Installation Manual

Alpha 4000 RGB MNS Series B

Alpha 4000 RGB MNS Series B

Introduction

Top View

Back View

Bottom View

Item	Name	Description	Item	Name	Description
A	CEILING MOUNT ATTACHMENT POINTS	Optional ceiling mount not included. Attach hanging brackets here (optional).	E	REAR ACCESS PANEL SCREWS	6-32 tamper proof screws. Removable with a T15 pin torx driver (not included).
B	MICRO SD CARD ACCESS PANEL	Removable panel to access micro SD card.	F	RS485 KNOCKOUT	Knockout for RS485 communication (optional). One located on rear and one on bottom of unit.
C	REAR BRACKET MOUNT	Attach wall mounting brackets at this location.	G	ETHERNET KNOCKOUT	1/2 inch trade size knockout for Removable panel to access Ethernet or 24VDC power input. One located on rear and one on bottom of unit.
D	REAR ACCESS PANEL	Removable panel to access Ethernet or 24VDC power input and RS485 communication input connections.			

Temperature protection

The Alpha 4000 RGB sign includes automatic temperature controls to determine when the internal temperature of the sign is too hot to continue normal operation. The temperature controls are based on the internal temperature of the sign, which is influenced by the ambient temperature, the sign's display load, and the duration the sign is on.

If the internal temperature rises above the temperature limit, the LED output is forced into a reduced power mode which dims the brightness of the LEDs. If the internal temperature rises above the highest limit, the display will blank to prevent damage to the sign. If the temperature falls below the auto-dimming threshold level, then auto-dimming stops and the LED brightness returns to normal level.

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.

Changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

Environmental requirements

Care must be taken to observe these considerations when selecting a location for the sign.

Signs:

- Are for use in an indoor/sheltered environment and should not be continuously exposed to direct sunlight.
- Are not designed to be directly exposed to rain or water seepage.
- Are not designed to be hung in a window. Hanging the sign in a window will void the warranty.
- Should only be used in an environment where the temperature is between -30°C and 50°C (-22° and 122°F).
- Should only be used in an environment where the humidity (non-condensing) does not exceed 95%.
- Must be installed with at least 1 in (2.5 cm) clearance on each end of the case and at least 2 in (5.1 cm) clearance above the case.
- Warranty will be voided by any form of misuse of abuse of the product.

Reducing electrical noise

Adaptive recommends the following to decrease the amount of electrical emissions and noise with the Alpha 4000 RGB signs:

- Route incoming power to assign a path separate from a sign's serial communication wires. Do NOT run the power and communication wires in the same conduit or directly next to one another. Does not apply to PoE only units.
- Where power and serial communications wires must cross, the intersection should be perpendicular.Does not apply to PoE only units.
- Shield all serial communication wires. Connect the shield to ground at only one point.

Installation

Notice: Sign installation must be performed by qualified personnel.

**Notice: Any modifications made to the sign housing will void the warranty.**

Notice: Always disconnect the communication cable before disconnecting the power cord.

Notice: Do not change or alter the factory applied finish of the ALPHA 4000RGB sign.

Alpha 4000RGB 24 PRI MNS-O Series B

1. Open Box and Verify Contents
    - Quantity 1 - ALPHA 4000RGB MNS-O LED sign
    - Quantity 2 - Mounting Bracket
    - Quantity 4 - ¼-20 x ½ long Hex Head Cap Screws
    - Quantity 1 - Ferrite for 24VDC wires
2. It is recommended that all power and communication connections to LED sign be made prior to installing the mounting bracket to the rear of the sign.

3. Begin by removing the 4 - 6-32 tamper proof screws holding the removable cover for the following items: Communication and Power.

   • T15 Pin in Torx Driver is required (Not Supplied)

   • Take care not to lose screws.

   • See: Back View Cover Removed

4. Choose the ½ inch trade knockout to remove for your installation location. Two are provided. No other entry holes may be added to the sign or warranty will be voided.
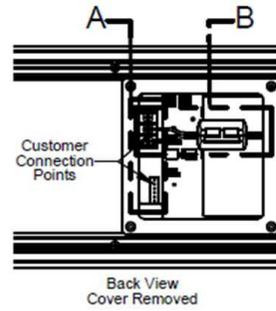
   • Wire, conduit, conduit fittings for making connections to rear of LED sign are not supplied.

