2 — Equipment overview

Overview

The AlphaVision PC sign has either an embedded computer (for process control) running Microsoft Windows CE, or an internal hard disk drive running Microsoft Windows 2000. This sign is for indoor use only.

Signs can be networked to other signs and to a computer network using:

- Ethernet (10BASE-T or 100BASE-T)
- RS232 (Windows CE only)

Protocol options (Windows CE only) include:

- Static Controls Corp. SCC protocol
- Alpha pixel protocol
- ActiveX

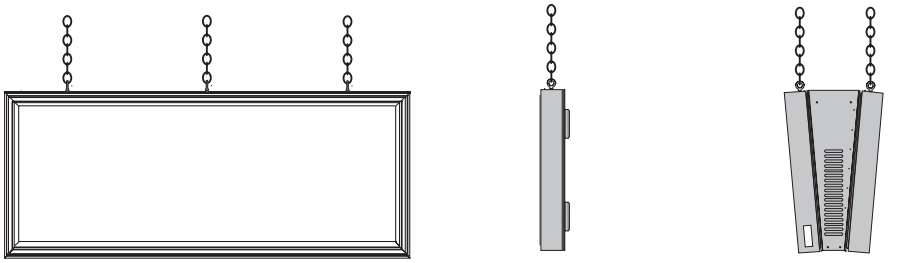
Other features include:

- Tri-color: red, green, amber
- Type 12 enclosure
- Built-in support for speaker output
- Front-serviceable
- 6-month battery-backup
- Time and date supported by a real-time clock
- Connections for auxiliary output, such as an alarm

Data — including messages, fonts and graphics — can be downloaded from a computer system to AlphaVision PC signs. Signs are addressed by IP address using Ethernet.

Signs can be installed single-sided (chain-hung or wall-mounted) or double-sided (chain-hung).

Double-sided signs can be hung vertically or at a 5° angle from vertical, and are set up to operate either together to display the same data (Master/Slave mode) or individually to display the same or independent data (Master/Master mode.) Master signs are identified by a nameplate (see Figure 8, “Nameplate,” on page 16).



Front view

Side view, single sign

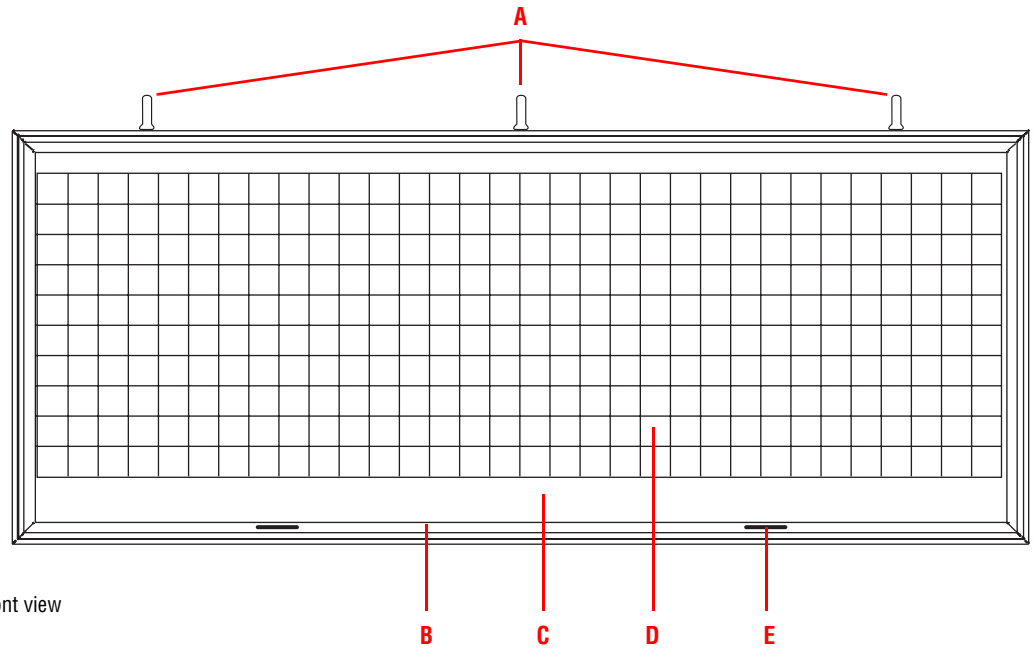
Side view, double-sided, 5° angle

Description

External views

Table 1: Front view of an AlphaVision PC sign

Shown below is a 256 x 80 LED matrix sign.
Other sign sizes are similar.

