

# Installation

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# Introduction

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## Qualified Persons

### **WARNING**

The equipment covered by this publication must be installed, operated, and maintained by qualified persons who are knowledgeable in the installation, operation, and maintenance of overhead electric power distribution equipment along with the associated hazards. A qualified person is one 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 the special precautionary techniques, personal protective equipment, insulating 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**

Read this instruction sheet thoroughly and carefully before installing or operating S&C 5800 Series Automatic Switch Controls. Familiarize yourself with the Safety Information page 3. The latest version of this publication is available online in PDF format at [sandc.com/en/support/product-literature/](http://sandc.com/en/support/product-literature/).

## Retain this Instruction Sheet

This instruction sheet is a permanent part of your 5800 Series Automatic Switch Control. Designate a location where you can easily retrieve and refer to this publication.

## Proper Application

### **WARNING**

The equipment in this publication must be selected for a specific application. The application must be within the ratings furnished for the selected equipment.

## 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 attached to the 5800 Series Automatic Switch Control. Familiarize yourself with these types of messages and the importance of these various signal words:

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


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

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

<b>NOTICE</b>
“NOTICE” identifies important procedures or requirements that <i>can</i> 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](http://sandc.com), or call S&C Headquarters at (773) 338-1000; in Canada, call S&C Electric Canada Ltd. at (416) 249-9171.

<b>NOTICE</b>	
Read this instruction sheet thoroughly and carefully before installing or operating your S&C 5800 Series Automatic Switch Control.	

**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.

### Applicable Software

This instruction sheet was prepared for use with the IntelliTeam® Automatic Restoration System and 5800 Series software: SNCD2A1X Rev. 2.30, SNCD2A5V Rev. 2.30A, SNCD2A6D Rev. 2.25, PADD2A1X Rev. 2.32, ViSD2A1X Rev. 2.33, USBD2A1X Rev. 2.31, and UDSD2A1X 2.20.

The revision number is on the *Troubleshooting>Control & Switch Information* screen. For questions regarding the applicability of information in this instruction sheet to future product releases, please contact S&C Electric Company.

#### **WARNING**

These instructions do not replace the need for utility operation standards. Any conflict between the information in this document and utility practices should be reviewed by appropriate utility personnel and a decision made as to the correct procedures to follow.

Serious risk of personal injury or death may result from contact with electric distribution equipment when electrical isolation and grounding procedures are not followed. The equipment described in this document must be operated and maintained by qualified persons who are thoroughly trained and understand any hazards that may be involved. This document is written only for such qualified persons and is not a substitute for adequate training and experience in safety procedures for accessing high-voltage equipment.

S&C 5800 Series Controls are connected to switchgear operating at primary voltage levels. High voltage may be present in the wiring to the switch control or in the switch control itself during certain switchgear wiring or grounding system failures, or due to a problem with the switch control itself. For this reason, access to switch controls should be treated with the same safety precautions that would be applied when accessing other high-voltage lines and equipment. Follow all locally approved safety procedures when working on or around this control.

Before attempting to access an existing switch installation, check carefully for visible or audible signs of electrical or physical malfunction (do this before touching or operating the switch control or any other part of the installation). These warning signs include smoke, fire, open fuses, crackling noises, loud buzzing, etc. If a malfunction is suspected, treat all components of the installation, including the switch control and associated mounting hardware, as if they were elevated to primary (high) voltage.

Whenever you manually reconfigure the circuit (for example, during repairs), follow your company's operating procedures to disable automatic operation of the switch control. This will prevent any unexpected operation.

#### **WARNING**

All switch controls in your IntelliTeam system must use the same software revision.

## Pre-Installation Checklist

Before installing the switch control package in the field, carry out the following steps. This is best done in the shop before the installer leaves for the installation site.

**STEP 1.** Inspect the switch control for visible damage.

On receipt of the control, make sure there is no obvious damage to the switch control enclosure or any of the internal components. Also, check any switch interface connectors that are included with the control. If the battery will not be used immediately, store it in a cool, dry place, and recharge it every six months or less.

**STEP 2.** Put a copy of the source and line segment information/drawing in the door pocket of the control or low-voltage cabinet.

The team information sheet includes a single-line diagram of the team and the information you need to correctly install and configure this control.

**STEP 3.** Locate the items needed to install and set up the 5800 Series Switch Control.

The following items are required to install the software, set up the control, set up the communications equipment (radio, modem, etc.), and enable operation. These items also can be used to diagnose certain hardware problems that can occur during installation:

**Personal Computer**—Requires Microsoft Windows® 7 operating system, Internet Explorer 5.0 or higher, 32 MB of RAM, and a USB or serial port

**Serial Communication Cable**—Connects the computer to the LOCAL COMM port on the control (Use a straight-through cable, not a null-modem cable. The cable must be long enough to connect to an installed switch control.)

The serial connection is RS232 with a DB9-pin connector.

If the computer only has USB ports, use a serial to USB cable adapter.

### NOTICE

S&C ships several types of software-controlled products. Make sure to use the correct software for this switch control. The latest software revisions are posted at the S&C website [sandc.com/en/support/sc-customer-portal/](http://sandc.com/en/support/sc-customer-portal/).

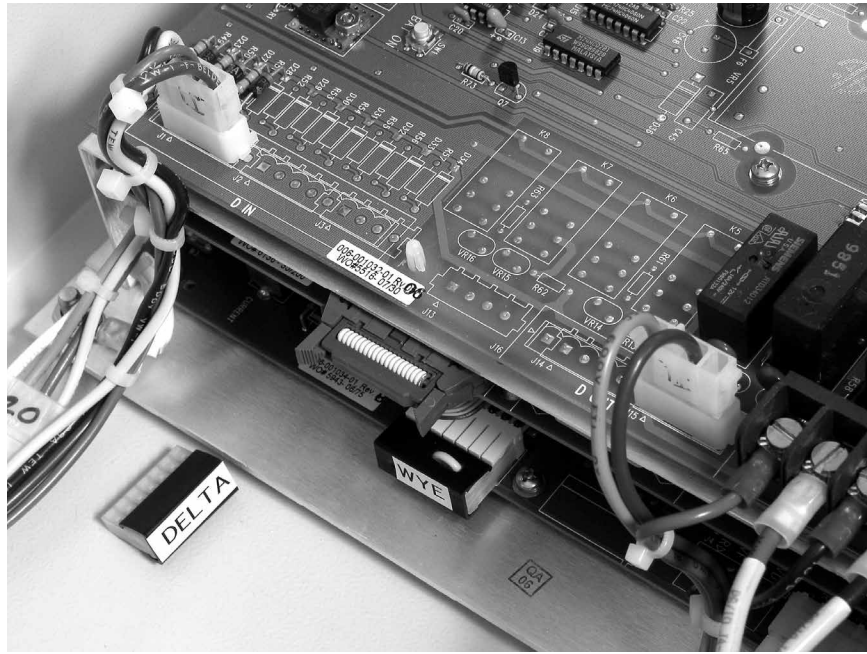
**STEP 4.** Make sure all required communications equipment (radios, antennas, modems, etc.) is available.

Each team member must communicate with other team members, either by radio, modem, or cable. Depending on the location of the other team members, one or more repeater radios may be required. For more information, see the manufacturer's documentation for the communication system.

**STEP 5.** Check the sensor conditioning module jumper(s) using the following procedure.

The switch control sensor conditioning module is configured with a delta/wye jumper. If there are three voltage sensors, the sensor conditioning module uses one jumper. If there are six voltage sensors, such as line side sensors on two switches in pad-mounted gear or Vista® Underground Distribution Switchgear, the sensor conditioning module requires two jumpers.

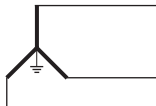
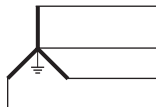
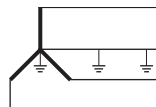
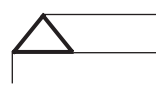
- (a) Locate the installed sensor conditioning module jumper(s) and the alternate jumper(s). See Figure 1 on page 6.



