



STEP 1: Read Safety section before starting, see page 4.

STEP 2: Mechanical installation, see page 14.

STEP 3: How many signs are installed?

ONE SIGN

- Go to STEP 4.

TWO OR MORE SIGNS



STEP 3a: Must all signs display the *same* message at the *same* time?

YES

All signs must be the same size.

- Use Master/Slave sign-to-sign connection, see page 27. Then go to STEP 4.

NO

- Use Master/Master sign-to-sign connection, see page 26. Then go to STEP 4.

STEP 4: How will messages be sent from a computer to the sign(s)?

Method	Directions
CONVERTER BOX III (RS485)	• See page 29. Then go to STEP 5.
FIBER OPTIC	• See page 30. Then go to STEP 5.
ETHERNET	• See page 31. Then go to STEP 5.
EXTERNAL CONNECTION BOX	• For an RS232 connection, see page 32. Then go to STEP 5. • For an RS485 connection, see page 33. Then go to STEP 5.
MODEM	• See page 34. Then go to STEP 5.
WIRELESS	• For a Locus transceiver, see page 35. Then go to STEP 5. • For an Alpha RF900 transceiver, see page 36. Then go to STEP 5. • For a MaxStream XTend 900MHz Transceiver, see page 37. Then go to STEP 5.

STEP 5: Electrical installation, page 21.

STEP 6: Use AlphaNET v2.0.3 or greater software to send messages to the sign(s)

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Introduction

Revision history

Revision	Date	Notes
9711-6024	June 21, 2004	First Release. This manual replaces the "AlphaEclipse 2500/2600 sign Installation manual" (9711-7001) and the "AlphaEclipse 3500 Sign Installation manual" (9711-6015).
9711-6024A	June 30, 2005	Information on TEMP/SYNC wiring was corrected and MaxStream XTend transceiver was added. Also, information on not using GFI-protected outlets was added.
9711-6024A	February 14, 2006	Information on wiring the 6-position adapter was added, see "External connection box (RS232) computer-to-sign connection" on page 32.

Related documentation

Part #	Manual title	Description
9707-1004	How to use the IR Message Loader to Display Messages on AlphaEclipse Signs	Shows how to create messages, transfer messages to an IR Message Loader, connect the loader to a sign, and then send the message from the loader to the sign.
9708-8081	AlphaNET Version 3.0 User Manual	Explains the software used to create and send messages to the sign
9711-6016	AlphaEclipse Signs Master/Slave configuration	Explains how to connect a Master and a Slave AlphaEclipse 2500, 2600, or 3500 signs.
9711-6017	AlphaEclipse Master/Master Configuration	Explains how to connect two Master AlphaEclipse 2500, 2600, and 3500 signs.
9711-6023	Troubleshooting Guide for AlphaEclipse 2500, 2600, and 3500 Signs	Provides comprehensive troubleshooting information on serial, wireless, and modem communication for AlphaEclipse 2500, 2600, and 3500 signs.
TechMemo #00-0005	Preventing Electrostatic Discharge (ESD) Damage	Explains the dangers associated with electrostatic discharge damage and how it can be prevented by following static control procedures.
TechMemo #01-0011	US Robotics 56k modem setup for AlphaEclipse and Alpha signs	Explains how to set up US Robotics V.90 and V.92 56k fax/modem.
TechMemo #02-0006	Cleaning AlphaEclipse 1500, 2500, 2600, and 3500 outdoor LED signs	Describes how to clean the exterior of AlphaEclipse 1500, 2500, 2600, and 3500 outdoor LED signs.
TechMemo #05-0004	6-Position Adapter Wiring (pn 4331-0604)	Describes how to correctly wire an adapter in order to create an RS232 connection to a sign.

Safety

Warnings and cautions

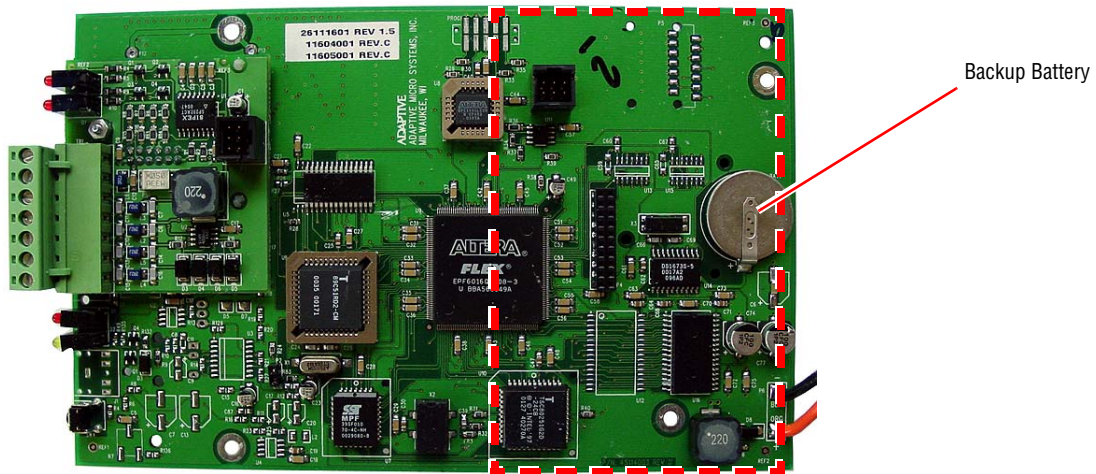


Other warnings and cautions are posted in appropriate locations throughout this manual.

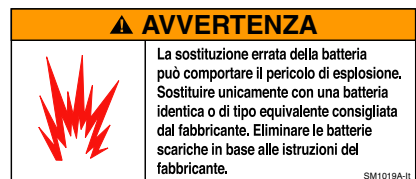
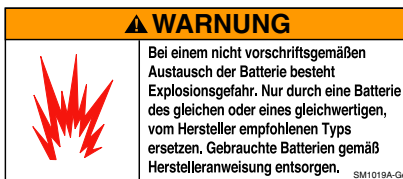
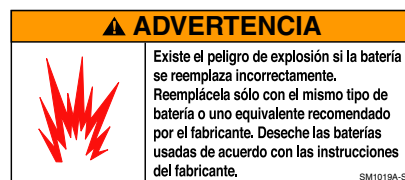
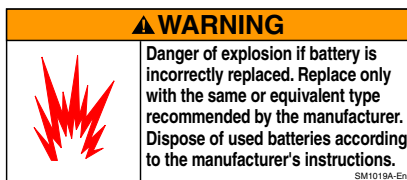
Battery backup

In the event of power loss, a backup battery in an AlphaEclipse sign provides power in order to save messages and time settings.

A backup battery is located on a sign's controller board under the turbo driver board (dashed line below). The backup battery should only be replaced by a qualified Adaptive technician.



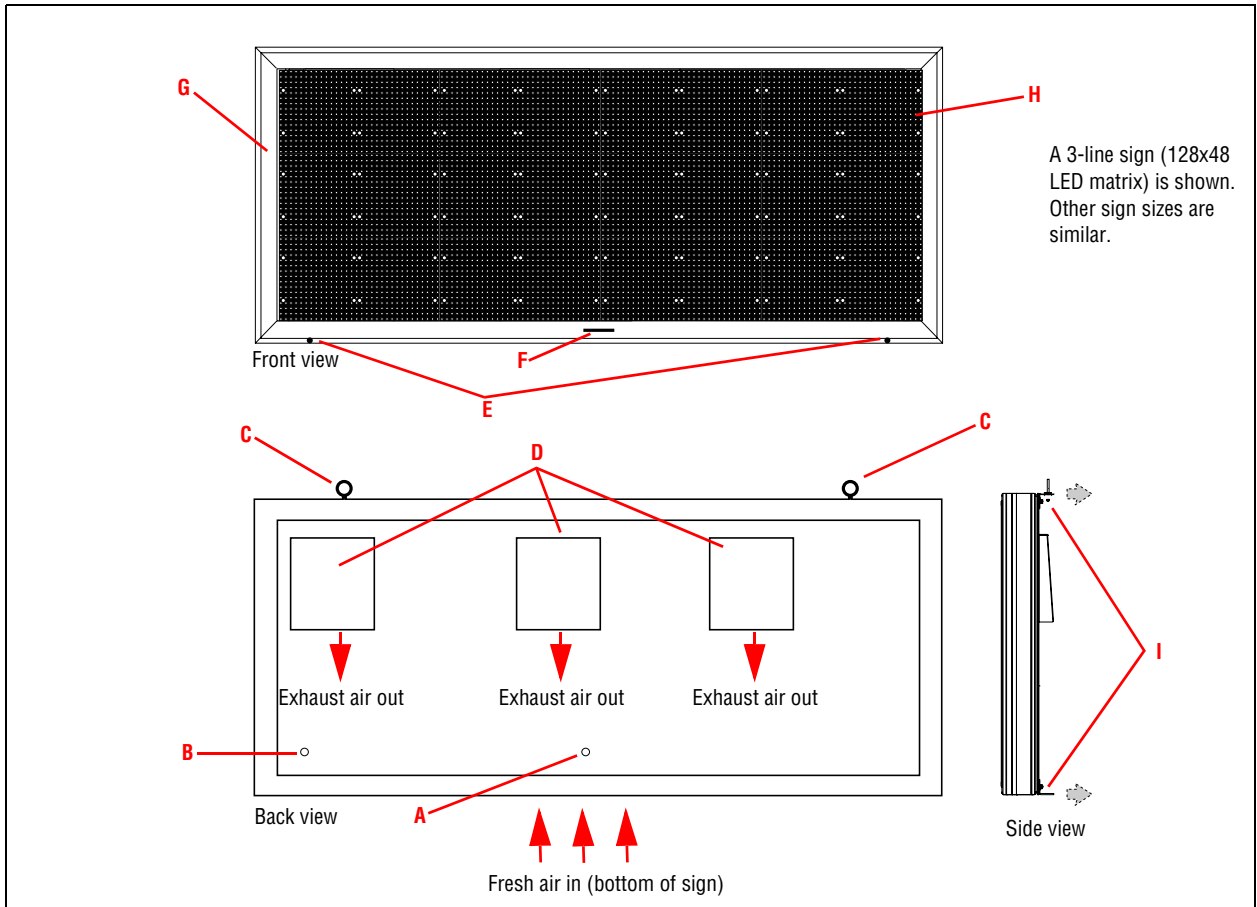
Controller board - the dashed line is the location of the turbo driver board.



