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Alpha 7000 Series Back-to-Back Sign Installation Manual

Installation and Ethernet Connection of Alpha 7000 Series Signs

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Revision history

Part number	Date	Notes
1024600101A	October 3, 2006	First release.

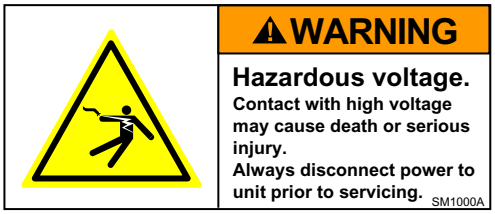
Related documentation

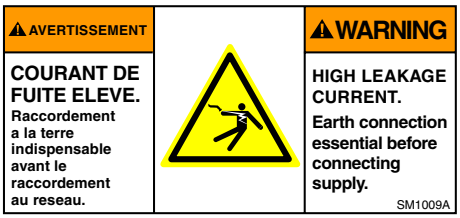
Part number	Title	Description
9707-7004K	Alpha NEMA Series Signs Installation Instructions	Installation instructions for all NEMA series signs.
TechMemo 00-0005	Preventing Electrostatic Discharge (ESD) Damage	Describes the precautions to take to protect electronic components from ESD damage.

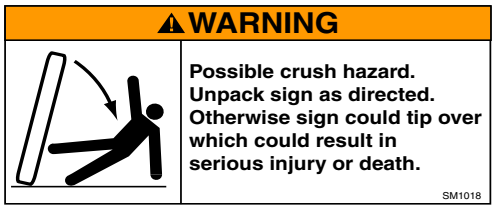
Safety Information

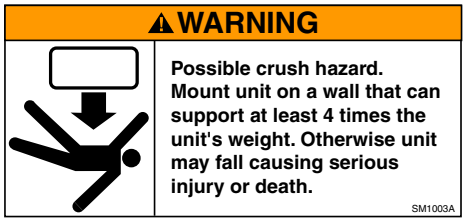
Warnings and cautions

Be aware of the following warnings when installing or servicing signs.









Preventing electrostatic discharge damage

This equipment contains components that may be damaged by “static electricity,” or electrostatic discharge. To prevent this from happening, be sure to follow the guidelines in Adaptive Tech Memo 00-0005, “Preventing Electrostatic Discharge (ESD) Damage,” available on our Web site at http://www.adaptivedisplays.com.

EMI compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with installation guidelines, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Contents

Introduction

Purpose

This manual explains how to mount and electrically connect Alpha 7000 series back-to-back standard or NEMA 4 signs and is intended for sign installers.

Equipment symbols

Chassis ground

Mains power (I = On, 0 = Off)

Temperature protection in NEMA-rated enclosures

Alpha signs in NEMA-rated enclosures have automatic temperature controls that help to protect the sign from damage when the internal temperature of the sign is too hot to continue normal operation.

- If the internal temperature reaches the “dimming on” point, the LED output from the sign is forced into a 50% reduced-power mode, effectively dimming the brightness of LED output by about 50%.
- If the temperature reaches the “overheat on” point, the sign will shut down normal data display to protect the sign from damage. “OVERHEATED” will appear in 7-high characters.
- If the temperature returns below the “overheat off” point, the overheated message ceases and normal data is displayed at 50% brightness.
- If the temperature returns below the “dimming off” point, the forced dimming is turned off and the sign returns to normal processing.

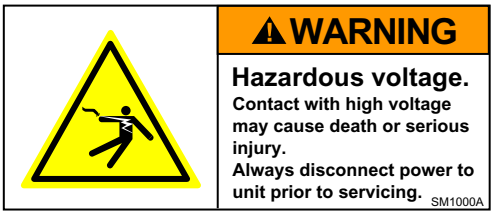
The table below shows specific temperatures for Alpha 7000 series signs:

Alpha 7000 series models			
Dimming on	**Overheat on**	**Overheat off**	**Dimming off**
60°C 140°F	70°C 158°F	65°C 149°F	55°C 131°F

Note: Take into account the effects of ambient temperature when evaluating mounting locations for the sign. You should always maintain recommended clearance distances around the sign and avoid poorly ventilated mounting locations that could be subject to radiation, convection, conduction, or other thermal transfer effects. See “Ventilation requirements” on page 7 for details.

Installation guidelines

- Only qualified personnel should install these signs.
- Always disconnect power from the sign(s) prior to installation or servicing. Power must be removed from the sign at the power source to prevent electrical injury or damage.



