch is completely closed, the operating ring will tilt backward into the blade contact. Disengage the hookstick from the operating ring. Repeat with the remaining two disconnects. The switch can now be closed.

The disconnects are mechanically blocked in the **Closed** position while the switch is in the **Closed** state.

Emergency Manual Operation

STEP 26. Scada-Mate SD Switches are capable of manual interrupter operation. In the event of electrical power loss, a standard or extendible hookstick is used to open and close the interrupters. If the spring is fully discharged, pull on the operating mechanism pull-ring with the hookstick seven to nine times to effect a change of state. If the spring is partially charged, a single pull will change the interrupter position. See Figure 20.

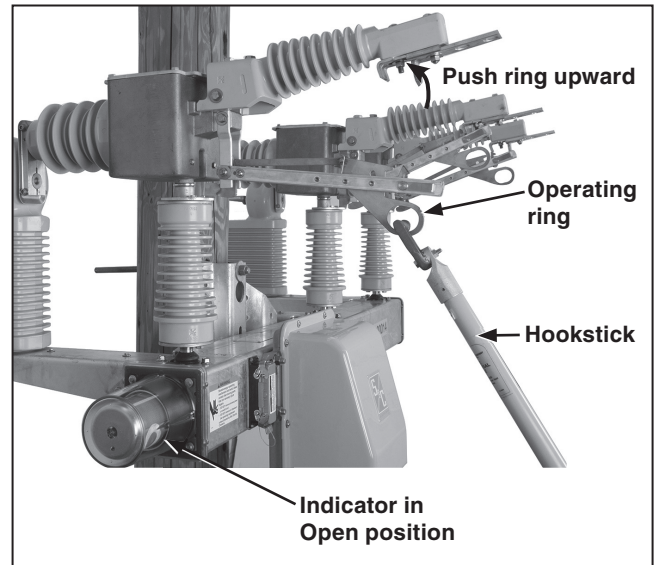


Figure 19. Push the blade into contact.

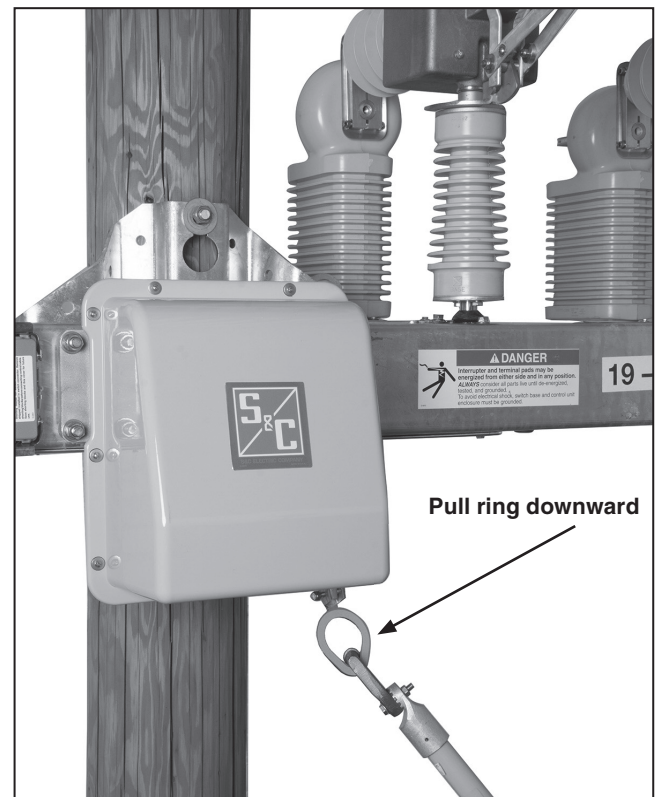


Figure 20. Manual operation with a hookstick.

Dielectric Testing

For the convenience of users who normally perform electrical tests on system components such as Scada-Mate SD switches, appropriate withstand test values are given in Table 1. These test values are significantly greater than the normal operating voltage of the Scada-Mate SD switch and are near the flashover voltage of the equipment. They should be applied only when the Scada-Mate SD switch is completely de-energized and disconnected from all power sources.

WARNING

The following test procedures must be performed by qualified persons who are knowledgeable in the installation, operation, and maintenance of overhead electric power distribution equipment along with the associated hazards.

DANGER

When performing electrical withstand tests on Scada-Mate SD Switching Systems, observe the following precautions:

1. Completely de-energize the Scada-Mate SD switch and disconnect the phase conductors from all six terminal pads. If the Scada-Mate SD switch is supplied with the optional wildlife protection feature (catalog number suffix “-W”), slide the tap cover back far enough to gain access to the terminal pads. Then, remove the upper and lower terminal-pad covers to permit the removal of the phase conductors. Retain the covers for reinstallation at the conclusion of the test.
2. At each of the six terminal pads, disconnect the leads for the surge arresters. Make sure the surge arrester leads are tied back so they are at least 8 inches (203 mm) from any terminal pad.
3. Open the Scada-Mate SD switch interrupters manually by using a hookstick to pull down on the OPEN lever. For disconnect-style models, close the hookstick-operated disconnects.

Failure to observe these precautions can result in a flashover, injury, and equipment damage.

Table 1. Withstand Test Voltage

Rating, kV		Withstand Test Voltage, kV		
Nom.	Max.	60-Hz, RMS ^{①②}	Dc	Impulse (BIL)
14.4	17	32	45	110
25	29	52	74	125●

① The 14.4-kV test values are limited by the internal sensor spark-gap rating.

② The 25-kV test values are approximately 75% of the design values.

● Refer to Table 2.

Table 2. 25-kV Scada-Mate SD Switch BIL Ratings

Without Optional Disconnect		With Optional Disconnect		
Vacuum Interrupter	BIL	Vacuum Interrupter	Optional Disconnect	BIL
Closed	150 kV	Open	Open	150 kV
		Closed	Closed	150 kV
Open	125 kV	Open	Closed	125 kV