Software Installation

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April 29, 2024

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 instruction handbook before installing or operating the 6800 Series Automatic Switch Control. Become familiar with the Safety Information and Safety Precautions on pages 4 and 5. The latest version of this publication is available online in PDF format at https://www.sandc.com/en/contact-us/product-literature/.

Retain this Instruction Sheet

This instruction sheet is a permanent part of the 6800 Series Automatic Switch Control. Designate a location where users 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 6800 Series Automatic Switch Controls are listed in the ratings table in Specification Bulletin 1045-31.

Special Warranty Provisions

The standard warranty contained in S&C's standard conditions of sale, as set forth in Price Sheets 150 and 181, applies to the 6800 Series Automatic Switch Controls, except that the first paragraph of the said warranty is replaced by the following:

(1) (1) General: The seller warrants to the immediate purchaser or end user for a period of 10 years from the date of shipment that the equipment delivered will be of the kind and quality specified in the contract description and will be free of defects of workmanship and material. Should any failure to conform to this warranty appear under proper and normal use within 10 years after the date of shipment, the seller agrees, upon prompt notification thereof and confirmation that the equipment has been stored, installed, operated, inspected, and maintained in accordance with the recommendations of the seller and standard industry practice, to correct the nonconformity either by repairing any damaged or defective parts of the equipment or (at the seller's option) by shipment of necessary replacement parts. The seller's warranty does not apply to any equipment that has been disassembled, repaired, or altered by anyone other than the seller. This limited warranty is granted only to the immediate purchaser or, if the equipment is purchased by a third party for installation in third-party equipment, the end user of the equipment. The seller's duty to perform under any warranty may be delayed, at the seller's sole option, until the seller has been paid in full for all goods purchased by the immediate purchaser. No such delay shall extend the warranty period.

Replacement parts provided by the seller or repairs performed by the seller under the warranty for the original equipment will be covered by the above special warranty provision for its duration. Replacement parts purchased separately will be covered by the above special warranty provision.

For equipment/services packages, the seller warrants for a period of one year after commissioning that the 6800 Series Switch Control will provide automatic fault isolation and system reconfiguration per agreed-upon service levels. The remedy shall be additional system analysis and reconfiguration of the IntelliTeam® SG Automatic Restoration System until the desired result is achieved.

Warranty of the 6800 Series Automatic Switch Control is contingent upon the installation, configuration, and use of the control or software in accordance with S&C's applicable instruction sheets.

This warranty does not apply to major components not manufactured by S&C, such as batteries and communication devices. However, S&C will assign to the immediate purchaser or end user all manufacturer's warranties that apply to such major components.

Warranty of equipment/services packages is contingent upon receipt of adequate information on the user's distribution system, sufficiently detailed to prepare a technical analysis. The seller is not liable if an act of nature or parties beyond S&C's control negatively impact performance of equipment/services packages; for example, new construction that impedes radio communication, or changes to the distribution system that impact protection systems, available fault currents, or system-loading characteristics.

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to the product. Become familiar 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 any portion of this instruction sheet is unclear and assistance is needed, contact the 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 Support and Monitoring Center at 1-888-762-1100.

NOTICE

Read this instruction sheet thoroughly and carefully before installing the 6800 Series Automatic Switch Control.

Replacement Instructions and Labels

If additional copies of this instruction sheet are required, contact the 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 the nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

⚠ DANGER

A 6800 Series Automatic Switch Control's line voltage input range is 93 to 276 Vac. 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 a 6800 Series Automatic Switch Control 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. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.

Computer Requirements

To install 6800 Series control software on the computer, the following are required:

- A portable personal computer with Microsoft® Windows® 10, an Intel® Core™ i7 Processor with 8 GB of RAM (recommended) or a dual-core processor with 4 GB RAM (minimum), a wireless card (onboard or USB), an Internet browser, and access to **sandc.com**
- Administrative privileges
- Microsoft.Net Framework Version 4.8 (Verify the software has been installed on the computer by opening *C:\Windows\Microsoft.Net\Framework*. If v4.8 has not been installed, download it from this link: www.microsoft.com/net. If the installer does not detect the correct version of .Net, it will not install IntelliLink6.)
- Windows PowerShell 5.0 must be set for an AllSigned execution policy (RemoteSigned and Unrestricted execution policies will also work). Policy selection should be based on security policy set forth by the IT department. The AllSigned execution policy will result in the appearance of a dialog, shown in Figure 1 on page 7, after a firmware update has begun.

To perform the firmware update, select either the **Run once** or **Always run** button. Selection should be based on the security policy set by the IT department. Windows PowerShell comes installed by default in every Windows operating system.

Follow these steps to verify the Windows PowerShell execution policy:

STEP 1. Click on the Windows **Start** button and open *All Programs>Accessories>Windows PowerShell>Windows PowerShell (x86)* to start the application.

STEP 2. In the PowerShell console, type: **set-executionpolicy AllSigned** to set the policy.

STEP 3. In the PowerShell console, type: **get-executionpolicy** to verify the policy setting.

The latest 6800 Series control software release is posted at the S&C Automation Customer Support Portal. This library of present and legacy software requires a password to provide users access to the software needed for S&C equipment operated by their utility. See Figure 1. A portal password can be requested by using this link: sandc.com/en/support/sc-customer-portal/.

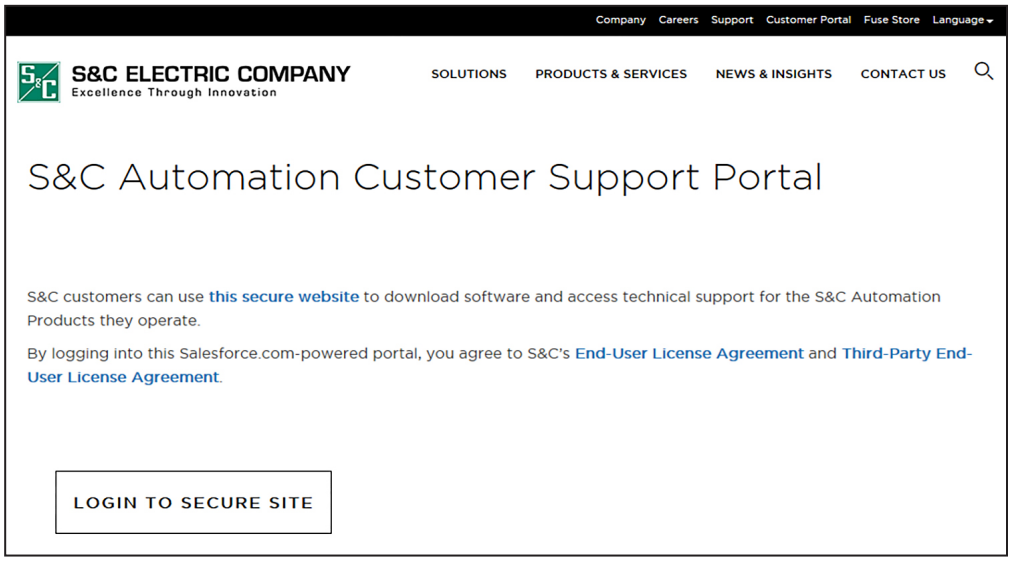

Figure 1. The S&C Automation Customer Support Portal is accessed on the Support tab at sandc.com.

IntelliLink® Setup Software License Activation

NOTICE

IntelliLink software version 7.3, and later does not need to be activated and is backwards compatible with S&C automation controls with software version 3.5.x and later. If installed, no license-activation file must be installed, and the user can disregard this section of this document. If using IntelliLInk software with the IntelliCap® Plus Automatic Capacitor Control or any other products with earlier software versions in conjunction with products using software versions 3.5.x and later, users must obtain an IntelliLink software license key.

If unable to update to the 7.3 version, an account on the S&C Automation Customer Support Portal is needed to obtain a license-activation file used with software versions 3.5.x to 7.1.x. If lacking an account, follow the procedure to obtain one before proceeding.

The first step is registering the computers that will require IntelliLink Setup Software. Register a computer with the MAC address for the local area Ethernet adapter. The MAC address can be obtained by using the **ipconfig/all** command in the command prompt. Make sure to obtain the onboard physical adapter and not an add-on or wireless adapter.

If unfamiliar with the command prompt, obtain the S&C CheckMacAddress utility found in the IntelliTeam SG Software workspace on the S&C Customer portal. See Figure 2.

When the MAC address has been obtained, send an email to **customerportal@sandc.com** with the name of the company that owns the IntelliLink software license, the name of the primary computer user, and the computer user's email address and phone number. To see whether the computer is already registered, select the **Licensing** tab to view a list of the computers registered to the account. Look for the designation of "INTELLILINK REMOTE" next to the computer's MAC address.

To see whether the computer is already registered, select the **Licensing** tab to view a list of the computers registered to the account. Look for the designation of "INTELLILINK REMOTE" software next to the computer's MAC address.