   • Use appropriate conduit fittings and connections to route wires for power and communication into the LED sign termination compartment.

5. Wiring method shall be in accordance with:

   • In Canada, CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32;

   • In the United States, the National Electrical Code, NFPA 70, and the National Fire Alarm and signaling Code, NFPA 72;

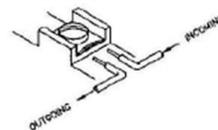6. Make the minimum customer connections to the sign.
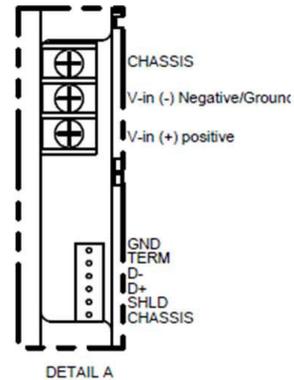
   • Nominal 24VDC connects to V-in (+) Positive and V-in (-) Negative/Ground terminals of sign. (Positive to V-in (+) and Negative/Ground to V-in (-) Negative/Ground). For the 24VDC connection a wire gauge of 28AWG (minimum) to 12AWG (maximum) is required; torque 24VDC connection terminal points to a maximum of 7 lb-in.

   • Attach the provided ferrite around the nominal 24VDC Positive and Negative/Ground wiring (ferrite must be attached within the sign).

   • Chassis terminal on sign to be connected to earth ground.

   • RS485 connection:
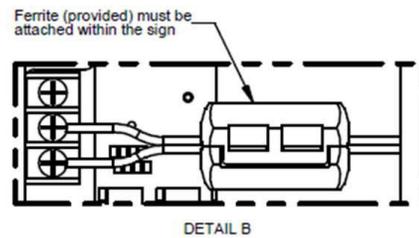
     • Shielded RS485 cable recommended. Connect shield of cable to SHLD terminal of sign and to chassis ground of transmitting device.

     • RS 485 connection to D+ and D- terminals of sign.

     • If the RS485 signal from the transmitting device is isolated, then connect GND terminal of sign to the signal ground terminal the transmitting device.

     • If the RS485 signal from the transmitting device is not isolated, the GND terminal of the sign can be left open.

     • Termination of the RS485 signal is to be determined per the application. If termination is used at the transmitting device, connect a jumper between the TERM and D- terminals on the sign.

     • For the RS485 connection a wire gauge of 28AWG (minimum) to 18AWG (maximum) is required; torque RS485 connection terminal points to a maximum of 5 lb-in.

7. Replace the removable cover using the 4 - 6-32 tamper proof screws

   • T15 Pin in Torx Driver is required. (Not Supplied)

   • Torque to a maximum of 10 lb-in.

Customer Connection Points

Back View Cover Removed

CHASSIS
V-in (-) Negative/Ground
V-in (+) positive

GND
TERM
D-
D+
SHLD
CHASSIS

DETAIL A

Ferrite (provided) must be attached within the sign

DETAIL B

SWITCH TERMINAL CONNECTIONS
CLAMPING PLATE TERMINAL

INCOMING
OUTGOING

Caution: An uninsulated section of a single conductor should not be looped around the terminal to serve as two separate connections. The wire must be severed, thereby safeguarding the connection in the event that the wire becomes dislodged from under the terminal.

Alpha 4000RGB 080X016 PoE MNS

1. Open Box and Verify Contents

   • Quantity 1 - ALPHA 4000RGB PoE MNS LED sign

   • Quantity 2 - Mounting Bracket

   • Quantity 4 - ¼-20 x ½ Hex Head Cap Screws

   • Quantity 1 - Optional RS485 Ferrite

   • Quantity 1 - ½ - Inch NPT Liquid Tight Strain Relief Cord Grid

   • Quantity 1 - .41-inch Liquid Tight Strain Relief Cord Grip for optional RS485

2. It is recommended the power over Ethernet (PoE) connection to LED Sign be made prior to installing the mounting bracket to the rear of the sign.

3. Begin by removing the (4) 6-32 tamper proof screws holding the removable cover for the Ethernet connection.

   • T15 Pin in Torx Driver is required (not supplied).

   • Take care not to lose screws.

   • See: Back View Cover Removed.

