

### Introduction

These instructions show how to change the serial address and how to mount ALPHA series signs with NEMA Types 2, 4, 4X, and 12 enclosures. *Type 2* enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt. *Type 4* enclosures are intended for indoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water. *Type 4X* enclosures are intended for indoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose-directed water. *Type 12* enclosures (in a gasketed, dust free, sealed, spray down resistant case) are intended for indoor use.

### Changing the serial address

**NOTE:** Instructions for Changing the serial address on ALPHA 420 signs are on page 13.  
 Instructions for Changing the serial address on 2.1" NEMA 2 signs are on page 24.  
 Instructions for Changing the serial address on 3.2" NEMA 2 signs are on page 29.

**NOTE:** ALPHA Series 4000 and 7000 signs (in NEMA 2, 4, and 4x enclosures, only) use a jumper connection to select between RS232 and RS485 serial modes. See inset box "NOTE", below right.

A serial address for an ALPHA sign is a number from 0 to 255 in hexadecimal (00 to FF). A serial address for an ALPHA sign with Smart Alec option is a number from 000 to 255 in decimal (000 to 255.) The address is used to identify the sign in a network of signs. All signs leave the factory with a default address of 0 or 000.

To change a sign's serial address, follow these steps:

1. Point a hand-held Remote Control (shown at left) at the sign, and press **PROGRAM**.
2. Press **BACK** until *SET SERIAL ADDRESS* appears on the sign.
3. Press **ADV** and *SERIAL ADDRESS = 00* will appear.
4. Type in the new serial address using the numbered keys on the Remote Control.
5. Press **RUN** twice to set the new serial address and return the sign to normal operation.



**NOTE:** When you set up for serial communication some ALPHA signs require that you physically select a jumper for RS232 or RS485 serial mode. Refer to "Select serial communication mode" on page 4 and "Electrical instructions—serial communication" on page 18. NEMA 12 models are directly wired to a terminal block under the power supply cover as RS485 or as RS232. There is *no* jumper.

### Checkout procedure

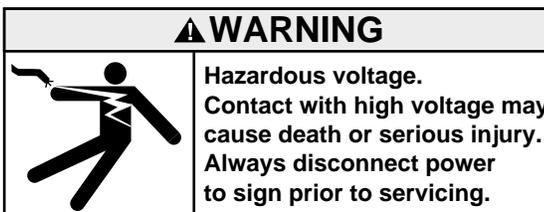
After installing a sign according to the following section on "Mounting instructions", make sure the sign is installed properly by applying power to it. The following information should be displayed on the sign:

- firmware part number and version letter (e.g., 1018-4403d),
- model number of the sign (e.g., N024160C),
- amount of RAM in the sign, (e.g., 256K), and
- serial address of the sign (a number from 0 to FF or from 000 to 255).

### Mounting precautions

**NOTE:** Only qualified personnel should install the ALPHA NEMA signs.

Before mounting a sign,  
remove power from the sign!



**NOTE:** ALPHA NEMA 2, 4, 4X, and 12 signs are for *indoor use only*. Do not continuously expose to direct sunlight.

**NOTE:** 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.

**NOTE:** For integrity of the case, do not drill holes in or modify the case.

## Temperature protection in NEMA-rated enclosures

Some 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 of the sign reaches a pre-determined “dimming 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 internal temperature of the sign continues to increase another sensing circuit will execute an automatic shut down to protect the sign from damage. The LED output from the sign is turned off.
- If the internal temperature of the sign does not continue to increase after it is forced into the dimming mode, the LED output from the sign returns to normal and forced dimming is turned off after the sign’s internal temperature falls below.

Model	Enclosure	Dimming Point	Auto-shutdown On
4000	NEMA 2	55° C (131° F)	70° C (158° F)
	NEMA 12	55° C (131° F)	70° C (158° F)
420	NEMA 12	55° C (131° F)	70° C (158° F)
7000	NEMA 2	55° C (131° F)	70° C (158° F)
	NEMA 12	55° C (131° F)	70° C (158° F)
	NEMA 4, NEMA 4x	55° C (131° F)	70° C (158° F)

ALPHAVISION character matrix signs in NEMA 2 enclosures have similar automatic temperature controls and also have built-in cooling fans, whose operation is controlled through the same circuit. The activation temperatures for the cool-down protection circuit are as follows:

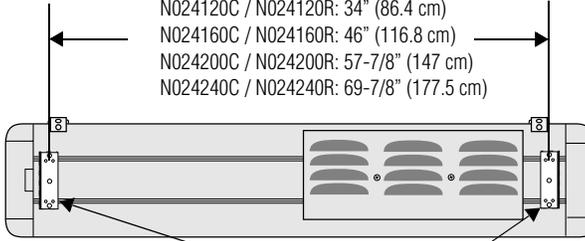
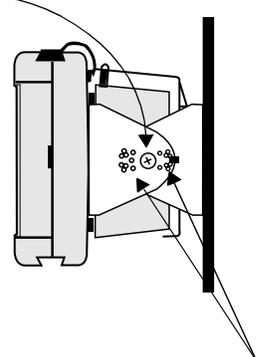
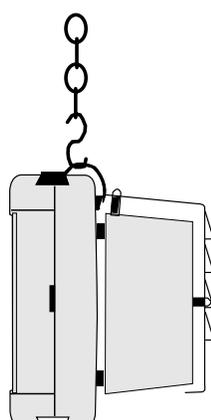
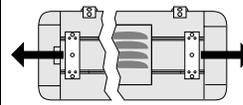
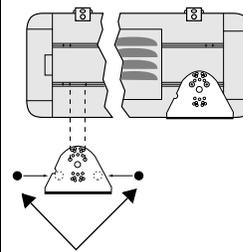
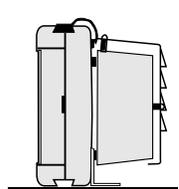
Model	Enclosure	Cooling Fan On	Dimming Point On	Auto-shutdown On
2.1 inch char. matrix	NEMA 2	50° C (122° F)	65° C (149° F)	70° C (158° F)
3.2 inch char. matrix	NEMA 2	50° C (122° F)	65° C (149° F)	70° C (158° F)

The de-activation temperatures for the ALPHAVISION cool-down protection circuit are as follows:

Model	Enclosure	Auto-shutdown Off	Dimming Point Off	Cooling Fan Off
2.1 inch char. matrix	NEMA 2	55° C (131 F°)	50° C (122° F)	30° C (86° F)
3.2 inch char. matrix	NEMA 2	55° C (131 F°)	50° C (122° F)	30° C (86° 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.

## ALPHA 4000 series NEMA 2 models

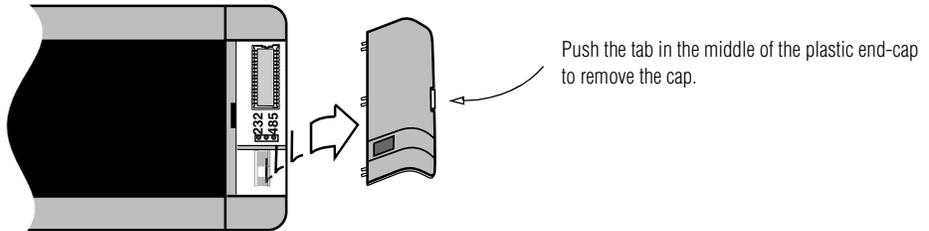
Model (weight)	Mounting instructions		
	Wall	Ceiling	Counter
<p>ALPHA 4000 series:</p> <p>N024120x (21.5 lbs, 9.7 kg)</p> <p>N024160x (27.5 lbs, 12.5 kg)</p> <p>N024200x (33.5 lbs, 15.2 kg)</p> <p>N024240x (39.5 lbs, 17.9 kg)</p>	<p>1. Attach two wall brackets to a wall the following approximate distance apart (measured from the center of each bracket):</p> <p style="margin-left: 40px;">N024120C / N024120R: 34" (86.4 cm)                      N024160C / N024160R: 46" (116.8 cm)                      N024200C / N024200R: 57-7/8" (147 cm)                      N024240C / N024240R: 69-7/8" (177.5 cm)</p>  <p style="text-align: center;">Sign brackets</p> <p>2. Connect the sign brackets to the wall brackets using the two large bolts supplied.</p>  <p>3. Tilt the sign to select a viewing angle. To hold the sign in place, insert a cotter pin into the small holes located on each bracket (see arrows).</p> <p>NOTE: Do NOT install the sign directly to drywall or plasterboard. The sign must be fastened to a wall capable of supporting at least 250 pounds (113.3 kg).</p> <p>NOTE: Keep a minimum 1.0-inch (2.54 cm) clearance on all sides of the sign for adequate ventilation.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: Do NOT remove the sign's end caps or front lens because this will break the watertight seal and invalidate the sign's warranty.</p> </div>	<p>Slide the mounting brackets to the desired locations. Then use the supplied screws to fasten each mounting bracket to the sign.</p> <p>Use a chain (not supplied) to hang the sign from a ceiling.</p>  <p>NOTE: Choose a chain and mounting system capable of supporting a minimum of 250 pounds (113.3 kg).</p> <p>NOTE: Keep a minimum 1.0-inch (2.54 cm) clearance on all sides of the sign for adequate ventilation.</p>	<p>1. Remove the mounting shims from each side of the sign.</p>  <p>2. Stick two rubber "bumpers" on each mounting bracket. The bumpers should end up between the bracket and the sign. Attach each mounting bracket to the sign using two screws (supplied) per bracket:</p>  <p style="text-align: center;">Bumpers</p> <p>3. Either rest the sign on the mounting brackets or fasten the brackets to the counter.</p>  <p>NOTE: Keep a minimum 1.0-inch (2.54 cm) clearance on all sides of the sign for adequate ventilation.</p>

## ALPHA 4000 series NEMA 2 models

**Model  
(weight)**

### Select serial communication mode

NOTE: For more information on connecting ALPHA signs to a PC or to a PC network, refer to document 9708-8046: "Network Configurations" manual



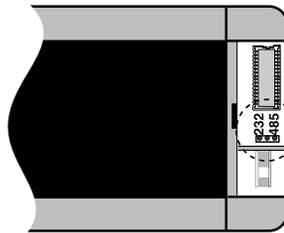
ALPHA 4000 series:

N024120x  
(21.5 lbs, 9.7 kg)

N024160x  
(27.5 lbs, 12.5 kg)

N024200x  
(33.5 lbs, 15.2 kg)

N024240x  
(39.5 lbs, 17.9 kg)

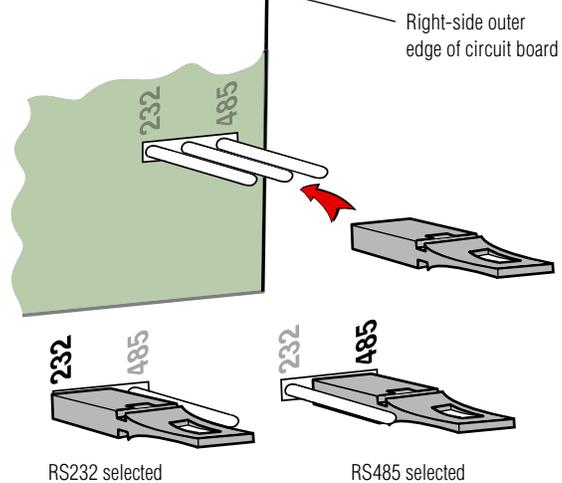


A 3 pin jumper underneath the EPROM (just above the IR Remote input) selects the serial communication mode:

Push the 2 pin spade terminal over the left-side and middle pins sets serial mode for RS232 communication.

Push the jumper terminal over the middle and right-side pins to select RS485 serial mode.

Replace the cover when you've set the jumper to the required position.



## Electrical warning for all NEMA 12 models (ALPHA 4000 series and 420)

Model (weight)	Electrical instructions
	<p><b>Connecting the power wires</b></p> <p>A readily-accessible disconnect device shall be installed in the fixed wiring supplying power to this equipment. The disconnect device shall have a contact separation of at least 3 mm.</p> <p>This equipment relies on protective devices in the building installation for protection for short circuit and/or overcurrent protection. Install this equipment only where these protective devices are present. The size and type of the protective devices shall be appropriate for the voltage and current ratings on this equipment.</p> <hr/> <p>Un dispositif de déconnexion placé à un endroit pratique doit être installé sur le fil fixe qui alimente ce matériel. La distance des contacts de ce dispositif de déconnexion doit être de 3 mm minimum.</p> <p>Ce matériel s'appuie sur des dispositifs de protection dans l'installation du bâtiment pour se protéger des courts-circuits et/ou des surintensités. Installez ce matériel seulement là où de telles protections sont présentes. Le calibre et le type des protections doivent être adaptés à la tension et à l'intensité nominales du matériel.</p> <hr/> <p><u>ALPHA 4000 series:</u></p> <p>N124120x (28 lbs, 12.7 kg)</p> <p>N124240x (50 lbs, 22.7 kg)</p> <p><u>ALPHA 420:</u></p> <p>N12420x (36.5 lbs, 16.6 kg)</p> <hr/> <p>In der Festverdrahtung muß eine leicht zugängliche Trennvorrichtung installiert werden, die dieses Gerät mit Strom versorgt. Die Trennvorrichtung muß eine Kontakttrennung von mindestens 3 mm aufweisen.</p> <p>Kurzschlußschutz und/oder Überstromschutz wird in diesem Gerät durch entsprechende Schutzvorrichtungen in der Gebäudeinstallation gewährleistet. Dieses Gerät nur dort installieren, wo diese Schutzvorrichtungen vorhanden sind. Größe und Art der Schutzvorrichtungen müssen den Spannungs- und Stromnennstärken dieses Geräts entsprechen.</p> <hr/> <p>Un dispositivo di sconnessione prontamente accessibile dovrà essere installato nel cablaggio fissato che fornisce corrente alla presente apparecchiatura. Il dispositivo di sconnessione dovrà avere una separazione di contatto di almeno 3 mm.</p> <p>La presente apparecchiatura si affida a dispositivi di protezione nell'installazione da edificio per protezione da corto circuito e/o protezione da sovracorrente. Installare l'apparecchiatura solamente in punti dove sono presenti questi dispositivi di protezione. Le dimensioni e il tipo di dispositivo di protezione dovranno essere appropriati alla tensione e ai valori di corrente della presente apparecchiatura.</p> <hr/> <p>Se debe instalar en el cableado fijo que alimenta este equipo un dispositivo de desconexión fácilmente accesible. Dicho dispositivo tendrá una separación entre contactos de por lo menos 3 mm.</p> <p>Este equipo depende del uso de dispositivos protectores en la instalación del edificio para protección en caso de cortocircuito y/o protección contra sobrecorriente. Instale este equipo únicamente en caso de disponer de dispositivos protectores. El tipo y tamaño de los dispositivos protectores deberán ser adecuados para los valores nominales de tensión y corriente de este equipo.</p>

