

Installation

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Your Universal Interface Module was shipped with Instruction Sheet 1043-510, a CD-ROM with control software, and PDF files of Instruction Sheets 1043-500, 1043-510, 1043-530, 1043-540, and 1043-550. The latest instruction sheets are posted as PDF files at www.sandc.com. The latest Universal Interface Module software is posted at www.sandc.com > Support > S&C Automation Customer Support Portal.



Introduction

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 non-live 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

Thoroughly and carefully read this instruction sheet before programming, operating, or maintaining your S&C Universal Interface Module. Familiarize yourself with the safety information on page 3. The latest version of this instruction sheet is available online in PDF format at www.sandc.com. Select: Support > Product Literature Library.

Retain this Instruction Sheet

This instruction sheet is a permanent part of your S&C Universal Interface Module. Designate a location where you can easily retrieve and refer to this publication.

Warranty

The standard warranty contained in S&C's standard conditions of sale, as set forth in Price Sheet 150, applies to the Universal Interface Module, except that the first paragraph of said warranty is replaced by the following:

(1) General: Seller warrants to 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 ten 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 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 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 seller or repairs performed by 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.

Warranty of the Universal Interface Module 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 of S&C manufacture, such as batteries, and communication devices. However, S&C will assign to immediate purchaser or end user all manufacturer's warranties that apply to such major components.

**Understanding
Safety-Alert Messages**

There are several types of safety-alert messages which may appear throughout this instruction sheet as well as on labels attached to the Universal Interface Module. Familiarize yourself with these types of messages and the importance of the various signal words, as explained below.

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

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

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

NOTICE
“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 www.sandc.com. Or call S&C Headquarters at (773) 338-1000; in Canada, call S&C Electric Canada Ltd. at (416) 249-9171.

NOTICE	
Read this instruction sheet thoroughly and carefully before installing or operating your S&C Universal Interface Module.	

**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.

Instruction Overview

These instructions describe steps you should complete in the shop prior to field installation of the control package (page 6), and field installation steps that are specific to the Universal Interface Module (page 10).

Installation or setup of any equipment used for team communication or remote SCADA communication is not discussed here; see the manufacturer's documentation, Instruction Sheet 1043-530, or contact S&C.

WARNING

The Universal Interface Module instructions are in addition to the installation instructions for the protective relay or recloser control. The steps in this chapter must be carried out in the correct order relative to the installation steps described in the host IED Manual to insure a safe and successful IntelliTEAM II installation.

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.

The Universal Interface Module and host control are 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.

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 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.

Whenever you are manually reconfiguring the circuit (for example, during repairs), follow your company's operating procedures to disable automatic operation of the IntelliTEAM II system. This prevents any unexpected operation of a team member.

You can disable the IntelliTEAM II system by pressing the automatic operation ENABLE/DISABLE faceplate button to DISABLE on the faceplate of any active 5800 based team member of the team you want to disable, or turn on **Prohibit Restoration** on the faceplate of the UIM.

Applicable Software

These instructions were prepared for use with software **UIMD3C1X Rev. 1.05**.

You can find the revision number on the Setup disk label and on the main screen of the UIM, called the **PRESENT CONDITIONS** screen. For questions regarding the applicability of information in this chapter to future product releases, please contact S&C.

Interface Module Installation Overview

The Panel Mount Universal Interface Module is two chassis, connected by a 1-meter *Camera Link* cable, that uses 3M MDR-26 connectors. The processor can be mounted out of sight, and the compact faceplate installed near the control panel of the host device. The control power input is a 2-position polarized AMP connector, with a 1-meter unterminated cable. The host device must be able to provide adequate 12 Vdc power for the UIM, and all communication equipment.

The Rack Mounted configuration is a single chassis with connectors on the rear panel. Control power is connected by screw terminal to a multi-position *Phoenix* plug that accepts 20-8 AWG wire. A wide range of ac or dc control power voltage is accommodated. A 2-position *Phoenix* plug provides 12 Vdc power output for the IntelliTEAM II communication equipment.

The SCADA radio or fiber-optic transceiver can be connected to either an ethernet or serial port. The UIM can also communicate with an IP based SCADA network over the LAN with an ethernet connection. Another serial port is used for IntelliTEAM II communication using a UtiliNet Series III Radio, or Dymec Fiber-Optic Transceiver. The third serial port is connected to the host device.

Installation of all components is the customer's responsibility. The customer will also supply the interconnect cables, power supplies, communication equipment, and antennas. A correctly grounded Poly-Phaser surge suppressor is required if the antenna is not mounted directly on the host device enclosure.