4. Choose the ½ inch trade knockout to remove for your installation location. Two are provided. Exercise caution when removing either knockout so as to avoid the knockout blank unintentionally entering the inside of the unit. No other entry holes may be added to the sign or warranty will be voided.

   • Ethernet wiring, conduit, conduit fittings for making connections to rear of LED sign are not supplied.

   • Use appropriate conduit fittings and connections to route Ethernet wiring into the LED sign termination compartment.

   • One ½ - inch NPT liquid tight strain relief cord grip and locknut is provided as an alternative to using conduit.

5. Wiring method shall be in accordance with:

   • In Canada, CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32;

   • In the United States, the National Electrical Code, NFPA 70, and the National Fire Alarm and signaling Code, NFPA 72;

6. Make the customer connection to the sign.

   • Insert cable (not provided) into the Ethernet connection port.

   • Attach provided ferrite around the Ethernet cable (ferrite must be attached within the sign).

7. Replace the removable cover using the (4) 6-32 tamper proof screws.

   • T15 Pin in Torx Driver is required (not supplied).
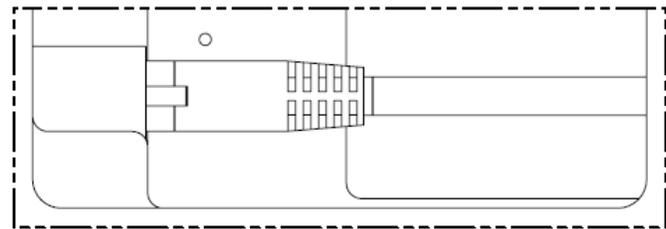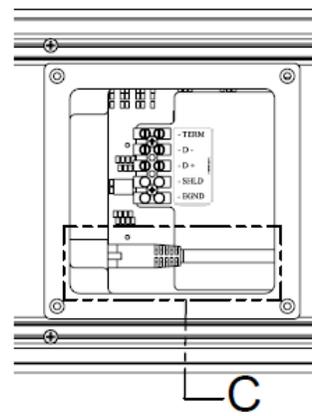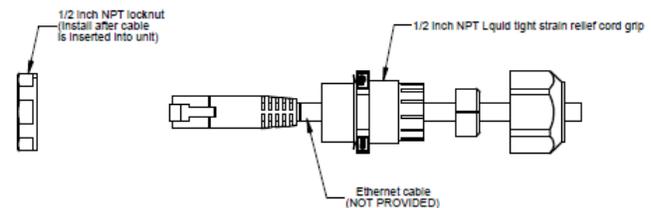
   • Torque to a maximum of 10 lb-in.


DETAIL C

Alpha 4000 RGB MNS Series B

RS485 connection (optional)

To connect your PoE sign to your network using an RS485 connection, remove the plate on the rera of the sign to access the hard wire connections and terminate the network. Adaptive recommends performing these steps before mounting the sign.

To utilize the optional RS485 network connection on an Alpha 4000 RGB PoE sign follow the steps below to connect the sign to an RS485 network.

1. Begin by removing the (4) 6-32 tamper proof screws holding the removable cover for the Ethernet connection.

    ·   T15 Pin in Torx Driver is required (not supplied).

    ·   Take care not to lose screws.

    ·   See: Back View Cover Removed from previous page

2. Choose one of the .41-inch knockout to remove for your installation location. Two (2) are provided. Exercise caution when removing either knockout so as to avoid the knockout blank unintentionally entering the inside of the unit. ANY OTHER ENTRY HOLES ADDED TO THE SIGN WILL VOID WARRANTY.

    ·   RS-485 wiring, conduit, and conduit fittings for making connections to the sign are not supplied.

    ·   Use appropriate conduit fittings and connections to route RS485 wiring into the sign termination compartment.

    ·   One .41-inch liquid tight strain relief cord grip and locknut is provided as an alternative to using conduit.

3. Wiring method shall be in accordance with:

    ·   In Canada, CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32;

    ·   In the United States, the National Electrical Code, NFPA 70, and the National Fire Alarm and signaling Code, NFPA 72;

4. If not done so already make the minimum customer PoE power connection to the sign using Detail C (from the previous page) by inserting the Ethernet cable (not provided) into the Ethernet connection port

5. Make the minimum customer RS485 communication connection to the sign

    ·   For the RS485 connection a wire gauge of 28AWG (minimum) to 18AWG (maximum) is required; torque RS485 connection terminal points to a maximum of 5 lb-in.