- Alpha 7000 series signs are for *indoor use only*. Do not continuously expose to direct sunlight.
- Mounting hardware that is used to hang or suspend signs must be capable of supporting *at least 4 times* the total weight of any/all signs mounted together.
- For integrity of the case, do not drill holes in or modify the case.

Mechanical installation

Overview

Because every sign installation is unique, there is no single procedure for mounting Alpha 7000 series signs. Failure to follow appropriate cautionary procedures may result in death or serious injury. Additionally, sign parts could sustain damage if the doors are opened and the sign is not fully installed. Failure to comply will void the sign's warranty.

Any area on the sign's frame that had paint removed during mounting must be recoated with paint that is UL recognized to standard UL-1332, category DTOV2. *Failure to repaint the area will result in accelerated corrosion of the sign's structure.* Adaptive Micro Systems is not responsible for any failure in the sign's structure because of this. Failure to comply will void the sign's warranty.

Ventilation requirements

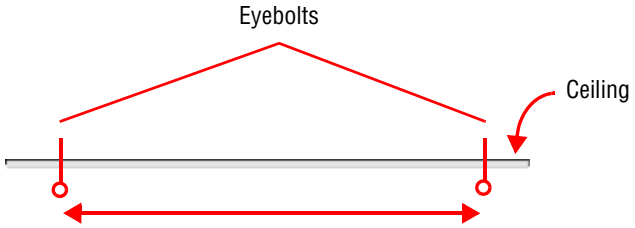
When a sign is mounted to a solid surface, then nothing can block the space between the top, bottom, and sides of the sign and the solid surface. This is required for both wall- and ceiling-mounted signs. Allow 1-inch of clearance (minimum) between the sign and any solid surface.

Mounting back-to-back signs

1. Attach two eye bolts (not supplied) to the ceiling according to the following measurements.

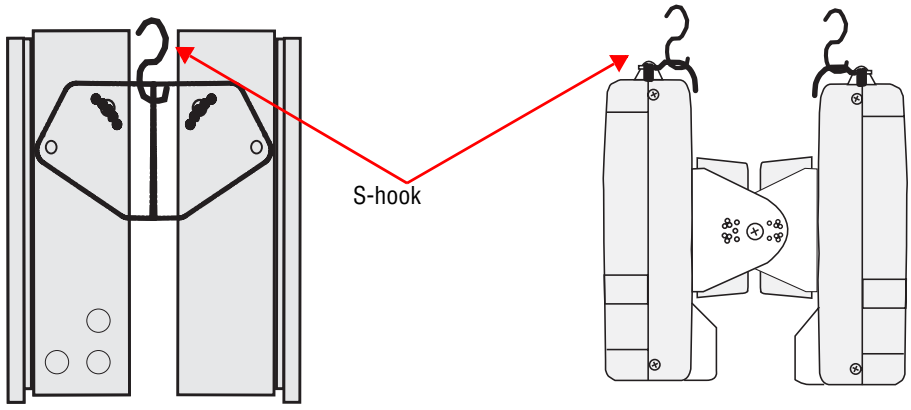
Note: The eye bolts and ceiling must be capable of supporting 4 times the total weight of the signs.

Model	Distance between eye bolts	Weight bearing minimum
NEMA	65.25” (165.8 cm)	640 lbs.
Standard	65.25” (165.8 cm)	512 lbs.



2. Attach S-hooks (not supplied) to the eye bolts and to the top position of the bracket mounting on each side of the signs. Use chains (not supplied) to hang the sign.

Note: Use S-hooks and chains capable of supporting 4 times the total weight of the signs.