Equipment overview

AlphaEclipse 2500/2600 description

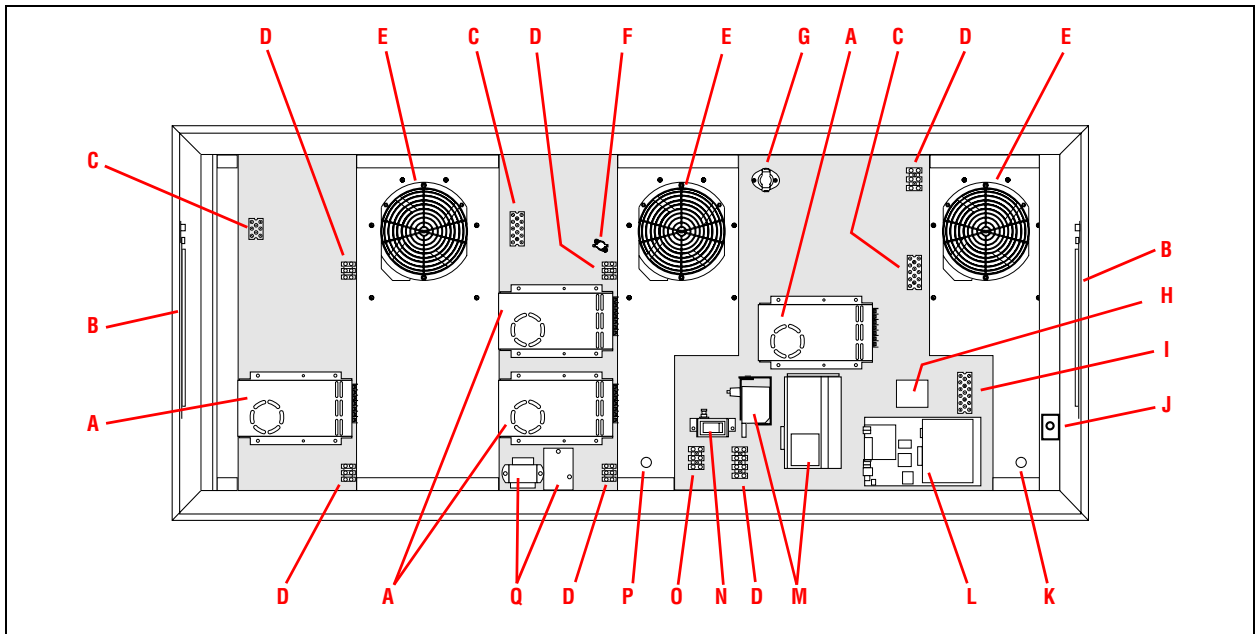
Outside view




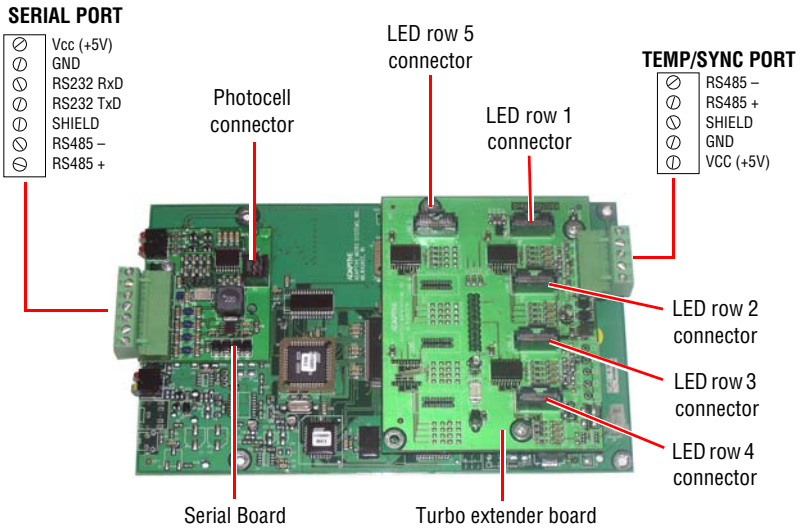
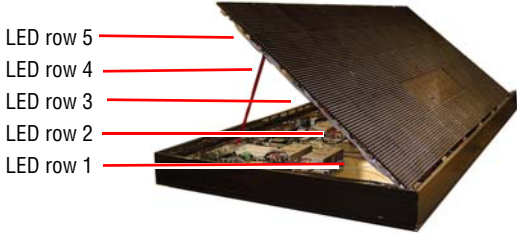
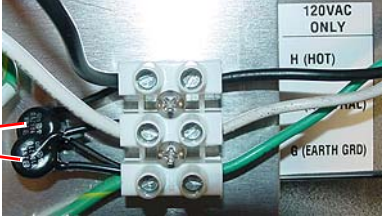
Item	Name	Description
A	Power conduit opening	Access for electrical power. Must be sealed with weather-proof conduit during installation.
B	Signal conduit opening	Access for RS232/RS485 communication signals and for wireless transceiver option. Must be sealed with weather-proof conduit during installation.
C	Lifting Hooks	Used to lift the sign. These should NOT be used to mount the sign.
D	Fan covers	Weather-resistant louvers allow air movement through sign.
E	Locking latches	Locks the sign door closed
F	Door Handle	Used to open the sign door.
G	Sign door	Opens for access to internal sign components. Metal safety bars hold the door open. The door can be removed from its hinges.
H	LED lens cover	Polycarbonate lens cover in the sign door.

	<p>I Mounting brackets</p>	<p>Used to attach sign to mounting structure</p> <table border="1" data-bbox="829 226 1203 982"> <thead> <tr> <th>Unit Size</th> <th>Quantity of Mounting Brackets</th> </tr> </thead> <tbody> <tr><td>96 x 16</td><td>4</td></tr> <tr><td>96 x 32</td><td>4</td></tr> <tr><td>96 x 48</td><td>4</td></tr> <tr><td>96 x 64</td><td>4</td></tr> <tr><td>96 x 80</td><td>4</td></tr> <tr><td>128 x 16</td><td>4</td></tr> <tr><td>128 x 32</td><td>4</td></tr> <tr><td>128 x 48</td><td>4</td></tr> <tr><td>128 x 64</td><td>4</td></tr> <tr><td>128 x 80</td><td>4</td></tr> <tr><td>160 x 16</td><td>4</td></tr> <tr><td>160 x 32</td><td>4</td></tr> <tr><td>160 x 48</td><td>6</td></tr> <tr><td>160 x 64</td><td>6</td></tr> <tr><td>160 x 80</td><td>6</td></tr> <tr><td>192 x 16</td><td>4</td></tr> <tr><td>192 x 32</td><td>4</td></tr> <tr><td>192 x 48</td><td>6</td></tr> <tr><td>192 x 64</td><td>6</td></tr> <tr><td>192 x 80</td><td>6</td></tr> </tbody> </table>	Unit Size	Quantity of Mounting Brackets	96 x 16	4	96 x 32	4	96 x 48	4	96 x 64	4	96 x 80	4	128 x 16	4	128 x 32	4	128 x 48	4	128 x 64	4	128 x 80	4	160 x 16	4	160 x 32	4	160 x 48	6	160 x 64	6	160 x 80	6	192 x 16	4	192 x 32	4	192 x 48	6	192 x 64	6	192 x 80	6
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Inside view