    ·   A shielded RS485 cable is recommended. Connect shield of cable to SHLD terminal of sign and to chassis ground of transmitting device.

    ·   RS 485 connection to D+ and D- terminals of sign.

    ·   If the RS485 signal from the transmitting device is isolated, then connect EGND terminal of sign to the signal ground terminal the transmitting device.

    ·   If the RS485 signal from the transmitting device is not isolated, the GND terminal of the sign can be left open

    ·   Once all connections have been made attach the provided ferrite around the RS485 cable (ferrite must be attached within the sign)

6. Replace the removable cover using the (4) 6-32 tamper proof screws

    ·   T15 Pin in Torx Driver is required. (Not Supplied)

    ·   Torque to a maximum of 10 lb-in.

- TERM

- D -

- D +

- SHLD

- EGND

1776610601 REV A

Alpha 4000 RGB MNS Series B
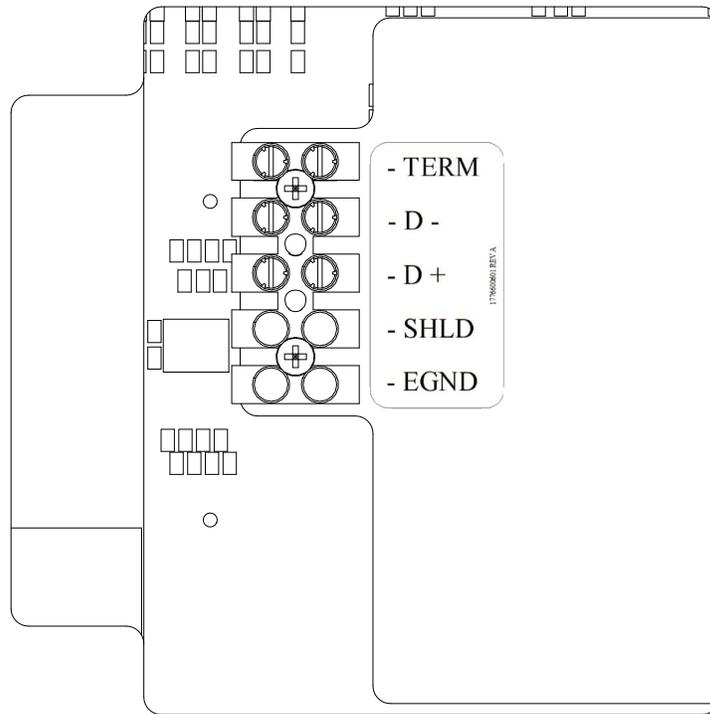
Sign specifications

Sign model number	Pitch	LED rows	LED columns	LED colors	Minimum brightness	Dimensions	Weight (approx)	Input voltage & power draw
4080 PoE	0.3 (in) 7.6 (mm)	16	80	RGB 4096 colors	750 Cd/m^2	25.2 x 3.2 x 7.4 (in) 64.0 x 8.1x 18.8 (cm)	8 (lb) 3.6 (kg)	Type 2 (PoE+) per IEEE 802.3 at 25.5W max
4120 PoE	0.3 (in) 7.6 (mm)	16	120			37.2 x 3.2 x 7.4 (in) 94.5 x 8.1 x 18.8 (cm)	11 (lb) 5.0 (kg)	Type 3 (4PPoE) per IEEE 802.3 bt* 35W max
4160 PoE	0.3 (in) 7.6 (mm)	16	160			49.2 x 3.2 x 7.4 (in) 126.7 x 8.1x 18.8 (cm)	14 (lb) 6.4 (kg)	Type 3 (4PPoE) per IEEE 802.3bt* at 45W max
4080 24 PRI	0.3 (in) 7.6 (mm)	16	80			25.2 x 3.2 x 7.4 (in) 64.0 x 8.1x 18.8 (cm)	8 (lb) 3.6 (kg)	16-33VDC 1.8A max @ 16VDC (29W max)
4120 24 PRI	0.3 (in) 7.6 (mm)	16	120			37.2 x 3.2 x 7.4 (in) 94.5 x 8.1 x 18.8 (cm)	11 (lb) 5.0 (kg)	16-33VDC 2.2A max @ 16VDC (35W max)
4160 24 PRI	0.3 (in) 7.6 (mm)	16	160			49.2 x 3.2 x 7.4 (in) 126.7 x 8.1x 18.8 (cm)	14 (lb) 6.4 (kg)	16-33VDC 2.5A max @ 16VDC (40W max)