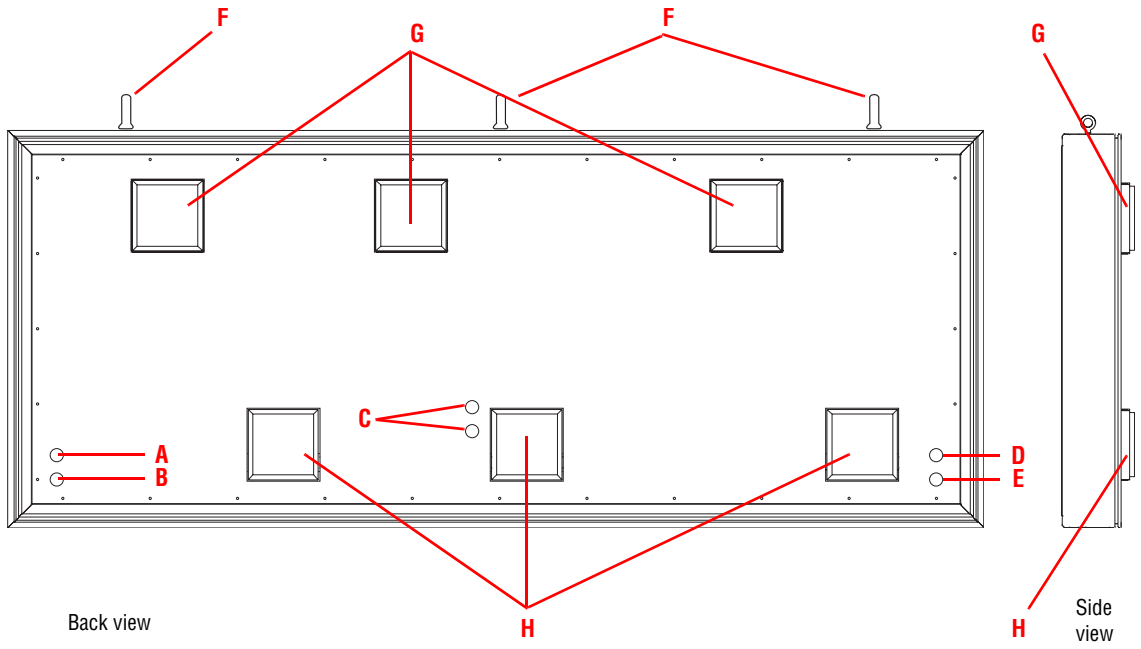


Front view

Item	Name	Description
A	Eyebolt	Used to lift and mount the sign.
B	Door	Provides access to internal sign components. Prop rods hold the open door in place.
C	Front lens	Polycarbonate lens cover in the door.
D	LED	Tri-color: red, green, amber.
E	Handle	Used to assist in opening the door.

Table 2: Back and side views of an AlphaVision PC sign

Shown below is a 256 x 80 LED matrix sign.
Other sign sizes are similar.

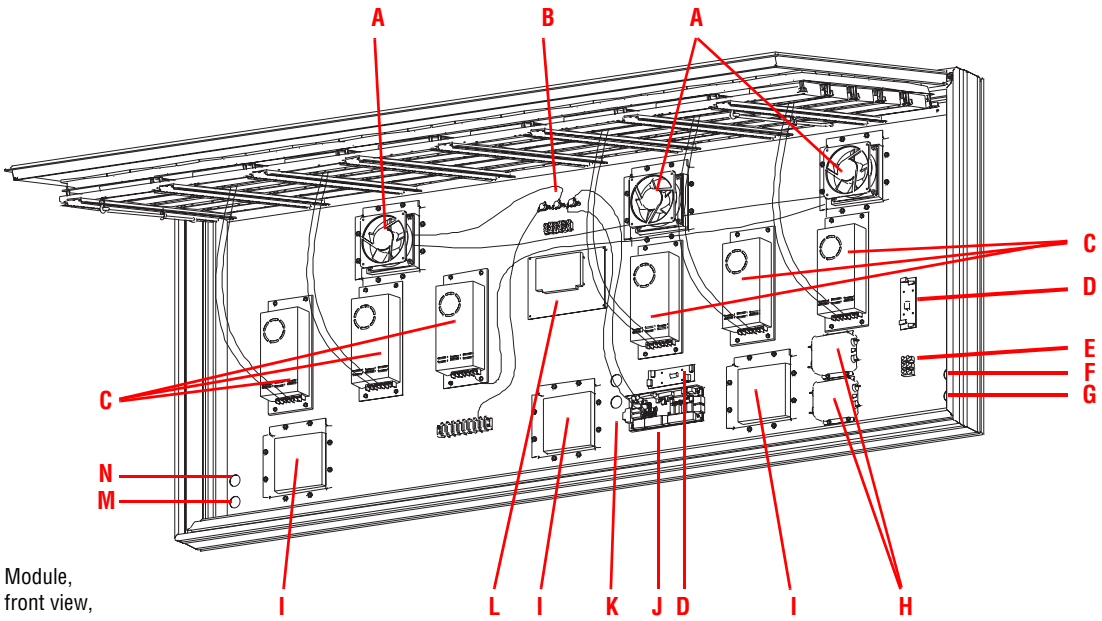


Item	Name	Description
A	Power line opening, recommended	Recommended access for electrical power. Wires from power supply terminal block(s) are run though this opening to a suitable power source. Must be sealed with metal weather-proof conduit during installation.
B	Serial/Ethernet line opening, recommended	Recommended access for Ethernet or other communication cables. Must be sealed with metal weather-proof conduit during installation.
C	Openings for factory-installed wiring	Do not use.
D	Power line opening, alternate	Alternate access for electrical power if recommended power line opening is not appropriate. Wires from power supply terminal block(s) are run though this opening to a suitable power source. Must be sealed with metal weather-proof conduit during installation.
E	Serial/Ethernet line opening, alternate	Alternate access for Ethernet or other communication cables if recommended serial/Ethernet line opening is not appropriate. Must be sealed with metal weather-proof conduit during installation.
F	Eyebolt	Used to lift and mount the sign.
G	Exhaust	Draws air through the sign. Includes filters and water- and dust-resistant louvers.
H	Vent	Allows air movement into the sign. Includes filters and covers.

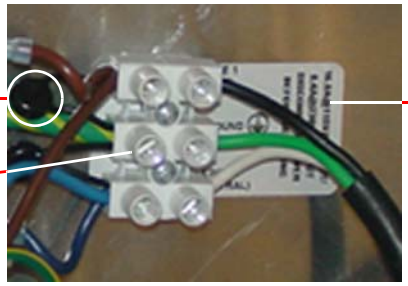
Internal views

Table 3: Inside view of an AlphaVision PC sign

Shown below is a 256 x 80 LED matrix sign.
Other sign sizes are similar.



Module, front view, open

Item	Name	Description
A	Fan	Dissipates heat from sign. 12VDC
B	Thermostat, fans Thermostat, dimming (50%) Thermostat, over-temperature/ shutdown	Turns on fans when the temperature inside the sign rises to 120° F (49° C). Dims the LEDs to 50% when the temperature inside the sign rises to 130°F (54° C). Turns off all LEDs when the temperature inside the sign rises to 160°F (71° C).
C	Power supply	Provides power to a section of LEDs. Number of supplies varies.
D	Turbo loopback board	Provides power and signal to LED boards. 
E	Power supply terminal block	Used to connect the sign to an appropriate power source. (Up to 2 may be installed.) Includes surge suppressor transorb to protect the sign from electrical surges.  Surge suppressor transorb Power supply terminal block Power supply terminal block label

Design of the support structure

Because every installation site is unique, the design of the support structure depends on the mounting methods, sign size, sign weight, and the specific location.

Follow these guidelines when installing a sign:

- Design of the support structure should only be done by a qualified individual. It is the installer's responsibility to ensure that the support structure and hardware are capable of safely supporting the sign and are in compliance with all applicable building codes.

