

# TAC I/NET

## Installation Guide

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I/SITE LAN

7798B0 and 7798B1

*for TAC I/NET Building Automation Systems*

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## FCC Warning

The Federal Communications Commission (FCC) requirements prescribe certification of personal computers and any interconnected peripherals in the FCC rules and regulations.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: this device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates and uses radio frequency (rf) energy for its operation and, if not installed and used in accordance with the installation and operation manual, may cause interference to radio and television reception. It has been found to comply with the limits for a Class A computing device pursuant to the aforementioned regulations. These are designed to provide reasonable protection against such interference when operated in a residential area. Only peripherals (computer input/output devices) certified to comply with the Class A limits may be connected to this device. Operation with noncertified computer peripherals is likely to result in interference with radio and television reception. If this equipment does cause interference to radio or television reception, the user is encouraged to correct the situation by one or more of the following measures.

- ◆ Relocate the receiver with respect to the computer.
- ◆ Move the computer away from the receiver.
- ◆ Plug the equipment into a different outlet, so that the computing device and receiver are on different branch circuits.
- ◆ Disconnect and remove any unused cables that may be acting as a transmission source.
- ◆ Make certain that the computing device is plugged into a grounded outlet receptacle.

If necessary, contact Schneider Electric for additional suggestions.

## Overview

TAC has several families of distributed intelligent controllers that function within the TAC I/NET integrated network system, providing an extremely flexible array of user-programmable control functions. These include the Unitary Controller (UC) family, the Micro Regulator (MR) family, and the Door Processor (DP) family. Additionally, TAC offers Application Specific Controllers (ASCs) that use hardware and software designed for specific applications.

The MR, DP, and ASC families use the I/SITE LAN as a stand-alone unit to provide building management services targeted at the requirements of managing smaller buildings or buildings in remote locations. The I/SITE LAN allows the operator or building manager to control the building through a ViewCon (a built-in operator interface), a local host PC connection, a modem to a remote PC, or an optional TAC controller LAN. When connected to a TAC I/NET host PC via modem, direct connection, or optional controller LAN, the I/SITE LAN becomes an interface between the MR, DP, and ASC family sub-controllers and the rest of the TAC I/NET system.

**Note:** *Throughout this manual, the term “I/SITE LAN” refers to both the 7798B0 and the 7798B1.*

The I/SITE LAN features the ViewCon, a unique operator interface. The ViewCon consists of a keypad, Liquid Crystal Display (LCD), and Cold Cathode Fluorescent Lamp (CCFL) backlight. With the ViewCon, an operator or building manager has direct access to a number of functions of the unit, thus reducing or eliminating the need for a dedicated host in some cases.

The I/SITE LAN is responsible for up to 32 MRs, Door Processor Units (DPUs), ASCs, or a combination of each, on a subLAN. The subLAN connects through shielded, twisted-pair cable to a sub-controller LAN port on the I/SITE LAN controller. The sub-controller LAN port provides both a primary and alternate connection. Communication to the subLAN is supported in an open- or closed-loop subLAN installation. When the subLAN is installed in a closed loop, the I/SITE LAN communicates through both primary and alternate paths, ensuring communication in case of a break in the subLAN cable.

The I/SITE LAN also supports the definition of internal points with all of the extension capabilities typical of the 7793 MCI. The internal points are defined only for point addresses not currently used by sub-controllers. The 7798B0 I/SITE LAN provides 512 KB of battery-backed RAM for processor use. TAC also offers the 7798B1, which is identical to the 7798B0 except that it provides 1 MB of battery-backed RAM.

**Note:** *This product contains a Nickel-Cadmium (NiCad) rechargeable battery. This battery should not be crushed or incinerated when disposing of this product.*

## Communication

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The I/SITE LAN provides for a number of communication interface options including:

- ◆ ViewCon – The I/SITE LAN ViewCon consists of a keypad, LCD panel, and CCFL backlight. The keypad is a push-button pad with eight functional keys. The LCD panel has contrast control through function keys F7 and F8 when the Banner screen is displayed.
- ◆ Asynchronous serial port – The Host PC RS232 port provides for a typical asynchronous serial COM connection to a PC, modem, or serial printer.

*Note:* In UL 294 Listed systems, the host PC and third-party equipment have not been investigated by UL. Both the 7798B0 and 7798B1 along with any connected UL 294 Listed subLAN devices are stand-alone units.

- ◆ Synchronous/asynchronous serial port – Connection to an external modem is provided through either a 10-conductor ribbon connector or through a 10-conductor terminal block.
- ◆ Expansion port – An expansion port provides serial communication with an optional controller LAN expansion board. If the expansion board is installed, it enables the I/SITE LAN to be used as a peripheral controller for a TAC I/NET system. (Refer to “Expansion Module” on page 25.)



## Physical Description

The I/SITE LAN (see Figure 1) consists of three major components:

- ◆ A single printed circuit board (PCB).
- ◆ A ViewCon and keypad for operator interaction and control.
- ◆ A plastic enclosure. The plastic enclosure provides for wall mounting or mounting in a TAC environmental enclosure, a custom enclosure, or an equipment cabinet.

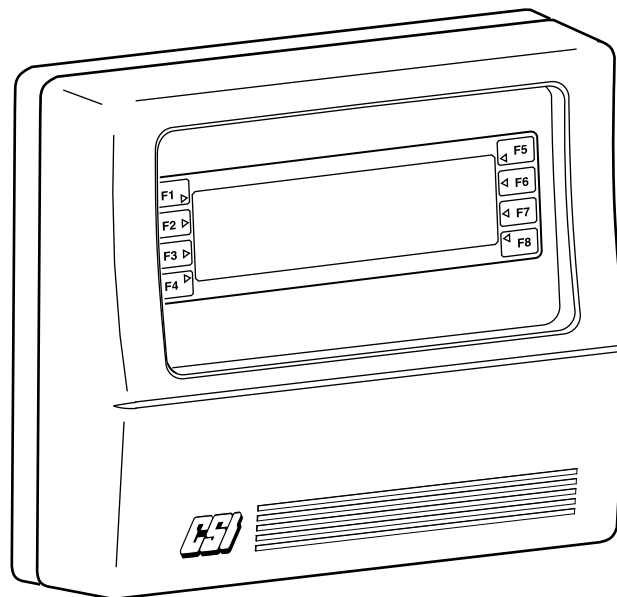


Figure 1. I/SITE LAN

## Printed Circuit Board

Each I/SITE LAN uses a single printed circuit board. This board measures 6.50" L × 8.00" W × 1.75" D (16.51 × 20.32 × 4.44 cm) (see Figure 2). The I/SITE LAN circuit board is mounted in a plastic enclosure measuring approximately 7.50" L × 9.00" W × 2.06" D (19.05 × 22.86 × 5.23 cm). Access to the component side of the circuit board is accomplished via removal of the I/SITE LAN cover. To remove the cover, first remove the two screws attaching the cover to the base, then disengage the snap-on latch along the bottom of the cover. The cover can then be rotated out and lifted off the mounting base at the top.

## Communication

The I/SITE LAN provides up to four ports as follows:

- ◆ A standard asynchronous RS485 subLAN port (TB2).

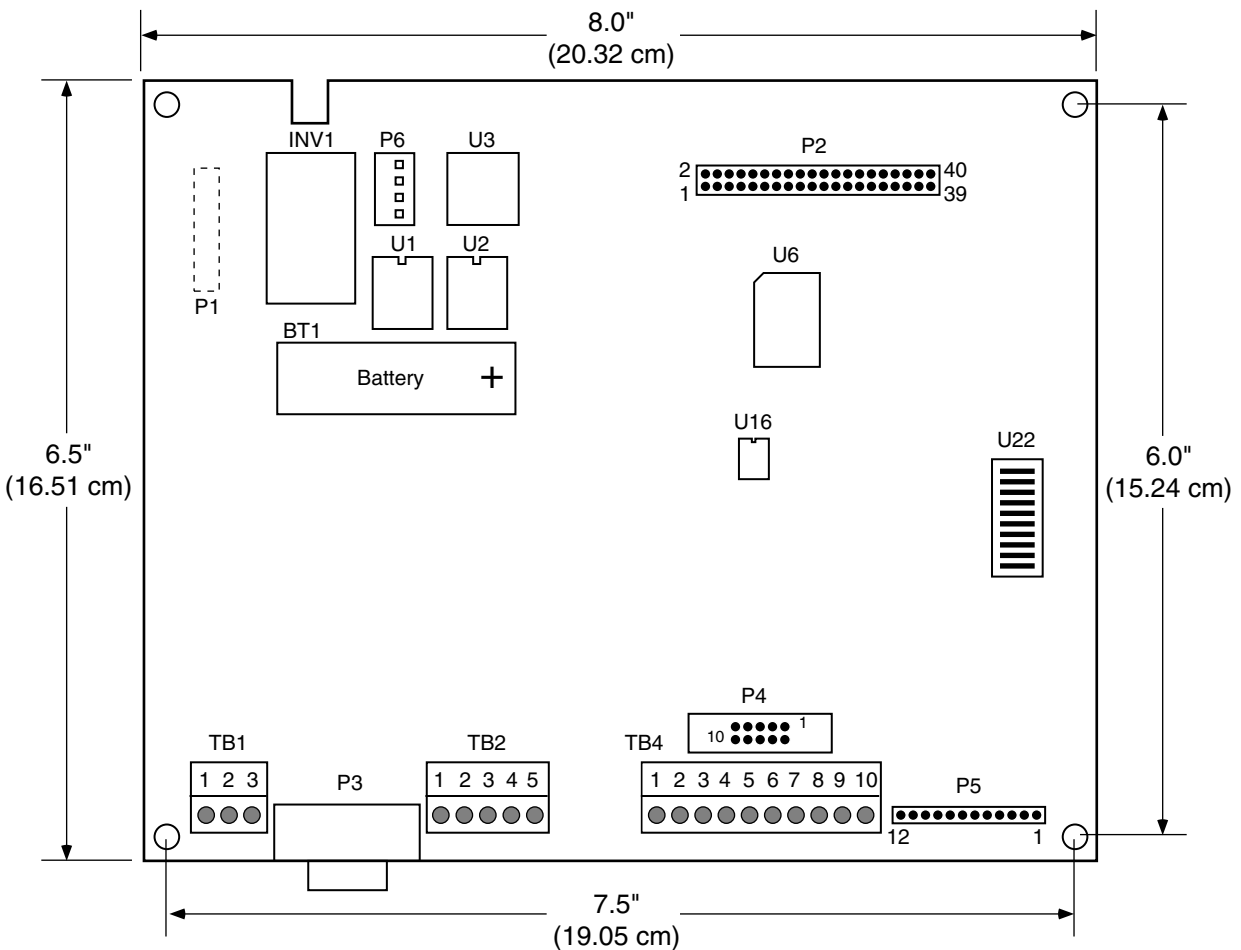


Figure 2. I/SITE LAN Controller Board

- ◆ A synchronous/asynchronous serial port (P4) or terminal block (TB4). Serial port P4 provides access to an external modem through a 10-conductor ribbon cable. Terminal block TB4 provides a direct wiring connection to an external modem. Both P4 and TB4 are the same serial port; therefore, only one of these two connectors should be attached to a modem.

P4 is used to provide simple and quick connection of an external modem via the standard Dial/Dedicated modem cable TAC Model Number CBL048 (P/N 606105-0017; 6 ft; 1.82 m). When it is necessary to locate the modem more than 6 feet (1.82 m) away from the I/SITE LAN, TB4 may be used for discrete wire connection of a modem cable extending up to 50 feet (15 m) to the external modem. Low capacitance shielded cable of 24 AWG (0.206 mm<sup>2</sup>) or larger is recommended for this interface.

- ◆ An asynchronous serial port (P3). This port provides access to an external PC, external serial printer, or external asynchronous modem. When connecting a modem to port P3, use TAC cable CBL074 (P/N 606105-0038). Use TAC cable number CBL072 (P/N 606105-0036) for DE-9, and CBL073 (P/N 606105-0037) for DB-25 connections to PC COM ports. TAC cable number CBL081 (P/N 606105-0051) is used for connection of serial printers.

- ◆ An expansion port (P2) provides serial communication with an optional controller LAN expansion board. If the expansion board is installed, the I/SITE LAN can be used as a peripheral controller for a TAC I/NET system. (Refer to “Expansion Module” on page 25.)

The I/SITE LAN can emulate one of four TAC Taps: 7801, 7810, 78061, and 78035. Tap emulation is controlled by the settings manually entered through the ViewCon and by the type of devices connected to the unit. Refer to “Tap Emulation” on page 24.

## Communication Expansion Port

The communication expansion port (P2) provides connections to a TAC controller LAN serial expansion board (RS485). The RS485 expansion board enables the I/SITE LAN to be a peripheral controller for a TAC I/NET system and still operate as a stand-alone unit. The connector is in the upper-right corner of the controller (see Figure 2 on page 4).