**Figure 1.** This is inside the switch control enclosure, showing the jumper location (5801 control shown). The “wye” jumper is installed and “delta” is the alternate jumper.

(b) Use Table 1 to determine which jumper is correct for the distribution system.

**Table 1. Distribution System Jumper Selection**

3-Wires & Grounding Type	Use
Uni-grounded wye system 	Delta jumper(s)
4-Wires & Grounding Type	Use
Uni-grounded wye system (primary neutral) 	Delta jumper(s)
Multi-grounded wye system 	Wye jumper(s)
Delta system 	Phase-to-ground connected sensors are not normally used on ungrounded delta systems. Contact S&C for special applications.

**⚠ WARNING**

For more information regarding safety issues for sensors connected phase to ground, contact the sensor manufacturer.

- (c) Check that the correct jumper (see Figure 2) is in place for the type of distribution system. Controls are shipped with the wye jumper installed. Make sure the side of the jumper with more wire loops (two loops for wye, three loops for delta) is facing toward the back of the enclosure.



**Figure 2.** The delta jumper and wye jumper.

- (d) When changing jumpers, check the orientation of the installed jumper. Then, carefully pull it away from the pins. Replace that jumper with the alternate jumper. Put the removed jumper in the spare parts bag on the left side of the enclosure interior.

**STEP 6.** Check the battery using the following procedure.

The 5800 Series Switch Control is shipped with a Hawker/Gates Monoblock 24-Vdc or 36-Vdc battery. The battery is terminated with a connector that can be connected only black to black and red to red.

- (a) Make sure the battery is not cracked or leaking and the connectors are not damaged.  
 (b) Use a voltmeter to check that the voltage is at least 20 volts for a 24-Vdc battery or 35 volts for a 36-Vdc battery. Replace the battery if the measured voltage is lower.

**STEP 7.** For controls connected to a Scada-Mate® Switching System or an automated Omni-Rupter® Switch, check the field interface connector (FIC) cable-locking collars.

Check that the collar (see Figure 3) is present and connected to the enclosure. This collar will later be locked in place around the FIC cable connection to provide tamper resistance.



**Figure 3.** Bottom of switch control enclosure with the FIC connector.

**STEP 8.** For controls connected to a Scada-Mate Switching System, check whether a 16-pin/24-pin cable adapter is necessary.

S&C provides a cable for connecting the switch to the FIC on the switch control. Early Scada-Mate switch cables used a 16-pin connector. If retrofitting a switch control to an older Scada-Mate switch, the 16-pin/24-pin cable adapter, available from S&C, is required. The adapter is only necessary for early Scada-Mate switches.

**STEP 9.** Install the switch control at the site, and configure the equipment.

### Optional In-Shop Setup

The following steps can be completed in the shop or later at the installation site. The steps are summarized here and described in detail in the IntelliTeam® II Automatic Restoration System instruction sheets.

**STEP 1.** Install the IntelliLink Setup Software on your computer.

For details, see the “To Install the IntelliLink Software” section in Instruction Sheet 1042-530, “S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Setup*.”

**STEP 2.** If the switch control uses a modem for communication, configure the modem.

For modem configuration instructions, see the manufacturer’s documentation or contact S&C.

**STEP 3.** If the switch control uses a radio, configure the radio.

For radio configuration instructions, see the manufacturer’s documentation or contact S&C.

**STEP 4.** If a repeater radio is needed to link this switch control to the other team members, configure the repeater radio.

For radio configuration instructions, see the manufacturer’s documentation or contact S&C.

**STEP 5.** Set up the control software in this switch control.

Most of the software setup and configuration can be completed in the shop. For an explanation of how to set up the software, see the “To Install the IntelliLink Software” section in Instruction Sheet 1042-530, “S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Setup*.”



**CAUTION**

**DO NOT simulate the output of an S&C voltage sensor by applying voltage to the phase voltage inputs (J7) of the 5800 Series Switch Control.**

**Applying voltage will result in severe damage to the control.**

For S&C Scada-Mate and automated Omni-Rupter Switches and Remote Supervisory PMH/PME Pad-Mounted Gear equipped with an S&C voltage sensor, the voltage input for the 5800 Series Switch Control is a **Current Source**. The S&C voltage sensor provides up to 200+ mA of current. If current levels **exceeding 0.5 amperes or a voltage source** are applied to Input J7, the control voltage sensing and sensor power circuitry will be severely damaged. We recommend not trying to simulate the output of the S&C voltage sensor.

For S&C Vista Underground Distribution Switchgear, the voltage signal amplifier input for the 5800 Series Switch Control is nominally 5.5 Vac with 10 mA current and a range of 0-8 Vac. Applying voltage above this level can severely damage the control voltage sensing circuitry.

S&C can supply specific sensor input information for other switch systems.

If test runs are necessary, please contact S&C for guidance.

## Installing the Control

Switch control installation requires several steps. Step details and the order in which they must be carried out depend on the type of switch control and enclosure. The following information is specific to the 5800 Series Switch Control with IntelliTeam functionality. Complete these steps at each switch control installation site.

**STEP 1.** Do one of the following:

- If this is a 5802/5803 control that is integrated in pad-mounted equipment and the switch control is only powered from the sensors, skip the remainder of this instruction sheet and go directly to Instruction Sheet 1042-530, “S&C 5800 Series Automatic Switch Control with IntelliTeam<sup>®</sup> Automatic Restoration System: *Setup*.”
- For all other switch control installations, continue with the following steps.

**STEP 2.** Read the following warnings before beginning installation or operation of this equipment.

**⚠ WARNING**

These instructions do not replace utility operating standards. Any conflict between the information in this document and utility practices should be reviewed by appropriate utility personnel and a decision made as to the correct procedure to use.

Serious personal injury or death may result from contact with electric distribution equipment when electrical isolation and grounding procedures are not followed. The equipment described in this document must be operated and maintained by qualified persons who are thoroughly trained and understand any hazards that may be involved. This document is written only for such qualified persons and is not a substitute for adequate training and experience in safety procedures for accessing high-voltage equipment.

This switch control is connected to switchgear operating at primary voltage levels. High voltage may be present in the wiring to the switch control or the switch control itself during certain failures of the switchgear wiring or grounding system, or due to a failure of the switch itself. For this reason, access to the switch control should be treated with the same safety precautions that would be applied when accessing other high-voltage lines and equipment. Follow all locally approved safety procedures when working on or around this switch control.

## ⚠ WARNING

Do not plug the switch control cable into the switch control until instructed to do so.

Do not energize the 120-Vac power source entering the switch control enclosure until instructed to do so.

Before attempting to access an existing installation, check carefully for visible or audible signs of electrical or physical malfunction (do this before touching or operating the switch control or any other part of the installation). These warning signs include such things as smoke, fire, open fuses, crackling noises, loud buzzing, etc. If a malfunction is suspected, treat all components of the installation, including the switch control and associated mounting hardware, as if they were elevated to primary (high) voltage.

Installers must follow the sequence of installation steps outlined in this chapter to ensure a safe and successful switch control installation.