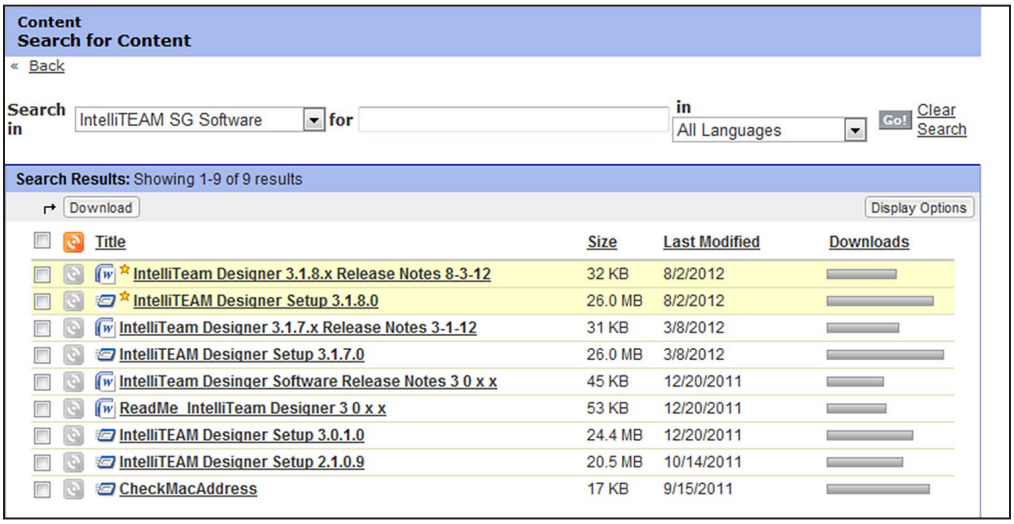

Figure 2. IntelliTeam SG Software workspace on the S&C Automation Customer Support Portal.

The next step is to download and save the license-activation file, "ActivationFile.xml," as directed in the "Installing a License Activation File" section on page 9. An email notification will be sent that the activation file is ready. Log in to the S&C Automation Customer Support Portal account and follow the steps in the "Installing a License-Activation File" section on page 9.

When software version 3.5.x or later is installed and the license-activation file is saved, IntelliLink Setup Software can be used with those products.

Installing a License-Activation File

Follow these steps to install a license-activation file:

STEP 1. Go to **sandc.com**, click on the **Support** tab, and then click on "S&C Automation Customer Support Portal" in the left column. Enter a username and password to gain access.

STEP 2. Select the **Licensing** tab and verify a valid license and the correct MAC address is saved on the computer.

STEP 3. Select the **Activation File** tab. This generates a new license-activation file with the present information displayed at the **Licensing** tab. Then, the *File Download* screen opens.

STEP 4. Click on the **Save** button and the *Save As* screen opens; save "ActivationFile.xml" on the desktop.

Note: IntelliTeam® Designer software requires an account to have at least one asset registered with an IntelliTeam Designer slot. See S&C Instruction Sheet 1044-570, "IntelliTeam® Designer: *User's Guide*," for more information about how to install and activate IntelliTeam Designer software.

Save "ActivationFile.xml" in the folder: **C:\Users\Public\PublicDocuments\S&C Electric**. This directory supports multiple users logging remotely into a Windows server.

NOTICE

Some laptop computers may have a Wi-Fi adapter power setting set too low for LinkStart software to operate, resulting in the inability to connect to a 6800 Series Automatic Switch Control. Wi-Fi power settings are found in the Control Panel. To increase the Wi-Fi power setting:

STEP 1. Go to the **Control Panel>Power Options** setting.

STEP 2. Click on the **Change Plan Settings** option for the present plan.

STEP 3. Click on the **Change Advanced Power Settings** option.

STEP 4. Go to the **Wireless Adapter Settings>Power Saving Mode>On battery** setting.

STEP 5. Change the setting to either **Low Power Saving** or **Maximum Performance**.

STEP 6. Click on the **OK** button, and then click on the **Save** button to save the settings.

STEP 7. A reboot may be required to engage the new configuration.

The Wi-Fi adapter may have a vendor-supplied option to set the power, and many Intel adapter drivers provide this. Open the Wi-Fi adapter Properties dialog box, and on the **General** tab click on the **Configure** button. Browse the tabs to determine whether there is a power setting (often found in the **Advanced** tab). There may be additional settings, such as **Transmit Power**, that also can affect performance.

NOTICE

Port Requirements:

- IntelliLink Setup Software has a valid port range of 20000-20999.
- LinkStart uses the following ports:
  - — TCP Remote: 8828
  - — UDP Remote: 9797

These two ports can be modified. To reconfigure either port, the port number must be updated in both LinkStart and in the R3 Communication Module. To update a port in LinkStart, select the **Tools** and **TCP/IP Port Options** menu options. Then, modify the value.

To update a port in the R3 Communication Module, open LinkStart and select the **Tools** and **WiFi Administration** menu options. This will open the R3 Communication Module web UI *Login* screen. Log in to the R3 Communication Module, click on the **Interfaces** menu option, and update the port.

Connecting to the Control

Follow these steps to establish a computer connection to the control:

STEP 1. Click on the Windows **Start** button click on the **All Programs** menu item. Open the S&C Electric folder and click on the **IntelliLink** icon. See Figure 3.

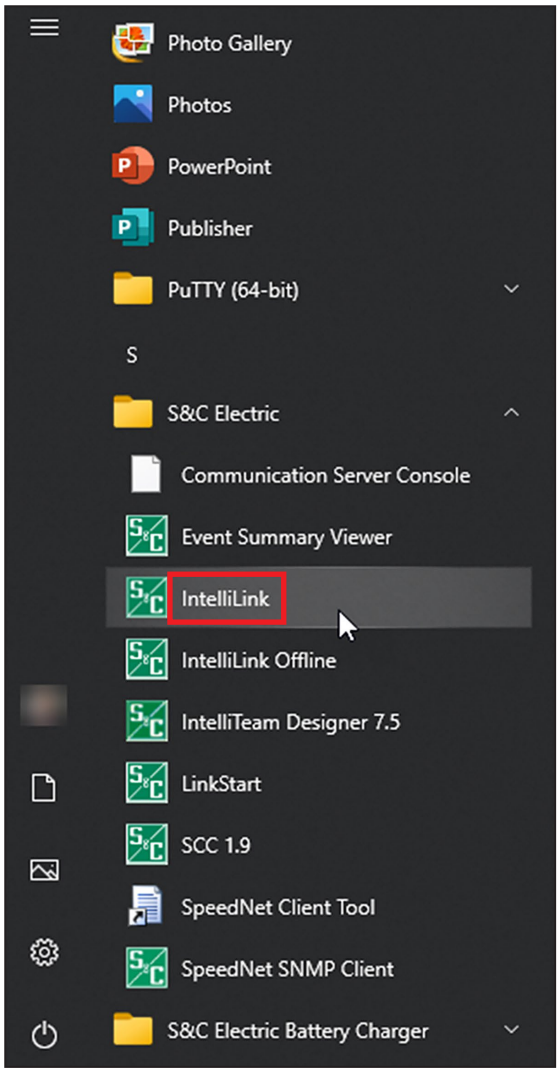

Figure 3. The Windows Start menu.

STEP 2. Select the **Local Connection** option in the S&C IntelliShell–Select Connection Mode dialog box. See Figure 4.

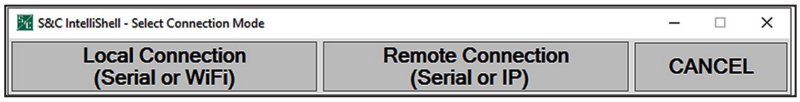

Figure 4. The S&C IntelliShell—Select Connection Mode dialog box.

STEP 3. Select the **Series 6800 IntelliTeam II/SG** option and click on the **Serial** button to make a serial connection, or click on the **Wi-Fi** button to make a Wi-Fi connection. See Figure 5.

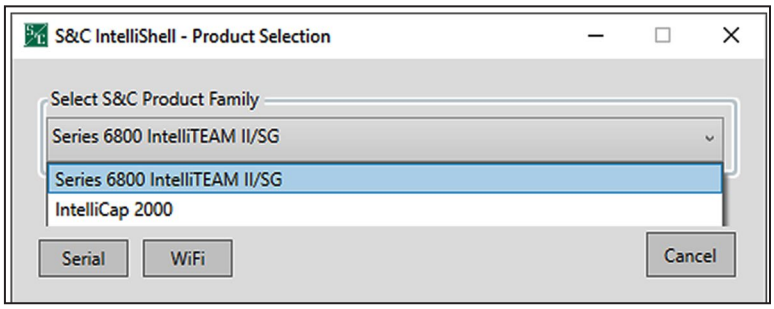

Figure 5. The S&C IntelliShell—Product Selection dialog box.

STEP 4. When the **Serial** button is selected:

(a) Set the **Comm Port** setpoint appropriate for the computer.

(b) Set the **Timeout(ms)** setpoint to 1000 or longer.

(c) Set the **Baud Rate** setpoint. The default baud rate for an IntelliLink software connection is 9600. If the baud rate setting was changed and is unknown, use the **Auto** setting, and the IntelliLink software will try the available baud rates to attempt to make a connection.

(d) Click on the **IntelliLink** button. See the "Update Firmware" section on page 17 when a firmware update is required. See Figure 6.