## Reset

Upon power loss/restoration, the I/SITE LAN executes an automatic reset memory test of RAM and EPROM. The test uses an array of RAM test bytes and a Checksum check on the EPROM. If the check is successful, control and execution is passed to programmed memory.

## Memory

The I/SITE LAN provides support for several types of memory with variable amounts of each. The current memory organization is listed in Table 1.

Table 1. I/SITE LAN Memory

Socket	Amount	Memory type
U1	0 KB/512 KB	The 7798B I/SITE LAN reserves this socket for future use. The 7798B1 I/SITE LAN has an additional 512 KB of static RAM in this socket.
U2	512 KB	Static RAM used to store download software and database.
U3	32 KB	EPROM used to store boot firmware.
U16	4 KB	Non-volatile RAM (NOVRAM) for basic communication.

### NOVRAM

The non-volatile RAM (NOVRAM) holds all parameters necessary to establish basic communication with the controllers after a long-term power outage in which battery-backed static RAM content is lost.

When the I/SITE LAN is emulating a 78061 Tap, it can store telephone numbers as a standard 78061 Tap would. Up to eight telephone numbers of at least 25 digits can be stored in NOVRAM. (Refer to “Specifications” on page 47.)

### Static RAM

The software design and memory organization supports the complete download of all software, including revised LAN drivers that are invoked after completion of the download. The downloaded software is held in static RAM. The software can be downloaded while the I/SITE LAN is on-line with TAC I/NET.

The content of static RAM is retained in the event of a power outage, as long as the backup battery has power (i.e., up to 300 hours). When the battery power has depleted, the content of static RAM is cleared.

## EPROM

Erasable/programmable ROM (EPROM) stores the controller firmware, as well as a firmware download handler and boot record firmware.

## Battery Backup

The I/SITE LAN provides battery-backup of static RAM contents and of the clock/calendar. The onboard NiCad rechargeable battery provides backup for up to 300 hours during a power failure.

*Note:* The backup battery must be fully charged in order to provide the full span of backup power. Due to normal discharge during product storage and shipment, the battery may not be fully charged immediately following installation and power-up. You must allow the controller to operate continuously for a minimum of seven days (168 hours) before depending on battery backup.

## Power Supply

Electrical power for the I/SITE LAN enters at the bottom-left edge of the board (TB1). The power input will accept 12–24 VAC/VDC from an external AC transformer, DC power supply, or battery and charger. Refer to “Connecting the Power Supply” on page 15 and to “Specifications” on page 47 for more information.

*Note:* UL 294 Listed units powered by approved 24 VAC (60 Hz) transformer only.

## ViewCon

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The ViewCon consists of the following components (see Figure 3):

- ◆ LCD Panel – The LCD panel is a 64 × 240 pixel graphic display mounted behind the plastic cover. The LCD displays four text lines with 40 characters per line.
- ◆ Keypad – The keypad is comprised of a polyester membrane key panel that is mounted to the front panel of the plastic enclosure. The keypad provides eight function keys identified as F1 through F8. The actual operation of the function keys varies dynamically based on the key function indication shown on the LCD next to each key.
- ◆ CCFL Backlight – The CCFL backlight, along with the LCD, provides a bright and sharp contrast display which is easy to read in all lighting conditions. The backlight is factory-set to turn on when any key on the keypad is pressed, and to turn off

(timeout) after 30 minutes of keypad inactivity. This timeout duration is adjustable and can be disabled to permit the backlight to stay lit at all times. Refer to “Backlight Timer” on page 41 for the procedure required to adjust the timeout duration.

Refer to “ViewCon” on page 26 for more information about ViewCon operation.

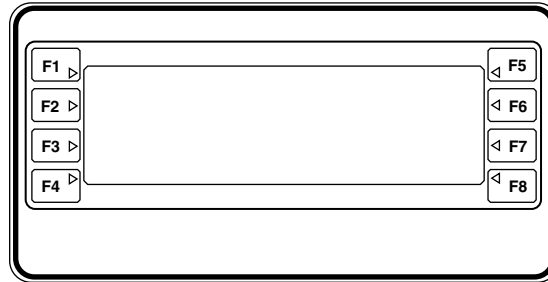


Figure 3. I/SITE LAN ViewCon

## Plastic Enclosure

The I/SITE LAN plastic enclosure provides a mounting base for the PCB and the ViewCon (see Figure 4). The enclosure covers the entire PCB with a cutout on the bottom side to expose the P3 connector. The enclosure base has a cutout for mounting and entry/exit of wiring.

The optional conduit mounting base (TAC Model ENCL7798) provides knockouts for the attachment of wiring conduits. For this type of installation, the enclosure base is attached to the conduit mounting base using four #8-32 screws.

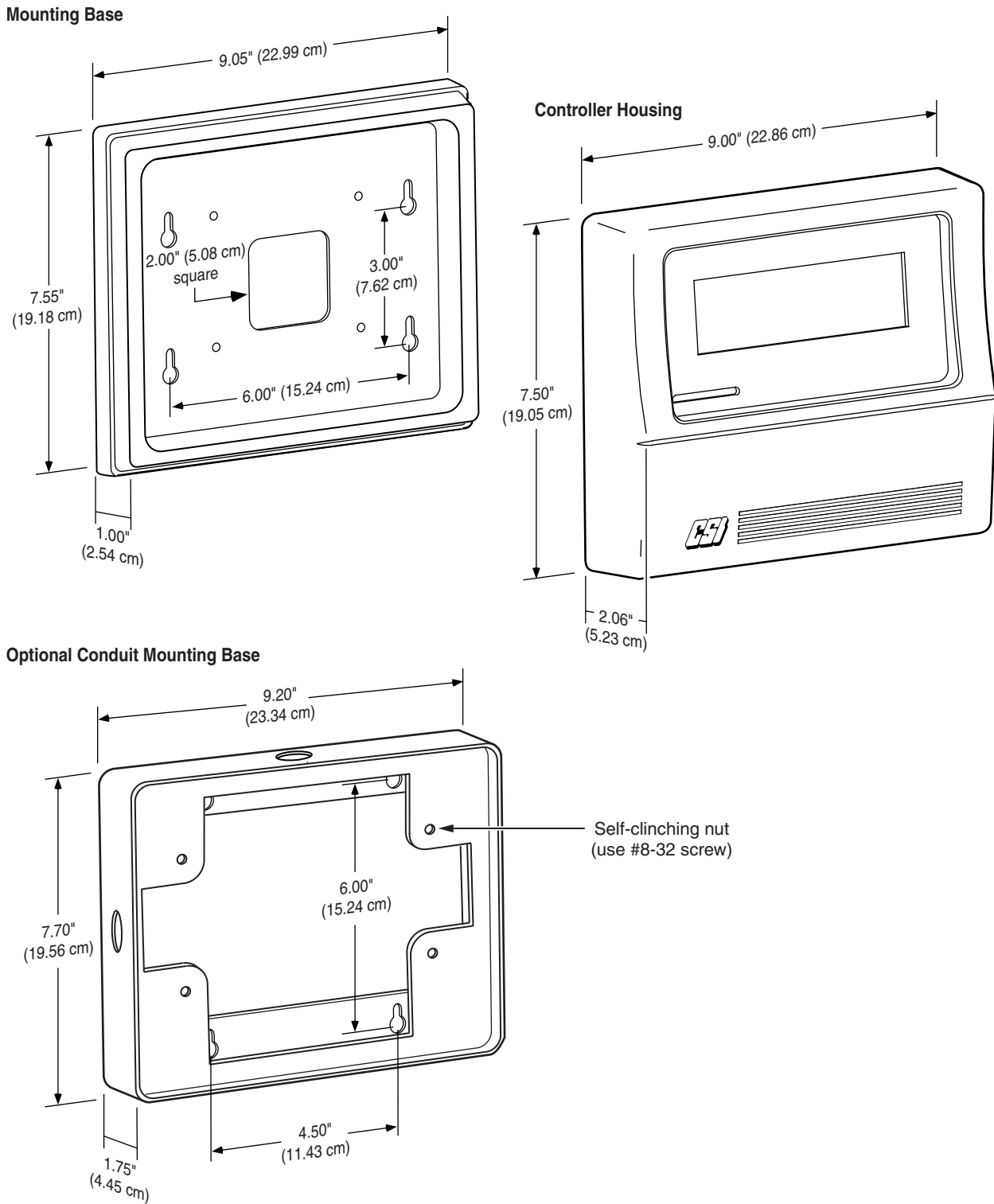


Figure 4. I/SITE Plastic Enclosure and Optional Conduit Mounting Base

# Installation Procedures

## Installing the I/SITE LAN

This section provides installation instructions for the I/SITE LAN. These instructions allow you to connect an external PC, modem, and printer to the I/SITE LAN. Connections for the sub-controller LAN and, optionally, the controller LAN are also described. Use the following steps to install the I/SITE LAN.

**Note:** *Operational errors may occur if equipment is inadequately grounded. Symptoms may include, but are not limited to: intermittent LAN or subLAN communication, improper control actions, or loss of NOVRAM contents. Refer to “Grounding Requirements” on page 16 during equipment installation.*

### Initial Installation Procedure

1. Ensure power is disconnected from the I/SITE LAN.
2. Disconnect power to all devices that will be connected to the I/SITE LAN.

**Warning:** *Failure to disconnect power from all interconnected equipment when performing electrical installation may result in electrical shock or burns.*

3. If using the optional conduit mounting base, attach the enclosure base to the conduit mounting base with four #8-32 screws (see Figure 5).

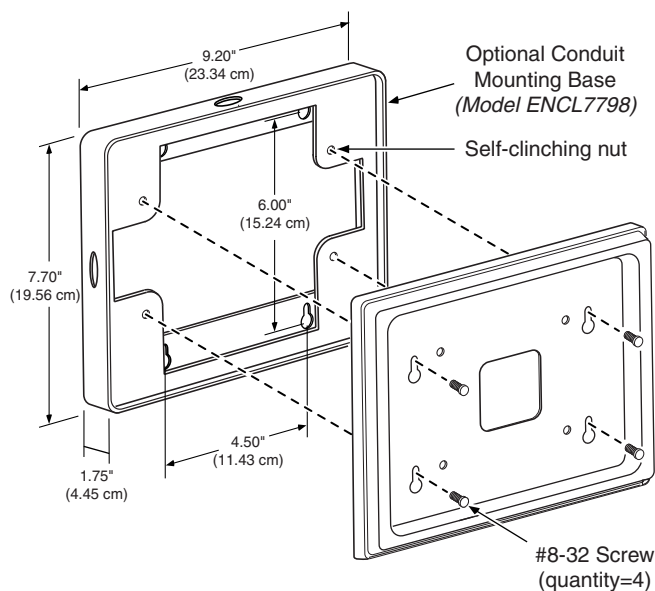


Figure 5. Optional Conduit Mounting Base Installation

4. Attach the base (enclosure base or conduit mounting base) to the mounting location (keyhole mount).
5. If the controller LAN option is to be used, insert the expansion board into the communication option port (P2) on the I/SITE LAN board. (Details on page 10.)
6. Connect the external PC or modem. (Details on page 10 and 11.)
7. If necessary, connect an external serial printer. (Details on page 13.)
8. Connect all sub-controller LAN cables at the PCB. (Details on page 13.)
9. Connect the power supply to the I/SITE LAN. (Details on page 15.)
10. Attach the I/SITE LAN plastic cover (and its attached motherboard PCB) to the baseplate.
11. Reconnect power to devices that are connected to the I/SITE LAN.
12. If the controller LAN option is used, set the I/SITE LAN station address and the data communication rates. (Details on page 17.)
13. If the controller LAN option is to be used, connect the controller LAN cable to TB1 on the expansion board. (Details on page 14.)

**Note:** *Procedures for setting the controller LAN address, Tap emulation, Tap baud rate, and controller LAN baud rate, begin from the DCU setup screen. If the I/SITE LAN is at boot control, the DCU setup screen is accessed by selecting “DCU setup” from the banner screen. If software has already been downloaded to the I/SITE LAN, then the DCU setup screen is accessed by selecting “Sign-on” from the banner screen; “Parameter edit” from the function select screen; and then “DCU setup/status” from the parameter edit screen.*

## Connecting a Controller LAN Expansion Board

**Warning:** *Ensure that no power is connected to the I/SITE LAN when performing these procedures. Failure to disconnect power from all interconnected equipment when performing electrical installation may result in damage to the components, electrical shock, or burns.*

1. Connect port P1 on the expansion board to port P2 on the face of the I/SITE LAN PCB.
2. Secure the expansion board with the provided two standoffs and attaching screws.

## Connecting an External PC

Port P3 provides asynchronous communication through a nine-conductor D-Subminiature connector. This port allows the direct connection of a PC to the I/SITE LAN. The circuit connections at this port are typical of the serial COM port on the PC. A six-foot (1.82 m) serial PC communication cable with low-profile right-angle D-Sub connections can be obtained from TAC.