**STEP 3.** Configure the circuit or bypass the switch to avoid service interruption during the following steps.

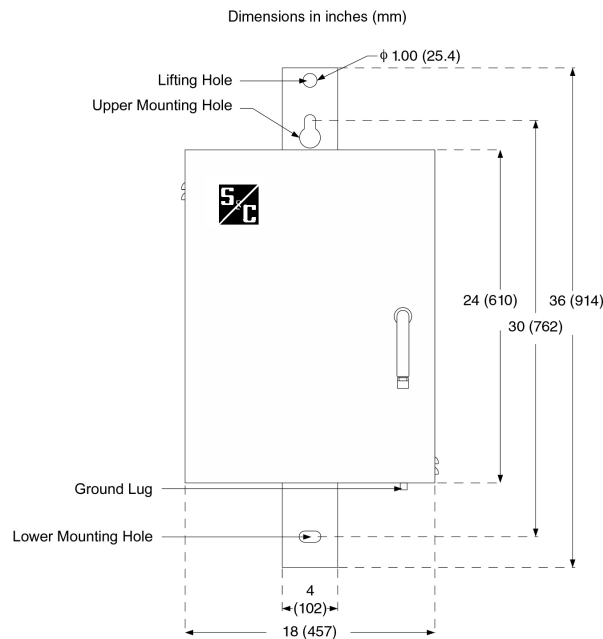
This allows testing the line switch during installation.

**STEP 4.** Mount the switch control enclosure using the following procedures:

(a) Pole-mounted controls:

Attach the switch control (see Figure 4 and Figure 5 on page 11) to the pole with two 5/8-inch through-bolts and flat washers as follows:

1. Install the top bolt.
2. Use the lifting hole on the mounting channel and appropriate lifting gear to hoist the switch control into position on the pole.
3. Hang the switch control on the top bolt.
4. Vertically align the switch control on the pole and install the bottom bolt.
5. Tighten the two bolts.



**Figure 4. Front view of the switch control enclosure.**

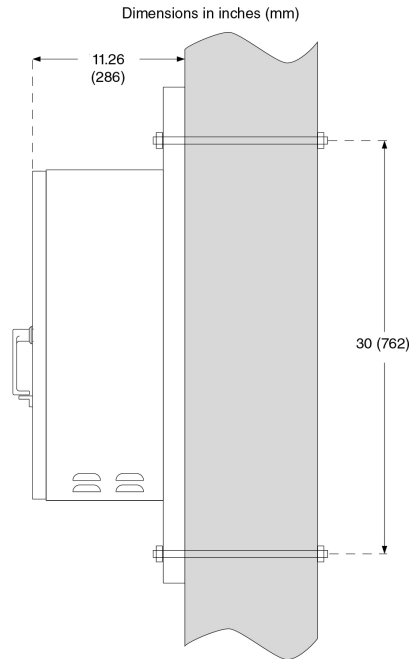


Figure 5. Side view of the switch control enclosure on the pole.

(b) Pad-mounted controls:

Mount the switch control chassis in the low-voltage compartment as follows:

1. Find the four studs on the wall of the low-voltage compartment.
2. Position the switch control so the four studs align with the four holes in the mounting flanges. See Figure 6.
3. Hang the switch control on the studs.
4. Secure the switch control with lock washers and nuts.

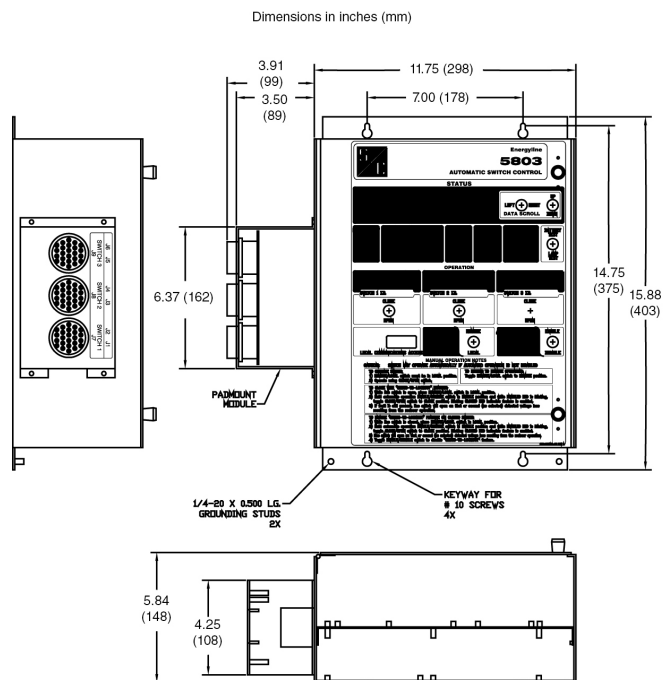


Figure 6. Switch control chassis mounted in pad-mounted gear.

## STEP 5. Ground the enclosure.

Use the ground lug located on the bottom of the enclosure to ground the switch control. The ground lug will accommodate up to #2 wire, copper or aluminum, solid or stranded.

### **⚠ WARNING**

The switch control ground wire (#6 copper minimum) must be connected to the same pole ground that is attached to the switch frame. In addition to the standard reasons for grounding, the switch control surge suppression and power supply systems provide 20 Vac transient filtering that discharges to ground.

Ground impedance must be 25 ohms or less to properly protect the equipment.

Installers must read and understand all applicable grounding codes and requirements for your service area before installing this device.

## STEP 6. Toggle the faceplate REMOTE/LOCAL switch to the **Local** state.

The switch control includes equipment for IntelliTeam communication and may optionally communicate with SCADA. Installers must toggle the faceplate REMOTE/LOCAL switch to the **Local** position to ensure the switch control does not perform remote switching commands until after the control software has been configured.

## STEP 7. Remove the ac line fuse, install the ac cable, and connect the ac control power wires to the switch control terminal block. Skip this step if the control is powered only by sensors.

- (a) Inside the switch control, remove the 10-ampere Ac line fuse, near the bottom right corner of the enclosure. See Figure 7.
- (b) Locate the conduit hole, which accepts a 1-inch conduit adapter, on the right side of the switch control enclosure floor. See Figure 7. Remove the shipping plug from the hole.
- (c) Install conduit with a de-energized 120-volt ac line to the switch control enclosure.
- (d) Verify neutral and connect it to the Ac Neutral terminal. Then, connect the line to the Ac Line terminal. See Figure 8 on page 13.

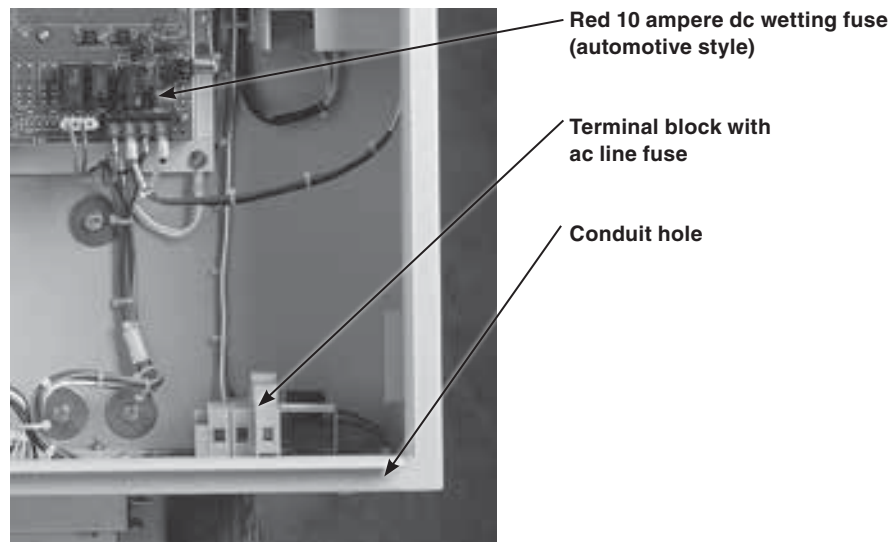


Figure 7. Fuses, conduit hole, and terminal block.