*Microsemi version

Wall mounting

## Ceiling mounting kit (optional) 1776250101
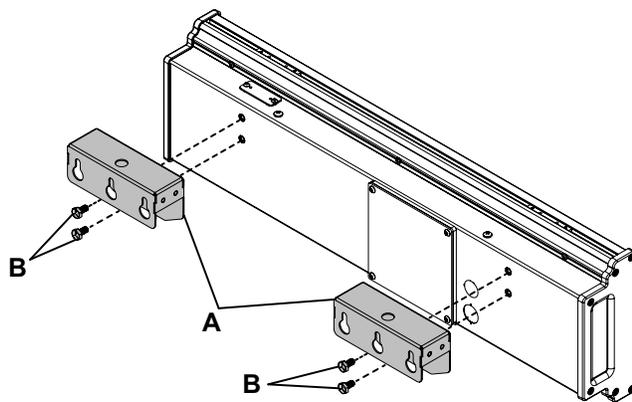
Guidelines

Wall-mounting brackets (A) are provided with the sign. Fasteners (B) are supplied to attach the brackets to the sign. Tighten the fasteners to 15 in-lb. Hardware to secure the brackets to the wall will vary based on the type of material (e.g., concrete, brick, wood) and is not included.

- The hardware for attaching to the mounting surface must be rated for the mounting surface.
- Do NOT install directly to drywall, plasterboard, or other fragile supports.
- Hardware for attaching to the mounting surface must be capable of supporting four times the weight of the sign.
- The wall (or a wall-mounted support system) must be capable of supporting at least four times the weight of the sign.
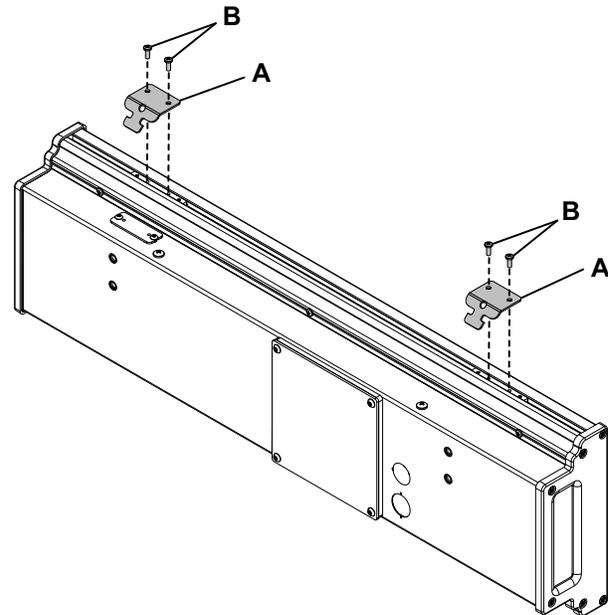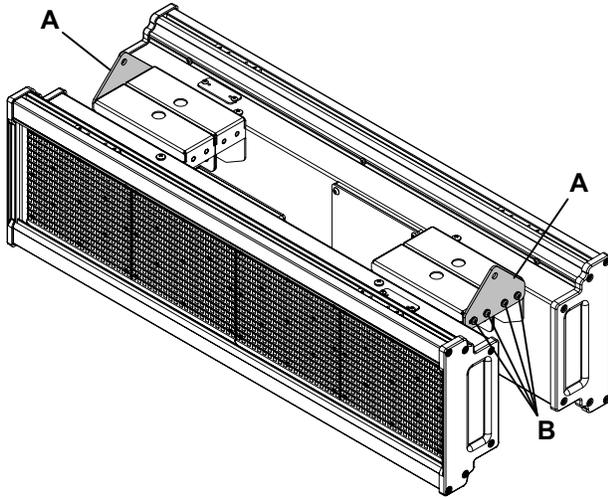
Guidelines

This kit will include two ceiling mounting brackets (A), which will be attached to the units via four 6-32 screws (B). This kit will allow the customer to hang the sign with the appropriate braided wire or chain or rope, etc. The mounting wire/chain will not be provided with this kit at this time. The maximum weight of the 4160 unit is approximately 14 pounds. Hardware to secure the sign to the ceiling will vary based on the type of ceiling material (e.g., concrete, brick, wood) and is not included. Hanging chains are not included.