P3	PIN	Function
	1	Not Used
	2	RXD Receive Data
	3	TXD Transmit Data
	4	DTR Data Terminal Ready
	5	GND Signal Common
	6	Not Used
	7	RTS Request to Send
	8	CTS Clear to Send
	9	Not Used

Figure 6. RS232 Connection

When connected directly to a PC, the I/SITE LAN performs the functions of a 7801 Tap without consuming an additional LAN address. Use TAC cable number CBL072 (P/N 606105–0036) for a 9-pin PC connection, and TAC cable number CBL073 (P/N 606105–0037) for a 25-pin PC connection.

1. Connect the cable from the PC COM port to port P3 on the I/SITE LAN (accessible through cutout at bottom of plastic cover).
2. Configure the I/SITE LAN for 7801 Tap emulation (“Station type” function). Refer to “Setting the Tap Emulation” on page 17.
3. Set the baud rate on the I/SITE LAN (“Tap speed” function) to the appropriate baud rate using the ViewCon. Refer to “Setting the Tap Baud Rate” on page 18.

## Connecting an External Modem

### Integrated Dial

When the I/SITE LAN is set to emulate a 7801 Tap, the “Integrated Dial” function (i.e. one-way dial from the host PC to the I/SITE LAN) is supported. Connect an external Hayes-compatible modem to port P3 for this type of communication. Port P3 provides a 9-conductor D-Subminiature connector (see Figure 6). TAC cable number CBL074 (P/N 606105–0038) is available from TAC for an asynchronous modem connection to P3.

### Auto-dial/Auto-answer (AD/AA)

When the I/SITE LAN is set to emulate the 78061 Tap, the AD/AA function (i.e. two-way dial between the host PC and the I/SITE LAN) is supported. Use the following types of modems for AD/AA communication:

- ◆ Synchronous — Use a synchronous modem when the controller is loaded with a TAC I/NET version 4.x or earlier binary file. The controller must also have TAC I/NET version 4.x boot firmware (EPROM).
- ◆ Asynchronous — Use an asynchronous modem when the controller is loaded with a TAC I/NET 2000 binary file. The controller must also have TAC I/NET 2000 boot firmware (EPROM).

**Note:** *Ensure that all AD/AA Taps within your TAC I/NET system are configured to use the same communication protocol — either synchronous, or asynchronous. Mixing AD/AA protocols will cause communication errors.*

TAC I/NET 2000 is compatible with TAC I/NET version 4.x Tap and controller binary loads. Therefore, when synchronous AD/AA communication is required on a TAC I/NET 2000 system (for example, when using a 78040, 78050, or 78060 Tap), you must continue to use TAC I/NET version 4.x Tap and controller binary loads.

Connectors P4 and TB4 allow you to connect an external Hayes-compatible modem to the 7798B. Both P4 and TB4 are the same serial port and only one connector should be attached to a modem. Port P4 provides a 10-conductor ribbon connector. Terminal block TB4 provides a direct wiring connection. Figure 7 shows each connector.

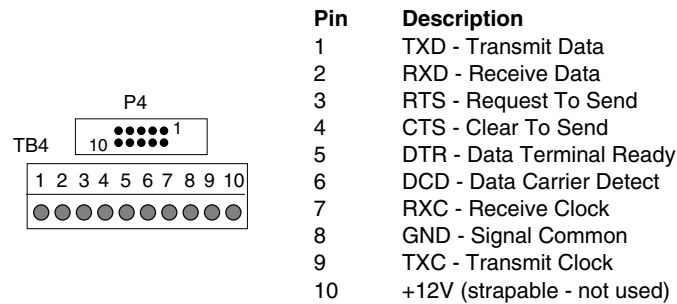


Figure 7. Port P4 and Terminal Block TB4 Connections

TAC cable number CBL048 (P/N 606105–0017) is available from TAC for a modem connection to P4. Use discrete wiring to connect a modem to TB4.

Both Model 7798B0-C and Model 7798B1-C I/SITE LANs (CE marked version) include a ferrite clamp (TAC P/N 602711–0004). If using the AD/AA port (P4/TB4), the ribbon cable from the port should be passed through the clamp with the clamp positioned just outside the rear of the enclosure.

## Direct Connect

When the I/SITE LAN is set to emulate a 78035 Tap, the “Direct Connect” function (i.e., communication over continuously active data lines) is supported. Connect an external Hayes-compatible modem to port P4 or TB4 for this type of communication. Port P4 provides a 10-conductor ribbon connector. Terminal block TB4 provides a direct wiring connection. Figure 7 shows each connector. TAC cable number CBL048 (P/N 606105–0017) is available from TAC for connection to P4.

## Modem Installation

The following installation procedures are used for all three types of modem connections:

1. Connect the modem to the appropriate serial port connector.
2. If you are connecting a modem to the AD/AA port (P4/TB4) on either the Model 7798B0-C I/SITE LAN or 7798B1-C (CE marked version), pass the ribbon cable from the port through the included ferrite clamp. Position the clamp just outside the rear of the enclosure.
3. Configure the I/SITE LAN Tap emulation (“Station type” function). Refer to “Setting the Tap Emulation” on page 17.
4. Set the baud rate on the I/SITE LAN (“Tap speed” function) to the appropriate baud rate using the ViewCon. Refer to “Setting the Tap Baud Rate” on page 18.

5. Refer to “Tap Emulation” on page 24 for modem setup information.

## Connecting an External Serial Printer

Port P3 provides asynchronous communication through a nine-conductor D-Subminiature connector. This port allows the direct connection of a serial printer to the I/SITE LAN. A six-foot (1.82 m) serial printer cable with D-Sub connections can be obtained from TAC.

When connected directly to a serial printer, the I/SITE LAN performs the functions of a 7810 Printer Tap. The I/SITE LAN must be configured as either a 779801, 779803, or 779806 to enable the 7810 Printer Tap emulation (refer to “Setting the Tap Emulation” on page 17). Use TAC cable number CBL081 (P/N 606105–0051) for a serial printer connection.

The I/SITE LAN uses the following default settings when connected to a printer:

- ◆ 1 stop bit
- ◆ no parity
- ◆ all eight group 1 masks enabled (TAC I/NET)

Connect a serial printer to the I/SITE LAN using the following procedure:

1. Ensure the I/SITE LAN is set to emulate either the 7801, 78061, or 78035 Tap. Refer to “Setting the Tap Emulation” on page 17.
2. Set the Tap baud rate to match the baud rate of the serial printer. Refer to “Setting the Tap Baud Rate” on page 18.
3. Connect the cable from the serial printer to port P3 on the I/SITE LAN (accessible through cutout at bottom of plastic cover).

## Connecting to the Sub-controller LAN

**Note:** *Operational errors may occur if equipment is inadequately grounded. Refer to “Grounding Requirements” on page 16 during equipment installation.*

The I/SITE LAN sub-controller LAN can accommodate up to 32 MRs, DPUs, ASCs, or a combination of each residing on the sub-controller LAN (see Figure 8). A 5-pin terminal block provides the RS485, shielded twisted-pair cable connections on port TB2.

1. Connect the Com + line to terminal 1.
2. Connect the Com – line to terminal 2.
3. Connect the return Com + line to terminal 4 (closed-loop configuration only).
4. Connect the return Com – line to terminal 5 (closed-loop configuration only).

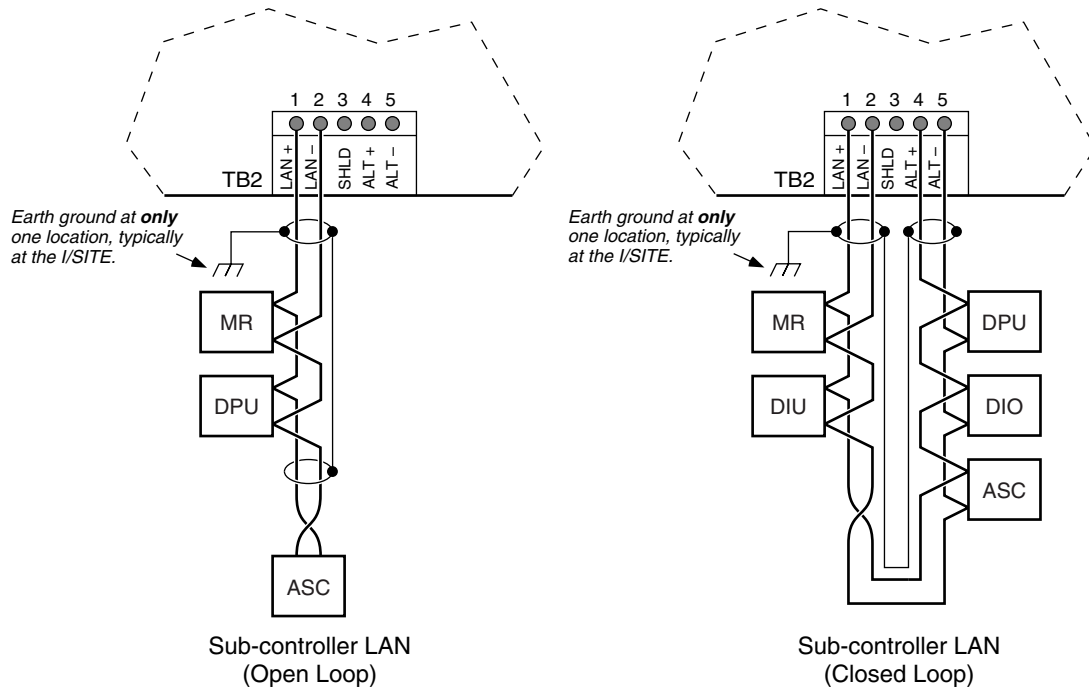


Figure 8. Sub-controller LAN Connection

## Connecting to the Optional Controller LAN

**Note:** Operational errors may occur if equipment is inadequately grounded. Refer to “Grounding Requirements” on page 16 during equipment installation.

The controller LAN address and baud rate should be set after first powering up the unit and prior to connecting the unit to the controller LAN. Refer to “Setting the Controller LAN Address” on page 17 and “Setting the Controller LAN Baud Rate” on page 18 for more information.

The controller LAN port is located along the lower left side of the optional expansion board. It provides synchronous data link control (SDLC) communication and supports the primary RS485 controller LAN connection.

A five-pin terminal block (TB1) provides connection of the RS485 shielded twisted pair cable (see Figure 9).

1. Connect the Com + line to terminal 1.
2. Connect the Com – line to terminal 2.
3. Terminals 3, 4, and 5 are not used.

**Caution:** Ensure that you connect terminal 1 to 1, and terminal 2 to 2 on all controllers. The LAN cable shield must be grounded at **only** one location along the controller LAN (typically at the I/SITE LAN).

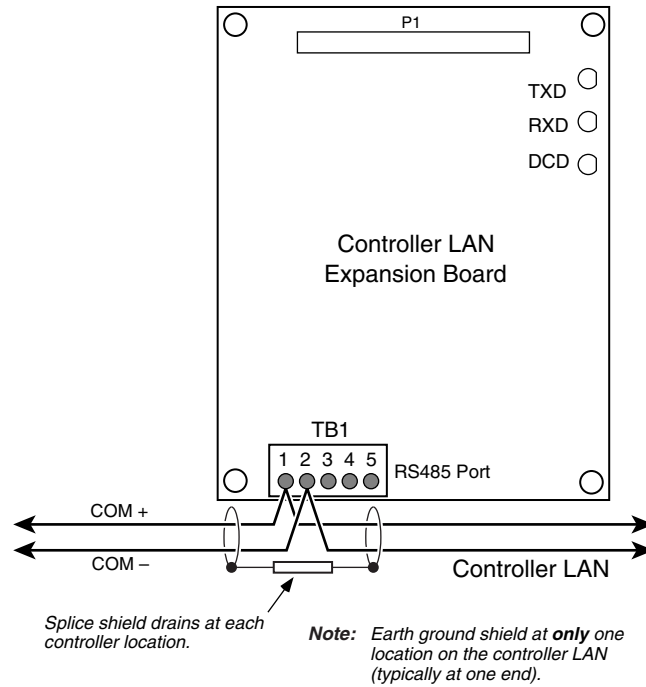


Figure 9. Controller LAN Connections

### Connecting the Power Supply

**Note:** Operational errors may occur if equipment is inadequately grounded. Refer to “Grounding Requirements” on page 16 during equipment installation.

Electrical power connections for the input power are located along the lower-left corner of the controller at TB1 (see Figure 10).