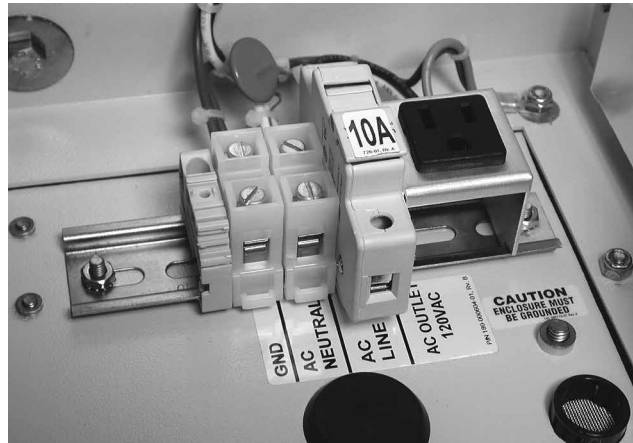


Figure 8. Connection terminal for ac control power.

**⚠ WARNING**

Leave the 10-ampere ac line fuse out until instructed to replace it later in the installation process. Leave the ac control power de-energized until instructed to turn it on.

**Connecting the Battery**

**STEP 1.** If necessary, install the battery by using the following procedure.

The switch control is normally shipped with a factory-installed battery. If the control needs a new battery, or the battery was shipped separately, install it now.

**⚠ WARNING**

If the enclosure heater was recently on, the battery bracket may be hot. Be careful not to touch a hot bracket.

The battery bracket is near the high-voltage section of the PS/IO circuit board. When installing the battery, make sure the 10-ampere ac line fuse is removed and the ac control power is de-energized. If the control is powered from the sensors, disconnect the switch interface cable(s).

(a) The battery bracket is located on the right inside the enclosure. See Figure 9.



Figure 9. Battery and bracket are on the right, inside the switch control enclosure.

- (b) Unscrew the black knobs and wing nuts that attach the battery bracket and remove the bracket. If replacing the battery, unclip the battery connector wires from the bracket and remove the old battery.
- (c) Slide the new battery onto the battery shelf, with the connector facing out and the bottom of the battery toward the left.
- (d) Reinstall the bracket, and secure it with the black knobs and wing nuts. Attach the battery cable to the clip on the battery bracket.

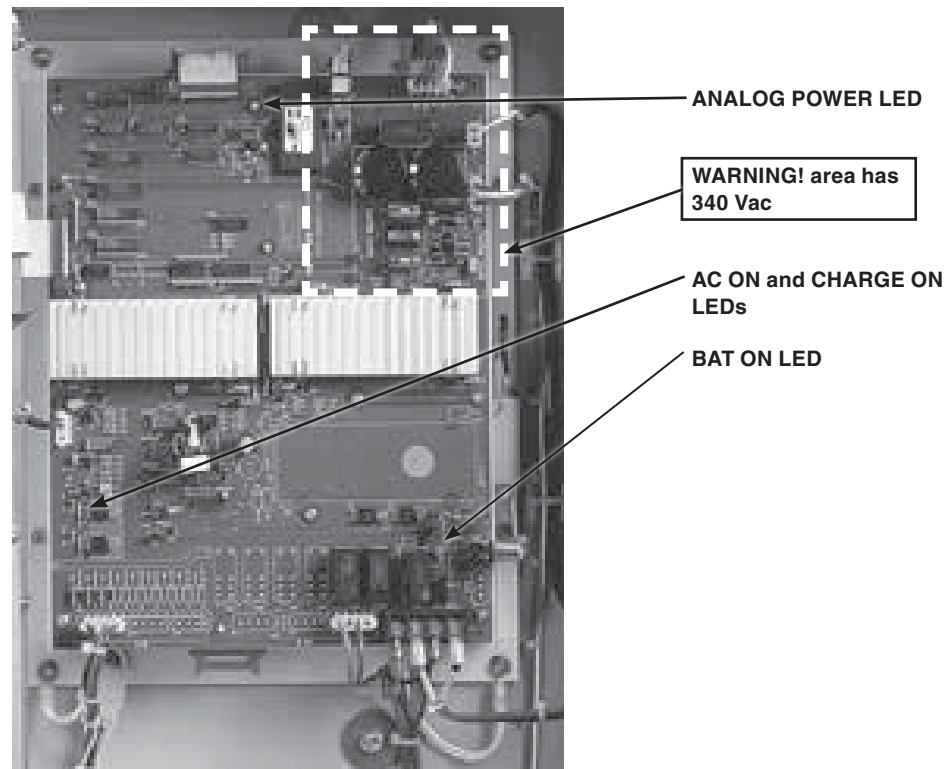
**STEP 2.** Connect the battery by following this procedure:

With the ac line fuse still removed, connect the red and black battery leads to the corresponding leads from the switch control. This will supply dc voltage to the switch control.

For Scada-Mate Switching Systems, the switch operator may begin winding the spring when the battery is connected.

**STEP 3.** Check the ANALOG PWR and BAT ON LEDs (on the power supply/control I/O module).

After a 5-10 second delay, the red ANALOG PWR LED and the yellow BAT ON LED should be lit. See Figure 10. If they are not lit, see Instruction Sheet 1042-550, "S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Troubleshooting.*"



**Figure 10.** Power supply and control LEDs.

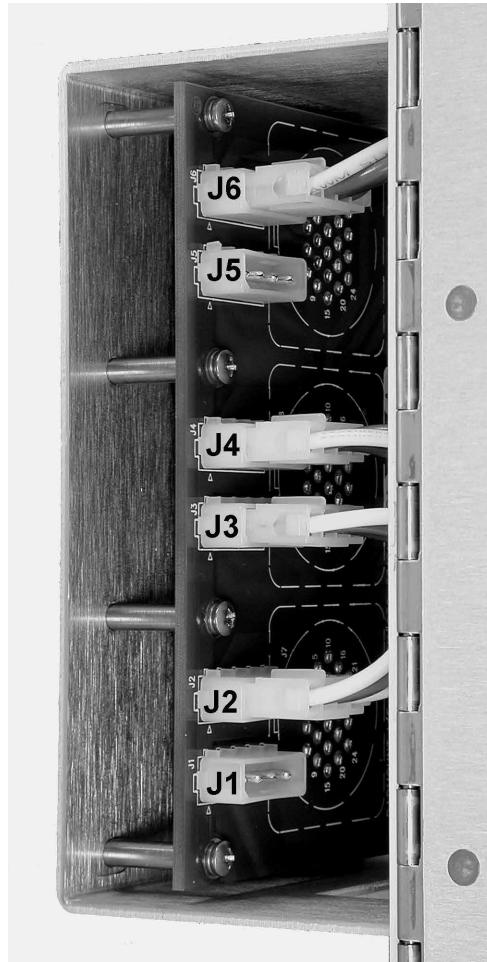
## Checking Input Connections

**STEP 1.** For pad-mounted controls, check that the voltage and current inputs on the switch interface module are configured correctly. Skip this step if the switch control was factory-installed.

Locate the switch interface module on the left side of the chassis. Older pad-mounted controls have the interface module on the bottom of the control chassis.

For installations using six voltage sensors and six current sensors—the voltage inputs should be connected at J1 and J3 and the current inputs at J2 and J4. See Figure 11.

For installations using three voltage sensors and nine current sensors—the voltage input should be connected at J3 and the current inputs at J2, J4, and J6. See Figure 11.