  Adaptive is not responsible for installations or the structural integrity of support structures done by others.

- Mounting hardware is not supplied with the sign. Mounting hardware that is used to hang or suspend a sign must be capable of safely supporting the weight of the sign as listed in Table 12, "Physical and electrical specifications," on page 42.
- Only use the sign's eyebolts to hang the sign. *Mounting to any other parts of the sign will void the warranty.* (Brackets used to join signs in double-sided configurations are not load-bearing and are only used for stabilization.)

Environmental requirements

Care must be taken to observe these considerations when selecting a location for the AlphaVision PC signs:

- These signs are for *indoor use only* and should not be continuously exposed to direct sunlight, such as in a window.
- These signs should only be used in an environment where the temperature is between 32° and 122° Fahrenheit (0° and 50° Celsius.)
- These signs should only be used in an environment where non-condensing humidity does not exceed 95%.
- Allow clearances as shown below.

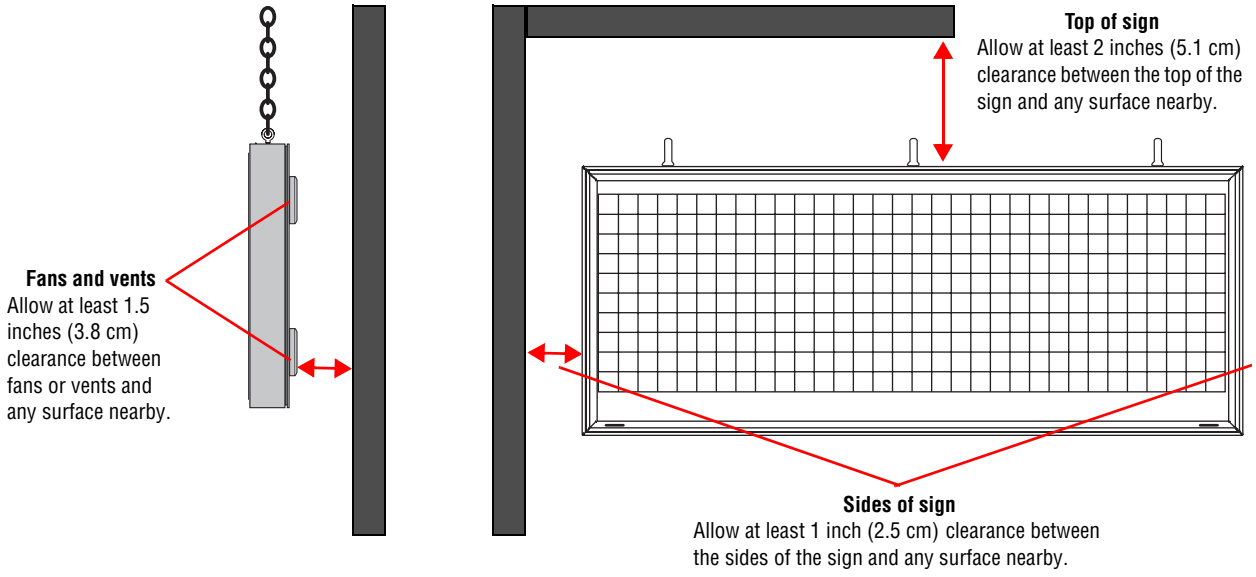


Figure 3: AlphaVision PC sign clearances

Lifting the sign

Observe these guidelines when lifting the sign.

- Use the eyebolts on the sign with lifting bars for lifting and hanging, as shown below.

NOTE: The eyebolts are *not* designed to withstand the side pressure of lifting in a Y-configuration. If a lifting bar is not used, the eyebolts may shear off, causing the sign to fall, with potential death or serious injury.

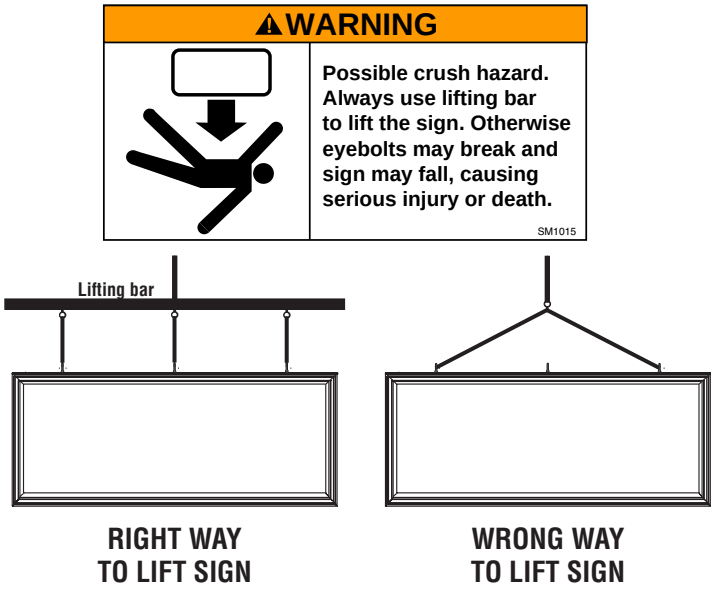


Figure 4: Using a lifting bar

- Use *only* the eyebolts on the sign for lifting. Double-sided signs must be lifted and hung using the eyebolts, not the cross-member that holds the signs together.