NEMA 4 **Standard**

Electrical installation

Guidelines for electrical installation

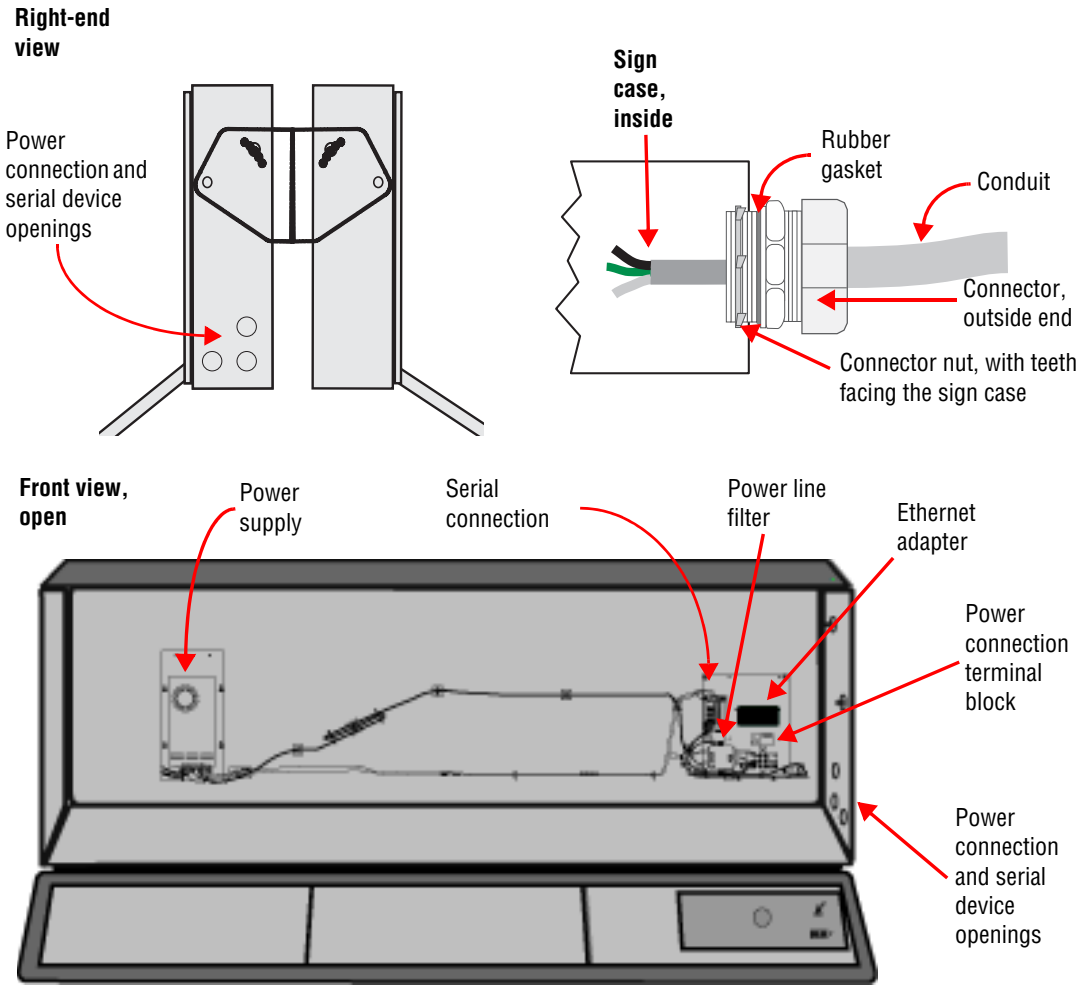
Electrical installation must only be performed by a qualified electrician. Electrical connections must comply with all applicable national and local codes.

- On a two or more line sign, all power switches must be in the off position to remove power from the sign.
- Inspect all internal sign cabling for proper connection and seating.
- All power wiring must be from circuit breaker-protected lines. However, a sign should not be connected to a GFI-protected circuit.
- A two-pole disconnect device must be installed in the building wiring for each branch circuit supplying the sign.
- The sign must be properly grounded according to the applicable codes (for example, NEC Article 250 and 600, and IEEE 1100-1999).
- Run separate conduits for signal wires (for example, RS232, RS485) and for power wires. However, fiber optic wire may be run in the same conduit with power wires.
- All electrical connections must be watertight.
- Use minimum 80°C copper wire only.

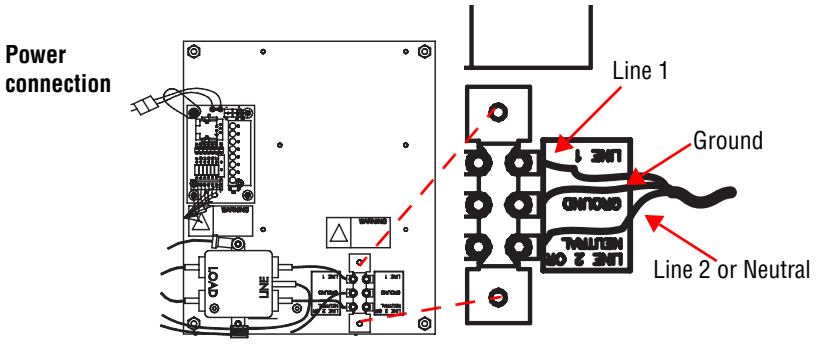
Installing the power lines—NEMA models

1. Open the front of the sign cases by turning the quarter-turn latches counter-clockwise. Carefully let the front of the cases open forward.
2. Feed electrical cables through 1” water-tight conduits, through the outside end of the connectors (supplied), through the electrical openings in the sign cases, and then through the inside ends of the connectors. Screw the inside and outside ends of the connectors together until water-tight.