- The hardware for attaching to the mounting surface must be rated for the mounting surface.
- Do NOT install directly to drywall, plasterboard, or other fragile supports.
- Hardware for attaching to the mounting surface, including hanging chains, must be capable of supporting four times the weight of the sign.
- The ceiling (or a ceiling-mounted support system) must be capable of supporting at least four times the weight of the sign.

Alpha 4000 RGB MNS Series B

Back-to-back ceiling mounting kit (optional) 1776250201

Guidelines

This kit will include two back-to-back mounting plates/ brackets which will be attached to the wall mounting bracket via eight 8-32 screws. This kit will allow the customer to hang two signs back-to-back using the appropriate braided wire or chain or rope, etc. The mounting wire/chain will not be provided with this kit at this time. The maximum weight of two 4160 units is approximately 29 pounds.
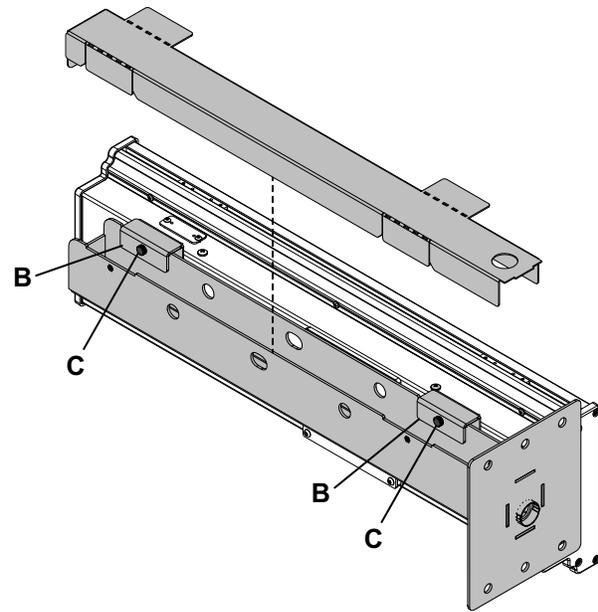
- The hardware for attaching to the mounting surface must be rated for the mounting surface.
- Do NOT install directly to drywall, plasterboard, or other fragile supports.
- Hardware for attaching to the mounting surface, including hanging chains, must be capable of supporting four times the weight of the sign.
- The ceiling (or a ceiling-mounted support system) must be capable of supporting at least four times the weight of the sign.
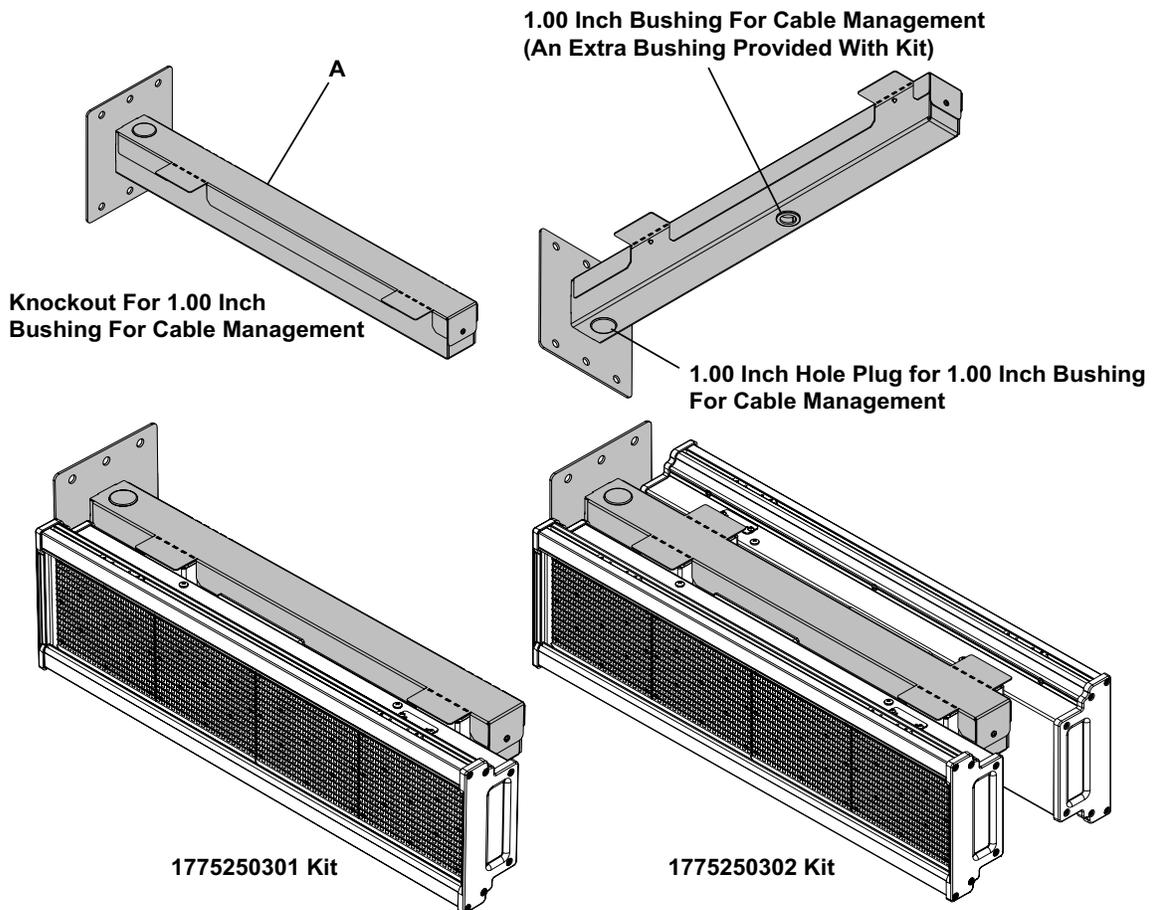
Cantilever mounting kit (optional)