## ALPHA 4000 series NEMA 12 models

**Model  
(weight)**

### Electrical instructions

#### Connecting the power wires, continued

**⚠ WARNING**

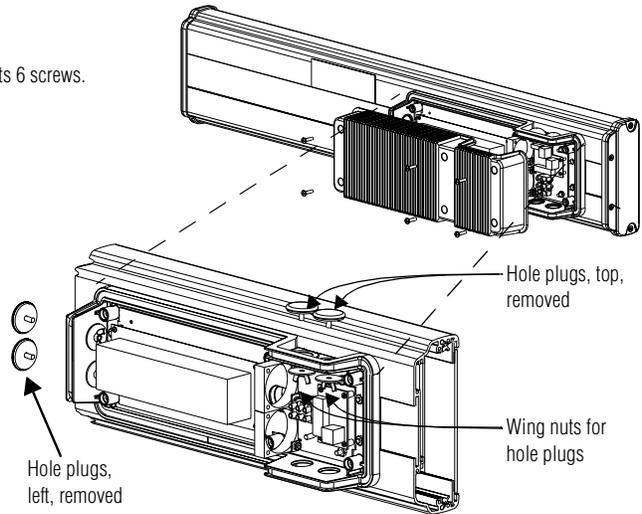


**Hazardous voltage.**  
**Contact with high voltage may cause death or serious injury.**  
**Always disconnect power to sign prior to servicing.**

1. Remove the power supply cover by unscrewing its 6 screws.  
Save the screws for a later step.

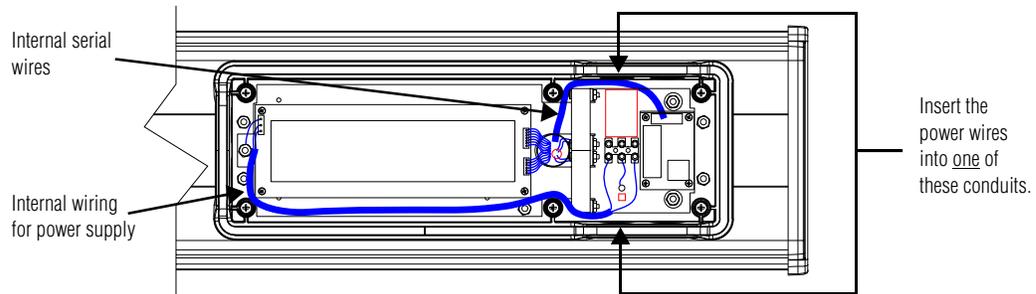
2. It is recommended that you install power and serial wires at the bottom of the power supply enclosure. However, to accommodate power or serial wire installation at the top of the enclosure, you may want to remove the left or right conduit hole plug from the top of the enclosure by removing its wing nut inside the enclosure. Save the hole plug for a later step.

It is also possible, but not recommended, to install the wires in the same way on the left end.



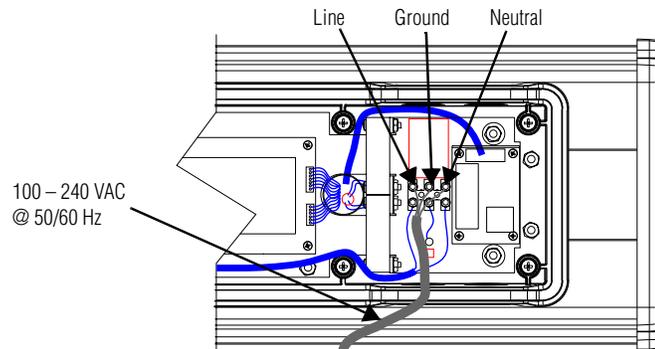
3. Insert the power wires through the left conduit on either the top or the bottom of the sign. The bottom conduit is recommended to reduce noise from power wires crossing serial wires.

NOTE: Use watertight conduit connectors only.  
Flexible conduit should be used.



4. Connect the incoming electrical wires.

Be sure to place the wires so they will not be caught by screws when replacing the power supply cover, and also so they will not interfere with fan operation.



N124120x  
(28 lbs, 12.7 kg)

N124240x  
(50 lbs, 22.7 kg)

## ALPHA 4000 series NEMA 12 models

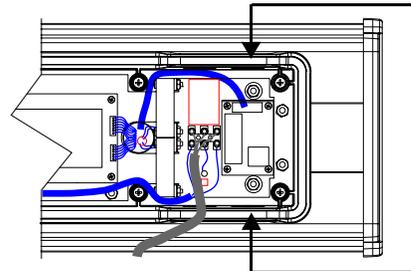
**Model  
(weight)**

### Electrical instructions

#### Connecting the serial wires



5. Insert the serial wires through the **right** conduit on either the top or the bottom of the sign.



Insert the serial wires into one of these conduits.

NOTE: TB1 can be used for incoming bare-wire serial connection for RS232 **or** RS485, plus Auxiliary out. The full pinout diagram is:

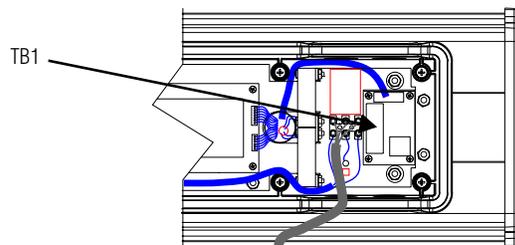
TB1 - full	
1 GND	5 RS485+
2 +5V	6 RS485-
3 RS232 TX	7 AUX OUT
4 RS232 RX	8 SHIELD

N124120x  
(28 lbs, 12.7 kg)

N124240x  
(50 lbs, 22.7 kg)

6. (Optional) Connect an auxiliary device to TB1.

TB1 - Aux out	
1 GND	5 NC
2 NC	6 NC
3 NC	7 AUX OUT
4 NC	8 NC



7. Connect the incoming serial wires (*bare-wire connection*).

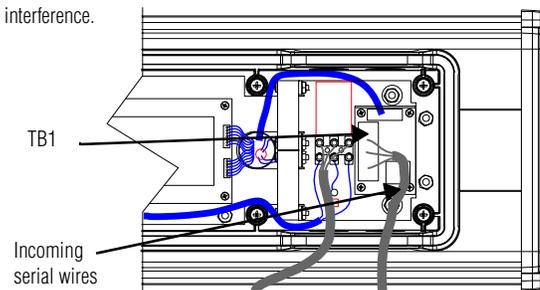
TB1 can be used for incoming RS232 **or** RS485 serial connection, but not both.

TB1 and RS485 are recommended to reduce undesirable electrical interference.

Aux Out can be used at the same time.

NOTE: Be sure to place the wires so they will not be caught by screws when replacing the power supply cover, and also so they will not interfere with fan operation.

TB1 - RS232		TB1 - RS485	
1 GND	5 NC	1 NC	5 RS485+
2 NC	6 NC	2 NC	6 RS485-
3 RS232 TX	7 NC	3 NC	7 NC
4 RS232 RX	8 NC	4 NC	8 SHIELD



## ALPHA 4000 series NEMA 12 models

**Model  
(weight)**

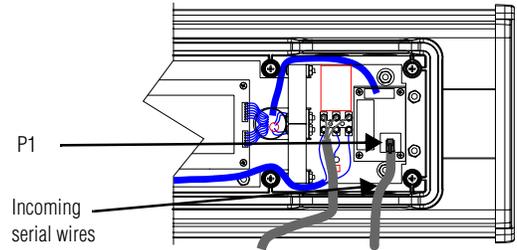
### Electrical instructions

#### Connecting the serial wires, continued

8. Connect the incoming serial wires (*RJ11/RJ12 connection for RS232 only*)

P1 can be used for incoming RS232, although it is not recommended.

NOTE: Be sure to place the wires so they will not be caught by screws when replacing the power supply cover, and also so they will not interfere with fan operation.

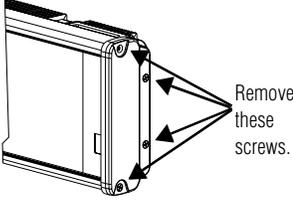
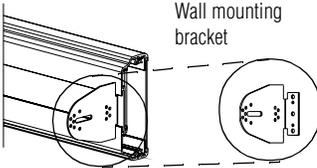
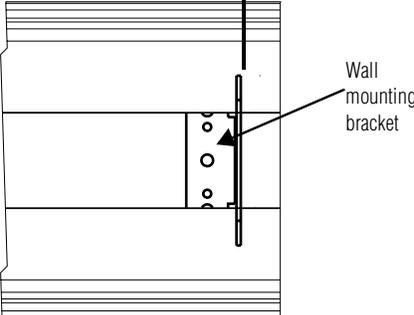
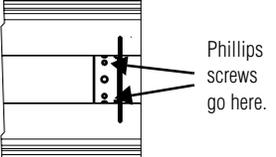
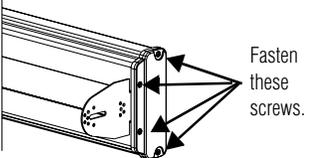
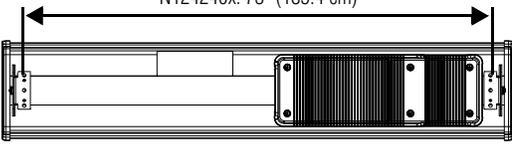
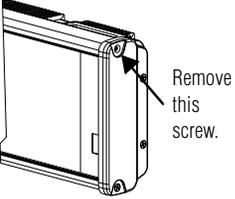
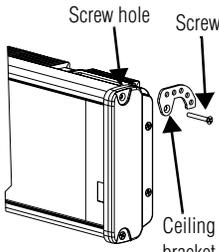
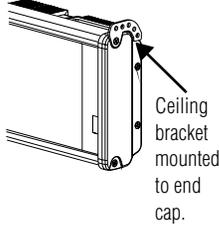
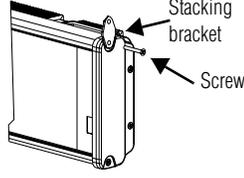
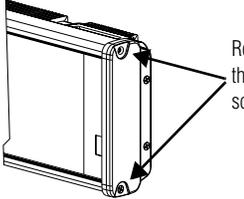
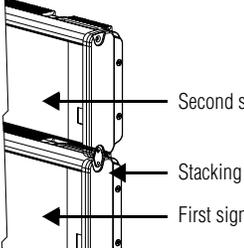
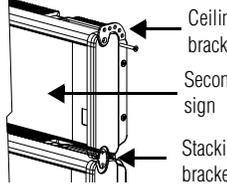


9. To maintain NEMA compliance and to prevent EMI emissions, install hole plugs in any open conduit holes in the power supply enclosure. If needed, there is an extra hole plug supplied in addition to any hole plugs removed in Step 2 on page 6.
10. Replace the power supply cover using the 6 screws from when the cover was removed. (Refer to Step 1 on page 6.) Torque the screws to 24 lb-in.
11. Plug the power cable into a power source.

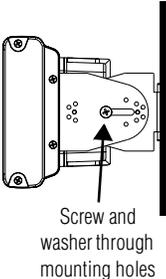
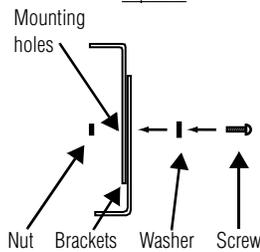
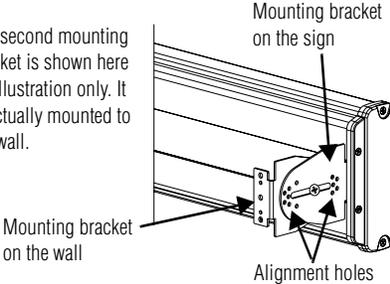
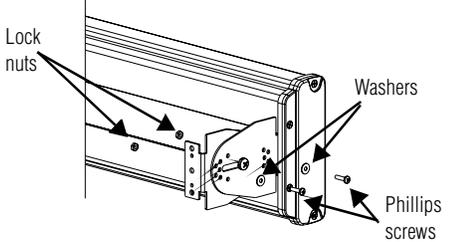
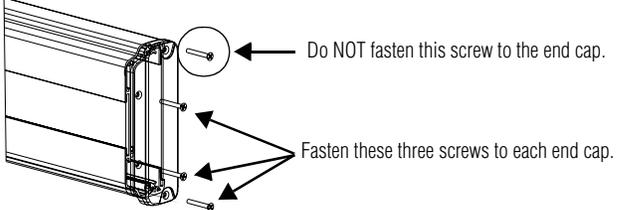
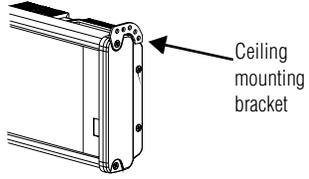
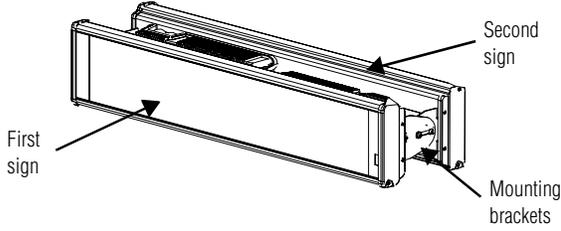
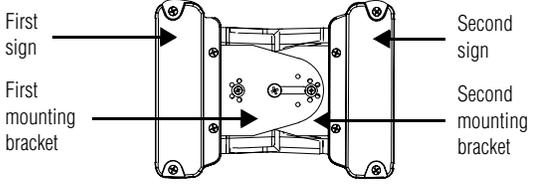
N124120x  
(28 lbs, 12.7 kg)

