

ViewPoint II Operator Interface

Installation and Setup Manual



ViewPoint II – Front View (full scale)

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ViewPoint II Operator Interface

Installation Manual

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Overview

The ViewPoint II is a compact panel-mounted operator interface designed for use with Pinnacle and EtherLogic Series SCADA controllers, as well as the original Sprite, Solaris, Ascent Series and new Sentry Series RTU modules. Unlike competitive devices, it requires no programming or program downloads and little or no configuration saving many hours of engineering time and simplifying installation and system updates.

The ViewPoint II has a simplified entry keypad as well as 5 configurable “function” keys with LED indicators and an audible beeper. Four of the keys can be labeled by text on the display. The fifth key is red to separate its functionality as an alarm acknowledgement or special function key. The entry keypad generally mimics the operation of the built-in HMI of the Pinnacle series controllers.

The ViewPoint II has a graphical display screen with a variable font size text mode. In the smallest font size the terminal can display 16 lines of 40 characters each. Text of differing font sizes and attributes (i.e. bold, italics, etc.) can be displayed on the same screen display, enhancing the readability of the display from a distance while maximizing the amount of information that can be presented. Graphical content and animation are also supported by the terminal.

The ViewPoint II has both a high-speed Ethernet port and a USB port. The Ethernet port enables the terminal to be used with multiple devices distributed over a network, while the USB port provides a convenient means of communicating with a single device which also powers the terminal over the USB cable. The terminal also accepts DC power, from 10 to 30 Vdc, when not powered by USB.

When used with Pinnacle and EtherLogic Series SCADA controllers, the content presented on the ViewPoint II’s display screens is configured using the “TUI” (Text User Interface) function in the ScadaWorks software. When used with Sprite, Solaris, Ascent and Sentry Series RTUS, user screens are configured by web page selections in the RTU.



Additional Documentation

Additional documentation on using the ViewPoint II terminal is found in the following documents.

The **ScadaWorks Programming Manual** describes the use of the TUI (Textual User Interface) configuration tool to set up the screen information displayed on the terminal, and the action of the function keys and LED indicators.

The **Sentry Series Technical Reference Manual** describes the HMI web pages built into the Sentry RTUs and how they are used to configure the information displayed on the Viewpoint.

Important Safety Information

Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods Article 501-4(b) of the National Electrical Code, NFPA 70 for installations in the U.S., or as specified in Section 18-1J2 of the Canadian Electrical Code for installations within Canada and in accordance with the authority having jurisdiction.

WARNING - EXPLOSION HAZARD – Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.

WARNING - EXPLOSION HAZARD – Substitution of any components may impair suitability for Class I, Division 2.

WARNING - EXPLOSION HAZARD – The area must be known to be non-hazardous before servicing/replacing the unit and before installing.

WARNING –EXPLOSION HAZARD – “The USB connectors are for temporary connection only. Do not use, connect, or disconnect unless area is known to be non-hazardous. Connection or disconnection in an explosive atmosphere could result in an explosion.”