**Figure 11.** Voltage and current inputs on the switch interface module.

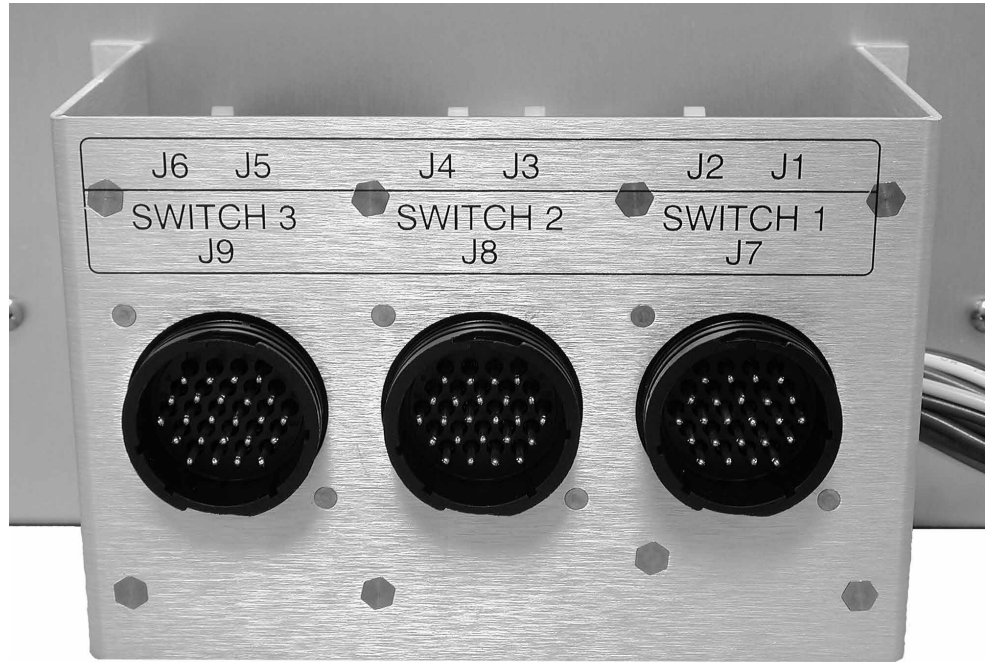
**STEP 2.** Connect the switch cable(s) to the switch interface connector(s).

For OEM pad-mounted controls, the connectors are labeled. See Figure 12 on page 16.

For controls connected to Scada-Mate Switching Systems, close the locking collar over the FIC and lock it in place. See Figure 3 on page 7.

### **⚠ WARNING**

If the control is sensor-powered and there is voltage at the line switch sensors, the control will have ac power as soon as you connect the FIC.



**Figure 12.** Switch interface connectors on pad-mounted switch controls.

### Adding Ac Power and Testing

**STEP 1.** For switch controls that use ac control power, install the 10-ampere ac line fuse and energize the ac power.

**STEP 2.** Check the AC ON and CHG ON LEDs.

When the 10-ampere ac line fuse is inserted, the red AC ON and CHG ON LEDs should illuminate. See Figure 13 on page 17.

If the AC ON and CHG ON LEDs do not illuminate, check the external ac voltage source (if applicable). The ac test points are located on the terminal strip at the ac fuse housing. See Figure 8 on page 13. If ac control power is present, see Instruction Sheet 1042-550, "S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Troubleshooting*."



**STEP 3.** Test the faceplate functions by using the following procedure.

At this point, installers can test most of the faceplate LEDs and switches. See Figure 13.

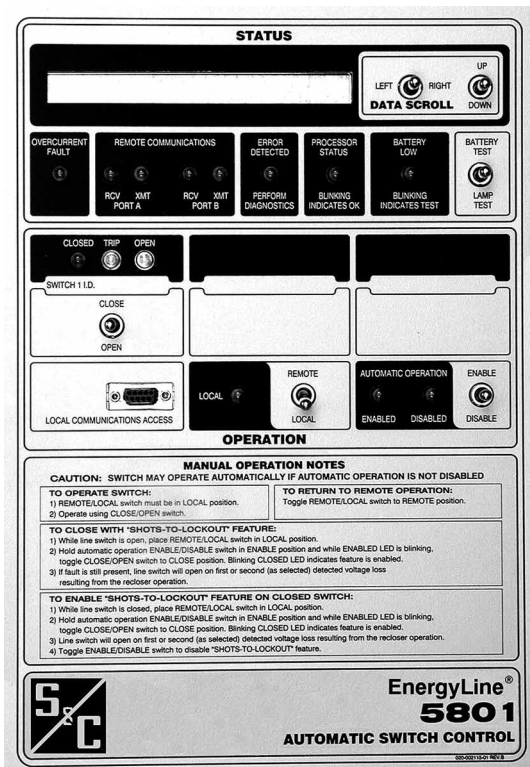


Figure 13. S&C 5801 control faceplate.

To test the LEDs and switches:

- (a) Check whether the PROCESSOR STATUS LED on the faceplate is blinking. If it is not blinking, see Instruction Sheet 1042-550, “S&C 5800 Series Automatic Switch Control with IntelliTeam<sup>®</sup> Automatic Restoration System: *Troubleshooting*.”
- (b) Hold the BATTERY TEST/LAMP TEST switch in the **Lamp Test** position and check that all the faceplate LEDs blink.
- (c) Toggle the BATTERY TEST/LAMP TEST switch to the **Battery Test** position. The BATTERY LOW LED will begin blinking when the switch is released. It will blink for approximately 1 minute. When the LED stops blinking, the LED goes off if the battery system is good. If it stays lit, see Instruction Sheet 1042-550, “S&C 5800 Series Automatic Switch Control with IntelliTeam<sup>®</sup> Automatic Restoration System: *Troubleshooting*.”
- (d) Check that the LCD screen is backlit and that data are displayed. Then, toggle both DATA SCROLL switches to make sure the display will scroll in all four directions.
- (e) Check that the REMOTE/LOCAL switch on the faceplate is set to **Local** mode. The LOCAL LED should be lit.
- (f) Toggle the Automatic Operation ENABLE/DISABLE switch and check that the correct ENABLED or DISABLED LED is lit when the switch is in each position.

If the **Features Enabled** setpoint on the *Setup>Automatic Operation* screen is set to the **None** setting (for either Switch 1 or Switch 2, if applicable), the DISABLED LED remains lit and the ENABLED LED remains off when toggling the switch. See Instruction Sheet 1042-530, “S&C 5800 Series Automatic Switch Control with IntelliTeam<sup>®</sup> Automatic Restoration System: *Setup*.”

- (g) After checking faceplate operation, leave the REMOTE/LOCAL switch in the **Local** position, and leave the Automatic Operation **ENABLE/DISABLE** switch in the **Disable** position.

## ⚠ WARNING

These switches must be set to the Automatic Operation **Disable** and **Local** positions to avoid unexpected operation of the switch(es) during installation and setup of the switch control.

**STEP 4.** Check the connection to the switch(es) by following these procedures:

- (a) Check that the faceplate OPEN and CLOSED LEDs correctly indicate the actual position of the line switch(es).
- (b) Check that the faceplate ERROR DETECTED LED is not lit. This indicates, among other things, that the switch(es) and switch control are connected and that the open/close auxiliary contacts for each line switch are consistent (that is, one contact set is open while the other set is closed).

If the ERROR DETECTED LED is not lit, continue with Step 6.

If the ERROR DETECTED LED is lit:

1. Connect the portable computer to the switch control and start the IntelliLink software. See Instruction Sheet 1042-530, "S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Setup*."
2. Read the message(s) on the *Troubleshooting>Event Status* screen, and take appropriate action to correct the problem. See Instruction Sheet 1042-550, "S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Troubleshooting*."
3. After correcting the error condition, continue with Step 6.

**STEP 5.** For S&C switches, remove the yellow Sensor Calibration sheet that came with the switch. There will be a sheet for each set of sensors. Put a copy in the door pocket of the control or low-voltage cabinet.

The Sensor Calibration sheet contains the serial number and magnitude/phase correction factors for the sensors. Installers must enter this information during switch control setup. We recommend leaving a copy of this instruction sheet in the door pocket of the control or low-voltage cabinet.

**STEP 6.** Verify line-switch operation by following this procedure:

- (a) Make sure the REMOTE/LOCAL switch is in the **Local** position and the Automatic Operation ENABLE/DISABLE switch is in the **Disable** position.

## NOTICE

Be sure a normally closed line switch is bypassed, so customer outages will not occur during switch operation testing.

Be sure momentarily closing a normally open switch is allowed, which will tie two circuits together.