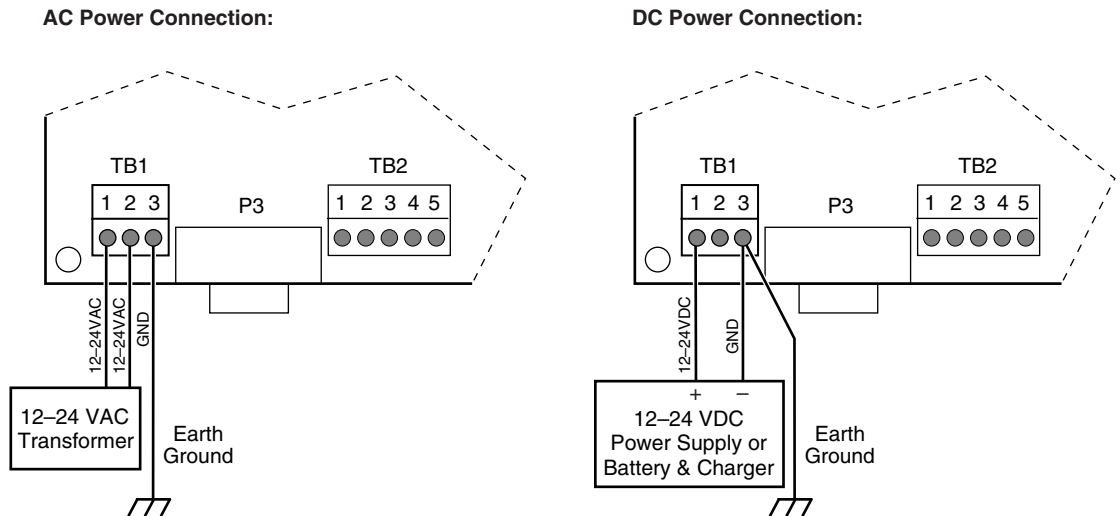


Figure 10. I/SITE LAN Power Connection

## Connecting 12–24 VAC Power

**Caution:** Before you apply power to the I/SITE LAN, ensure that the 12–24 VAC secondary leads are connected only to TB1. Connection to any other terminal block will damage the I/SITE LAN. The transformer secondary leads (12–24 VAC) should **not** be connected to ground.

1. Connect the 12–24 VAC input leads from a separate, isolated 12–24 VAC/40 VA transformer, to terminals 1 and 2 of terminal block TB1.
2. Connect terminal 3 of TB1 to a good earth ground using 14-AWG (2.081 mm<sup>2</sup>) wire.

## Connecting 12–24 VDC Power

**Caution:** Before you apply power to the I/SITE LAN, ensure that the 12–24 VDC leads are connected only to TB1. Connection to any other terminal block will damage the I/SITE LAN.

1. Connect the positive (+) 12–24 VDC input lead from a separate external power supply, or battery and charger, to terminal 1 of terminal block TB1.
2. Connect the negative (–) input lead from the power source to terminal 3 of terminal block TB1.
3. Connect terminal 3 of TB1 to a good earth ground using 14-AWG wire (2.081 mm<sup>2</sup> wire).

## Grounding Requirements

### Earth Ground

To ensure proper operation of the controller, it is imperative that the unit be correctly grounded. The controller chassis will not provide ground for the input power circuit and interconnected sensors/devices. Terminal block TB3 must be connected to an Earth ground.

### LAN Ground

**Note:** This procedure applies to all LAN and subLAN connections.

- ◆ Ensure that the subLAN cable shield drain wire is **not** connected to the controller subLAN terminal block.
- ◆ Shield drain wire continuity must be maintained as the subLAN cable passes through each controller. Shield drain wires from each controller subLAN cable must be spliced together, insulated, and tied back such that wires do not come in contact with ground or any conductive surface within a controller.
- ◆ Connect the shield drain wire directly to Electrical Service Earth Ground at **only** one end of the cable (e.g., typically at the I/SITE LAN). Refer to Figure 7 on page 12 and Figure 8 on page 14.

# Setup and Operation

This chapter describes the various components of the I/SITE LAN and how to setup the unit for operation. The I/SITE LAN mounts on an indoor wall surface in an area that meets the specifications as outlined in “Specifications” on page 47. If you are connecting the I/SITE LAN to a controller LAN via an optional controller LAN expansion board, the I/SITE LAN’s address and data rate should be set after first powering up the unit and prior to connecting to the controller LAN. For the sub-controller LAN, identify and record sub-controllers that connect to the I/SITE LAN on TB2. Write this information on a copy of the Sub-controller Chart included on page 44 of this Installation Guide.

## I/SITE LAN Setup

Use the following steps to setup the proper DCU address, set Tap emulation, baud rate, and controller LAN baud rate.

### Setting the Controller LAN Address

**Note:** *Changing the DCU’s controller LAN address clears all existing database information.*

1. Using the ViewCon, select “Station address” from the DCU setup screen.
2. Enter the desired address (SS of the LLSSPPBB address format) using the +/- and left/right arrow keys. The address displays as it is entered.
3. Press “Done”. The I/SITE LAN RAM is cleared (including all database information) and the new address is stored.

### Setting the Tap Emulation

**Note:** *Changing the Tap emulation clears all existing database information.*

1. Select “Station type” from the DCU setup screen.
2. Press the +/- keys to cycle through 7801, 78035 or 78061 Tap emulation. Refer to Table 2 for Tap emulation as it appears on the ViewCon.

*Table 2. Tap Emulation Selection*

ViewCon Display	Tap Model
779800	No Tap Emulation
779801	7801
779803	78035 and 7801
779806	78061 and 7801

**Note:** *Selection of 78035 or 78061 also activates the 7801 functions. Selection of any Tap emulation also activates the 7810 printer Tap function.*

3. Press “Done” to accept your choice.

## Setting the Tap Baud Rate

**Note:** The “Tap speed” function is accessed from the second DCU setup screen. Press “PgDn” from the initial DCU setup screen to display the second screen.

1. Select “Tap speed” from the second DCU setup screen to set the Tap baud rate.
2. Press the +/- keys to cycle through the available PC port baud rates.
3. Press “Done” to accept your choice.

## Setting the Controller LAN Baud Rate

**Note:** All devices on the LAN must be communicating at the same baud rate. The typical LAN baud rate is 19200. Only use 9600 baud if you experience problems with data throughput.

1. Select “Network speed” from the second DCU setup screen.
2. Press the +/- keys to toggle between 9600 baud and 19.2 Kbaud rates.
3. Press “Done” to accept your choice.

## Modem Switch Settings

### Integrated Dial (7801 Tap Emulation)

You must configure the modems attached at the call initiating end (host PC) and the call receiving end (I/SITE LAN) so that they will communicate with each other. For modems without switch settings, a terminal emulator and software, such as Procomm, or the communication software received with your modem, must be used to issue command strings to the modem for proper initialization.

#### Call Initiating End

Use the following DIP switch settings or software controlled switch settings to initialize your modem.

A Hayes 1200 baud modem, or compatible, connected to the PC at the call initiating end must have switches 1, 6, 7, 9, and 10 up.

For a Hayes 2400 baud SmartModem, or compatible, issue the following settings from a terminal emulator. Use the steps shown below.

1. AT & F [Enter]
2. AT E0 V0 X1 & C1 & D2 S7=60 [Enter]
3. AT & W0 [Enter]
4. Cycle power on the modem to store the setup commands of the user’s profile to the modem’s NOVRAM.

For a Hayes Optima series SmartModem, or compatible, issue the following settings from a terminal emulator. Use the steps shown below.

1. AT&F [Enter]
2. AT E0 V0 N0 X0 & C1 & D2 & K0 & Q0 S7=60 (and S37=0 only for Optima 9600) [Enter]



3. AT & W0 [Enter]
4. Cycle power on the modem to store the setup commands of the user's profile to the modem's NOVRAM.

The cable required to connect the modem to the COM port of the PC is a TAC Model Number CBL008 (P/N 606105-0008).

### Call Receiving End

Use the following DIP switch settings, or software-controlled switch settings to initialize your modem.

A Hayes 1200 baud modem, or compatible, connected to the I/SITE LAN at the call receiving end must have switches 3, 5, 7, 8, 9 and 10 up.

For a Hayes 2400 baud SmartModem, or compatible, issue the following settings from a terminal emulator. Use the steps shown below.

1. AT & F [Enter]
2. AT E0 Q1 & C1 & D0 S0=1 S7=60 [Enter]
3. AT & W0 [Enter]
4. Cycle power on the modem to store the setup commands of the user's profile to the modem's NOVRAM.

For a Hayes Optima series SmartModem, or compatible, issue the following settings from a terminal emulator. Use the steps shown below.

1. AT & F [Enter]
2. AT E0 N1 Q1 & C1 & D0 & K0 & Q0 S0=1 S7=60 [Enter]
3. AT & W0 [Enter]
4. Cycle power on the modem to store the setup commands of the user's profile to the modem's NOVRAM

The cable required to connect the Hayes-compatible modem to the I/SITE LAN is TAC Model Number CBL074 (P/N 606105-0038).

### Auto-dial/Auto-answer (78061 Tap Emulation)

When using an auto-dial/auto-answer (two-way communication) application with the I/SITE LAN set to emulate a 78061 Tap, issue the following settings to your Hayes-compatible modem from a terminal emulator prior to connecting the modem to the I/SITE LAN.

1. AT &F
2. AT E0 M1 Q0 V0 &C1 &D2 &M1
3. AT S0=1 S7=60
4. AT &W0
5. Cycle power on the modem to store the setup commands of the user's profile to the modem's NOVRAM.

## 78061 Tap Emulation and Beeper Operation

Beeper calls are used to notify a user of a specific condition occurring in the TAC I/NET system. This condition is user-definable using message masking and priorities. The beeper is only a notification tool. It contains no originating code or phone number. The beeper either issues an audible tone or it vibrates. To specify a beeper call, select Beeper in the Type field of the 7806 Configuration editor. If a beeper service is used, enter the beeper service phone number. If a human response is expected, enter an @ symbol at the end of the beeper number. This will allow the 78061 Tap emulation to retry on busy and no answer conditions.

The @ symbol will cause the modem to listen for a 5-second period of silence after the first ring is detected. The length of time that the modem will listen for this period of silence is established by the Timeout field in the editor. If a period of silence is detected, the call will be considered to be completed.

*Note: Some experimentation with the timeout period that is set in the Tap editor may be required. This timeout period should be set long enough to cause the modem to “hang on the line” until the 5-second period of silence can be detected.*

Since this beeper function is used internationally to dial out to numbers that must have a human response, it is necessary to accommodate differences in the manner in which beeper systems and humans respond. When using an external modem (78061 Tap emulation) you should initialize your Hayes compatible modem with the X4 command (factory default), which enables your modem to return the busy response code if it is expected that a person will answer (or not answer) the telephone. This will provide a rapid response to a busy error.

*Note: It is imperative that any modem used for beeper interfacing operates as described above.*

*The I/SITE LAN will send a setup string to the modem to place it in the auto-answer mode. This auto-answer function will be set to answer on the first ring.*

## 78061 Tap Emulation and Pager Operation

Select pager operation in the TAC I/NET software by selecting Beeper from the Type field. Pager operation is used to notify a user of a specific condition occurring in the TAC I/NET system. This condition is user-definable using message masking and priorities. The pager is designed to receive a string of characters that are displayed on the recipient's pager. This string could represent a phone number or a recognizable warning code. You may call a pager using the 78061 Tap emulation. The current version of TAC I/NET adds several additional phone number characters for use with dial strings. Table 3 shows the additional characters and their definitions.

*Table 3. Pager Character Definition*

Pager Character	Definition
@	Waits for five seconds, replaces the need for numerous commas.
;	Causes an immediate hang up, and should be used at the end of every digital pager number dialed. (Not for use with a beeper.)
!	Issues a Hook flash, forcing the phone to go on-hook for 0.5 seconds.
W	Wait for a dial tone.

A pager differs from a beeper in that the pager sends a string of characters after a 5-second period of silence. Also, beepers never use the semi-colon in their call string, while digital pagers always require the semi-colon at the end of their call string. It is important that you be familiar with the your pager service and phone system so that you know of any specific characters that may be required to place a successful call. For example, if you were to enter a phone number for SWB MobileComm pagers in a 78061 Tap emulation, using an ITT System 3100 PBX you would use the following format.

**T9W8172731511#@123456;**

The “T” at the beginning of the character string initiates tone dialing, the 9 obtains an outside line. The “W” causes the Tap to wait for the modem to receive a dial tone before dialing the pager service phone number. At the end of the phone number is a # sign that causes this PBX to perform speed dialing, eliminating any unwanted delays. The @ character causes the 78061 Tap emulation to listen for a 5-second period of silence and then send the code that will display on the recipient’s pager. The semi-colon causes the Tap to signal the modem to immediately go on-hook, ending the call.

If your telephone system has no speed dial function, but has a period of silence exceeding five seconds before the connection is made, add additional @ characters or commas to prevent the Tap from prematurely sending the pager code.

If the number being dialed is really a pager system (particularly a digital pager system), the modem should be initialized with an X2 command. This will cause the modem to ignore at least some of the tones presented by the digital pager system (that may be interpreted as busy) when the call is successful.

*Note:* Some experimentation may be required to find the proper combination of characters to make the pager call successful.