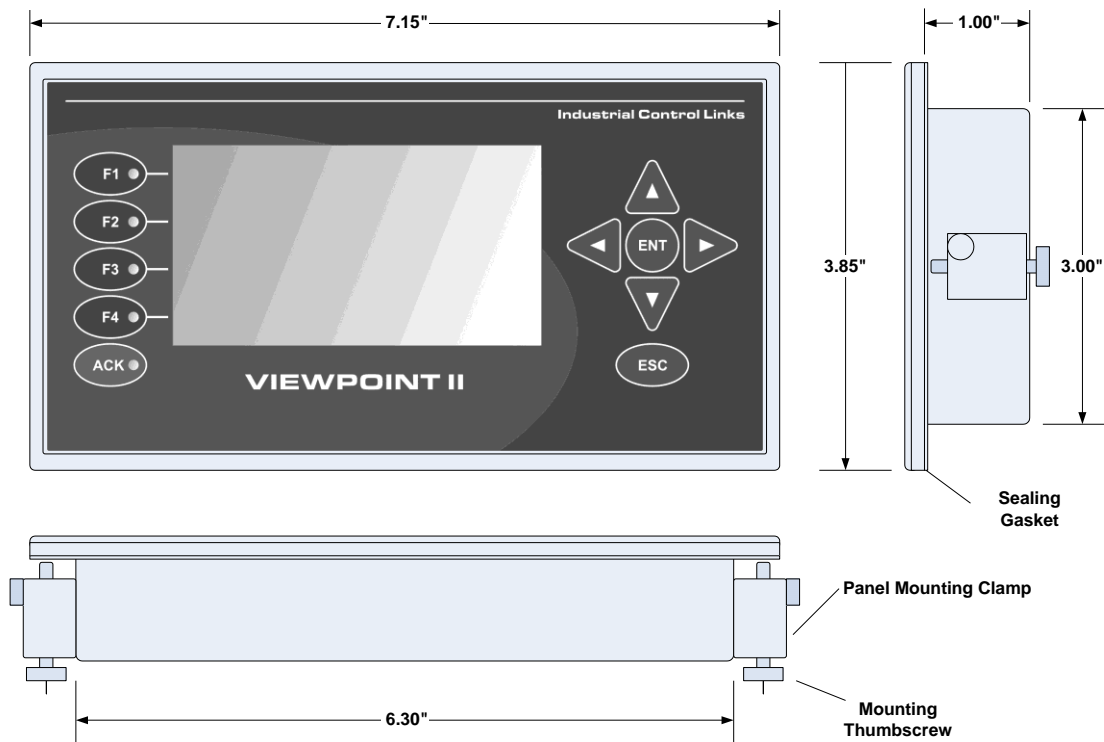
ViewPoint II Mechanical Installation

The ViewPoint II is designed to be installed on the sheet metal door of an electrical enclosure. Choose a location that is protected from direct sunlight to avoid degradation of the front panel.

The ViewPoint II is supplied with a mounting kit consisting of a rubber gasket to help seal between the front panel of the terminal and the cabinet, and mounting hardware to retain the terminal in a cutout in the enclosure door.

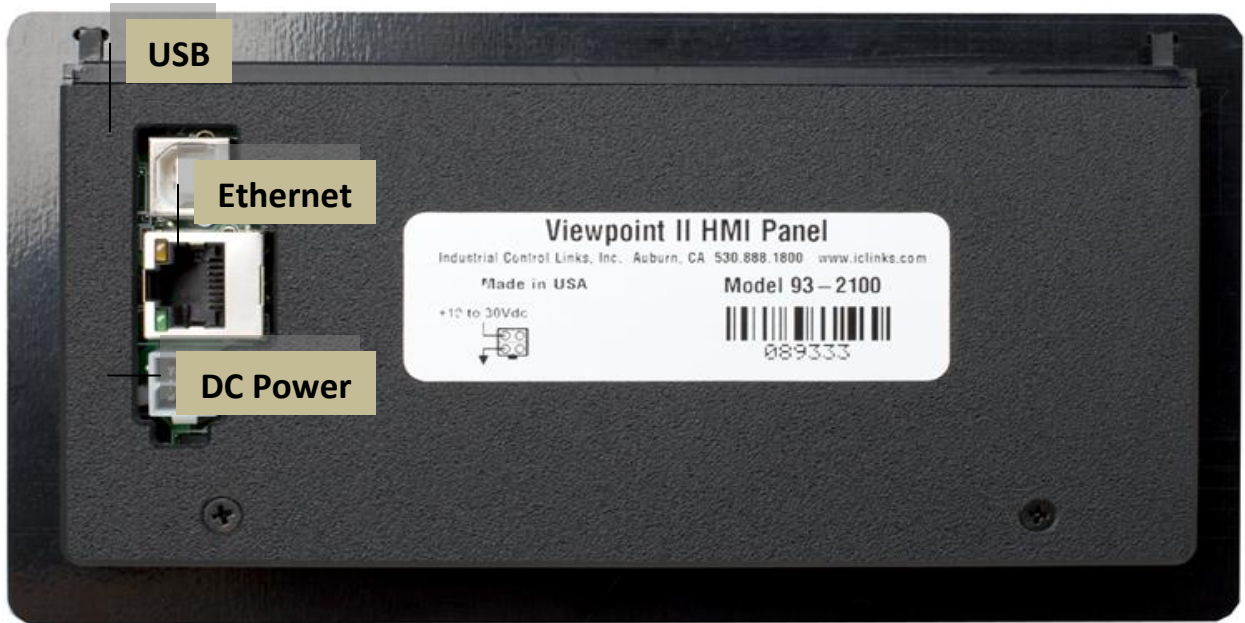
To mount the ViewPoint II in an enclosure door:

- Cut a 3.1" H x 6.4"W hole in the enclosure door.
- Put the rubber gasket in place behind the front face of the terminal.
- Insert the terminal into the cutout.
- Secure the terminal with the supplied mounting blocks and thumbscrews in either side, and optionally, on the top and bottom. The cutouts in the mounting blocks are cut at an angle to help provide moderate pressure to secure the terminal to the panel.
- DO NOT over tighten the thumbscrews. The terminal should be pressing against the gasket, and the gasket pressing against the enclosure door. Simple hand tightening should be sufficient. DO NOT USE TOOLS TO INCREASE THE TIGHTNESS OFF THE SCREWS.



ViewPoint II Wiring

The ViewPoint II terminal uses either of two power and data wiring configurations; a point-to-point USB connection or an Ethernet networked connection. The terminal power can either be provided by the USB cable or via a supplied power cable with DC power in the range of 10Vdc to 30Vdc. Both types of connections are available on the rear panel of the terminal.



Rear Panel of ViewPoint II

USB Connection

A point-to-point USB connection may be used when connecting to a single Pinnacle SCADA controller. The advantage is a single plug-in cable provides both power and data communications. The appropriate USB cable is a “Type A to Type B” USB cable. The part numbers are listed below by length:

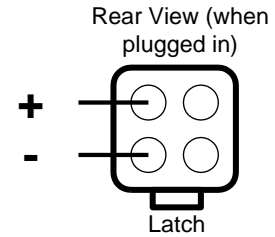
USB cables for Viewpoint II HMI Terminals

- 99-4001** USB 2.0 Type A to Type B Cable Assembly, **1 ft.** (Pinnacle to Viewpoint II)
- 99-4002** USB 2.0 Type A to Type B Cable Assembly, **3 ft.** (Pinnacle to Viewpoint II)
- 99-4003** USB 2.0 Type A to Type B Cable Assembly, **6 ft.** (Pinnacle to Viewpoint II)
- 99-4005** USB 2.0 Type A to Type B Cable Assembly, **10 ft.** (Pinnacle to Viewpoint II)
- 99-4007** USB 2.0 Type A to Type B Cable Assembly, **15 ft.** (Pinnacle to Viewpoint II)

An Ethernet and separate power cable are not required when the USB cable is used for both a data and power connection. A USB cable can also be used to supply power only in conjunction with an Ethernet data connection.

Ethernet Connection

An Ethernet data connection may be used to connect a Viewpoint II terminal to one or more Pinnacle or EtherLogic Controllers, or to any Sentry Series, Sprite, Solaris or Ascent RTU. An Ethernet network can be used to share a single Viewpoint II Terminal with multiple controllers and RTUs. When Ethernet is used, the terminal must be powered separately, either using the supplied power cable, or a USB cable. The supplied power cable has a white “Molex” style 4-pin power connector on one end and unterminated wires on the other. The power wires are color coded; **BLACK to NEGATIVE**, and **RED to POSITIVE**. The supply voltage may be between the range of 10Vdc to 30Vdc. If you want to purchase or make your own power cable, the power plug must be designed to mate with a **Molex # 39-29-9043** connector. There are several compatible plugs and terminal contact plating materials available, or you may purchase additional pre-wired cables from Industrial Control Links. The power wiring uses two of the four pins in the plug as shown in the figure on the right.