Note: Install power lines through the lower right openings when an Ethernet adapter has been installed.

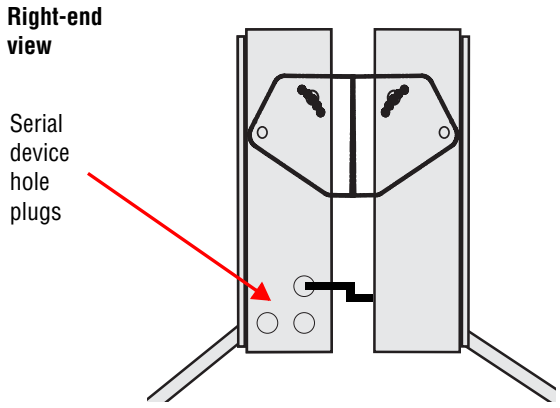


3. Strip the electrical wires back 1/4”. Connect the wires by screwing the end of each wire into the power connection.

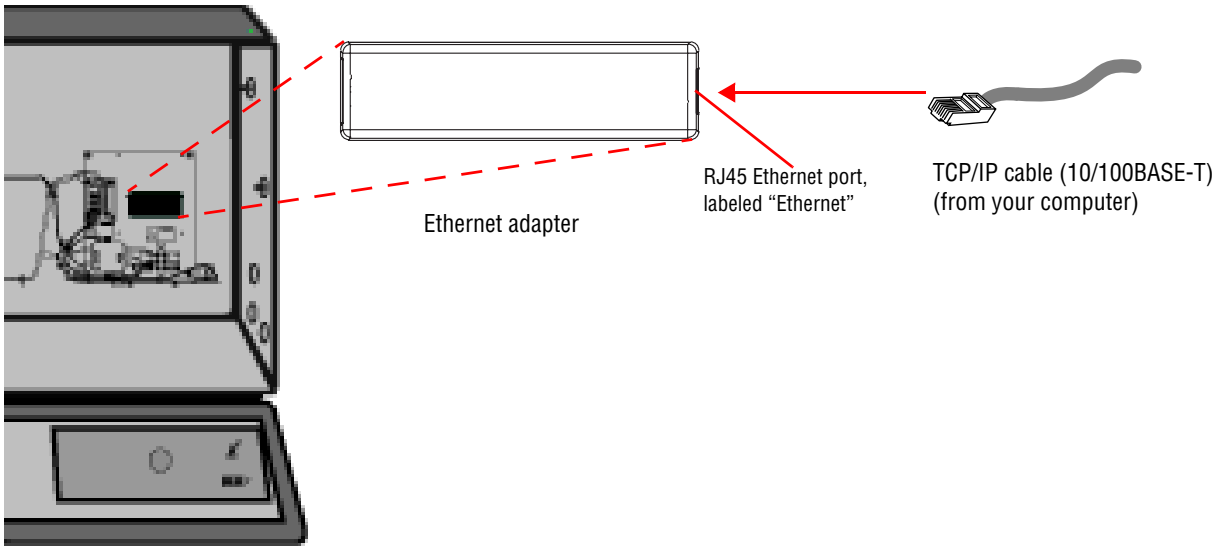


Wiring the Ethernet connection—NEMA models

1. Remove the lower left hole plug on the right side of the first sign (sign with Ethernet adapter installed).



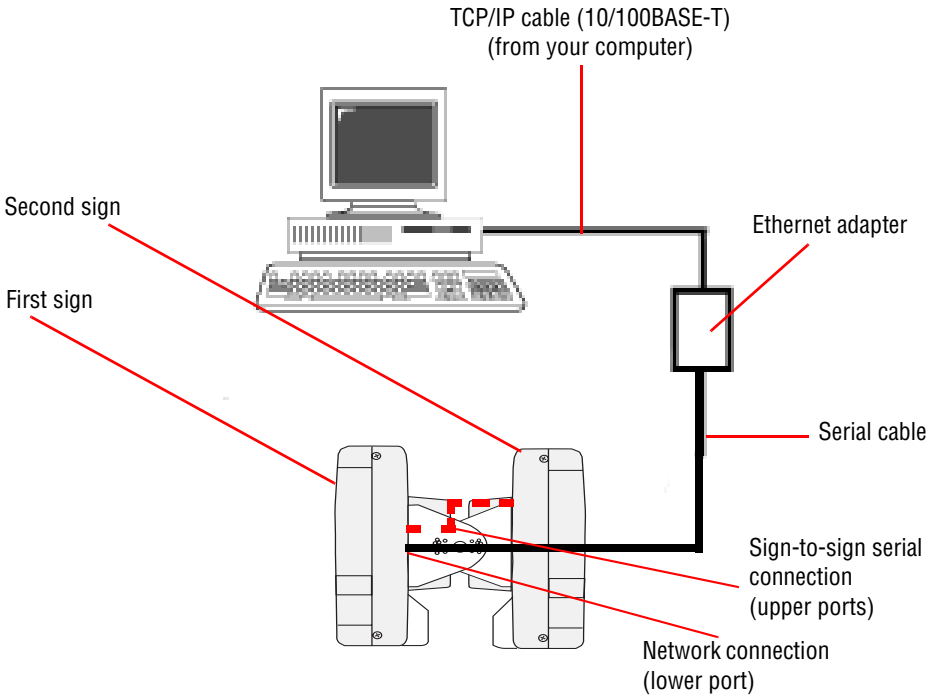
2. Thread the TCP/IP cable from the Ethernet network through the cord grip (supplied).
3. Feed the TCP/IP cable through the serial opening and connect the cable to the Ethernet adapter inside the case.



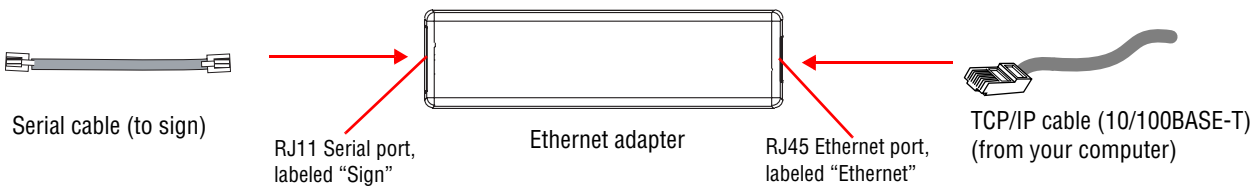
4. Tighten the cord grip.
5. Record the MAC address of the Ethernet adapter (located on the adapter); you will need this later to assign the sign’s IP address.
