



# 7798

## I/SITE™ LAN Integrated Site Controller

TAC's 7798 I/SITE™ LAN controller provides local operator interface and automatic control functions for a small building operating standalone or as part of a chain of small buildings connected via voice grade telephone lines to a "Service Center." The 7798 I/SITE LAN integrates both environmental and access control applications where points are wired to a distributed sub-network of application specific and general purpose controllers.

### 7798 I/SITE LAN Features

- ViewCon™ keypad display
  - Built-in operator interface
  - Custom pages & standard summaries
  - Password protected
- Sub-LAN port for connection of up to 32 MicroRegulators™ and/or Door Processor controllers in any combination
  - Open or closed loop sub-LAN
  - Communications through both primary and alternate paths
- Local Port for PC or Printer
- Local Port for Auto Dial/Auto Answer modem
- Attractive plastic enclosure suitable for wall mounting in public areas
- Controller LAN option board
  - Global control functions
  - Peer-to-Peer, token passing network
- Trend all connected points
- Modular, Object-Oriented Programming
- Resident programs for:
  - Access Control
  - Environmental Control with DDC
  - Energy Management
  - Historical Data Collection

### DESCRIPTION

The 7798 I/SITE LAN is a standalone unit that uses the MicroRegulator™ (MR) and Door Processing Unit (DPU) controllers to provide building management services targeted at the requirements of managing smaller buildings or buildings in remote locations. The 7798 I/SITE LAN allows the operator or building manager to control the building through a ViewCon, a local host PC connection, a modem to a remote PC or an optional TAC Controller LAN network. When connected to a TAC I/NET™ host PC via modem, direct connection or optional controller LAN network, the I/SITE LAN becomes an interface between the MR and DPU sub-controllers and a larger TAC I/NET Distributed Control System. The I/SITE™ LAN supports up to eight telephone numbers for use with the AA/AD modem function.

The I/SITE LAN provides global functions for the MRs and DPUs. These global functions include: Access Initiated Control, Anti-Passback, Demand Control, Event Initiated Control, Trending, Runtime, Scheduling, Calculations and periodic synchronization of the local clocks in the MRs and DPUs.

### CONTROLLER DESIGN

The 7798 I/SITE LAN is based on a monolithic board design, combining processing, memory and communications functions on a single printed circuit board. This controller board is mounted in an attractive plastic enclosure suitable for wall mounting or mounting in a TAC environmental enclosure. The controller features removable terminals, downloadable firmware, on-board modem drivers, an optional RS-485 LAN port and two RS-232 ports. The inherent reliability of this monolithic design is further enhanced with extensive transient protection and automatic self-test features.

The controller PCB and ViewCon are mounted on the removable cover which securely fastens onto a plastic base. This base is provided with mounting keyholes and a wire-way opening. The cover also has an access port to allow connection of a PC.

## VIEWCON OPERATOR INTERFACE

The ViewCon provides basic operator interface functions with password control including:

- View status or value
- Control to a state or value
- View alarms and acknowledge
- Place points in test or manual override
- Assign or override time schedules
- Change setpoints and set alarm limits
- Obtain all points or custom summaries
- Edit certain local controller parameters - resident I/O, DCU setup, time schedules

The operator interface is user-friendly, using self-prompting menus, "smart" function keys and 16-character user-defined names for points.

## ACCESS CONTROL FUNCTIONS

**Distributed Access Control** downloads all "local" access control parameters from the Host PC to the Door Processing Unit so that it may operate in a standalone basis. This ensures rapid access processing and minimal dependence on a single point of failure. This includes all "Who...goes Where...When" parameters. The 7798 I/SITE LAN not only monitors the DPU, but also backs up the database of the DPU for many parameters. The following functions are resident in both the 7798 I/SITE LAN and the DPU:

- **PERSONNEL SCHEDULES:** 31 time schedules with a seven-day week, seven special days, and two temporary schedules. Each schedule contains seven intervals with user-defined begin and end times. One or more Personnel Schedules are assigned to each door for access control operation.
- **DOOR PARAMETERS:** Allows determination of what reader technology will be used, anti-pass-back operation, elevator operation, door prop alarm timers, door strike activation timers, first key auto-unlock active and what activity and alarms are desired to be forwarded to which Host PCs for printout, display or permanent archiving.
- **DOOR MODE SCHEDULES:** Determines at what time a door will be under access control, locked or unlocked. Each Door Mode Schedule has a seven-day week, special days and temporary schedules.