Some older equipment is sensitive to the “polarity” of the Ethernet connection. The ViewPoint II automatically configures its Ethernet Interface so that no “crossover” cables are required. The Ethernet interface does have a DISTANCE limit as defined by the Ethernet twisted pair specifications. Do not exceed 100ft to the Controller RTU, switch or router that the terminal is connected to.

Typically, the types of Ethernet cables routinely available in computer stores may be used with the Viewpoint II. We generally recommend a “Cat5e” quality level or better. Appropriate Ethernet cables are available as follows in various standard lengths:

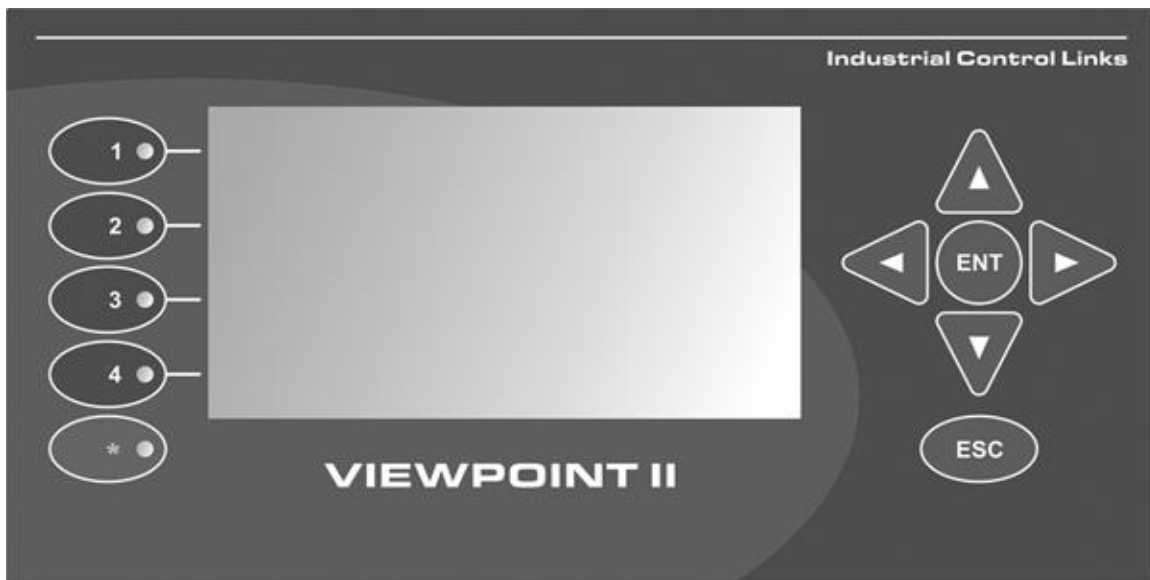
Ethernet cables for ViewPoint II

| | |
|----------------|--|
| 99-1000 | RJ-45 to RJ-45 Ethernet Cable, 6”, Cat 5e |
| 99-1001 | RJ-45 to RJ-45 Ethernet Cable, 1 ft., Cat 5e |
| 99-1002 | RJ-45 to RJ-45 Ethernet Cable, 2 ft., Cat 5e |
| 99-1003 | RJ-45 to RJ-45 Ethernet Cable, 3 ft., Cat 5e |
| 99-1005 | RJ-45 to RJ-45 Ethernet Cable, 5 ft., Cat 5e |
| 99-1007 | RJ-45 to RJ-45 Ethernet Cable, 7 ft., Cat 5e |
| 99-1010 | RJ-45 to RJ-45 Ethernet Cable, 10 ft., Cat 5e |
| 99-1014 | RJ-45 to RJ-45 Ethernet Cable, 14 ft., Cat 5e |
| 99-1020 | RJ-45 to RJ-45 Ethernet Cable, 20 ft., Cat 5e |
| 99-1025 | RJ-45 to RJ-45 Ethernet Cable, 25 ft., Cat 5e |
| 99-1030 | RJ-45 to RJ-45 Ethernet Cable, 30 ft., Cat 5e |
| 99-1050 | RJ-45 to RJ-45 Ethernet Cable, 50 ft., Cat 5e |
| 99-1075 | RJ-45 to RJ-45 Ethernet Cable, 75 ft., Cat 5e |
| 99-1100 | RJ-45 to RJ-45 Ethernet Cable, 100 ft., Cat 5e |