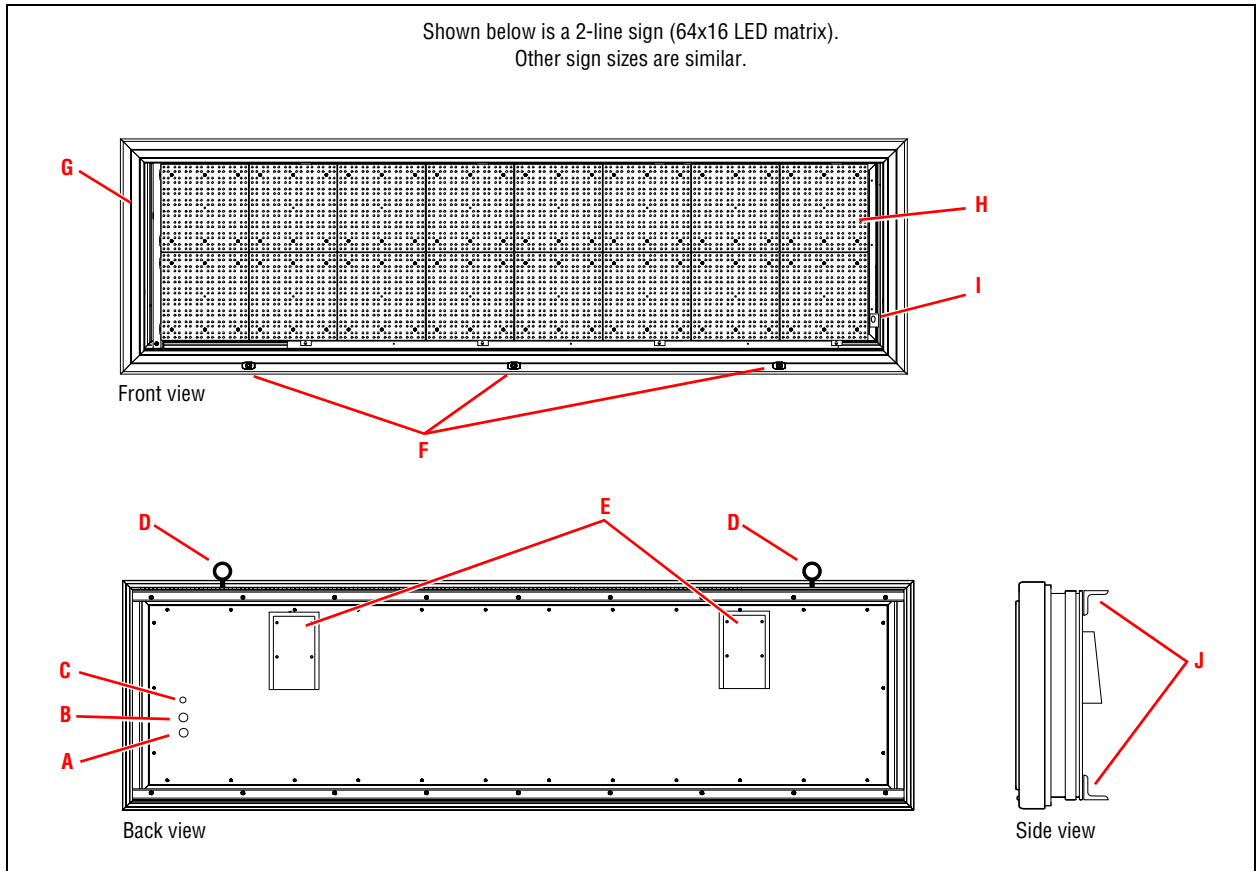


Item	Name	Description
A	5-volt power supply	Provides power to the LED and the Controller boards.
B	Safety bar	Keeps sign door from closing when the sign door is raised.
C	5-volt distribution terminal	Distributes 5-volt power to LED boards.
D	120/240-volt distribution terminal	Distributes 120/240-volt power to the fans and power supplies.
E	Exhaust fan, 55 CFM, 120V	For 1-LED row sign.
	Exhaust fan, 55 CFM, 240V	
	Exhaust fan, 110 CFM, 120V	For 2-LED rows sign.
	Exhaust fan, 110CFM, 240V	
	Exhaust fan, 170 CFM, 120V	For 3-LED rows sign.
	Exhaust fan, 170 CFM, 240V	
	Exhaust fan, 220 CFM, 120V	For 4- and 5-LED rows sign.
Exhaust fan, 220 CFM, 240V		
F	Exhaust fan thermostat	Turns on exhaust fans when the temperature inside of unit is at or above 30°C (85°F). The location of this thermostat varies depending on the size of the sign.
G	Shutdown thermostat	Shuts down the sign when the temperature inside of the unit exceeds 82°C (180°F). During shutdown, only the sign's fans will operate.
H	Telephone service hookup (part of modem option)	Used to connect a 4-wire telephone line to a modem.
I	Signal I/O terminal block	Used to connect an RS232 or RS485 network to the sign:  A one-line sign does not include a Serial I/O terminal block. Instead, connections are made directly to the Serial Port on the controller board.
J	Photocell	Used to dim the sign's LEDs.

K	Signal conduit opening	Access for RS232/RS485 communication signals and the wireless transceiver option. Must be sealed with weather-proof conduit during installation.
L	Controller board	<p>Controls sign operation.</p>  <p>SERIAL PORT</p> <ul style="list-style-type: none"> ⊖ Vcc (+5V) ⊖ GND ⊖ RS232 RxD ⊖ RS232 TxD ⊖ SHIELD ⊖ RS485 - ⊖ RS485 + <p>TEMP/SYNC PORT</p> <ul style="list-style-type: none"> ⊖ RS485 - ⊖ RS485 + ⊖ SHIELD ⊖ GND ⊖ VCC (+5V) <p>LED row 5 connector</p> <p>LED row 1 connector</p> <p>LED row 2 connector</p> <p>LED row 3 connector</p> <p>LED row 4 connector</p> <p>Photocell connector</p> <p>Serial Board</p> <p>Turbo extender board</p>  <p>LED row 5</p> <p>LED row 4</p> <p>LED row 3</p> <p>LED row 2</p> <p>LED row 1</p>
M	<p>Modem kit, 120V (option)</p> <p>Modem kit, 240V (option)</p> <p>Transceiver kit, 120V (option)</p> <p>Transceiver kit, 240V (option)</p> <p>Fiber optic modem (option)</p>	<p>Allows sending messages to sign via a modem (option).</p> <p>Allows sending messages to sign via a wireless transmitter (option).</p> <p>Allows sending messages to sign via fiber optic mini-modems (option).</p>
N	Power switch	Used to disconnect sign from power source. An intermittent switch on this assembly allows exhaust fans to be turned in order to test their operation.
O	Power supply terminal block	<p>Used to connect the sign to an appropriate power supply. Two surge suppressors are used per sign.</p>  <p>Surge suppressors</p> <p>120VAC ONLY</p> <p>H (HOT)</p> <p>N (NEUTRAL)</p> <p>E (EARTH GRD)</p>
P	Power conduit opening	Access for electrical power. Must be sealed with weather-proof conduit during installation.
Q	240V modem transformer and fuses (option)	Used as part of the 240V modem option.

AlphaEclipse 3500 description

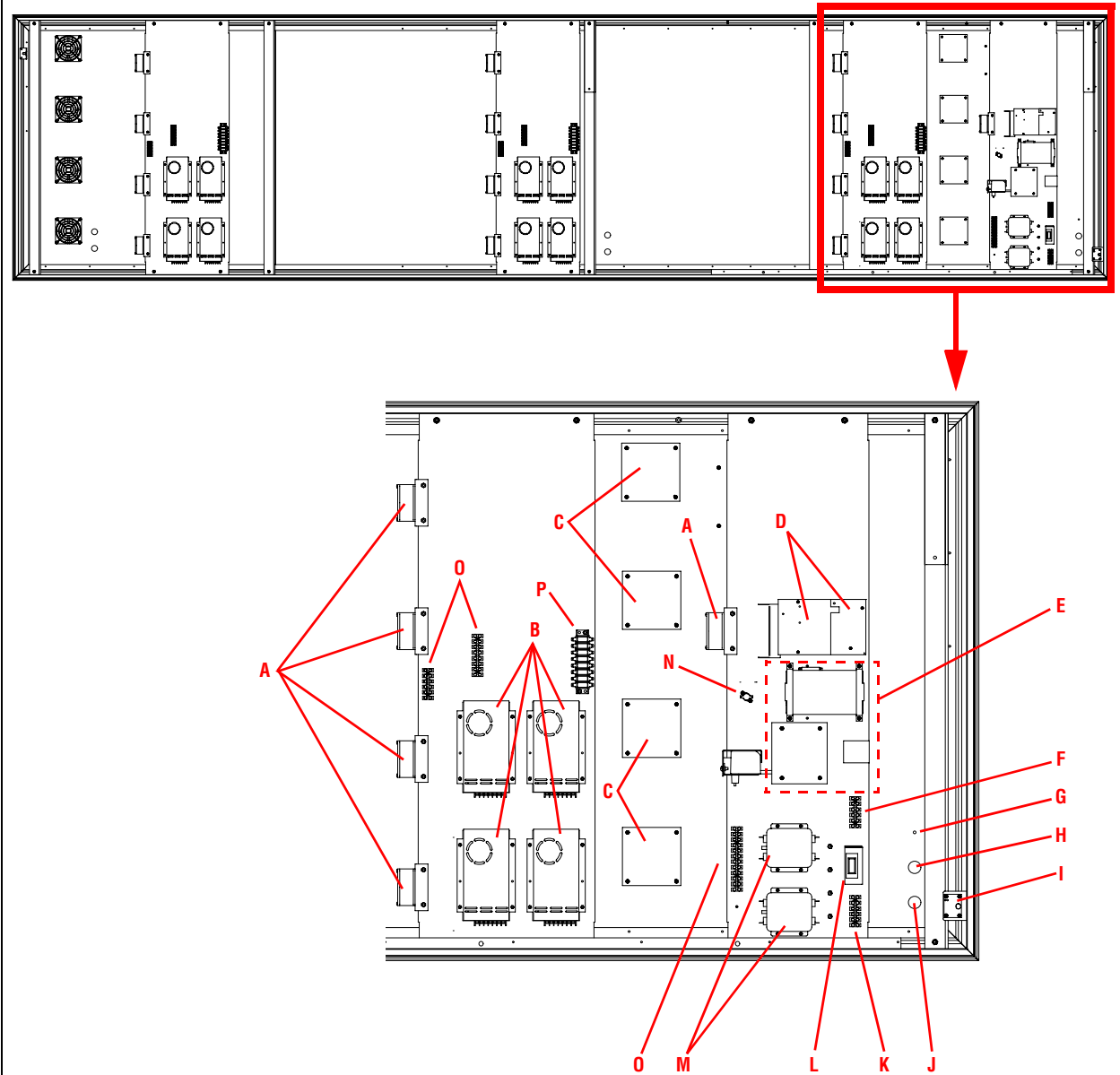
Outside view





Item	Name	Description
A	Power conduit	Access for electrical power. Must be sealed with weather-proof conduit during installation.
B	Signal and temperature probe conduit	Access for communication signals and temperature probe. Must be sealed with weather-proof conduit during installation.
C	Wireless transceiver antenna conduit	Access for antenna for optional wireless transceiver.
D	Lifting hook	Used to lift the sign. should NOT be used to mount the sign.
E	Fan covers	Weather-resistant louvers allow air movement through the sign.
F	Locking latch	Locks the sign closed. Requires key (included). Number of latches depends on the width of the sign.
G	Door	Opens for access to internal sign components. Gas cylinders hold the open door in place.
H	LED lens cover	Polycarbonate lens cover in front access cover.
I	Photocell	Senses available light and dims the LEDs at sunset. The LEDs are dimmed by 50% (default setting).
J	Mounting brackets	Used to attach the sign to a structure.