For more information about the installation requirements of UtiliNet Radios and Dymec Fiber-Optic Transceivers contact: www.cellnet.com and www.dymec.com.

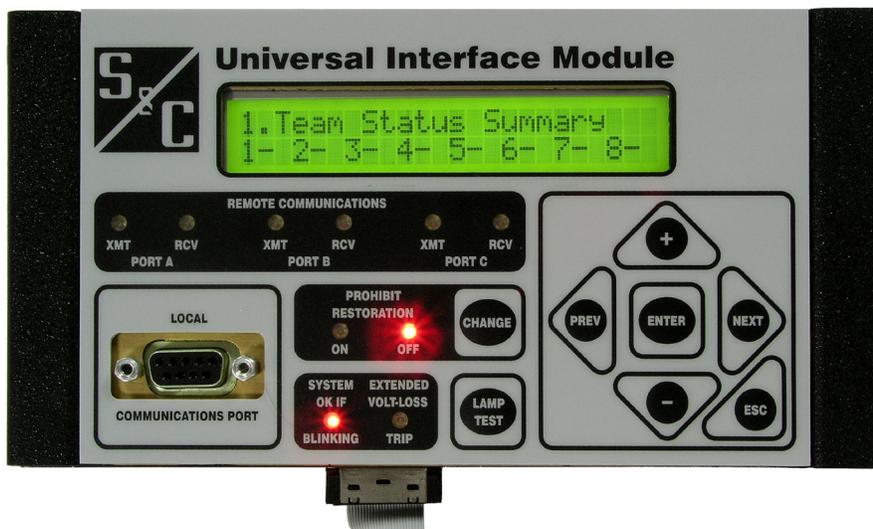


Figure 1. Panel-mounted IntelliTEAM II Universal Interface Module.

- **IMPORTANT:** S&C ships several types of software-controlled products. **Make sure you have the correct software disks for the interface Module.** The latest versions are posted at the S&C Automation Information Center website (www.energyline.com/support.htm).
- *All Required Setup Disks for the Communication Equipment*—For example, if your team includes UtiliNet® radios, you need the RadioShop setup software disk and manual.

4. Make sure you have all required communication equipment (radios, antennas, etc.) for the Universal Interface Module and IED.

Each team member must be able to communicate with other team members—either by radio, fiber-optics or direct connection. Depending on the locations of the other team members, you may also need one or more repeater radios to enable communication between this control and the other team members. For more details, see the manufacturer's documentation for your communication system.

5. Install the Universal Interface Module in the IED enclosure.

The mounting brackets on the Panel-Mounted Interface Module swivel through 90 degrees for a more flexible mounting footprint. See Figures 2 and 4. Loosen the bracket screw to swivel it.

The Rack-Mounted version installs in a standard 3 U rackmount space. See Figure 3.

6. Connect Comm. Port A on the Interface Module to the Communications Port on the host IED.

Use a D-sub 9 position straight through Serial cable to connect the RS232 DB9 connector on the Interface Module to the host IED, with proper gender connectors on each end. See Figures 4 and 5.

7. Connect power to the Interface Module terminal strip or connector.

The Panel-Mounted Interface Module requires 12 Vdc, and the polarity label is on the faceplate.