- (b) Follow company operating procedures, and use the CLOSE/OPEN switch on the switch control faceplate to manually operate the line switch. Verify visually that the switch can be both open and closed. Check that the switch control faceplate LEDs correctly indicate when the switch is open and closed. When testing is completed, leave the switch in its normal position (closed or open) for team operation.
- (c) If this switch control operates multiple line switches, carry out Step 6(b) for each switch.

**STEP 7.** For pad-mounted controls, connect and test the door switch by following this procedure:

- (a) Connect the switch control 3-pin connector to the harness from the door switch of the low-voltage cabinet. Skip this step for factory-installed controls.
- (b) Press the door switch lever, and make sure this turns off the faceplate LEDs and LCD screen. When the lever is released, the LEDs and LCD screen should be lit. If they are not lit, see Instruction Sheet 1042-550, “S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Troubleshooting.*”

The switch control uses the door switch status to know when to provide power to the faceplate LEDs and LCD screen. If the low-voltage cabinet does not have a door switch, contact the manufacturer.

**Checking  
Communication  
Equipment**

If necessary, make sure the communications equipment has power. For overhead switch controls, the communication equipment is on the back of the faceplate. For 5800 Series Switch Controls installed in pad-mounted gear, the communication equipment is not mounted inside the 5800 Series Control chassis.

**Local/Non-Automatic  
Service**

Remove any temporarily installed bypass that was applied at Step 3 on page 10.

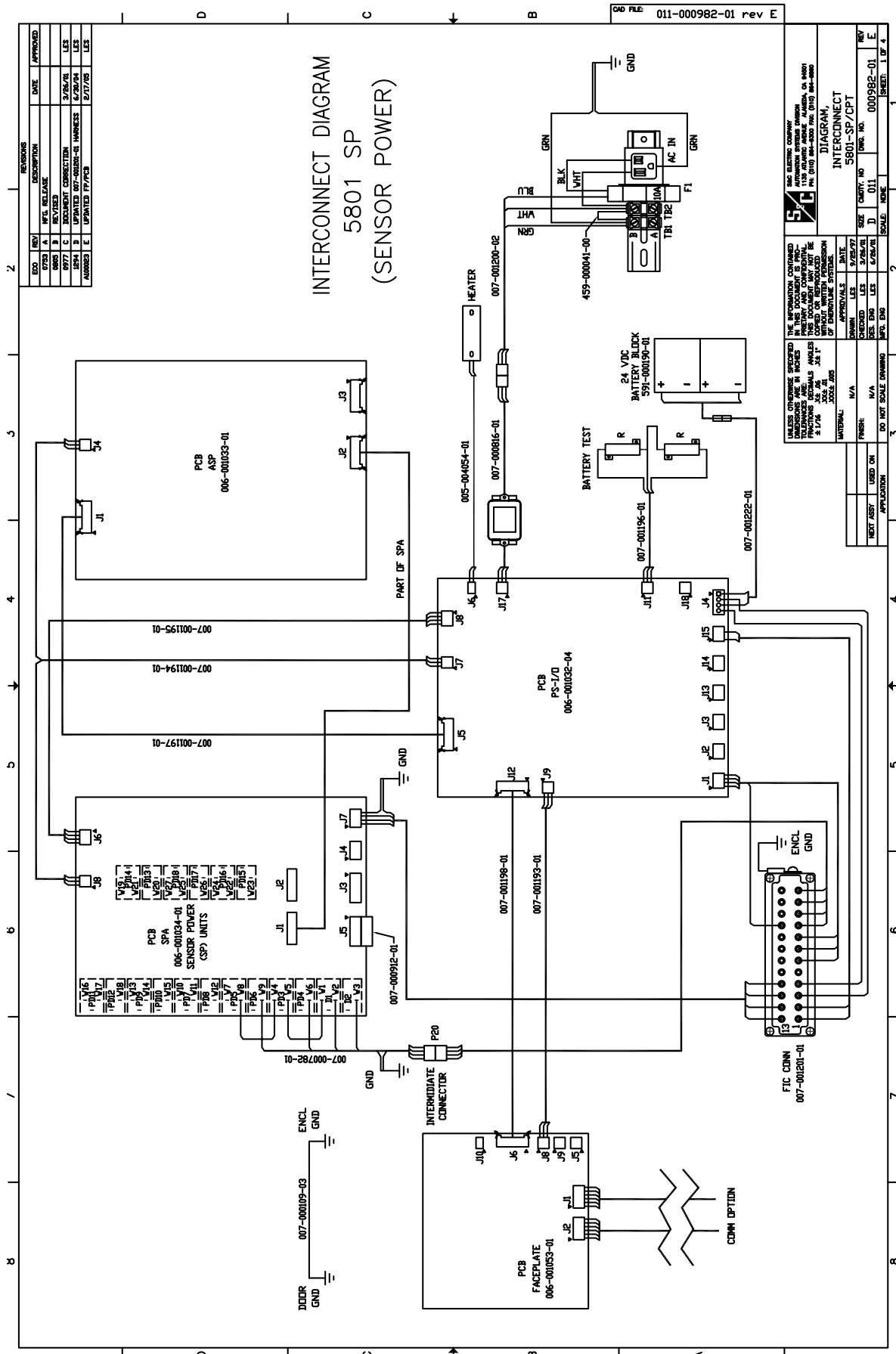
This makes the switch control available for local, non-automatic operation from the faceplate.

<b>⚠ WARNING</b>
Be sure to leave the switch control in <b>Local</b> (not <b>Remote</b> ) mode and Automatic Operation in <b>Disable</b> (not <b>Enable</b> ) mode until configuration of the software in the switch control has been completed.

This completes hardware installation and testing. The following pages of this instruction sheet show the installation and wiring diagrams.

Go to Instruction Sheet 1042-530, “S&C 5800 Series Automatic Switch Control with IntelliTeam® Automatic Restoration System: *Setup,*” to configure the control.





REVISIONS				
ECO	REV	DESCRIPTION	DATE	APPROVED
0750	A	MFG RELEASE		
0805	B	REVISED CONNECTION	02/26/08	LES
0814	C	REVISED CONNECTION	02/26/08	LES
0814	D	REVISED CONNECTION	02/26/08	LES
0805	E	UPDATED WIRING HARNESS	02/26/08	LES
0805	F	UPDATED PP/PCB	02/26/08	LES

INTERCONNECT DIAGRAM  
5801 SP  
(SENSOR POWER)