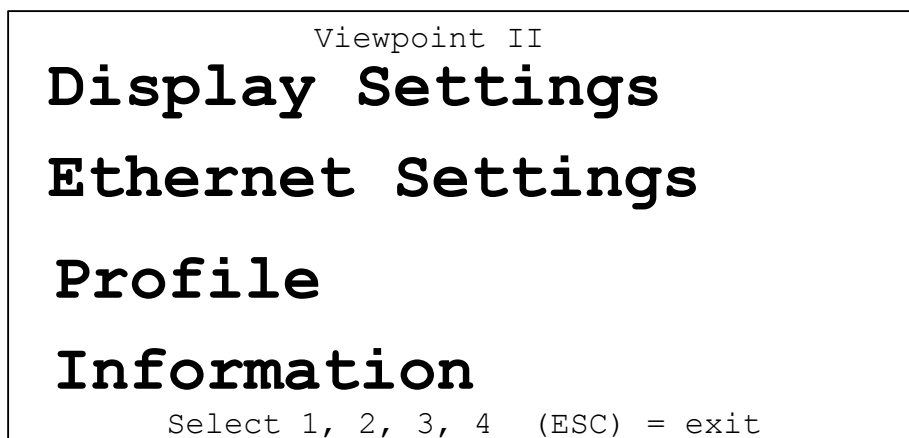
Configuration

Once a ViewPoint II terminal is mechanically installed and wired, it should be configured. All configuration is done using the terminal's keys and display. No external computer is required.

The front face of the ViewPoint II is pictured below for reference.



To enter the ViewPoint II configuration mode at any time that the terminal is powered ON, press and hold the ESC (Escape) key for 2 seconds. The screen will display the following menu.



The LED lights associated with the first four function keys will be lit "green". Pressing one of the function keys selects a menu for that function. Pressing the ESC key returns back to this screen.

Display Settings Configuration

The Display Settings Configuration page has the configuration for the LCD display look, the “auto refresh” rate of the display, power savings settings, and the ability to control key clicks as keys are pressed.

| Display Settings | |
|---|--------|
| Contrast: | 40 |
| Display Timeout: | 0 |
| Update Rate: | 5 |
| Backlight Timeout: | 0 |
| Keypad Click: | On |
| LowPower Mode: | Normal |
| ▲▼ Move Up/Dn (ESC) = Exit (ENT) = Edit | |

To change a setting, use the Up and Down arrow keys to “move” to the setting value. Press the “ENT” (Enter) key to select the value (the background will start flashing), then use the Up and Down arrow keys to adjust the value. Use the Left and Right arrows to select individual digits to be adjusted. Pressing the “ENT” saves the change, ESC (Escape) cancels the change (if you press it before hitting ENT).

- | | |
|--------------------------|---|
| Contrast | Contrast is a value from 0 to 100. Changing this value changes the shade of the background compared to the text. You may need to adjust this value if the ambient temperature changes radically or you want to optimize the contrast for a specific viewing angle. |
| Display Timeout | When the operator stops using the terminal (making changes through the keyboard), the display will revert back to the “Home” or the initial screen. This value sets the time in seconds of no activity before this happens. A zero disables this function. |
| Update Rate | This setting determines the rate at which changing values will update on the display. Larger numbers will cause less overhead on a network connection (such as a wireless Ethernet connection). The rate is in seconds. 0 is as fast as possible (no delay). |
| Backlight Timeout | When the operator stops using the terminal (making changes through the keyboard), the terminal can turn OFF the backlight to save power. This value sets the time in seconds of no activity before this happens. A zero disables this function, leaving the backlight ON all of the time. |

Keypad Click

This setting enables or disables making an audible click when a keypad key is pressed.