## I/SITE LAN Operation

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### Communication Ports

There are three communication ports on the I/SITE LAN board, and an optional controller LAN communication board that can be added as a plug-on board. All connections to the LAN, modems, serial printers, and external PCs are made using these ports. See Figure 2 on page 4 for port locations.

The RS232 serial port (P3) provides access to external PCs, serial printers, and asynchronous modems. The ten-conductor ribbon connector (P4) and direct-wiring terminal block (TB4) are the same communication port and provide connections for an external synchronous or asynchronous modem. The RS485 port (TB2) provides connections for the sub-controller LAN. Refer to “Installation Procedures” on page 9 for instructions on connecting to these communication ports.

### Communication LEDs

The I/SITE LAN provides one bank of LEDs along the right edge of the board (see Figure 11) that show the status of communication in the I/SITE LAN and other information. The I/SITE LAN uses the 10-segment LED indicators at U22.

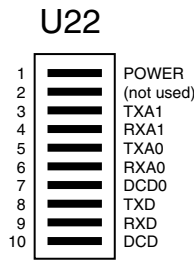


Figure 11. I/SITE LAN LEDs

The functions of the communication LEDs are shown in Table 4.

Table 4. I/SITE LAN Communication LED Functions

10-Segment LED Label	Function
POWER	+5 volts DC power
TXA1	Transmit data to the subLAN port
RXA1	Receive data from the subLAN port
TXA0	Transmit data to the PC port
RXA0	Receive data from the PC port
DCD0	Data carrier detect from the PC port
TXD	Transmit data to the synchronous port
RXD	Receive data from the synchronous port
DCD	Data carrier detect from the synchronous port

### RS232 Port

The asynchronous port (P3) provides an RS232 port for direct connection to a TAC I/NET host PC, external Hayes-compatible modem, or a serial printer. The RS232 port's baud rate is set from the ViewCon. Refer to "Setting the Tap Baud Rate" on page 18.

When connected to a modem, serial printer, or an external PC, a 9-conductor D-Subminiature connector is used. This connector provides the circuit connections typical of the serial COM port on the PC. Use TAC cable number CBL072 (P/N 606105-0036) for DE-9, and CBL073 (P/N 606105-0037) for DB-25 connections to PC COM ports. Use TAC cable number CBL074 (P/N 606105-0038) to connect the I/SITE LAN to an asynchronous modem using a 25-pin connector. Use TAC cable number CBL081 (P/N 606105-0051) to connect the I/SITE to a serial printer.

### Synchronous/Asynchronous Modem Port

A ten-conductor ribbon connector (P4) or a ten-conductor terminal block (TB4) provide a serial communication pathway to a synchronous or asynchronous external modem. Use TAC cable number CBL048 (P/N 606105-0017) to connect the I/SITE LAN to a synchronous modem using the 10-pin ribbon connector at port P4.

## RS485 Sub-controller LAN Port

The RS485 LAN port (TB2) is accessed through a 5-position terminal block located along the bottom edge of the I/SITE LAN (see Figure 12). TB2 provides support for the sub-controller LAN.

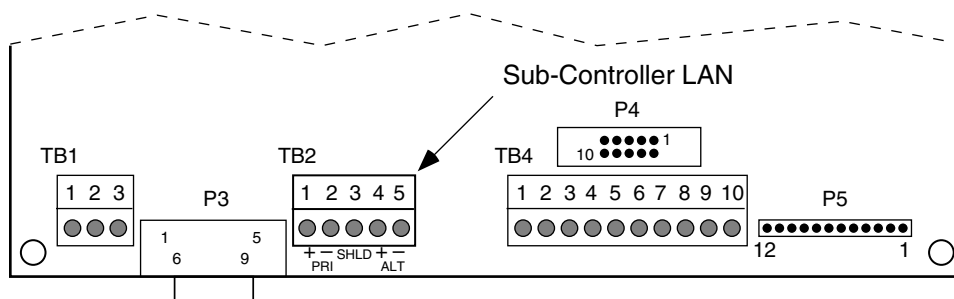


Figure 12. I/SITE LAN Sub-controller LAN Port

The sub-controller LAN channel may have up to 32 sub-controllers. The sub-controller LAN channel has a primary and alternate connection on terminal block TB2 (see Figure 12). The I/SITE LAN uses the primary and alternate terminals to connect a closed-loop circuit allowing signal flow to either side of the sub-controllers.

Field connections for the RS485 sub-controller LAN port are shown in Table 5.

Table 5. RS485 Sub-controller LAN Port Termination

Terminal	Function
1	+ Data (A) Primary
2	- Data (B) Primary
3	Not used
4	+ Data (A) Alternate
5	- Data (B) Alternate

### Protocol

The RS485 sub-controller LAN port uses an asynchronous protocol and implements a host/remote polling network to access the controllers. The sub-controller LAN can accommodate up to 32 MCUs.

### LAN Node Address

Full addressing of a point includes the I/SITE LAN, sub-controller and bit offset information. The format is SSPPBB, where SS is the I/SITE LAN, PP is the sub-controller, and BB is the point bit offset.

The following documents provide specific LAN addressing information for each type of controller supported by the I/SITE LAN:

- ◆ Micro Regulators:
  - ◇ TCON113 and TCON126 — *I/STAT and Micro Regulator Controllers Installation Guide*
  - ◇ TCON130 — *Micro Regulator MR55 Series and I/STAT Installation Guide*

- ◆ Door Processor Units:
  - ◇ TCON115 — *Door Processor Unit 7900 Installation Guide*
  - ◇ TCON116 — *Door Processor Unit 7910A Installation Guide*
  - ◇ TCON117 — *Door Processor Unit 7920 Installation Guide*
  - ◇ TCON124 — *Discrete Input Unit 7930 Installation Guide*
  - ◇ TCON125 — *Discrete Input Monitoring and Output Control Unit 7940 Installation Guide*
- ◆ Application Specific Controllers:
  - ◇ TCON147 — *MR-VAV-AX Installation Guide*
  - ◇ TCON153 — *MR-AHU Installation Guide*
  - ◇ TCON155 — *MR-VAV-X1 Installation Guide*
  - ◇ TCON164 — *MR-VAV-X2 Installation Guide*
  - ◇ TCON161 — *MR-HP Installation Guide*

### Data Rate

The data rate for the RS485 sub-controller LAN port on the I/SITE LAN is 9600 baud.

### Controller LAN Expansion (CLX) Port

The communication expansion port (P2) provides a connection to a controller LAN serial expansion board (CLX). The controller LAN expansion board enables the I/SITE LAN to operate as a controller of a TAC I/NET system and still operate as a stand-alone unit. The connector is in the upper-right corner of the controller (see Figure 13). (Refer to “Expansion Module” on page 25.)

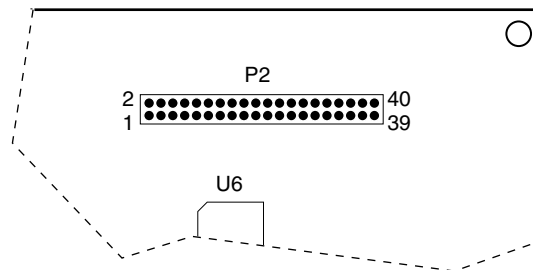


Figure 13. Expansion Module Port

## Tap Emulation

The I/SITE LAN can be set to emulate TAC Model 7801, 78061, 78035, and 7810 Taps. The 7801, 78061, and 78035 Tap emulations are set manually via the ViewCon. The 7810 Tap emulation is set automatically when the unit senses the connection of a serial printer.

When connected to a controller LAN, the I/SITE LAN can perform Tap functions without consuming an additional LAN address or additional hardware. Connection to a controller LAN requires use of the optional controller LAN expansion board.

Each Tap emulation functions as follows:

- ◆ 7801 – The 7801 Tap emulation (ViewCon setting 779801, 779803, or 779806) allows the I/SITE LAN to communicate with either a PC or a modem connected at port P3. For a Hayes-compatible modem connection, this emulation provides dial-in (call receiving) support (also referred to as Integrated Dial). This allows a remote PC to initiate a call to the I/SITE LAN; however, the I/SITE LAN will not call out to a remote PC. Once the I/SITE LAN is connected to a PC, either directly or through a modem, two-way communication is provided.
- ◆ 78061 – When connected to an auto-dial/auto-answer (AD/AA) Hayes-compatible modem at port P4 or terminal block TB4, the I/SITE LAN performs the functions of a TAC 78061 Tap (ViewCon setting 779806). This emulation provides dial-in and dial-out support for two-way communication with remote PCs. Refer to “Auto-dial/Auto-answer (AD/AA)” on page 11 for a description of this emulated Tap and the type of modems supported.  
Unlike the 7801 Tap emulation, the 78061 Tap emulation allows the I/SITE to initiate calls to remote PCs. Up to eight telephone numbers of at least 25 digits can be stored in memory. (Refer to “Specifications” on page 47.)
- ◆ 78035 – When connected to a direct-connect modem at port P4 or terminal block TB4, the I/SITE LAN performs the functions of a TAC 78035 Tap (ViewCon setting 779803). This emulation provides two-way communication over dedicated data lines.
- ◆ 7810 – When an external serial printer is connected at port P3, the I/SITE LAN performs the functions of a TAC 7810 Printer Tap. This is the only Tap emulation that is set automatically by the I/SITE LAN, rather than being set manually through the ViewCon. The 7810 Printer Tap emulation initiates when you select either 7801, 78061, or 78035 Tap emulation via the ViewCon and you connect a serial printer to port P3.

## Expansion Module

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If used, the optional CLX (RS485 Serial Expansion) module provides a fourth communication interface using TB1 (RS485) port. This port provides a communication pathway to a TAC I/NET controller LAN. When connected through this port, the I/SITE LAN can communicate with controllers connected on the same LAN (see Figure 14).

The CLX expansion module connects to the I/SITE LAN base unit at P2 (see Figure 13). Field connections for the RS485 LAN port are listed in Table 6.

### Protocol

The RS485 LAN port uses the synchronous data link control (SDLC) protocol and implements a token-passing bus to regulate access to the controller LAN. The controller LAN can accommodate up to 64 nodes.

### LAN Node Address

Select the LAN node address (0–63) of the controller using the ViewCon. Refer to “Setting the Controller LAN Address” on page 17.

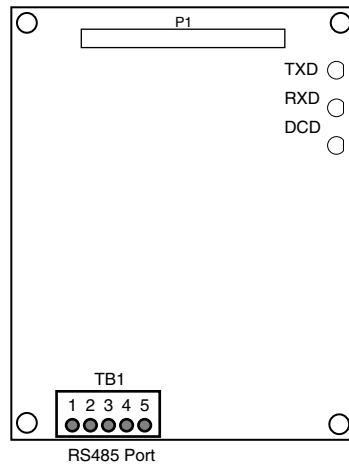


Figure 14. CLX Expansion Module

Table 6. RS485 Port Termination

Terminal	Function
1	+ Data (A)
2	- Data (A)
3	(Not Used)
4	(Not Used)
5	(Not Used)

## Data Rate

The data rate for the RS485 SDLC LAN port on the expansion board is selectable from the ViewCon with the current selection maintained in nonvolatile storage. The supported selections are 9,600 or 19,200 using the on-chip baud generator. The normal rate is 19,200 baud.

## ViewCon

**Note:** When the I/SITE LAN is at boot control, only basic controller setup functions are available through the ViewCon. The 7798.BIN binary file must be downloaded to the controller before the ViewCon panel will provide full functionality. Refer to the Station Restore procedure in any of the following documents for more information:

- ◆ TCON207, TAC I/NET 2000 Operator Guide
- ◆ TCON299, TAC I/NET Seven Operator Guide

The ViewCon is an LCD graphic display, membrane keypad, and CCFL backlight attached to the I/SITE LAN plastic cover (see Figure 15). The keypad connects to the motherboard through a ribbon cable.



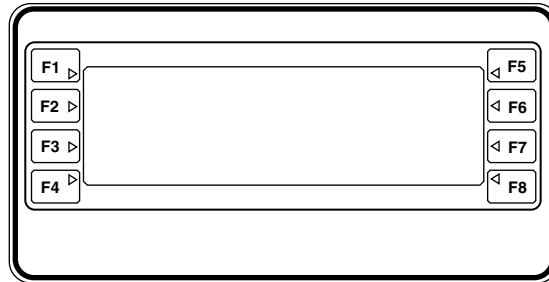


Figure 15. ViewCon Unit

## LCD Display

The LCD display is organized into four rows, each row containing 40 columns. The columns are arranged as follows:

- ◆ Column 1 is used for the “>” symbol, right and left arrows, or a blank. The “>” symbol indicates a line is selectable. A (blank) means the line is not selectable. The right and left arrow designators display when an edit screen is initiated. These function are performed by the left function keys.
- ◆ Column 2 is blank and used for a space.
- ◆ Columns 3 through 35 display the application information.
- ◆ Column 36 is blank and used for a space.
- ◆ Column 37 through 40 display the right function key legends that include, “Done”, “QUIT”, “ESC”, “+”, “-”, “PgUp” and “PgDn”.