Inside view

Shown below is a 4-line sign.
Other sign sizes are similar.

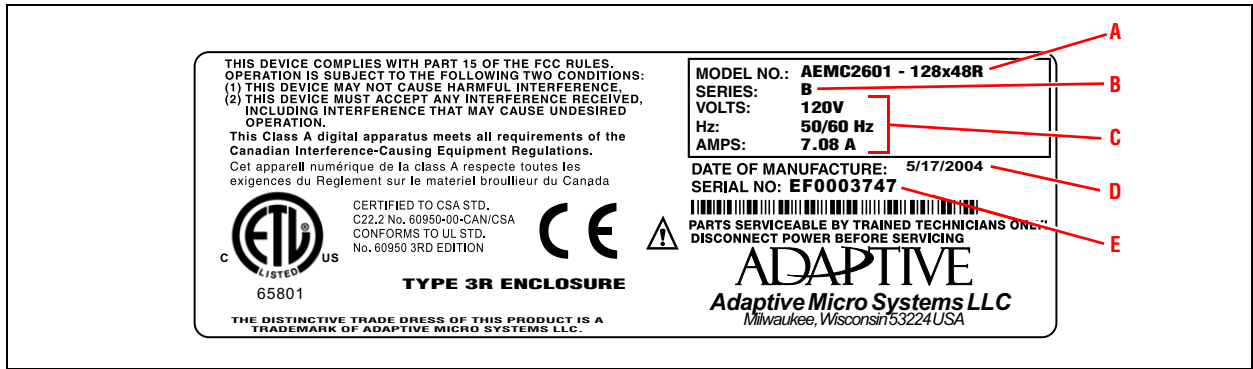


Item	Name	Description
A	Internal fan, 120V	Circulates air in the sign.
	Internal fan, 240V	
B	Power supply	Supplies power to fans, controller board, and LED boards.
C	Exhaust fan, 120V	Dissipates heat from sign.
	Exhaust fan, 240V	
D	Controller board	Controls sign operation.
	Turbo Extender board	Plugs into the controller board.

E	Modem kit, 120V	Allows sending messages to sign via a modem (optional).
	Modem kit, 240V	
	Transceiver kit, 120V	Allows sending messages to sign via a wireless transmitter (optional).
	Transceiver kit, 240V	
F	Signal I/O terminal block	<p>Used to connect an RS232 or RS485 network to the sign:</p>  <p>RS485 + RS485 - SHIELD RS232 TXD RS232 RXD SGL GND</p> <p>A one-line sign does not include a Serial I/O terminal block. Instead, connections are made directly to the Serial Port on the controller board.</p>
G	Wireless transceiver antenna conduit opening	Used to connect antenna to the optional wireless transceiver.
H	Signal wire conduit opening	Used to run a RS232 or RS485 signal wire or fiber optic cable to sign.
I	Photocell	Contains light-sensitive photocell used to dim the sign's LEDs.
J	Power line conduit opening	Wires from power supply terminal block are run through this opening to a suitable power source.
K	Power supply terminal block	<p>Used to connect the sign to an appropriate power supply.</p>  <p>Surge suppressors</p>
L	Power switch	Used to disconnect sign from power source.
M	Line filter	Removes electrical noise (EMOI) from power supply connection.
N	Exhaust fan thermostat	Turns on exhaust fan when inside of unit gets too hot.
O	5V connection terminal	Provides power to LED boards.
P	120/240V connection terminal	An all-plastic terminal strip that provides power to the power supplies and fans.

Equipment identification

Equipment identification labels are located inside and on the back of a sign.



Item	Name	Description
A	Model number	<p style="text-align: center;">AEMC2601 - 128X48R</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>LED lamp color:</p> <ul style="list-style-type: none"> • A = Amber • R = Red </div> <div style="text-align: center;"> <p>Width (pixel columns) Height (pixel rows)</p> </div> </div> <p>LED lamp viewing angle:</p> <ul style="list-style-type: none"> • 00 = 30 degree • 01 = 70 degree <p>LED pitch:</p> <ul style="list-style-type: none"> • 25 = 0.45-inch pitch (AlphaEclipse 2500 sign) • 26 = 0.60-inch pitch (AlphaEclipse 2600 sign) • 35 = 1.40-inch pitch (AlphaEclipse 3500 sign)
B	Series letter	Revision level of sign.
C	Electrical information	Input voltage, frequency, and total average of sign.
D	Date of manufacture	Month, day, and year the sign was made.
E	Serial number	Consecutive, unique identification number

Temperature protection

In order to protect itself from damage, a sign will automatically turn on its exhaust fans and dim or turn off its LEDs when the sign reaches a predetermined internal temperature.

Internal sign temperature:	< 30°C (86°F)	30° - 49°C (86° - 120°F)	50° - 70°C (122° - 158°F)	71° - 81°C (160° - 178°F)	82°C or greater (180°F)
LEDs:	Normal brightness		Dim ¹	Off ²	Off ³
Controller board:	On				
Power supplies:	On				
Exhaust fans: ⁴	Off	On			

NOTES:

¹ Between 50° - 60°C (122° - 140°F), LED brightness can decrease between 62.5% - 100% of normal, depending on display load.
 Between 60° - 65°C (140° - 149°F), LED brightness can decrease between 50% - 87.5% of normal, depending on display load.
 Between 65° - 70°C (149° - 158°F), LED brightness can decrease between 37.5% - 75% of normal, depending on display load.
 (*Display load* means the number of LEDs that are on. For example, a graphic that lights up most of a sign's LEDs will have more of a display load than a simple text message that lights up only some LEDs.)

² When the LEDs are turned off because the sign is too hot, two LEDs in the left most corner will remain on to indicate a thermal shutdown.

³ All LEDs will be off.

⁴ At or above 30° C (86° F), the exhaust fans are switched on by the exhaust fan thermostat. If the temperature drops to 20° C (67° F), then the exhaust fans are turned off.

Equipment symbols



Chassis ground



Main power (1 = On, 0 = Off)

Preventing electrostatic discharge damage



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

EMI compliance

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

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

Installation

Mechanical Installation

Guidelines for mechanical installation

Because every sign installation is unique, there is no single procedure for mounting AlphaEclipse signs.

This section is only intended as a guide. A set of sign shop drawings is attached to the end of this manual. These drawing should aid in most any type of installation.

All installations, superstructure designs, and connections must be designed and approved by a qualified structural engineer. Call Adaptive Micro Systems at 1-800-558-7022 for contact information for structural engineering consultants.

- Only use the sign's mounting support brackets to mount a sign. *Mounting to any other part of the sign will void the warranty.*
- Drill holes as needed in the sign's steel framework for fasteners, but consult the attached shop drawings for excluded areas. *Drilling holes in any of these excluded areas will void the sign's warranty.* When drilling holes, follow these guidelines:
 - Connections must be analyzed by a structural engineer.
 - Dissimilar metals should be isolated to avoid galvanic corrosion.
- Any area on the sign's frame that had paint removed during mounting must be recoated with a paint recognized by UL test #1332. *Failure to repaint the area will result in accelerated corrosion of the sign's structure. Adaptive Micro Systems is not responsible for any failure in the sign's structure because of this.* (POLAN HS Plus Polyurethane Enamel is used to paint the sign's frame during manufacturing.)