6. Carefully close the front of the signs and turn the quarter-turn latches clockwise with a large screwdriver.

Wiring the Ethernet connection—standard models

1. Connect the TCP/IP cable from your Ethernet network to the Ethernet adapter.



2. Attach the serial cable from the Ethernet adapter to the lower port on the back of the first sign.



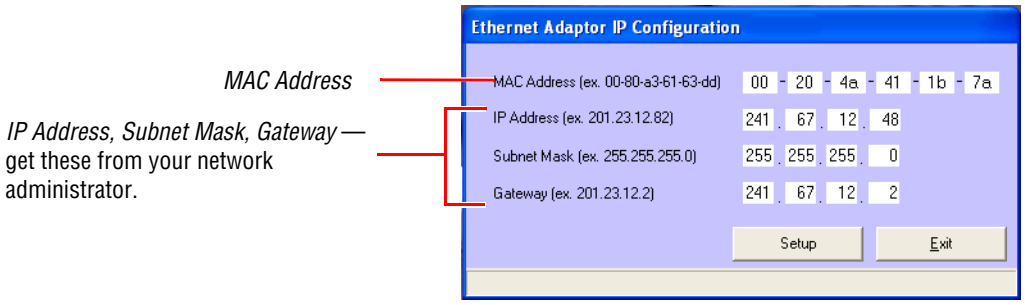
3. Attach the Ethernet adapter to the sign case using a velcro strip (supplied).

Assigning an IP address

1. Plug the power cable into a power source and apply power to the sign.

   Note: Your sign and computer must be connected to the same TCP/IP network.

2. Write down the MAC address that appears on the sign.
3. Run the *setip.exe* file from the Adaptive software provided with your sign. Enter the MAC address from the sign and the IP address, subnet mask, and gateway provided by your network administrator.