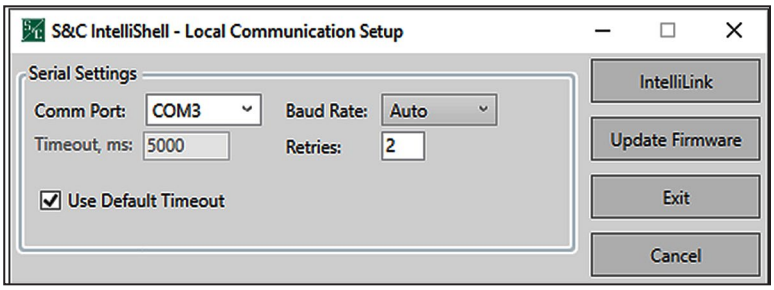

Figure 6. The Communications Parameters entries in the S&C Electric IntelliShell—Local Communication Setup dialog box.

When the Wi-Fi button is selected:

(a) Use the **Prev** and **Next** buttons to select the control serial number, or enter the control serial number in the **Serial Number** field.

Note: The control serial number is displayed on the *Setup>General>SG6800* screen in the **Device Serial Number** field.

(b) Click on the **Connect** button. See Figure 7.

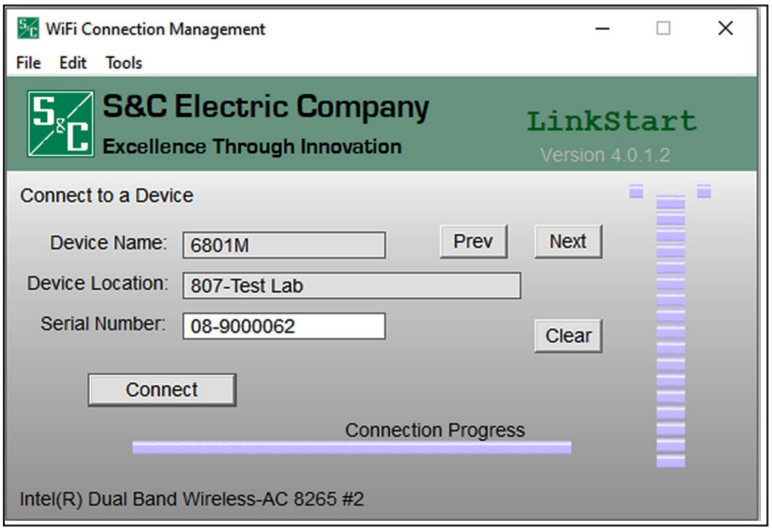

Figure 7. The Wi-Fi Connection Management dialog box.

STEP 5. The S&C IntelliLink Loader dialog box will open followed by the S&C IntelliLink Login dialog box. See Figures 8 and Figure 9 on page 14. Enter the username and password, and click on the **OK** button. Contact the Global Support and Monitoring Center at (888) 762-1100 when assistance with these entries is needed.

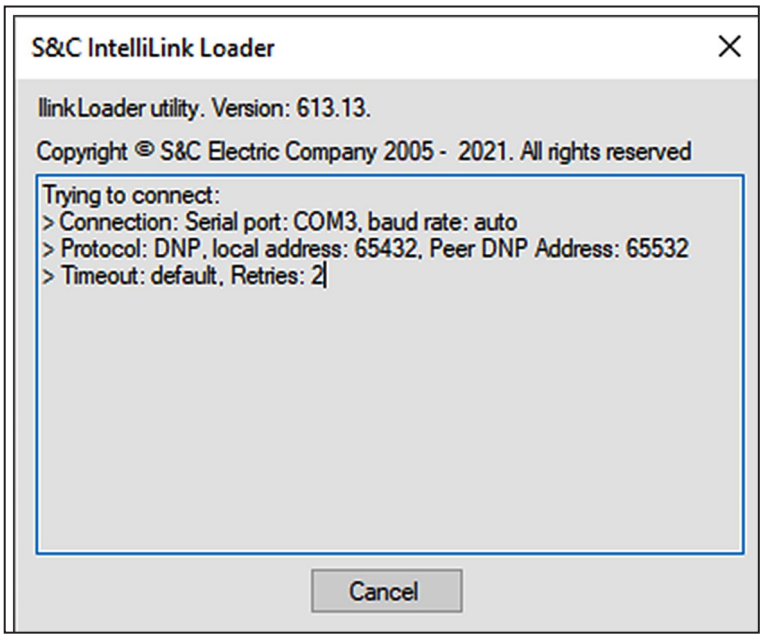

Figure 9. The S&C IntelliLink Loader dialog box.

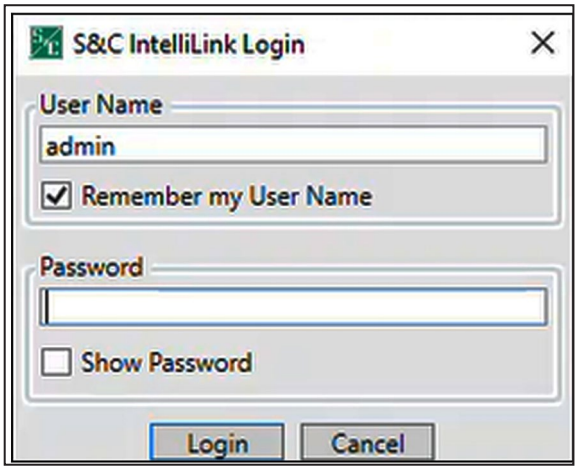

Figure 8. The User Name and Password entries in the S&C IntelliLink Login dialog box.

STEP 6. If IntelliLink software is unable to connect, the S&C IntelliLink Loader dialog box will display "Could not connect to device." Check the connection and settings.

NOTICE

With software versions 7.3.100 and later, the default passwords for all user accounts, including the Admin user, must be changed before the IntelliLink software can connect to and configure a control. See S&C Instruction Sheet 1045-530, "6800 Series Automatic Switch Controls: *Setup,*" for more information.

NOTICE

Wi-Fi Status and Transfer Wi-Fi configurations became no longer valid for Wi-Fi options shipped on or after January 1, 2021.

STEP 7. When the login has completed, the *Operation* screen appears. See Figure 10.

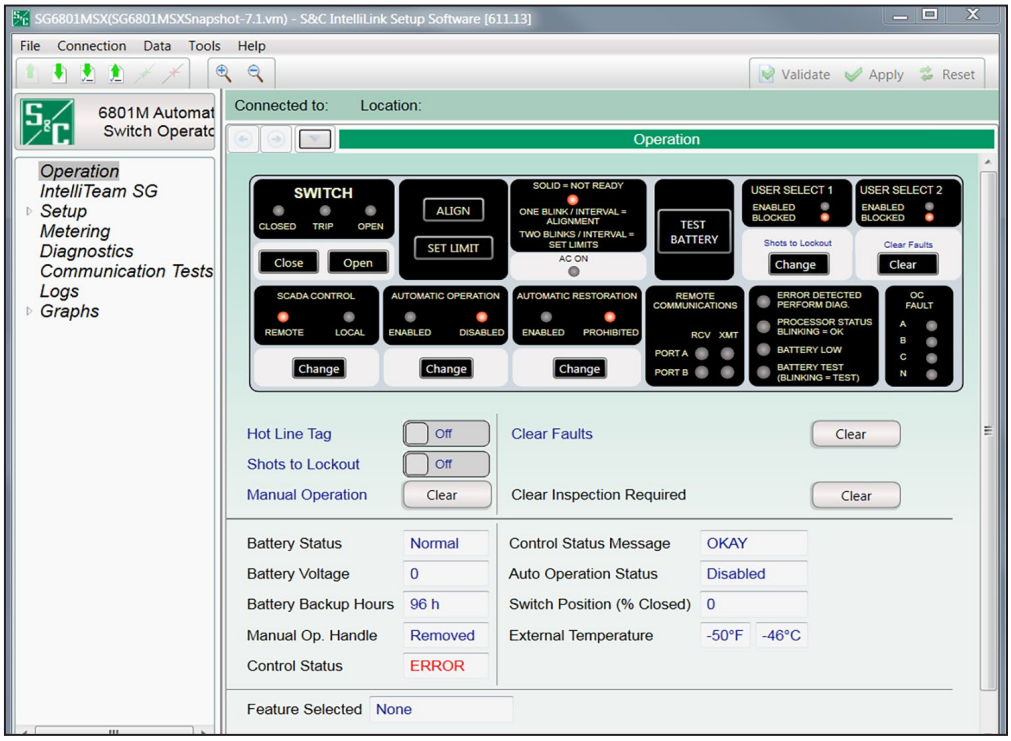

Figure 10. The 6801/2/3 Automatic Switch Control *Operation* screen.

Save Settings

Complete the following steps to save the control configuration:

STEP 1. On the menu bar, click on the **File** menu item and click on the **Save Setpoints...** option.

STEP 2. In the Save Setpoints dialog box, click on the **Select All** button followed by the **...** button. See Figure 11.

STEP 3. The Windows *File Explorer* screen will open. Browse to the desired storage location, enter a name for the settings file to be saved, and click on the **Save** button in the dialog box.

NOTICE

Updating firmware can result in loss of settings. Always save the settings and a snapshot file before starting a firmware update.