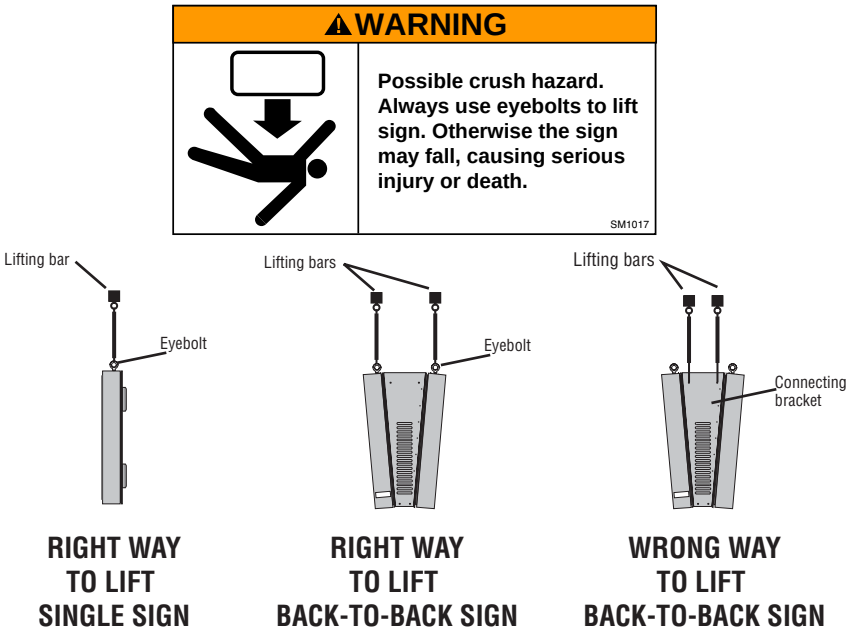


Figure 5: Using eyebolts

Mounting the sign overhead

1. Disconnect all power from the sign at the power source(s) to prevent electrical injury or damage.

2. If you are working with a single-sided sign, remove the factory-installed brackets from the top and bottom of the sign. A sign of up to 350 pounds will have four brackets (two along the top, two along the bottom) and a sign of more than 350 pounds will have five brackets (three along the top and two along the bottom).

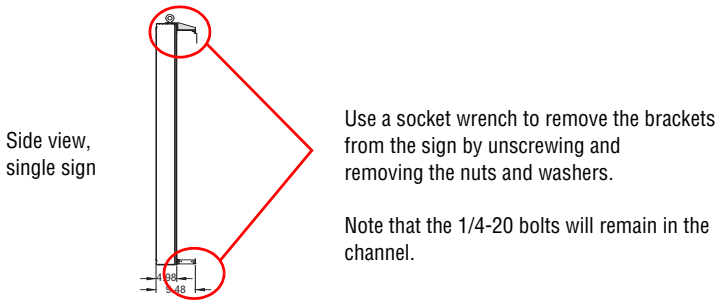


Figure 6: Removing the brackets on an AlphaVision PC sign

3. Hang the sign from chains (not supplied) using all appropriate eyebolts.

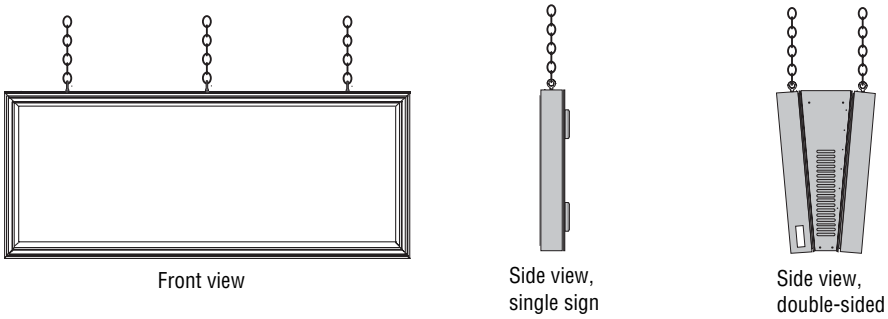


Figure 7: Overhead-mounting AlphaVision PC signs

4. Hang the sign over the wall brackets.

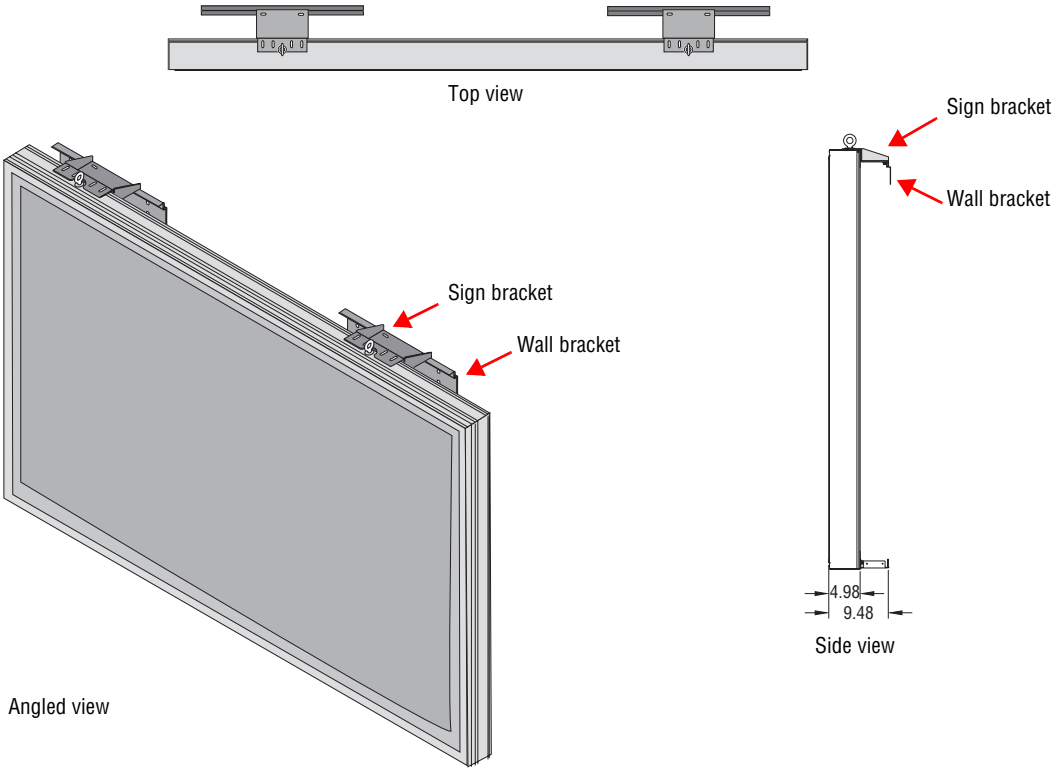


Figure 11: Wall-mounting the sign

NOTE: Brackets installed at the bottom of the sign are for spacing purposes only. These are *not* weight-bearing brackets and should only be used to keep the sign mounted in a vertical position.