Support structure design

The design of a sign's support structure depends on a number of factors:

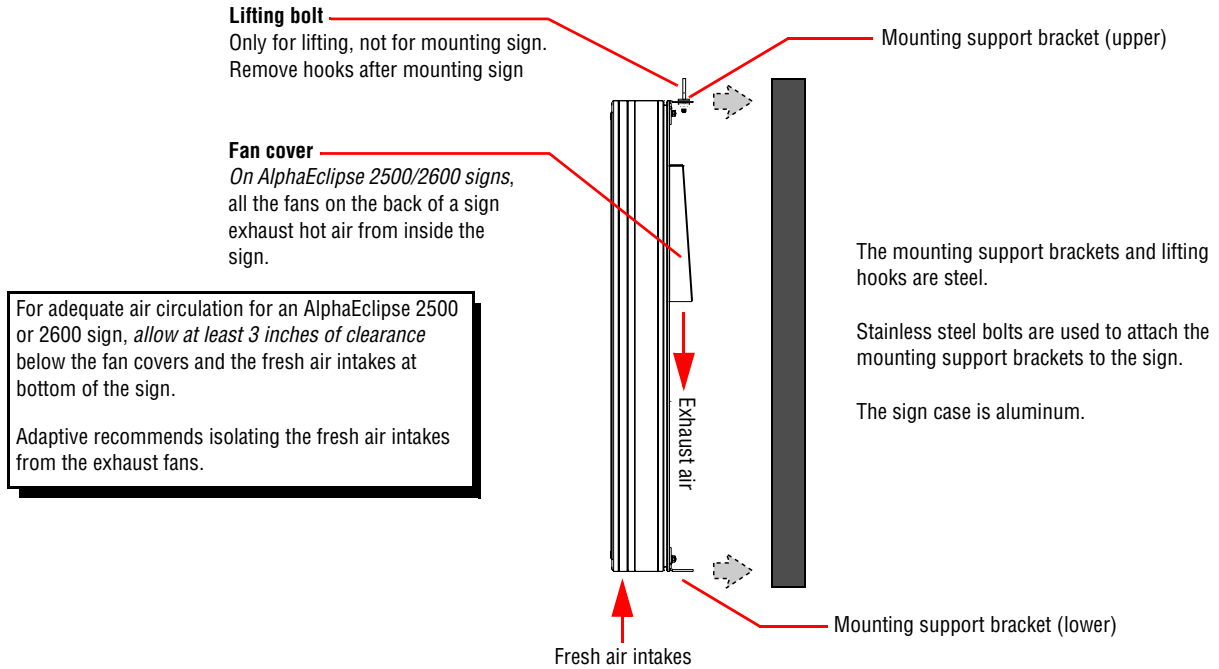
- mounting methods
- building codes
- foundation
- sign size
- sign weight
- sign height
- wind loading

Ventilation requirements for open-air sign mounting

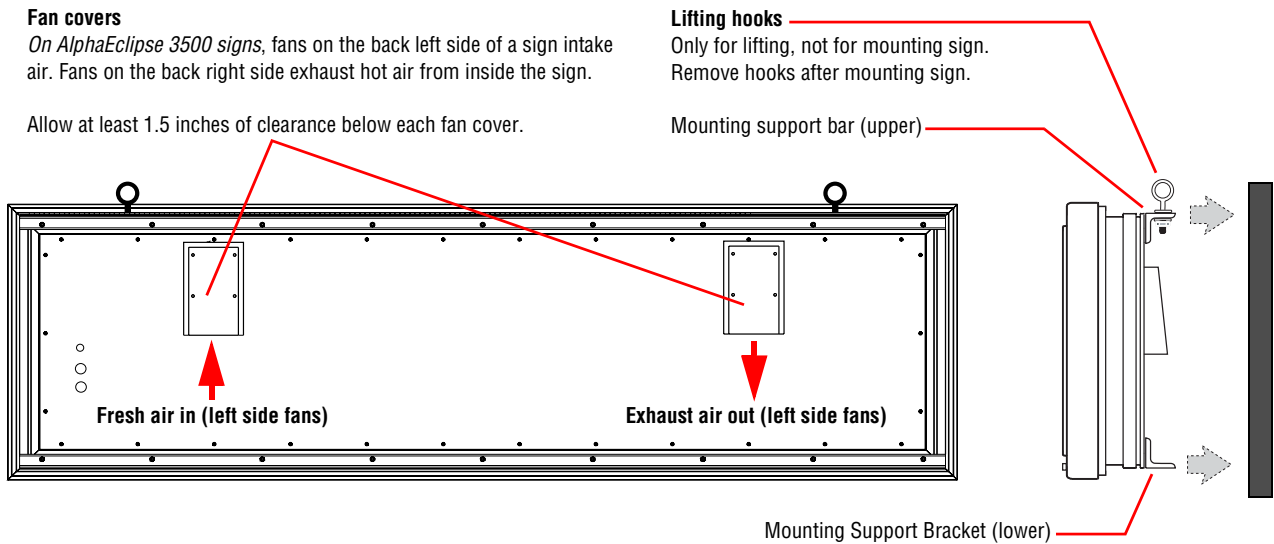
If the sign will be mounted to a solid surface like a wall where air flow is *not restricted*, then refer to the illustrations below for sign mounting ventilation requirements.

Otherwise, if the sign will be mounted in a location where air flow is *restricted*, then see "Ventilation requirements for monument-style sign mounting" on page 16.

AlphaEclipse 2500/2600 sign open-air mounting ventilation



AlphaEclipse 3500 sign open-air mounting ventilation



For adequate are circulation with an AlphaEclipse 3500, sign, allow at least 1.5 inches of clearance below the fan covers.

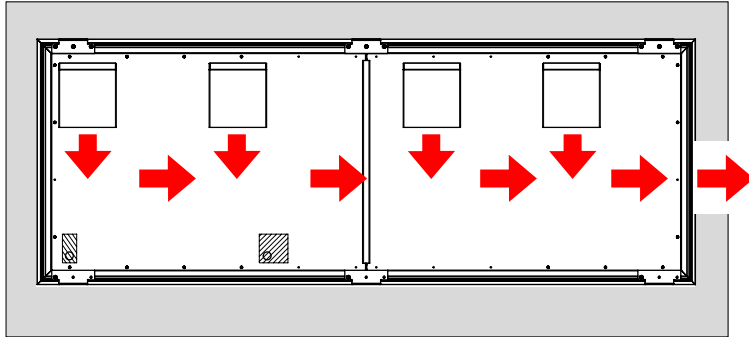
Adaptive recommends isolating the fresh air intakes from the exhaust fans.

Ventilation requirements for monument-style sign mounting

Unlike open-air sign mounting, a sign that is enclosed has restricted air flow. Follow the requirements below for monument-style sign mounting.

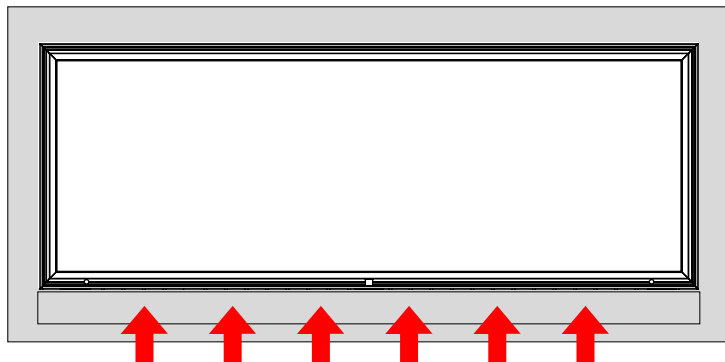
AlphaEclipse 2500/2600 sign monument-style ventilation

Monument-style mounting
Back view cutaway



Exhaust air opening
(See Table 1, "Alpha Eclipse 2500/2600 sign monument ventilation requirements," on page 16.)

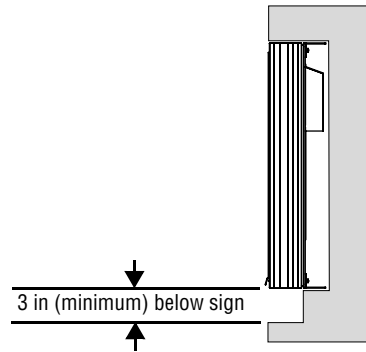
Monument-style mounting
Front view



Fresh air opening

(see Table 1: "Alpha Eclipse 2500/2600 sign monument ventilation requirements" below)

Monument-style mounting
Side view cutaway



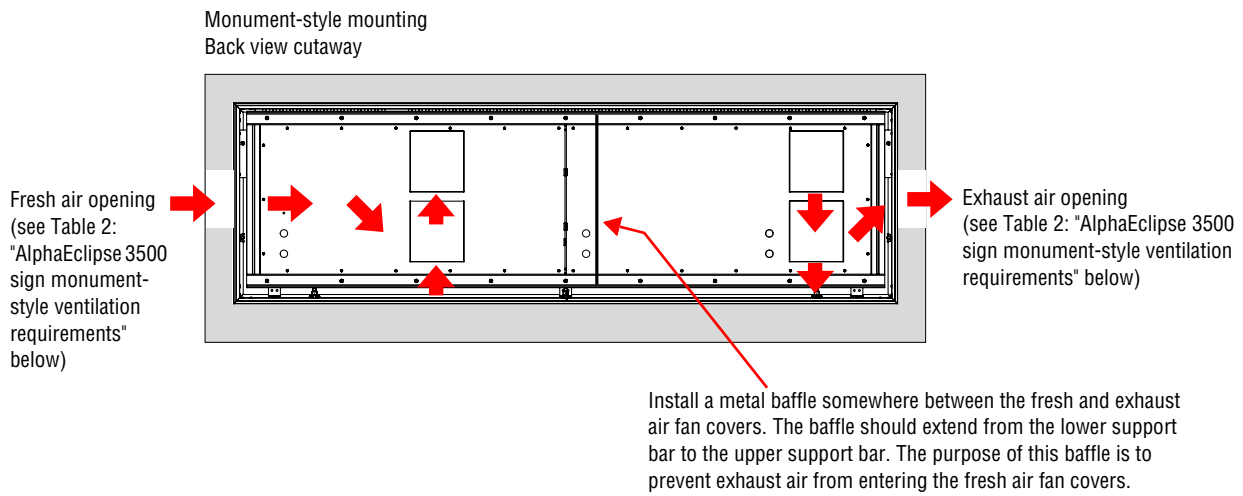
3 in (minimum) below sign

Table 1: Alpha Eclipse 2500/2600 sign monument ventilation requirements

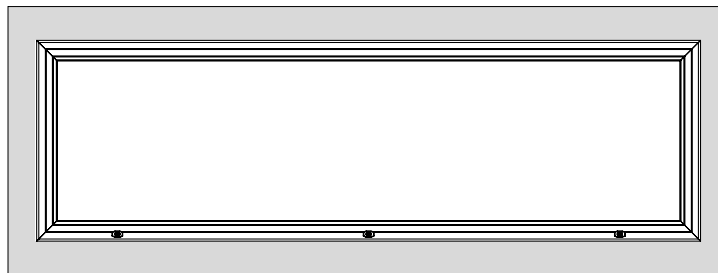
	Total # of fans	Exhaust air opening size (minimum)	Fresh air opening size (minimum)
AlphaEclipse 2500 sign	2	16 sq. in.	Allow 2 square inches per 1 inch of sign length. Example: a 60-inch long sign requires a 120 sq. in (60*2) fresh air opening
	3	24 sq. in.	
	4	32 sq. in.	
AlphaEclipse 2600 sign	3	48 sq. in.	
	4	64 sq. in.	
	5	80 sq. in.	