N124240x  
(50 lbs, 22.7 kg)

## ALPHA 4000 series NEMA 12 models

Model (weight)	Mounting instructions		
	Wall	Ceiling	Stacking
<p>N124120x (28 lbs, 12.7 kg)</p> <p>N124240x (50 lbs, 22.7 kg)</p>	<p><b>NOTE: Remove only one end cap at a time.</b></p> <p>1. Remove the 4 screws and the end cap from one end of the sign.</p>  <p style="text-align: right;">Remove these screws.</p> <p>2. Slide one of the wall mounting brackets onto the back of the sign until it is approximately 0.5 in. away from the end of the sign.</p>  <p style="text-align: right;">Wall mounting bracket</p> <p style="text-align: center;">0.5"</p>  <p style="text-align: right;">Wall mounting bracket</p> <p>3. Use two 10-32 x 1/4 Phillips screws (supplied) to secure the wall mounting bracket to the back of the sign. Torque the screws to 24 lb-in.</p>  <p style="text-align: right;">Phillips screws go here.</p> <p>4. Replace the end cap using the 4 screws removed in Step 1. Torque the screws to 24 lb-in.</p>  <p style="text-align: right;">Fasten these screws.</p> <p>5. Repeat Steps 1 - 4 for the other end of the sign. Distances between the bracket holes, center-to-center, should be approximately:</p> <p style="text-align: center;">N124120x: 37" (94 cm) N124240x: 73" (185.4 cm)</p>  <p style="text-align: center;"><i>Continued on next page</i></p>	<p>1. Remove one screw from the top of the end cap.</p>  <p style="text-align: right;">Remove this screw.</p> <p>2. Line up a ceiling bracket with the top hole on the sign's end cap so the bracket fits in the indentation. There are left and right ceiling brackets. Use the one that fits with the screw hole's countersunk side facing out. Secure the ceiling bracket with the screw removed in Step 1. Torque the screws to 24 lb-in.</p>  <p style="text-align: right;">Screw hole    Screw</p> <p style="text-align: right;">Ceiling bracket</p>  <p style="text-align: right;">Ceiling bracket mounted to end cap.</p> <p>3. Repeat steps 1 - 2 for the other end of the sign.</p> <p>4. Use chains (not supplied) to hang the sign from a ceiling.</p> <p style="text-align: center;">NOTE: Use chains capable of supporting 4 times the total weight of the sign(s).</p> <p style="text-align: center;">NOTE: The hole you select in the ceiling bracket for the chain determines the angle at which the sign hangs.</p>	<p>NOTE: Up to 4 signs can be hung together vertically ("stacked"). Mounting system for stack mounting must support a minimum of four times the total weight of all signs being stacked.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b>WARNING</b></p> <p style="text-align: center;">Possible crush hazard. Do not stack more than 4 signs. Otherwise signs may fall causing serious injury or death.</p> </div> <p>1. Remove the top screw from each end cap of the first sign, as shown in Step 1 of the Ceiling mounting instructions.</p> <p>2. Using the screw removed in Step 1, screw a stacking bracket to each end cap, countersunk side out. Torque to 24 lb-in.</p>  <p style="text-align: right;">Stacking bracket Screw</p> <p>3. Remove the top and bottom screws from each end of the second sign.</p>  <p style="text-align: right;">Remove these screws.</p> <p>4. For each end of the signs, secure the stacking bracket from the first sign to the second sign using one of the screws removed in Step 3. Torque to 24 lb-in.</p>  <p style="text-align: right;">Second sign Stacking bracket First sign</p> <p>5. Secure a ceiling bracket to the top of each end cap on the second sign, using Step 2 of the Ceiling mounting instructions.</p>  <p style="text-align: right;">Ceiling bracket Second sign Stacking bracket</p> <p>6. Use a chain (not supplied) to hang the signs from the ceiling, following the notes in Step 4 of Ceiling mounting instructions.</p>

## ALPHA 4000 series NEMA 12 models

Model (weight)	Mounting instructions	
	Wall (continued)	Back-to-Back
<p>N124120x (28 lbs, 12.7 kg)</p> <p>N124240x (50 lbs, 22.7 kg)</p>	<p>6. Attach the two remaining wall mounting brackets to a wall so that they align with the brackets on the sign.</p> <p>NOTE: Do NOT install the sign directly to drywall or plaster-board. The sign must be fastened to a wall capable of supporting at least four times the weight of the sign.</p> <p>7. Connect the mounting brackets on each end of the sign together using a 5/16 Phillips screw and a 5/16 washer through the mounting holes, as shown below, securing with a 5/16 nut. <i>Do not tighten the nut at this time.</i></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Side view</p>  <p>Screw and washer through mounting holes</p> </div> <div style="text-align: center;"> <p>Top view</p>  <p>Mounting holes Nut Brackets Washer Screw</p> </div> </div> <p>8. Match the alignment holes of the brackets on the sign with the alignment holes of the brackets on the wall so that the sign is at the desired viewing angle.</p> <p>NOTE: The second mounting bracket is shown here for illustration only. It is actually mounted to the wall.</p> <div style="text-align: center;">  <p>Mounting bracket on the wall Mounting bracket on the sign Alignment holes</p> </div> <p>9. Fasten the mounting brackets together using two 10-32 x 3/4 Phillips screws, two 10-32 washers, and two 10-32 lock nuts through selected alignment holes on each end of the sign. Torque to 24 lb-in.</p> <div style="text-align: center;">  <p>Lock nuts Washers Phillips screws</p> </div> <p>10. Tighten the 5/16 nuts in the mounting holes. (See Step 7). Torque to 24 lb-in.</p>	<p><b>NOTE: Remove only one end cap at a time for each sign.</b></p> <p>1. Attach a mounting bracket on each end of the signs and replace the end caps, following Steps 1 - 4 of the Wall mounting instructions. However, <i>replace only the bottom three screws</i> for each end cap. Torque the screws to 24 lb-in. Do this step for each end of both signs.</p> <p>NOTE: Do NOT fasten the <i>top</i> screws to the end caps. The top screws will be used to fasten the ceiling mounting brackets to the end caps in the next step.</p> <div style="text-align: center;">  <p>Do NOT fasten this screw to the end cap. Fasten these three screws to each end cap.</p> </div> <p>2. Attach ceiling mounting brackets to all the end caps following Step 2 of the Ceiling mounting instructions. Torque the screws to 24 lb-in.</p> <div style="text-align: center;">  <p>Ceiling mounting bracket</p> </div> <p>3. Match the signs together back-to-back. Connect them together following Steps 7 - 9 of the Wall mounting instructions. Torque to 24 lb-in.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>First sign Second sign Mounting brackets</p> </div> <div style="text-align: center;">  <p>First sign Second sign First mounting bracket Second mounting bracket</p> </div> </div> <p>4. Use chains (not supplied) to hang the signs from the ceiling.</p> <p>NOTE: Use chains capable of supporting 4 times the total weight of the signs.</p>

# ALPHA 420 NEMA 12 models

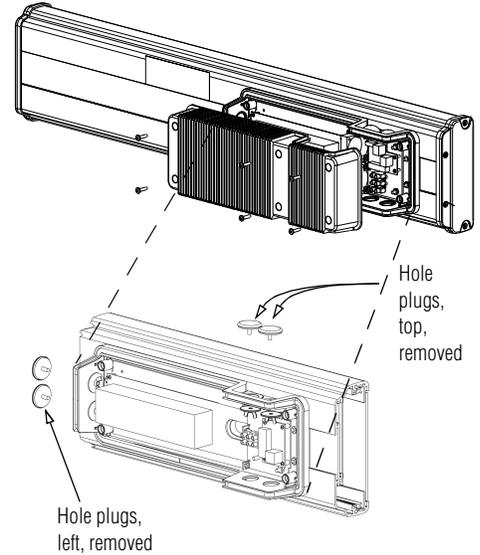
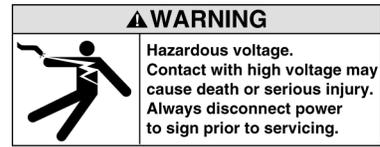
**Model  
(weight)**

## Electrical instructions

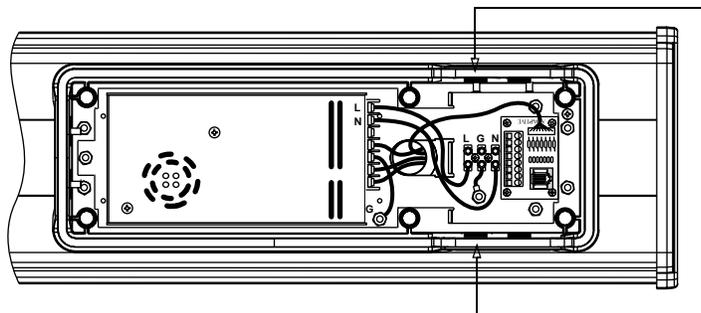
### Connecting the power wires

1. Refer to the electrical warning on page 5 for information on required short circuit and over-current protective devices, as well as on the required disconnect device that must be installed between the sign and power supply.
2. Remove power from the circuit to eliminate safety risk.
3. Remove the power supply cover by unscrewing its 6 screws. Save the screws for a later step.
4. It is recommended that you install power and serial wires at the bottom of the power supply enclosure. However, to accommodate power or serial wire installation at the top of the enclosure, you may want to remove the left or right conduit hole plug from the top of the enclosure by removing its wing nut inside the enclosure. Save the hole plug for a later step.  
It is also possible, but not recommended, to install the wires in the same way on the left end.
5. Insert the power wires through the left conduit hole on either the top or the bottom of the sign. The bottom conduit hole is recommended to reduce noise from power wires crossing serial wires.

NOTE: Use watertight conduit connectors and flexible conduit.



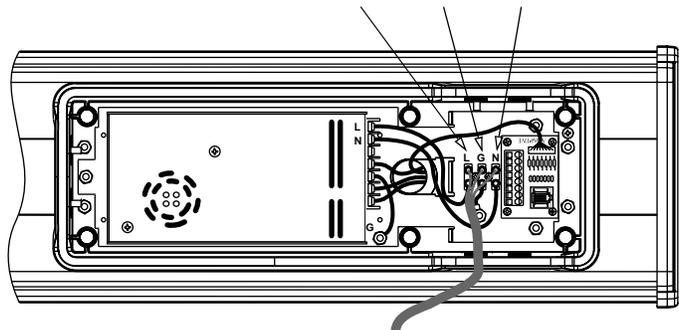
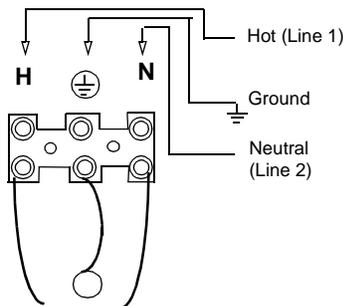
N12420x  
(36.5 lbs, 16.6 kg)



6. Connect the incoming electrical wires.

Be sure to place the wires so they will not be caught by screws when replacing the power supply cover, and also so they will not interfere with fan operation.

Line (Hot) BLACK  
Ground GREEN w/ Yellow  
Neutral (Line 2): WHITE



Input Voltage: 100-240 VAC @ 50/60 Hz

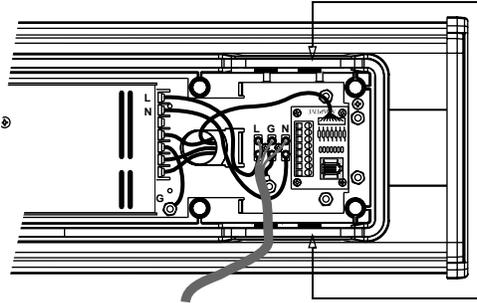
# ALPHA 420 NEMA 12 models

**Model  
(weight)**

## Electrical instructions

### Connecting the serial wires

7. Insert the serial wires through the right conduit hole on either the top or the bottom of the sign.



Insert the serial wires into one of these conduit holes.

NOTE: TB1 can be used for incoming bare-wire serial connection for RS232 **or** RS485, plus Auxiliary Out. The full pinout diagram is:

TB1 - full	
1 GND	5 RS485+
2 +5V	6 RS485-
3 RS232 TX	7 AUX OUT
4 RS232 RX	8 SHIELD

8. Connect the incoming serial wires (*bare-wire connection*).

TB1 can be used for incoming RS485 **or** RS232 serial connection, but not both.

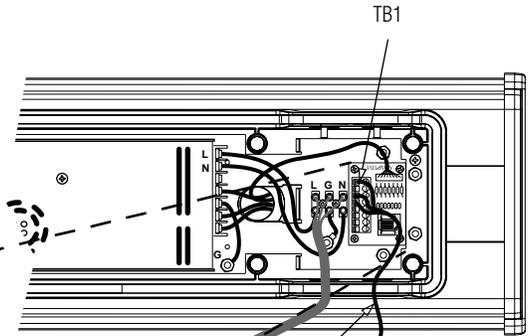
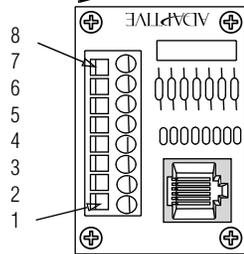
TB1 and RS485 are recommended to reduce undesirable electrical interference.

Aux Out can be used at the same time. (See next page.)

NOTE: Be sure to place the wires so they will not be caught by screws when replacing the power supply cover, and also so they will not interfere with fan operation.