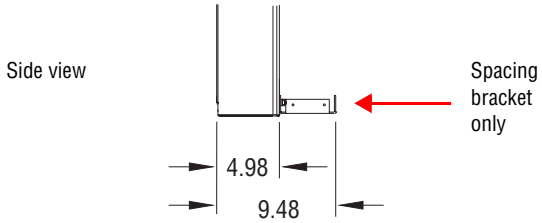


Figure 12: Bottom brackets on a wall-mounted AlphaVision PC sign

5. Screw 1/4-20 bolts and lock washers (provided) through the sign bracket and wall bracket and secure. Torque to 30 in-lbs.

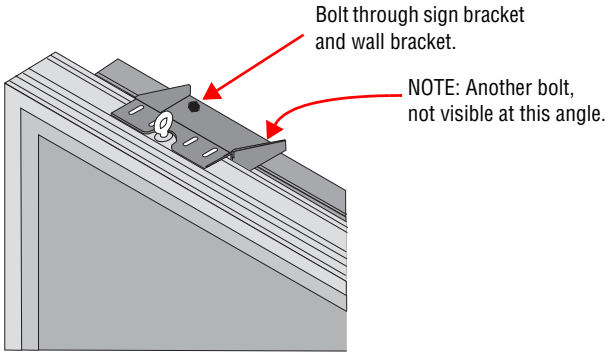


Figure 13: Bolts through sign bracket and wall bracket

Installation diagram

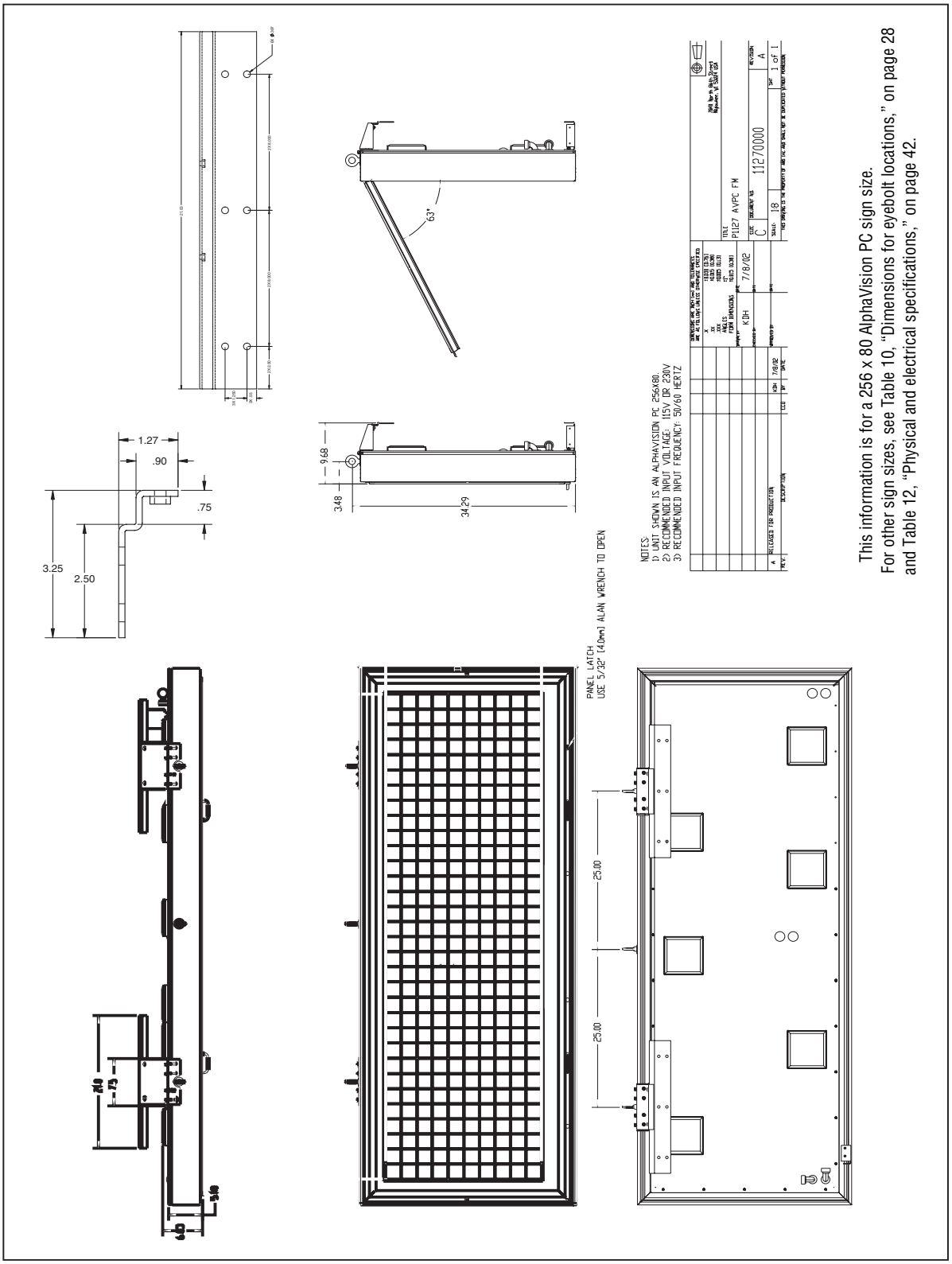
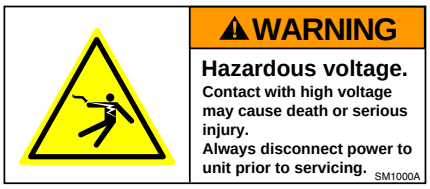


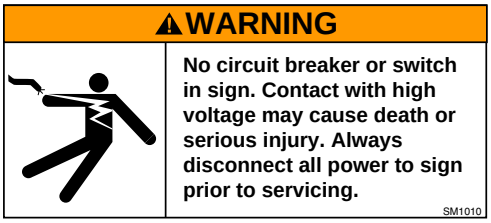
Figure 14: AlphaVision PC Installation diagram

Opening the sign

To facilitate this process, one person at each side of the sign is recommended.