AlphaEclipse 3500 sign monument style ventilation

Unlike an AlphaEclipse 2500/2600 sign where all the fan covers exhaust air, on an AlphaEclipse 3500 sign, only the right side fan covers exhaust air while the left side fan covers intake fresh air.



Monument-style mounting
Front view



Monument-style mounting
Side view cutaway

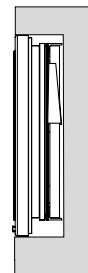


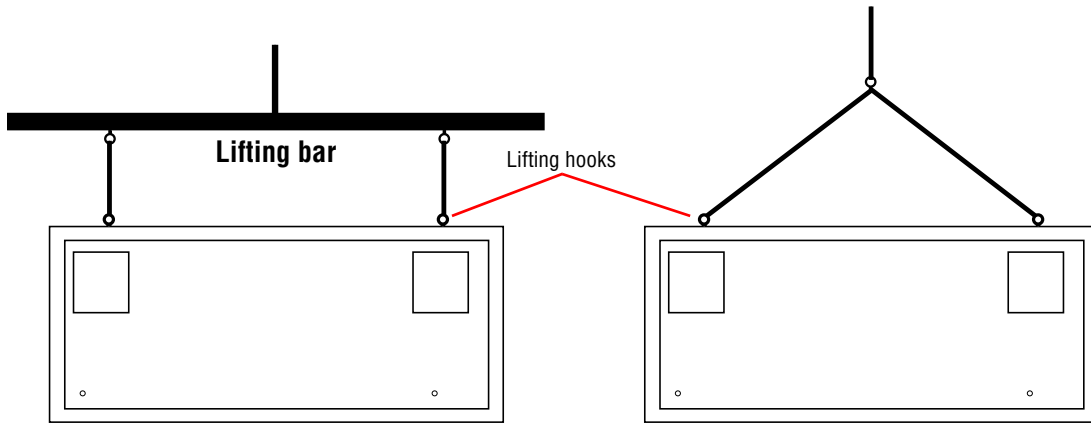
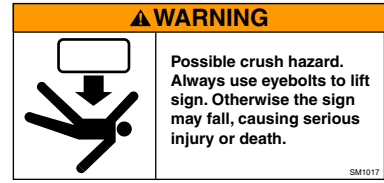
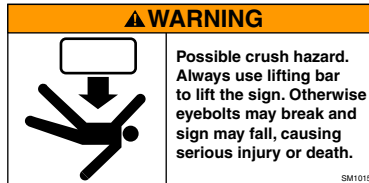
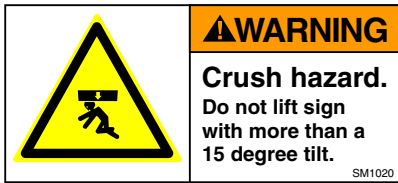
Table 2: AlphaEclipse 3500 sign monument-style ventilation requirements

	Total # of fans	Exhaust air opening size (minimum)	Fresh air opening size (minimum)
AlphaEclipse 3500 sign	2	16 sq. in.	16 sq. in.
	4	32 sq. in.	32 sq. in.
	6	48 sq. in.	48 sq. in.
	8	64 sq. in.	64 sq. in.

Lifting the sign

Use the two lifting hooks on the sign with a lifting bar to raise the sign:

NOTE: After mounting the sign, remove the lifting hooks.



**RIGHT WAY
TO LIFT SIGN**

**WRONG WAY
TO LIFT SIGN**

Temperature probe mounting (optional)

NOTE: Complete this section only if your sign is equipped with a temperature probe.

Guidelines for temperature probe mounting

- Choose a location where air movement is not restricted by nearby walls or other obstructions. A light-colored background is preferable to a dark-colored mounting background. A location above vegetation is preferable to a location above asphalt or concrete.
- Mount the temperature probe at least one foot below the eave of a protected overhang so convection currents (rising hot air flow) are not trapped around the temperature probe. Make sure convection currents are not blocked by the mounting plates.
- A location on the north side of a building or other large structure will afford protection from the afternoon sun. Mount the temperature probe at least 6 feet off the ground. Shield the probe from the effect of the direct sun, reflected heat, or any nearby sources of heat, such as chimneys, vents, or HVAC ducts.

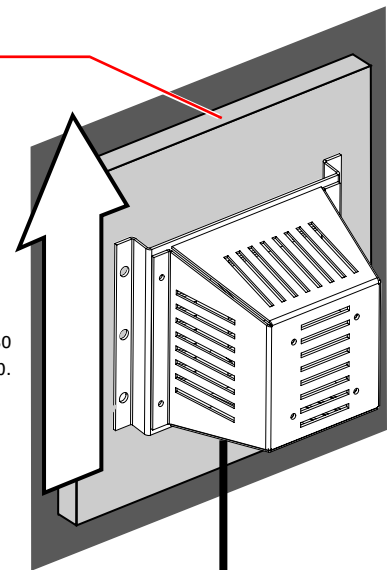
Installation

1. Mount the temperature probe vertically using the mounting plate on each side of the probe. The temperature probe can be mounted on either a flat or a curved surface. Run the temperature probe cable into the sign through the signal wire conduit opening.
2. Connect the temperature probe to the sign as shown:

If a temperature probe will be mounted to a heat-conducting surface, like metal, prevent the temperature probe's metal case from conducting heat from this surface by:

- placing a non-heat conducting material, like wood board, between the surface and the probe.
- using plastic bolts to mount the temperature probe or plastic washers under the heads of metal screws. (This is necessary only if the mounting screws make contact with the heat-conducting surface.)

Mount temperature probe so that the screw holes face up.

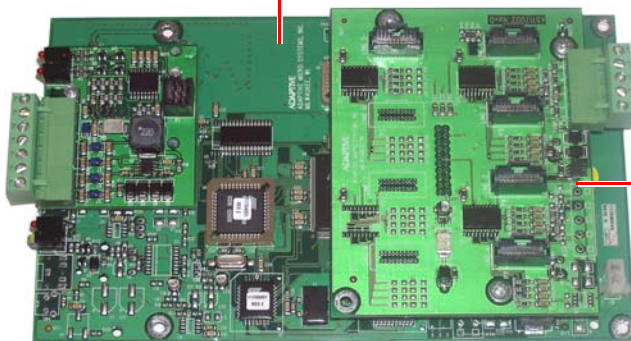


TEMP/SYNC PORT (on Turbo Extender board)

⊖	RS485 -	(Red)
⊕	RS485 +	(Black)
⊖	SHIELD	(Drain) uninsulated
⊖	GND	(Green)
⊕	VCC (+5V)	(White)

Temperature probe cable
(pn 7122-0401 22 AWG)

Controller board



Turbo extender board

Wireless transceiver antenna mounting (optional)

NOTE: Complete this section only if your sign is equipped with a wireless transceiver.

Guidelines for antenna mounting

- Install the antenna and bracket on a support structure other than the sign or the sign's mounting brackets. Do NOT drill a hole in the sign enclosure.
- Install the antenna in a location that will allow optimum line-of-sight transmission and reception of signals between the sending transceiver and the antenna. Do not install the antenna so that the sign is between the sending transceiver and the receiving antenna.
- Install the antenna in an unobstructed area, keeping adequate clearance from any objects that could block the signal.
- Install the antenna in a more elevated location than the sign and, if possible, keep it vertical.

Installation

Mount the wireless antenna as shown:

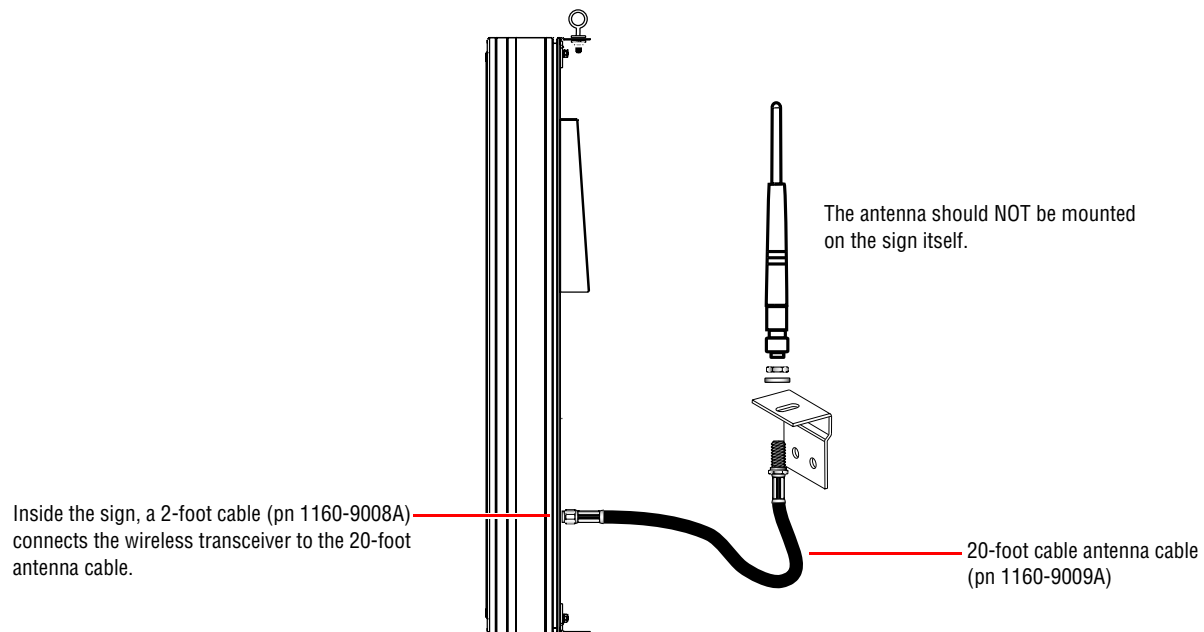


Figure 1: Wireless antenna mounting

Electrical installation

Electrical installation should only be attempted by a qualified electrician. Electrical connection must comply with all applicable national and local codes.