Low Power Mode

This setting controls the extent of power saving implemented in the terminal. There are two settings for this mode. In the “Extra” mode, the CPU speed is slowed down and the Ethernet Interface is turned OFF when the terminal is inactive in order to further reduce the terminal’s power consumption. Use this mode for solar and battery operated systems. In the “Normal” mode, the CPU speed and Ethernet controller are left alone.

Ethernet Settings Configuration

The Ethernet Settings Configuration page has the configurations for the Ethernet port such as how the display gets its network (IP) address, as well as the manual IP address settings, and the AES encryption key setting used for secure protected communications over the network. The proper settings for your network will be known by your network administrator. If you are connecting to a shared network, be sure that you check with this administrator BEFORE connecting in. Failure to do so could cause an address conflict and/or crash the network.

Ethernet Settings

| | |
|----------|------------------|
| DHCP: | Off |
| Src IP | 192.168.237.216 |
| Mask: | 255.255.255.000 |
| Gateway | 192.168.001.001 |
| AES Key: | ABCD1234abcd:ICL |

▲▼ Move Up/Dn (ESC) = Exit (ENT) = Edit

To change a setting, use the Up and Down arrow keys to “move” to the setting value. Press the “ENT” (Enter) key to select the value (background will start flashing), then use the Up and Down arrow keys to adjust the value. Use the Left and Right arrows to select individual digits to be adjusted. Pressing the “ENT” saves the change, ESC (Escape) cancels the change (if you press it before hitting ENT).

- | | |
|------------------------|---|
| DHCP | DHCP, when turned ON, allows the terminal to get a address automatically. This requires a DHCP server to be present on the network. If DHCP is turned OFF, the manual address settings will be used. |
| Src IP Mask | These two values set the addressing of the terminal on a network. In general the last (right hand) digits of the Source Address (the Viewpoint II address) must be unique from any other device on the network (in this case “216”) and the next digits to the left (in this case “237”) must match the rest of the devices. The mask will normally be the same for all devices on the network. |
| Gateway | If your network has a router, (typically with access to the Internet), this value will be set to the address of that router. |
| AES Key | The Viewpoint II uses secure encrypted transmissions to exchange data with a controller or RTU. This is where you set the encryption key. It must be the same for terminal and all devices that the terminal will talk to. The key is typically a 16 character value. |

Profiles Configuration

The ViewPoint II can be configured to communicate with many different devices, via the USB port and via the Ethernet port. Each device requires a profile, so the user can simply select a profile to select a different device. The name that shows up in the selection menu is automatically retrieved from the device configured in the profile.

Profile 01

Mode: **I/O Module**
Dst Ip: **192.168.237.218**
Port: **52229**
Net Add: **1000**

▲▼ Move Up/Dn (ESC) = Exit (ENT) = Edit

To select a profile, use the Right and Left arrow keys. To change a setting, use the Up and Down arrow keys to “move” to the setting value. Press the “ENT” (Enter) key to select the value (the background will start flashing), then use the Up and Down arrow keys to adjust the value. Use the Left and Right arrows to select individual digits to be adjusted. Pressing “ENT” saves the change, ESC (Escape) cancels the change (if you press it before hitting ENT). There are a total of 32 different profiles (devices that one Viewpoint II can connect to).