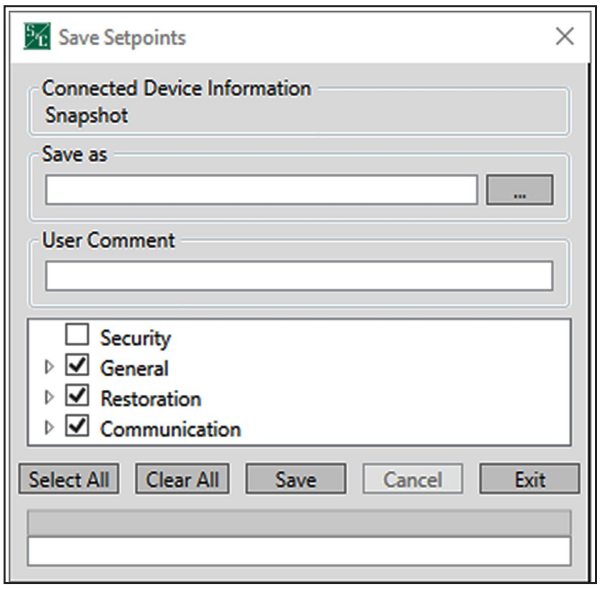

Figure 11. The Save Setpoints dialog box.

STEP 4. To save a snapshot (a copy of the control memory, including logs), click on the **File** menu item in the menu bar and click on the **Save Memory Snapshot** option.

NOTICE

Before beginning a firmware update, verify both the new firmware version and the firmware version existing in the control have been properly installed on the computer performing the update. If the existing firmware is missing, the update will not execute properly.

NOTICE

Two files with the same firmware version for example, 7.5.23 and 7.5.36, must not be installed on the computer during a firmware update or downgrade.

NOTICE

Updating firmware can result in loss of settings. Always save the settings and save a snapshot file before updating firmware.

NOTICE

The configured operating modes for automatic **Enabled/Disabled** operation, SCADA control **Remote/Local** operation, and Hot Line Tag **On/Off** settings on the *Operation* screen are retained through a firmware update, whereas the operating modes for shots to lockout and automatic restoration are reset to “Blocked” and “Prohibited” defaults respectively). Review the IntelliLink *Operation* screen.

Update Firmware

NOTICE

A remote or local update puts a control into the **Prohibit Restoration** state. When updating controls in an IntelliTeam SG Automatic Restoration System, use the following procedure:

STEP 1. Update the control software. This can be done with IntelliLink® Setup Software or the IntelliLink software **Remote** option.

STEP 2. After the update, verify all settings were preserved.

STEP 3. Use the IntelliTeam Designer version compatible with the firmware version the control is running to re-push IntelliTeam SG Automatic Restoration System configurations to all FeederNets that have updated devices. See S&C Instruction Sheet 1044-570 for the firmware compatibility chart.

STEP 4. If a device is an open point, push the configuration to both FeederNets for that device.

STEP 5. Verify the team configurations.

STEP 6. For IntelliNode modules only, set the **External Device Data Updated** setting to **Running** mode.

STEP 7. Enable **Automatic Restoration** mode on all updated controls.

Complete the following steps to update the firmware:

STEP 1. Start the IntelliLink software and select between a local or remote connection. See Figure 12.

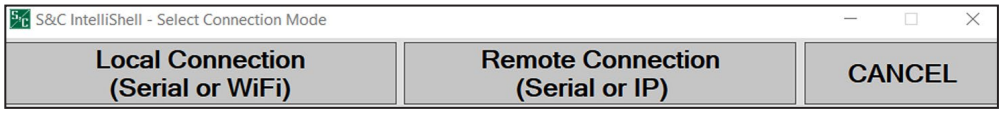

Figure 12. The S&C IntelliShell—Local Communication Setup dialog box.

STEP 2. Select the **Series 6800 IntelliTeam II/SG** option to update a 6800 Series control. Click on either the **Serial** or **Wi-Fi** button based on the communication method used to connect to the control. See Figure 13.

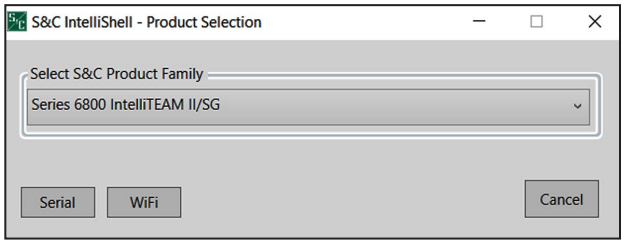

Figure 13. The S&C IntelliShell—Product Selection dialog box.

STEP 3. When the **Serial** button is selected:

(a) Set the **Comm Port** setpoint appropriate for the computer.

(b) Set the **Timeout(ms)** setpoint to 1000 or longer.

(c) Set the **Baud Rate** setpoint. The default baud rate for an IntelliLink software connection is 9600. If the baud rate setting was changed and is unknown, use the **Auto** setting, and the IntelliLink software will try the available baud rates to attempt to make a connection.

(d) Click on the **Update Firmware** button. See Figure 14.

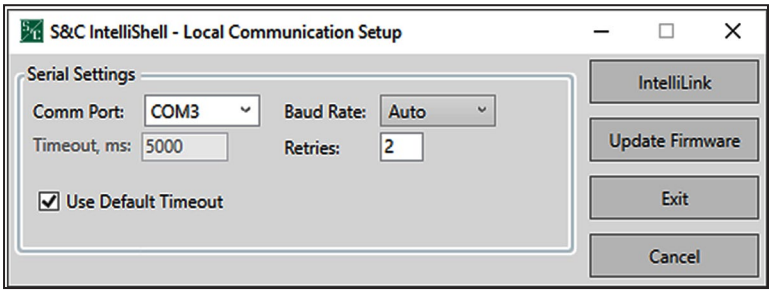

Figure 14. The S&C IntelliShell—Local Communication Setup dialog box.

STEP 4. For Wi-Fi connections, LinkStart software starts and the device serial number must be entered in the **Serial Number** field. Then, click on the **Connect** button. See Figure 15.

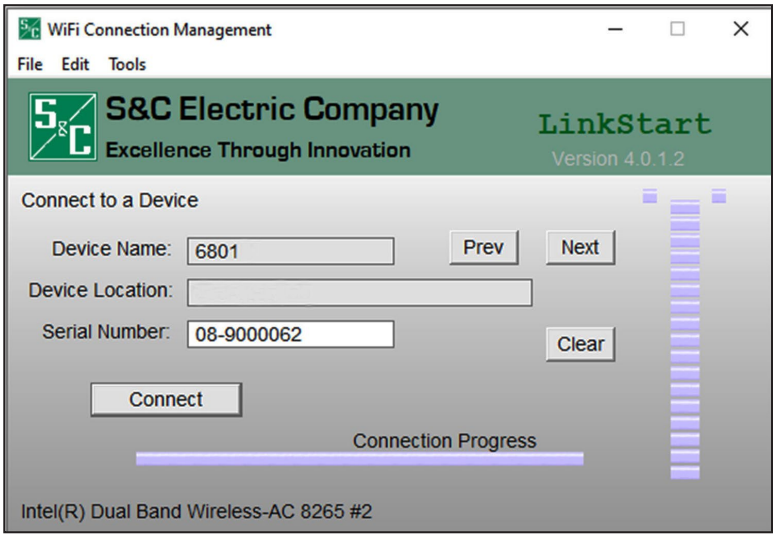

Figure 15. The Wi-Fi connection Management dialog box.

STEP 5. When the connection is successful, click on the **Firmware Update** button. See Figure 16.

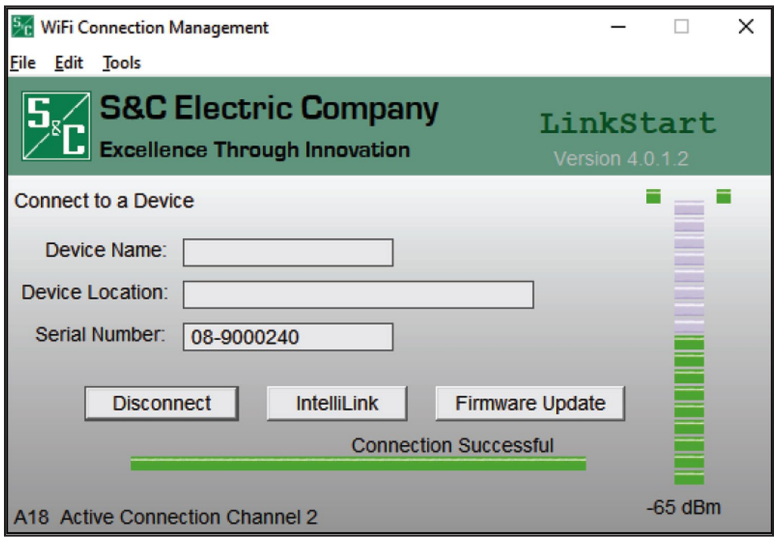

Figure 17. The connection successfully completed indication.

STEP 6. In the **Tools** menu on the menu bar click on the **Firmware Update** menu option. See Figure 17.