Pressing any key on the keypad turns the ViewCon backlight on. The contrast control of the LCD is adjustable through the F7 and F8 function keys while the banner screen is displayed. The unit uses an audible half-second tone to announce an input error.

## Keypad

The keys on the keypad are arranged in two banks of four keys. Each bank of keys runs vertically down the left and right sides of the LCD. The keys are numbered F1 through F8 (see Figure 15) and correspond to symbols and words displayed on the screen. In the following *Screens and Functions* section, actions are called out such as “press” or “select”. These actions mean to press the function key beside the symbol or word (>, +/-, Done, etc.) displayed on the screen.

## ViewCon Connectors

There are three ViewCon connectors located on the I/SITE LAN board. The graphics LCD connector (P1) provides for a 20-pin connection to the LCD display. The keyboard interface (P5) provides for a 12-pin ribbon connection for the eight keys on the keypad mounted to the plastic cover. The backlight connector (P6) provides for a 4-pin connection to the CCFL backlight (see Figure 16).

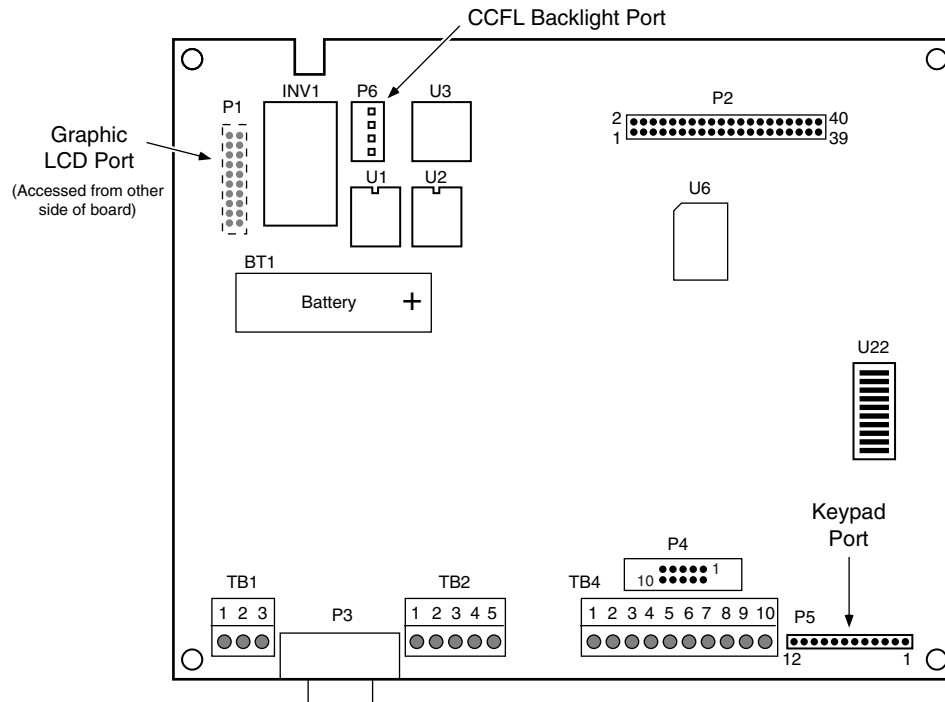


Figure 16. ViewCon Connectors

## Screens and Functions

**Note:** When the I/SITE LAN is at boot control, only basic controller setup functions are available through the ViewCon. The 7798.BIN binary file must be downloaded to the controller before the ViewCon panel will provide full functionality. Refer to the Station Restore procedure in any of the following documents for more information:

- ◆ TCON207, TAC I/NET 2000 Operator Guide
- ◆ TCON299, TAC I/NET Seven Operator Guide

Screens and functions provide the data entry and operating environment for the ViewCon. Figure 17 shows a diagram of the ViewCon screen displays.

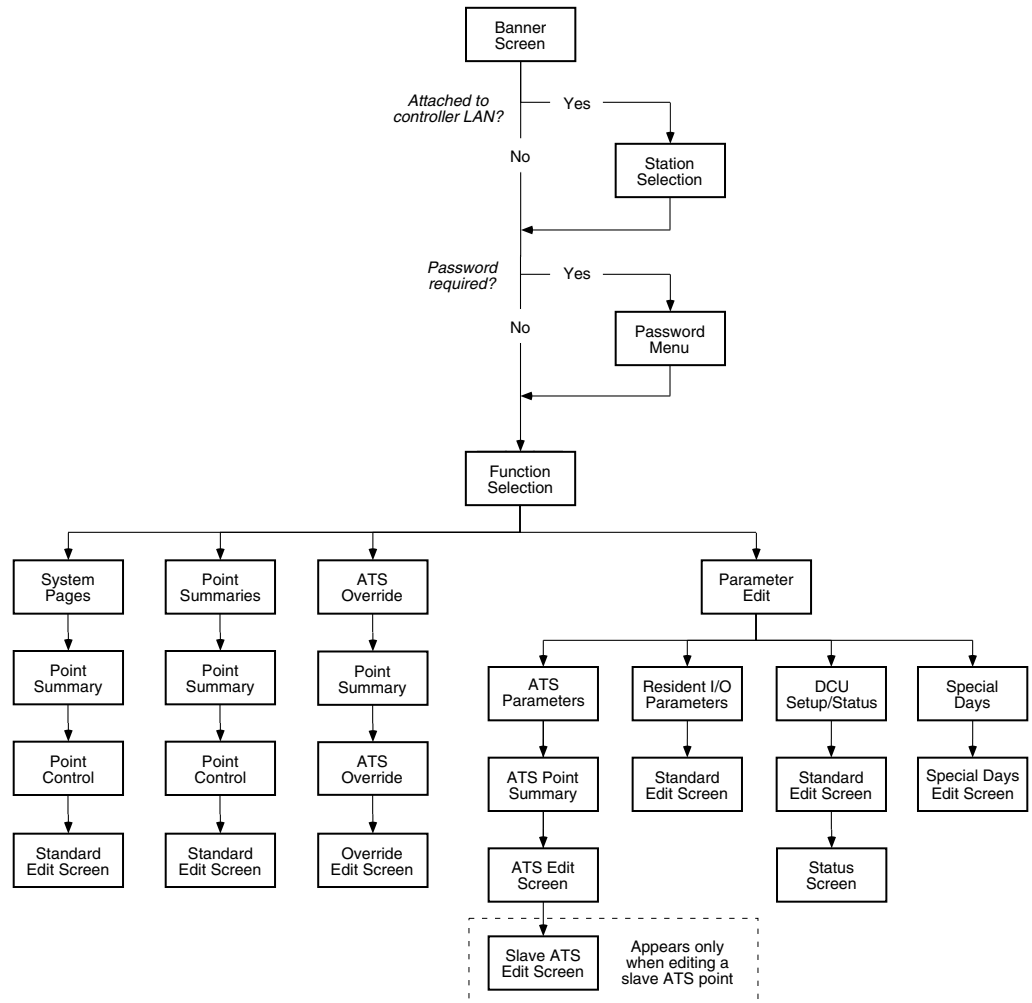


Figure 17. ViewCon Screens Diagram

## Standard Editing Screen

The standard editing screen provides the functions required for changing the values of editable data fields (see Figure 18). The function keys operate as follows:

- ◆ F3 = Right arrow; moves cursor one space to the right.
- ◆ F4 = Left arrow; moves cursor one space to the left.
- ◆ F5 = Done; accepts entries and returns to previous screen.
- ◆ F6 = ESC/Quit; discards entries and returns to previous screen.
- ◆ F7 = +; increases value by one.
- ◆ F8 = -; decreases value by one.

This screen displays each time a selection is made for editing. Refer to this screen for standard editing functions.

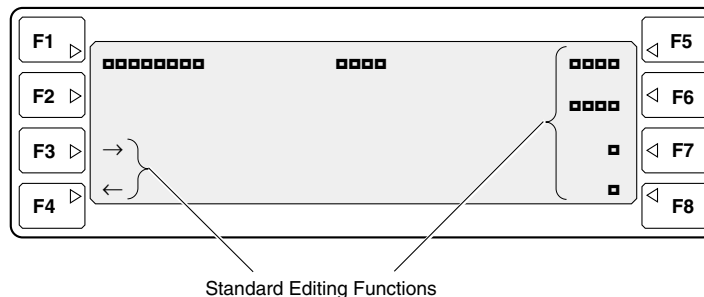


Figure 18. Standard Editing Screen

## Banner Screen

The Banner screen (see Figure 19) is displayed when there is no operator signed on. It constantly presents the time and date. The following functions are controlled through this screen:

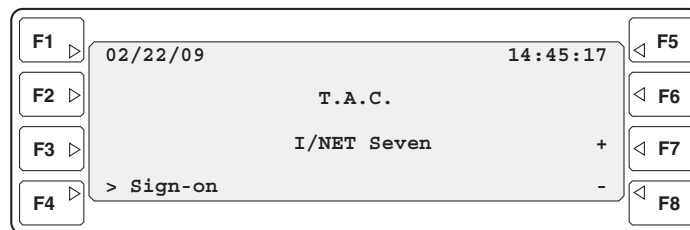


Figure 19. Banner Screen

- ◆ LCD contrast — press the +/- keys to adjust the LCD contrast.

*Note:* The symbol ">" is used to select an adjacent line item.

- ◆ Sign-on or DCU setup — press > to select. "Sign-on" is displayed on the banner screen if software has been downloaded to the I/SITE LAN. If the I/SITE LAN is at boot control, "DCU setup" is displayed on the banner screen.

## Station Selection

The Station Selection screen (see Figure 20) appears when you select **Sign-on** from the Banner screen. The Station Selection screen displays the station summary of all connected DCUs (if the I/SITE LAN is part of a controller LAN system, if not this screen is bypassed). To select a DCU, use the following:

- ◆ Press > to select the DCU station points you want to display or edit.
- ◆ Press **ESC** to end the session and return to the Banner screen.

## Password Menu

If a password has been assigned for the I/SITE LAN or any attached stations, you must enter the password on the Password Menu screen to proceed. If no passwords are assigned, this screen is bypassed. After you have selected **Sign-on** from the Banner screen and selected a station from the Station Selection screen (if connected to a LAN), the Password Menu screen displays (see Figure 21). The password consists of four numeric digits.

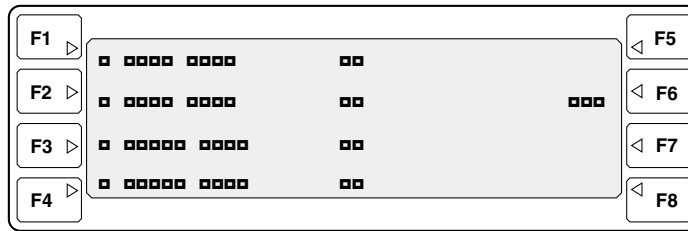


Figure 20. Sample Station Selection Screen

If you selected a password-protected external DCU from the Station Selection screen, that DCU’s password must also be a four-digit numeric password. To enter the password, use the following procedure:

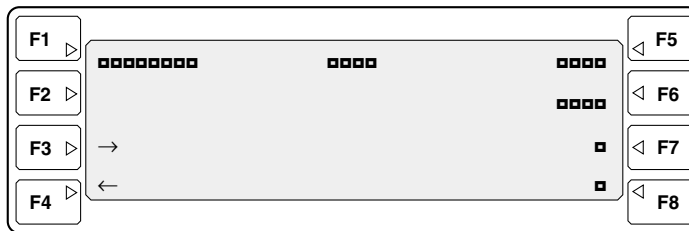


Figure 21. Password Menu Screen

1. Press the left/right arrow keys to highlight the digit you want to change.
2. Press the +/- keys to change the value, from 0–9, of the selected digit.
3. Repeat steps one and two until the correct four-digit password displays.
4. After entering the password, press **Done** to proceed to the next screen. Pressing **Quit** cancels sign-on and returns you to the Banner screen.

### Function Selection

The Function Selection screen (see Figure 22) displays a menu of four entries:

- ◆ System pages
- ◆ Point summaries
- ◆ ATS override
- ◆ Parameter edit

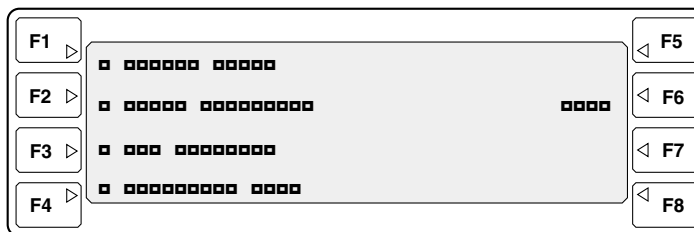


Figure 22. Function Selection Screen

You may select any of the above functions by pressing > beside the desired selection. If an external DCU is selected from the station selection screen, only the System pages and Point summaries entries display.

Press **Quit** to sign off and cancel the session. Quit will return you to the Banner screen.

