WiFi Communication

Installation & Operation Manual

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Section 1: Introduction

1.1 Component Identification

Ethernet: A local area network (LAN) protocol that uses a bus topology.

WiFi (Wireless Fidelity): A type of Ethernet protocol that transmits data through radio waves.

Client: This radio communicates with the WiFi router. The client radio is connected to and receives power from the display.

Switch/Router: This device forwards data packets along networks and provides additional security. The router provides physical internet access to wireless devices as well as wireless communications to other wireless devices.

Venus 1500: Daktronics designed, Windows®-based software used to create and edit messages on the display. Refer to the Venus® 1500 Help file for operation of the Venus® 1500 software.

1.2 System/Cable Requirements

In a WiFi communication system, a WiFi access point is required (but not provided) to transmit signal to a client radio at the display.

Ethernet and serial cables are provided to connect the WiFi client radio to the display.

A Windows®-based computer is required (but not provided) to run the Venus 1500 display control software.

Section 2: Installation

The controller has either a default IP (address 172.16.192.25) for Galaxy displays or a DHCP address for GalaxyPro Revolution displays. Once the default IP address is used to connect to the display, it can be changed to a personalized address. Various local area networks and internet service providers have various IP requirements. Consult the network administrator or internet service provider for more information. The DHCP address will automatically adjust to suit the local network.

A WiFi radio-controlled display requires the following procedures, refer to **Figure 1** for a system layout:

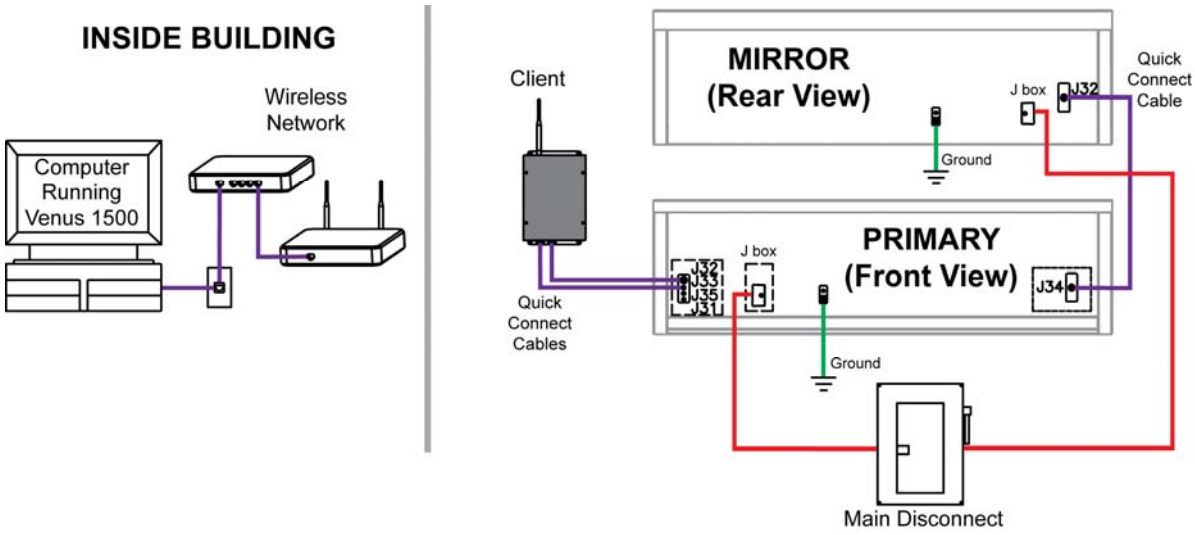

Figure 1: *Wireless Ethernet Display Layout*

1. A WiFi network must be established locally.
   Maximum distance between the network router and client radio will vary. Refer to the access point literature for more information.

2. The client radio is mounted within 25 ft. (7.6 m) of the display.
   The radio must be mounted with the antenna pointing upward.

3. Route the signal quick connect cables from the enclosure to the rear of the display.
   The cable from the enclosure to the display can be routed though conduit or through the display pole, and should be secured to protect it from weather or vandalism.

4. Connect the quick connect cables to the top two (J32 and J33) jacks.

5. Configure the client radio for use with the local WiFi network. Refer to the WiFi Configuration Quick Guide (**DD1363459**) for more information.