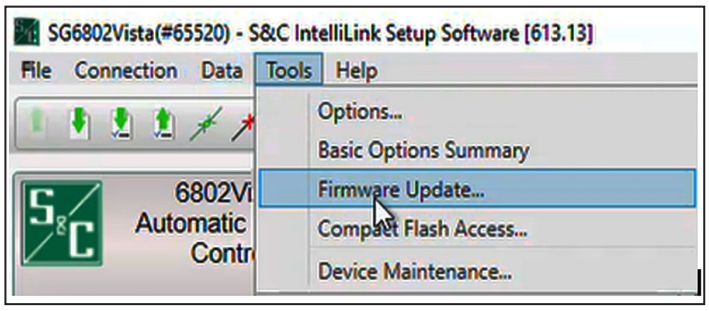

Figure 18. The Tools>Firmware Update menu option.

STEP 7. When the firmware update Choose Revision dialog box appears, select the firmware version to update the control to. See Figure 18.

Note: This dialog box only appears if the control is already on the version the upgrade is being performed on. Otherwise, it will not appear, and the upgrade script will upgrade the control to the latest firmware downloaded on the computer where the upgrade is being performed.

Figure 16. The Choose Revision dialog box for selecting the firmware version.

STEP 8. The Firmware Update dialog box will prompt for selection of the upgrade method. Click on one of the options to proceed. See Figure 19.

Note: This step is only displayed when upgrading from software version 7.3.x to 7.5.x or later.

Note: The **Compact Flash** option is more robust because it downloads the firmware image to the compact flash memory before applying the firmware update. This should be used when updating remotely because it compensates for communication disruptions but takes longer to perform. The **Legacy** option is less robust because it sends the firmware file to the control and applies the update without staging it in the compact flash memory. It should only be used with a local connection to the control.

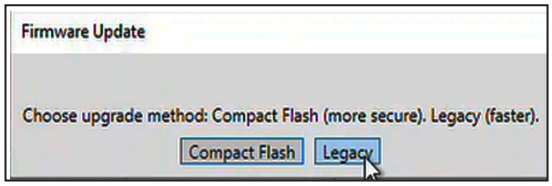

Figure 19. The Firmware Update dialog box upgrade method choice.

STEP 9. The Firmware Update dialog box may ask about the MCU OS revision. Click on the **Yes** button if this dialog box appears. See Figure 20.

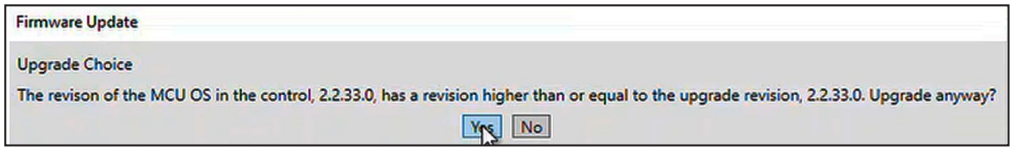

Figure 20. The MCU OS revision dialog box.

STEP 2. In the Firmware Update dialog box, click on the **Yes** button. See Figure 21. Selecting "No" will end the **Update** process.

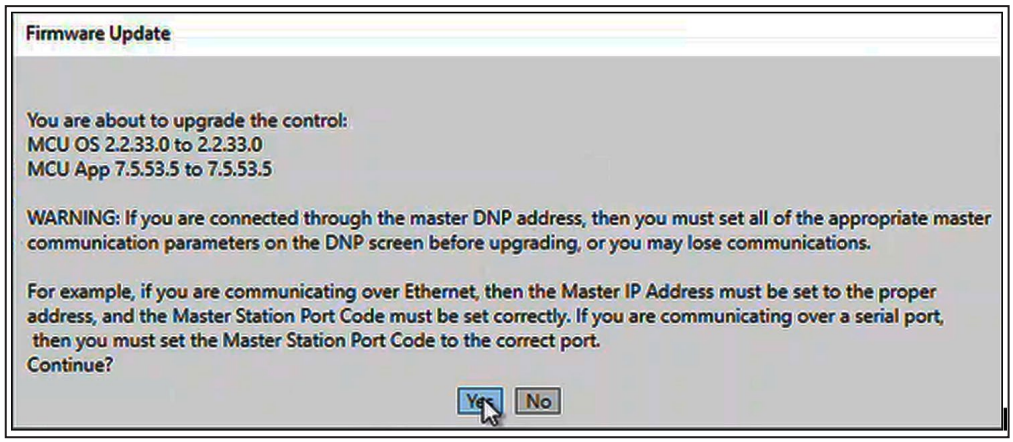

Figure 21. The Firmware Update dialog box.

STEP 11. When upgrading the firmware from version 7.3.x to 7.5.x and the Firmware Update dialog box prompts to retain passwords, click on one of the options to proceed. See Figure 22.

Note: This dialog box only appears when upgrading from software version 7.3.x to 7.5.x. When upgrading from any release to version 7.6.x or later, the existing passwords will be retained. If the passwords are still at the default passwords, then the admin user will be required to change them to one that meets the password complexity requirements upon initial login after the firmware update is completed.

Figure 22. The Firmware Update dialog box requesting password retention.

Note: When "Yes" is selected, all user passwords are retained during the update. However, if the passwords do not meet the complexity requirements, the Admin user must change them at the initial login after an update to meet the requirements. See Figure 23.

When "No" is selected, after the update all passwords will revert to the defaults. At initial login all passwords must be changed to meet the password complexity requirements.

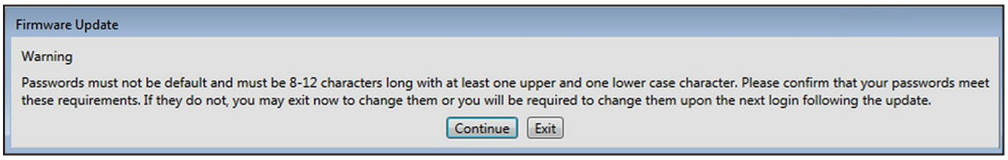

Figure 23. The Firmware Update dialog box requiring passwords that meet complexity requirements.

STEP 12. ***If the Windows PowerShell Credential dialog box appears:*** Enter the User Name and Password, and click on the **OK** button. Contact the Global Support and Monitoring Center at (888) 762-1100 if assistance is needed. See Figure 24.

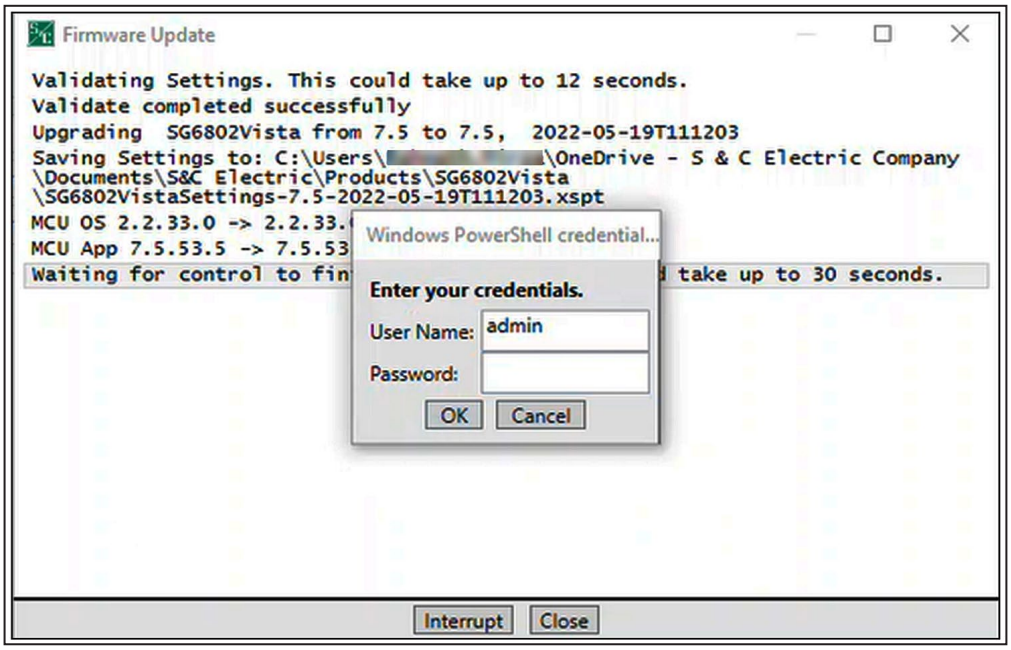

Figure 24. The Windows PowerShell Credential dialog box.

STEP 13. When "Script completed successfully" is indicated in the Firmware Update dialog box, click on the **Close** button. See Figure 25.