N12420x  
(36.5 lbs, 16.6 kg)

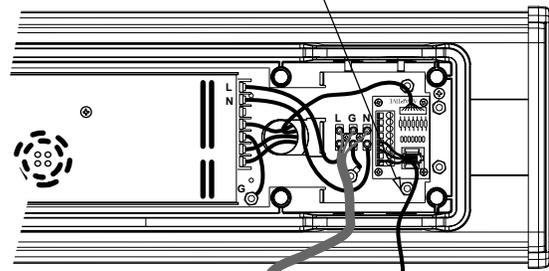
TB1 - RS485	
1 NC	5 RS485+
2 NC	6 RS485-
3 NC	7 NC
4 NC	8 SHIELD



RS485 connection to TB1

Incoming serial wires

TB1 - RS232	
1 GND	5 NC
2 NC	6 NC
3 RS232 TX	7 NC
4 RS232 RX	8 NC



RS232 connection to TB1

## ALPHA 420 NEMA 12 models

**Model  
(weight)**

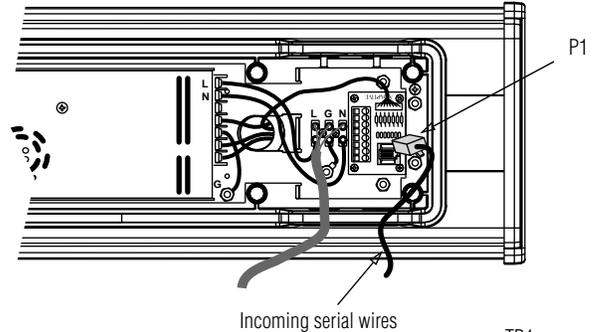
### Electrical instructions

#### Connecting the serial wires (continued)

9. Connect the incoming serial wires (*RJ11/RJ12 connection for RS232 only*)

P1 can be used for incoming RS232, although it is not recommended.

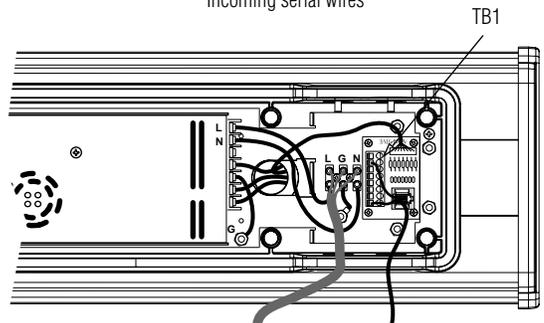
NOTE: Be sure to place the wires so they will not be caught by screws when replacing the power supply cover, and also so they will not interfere with fan operation.



Incoming serial wires

10. (Optional) Connect an auxiliary device to TB1.

TB1 - Aux out	
1 GND	5 NC
2 NC	6 NC
3 NC	7 AUX OUT
4 NC	8 NC



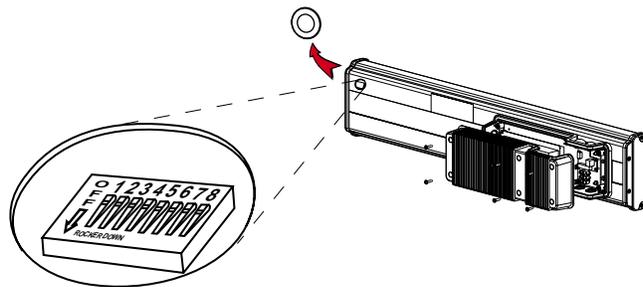
11. To maintain NEMA compliance and to prevent EMI emissions, install hole plugs in any open conduit holes in the power supply enclosure. If needed, there is an extra hole plug supplied in addition to any hole plugs removed in Step 4 on page 11.

12. Replace the power supply cover using the 6 screws from when the cover was removed. (Refer to Step 3 on page 11.) Torque the screws to 24 lb-in.

13. Plug the power cable into a power source.

N12420x  
(36.5 lbs, 16.6 kg)

#### Changing the serial address on ALPHA 420 signs



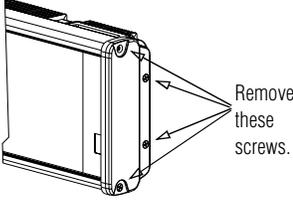
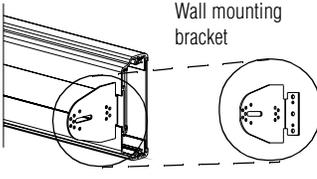
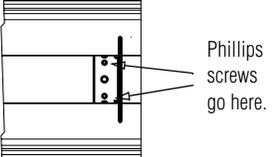
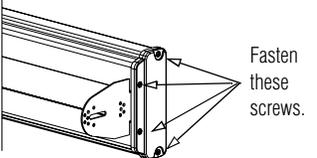
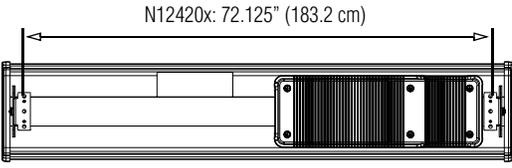
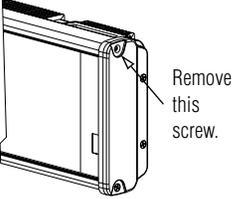
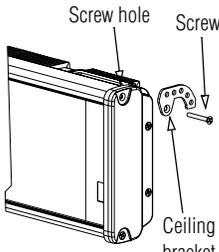
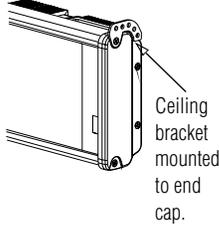
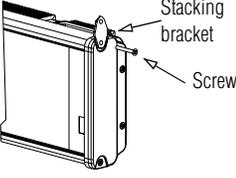
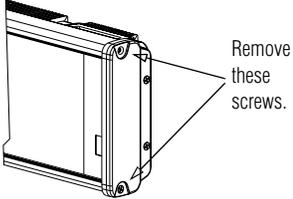
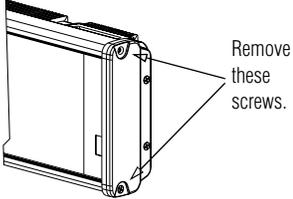
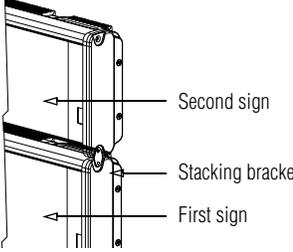
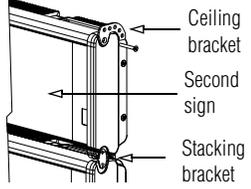
All signs leave the factory with a serial address of 00 (all DIP switches set to OFF), to allow sending the same message to all signs on a network simultaneously.

There are two ways to change a sign's serial address:

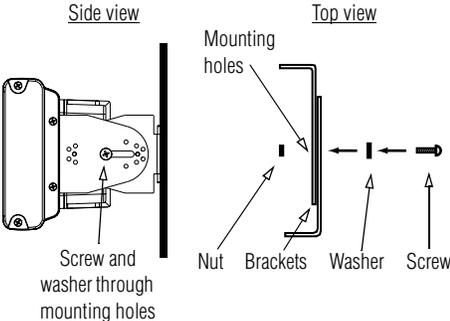
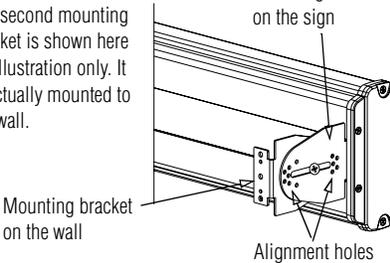
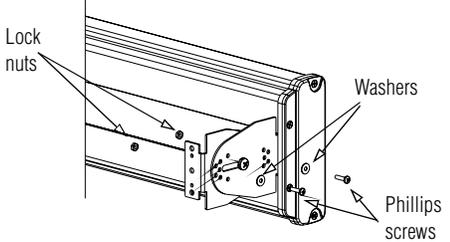
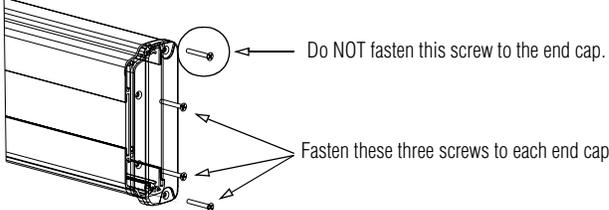
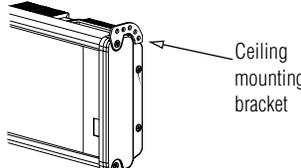
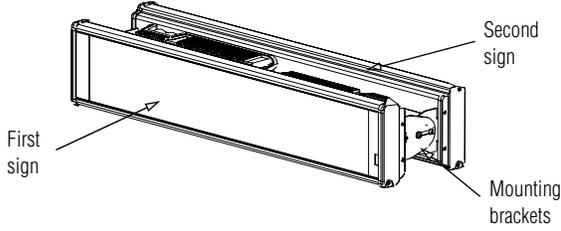
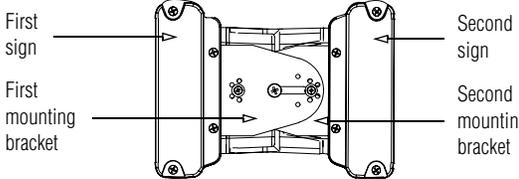
1. Use a hand-held infrared Remote Control, as described on page 1.
2. Set a permanent address by accessing the bank of DIP switches located behind the rubber plug on the back of the case, as shown above. This method will survive lengthy power supply interruptions, or other conditions that could cause a software-set address to reset. (Replace the plug after address has been reset.)

Serial address (in decimal)	DIP switch (1 = ON, 0 = OFF)							
	8	7	6	5	4	3	2	1
00	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	1
02	0	0	0	0	0	0	1	0
03	0	0	0	0	0	0	1	1
04	0	0	0	0	0	1	0	0
05	0	0	0	0	0	1	0	1
06	0	0	0	0	0	1	1	0
07	0	0	0	0	0	1	1	1
08	0	0	0	0	1	0	0	0
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10	0	0	0	0	1	0	1	0
11	0	0	0	0	1	0	1	1

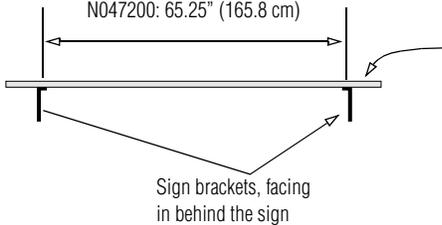
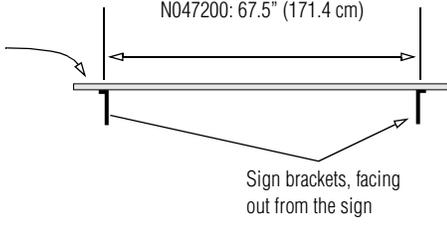
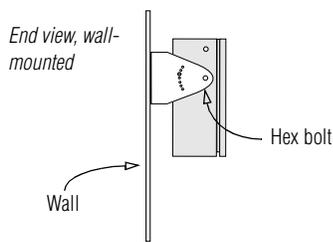
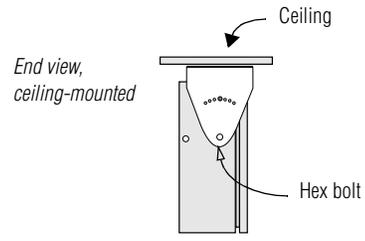
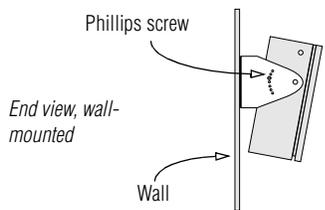
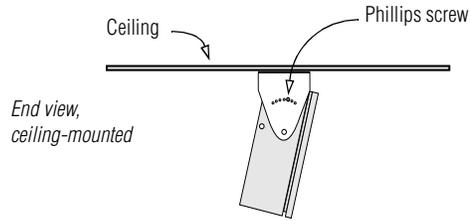
## ALPHA 420 NEMA 12 models

Model (weight)	Mounting instructions		
	Wall	Ceiling	Stacking
<p>N12420x (36.5 lbs, 16.6 kg)</p>	<p><b>NOTE: Remove only one end cap at a time.</b></p> <ol style="list-style-type: none"> <li>Remove the 4 screws and the end cap from one end of the sign.                      <p style="text-align: right;">Remove these screws.</p> </li> <li>Slide one of the wall mounting brackets onto the back of the sign until it is approximately 0.5 in. away from the end of the sign.                      <p style="text-align: right;">Wall mounting bracket</p> </li> <li>Use two 10-32 x 1/4 Phillips screws (supplied) to secure the wall mounting bracket to the back of the sign. Torque the screws to 24 lb-in.                      <p style="text-align: right;">Phillips screws go here.</p> </li> <li>Replace the end cap using the 4 screws removed in Step 1. Torque the screws to 24 lb-in.                      <p style="text-align: right;">Fasten these screws.</p> </li> <li>Repeat Steps 1 - 4 for the other end of the sign. Distances between the bracket holes, center-to-center, should be approximately:                      <p style="text-align: center;">N12420x: 72.125" (183.2 cm)</p> </li> </ol> <p style="text-align: center;"><i>Continued on next page</i></p>	<ol style="list-style-type: none"> <li>Remove one screw from the top of the end cap.                      <p style="text-align: right;">Remove this screw.</p> </li> <li>Line up a ceiling bracket with the top hole on the sign's end cap so the bracket fits in the indentation. There are left and right ceiling brackets. Use the one that fits with the screw hole's countersunk side facing out. Secure the ceiling bracket with the screw removed in Step 1. Torque the screws to 24 lb-in.                      <p style="text-align: right;">Screw hole    Screw</p> <p style="text-align: right;">Ceiling bracket</p> </li> <li>Repeat steps 1 - 2 for the other end of the sign.                      <p style="text-align: right;">Ceiling bracket mounted to end cap.</p> </li> <li>Use chains (not supplied) to hang the sign from a ceiling.                     <p><b>NOTE:</b> Use chains capable of supporting 4 times the total weight of the sign(s).</p> <p><b>NOTE:</b> The hole you select in the ceiling bracket for the chain determines the angle at which the sign hangs.</p> </li> </ol>	<p><b>NOTE:</b> Up to 4 signs can be hung together vertically ("stacked"). Mounting system for stack mounting must support a minimum of four times the total weight of all signs being stacked.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b>WARNING</b></p> <p style="text-align: center;">Possible crush hazard. Do not stack more than 4 signs. Otherwise signs may fall causing serious injury or death.</p> </div> <ol style="list-style-type: none"> <li>Remove the top screw from each end cap of the first sign, as shown in Step 1 of the Ceiling mounting instructions.                      <p style="text-align: right;">Stacking bracket</p> <p style="text-align: right;">Screw</p> </li> <li>Using the screw removed in Step 1, screw a stacking bracket to each end cap, countersunk side out. Torque to 24 lb-in.                      <p style="text-align: right;">Remove these screws.</p> </li> <li>Remove the top and bottom screws from each end of the second sign.                      <p style="text-align: right;">Remove these screws.</p> </li> <li>For each end of the signs, secure the stacking bracket from the first sign to the second sign using one of the screws removed in Step 3. Torque to 24 lb-in.                      <p style="text-align: right;">Second sign</p> <p style="text-align: right;">Stacking bracket</p> <p style="text-align: right;">First sign</p> </li> <li>Secure a ceiling bracket to the top of each end cap on the second sign, using Step 2 of the Ceiling mounting instructions.                      <p style="text-align: right;">Ceiling bracket</p> <p style="text-align: right;">Second sign</p> <p style="text-align: right;">Stacking bracket</p> </li> <li>Use a chain (not supplied) to hang the signs from the ceiling, following the notes in Step 4 of Ceiling mounting instructions.</li> </ol>