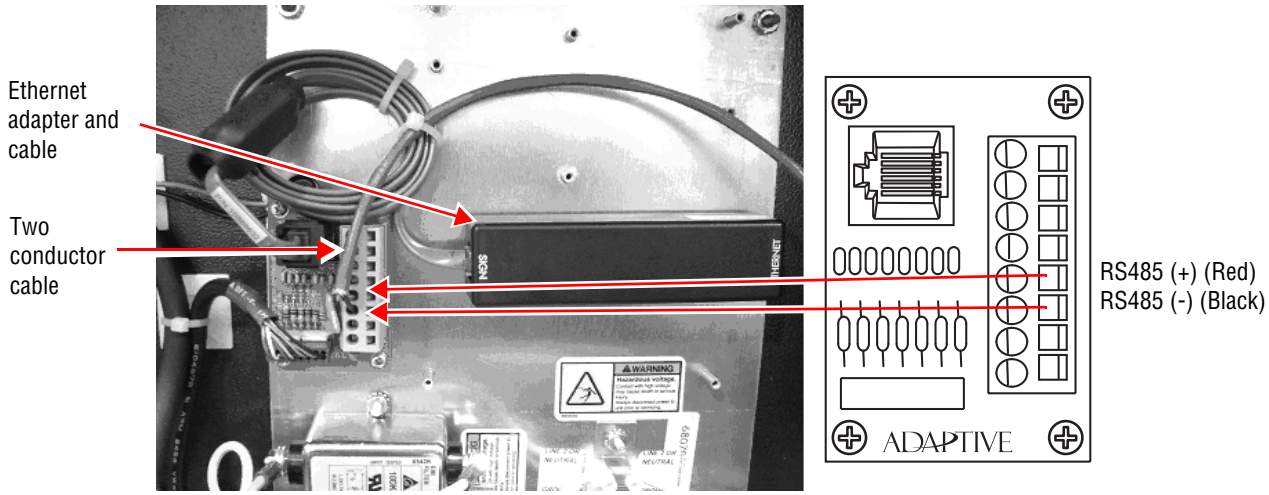


4. Click **Setup.**
5. Cycle power and send a test message to the sign using MMServer.

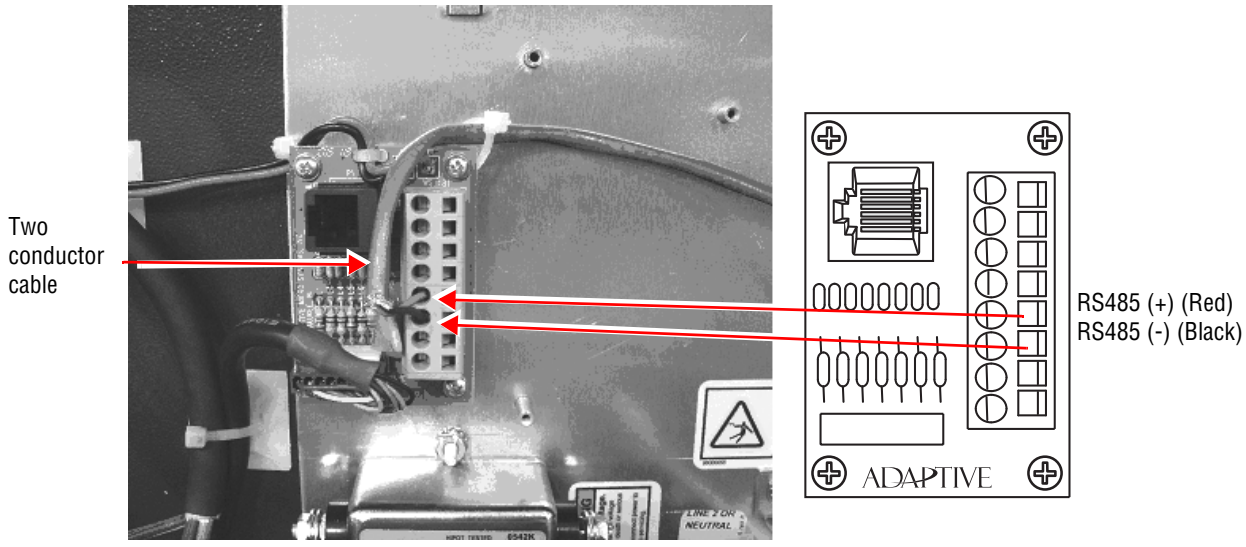
Networking

Sign-to-sign connections—NEMA models

The following diagrams illustrate the wiring of the Ethernet connection for Alpha 7000 series back-to-back signs in NEMA-rated enclosures.



Front sign



Back sign

Sign-to-sign connections—standard models

The following diagram illustrates the wiring of the Ethernet connection for standard Alpha 7000 series back-to-back signs.