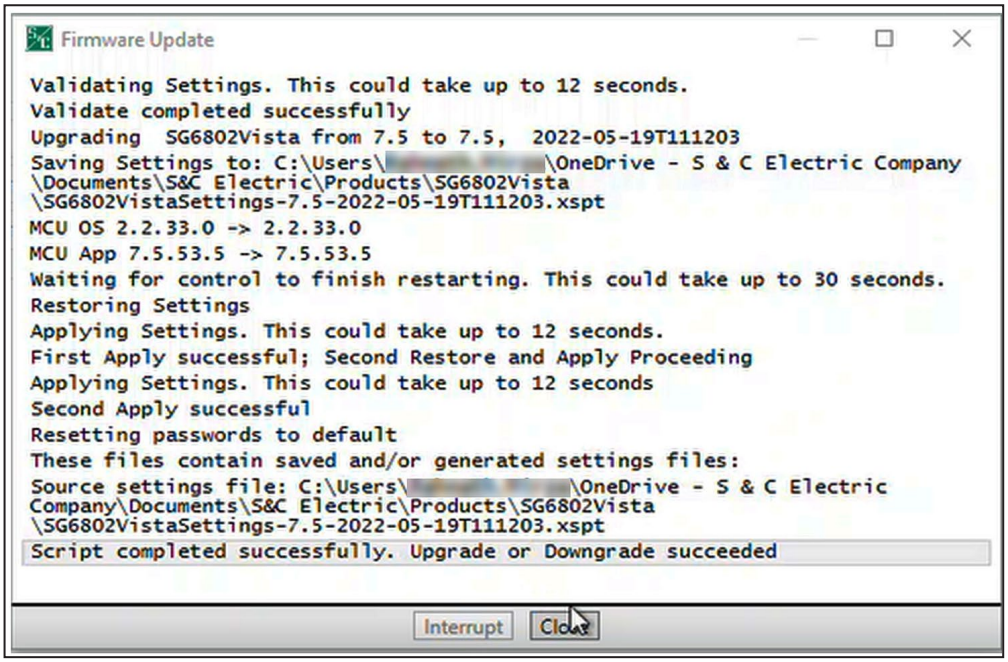

Figure 25. The Script completed successfully notice.

NOTICE

If power is disrupted during a firmware update using the **Compact Flash** option, **Cyclic Redundancy Check (CRC)** errors may occur and, if seen, the compact flash must be formatted before another update can be attempted using the **Compact Flash** option. Or at that point, the **Legacy** option can be used to perform the update. See the "Memory Formatting" section in S&C Instruction Sheet 1032-570, "IntelliLink® Setup Software—Compact Flash Access: *Operation*."

In some cases it may be necessary to revert to a previous version of 6800 Series control firmware. Follow these steps to change to a previous version:

STEP 1. Choose the required firmware revision and obtain the software from the S&C Automation Customer Support Portal. See the "Software Versions" section in S&C Instruction Sheet 1045-530 for more information about the S&C Customer Portal.

STEP 2. Click on the **Start** button, and select the **Control Panel** option. See Figure 26.

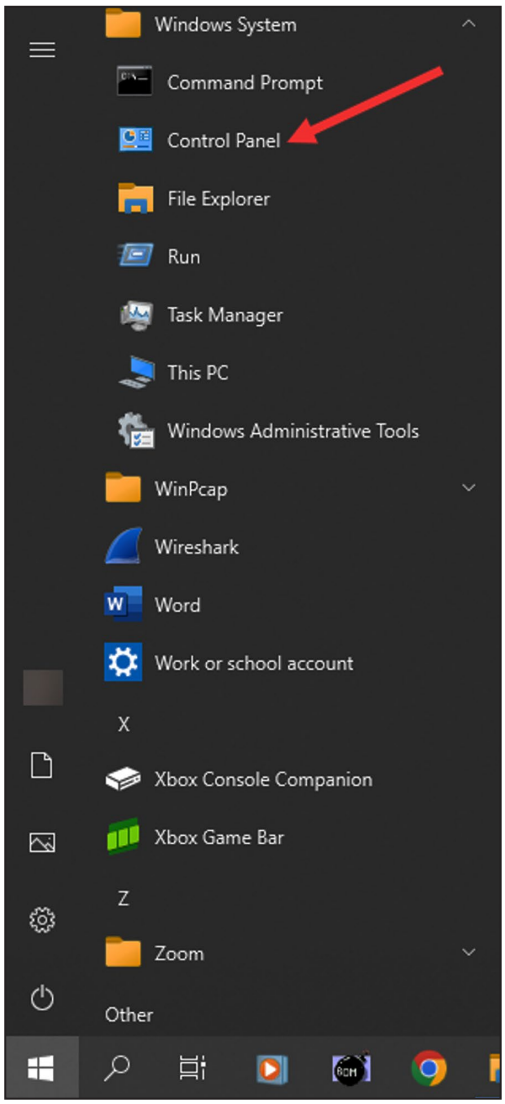

Figure 26. The Windows Start Menu.

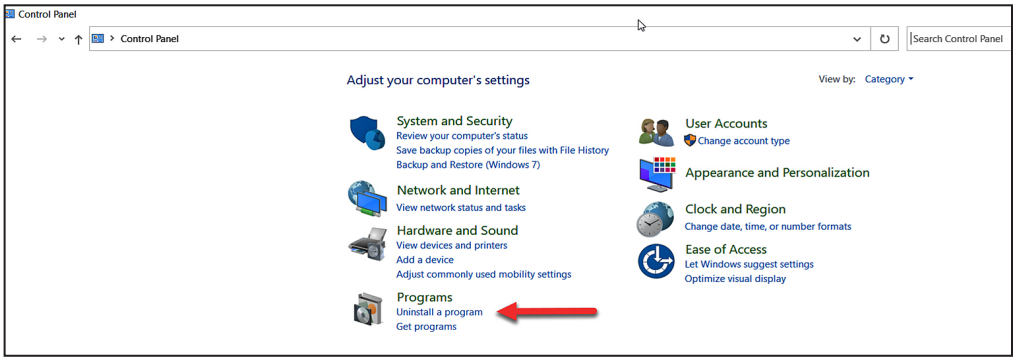

Figure 27. The Control Panel dialog box.

STEP 3. From the Control Panel dialog box, select "Programs." See Figure 27.

STEP 4. Uninstall all 6800 Series control software versions later than the target version. If there are multiple revisions, work from the latest first to the earliest downgrade version last.

STEP 5. If any IntelliLink Setup Software is already installed, remove it by uninstalling it from the Windows program with the **Uninstall** option. See Figure 28.

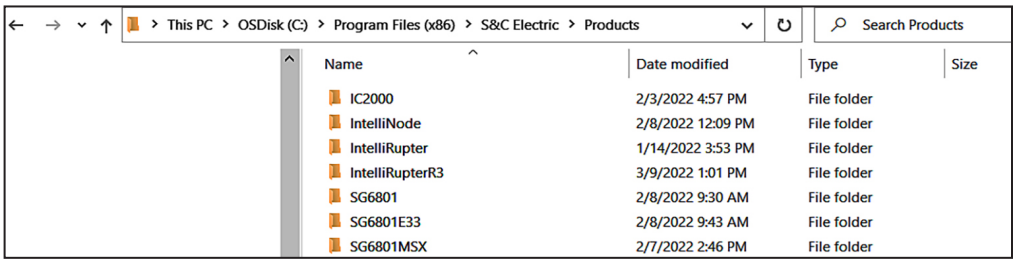

Figure 28. The selected program folder to be uploaded.

STEP 6. Open Windows *File Explorer* screen and navigate to the program folder C:\Program Files (x86)\S&C Electric\Products\<product folder downgrading to>\Firmware\Upgrades. See Figure 29. Delete any folders that have a version number later than the target downgrade version.

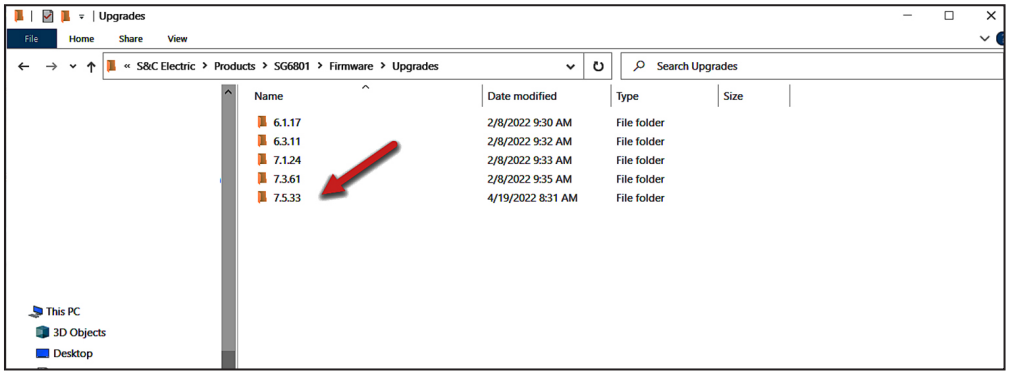

Figure 29. The C:\Program Files (x86)\S&C Electric\Products\<product folder>\Firmware\Upgrades dialog box.

STEP 7. Run the installer for the target version. If the target downgrade version is already installed, select the **Repair** option when it is presented by the installer.

NOTICE

With software later than version 7.3.100, the default passwords for all user accounts, including the Admin account, must be changed before the IntelliLink software can connect to and configure a control. See S&C Instruction Sheet 1045-530, "6800 Series Automatic Switch Controls with IntelliTeam® SG Automatic Restoration System: *Setup,*" for more information.

STEP 8. Start the IntelliLink software.

STEP 9. Set the **Timeout(ms)** setpoint to 1000 or longer.