1. Disconnect all power from the sign at the power source(s).





2. Turn latches counter-clockwise to open the sign's front door.

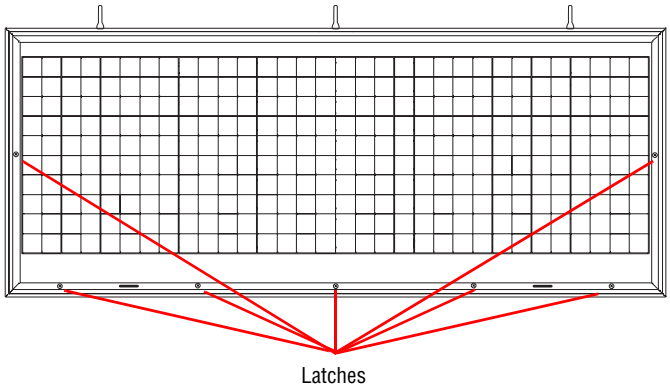


Figure 15: Front latches on sign door

3. Stand away from the front of the sign. Using the handles, lift the plexiglas door upward. (A wire lanyard is installed, but does not prevent the plex frame from opening too far. Be sure it does not catch on anything when opening the sign.)

   NOTE: For larger signs, two or more people may be needed to lift the door.

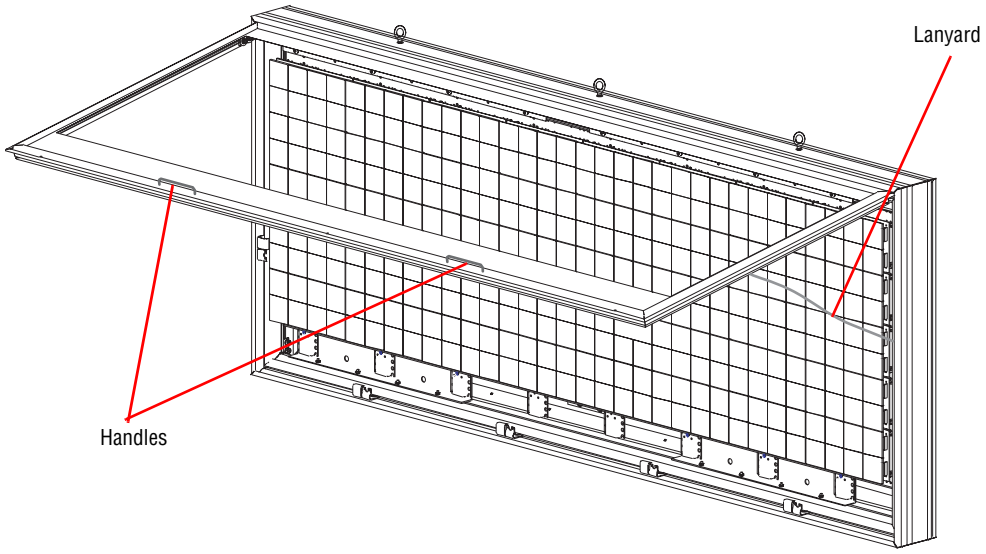


Figure 16: Opening/closing sign door

4. Insert prop rods into brackets at the bottom corners of the sign to support the door. Prop rods are stored inside the door along the bottom.

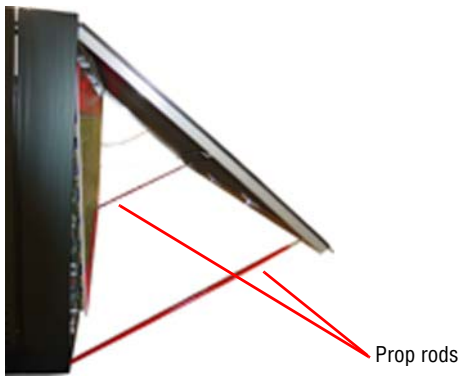


Figure 17: Lifting the sign door

Raising the LED boards

5. Remove the rail screws (circled below) where installed at the bottom of each internal vertical rail.

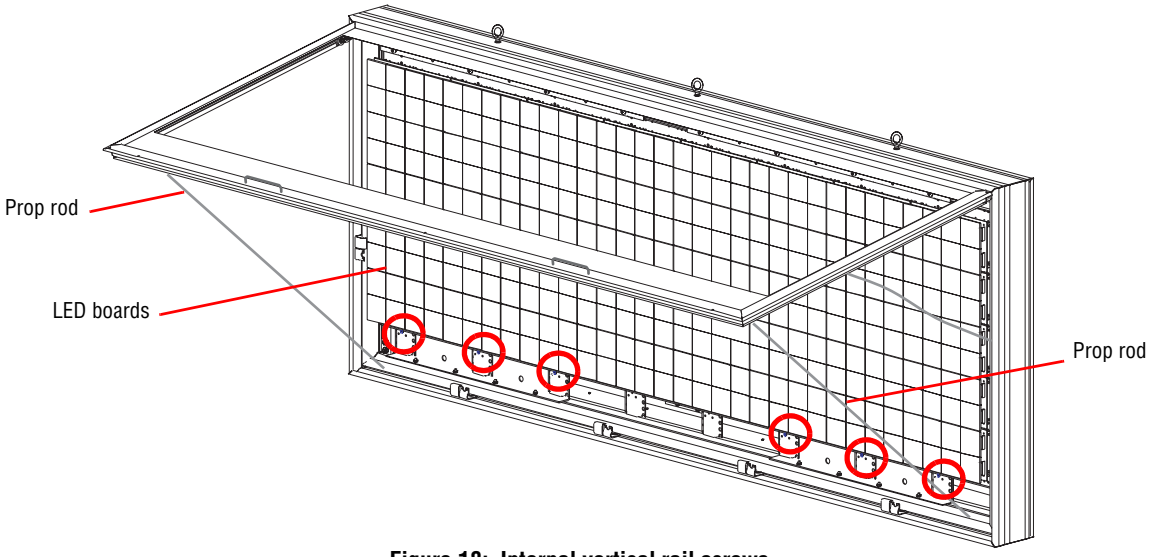


Figure 18: Internal vertical rail screws

6. Carefully lift the LED boards up by placing your hands underneath the mounting rail — not an LED board — as shown below.

NOTE: For larger signs, two or more people may be needed to lift the LED boards.

NOTE: Be sure to follow ESD prevention guidelines as described in "Technical documentation can be found at Adaptive's web site: http://www.adaptivedisplays.com." on page 4.