**Access Initiated Control** causes a user-specified point to change state based on access control related events including: Reader Entry, Reader Exit, Elevator Entry and Denials of Entry or Exit for Invalid Schedules, PINs, Anti-Passback, Issue number or Floor Selection. Access Initiated Control Sequences may be assigned to activate only for specific tenants, specific doors, specific groups of people or a designated individual. It can also be used to create a graphic display showing who is in the building by name or to turn on a tenant's HVAC and lighting upon entering a building after hours. When using an I/DISC™ reader as a push-button on a control panel and assigning operators on an I/DISC touch memory device, Access Initiated Control can initiate a pre-defined control sequence which records in the permanent history file who initiated the sequence and when it was initiated.

**The Elevator Control Program** supports elevator cabs with up to 62 floor buttons and 31 Personnel Schedules per cab. Upon activating a reader in the cab during authorized time intervals, user-defined floor buttons will be active. These buttons will remain active until a user-defined timer expires (0 – 255 seconds) or until any one button is pressed.

## ENVIRONMENTAL CONTROL FUNCTIONS

**Automatic Temperature Control**, working in conjunction with Automatic Time Scheduling, self-adjusts the heating or cooling providing normal temperature control as well as setup/set back control including user-specified deadbands.

**Predictive Central Plant Start** allows plant startup based on inputs from other optimized start routines in controllers serving AHUs, heat pumps, VAV terminals and other equipment.

**Demand Limiting** continuously monitors the rate of electrical power consumption and predicts the demand during each demand interval. If the predicted demand exceeds a preset level, controlled loads are shed or setpoints changed in a user-defined priority sequence. As peak demand passes and electrical power consumption decreases, the controller restores the loads or setpoints to their normal routines. Multiple power meters are supported in each 7798 I/SITE LAN, with 64 loads specified for each meter. Maximum Off, Minimum On-Off and seven levels of shed priority ensure efficient Demand Limiting while protecting environment control objectives.

## GENERAL FUNCTIONS

**Automatic Time Scheduling** provides a full year's schedule, including multiple start/stop times, special days and temporary inputs for each load.

**Calculated Points** are used to perform special calculations required by the system. Calculated points allow development of "equations" using math, logic, Boolean, time and other specialized operators.

**Event Initiated Control** provides "IF-THEN-ELSE" control sequences with time delay options based on a state changes, value crossings, alarms, returns to normal or specified states of one or more points.

## DOWNLOADABLE FIRMWARE

Complete executable software is downloaded through a locally connected PC, the modem or the Controller LAN if the CLX option board is used. This eliminates the need to visit the controller to replace EPROMs for enhancements or revisions.

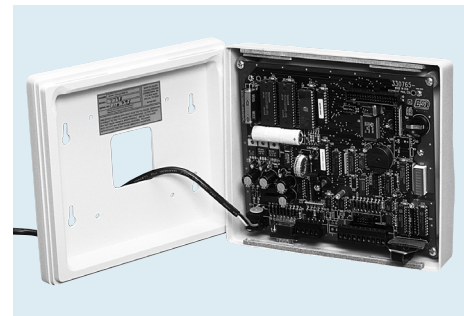
## ONLINE EDITING CAPABILITY

The 7798 I/SITE LAN provides direct online edit capability via a local, remote or portable PC for instant modification of all parameters. An operator with the appropriate password authorization may make changes online that are as simple as time schedule changes or as comprehensive as chiller optimization strategies. There is no need to use archaic techniques that require compiling, debugging or reloading the software. The operator will observe the results of the changes instantly. All operator entries on TAC I/NET PCs use menus with self-prompting, fill-in-the-blank

editors. Context sensitive help screens are available on the PC with the touch of the "F1" key. There is no need to learn a custom computer language or generate programming statements.

## TREND SAMPLING

Trend Sampling is accomplished within the controller independent of any PC workstation. Each I/SITE LAN can trend all connected points and can store up to 1440 samples of critical points. These samples can be archived to local or remote PC workstations and used to generate custom reports.