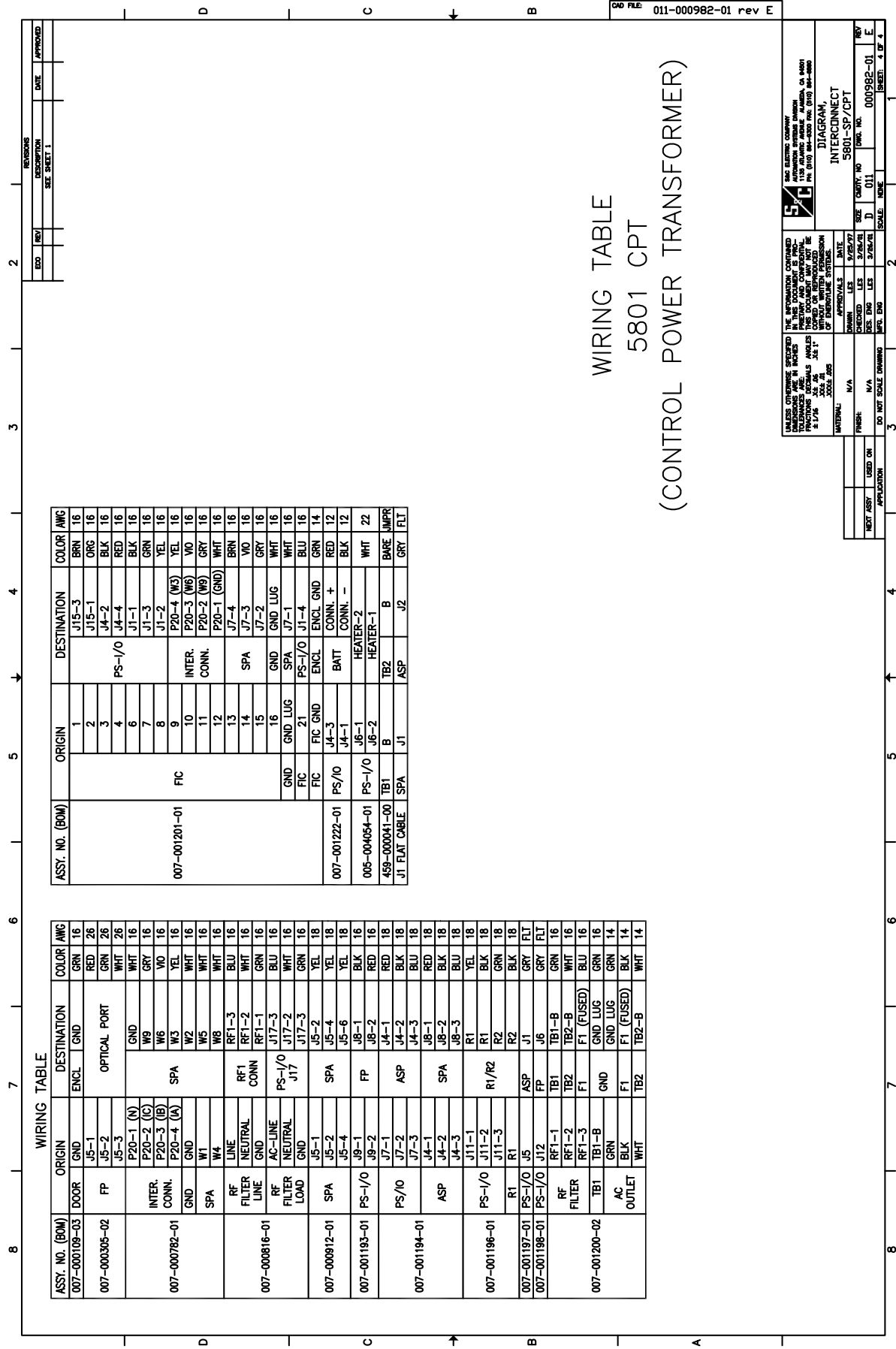
QAD FILE 011-000982-01 rev E

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MATERIAL: I/A FINISH: I/A	SIZE: 1/8" X 1/2" X 1/8" SCALE: NONE SHEET: 1 OF 4
NEXT ASSY USED ON: [Blank] APPLICATION: [Blank]	DO NOT SCALE DRAWING

S&C ELECTRIC COMPANY AUTOMATIC SYSTEM DIVISION 10000 WILSON ROAD FORT WORTH, TEXAS 76150-3000	
INTERCONNECT 5801-SP/CPT	DRAW. NO. 000982-01 REV. E







WIRING TABLE  
5801 CPT  
(CONTROL POWER TRANSFORMER)

REV	DESCRIPTION	DATE	APPROVED
2	SEE SHEET 1		

CAD FILE 011-000982-01 rev E

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DATE: 11/18/00  
 CHECKED: LES  
 DES. ENG: LES  
 DATE: 11/18/00  
 CHECKED: LES  
 DES. ENG: LES