**System Pages**

The System Pages screen (see Figure 23) displays when you select **System pages** from the Function Selection screen. This produces a menu of pages with customized titles up to 16 characters long for selection. Selecting a page produces a summary of the points that are assigned to the page (refer to “Point Summary” on page 33). Press **ESC** to return to the Function Selection screen.

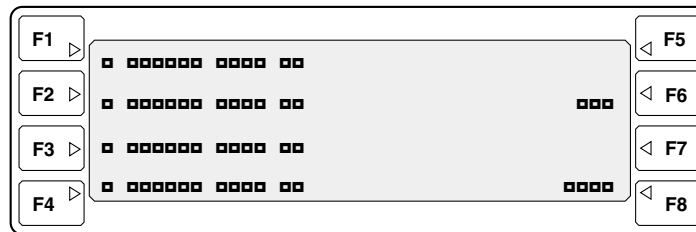


Figure 23. System Pages Screen

**Point Summaries**

When you select **Point summaries**, the Point Summaries screen displays (see Figure 24). This menu offers the following options:

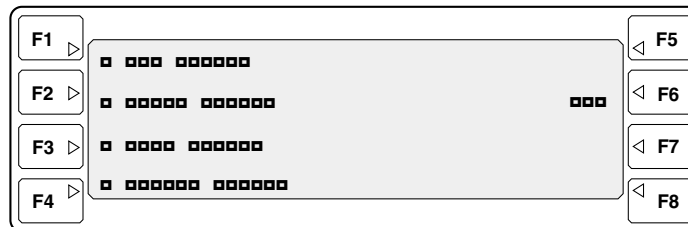


Figure 24. Point Summaries Screen

- ◆ All points – displays all points that are defined in the Resident I/O points database.
- ◆ Alarm points – displays all points that are currently in alarm.
- ◆ Test points – displays all points that are currently in the Test mode.
- ◆ Manual points – displays all points that are currently in the Manual Mode.

Press “ESC” to return to the Function Selection screen.

**ATS override**

The Automatic Time Scheduling (ATS) override screen displays when you select ATS override from the Function Selection screen (see Figure 22). The selection produces a point summary of all DO, DC points similar in format to that shown in Figure 26. Selecting a point from the summary displays the Schedule Override menu (see Figure 28). Press “ESC” to return to the Function Selection screen.

### Parameter edit

When you select Parameter edit, the parameter selection menu screen displays (see Figure 25). This menu offers the following options:

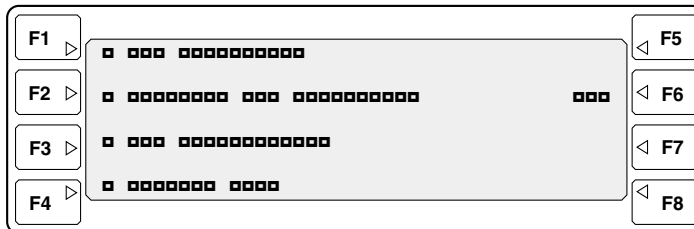


Figure 25. Parameter Selection Screen

- ◆ ATS parameters – displays the DO, DC points with ATS extensions similar in format to the points displayed in the Point summary screen. After selecting a point the Master/Independent ATS edit screen (see Figure 29 on page 36) displays.
- ◆ Resident I/O parameters – displays the Resident I/O parameters menu (see Figure 31 on page 39).
- ◆ DCU setup/status – displays the DCU setup and status menus (see Figure 32 on page 39).
- ◆ Special days – displays the special days menu (see Figure 33 on page 42).
- ◆ “ESC” – return to the Function Selection screen.

### Point Summary

Point summary screens are accessed through the System pages, Point summaries (All Points), ATS override, and Parameter edit (ATS parameters or Resident I/O) screens. The Point Summary screen displays a list of points from the previously selected station in ascending point address order (see Figure 26). Each row contains the following fields:

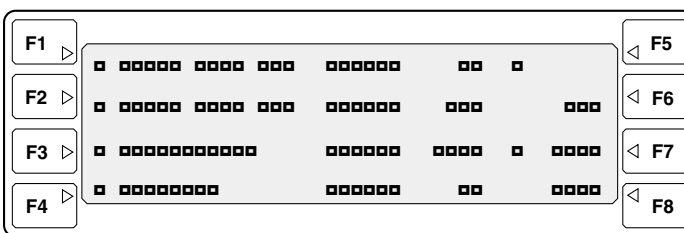


Figure 26. Sample Point Summary Screen

- ◆ “>” – select the entry and display the Point control menu.
- ◆ Point name – an alphanumeric name not more than 16 characters in length, as defined in the resident I/O points database.
- ◆ Point address – a four-digit address (PPBB), followed by a two-character point type.
- ◆ State/value – for database points, the state description or engineering unit value displays. For points with an unacknowledged alarm this field flashes.

- ◆ Mode – indicates whether the point is in a questionable state (?), Manual (M), Test (T), Alarm (A), or Normal (blank).
- ◆ “ESC” – return to the previous screen (i.e., go back one level).

### Point Control

Selecting a point from the System pages screen, or any of the summaries, except for ATS override, displays the Point control menu (see Figure 27). This menu displays a variable number of fields, depending on the type of point selected.

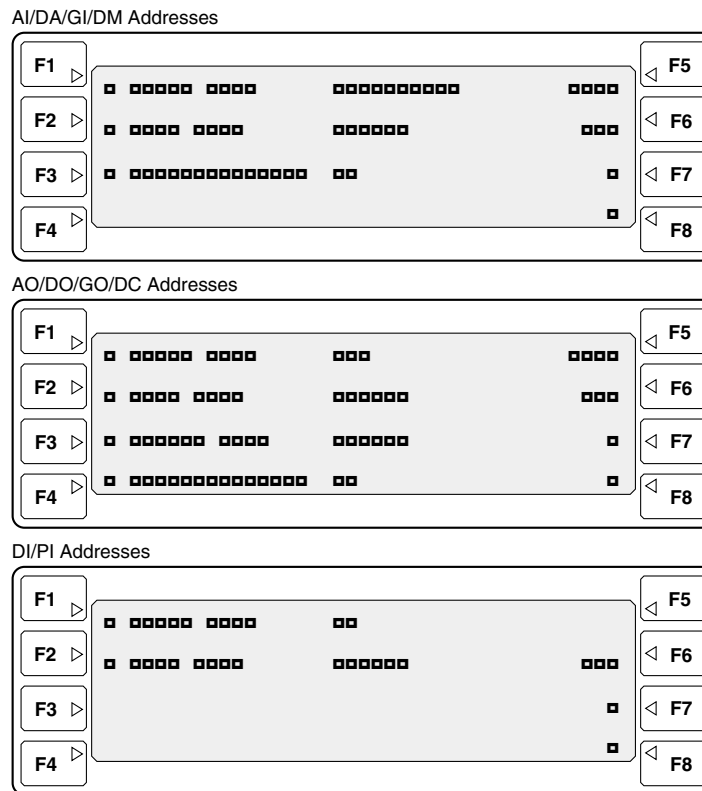


Figure 27. Point Control Screen Variations

The following fields display in some combination:

#### Current State

The current state is a numeric value from 0 to 7 for discrete inputs or is toggled on/off for discrete outputs as follows:

1. Select the first entry on the menu – the standard editing screen (see Figure 18 on page 30) is displayed.
2. The current state for discrete inputs is replaced by a highlighted single-digit number (0–7). Use the +/- keys to select the desired number, then press **Done** to store the change.





The override edit screen displays Point name, Start time, and Stop time parameters. The Start time and Stop time parameters consist of two separate fields displayed in a 24-hour clock format (HH hours and MM minutes). The standard editing screen displays as a part of the override edit screen. The time can be changed by the following steps:

1. Select **Start time** or **Stop time**.

*Note:* The Stop time is the time the override releases, and the current schedule is resumed.

2. Select either hours (HH) or minutes (MM) using the left or right arrow keys.
3. Press the +/- keys to select the time desired, up to 23:59, then press **Done** to store the entry.
4. Repeat steps 1 through 3 as necessary.
5. Press **Done** to save the override time interval and exit, or press **ESC** to exit without saving.

*Note:* If a start time is not specified, the override begins when you exit the ATS override screen by pressing "Done".

Once the ATS override begins, it takes priority over any current ATS schedule. The following are examples of ATS overrides:

- ◆ If the ATS point is ON, but due to turn OFF prior to the desired time, the override forces the point to remain ON until the entered Stop time.
- ◆ If the ATS point is OFF, the override forces the point to turn ON and remain ON until the entered Stop time.
- ◆ If the ATS point is scheduled to cycle OFF/ON/OFF or ON/OFF/ON over a period of time, the override forces the point ON over any cycles until the entered Stop time.

In all cases the current ATS schedule resumes after the override Stop time has been reached. The ATS override resets to 00:00 for both Start and Stop times.

### ATS Edit Menu

Selecting an ATS point from the Point Summary screen activates the ATS edit screen (see Figure 29).

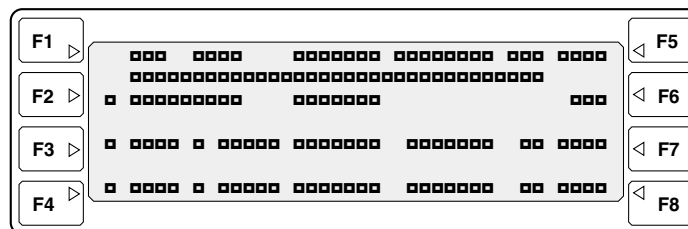


Figure 29. ATS Edit Screen

Eighteen lines are available to modify a schedule; however, only one line can be edited at a time. The top line, field description, displays at all times while in the ATS edit screen. Once you select a line, the first character of the first field that can be edited is highlighted. Each row contains the following fields:

“>”

Use > to select the entry and display the standard edit menu.

#### Cmd

The command **TEMPORARY** on the first editable row can not be edited. On the following rows, use the +/- keys to cycle through None/Strt/Ostr/Stop/Osto/Cycl/Ocyc.

#### T/U/D

Use the +/- keys to select T – set time, U – sunup, or D–sundn.

#### Time (HH:MM)

1. Select either hours (HH) or minutes (MM) using the left or right arrow keys.
2. Press the +/- keys to cycle up/down for each hours (HH) and minutes (MM) and set the time in a 24:00 hour clock format (18:00 = 6:00 p.m.).

#### SMTWTFS

Days of the week, starting with Sunday and ending on Saturday

1. Press the left/right arrow keys to highlight a day of the week.
2. On the Temporary schedule row, assign temporary schedules to the selected day of the week. Press the +/- keys to cycle between -/1/2/B (“-” = none, “1” = assign temporary schedule 1, “2” = assign temporary schedule 2, “B” = assign both temporary schedules).

On all rows except the temporary schedule row, assign the row information to the selected day of the week. Press the +/- keys to toggle between -/Y (“-” = row information does not apply to the selected day, “Y” = yes, use row information on the selected day).

#### S1234567

Special day schedule assignments.

1. Press the left/right arrow keys to highlight the desired special day schedule.
2. Press the +/- keys to toggle between -/Y to assign the row information to the selected special day schedule (“-” = not assigned to the special day schedule, “Y” = yes, assign row information to the selected special day schedule).

#### T12

Temporary schedule assignments.

1. Press the left/right arrow keys to highlight the desired temporary schedule.
2. Press the +/- keys to toggle between -/Y to assign the row information to the selected temporary schedule (“-” = not assigned to the temporary schedule, “Y” = yes, assign row information to the selected temporary schedule).

After completion of an edit to a line, complete the following:

1. Press **Done** to complete the edit for the line selected. This action stores the changes made. The **PgUp/PgDn** functions redisplay and you are now out of the edit mode.
2. Select another line to edit. After completion of the edit, repeat step one.
3. Once you have finished editing all desired lines, press **Done** to save all edits and exit or press **ESC** to exit without saving, thus retaining the previous settings.

The Point summary screen redisplay after step three.

### Slave ATS Edit Menu

Slave points are edited from the Slave ATS edit screen (see Figure 30). Access this screen

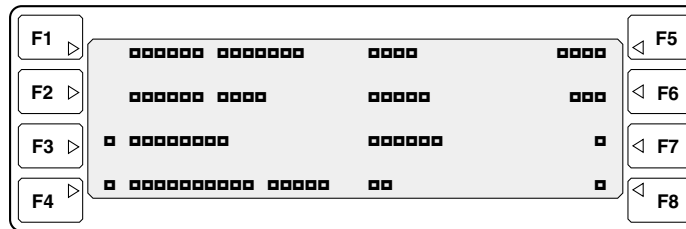


Figure 30. Sample Slave ATS Edit Screen

by first selecting an ATS point from the point summary, then selecting a schedule line from the ATS edit screen. The slave ATS screen displays the following fields:

- ◆ The Master Command and Master Time are for your information, they can not be edited.
- ◆ “>” — press to select the entry to be edited.
- ◆ Reaction — use the **+/-** keys to cycle through Mirror/Optimize/Ignore, to select the slave points reaction to the Master point action, then press **Done** to store change, or **ESC** to reject the change.
- ◆ Adjustment (Min) — use the **+/-** keys to toggle up or down to select the number of minutes (-128 to +127) the slave point action deviates from the Master point action, then press **Done** to store the change, or **ESC** to reject the change.