| | |
|-----------------------|---|
| Mode | Selects the type of device for this profile. This can be: I/O Module Original Sprite, Solaris or Ascent I/O Module via Ethernet Sentry Sentry Series I/O Module via Ethernet – user HMI Pinnacle - USB Pinnacle Series controller via USB Pinnacle - Eth Pinnacle Series controller via Ethernet Etherlogic Etherlogic Series controller via Ethernet Disabled not used |
| I/O Module | Ethernet settings to communicate with one of the original Sprite, Solaris or Ascent I/O Modules or the new Sentry I/O modules “precanned” HMI |
| Sentry | Ethernet settings to communicate with the newer Sentry Series I/O Modules user configurable HMI |
| Pinnacle - xxx | Settings (Ethernet or USB) to communicate with a Pinnacle controller |
| Etherlogic | Settings to communicate with a Etherlogic controller by Ethernet |
| Disabled | Profile not used |

Profiles

The following describes each of the possible device profile selections under “Profiles Configuration”.

Pinnacle - USB Configuration

The Pinnacle – USB configuration is used when the ViewPoint II is connected directly to a USB port of a Pinnacle Series SCADA controller. The screens for the terminal are configured using the “TUI” (Text User Interface) section of the ScadaWorks software used to configure these controllers. Only one terminal can be used per port, so there is no addressing required.

```
Profile xx
Pinnacle - USB

                                  ◀▶ Change Profile
(ESC) = Exit      (ENT) = Edit
```

Pinnacle - Ethernet Configuration

The Pinnacle Ethernet configuration is used when the ViewPoint II terminal is connected to one or more Pinnacle SCADA controllers by an Ethernet network connection. The screens for the terminal are configured using the “TUI” (Text User Interface) section of the ScadaWorks software used to configure these controllers. The profile includes the target controller’s Ethernet address and port number. The default port number is 52229, but may be changed as required by some system configurations. Be sure that the I/O module I/P address and Port number match with the settings in the profile.

```
Profile xx
Mode: Pinnacle - Eth
Destination IP: 192.168.001.199
Port: 52229

▲▼ Move Up/Dn (ESC) = Exit  ◀▶ Change Profile
(ESC) = Exit      (ENT) = Edit
```


Etherlogic Configuration

The Etherlogic configuration is used for when the ViewPoint II terminal is connected to one or more Etherlogic SCADA controllers by an Ethernet network connection. . The screens for the terminal are configured using the “TUI” (Text User Interface) section of the ScadaWorks software used to configure these controllers. The profile includes the target controllers Ethernet address and port number. The default port number is 52229, but may be changed as required by some system configurations. Be sure that the I/O module I/P address and Port number match with the settings in the profile.

```
Profile xx  
Mode: Etherlogic  
Destination IP: 192.168.001.199  
Port: 52229  
  
▲▼ Move Up/Dn (ESC) = Exit ◀▶ Change Profile  
          (ESC) = Exit           (ENT) = Edit
```

I/O Module Configuration

The I/O Module configuration is used for the original Sprite, Solaris, and Ascent I/O modules and RTUs as well as the Sentry Series modules when using the “canned” HMI screen. The Sentry Series modules also offer user configurable screens which are selected by the next profile (described below) . The terminal connects to these devices by Ethernet. The profile includes the target module’s Ethernet address and port number and device address. The default port number is 52229, but may be changed as required by some system configurations. Be sure that the I/O module I/P address, Port number and device address match with the settings in the profile.

```
Profile xx  
Mode: I/O Module  
Destination IP: 192.168.001.199  
Port: 52229  
Device Address: 1000  
  
▲▼ Move Up/Dn (ESC) = Exit ◀▶ Change Profile  
          (ESC) = Exit           (ENT) = Edit
```

Sentry Configuration

The Sentry configuration is similar to the I/O Module configuration above, but is used to access the special user configurable screens of the Sentry Series modules. The terminal connects to these devices by Ethernet. The profile includes the target module's Ethernet address and port number and device address. The default port number is 52229, but may be changed as required by some system configurations. Be sure that the I/O module I/P address, Port number and device address match with the settings in the profile.

```
Profile xx  
Mode: Sentry  
Destination IP: 192.168.001.199  
Port: 52229  
Device Address: 1000  
  
▲▼ Move Up/Dn (ESC) = Exit ◀▶ Change Profile  
          (ESC) = Exit           (ENT) = Edit
```