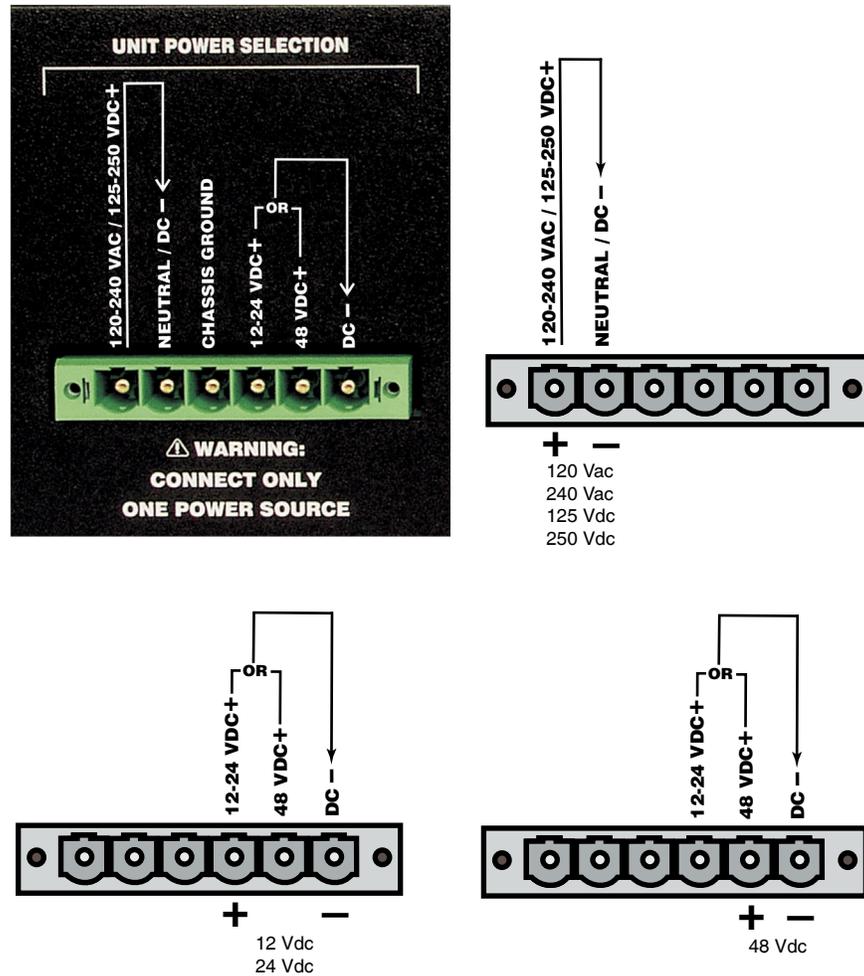


Figure 3. Rack-mounted Universal Interface Module Power Terminals.

The Rack-Mounted version can be powered by: 12 Vdc, 24 Vdc, 48 Vdc, 125 Vdc, 250 Vdc, 120 Vac, or 240 Vac. See Figure 3. Wire the corresponding terminals of the supplied power plug as follows:

120 or 240 Vac—Line to *120-240 VAC*, Neutral to *NEUTRAL / DC -*

125 or 250 Vdc—Positive to *125-250 VDC*, Negative to *NEUTRAL / DC -*

12 or 24 Vdc—Positive to *12-24 VDC*, Negative to *DC -*

48 Vdc—Positive to *48 VDC*, Negative to *DC -*

Ground—Ground to *CHASSIS GROUND*

8. Connect the UtiliNet Radio, or fiber-optic transceiver to Comm. Port B on the Interface Module.

Comm. Port B is only a data port. The communication device will typically need to be supplied 12 Vdc. Use a D-sub 9 position null-modem serial cable to connect the RS232 DB9 connector on the Interface Module to the communication device. The cable should have male connectors at each end. See Figures 4 and 5.

If two Universal Interface Modules are connected to one radio:

- Use a null-modem serial cable from the radio to Port B of the first UIM.
- Use a null-modem serial cable from Port C of the first UIM to Port B of the second UIM.

9. Do one of the following:

- Install the IED enclosure at the site (as described in the IED Manual), then configure the equipment as described below.
- Complete the configuration steps summarized below while in the shop, then install the IED enclosure at the site.



Figure 4. Rack-mounted Universal Interface Module rear panel.