STEP 10. Set the **Baud Rate** setpoint. The default baud rate for an IntelliLink software connection is 9600. If the baud rate setting was changed and is unknown, use the **Auto** setting, and the IntelliLink software will try the available baud rates to attempt to make a connection.

STEP 11. Click on the **Update Firmware** button. See Figure 30.

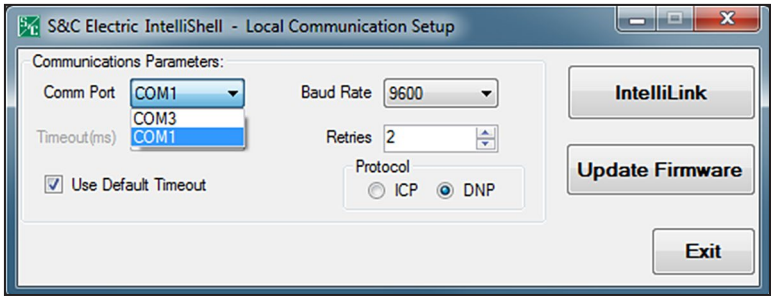

Figure 30. The S&C Electric IntelliShell - Local Communication Setup dialog box.

STEP 12. Enter the Admin password when prompted to enter credentials. The default password can be obtained by contacting the Global Support and Monitoring Center at (888) 762-1100. If the default password has been changed, enter the user-configured password.

STEP 13. In the **Tools** menu on the menu bar, click on the **Firmware Update** menu item. See Figure 31.

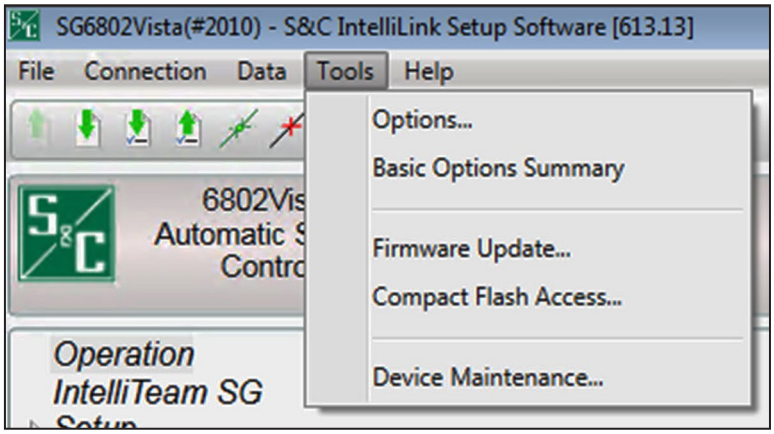

Figure 31. The Tools>Firmware Update menu option.

STEP 14. When the Firmware Update Choose Revision dialog box appears, select the desired firmware version. See Figure 32.

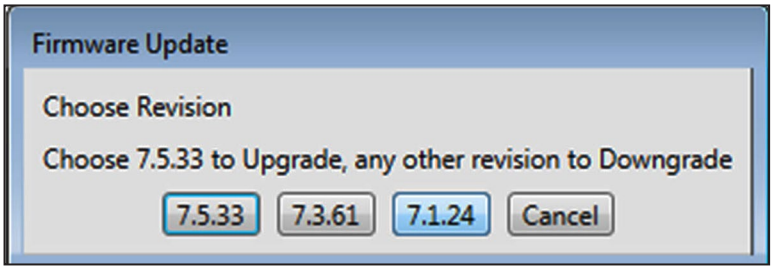

Figure 32. The Firmware Update Choose Revision dialog box for selecting the firmware version.

STEP 15. The Firmware Update dialog box will prompt for selection of the update or downgrade method. Click on one of the options to proceed. See Figure 33.

Note: This dialog box only appears when downgrading from software version 7.5.x or later to another 7.5 release or a 7.3 release.

Note: The **Compact Flash** option is more robust because it downloads the firmware image to the compact flash memory before applying the firmware update. This should be used when updating remotely because it compensates for communication disruptions but takes longer to perform. The **Legacy** option is less robust because it sends the firmware file to the control and applies the update without staging it in the compact flash memory. It should only be used with a local connection to the control.

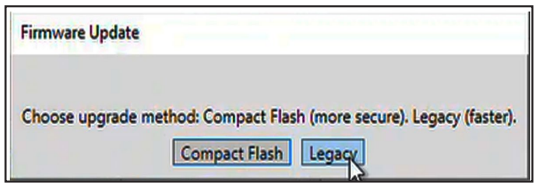

Figure 34. The Firmware Update dialog box.

STEP 21. The Firmware Update dialog box may ask about the MCU OS revision. Click on the **Yes** button if this box appears. See Figure 34.

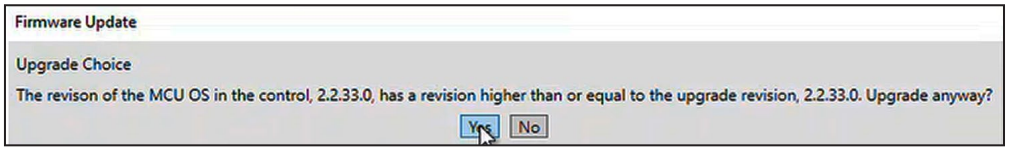

Figure 33. The MCU OS revision dialog box.

STEP 15. In the Firmware Update dialog box, click on the **Yes** button. See Figure 35. Selecting "No" will end the **Downgrade** process.

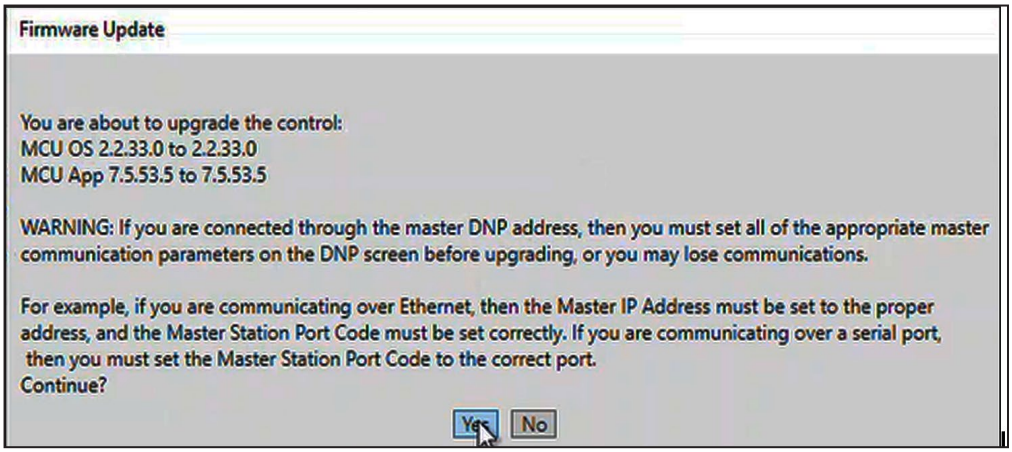

Figure 35. The Firmware Update dialog box.

STEP 16. ***When downgrading from a software version of 7.3.100 or later to a software release earlier than 7.3.100:*** A message appears about the passwords being reverted to defaults during the downgrade process. Click on the **Yes** button to proceed with the downgrade. Selecting "No" will stop the downgrade process. See Figure 36.

Note: ***When downgrading from a software version 7.6.x or later to a 7.5.x or 7.3.1x version:*** The passwords will always be retained. If any of the users account passwords are still at the default value, the Admin must change them to a password that meets the complexity requirements before those user accounts can login.

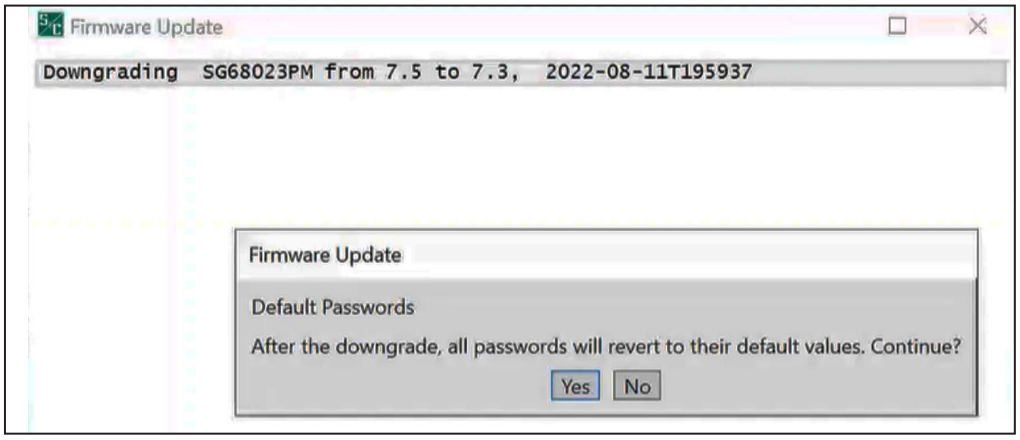

Figure 36. The Default Password downgrade message.

STEP 17. If the Windows PowerShell Credential dialog box appears, enter the same password entered in Step 12 on page 28. See Figure 37.

Figure 37. The Windows PowerShell Credentials dialog box.