2.1 Signal Termination Between Displays

Primary - Mirror

Most displays are shipped as either a single Primary display or two displays in a 2V, Primary – Mirror configuration.

The Primary - Mirror (2V) quick connect cable is used to terminate signal between two displays. The cable goes from the Signal OUT jack (J34) on the primary display to Signal IN jack (J32) on the mirror display.

Figure 2: *Mirror Cable*

Multiple Primary Displays

A display network consisting of multiple primary displays can be established with the aid of Ethernet switches.

An Ethernet switch is installed in the first primary display. Signal cable is connected to the Ethernet switch before passing through to the display's controller. Additional signal cable is routed from the Ethernet switch to the controller(s) inside the additional display(s).

Refer to the Ethernet Switch Installation quick guide (**DD1442218**) for more information.

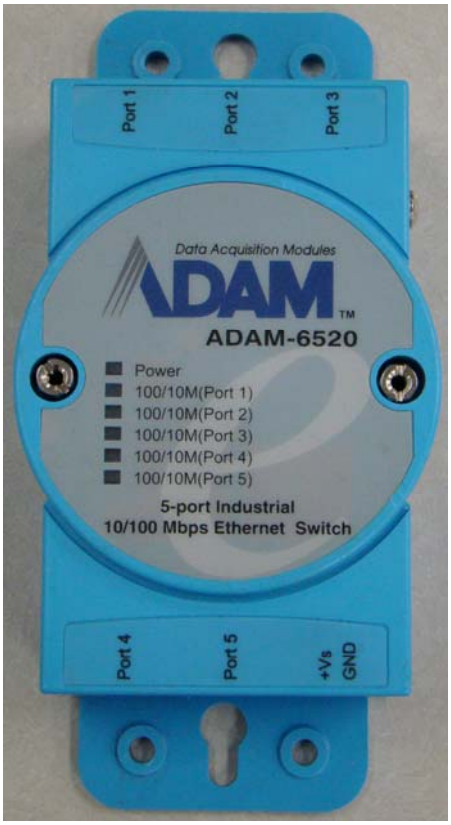

Figure 3: *Ethernet Switch*

Section 3: Maintenance

3.1 Replacement of the WiFi Client Radio

The WiFi client radio is located in the signal termination enclosure mounted at the display.

To replace a client radio, first disconnect the power and signal connections (refer to **Figure 4** for connector locations).

1. The radio and breakout board are attached to the enclosure mounting plate. Disconnect all signal cables and power wires and remove the mounting plate from the enclosure by removing the three screws.
2. Lift out the mounting plate.
3. The radio is held to the mounting plate by two screws (the break out board is held in place by three screws).
4. Release only the two screws that hold the radio in place.
5. Attach the new radio to the mounting plate.
6. Replace the mounting plate in the enclosure using the three screws and reconnect power and signal cables.

Figure 4: *Signal Enclosure*

7. The radio has the following input and output jacks:
    a. The Ethernet input jack is labeled "ETHERNET LINK ACT". Ethernet cable is connected to this jack from the display.
    b. The radio's external antenna is connected to the jack labeled "Wi-Fi ANTENNA".
    c. Power is routed through the break out board to the "6-30 VDC" location.

3.2 Replacement Parts List

The following table contains some of the items that may need to be replaced over a period of time. If a component is not listed in the replacement parts list, use the label to order a replacement. Most components within this display carry a label that lists the part number of the unit. A typical label is shown in **Figure 5** with the part number in bold.

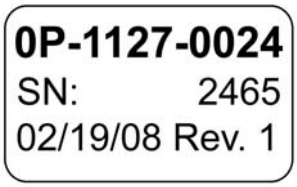

Figure 5: *Typical Part Label*

Part Description	Part Number
Cable, Antenna	W-2004
Power/Signal Break Out Board	0P-1327-1100
Quick Connect Input	0P-1415-2000
Radio Antenna	A-1654
Radio, Digital Client	A-2300
Signal Cable, 25 ft. Ethernet	W-1929
Signal Cable, 25 ft. Serial	W-1484
WiFi Communication Assembly	0A-1327-1103

Appendix: Reference Drawings

The following drawings are inserted in alphanumerical order. A drawings precede B drawings and drawings are ordered numerically (lowest to highest) within each section.