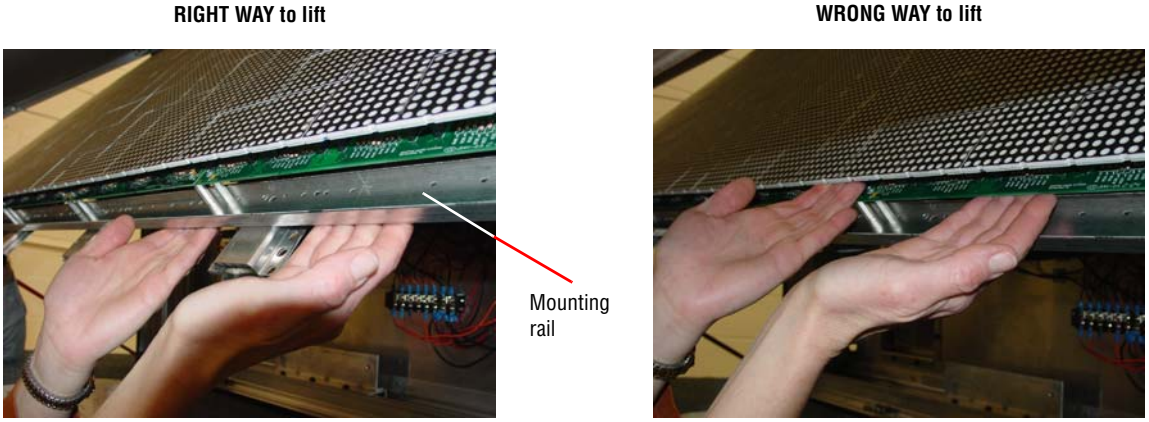


Figure 19: Lifting LED boards

7. Lower and fasten each prop rod to support the LED boards.

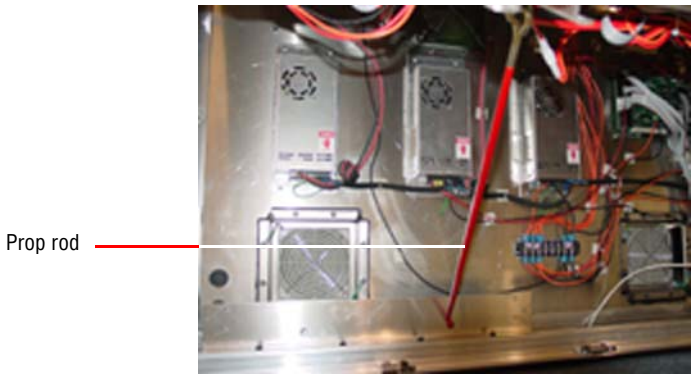
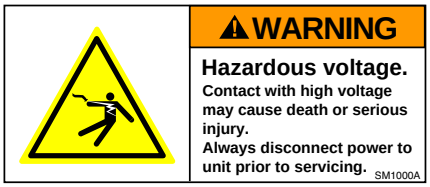


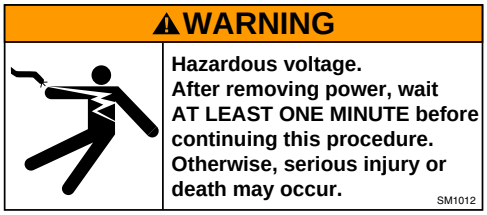
Figure 20: Installing prop rod under LED boards

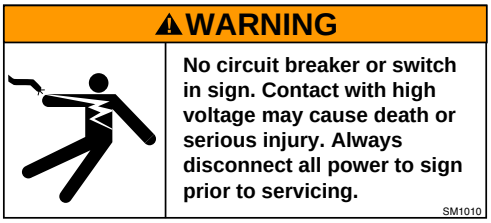
Installing signal wiring

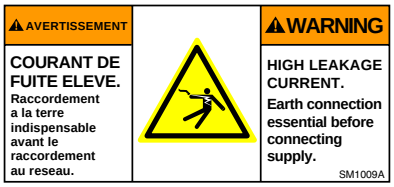
8. In order to display messages, a sign will need to communicate with a computer. This requires special wiring. See "3 — Networking signs" on page 18.

Making power connections





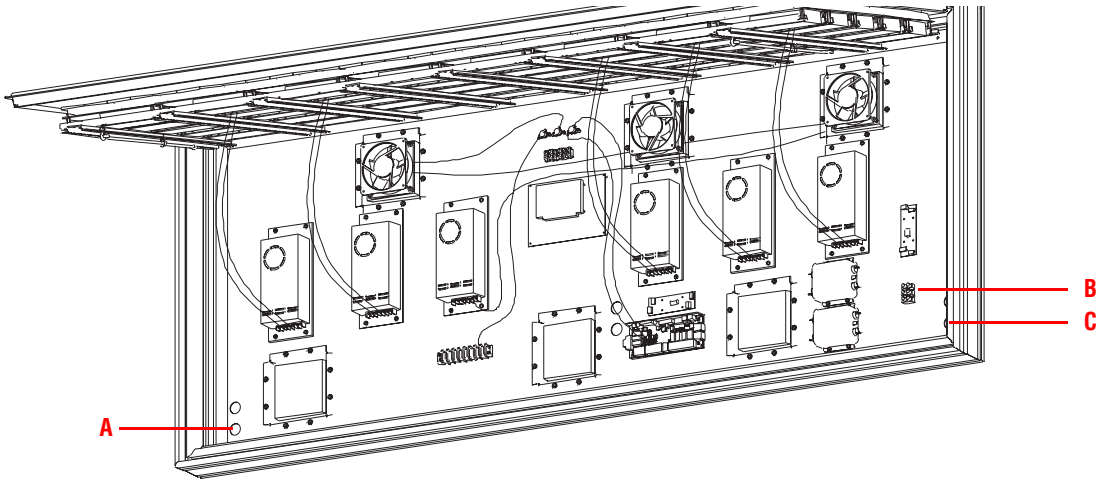




1. For proper current and wiring requirements for the sign, refer to the nameplate, as shown in Table 8, "Nameplate," on page 16, and the terminal block label, as shown in Table 3, "Inside view of an AlphaVision PC sign," on page 9. Both labels are found on a single or Master sign only, not on a Slave sign.