## ALPHA 420 NEMA 12 models

Model (weight)	Mounting instructions	
	Wall (continued)	Back-to-Back
<p style="text-align: center;"><b>N12420x</b> (36.5 lbs, 16.6 kg)</p>	<p>6. Attach the two remaining wall mounting brackets to a wall so that they align with the brackets on the sign.</p> <p>NOTE: Do NOT install the sign directly to drywall or plaster-board. The sign must be fastened to a wall capable of supporting at least four times the weight of the sign.</p> <p>7. Connect the mounting brackets on each end of the sign together using a 5/16 Phillips screw and a 5/16 washer through the mounting holes, as shown below, securing with a 5/16 nut. <i>Do not tighten the nut at this time.</i></p> <div style="text-align: center;">  <p>Side view      Top view</p> <p>Mounting holes</p> <p>Screw and washer through mounting holes</p> <p>Nut   Brackets   Washer   Screw</p> </div> <p>8. Match the alignment holes of the brackets on the sign with the alignment holes of the brackets on the wall so that the sign is at the desired viewing angle.</p> <p>NOTE: The second mounting bracket is shown here for illustration only. It is actually mounted to the wall.</p> <div style="text-align: center;">  <p>Mounting bracket on the sign</p> <p>Mounting bracket on the wall</p> <p>Alignment holes</p> </div> <p>9. Fasten the mounting brackets together using two 10-32 x 3/4 Phillips screws, two 10-32 washers, and two 10-32 lock nuts through selected alignment holes on each end of the sign. Torque to 24 lb-in.</p> <div style="text-align: center;">  <p>Lock nuts</p> <p>Washers</p> <p>Phillips screws</p> </div> <p>10. Tighten the 5/16 nuts in the mounting holes. (See Step 7). Torque to 24 lb-in.</p>	<p><b>NOTE: Remove only one end cap at a time for each sign.</b></p> <p>1. Attach a mounting bracket on each end of the signs and replace the end caps, following Steps 1 - 4 of the Wall mounting instructions. However, <i>replace only the bottom three screws</i> for each end cap. Torque the screws to 24 lb-in. Do this step for each end of both signs.</p> <p>NOTE: Do NOT fasten the <i>top</i> screws to the end caps. The top screws will be used to fasten the ceiling mounting brackets to the end caps in the next step.</p> <div style="text-align: center;">  <p>Do NOT fasten this screw to the end cap.</p> <p>Fasten these three screws to each end cap.</p> </div> <p>2. Attach ceiling mounting brackets to all the end caps following Step 2 of the Ceiling mounting instructions. Torque the screws to 24 lb-in.</p> <div style="text-align: center;">  <p>Ceiling mounting bracket</p> </div> <p>3. Match the signs together back-to-back. Connect them together following Steps 7 - 9 of the Wall mounting instructions. Torque to 24 lb-in.</p> <div style="text-align: center;">  <p>First sign</p> <p>Second sign</p> <p>Mounting brackets</p> </div> <div style="text-align: center;">  <p>First sign</p> <p>Second sign</p> <p>First mounting bracket</p> <p>Second mounting bracket</p> </div> <p>4. Use chains (not supplied) to hang the signs from the ceiling.</p> <p>NOTE: Use chains capable of supporting 4 times the total weight of the signs.</p>

## ALPHA 7000 series NEMA 4 and 4x models

Model (weight)	Mounting instructions
	<p>1. Attach the two sign brackets to a wall, ceiling, or other surface. Be sure to place the brackets so the bracket flanges face appropriately as shown below. Mount the brackets the following distance apart (measured from the center of the mounting holes in each bracket):</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><i>Mounted so flanges are hidden behind the sign</i></p> <p>N047120: 41.25" (104.8 cm)            N047160: 53.25" (135.3 cm)            N047200: 65.25" (165.8 cm)</p>  <p>Sign brackets, facing in behind the sign</p> </div> <div style="text-align: center;"> <p><i>Mounted so flanges show on the sides of the sign</i></p> <p>N047120: 43.5" (110.5 cm)            N047160: 55.5" (141 cm)            N047200: 67.5" (171.4 cm)</p>  <p>Sign brackets, facing out from the sign</p> </div> </div> <p>NOTE: Do NOT install the sign directly to drywall or plasterboard. The sign must be fastened to a surface capable of supporting at least four times the weight of the sign.</p>
<p>N047120C120            N047120C230            (60 lbs, 27.2 kg)</p>	<p>2. Mount the sign on the sign brackets using the two large hex bolts supplied.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><i>End view, wall-mounted</i></p>  <p>Hex bolt</p> <p>Wall</p> </div> <div style="text-align: center;"> <p><i>End view, ceiling-mounted</i></p>  <p>Hex bolt</p> <p>Ceiling</p> </div> </div>
<p>N047160C120            N047160C230            (70 lbs, 31.8 kg)</p>	
<p>N047200C120            N047200C230            (80 lbs, 36.3 kg)</p>	<p>3. Tilt the sign to select a viewing angle. To hold the sign in place, screw a Phillips screw (supplied) through one of the small holes on each bracket into the screw hole in the sign case.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><i>End view, wall-mounted</i></p>  <p>Phillips screw</p> <p>Wall</p> </div> <div style="text-align: center;"> <p><i>End view, ceiling-mounted</i></p>  <p>Phillips screw</p> <p>Ceiling</p> </div> </div> <p>NOTE: Keep a minimum 1.0-inch (2.54 cm) clearance on all sides of the sign for adequate ventilation.</p>

## ALPHA 7000 series NEMA 4 and 4x models

**Model  
(weight)**

### Electrical instructions—power supply



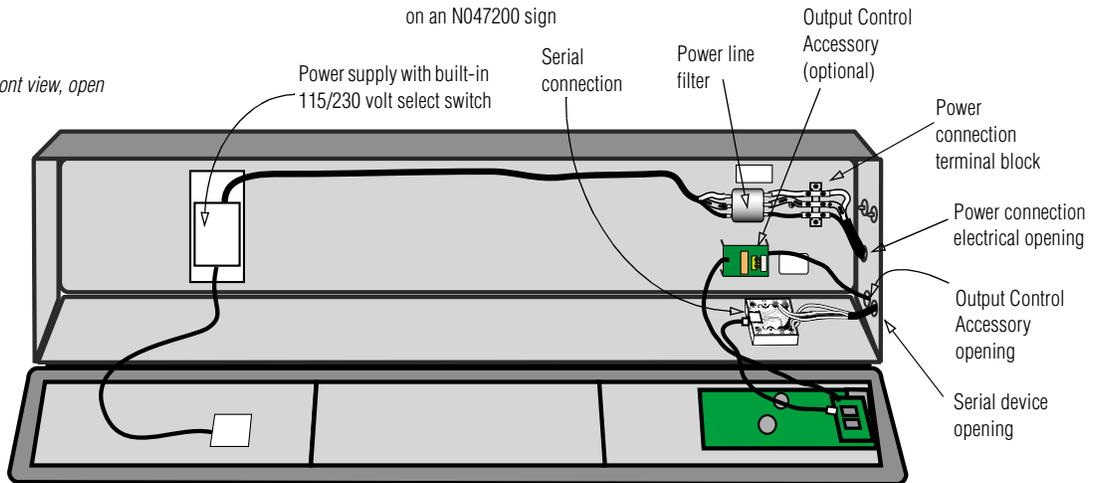
1. Open the front of the sign case by turning the quarter-turn latches to the left with a large screwdriver or a coin. (On the N047120, there are 3 quarter-turn latches; on the N047160 and the N047200, there are 4.) Carefully let the front of the case drop forward.

*Front view,  
closed*



Quarter-turn latches  
on an N047200 sign

*Front view, open*

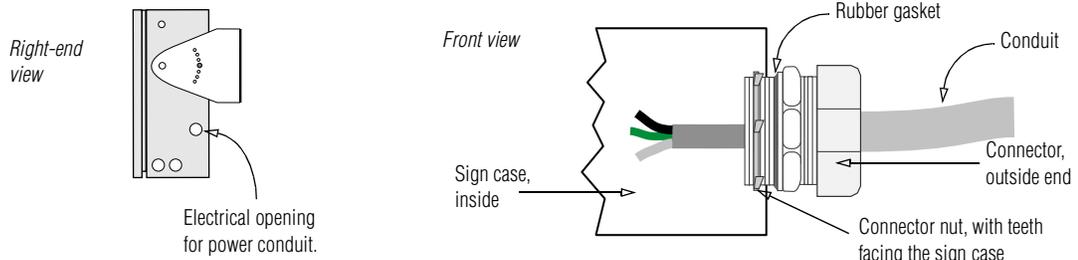


N047120C120  
N047120C230  
(60 lbs, 27.2 kg)

N047160C120  
N047160C230  
(70 lbs, 31.8 kg)

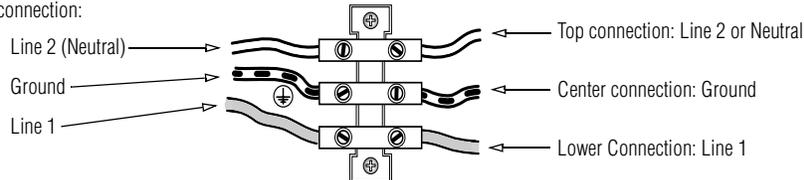
N047200C120  
N047200C230  
(80 lbs, 36.3 kg)

2. Feed electrical cable through 1" water-tight conduit, the outside end of the connector (supplied), the electrical opening in the sign case, and then through the inside end of the connector. Screw the inside and outside ends of the connector together until water-tight.



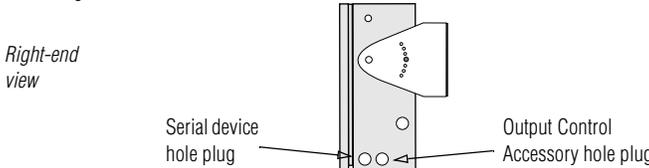
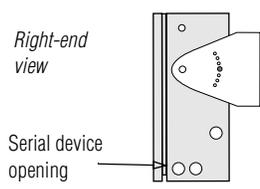
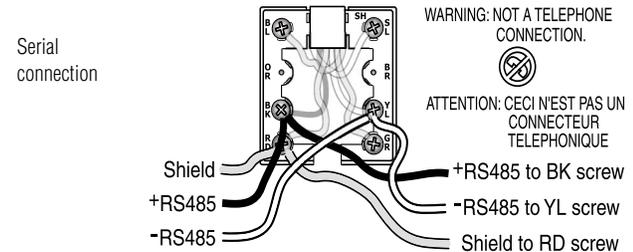
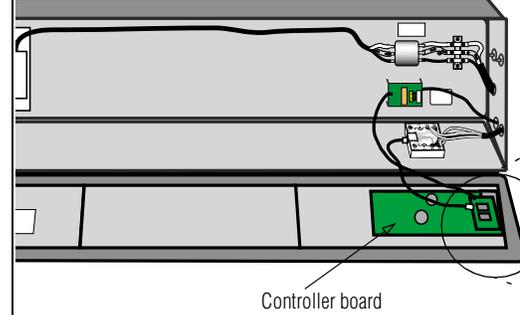
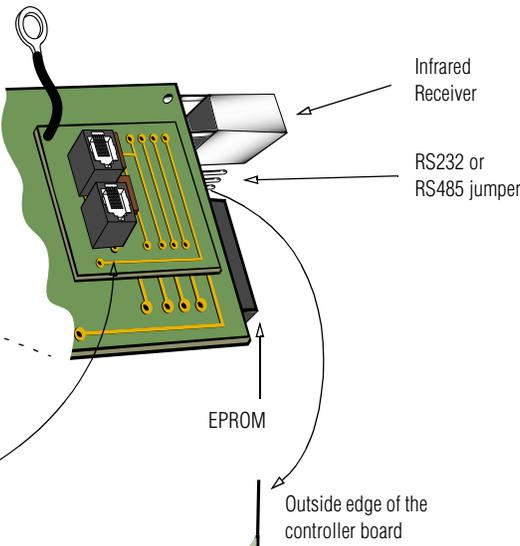
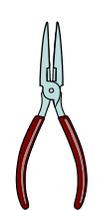
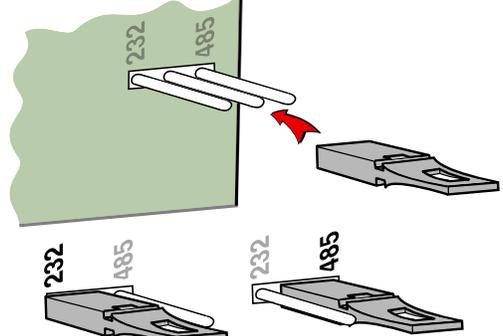
3. Strip the electrical wires back 1/4". Connect the wires by screwing the end of each wire into the power connection.