MODEL	NUMBER DESCRIPTION	COMMENTS
7798	I/SITE LAN Integrated Site Controller	Plastic enclosure suitable for wall mounting. Requires 24Vac power supply
CLX	I/SITE Controller LAN Expansion Option, RS-485	Plugs on to 7798 base unit
CBL072	Cable, Controller DB9 to PC DB9, 6 ft (2m)	9-pin Serial Cable
CBL073	Cable, Controller DB9 to PC DB25, 6 ft (2m)	25-pin Serial Cable
CBL074	Cable, Controller DB9 to Modem DB25, 6 ft (2m)	25-pin Modem Cable
CBL081	Cable, Controller DB9 to Printer DB25, 6 ft (2m)	5-pin Serial Cable
XFMR6	Transformer 120Vac Primary, 24V/2.4A Secondary	
XFMR7	Transformer 240 Vac Primary, 24V/2.4A Secondary	
TCON138	Model 7798 I/SITE LAN Installation Guide	

# Specifications:

## I/SITE™ LAN Integrated Site Controller

### COMMUNICATION PORTS

#### RS-232 Port 1:

PC @ 9600 baud (7801 tap function), or Hayes direct-dial asynchronous modem @ 1200, 2400 or 9600 baud. Or printer @ 9600 baud (7810 tap functions)

#### RS-232 Port 2:

Supports synchronous modem, direct or two-way dial SDLC at rates of 300 to 9600 baud.

#### Controller Sub-LAN:

RS-485; 9600 baud, asynchronous, polling.

#### CLX Controller LAN Expansion Option:

RS-485; 19,200 or 9600 baud, SDLC, token-passing. Requires optional plug-on module.

### NETWORK WIRING REQUIREMENTS

#### Controller LAN Length:

5000 ft (1500 m) per segment.  
25,000 ft (7600 m) with repeaters

#### Controller Sub-LAN Length:

5000 ft (1500 m)

#### Cable Supported:

Twisted pair, shielded. 22 AWG (0.324 mm<sup>2</sup>) or larger, 30 pF/ft or less between conductors, 55 pF/ft or less conductor to shield, 85 to 150 Ohm impedance. Belden 9841 or equivalent

### CAPACITY

#### Channels:

1 per I/SITE LAN

#### Controllers:

32 MicroController units per 7798 I/SITE LAN maximum consisting of DPUs, DIUs, DIOs and/or MRs in any combination.

### PROCESSOR

#### Processor:

Zilog Z181

#### Clock/calendar:

Battery-backed, includes seconds, minutes, hours, day, month, year, leap year

### MEMORY

#### EPROM:

32KBytes

#### Static RAM:

256KBytes

#### NOVRAM:

512Bytes

#### RAM Battery Backup:

On-board Ni-cad, rechargeable.  
Maintains RAM for 300 hours

### FIRMWARE

#### Binary Files:

Downloadable to battery-backed RAM

### AUTO DIAL SUPPORT

#### Telephone Numbers:

8, stored in NOVRAM

#### Number Of Digits:

31 per phone number

#### Supported:

Phone, Beeper, Pager

### PHYSICAL DESCRIPTION

#### Enclosure Dimensions:

7" H x 9" W x 2.7" D  
(178 mm x 229 mm x 68 mm)

#### CLX Expansion Board Dimensions:

4.3" L x 3.4" W (100 mm x 88 mm)

#### Power Requirements:

24Vac, ±10%, 50/60 Hz (10 VA max)

#### Operating Temperature:

32°F to 104°F  
(0°C to 40°C)

#### Operating Humidity:

10 – 90% RH, non-condensing

### TERMINATION

#### Terminal Blocks:

Removable screw terminal connectors.

### INDICATION

#### LEDs:

Power, Sub-LAN port activity (transmitting & receiving), RS-232 PC port 1 activity (transmitting & receiving), RS-232 Modem port 2 activity (transmitting & receiving), operating status (alarm, reconfiguration, low power). LAN port activity (transmitting & receiving) on CLX expansion board.

#### Audible:

Piezoelectric buzzer

#### Viewcon:

Back-lit Graphic LCD  
4 Lines x 40 characters  
(64 x 240 pixels)

#### Membrane Keypad:

8 "Soft" Keys (F1 – F8)

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