INTERNAL: N/A  
 FINISH: N/A

DO NOT SCALE DRAWING

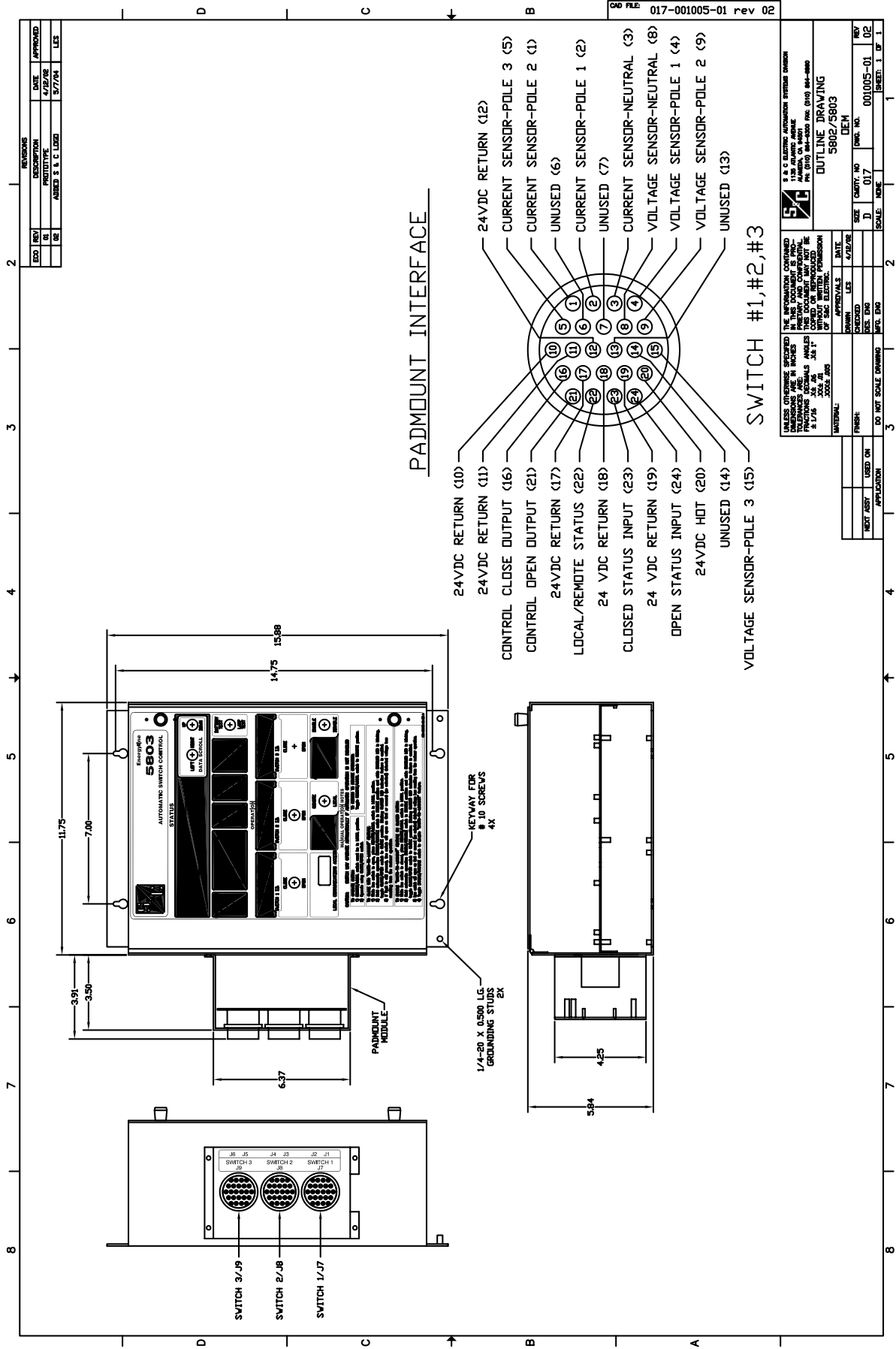
SCALE: NONE

INTERCONNECT DIAGRAM, 5801-SP/CPT

DRW. NO. 000982-01  
 SHEET 4 OF 4

ASST. NO. (BOM)	ORIGIN	DESTINATION	COLOR AWG
007-000109-03	DOOR	GND	GRN 16
007-000305-02	US-1	ENCL	RED 26
	US-2	OPTICAL PORT	GRN 26
	US-3	OPTICAL PORT	WHT 26
007-000782-01	P20-1 (N)	GND	WHT 16
	P20-2 (C)	W9	GRY 16
	P20-3 (B)	W3	VO 16
	P20-4 (A)	W6	YEL 16
007-000816-01	GND	W2	WHT 16
	W1	W8	WHT 16
	W4	W5	WHT 16
	RF LINE	RF1-3	BLU 16
007-000912-01	FILTER LINE	RF1-2	WHT 16
	LINE	RF1-1	GRN 16
	RF AC-LINE	J17-3	BLU 16
	NEUTRAL LOAD	J17-2	WHT 16
007-001183-01	GND	J17-1	GRN 16
	US-1	J17-3	GRN 16
	US-2	J5-2	YEL 18
	US-4	J5-4	YEL 18
007-001194-01	US-1	J5-6	YEL 18
	US-2	J8-1	BLK 16
	US-3	J8-2	RED 16
	US-4	J8-3	RED 16
007-001196-01	RF	J4-1	RED 18
	FILTER	J4-2	BLK 18
	LINE	J4-3	BLU 18
	RF AC-LINE	J4-4	BLU 18
007-001200-02	RF	J8-1	RED 18
	FILTER	J8-2	BLK 18
	LINE	J8-3	BLU 18
	RF AC-LINE	J8-4	BLU 18
007-001197-01	RF	J11-1	YEL 18
	FILTER	J11-2	BLK 18
	LINE	J11-3	GRN 18
	RF AC-LINE	J11-4	GRN 18
007-001198-01	RF	R1	BLK 18
	FILTER	R2	BLK 18
	LINE	J1	GRY FLT
	RF AC-LINE	J6	GRY FLT
007-001200-01	RF	RF1-1	GRN 16
	FILTER	RF1-2	GRN 16
	LINE	RF1-3	WHT 16
	RF AC-LINE	F1 (FUSED)	BLU 16
007-001200-02	RF	GND LUG	GRN 16
	FILTER	GND LUG	GRN 16
	LINE	GND LUG	GRN 14
	RF AC-LINE	F1 (FUSED)	BLK 14
007-001200-03	RF	WHT	WHT 14
	FILTER	TB2	WHT 14
	LINE	TB2-B	WHT 14
	RF AC-LINE	TB2-B	WHT 14





017-001005-01 rev 02

**S & C ELECTRIC CORPORATION**  
 110 ALABAMA AVENUE  
 FARMINGDALE, NY 11735  
 TEL: (516) 336-3000 FAX: (516) 336-3000

**OUTLINE DRAWING**  
 5802/5803

**DATE:** 4/12/96  
**DESIGNER:** J. CHRYN  
**CHECKED:** J. CHRYN  
**DATE:** 5/7/94  
**DESIGNER:** LES

**SCALE:** NONE  
**SHEET:** 1 OF 1

**REVISIONS:**

NO.	DATE	DESCRIPTION
1	4/12/96	PROTOTYPE
2	5/7/94	AMEND S & C LOAD

**APPROVALS:**

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WIRING TABLE  
5802/5803 61/6V SP

ECO	REV	DESCRIPTION	DATE	APPROVED
		REVISIONS		
		SEE SHEET 1		

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ENGR	DES	DES	DES	DES
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APPLICATION				
NEXT ASSY	USED ON			

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ENGR	DES	DES	DES	DES
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ENGR	DES	DES	DES	DES
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DO NOT SCALE DRAWING				
APPLICATION				
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DO NOT SCALE DRAWING				
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DO NOT SCALE DRAWING				
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DO NOT SCALE DRAWING				
APPLICATION				
NEXT ASSY	USED ON			

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SAC ELECTRIC AUTOMATION SYSTEMS DIVISION  
1130 ATLANTIC AVENUE  
MILWAUKEE, WI 53212  
PH: (414) 964-3300 FAX: (414) 964-8860

DIAGRAM  
INTERCONNECT

5802/5803 61/6V OEM

001005-01 G

SHEET: 2 OF 4



CAD FILE: 011-001005-01 rev G

WIRING TABLE  
5802/5803 3V/9I SP

REVISIONS			
ECO	REV	DESCRIPTION	DATE
		SEE SHEET 1	

WIRING TABLE (CONT.)

ASSY. NO. (BOM)	ORIGIN	DESTINATION	COLOR	AWG
007-000912-01	SPA	J5-2	YEL	18
		J5-4	YEL	18
		J5-6	RED	18
		J4-1	RED	18
		J4-2	BLK	18
		J4-3	BLU	18
		J8-1	RED	18
		J8-2	BLK	18
		J8-3	BLU	18
		J6-1	WHT	18
		J6-2	ORG	18
		J6-3	RED	18
		J6-4	BRN	18
		R1	YEL	18
		R1	BLK	18
		R2	GRN	18
		R2	BLK	18
		R1	GRY	FLT
		J5	GRY	FLT
		J12	GRN	16
		J17-1	GRN	16
		J17-2	WHT	16
		J17-3	BLU	16
		J4-3	RED	12
		J4-1	BLK	12
		J17-1	GRN	16
		J17-2	WHT	16
		J17-3	BLU	16
		J9-1	BLK	16
		J9-2	RED	16

WIRING TABLE

ASSY. NO. (BOM)	ORIGIN	DESTINATION	COLOR	AWG
007-000109-03	DOOR	CHASSIS GND	GRN	16
		DSW-1	BLK	18
		DSW-2	GRY	18
		J10-1	WHT	16
		J10-2	WHT	16
		P20-1 (N)	GRY	16
		P20-2 (C)	W6	16
		P20-3 (B)	W3	16
		P20-4 (A)	W2	16
		W1	W5	16
		W4	W8	16
		P21-1 (N)	GND	16
		P21-2 (C)	W18	16
		P21-3 (B)	W15	16
		P21-4 (A)	W12	16
		GND	W14	16
		W10	W11	16
		W13	W17	16
		W1	W13	16
		RF LINE	RF1-3	16
		NEUTRAL	RF1-2	16
		LINE	RF1-1	16
		GND	J17-3	16
		AC-LINE	J17-2	16
		NEUTRAL	J17-1	16
		LOAD	J17-3	16
		J10-11	J1-2	16
		J10-10	J1-3	16
		J10-9	J1-4	16
		J10-5	J2-2	16
		J10-4	J2-3	16
		J10-3	J2-4	16
		J10-8	J3-2	16
		J10-2	J3-3	16
		J10-6	J3-4	16
		J12-2	J13-1	16
		J12-4	J13-3	16
		J12-6	J14-1	16
		J12-8	J14-3	16
		J12-10	J15-1	16
		J12-12	J15-3	16
		J2-1	P20-1	16
		J2-2	P20-2	16
		J2-3	P20-3	16
		J2-4	P20-4	16
		J4-1	INTER. CONN.	16
		J4-2	P21-1	16
		J4-3	P21-2	16
		J4-4	P21-3	16
		J4-5	P21-4	16
		J11-1	J4-4	16
		J11-2	J4-2	16
		J3-1	J4-1	16
		J3-2	J7-2	16
		J3-3	J7-3	16
		J3-4	J7-4	16

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APPROVALS: DATE: 1/27/06  
 DESIGNED BY: LES  
 CHECKED BY: LES  
 DES. ENG. LES  
 DATE: 8/16/2006  
 SIZE: 11  
 SHEET: 011  
 DWG. NO.: 5802/5803 3V/9I DEM  
 INTERCONNECT  
 DIAGRAM

SCALE: NONE  
 DO NOT SCALE DRAWING  
 MFG. ENG. DMH  
 DATE: 8/17/2006  
 SCALE: NONE

MATERIAL: N/A  
 FINISH: N/A  
 USED ON: N/A  
 APPLICATION: N/A

NEXT ASSY: G  
 REV: G  
 SHEET: 4 OF 4