Power connection:



Verify power supply switch position (for 115 volts or 230 volts) before applying power. (Step 7, following.)

## ALPHA 7000 series NEMA 4 and 4x models

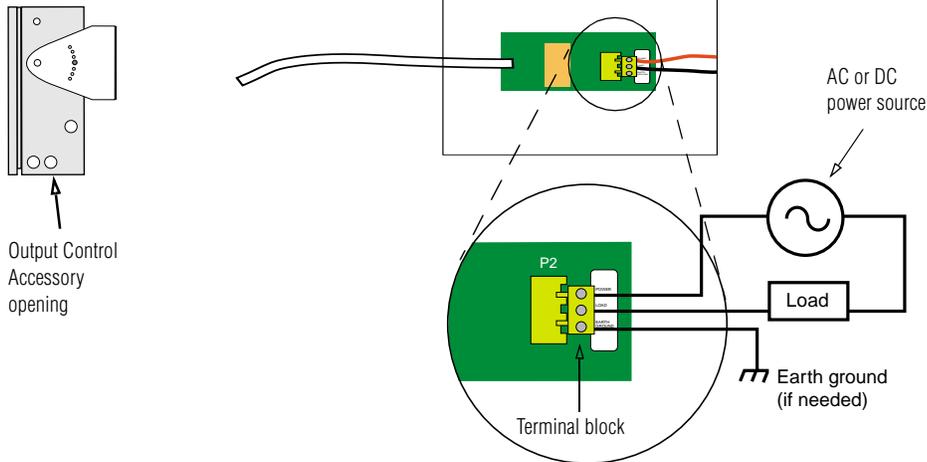
Model (weight)	Electrical instructions—serial communication
<p>4. If the sign is to be used with serial communications or with an optional Output Control Accessory, remove one or both of the hole plugs from the lowest holes on the right end of the sign case.</p>	<div style="text-align: center;">  <p style="margin: 0;">Right-end view</p> <p style="margin: 0;">Serial device hole plug      Output Control Accessory hole plug</p> </div> <p>5. If the sign is to be used with serial communications, feed serial cable from the PC through the serial opening in the sign case. Connect the electrical wires by screwing the end of each wire into the serial connector on the bottom of the sign case.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p style="margin: 0;">Right-end view</p> <p style="margin: 0;">Serial device opening</p> </div> <div style="text-align: center;">  <p style="margin: 0;">Serial connection</p> <p style="margin: 0;">Shield +RS485 -RS485</p> </div> <div style="text-align: center;"> <p style="margin: 0; font-size: small;">WARNING: NOT A TELEPHONE CONNECTION.</p>  <p style="margin: 0; font-size: x-small;">ATTENTION: CECI N'EST PAS UN CONNECTEUR TELEPHONIQUE</p> <p style="margin: 0; font-size: small;">+RS485 to BK screw -RS485 to YL screw Shield to RD screw</p> </div> </div>
<p>N047120C120 N047120C230 (60 lbs, 27.2 kg)</p>	<p>6. If the sign is set up for serial communications you must confirm the appropriate serial mode (RS232/RS485) by checking the location of the spade terminal on the RS232/RS485 3-post jumper. An exploded view is shown below:</p>
<p>N047160C120 N047160C230 (70 lbs, 31.8 kg)</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  <p style="margin: 0; text-align: center;">Controller board</p> </div> <div style="width: 50%;">  <p style="margin: 0; text-align: right;">Infrared Receiver</p> <p style="margin: 0; text-align: right;">RS232 or RS485 jumper</p> <p style="margin: 0; text-align: right;">EPROM</p> <p style="margin: 0; text-align: right;">Outside edge of the controller board</p> </div> </div>
<p>N047200C120 N047200C230 (80 lbs, 36.3 kg)</p>	<p>NOTE: RJ11 jacks can be used for RS232 or RS485 serial communication. In this view the upper jack (closer to the Infrared receiver) is an RS232 connector and the lower jack (closer to the EPROM) is an RS485 connector.</p> <div style="display: flex; justify-content: space-between; align-items: flex-start; margin-top: 20px;"> <div style="width: 25%; text-align: center;">  </div> <div style="width: 70%;"> <p style="margin: 0; font-size: small;">The RS232/RS485 3-post jumper is difficult to see. It can be even more awkward to re-position. You should always use a small needle-nosed pliers or other tool. Access is restricted by nearby components. The 485 post is the one closer to the outer edge of the controller board.</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p style="margin: 0; font-size: small;">232      485      232      485</p> </div>

## ALPHA 7000 series NEMA 4 and 4x models

**Model (weight)**

### Electrical instructions

7. If an optional Output Control Accessory is to be used (for example, an alarm light), feed wiring through the Output Control Accessory opening in the sign case. Strip the wires back 1/4". Connect wiring for power, load/accessory, and ground as shown below by inserting wires into the terminal block and tightening the top screws clockwise. (To ease assembly, terminal block of P2 can be removed from base by gently pulling sideways. Replace after assembly.)



NOTE: Relay is not recommended for inductive load applications such as relays, motors, clutches, solenoids, etc. Inductive loads cause very large counter-electromotive forces, which cause contact damage.

8. Be sure the power supply switch setting is correct for where the sign will be used. The switch is on the side of the power supply.

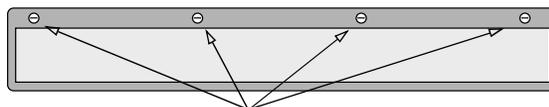
Use an object such as a small screwdriver to slide the notch so the appropriate voltage designation is showing:

115V for 88 – 132 VAC  
230V for 170 – 264 VAC



9. Carefully close the front of the sign case and turn the quarter-turn latches to the right with a large screwdriver or a coin.

*Front view, closed*



Quarter-turn latches  
on an N047200 sign

N047120C120  
N047120C230  
(60 lbs, 27.2 kg)

N047160C120  
N047160C230  
(70 lbs, 31.8 kg)

N047200C120  
N047200C230  
(80 lbs, 36.3 kg)

## 2.1" NEMA 2 character matrix signs

**Model  
(weight)**

### Wall mounting instructions

1. **Note: chain hanging is not recommended.**
2. **After unpacking the unit, select wall and mounting hardware that is capable of supporting at least four times the weight of the sign, and use 16 bolts to mount the sign.**
3. Use the following table to determine mounting distances for the various models:

Mounting dimensions in inches (centimeters)			
Dimension	Model		
	N02CM040008P03TRI	N02CM040012P03TRI	N02CM040016P03TRI
A	86.45 (219.5)	86.45 (219.5)	86.43 (219.5)
B	82.06 (208.4)	82.06 (208.4)	82.05 (208.4)
C	78.06 (198.3)	78.06 (198.3)	78.05 (198.2)
D	7.64 (19.4)	7.64 (19.4)	7.64 (19.4)
E	46.02 (116.9)	59.22 (150.4)	72.32 (183.7)
F	41.63 (105.7)	54.83 (139.3)	67.94 (172.6)
G	37.63 (95.6)	50.83 (129.1)	63.94 (162.4)

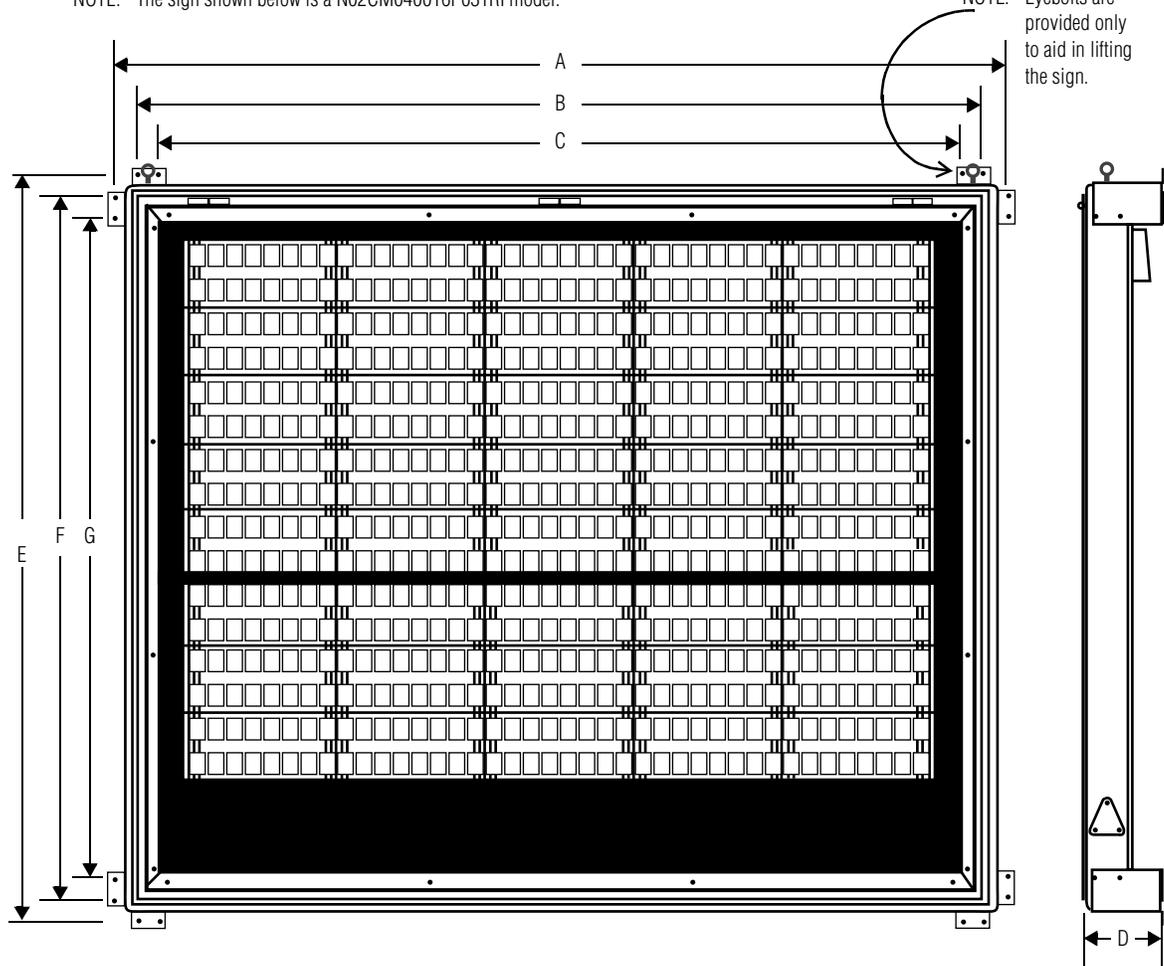
NOTE: The sign shown below is a N02CM040016P03TRI model.

NOTE: Eyebolts are provided only to aid in lifting the sign.

N02CM040008  
P03TRI  
(256 lbs, 116 kg)

N02CM040012  
P03TRI  
(288 lbs, 130.5 kg)

N02CM040016  
P03TRI  
(320 lbs, 145 kg)



## 2.1" NEMA 2 character matrix signs

**Model  
(weight)**

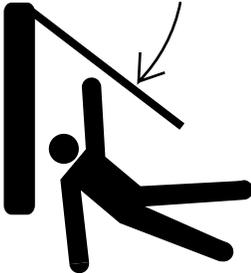
### Electrical installation instructions

N02CM040008  
P03TRI  
(256 lbs, 116 kg)

N02CM040012  
P03TRI  
(288 lbs, 130.5 kg)

N02CM040016  
P03TRI  
(320 lbs, 145 kg)

<b>⚠ WARNING</b>	
	<p><b>Hazardous voltage.</b> Contact with high voltage may cause death or serious injury. Always disconnect power to sign prior to servicing.</p>

<b>⚠ WARNING</b>	
	<p><b>Possible crush hazard.</b> Engage safety bar while access door is opened. Otherwise, door may close unexpectedly, possibly causing serious injury.</p>

1. After wall mounting the unit as previously described, remove the two lower screws from the triangular plate on each side of the sign. Swing each plate up. Then use a screwdriver to push up the lever on each side of the sign to unlock the latches for the front access door.

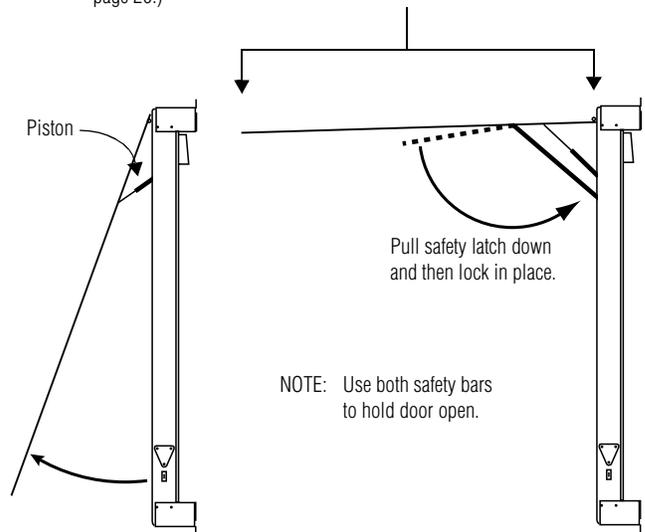
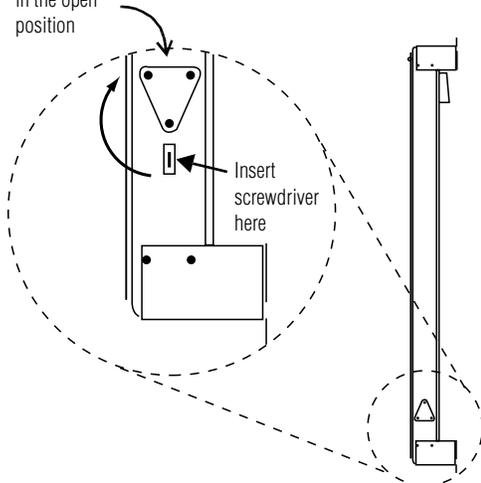
2. Pull the access door up. There will be moderate resistance in lifting the door until the pistons engage. Then pull down and lock the safety latch on each side of the door.