Guidelines for electrical installation

- Inspect all internal sign cabling for proper connection and seating.
- All power wiring must be from circuit breaker-protected lines. However, a sign should NOT be connected to a GFI-protected circuit.
- A two-pole disconnect device must be installed in the building wiring for each branch circuit supplying the sign.
- The sign must be properly grounded according to the applicable codes (for example, NEC Article 250 and 600, and IEEE 1100-1999).
- Run separate conduits for signal wires (for example, RS232, RS485) and for power wires. However, fiber optic wire may be run in the same conduit with power wires.
- All electrical connections must be watertight.
- Use minimum 80° C copper wire only.
Utiliser uniquement un fil en cuivre pouvant supporter 85° C minimum.
- Torque terminals to a minimum of 7 in/lbs and a maximum of 10in/lbs.
Serrer les bornes a 0,79 N/m minimum, mais pas a plus de 1,13 N/m.


Open the sign

1. Open the sign.
 - For an AlphaEclipse 2500/2600 sign, see “Opening and Closing an AlphaEclipse 2500/2600 sign” on page 39.
 - For an AlphaEclipse 3500 sign, see “Opening and Closing an AlphaEclipse 3500 sign” on page 41.

Connect communication wire

2. If two signs are installed together, wire the two as either master/master (page 26) or master/slave (page 27).
3. Connect the sign(s) to a computer (“Computer-to-sign connections” on page 28).

Connect power to the sign

120V	240V	Power Supply Terminal block
LINE 1	LINE	
LINE 2	NEUTRAL	
GROUND	GROUND	

4. Run power wires to the sign using waterproof conduit.
5. Connect power wires to the power supply terminal block
 - For AlphaEclipse 2500/2600 sign current requirements, see Figure 4 on page 50.
 - For AlphaEclipse 3500 sign current requirements, see Figure 8 on page 54.

Adaptive Explains

Why is it necessary to run two conduits to a sign?

It is not always necessary. Two conduits are only necessary when communication wire, like RS485 wire, is run to a sign from a computer or from another sign. In these cases, one conduit would contain the sign's power wires and the other conduit the communication wires.

If power and communication wires are put in the same conduit, there is a chance the communication wires might pick up electrical interference from the power wires. For example, when a live power cord is placed next to a stereo speaker wire, the interference from this cord may cause the speaker to hum. In the case of a sign, this same effect could disrupt messages sent to the display.

On the other hand, fiber optic cable and power wires can share the same conduit because fiber optic cable is immune to electrical interference.

Ground the sign

- 6. The sign must be properly grounded in order to provide three types of protection:
 - Ground fault protection (see page 23) -- The sign must be wired to provide a permanent, low impedance pathway to carry sign ground fault current. This is necessary in order to quickly clear a sign ground fault by opening the power circuit to the sign.

Earth grounding a sign through some type of ground rod bonded to the sign is not sufficient ground fault protection.

- Lightning strike protection (see page 23) -- An improperly wired sign could radiate electromagnetic fields (EMF) that may damage or interfere with electronic equipment in or near the sign (see NEC Article 250.6)
- Electronic equipment protection (see page 23) -- An improperly wired sign could radiate electromagnetic fields (EMF) that may damage or interfere with electronic equipment in or near the sign (see NEC Article 250.6).

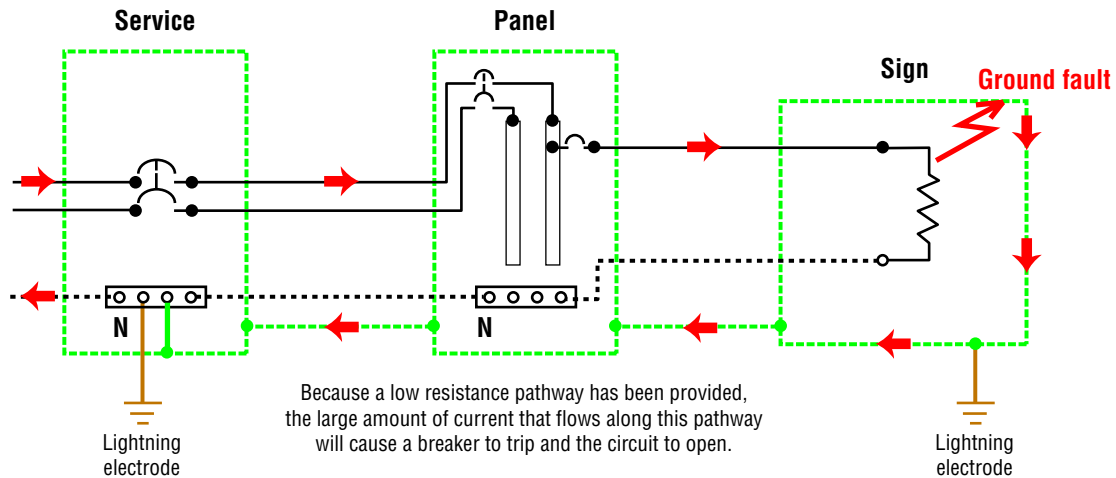
The sign grounding point ⊕ should be connected to the earth ground (for example, a grounding rod).



Ground fault protection

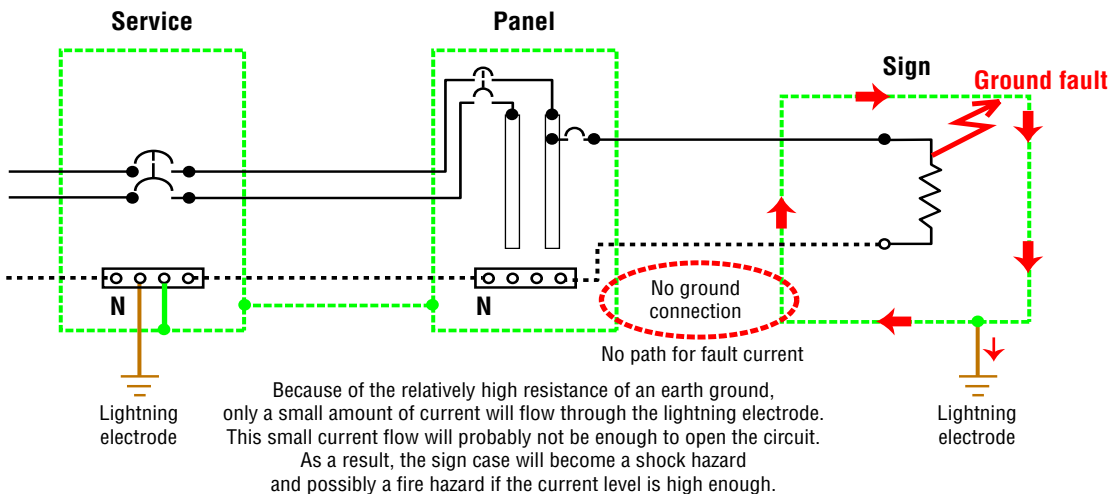
Sign with Ground Fault Protection

➔ = ground fault current path



Sign without Ground Fault Protection

➔ = ground fault current path



Lightning strike protection

A sign bonded to an earth ground has a means of dissipating the high voltage and current from a lightning strike. The resistance of the grounding electrode should be as low as possible. However, damage can still occur to a sign's electronic equipment from lightning voltage transients.

Though some surge protection is incorporated into a sign, to protect a sign from high-voltage lightning transients, surge protectors need to be installed at the panel boards (see NEC Article 280 and 284).

Electronic equipment protection

A common cause for the failure of sensitive electronic equipment is the presence of objectionable current (also called objectionable neutral current) on grounding and bonding paths.