Guidelines

This kit is only available for the 4080 MNS units and will include one side wall mounting arm (A) which will be attached to the customers wall via two or four 3/8" lag bolts. Lag bolts will not be provided with this kit at this time. Also included with this kit will be two or four sign mounting brackets (B) and two or four 6-32 thumb screws (C), these components will be used to attach the sign to the mounting arm as well as keep it in place. The mounting arm is a welded assembly using 12 gauge (.1046" thick) cold rolled steel, while the cover is .050" thick aluminum with bendable wings to accommodate either one or two signs. The maximum weight of two 4080 units is approximately 17 pounds.

- The hardware for attaching to the mounting surface must be rated for the mounting surface.
- Do NOT install directly to drywall, plasterboard, or other fragile supports.
- Hardware for attaching to the mounting surface must be capable of supporting four times the weight of the sign.

Alpha 4000 RGB MNS Series B

A

1.00 Inch Bushing For Cable Management
(An Extra Bushing Provided With Kit)

Knockout For 1.00 Inch
Bushing For Cable Management

1.00 Inch Hole Plug for 1.00 Inch Bushing
For Cable Management

1775250301 Kit   **1775250302 Kit**

Start-up

After installing a sign according to the previous sections, make sure the unit is installed properly by applying power to it. It may take up to 30 seconds for the loading icon to appear. Then, information similar to the following should display on the sign if Alpha Net Player is installed.

Sign display	Meaning
ALPHA controller 1199663011 1.2.10	Software part number including revision and build
Sign Serial Number JY00000000	AMS Product serial number
Serial Address V 01	Alpha Protocol Type code character serial address in hexadecimal
Serial 9600 8N1	Serial baud rate data bits parity stop bits
IP 10.11.11.254	Current IP address of sign (default will be listed on the sign)
SUBNET 255.255.0.0	Current SUBNET of sign (default will be listed on the sign)
Gateway 0.0.0.0	Current Gateway of sign (default will be listed on the sign)
Port 3001	Current Sign Port (default will be listed on the sign)

The following information should display on the sign if oOh! Media Player is installed:

Sign display	Meaning
LNXv1.5.7 10.11.11.254	Operating system type and version with IP seen below, one octet at a time.

Maintenance

Notice: Always disconnect the communication cable before disconnecting the power cord.

Routine cleaning

Use only a soft, lint-free cotton cloth to clean the sign. Do not use soap and water, alcohol, cleaners with alcohol, or any other strong solvent.

Service and Repair

There are no user serviceable parts in this sign. Contact Adaptive Displays for service and repair information.