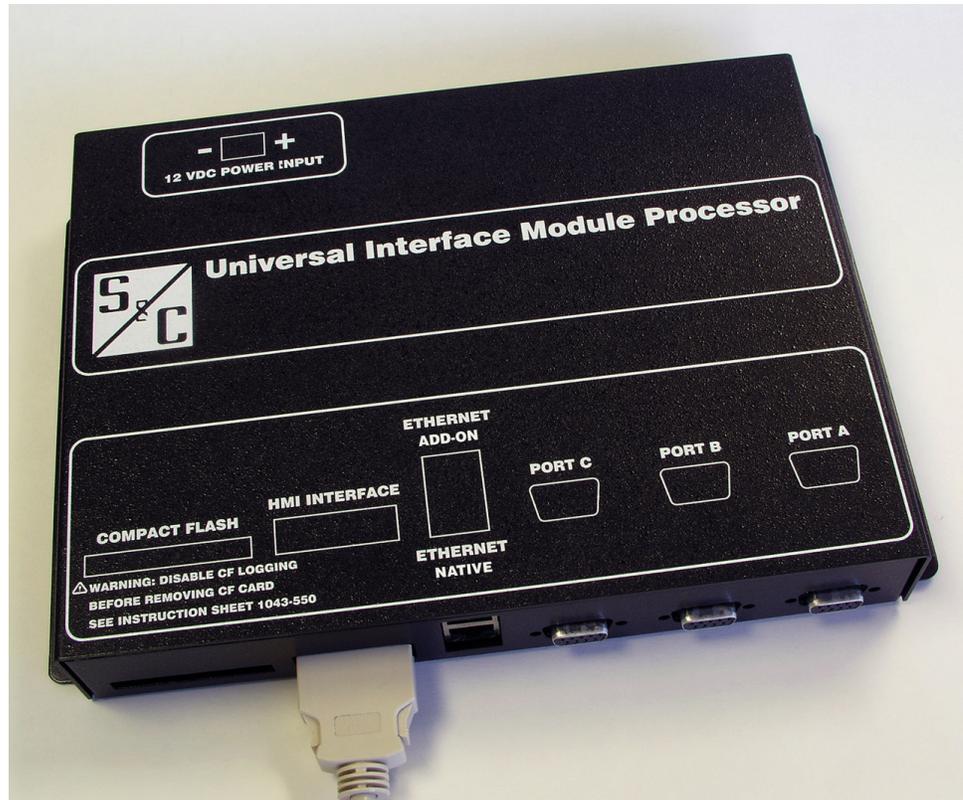


Figure 5. Panel-mounted Universal Interface Module processor chassis. Connector labels are printed on the top. The right connector is Comm Port A.

Optional In-Shop Installation and Setup Steps

The following steps can be completed while you are still in the shop or later at the installation site. The steps are summarized here and described in detail elsewhere in the related instruction sheets, and the IED Manual, as noted below.

1. Install S&C IntelliLINK software on your computer.

For details, see *To Install the IntelliLINK Software* in *Instruction Sheet 1043-530*.

2. If this Universal Interface Module uses a radio, configure the radio.

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

3. If a repeater radio is needed to link the Universal Interface Module to other team members, configure the repeater radio.

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

4. Set up the Universal Interface Module software.

You can complete most of the software setup while you are still in the shop. For an explanation of how to set up the software, see *Setting Up the Universal Interface Module and the Team* in *Instruction Sheet 1043-530*.

Installation and Wiring

Universal Interface Module/IED installation consists of several operations. Certain steps are specific to the Interface Module, and must be performed in the correct order relative to the usual steps required for IED installation. These instructions apply for each Universal Interface Module installation site.

1. **Read, and make sure you understand, the following warnings before you begin to install or operate this equipment.**

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.

For additional precautions to be observed while working around this equipment, see the host IED Manual.

You must follow the sequence of installation steps outlined in this chapter to insure a safe and successful installation.

WARNING

During installation and setup of the Universal Interface Module it is important to prevent the breaker/recloser/switch from operating unexpectedly.

This may require taking the IED out of remote operation, disabling automatic operation on both the IED and the Universal Interface Module, and possibly leaving the IED disconnected from the breaker or switch mechanism.

2. **Temporarily disable IED operation.**

The IED must be disabled so that it can NOT open or close the line while you test the Universal Interface Module. For the correct way to disable the IED, see the IED Manual.

Leave the IED disabled until instructed to enable it after you finish testing the IntelliTEAM II Interface Module.

3. **Install the Universal Interface Module in the IED enclosure.**

The small footprint and adjustable mounting brackets of the Panel-Mounted Interface Module facilitate installation on a flat surface. When planning your installation space, remember to leave room for attaching cables to the sockets on the bottom of the Interface Module, and access to the front panel buttons and LED indicators. The Rack-Mounted Interface Module installs in a standard 3U 19" equipment rack space.

4. Press the Universal Interface Module faceplate PROHIBIT RESTORATION ON/OFF button to select ON.

Placing the Interface Module in PROHIBIT RESTORATION does not prevent the Interface Module from carrying out remote switching commands. A SCADA command, received by the Interface Module, will cause the Interface Module to send a command to the IED. PROHIBIT RESTORATION—ON only prevents switching based on IntelliTEAM II logic. Since there is no local/remote feature on the Interface Module, the only way to prevent any remote switching commands is to use whatever “local” or “remote disabled” feature that exists on the IED.

5. Complete all normal IED installation steps.

For details, see the IED Manual.

Check Communication Equipment

Make sure that the communications equipment has power.

Put the IED Into Local / Non-Automatic Service

This makes the host IED available for local, non-automatic operation from the faceplate.

⚠ WARNING

Be sure to leave the Universal Interface Module in the **PROHIBIT RESTORATION –ON** mode until the software in the Universal Interface Module is set up, to avoid unexpected operation of the line switch during installation or setup operations.

This completes hardware installation and testing.
Go to *Setup Instruction Sheet 1043-530*.