STEP 18. When downgrading from a software version of 7.3.100 or later to a software version 7.3.x or earlier, a message will appear about the passwords being reverted to defaults after the downgrade process completes. Click on the **OK** button to proceed. See Figure 38.

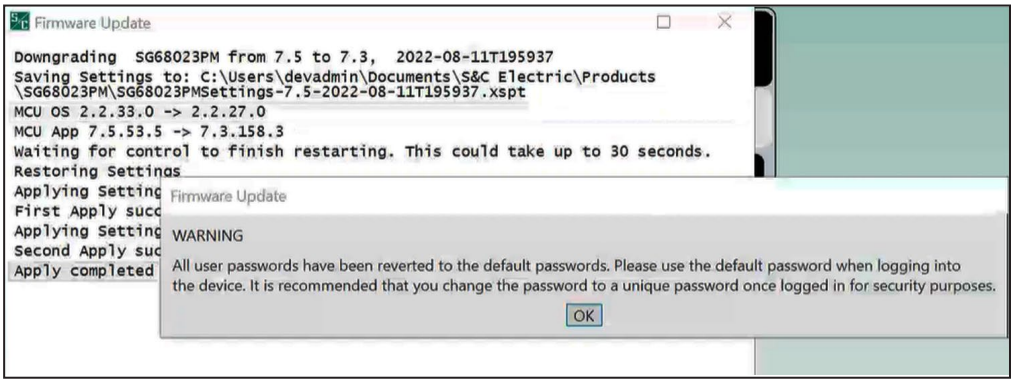

Figure 38. The message that appears after reverting passwords to defaults after a downgrade process completes.

STEP 19. When "Script completed successfully" is indicated in the Firmware Update dialog box, click on the **Close** button. See Figure 39.

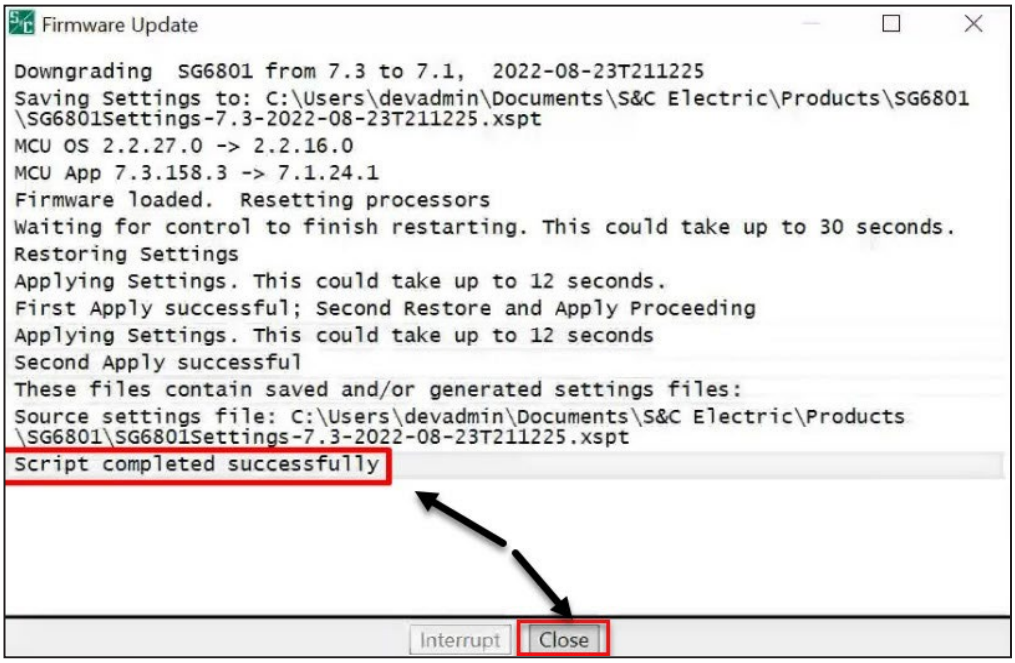

Figure 39. The "Script completed successfully" message.

S&C recommends the switch control use both battery and ac control power (or battery and sensor power, if applicable) when updating the control software. If the control software must be updated at a location where no ac control power is available, follow these instructions to override the automatic shut-down procedure.

Protection System Logic

The CPU directs all functions of the switch operator, including charging and monitoring the battery system. When the CPU program stops, the control will not function, and the battery or circuits might be damaged.

To indicate the CPU program is functioning properly, it sets a bit on the PS/IO board every few seconds. When that bit is not set for 60 seconds, the PS/IO board disconnects the battery. This shuts down the control and prevents damage to the control circuits and battery.

During the update process the CPU is unable to function and cannot set the bit on the PS/IO board. The protection logic disconnects the battery 60 seconds or less after the update process begins.

When ac control power (or sensor power) is present, the control continues to operate without battery power and completes the software update. However, if ac control power (or sensor power) is not present, the control shuts down, terminating the software update. There is no damage to the control, and the update process can be started again.

Manually Overriding the Battery Disconnect Command

The control software can be updated manually using only battery power by manually sending a **Battery On** command to the PS/IO board. To do so, press the BAT ON switch every 30 seconds. This black momentary-contact switch is located on the PS/IO board. See Figure 40 on page 33.

Updating the control software may take up to 15 minutes. Pushing the BAT ON switch is usually easier than moving the control to a location with ac control power (or sensor power).

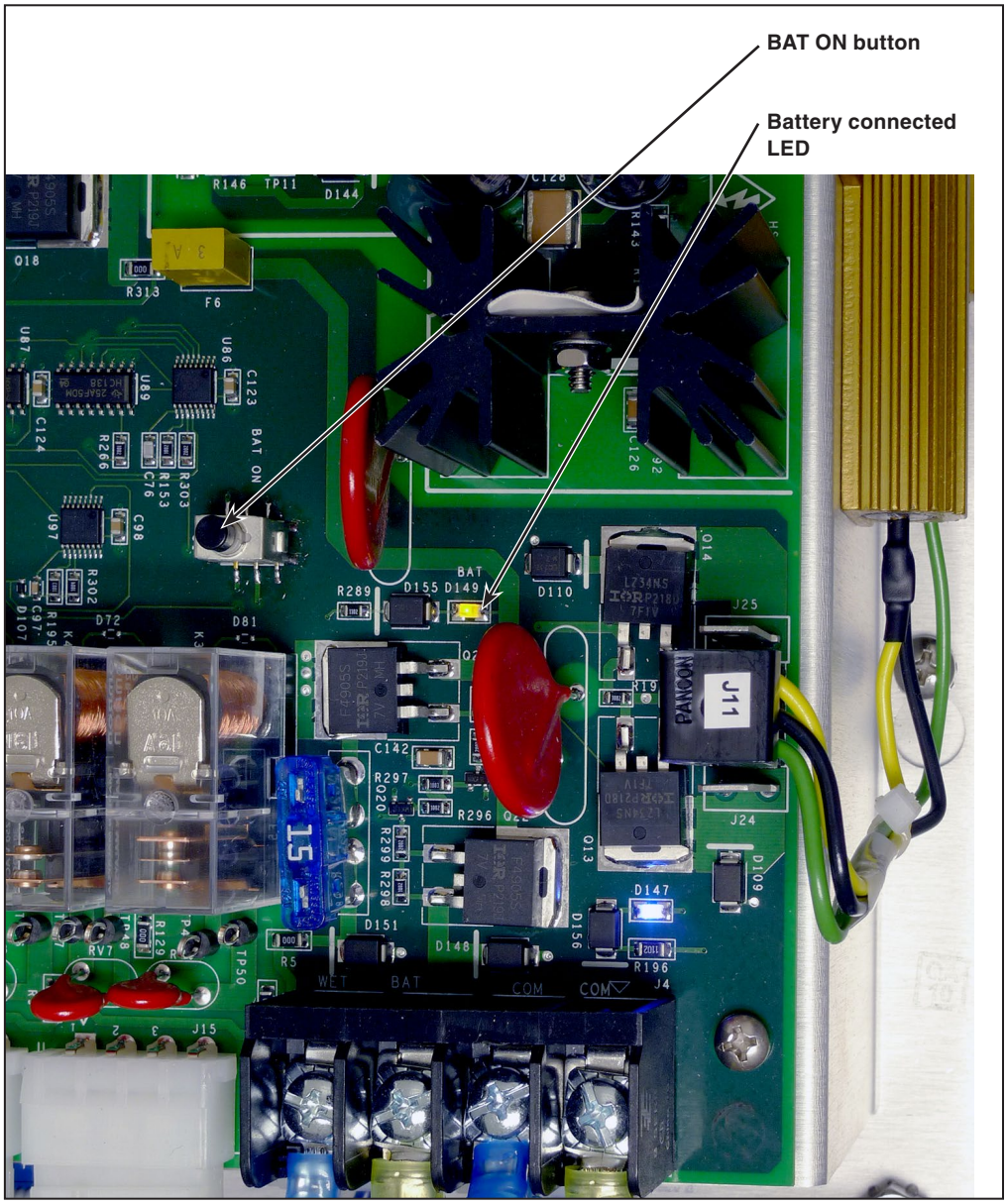

Figure 40. The BAT ON button and Battery Connected LED on the PS/IO board.