Information

The information screen in the ViewPoint II summarizes the serial number, hardware and software versions and non user changeable manufacturing data that may be requested by technical support if needed to troubleshoot a problem in the field, or confirm warranty coverage.

```
Information  
  
Serial #:          82990  
Mfg ID:           574008  
Mfg Date         06/23/11  
Software:        1.01.01  
Current Profile: 1  
MAC Address:     00-50-C2-CE-01-50  
(ESC) = Exit
```

None of the values on this screen are user changeable. Pressing the ESC (Escape) key will cause you to exit this screen.

| | |
|------------------------|--|
| Serial # | A unique serial number for this ViewPoint II |
| Mfg ID | The manufacturing hardware configuration code |
| Mfg Date | The original manufacturing date of this terminal |
| Software | The software version in this terminal |
| Current Profile | The currently active user device profile |
| MAC address | The terminals unique Ethernet MAC address |

Connecting

Once you have at least one connection profile configured in the Viewpoint II, you're ready to link up with a controller or I/O module or RTU.

Press the RED function key (with the "*") for 2 seconds to bring up the built-in device selector screen. The status of the first four connection profiles will be displayed. The ViewPoint II will attempt to communicate with any of the devices with configured communications profiles. Available devices (good connections) will show an "Active" status and light the green LED lights for their respective function keys, while devices that cannot be reached will show "no link". A status of "query" shows that the terminal is currently trying to reach the device. Non configured profiles will display "Inactive".

Note that the type of device will be displayed until the terminal is able to establish the connection, then the devices name will be displayed instead.

```
Page ▲▼ Select 1, 2, 3, 4 (ESC) = exit
Sprite II Combo I/O
      IP:192.168.237.218      No Link
Sprite II Combo I/O
      IP:192.168.237.190      Active
LC
      IP:192.168.237.218      -Query-
New Connection 04
      IP:192.168.237.199      Inactive
```

Use the Up and Down arrow keys to scroll through the list of profiles, four at a time.

To select a device, press the key next to its profile (make sure it's light is lit green next to it.) You will be connected and the devices first screen displayed.

Using the selector screen is only required if more than one device is configured. Otherwise, the terminal will simply connect to the one device profile.

ViewPoint II Specifications

Display

| | |
|--------------------------|---|
| Display Type | Graphical backlit LCD |
| Display Size | 128 x 240 pixels , 3.75" diagonal – 1.76" x 3.30" (44.8mm x 84.0mm) |
| Display Color | 32 level grayscale on white background |
| Display Backlight | LED |

Keyboard

| | |
|----------------------------|--|
| Keyboard Type | Sealed membrane with tactile and key-click feedback |
| Function Keys | 5, with LED status indicators (programmable ON/OFF/flashing) |
| Password Protection | Password can be activated for any screen, 16 security levels |

Memory & Communications

| | |
|----------------------|--|
| Memory | 8 MB SDRAM for graphical image storage and caching |
| USB Port | USB 2.0 – Full Speed (12 Mb/s) |
| Ethernet Port | 10/100 Mb/s, RJ-45 twisted pair, Auto MDX (no crossover cables needed) |
| Encryption | on Ethernet only, AES-128 |

General

| | |
|---------------------------|---|
| Enclosure Rating | NEMA 4, IP65 |
| Mounting | Panel Mount – 3.1" x 6.4" cutout, removable clamps (supplied) |
| Operating Temp | -4°F (-20°C) to 158°F (70°C) |
| Operating Humidity | 5% RH to 95% RH, non-condensing |
| Power | Supplied by USB, or 10Vdc to 30Vdc, via separate connector (supplied) 0.1W typical (backlight OFF), 2.5W maximum |