2. Connect the sign to an appropriate power source. Wire the same number of electrical circuits as the number of power terminal blocks. That is, if there is 1 power terminal block, then 1 electrical circuit must be wired. If there are 2 terminal blocks, then 2 electrical circuits must be wired. Refer to Table 12, “Physical and electrical specifications,” on page 42 and ”Mains power wiring” on page 46 for wiring specifics.

Table 11: Power connections



Module,
front view, open

Item	Description
A	Power line opening, alternate.
B	Power terminal block (1 or 2).
C	Power line opening, recommended.

3. The sign must be properly earth grounded. *The sign’s support structure should NOT be used as ground.*

Closing the sign

To facilitate this process, one person at each side of the sign is recommended.

4. Raise each prop rod for the LED boards and fasten under the LED boards. See Figure 20, “Installing prop rod under LED boards” above.

5. Lower the LED boards. See Figure 19, “Lifting LED boards,” on page 38.

6. Refasten screws to the internal vertical rails. See Figure 18, “Internal vertical rail screws,” on page 38.

7. Raise each prop rod for the door and fasten under the door. See Figure 17, “Lifting the sign door,” on page 37.

8. Lower the door. Be sure the wire lanyards do not get caught when closing the door.

9. Use the quarter-turn latches to close the sign’s door. See Figure 15, “Front latches on sign door,” on page 36.

Testing the installation

You will be able to determine whether you have successfully installed a sign by the power-up messages that appear when the sign is turned on.

NOTE: Note the sign’s IP address when the sign powers up because you will need it if you want to change it. (The default IP address of an AlphaVision PC is typically 207.67.12.237).

When you power up a sign that has been correctly installed, a “Loading” message appears diagonally down each driver board with one minutes after power is applied. Just before the actual application is started, the sign goes blank and then the sign type and the IP address appear in the bottom right-hand corner:

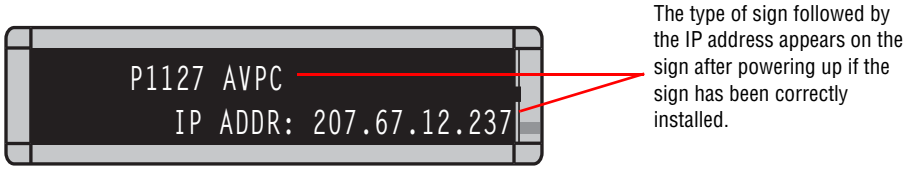


Figure 21: Determining whether the sign is successfully installed.

NOTE: Timing may vary depending on software installed.

Mains power wiring

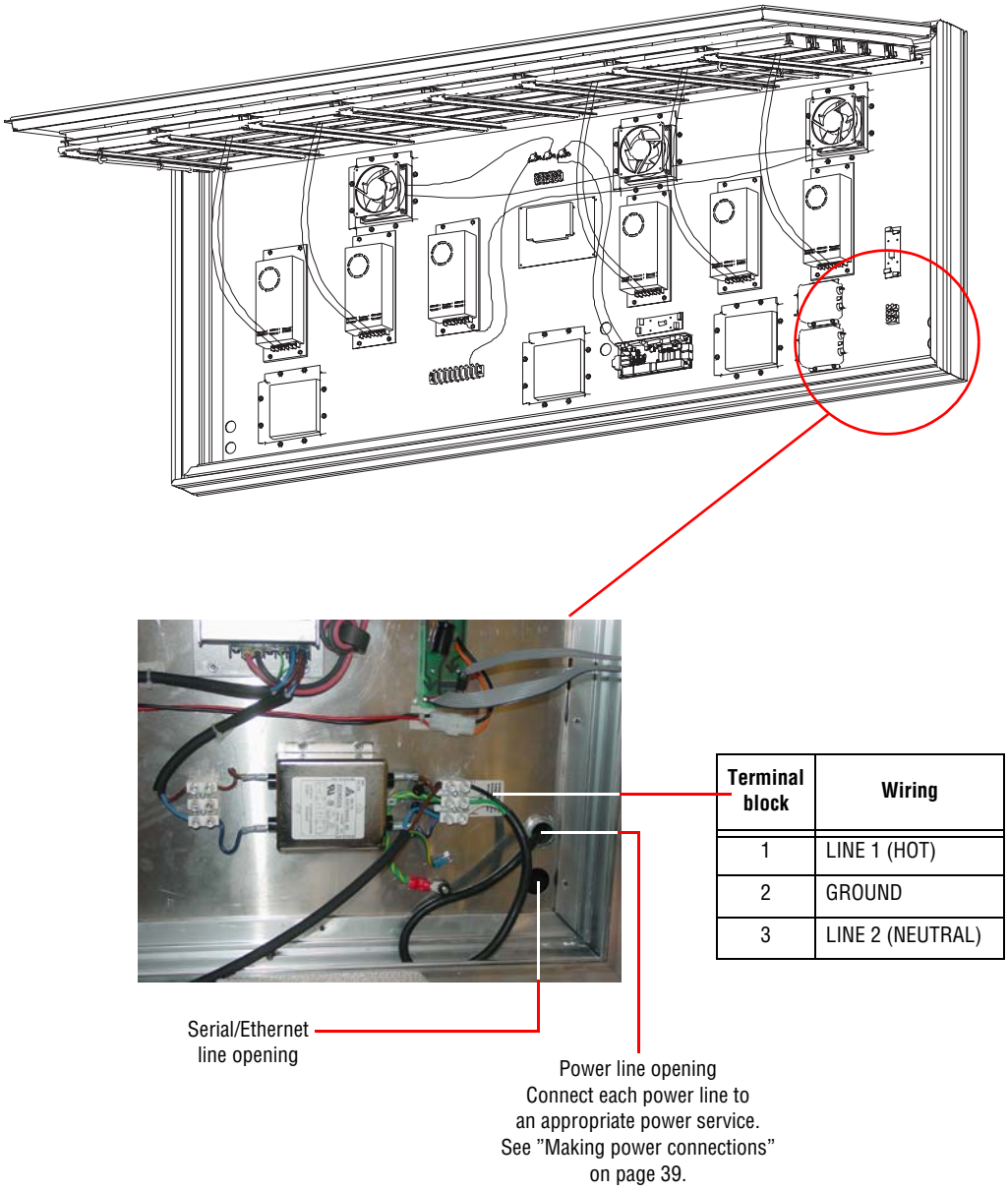


Figure 22: Mains power connection