When editing is complete, press **Done** to return to the ATS edit screen and press **Done** again to save changes and exit.

### Resident I/O – Edit Menu

The Resident I/O – edit screen (see Figure 31) is accessed through the Parameter edit screen. You can edit only the High and Low alarm limits for analog input points.

- ◆ Select the point you want to edit from the point summary screen that displays after selecting Resident I/O.
- ◆ “>” — select the line to be edited (High or Low limit alarm), the standard edit menu displays (see Figure 18).
- ◆ Press the left/right arrow keys to highlight the character to be changed.
- ◆ Press the **+/-** keys to cycle up or down to the desired value (0–9), then press **Done** to store the change.

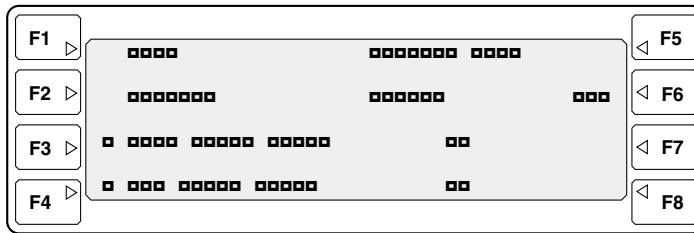


Figure 31. Sample Resident I/O – Edit Screen

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.

### DCU Setup edit menu

The DCU Setup edit menu (see Figure 32) is accessed through the Parameter edit screen. If the I/SITE LAN is at boot control, the DCU Setup edit menu is accessed directly from the banner screen.

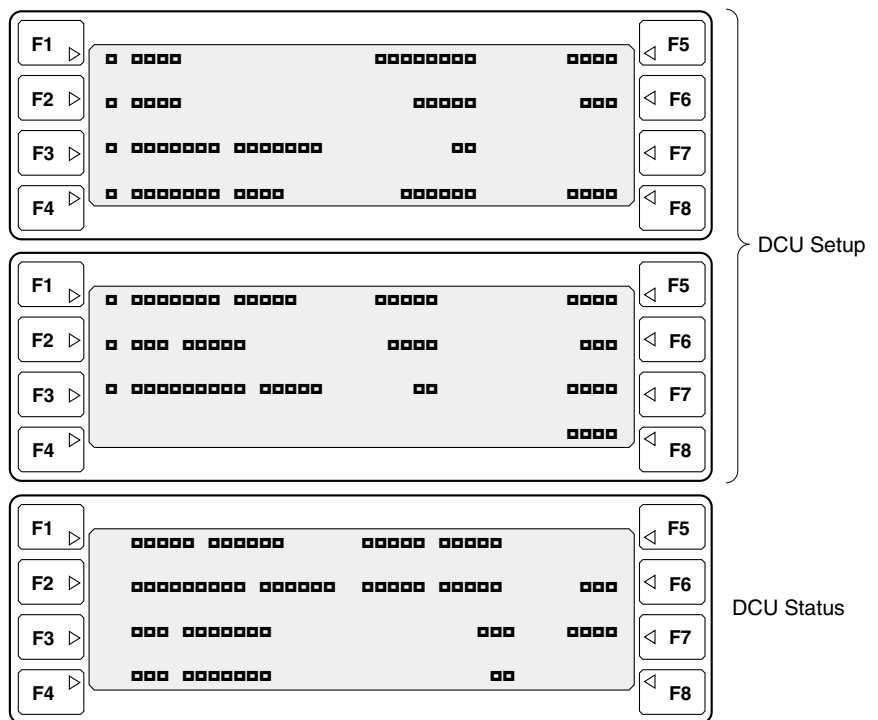


Figure 32. DCU Setup/Status Screens

The first two screens display the DCU setup edit menu. The third screen displays DCU status (refer to “DCU Status” on page 41). The first DCU setup edit screen displays only the first four rows. Using **PgUp** or **PgDn** displays the previous/remaining rows. Press **>** to select an entry for editing. When selecting **Date**, **Time**, or **Station address**, the standard edit menu displays.

**Note:** Pressing “Done” from the DCU Setup/Status screens returns you to the Banner screen.

The following fields are separated by rows:

**Date (MM/DD/YY)**

1. Press the left or right arrow keys to highlight each parameter (MM, DD, or YY).
2. Press the +/- keys to cycle up or down, then press **Done** to store the change.

**Time (HH:MM)**

1. Select either hours (HH) or minutes (MM) using the left or right arrow keys.
2. Press the +/- keys to cycle up or down for each hour (HH) and minute (MM), set the time in a 24:00 hour clock format (18:00 = 6:00 p.m.), then press **Done** to store the change.

**Station address**

Identifies the station address of the I/SITE LAN selected on the Station Selection screen. Station address can be from 0 to 63.

*Note:* Changing the station address of the DCU will clear the station's existing database.

1. Press the left/right arrow keys to highlight the character to be changed.
2. Press the +/- keys to toggle up or down, then press **Done** to store the change.

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.

**Station type**

Identifies the station type of the I/SITE LAN selected on the Station Selection screen. Station type can be 779800, 779801, 779803, or 779806.

*Note:* When you change the DCU station type identification, existing database information is cleared and the controller reverts to boot control.

Use the +/- keys to toggle 779800, 779801, 779803, or 779806.

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.

**Network speed**

Identifies the controller LAN network speed of the I/SITE LAN selected on the Station Selection screen. Network speed can be 19,200 or 9,600.

*Note:* All devices on the LAN must be communicating at the same baud rate. The typical LAN baud rate is 19200. Use 9600 baud only if you experience problems with data throughput.

Use the +/- keys to toggle between 19200 and 9600.

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.

**Tap speed (PC/Printer port only)**

Identifies the DE-9 COM port (P3) speed of the I/SITE LAN selected on the Station Selection screen. Tap speed can be 9600, 4800, 2400, 1200, 600, or 300.

**Note:** *The default Tap speed is 9600 baud. This baud rate is typical for most PC/printer connections. However, if a modem is connected to this port, use the highest baud rate supported by the modem.*

Use the +/- keys to cycle between 9600, 4800, 2400, 1200, 600, or 300.

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.

**Backlight Timer**

Identifies the current setting for the backlight timeout duration in minutes. This parameter determines the duration of keypad inactivity that will cause the backlight to turn off. The default duration is set to 30 minutes from the factory. A setting of 0 disables the timer, allowing the backlight to remain on at all times. The backlight timer setting can be from 0 to 255.

**Note:** *It is recommended that the zero setting only be used for demo applications, as continuous illumination will reduce the operational life of the display backlight.*

1. Press the left/right arrow keys to highlight the digit to be changed.
2. Press the +/- keys to cycle the value up or down, then press **Done** to store the change.

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.

**DCU Status**

This is the third screen displayed when DCU setup/status is selected from the Parameter edit screen (see Figure 32). This screen is for information only and can not be edited.

## Special Days

The Special Days screen (see Figure 33) is accessed through the Parameter edit screen.

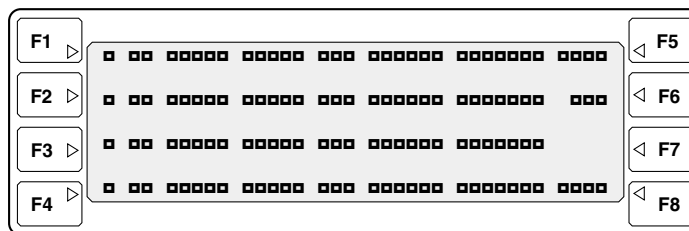


Figure 33. Special Days Screen

This screen is used to define dates and durations for up to seven special day schedules. Thirty-two lines are available. The screen only displays four rows at a time. Using **PgUp** or **PgDn** displays the previous or next four rows, respectively. Press **>** to select an entry for editing. Once you select a line, the first character of the first field that can be edited is highlighted. Each row contains the following fields:

### Date (MM/DD)

Defines the starting date of the special day schedule.

1. Press the left/right arrow keys to highlight a parameter (MM, or DD).
2. Press the **+/-** keys to toggle up or down.

### Days

Defines the number of days (duration) of the special day schedule.

1. Press the left/right arrow keys to highlight the desired digit.
2. Press the **+/-** keys to cycle up or down.

### S1-S7

Special day schedule assignment.

1. Press the left/right arrow keys to highlight the desired character.
2. Press the **+/-** keys to toggle between **-/Y** ("**-**" = none, "**Y**" = yes, assign date and duration to the selected special day schedule).

When editing is complete, press **Done** to save the changes and exit or **ESC** to exit without saving, thus retaining the previous settings.



# I/SITE LAN Troubleshooting and Point Addresses

## Troubleshooting

Symptom	Possible Cause(s)
No LED indicators are flashing on I/SITE LAN (unit is dead)	Power transformer not properly connected to AC power.
	AC power input connector not seated.
	On-board power supply damaged.
	AC power transformer damaged.
LAN reconfigures continuously	I/SITE LAN has same station address as another device on the LAN.
	Network LAN speed set incorrectly.
	Connections not correct at the LAN port. Look for wires touching each other.
	Improper device grounding. Refer to "Grounding Requirements" on page 16.
	Short has been created in communication cable. Use ohmmeter to determine if short exists.
	Single LAN segment has exceeded 5,000 feet (1,500 m) distance limitation. Install a TAC Model 7808 Repeater.
	Single LAN has more than 32 TAC LAN devices on it. Install a TAC Model 7808 Repeater.
	The main trunk of the controller LAN has exceeded the 25,000 feet (7,600 m) limitation. Use two controller LANs.
There are more than four Model 7808 Repeaters between any two TAC LAN devices.	
ViewCon does not operate	7798.BIN binary file not downloaded to controller.
	Keyboard interface cable disconnected at P5.
ViewCon backlight does not come on	CCFL backlight interface cable disconnected at P6.
I/SITE LAN memory lost after power failure	Unit has not been powered up long enough to charge battery.

## Sub-controller Chart

I/SITE LAN

I/SITE LAN Address:  
Location:

TB2		
Sub-Controller Address	Type	Location
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

## Internal RS232 (P3)

Output Connection	Emulation/Modem	Description
External PC	7801 Tap	
Asynchronous	Hayes-compatible modem	

P2 Characteristics –  
RS485 Expansion Module

Location: \_\_\_\_\_

Station Address: \_\_\_\_\_

Output Connection	Type	Description
Controller LAN	Synchronous	



# Specifications

---

## Dimensions

I/SITE LAN:  
 . . . . . 11.00" L × 10.00" W × 3.25" D  
 . . . . . (27.9 × 25.4 × 8.3 cm)

---

## Operating Environment

Temperature: 50°F to 104°F (10°C to 40°C)  
 Humidity: 10 to 90%, non-condensing  
*(UL 294 Listed system tested to 85% only)*

### I/SITE LAN Input power:

AC power: 12–24 VAC ±10%,  
 50/60 Hz (40 VA max)

– OR –

DC power: 12–24 VDC

**Note:** *UL 294 Listed units powered by approved 24 VAC, 60 Hz transformer only.*

---

## I/SITE LAN Telephone Numbers

The I/SITE LAN can store the following telephone number information:

- ◆ Maximum of 8 groups
- ◆ Maximum of 8 telephone numbers
- ◆ Maximum of 31 characters per telephone number

Due to memory limitations, the maximum values cannot all be achieved simultaneously.

---

## I/SITE LAN Controller LAN Port

Description: SDLC protocol using a token passing bus.  
 Interface: RS485  
 Baud Rate: 19.2 Kbaud typical, 9600 baud alternate.

---

## Sub-controller LAN Port

Description: Asynchronous protocol using a polling method.  
 Interface: RS485 primary and alternate  
 Baud Rate: 9600 Baud

---

## Cables

LAN: 22 AWG (0.324 mm<sup>2</sup>) shielded, twisted pair, solid (Belden 9184 or 9855) 5,000 feet (1,500 m) per segment  
*or*  
 24 AWG (0.206 mm<sup>2</sup>) shielded, twisted pair, stranded (Belden 9841) 4,000 feet (1,210 m) per segment.

---

## Memory

EPROM: 32 KBytes  
 NOVRAM: 512 Bytes  
 Static RAM: 512/1024 KBytes in 7798B0/7798B1

Battery Backup: Onboard NiCad, rechargeable. Maintains static RAM for 7 days.

**Note:** *The backup battery must be fully charged in order to provide the full span of backup power. Due to normal discharge during product storage and shipment, the battery may not be fully charged immediately following installation and power-up. You must allow the controller to operate continuously for a minimum of seven days (168 hours) before depending on battery backup.*



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