**NOTE:** Use two people (for maneuverability) to open the access door, and use both safety bars to hold the door open.

**NOTE:** To close the access door, push the door down until each latch clicks twice.

Make sure there is adequate clearance in front of the sign to open the access door. (Use dimension **E** from the "Wall mounting instructions" on page 20.)

Plate shown in the open position



## 2.1" NEMA 2 character matrix signs

**Model  
(weight)**

### Electrical installation instructions (continued)

3. Connect the serial data lines as shown below.

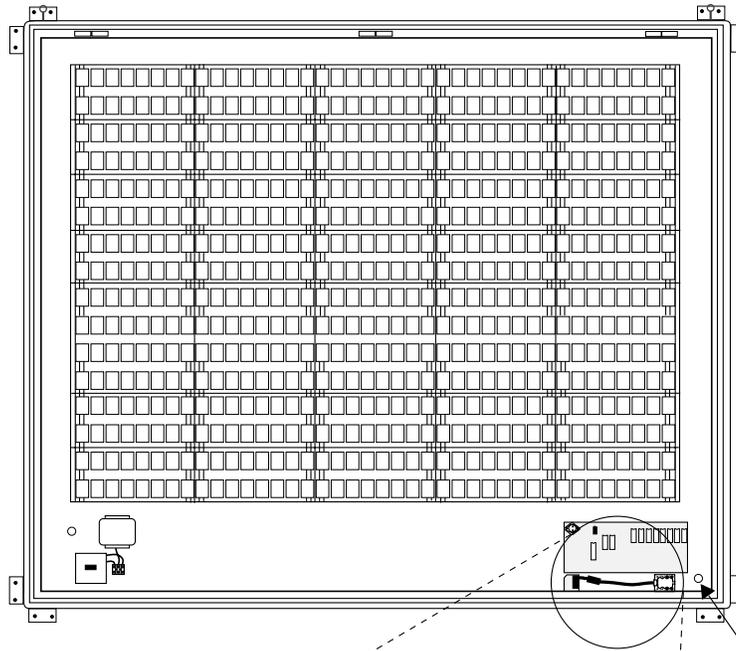
NOTE: For further information on connecting a sign to a computer, see the **Network Configurations** manual (pn 9708-8046).

NOTE: Use separate conduits for the signal and power wires. Use watertight connectors for the conduit.

N02CM040008  
P03TRI  
(256 lbs, 116 kg)

N02CM040012  
P03TRI  
(288 lbs, 130.5 kg)

N02CM040016  
P03TRI  
(320 lbs, 145 kg)



Run the serial wires out through this 1-1/8-inch (2.86 cm) opening in the sign.

**RS485** jack  
**RS485/RS232** jack

Typically, the **RS485** jack is used when the sign will be connected to a network of *multiple* signs.

The **RS485/RS232** jack is used when the sign will be connected directly to a computer (and not to other signs).

RS485(+) to terminal with black wire  
RS485(-) to terminal with yellow wire  
SHIELD to terminal with red wire

It is only necessary to connect these wires if the sign will be part of a *network* of signs.

## 2.1" NEMA 2 character matrix signs

**Model  
(weight)**

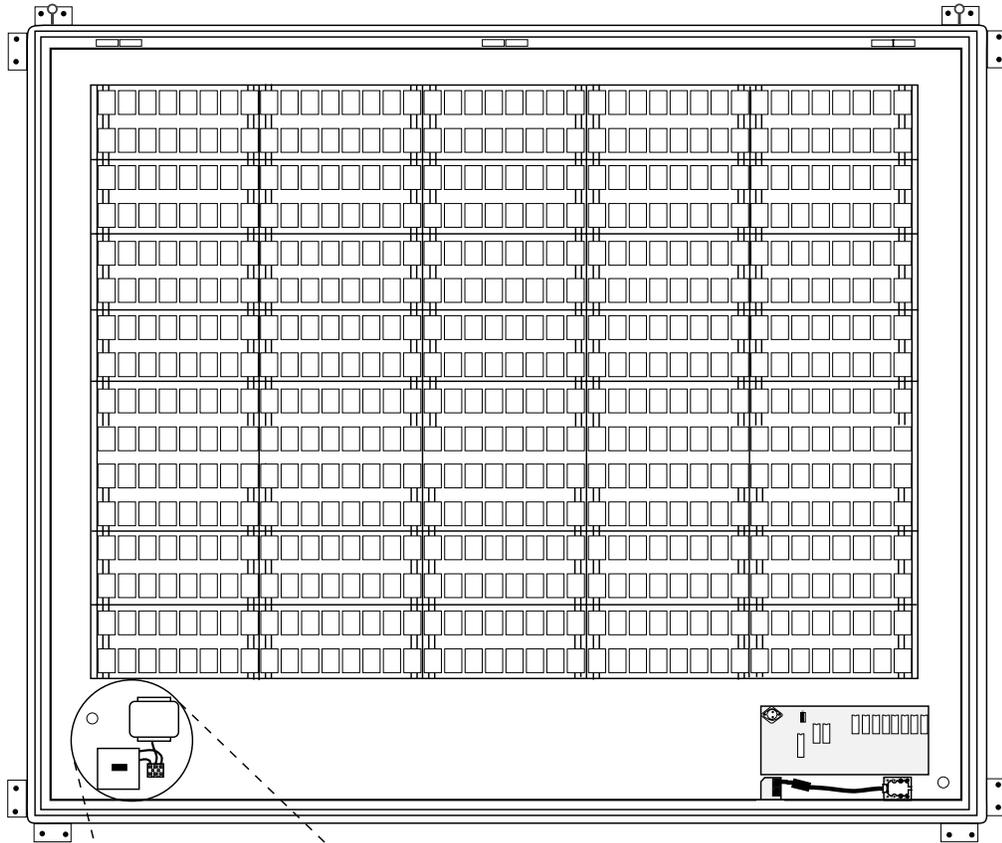
### Electrical installation instructions (continued)

4. Connect the sign to a power supply as shown below:

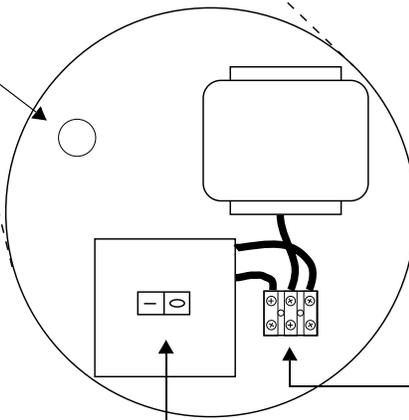
N02CM040008  
P03TRI  
(256 lbs, 116 kg)

N02CM040012  
P03TRI  
(288 lbs, 130.5 kg)

N02CM040016  
P03TRI  
(320 lbs, 145 kg)



Run the power wires out through this 1-1/8-inch (2.86 cm) opening in the sign.



After connecting the power supply lines, move this switch to the ON (I) position.

Connect incoming 208 - 240 +/-5% 50/60 Hz VAC power supply wires (not supplied) to this terminal block as follows:

LINE 1 = Black  
LINE 2 OR NEUTRAL = White  
EARTH GROUND = Green

## 2.1" NEMA 2 character matrix signs

**Model  
(weight)**

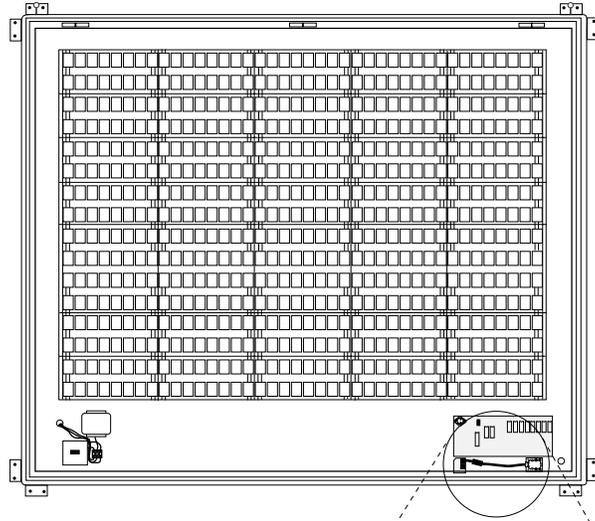
### Changing the serial address on 2.1" NEMA 2 signs

1. Remove power from the sign.
2. Open the sign's access door as described on page 21.
3. Then set DIP switch S1 to the desired serial address (see below), a number from 0 to 63 in hexadecimal (00 to 3F), in binary representation. (DIP switch **1** = least significant bit, **6** = most significant bit).
4. After setting the address, apply power to the sign, and the new serial address should appear. (See "Checkout procedure" on page 1.)

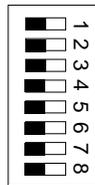
N02CM040008  
P03TRI  
(256 lbs, 116 kg)

N02CM040012  
P03TRI  
(288 lbs, 130.5 kg)

N02CM040016  
P03TRI  
(320 lbs, 145 kg)



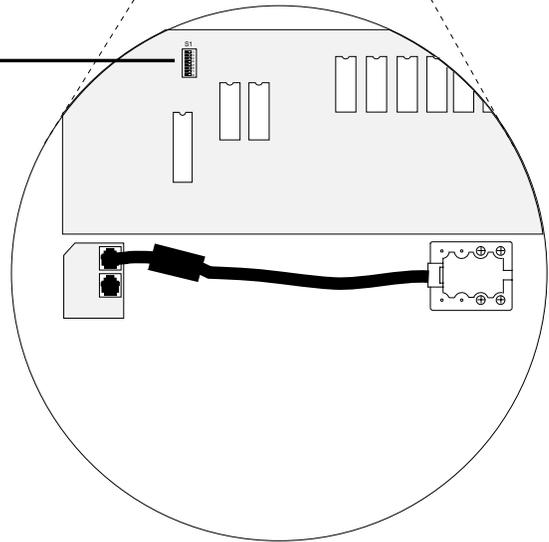
**S1**



DIP switch S1 sets the sign's serial address.  
Here are some example serial addresses:

Serial address in decimal (hexadecimal in parentheses)	DIP switch (1 = ON, 0 = OFF)							
	1	2	3	4	5	6	7	8
0 (00)	0	0	0	0	0	0	0	0
1 (01)	1	0	0	0	0	0	0	0
2 (02)	0	1	0	0	0	0	0	0
3 (03)	1	1	0	0	0	0	0	0
4 (04)	0	0	1	0	0	0	0	0
5 (05)	1	0	1	0	0	0	0	0
6 (06)	0	1	1	0	0	0	0	0
7 (07)	1	1	1	0	0	0	0	0
8 (08)	0	0	0	1	0	0	0	0
9 (09)	1	0	0	1	0	0	0	0
10 (0A)	0	1	0	1	0	0	0	0
11 (0B)	1	1	0	1	0	0	0	0

Do not use



### 3.2" NEMA 2 character matrix signs

**Model  
(weight)**

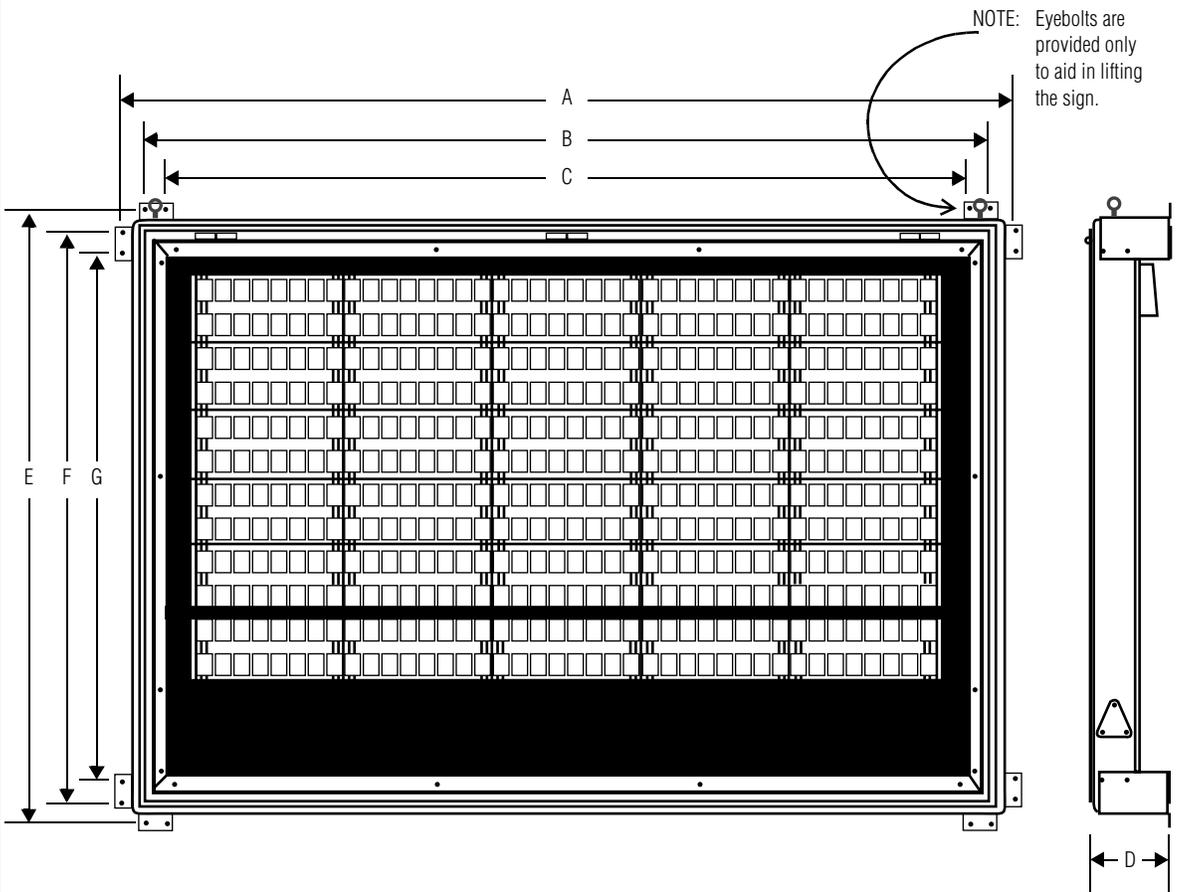
#### Wall mounting instructions

1. **Note: chain hanging is not recommended.**
2. **After unpacking the unit, select wall and mounting hardware that is capable of supporting at least four times the weight of the sign, and use 16 bolts to mount the sign.**
3. Use the following table to determine mounting distances for the various models:

Mounting dimensions in inches (centimeters)		
Dimension	Model	
	N02CM040008P045TRI	N02CM040012P045TRI
A	127.66 (324.3)	127.66 (324.3)
B	123.27 (313.1)	123.27 (313.1)
C	119.27 (302.9)	119.27 (302.9)
D	7.64 (19.4)	7.64 (19.4)
E	59.22 (150.4)	79.02 (200.7)
F	54.83 (139.3)	74.63 (189.6)
G	50.83 (129.1)	70.63 (179.4)

N02CM040008  
P045TRI  
(380 lbs, 172.5 kg)

N02CM040012  
P045TRI  
(430 lbs, 195.2 kg)



### 3.2" NEMA 2 character matrix signs

Model  
(weight)

#### Electrical installation instructions

N02CM040008  
P045TRI  
(380 lbs, 172.5 kg)

N02CM040012  
P045TRI  
(430 lbs, 195.2 kg)

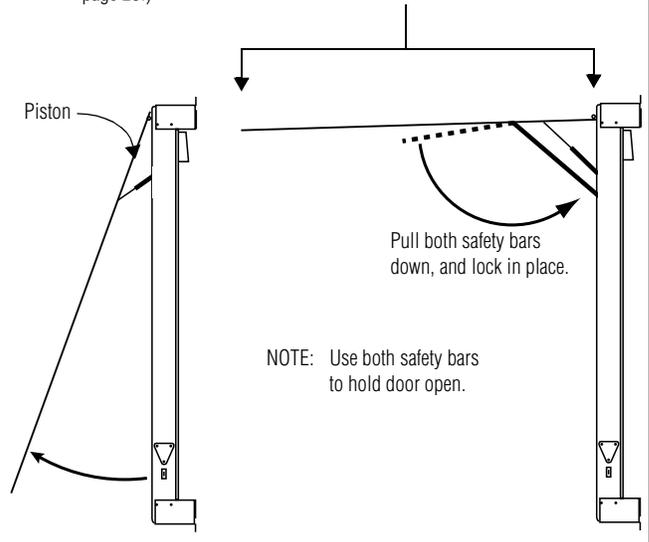
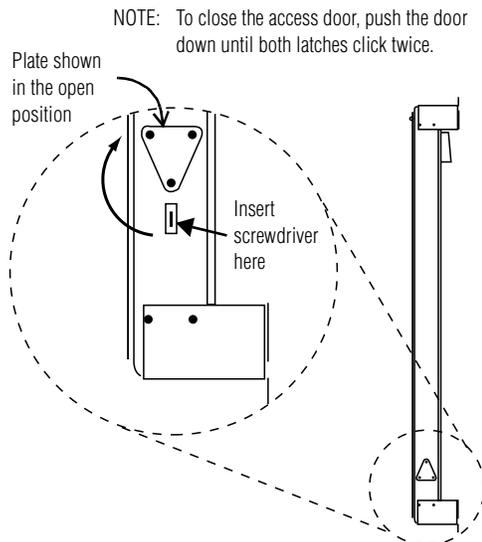
<b>⚠ WARNING</b>	
	<p><b>Hazardous voltage.</b> Contact with high voltage may cause death or serious injury. Always disconnect power to sign prior to servicing.</p>

<b>⚠ WARNING</b>	
	<p><b>Possible crush hazard.</b> Engage safety bar while access door is opened. Otherwise, door may close unexpectedly, possibly causing serious injury.</p>

1. Remove the two lower screws from the triangular plate on each side of the sign. Swing each plate up. Then use a screwdriver to push up the lever on each side of the sign to unlock the latches for the front access door. There is a third lever in the middle of the bottom of the sign. This needs to be opened and unlocked similarly.

2. Pull the access door up. There will be moderate resistance in lifting the door until the pistons engage. Then pull down and lock the safety bar on each side of the door.

NOTE: Use two people (for maneuverability) to open the access door, and use both safety bars to hold the door open.  
Make sure there is adequate clearance in front of the sign to open the access door. (Use dimension **E** from the "Wall mounting instructions" on page 25.)



### 3.2" NEMA 2 character matrix signs

**Model  
(weight)**

#### Electrical installation instructions (continued)

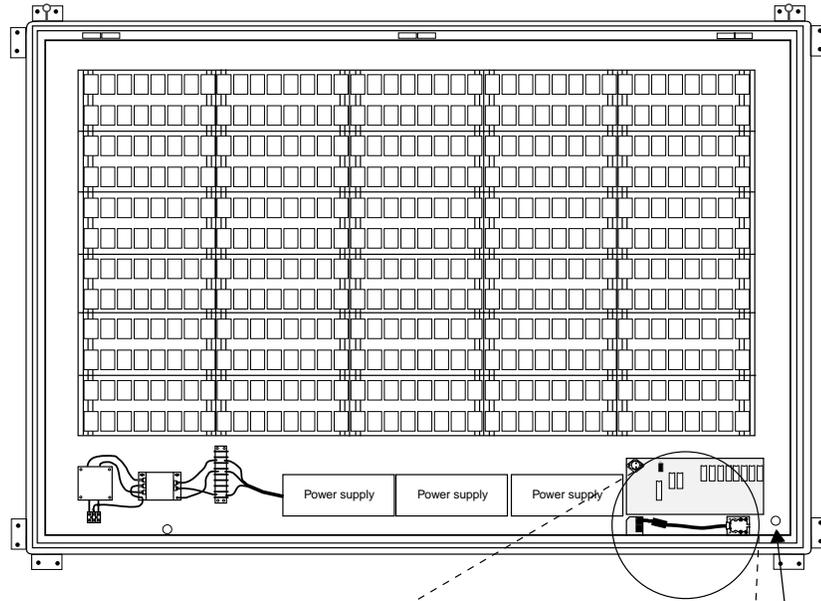
3. Connect the serial data lines as shown below:

NOTE: For further information on connecting a sign to a computer, see the **Network Configurations** manual (pn 9708-8046.)

NOTE: Use separate conduits for the signal and power wires. Use watertight connectors for the conduit.

N02CM040008  
P045TRI  
(380 lbs, 172.5 kg)

N02CM040012  
P045TRI  
(430 lbs, 195.2 kg)



Run the serial wires out through this 1-1/8-inch (2.86 cm) opening in the sign.

**RS485** jack  
**RS485/RS232** jack

Typically, the **RS485** jack is used when the sign will be connected to a network of *multiple* signs.

The **RS485/RS232** jack is used when the sign will be connected directly to a computer (and not to other signs).

RS485(+) to terminal with black wire  
RS485(-) to terminal with yellow wire  
SHIELD to terminal with red wire

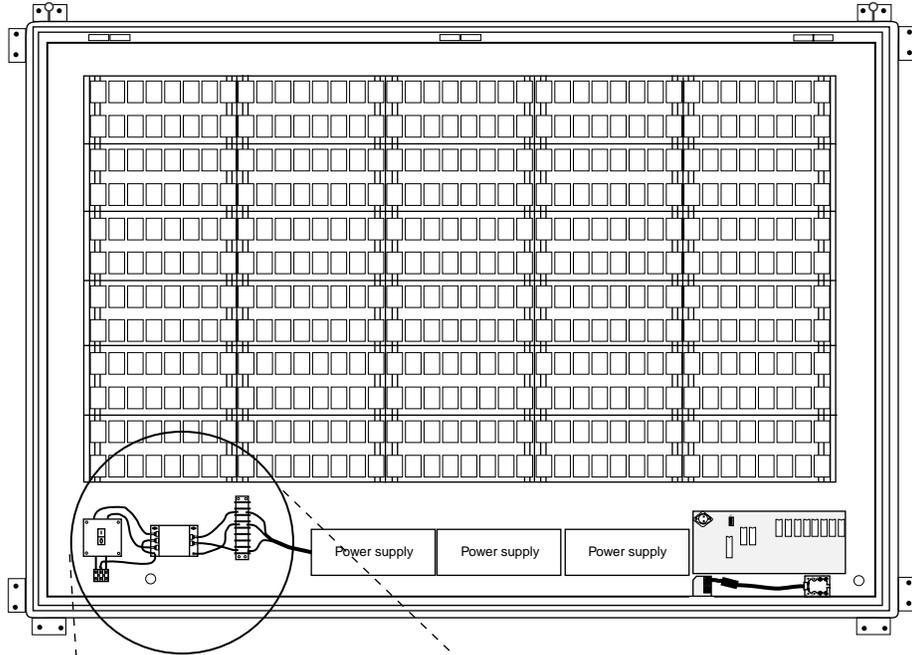
It is only necessary to connect these wires if the sign will be part of a *network* of signs.

### 3.2" NEMA 2 character matrix signs

**Model  
(weight)**

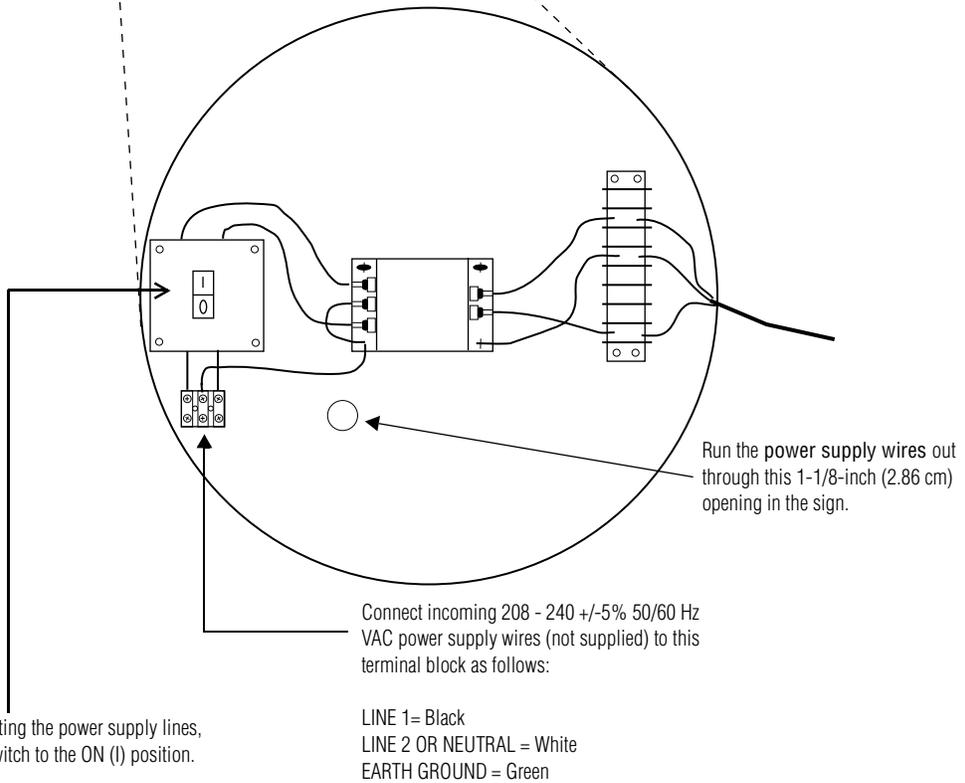
#### Electrical installation instructions (continued)

4. Connect the sign to a power supply as shown below:



N02CM040008  
P045TRI  
(380 lbs, 172.5 kg)

N02CM040012  
P045TRI  
(430 lbs, 195.2 kg)



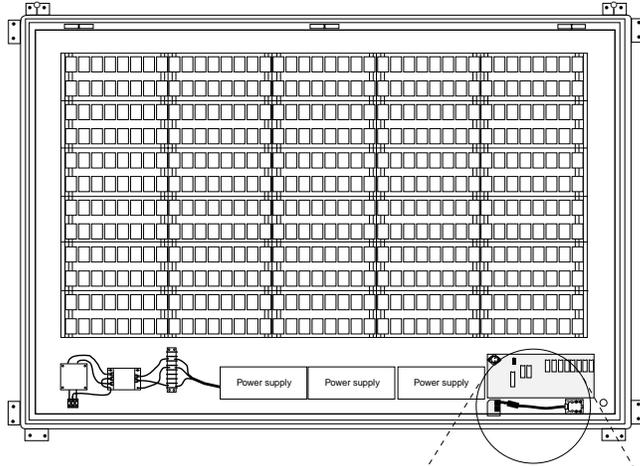
After connecting the power supply lines, move this switch to the ON (I) position.

## 3.2" NEMA 2 character matrix signs

**Model  
(weight)**

### Changing the serial address on 3.2" NEMA 2 signs

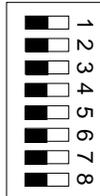
1. Remove power from the sign.
2. Open the sign's access door as described in "Electrical installation instructions" on page 26.
3. Then set DIP switch S1 to the desired serial address (see below), a number from 0 to 63, in binary representation. (DIP switch **1** = least significant bit, **6** = most significant bit).
4. After setting the address, apply power to the sign, and the new serial address should appear. (See "Checkout procedure" on page 1.)



N02CM040008  
P045TRI  
(380 lbs, 172.5 kg)

N02CM040012  
P045TRI  
(430 lbs, 195.2 kg)

**S1**



DIP switch S1 sets the sign's serial address.  
Here are some example serial addresses:

Serial address	DIP switch (1 = ON, 0 = OFF)							
	1	2	3	4	5	6	7	8
0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0
4	0	0	1	0	0	0	0	Do not use.
5	1	0	1	0	0	0	0	
6	0	1	1	0	0	0	0	
7	1	1	1	0	0	0	0	
8	0	0	0	1	0	0	0	
9	1	0	0	1	0	0	0	
10	0	1	0	1	0	0	0	