Objectionable neutral current can be caused by:

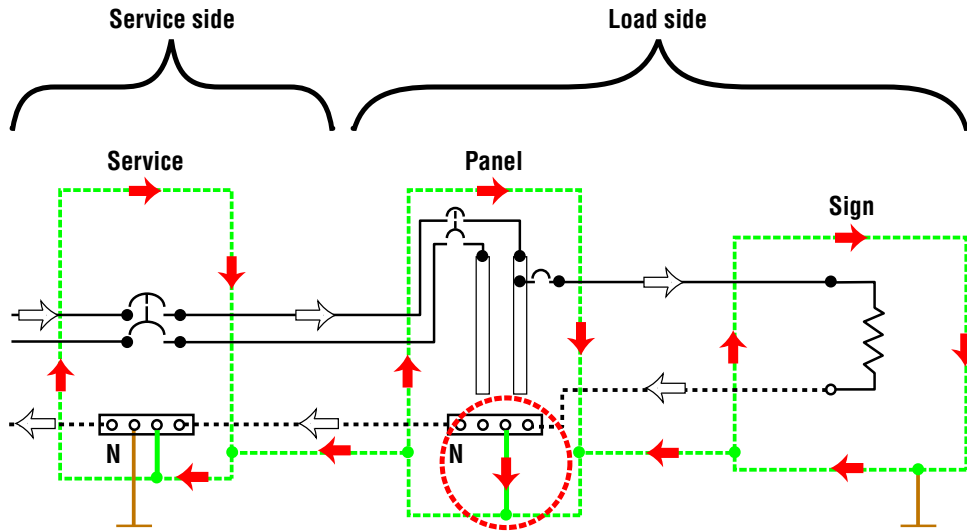
- Errors in installation wiring

- Improper neutral-to-case bonds (illustrated below)

Objectionable Neutral Current caused by Improper Neutral-to-Case Bond

⇨ = normal current path

➡ = objectionable neutral current path



Because of an improper neutral-to-case connection (shown above), a shock hazard will be created because of potentially hazardous current flowing on conductive surfaces like the sign's housing. In addition, this current flow may cause electromagnetic interference that disrupts the sign's internal electronics.

- Equipment-grounding conductor used to carry neutral current -- This situation arises when no separate grounding wire is present when connecting power to a sign. NEC Article 250.32(B)(2) does permit a neutral-ground bond to be used in a separate structure if all of the following three conditions are met:
 - (1) an equipment grounding conductor is not run with the supply to the structure
 - (2) there are no continuous metallic paths bonded to the grounding system in both structures involved
 - (3) equipment ground fault protection has not been installed on the common AC service

Adaptive does not recommend using the equipment-grounding conductor to carry neutral current as permitted by NEC 250.32(B)(2) because it creates a potentially hazardous situation. For example, a future installer might connect cabling between the two structures and this could create a dangerous parallel current path.

Adaptive Explains

How can you tell if objectionable neutral current is present?

A true RMS microohm multimeter can be used to measure the voltage difference between the neutral and ground conductors. Though a difference of 0V is ideal, the voltage difference should not exceed 0.5V.

Test the sign's exhaust fans

- Apply power to the sign.
- Push 1 on the sign's internal power switch.
- If the exhaust fans are not already on, press the fan test button. All the exhaust fans should start.

Networking

AlphaEclipse signs can be connected together into a network of two or more signs (see “Sign-to-sign connections” on page 25).

Also, in order to display messages, a sign must be connected to a computer that is running AlphaNET software (see “Computer-to-sign connections” on page 28).

Sign-to-sign connections

Two or more signs can be set up as either

- Master/Master signs (page 26) -- two or more signs that can display a different message. While the same message could be sent to both Master signs, the messages may not appear at exactly the same time on the signs
- Master/Slave signs (page 27) -- all these signs display the same message at the same time. In this setup, one sign is configured as the Master and all the others as Slave signs.

NOTE: When two or more signs are connected together, they must be properly terminated. See “RS485 termination” on page 44.

Adaptive Explains

Does it matter if signs are set up as Master/Master or Master/Slave?

Only if it matters to you. the only difference between the two ways is that Master/Slave signs will all display the same message at the same time. For example, this could be important if you have two signs mounted back-to-back near a highway. If these signs are set up as Master/Slave signs, then highway traffic in both directions would see the same message.

How are signs set up to be Master/Master?

Signs are configured at the factory.

Is there any way to tell whether a sign is a Master or a Slave sign by just looking at it?

Probably not without turning the sign off and then on again. For more information, see “Serial address of a sign” on page 38.

Can a pair of Master/Master signs be changed to a Master/Slave pair (or vice versa)?

Yes -- by wiring the sign correctly and then by using AlphaNET software:

- (1) First, wire the signs as Master/Master (page 26) or Master/Slave (page 27).
- (2) You will need to know the serial address of the sign(s) you want to change. To find the address(es), turn the sign(s) off and then on again. The serial address(es) will appear in the sign's startup messages (see “Method 2” on page 38).
- (3) Next, start the AlphaNET Diagnostics software by selecting Start > Programs > AlphaNET > Diagnostics. Once Diagnostics starts, check configure Sign (Advanced) and then click Select. Click OK at the prompt.
- (4) Click Select Address and enter the serial address of the sign you wish to change. Then click OK.
- (5) Check Set Other Options. Select either master or Slave from the Master/Slave pull down. Then click Send.

Master/Master sign-to-sign wiring

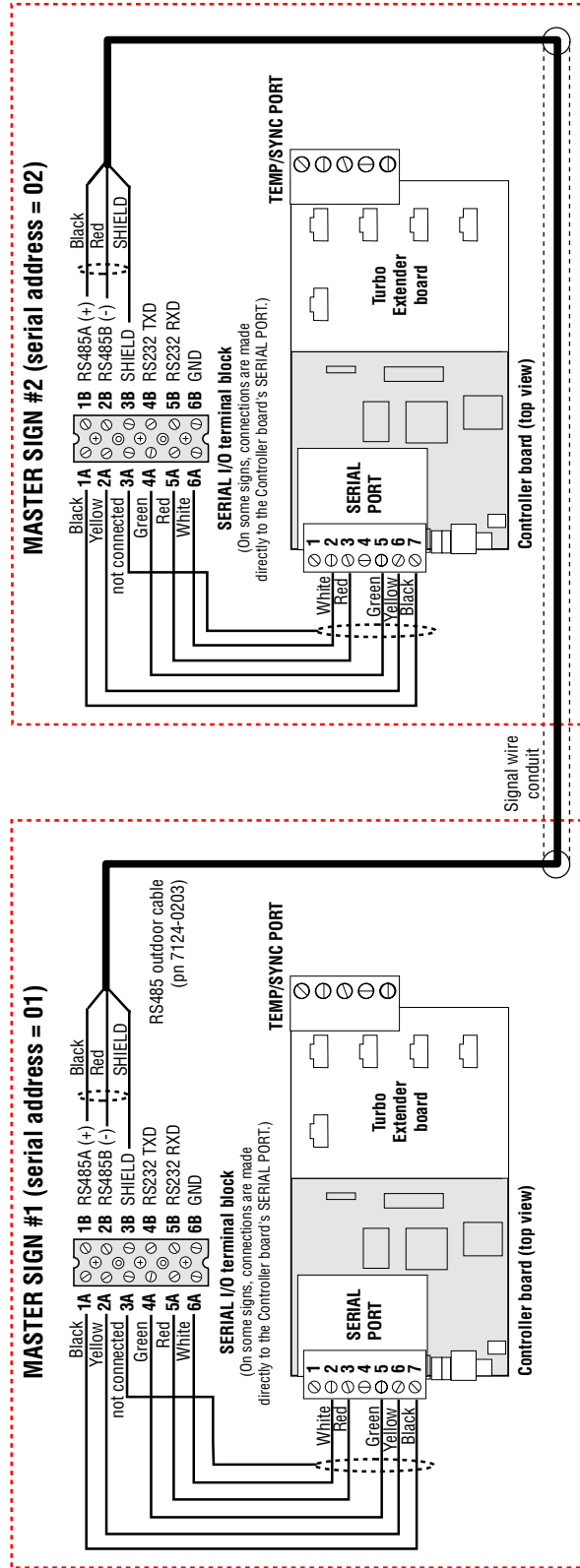
AlphaEclipse™ 2500/2600/3500

Master / Master sign connection

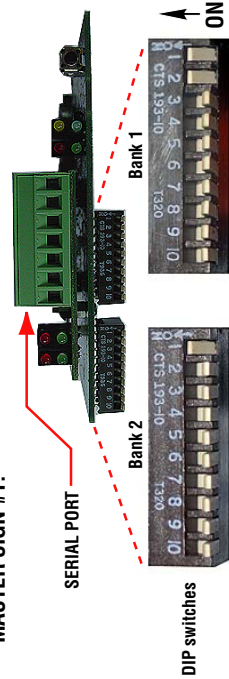
Two signs connected as a Master/Master pair can each display a unique message — unlike a Master/Slave sign pair which always displays the same message at the same time. In a Master/Master sign pair, a message can be displayed on Master sign #1 by sending the message to serial address "01" or displayed on Master sign #2 by sending it to serial address "02". Also, a message can be displayed on both Master signs by broadcasting the message to serial address "00". To display the temperature on signs in a Master/Master network, a temperature probe must be connected to each sign. Otherwise, the word "ERR" will appear in place of the temperature. In a Master/Master sign network, the time is synchronized whenever a message is sent using AlphaNET software.

Overview

Wiring



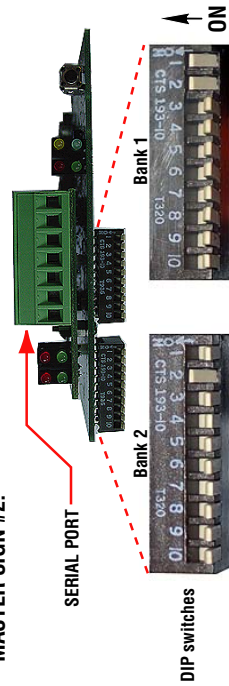
MASTER SIGN #1:



DIP switches

RS485 termination = ON (switches #1 and #2 both ON)
 If this sign is connected to a Converter Box II, turn switches #1 and #2 both OFF.

MASTER SIGN #2:



RS485 termination = ON (switches #1 and #2 both ON)
 DRAWING REVISION 2

Master/Slave sign-to-sign wiring

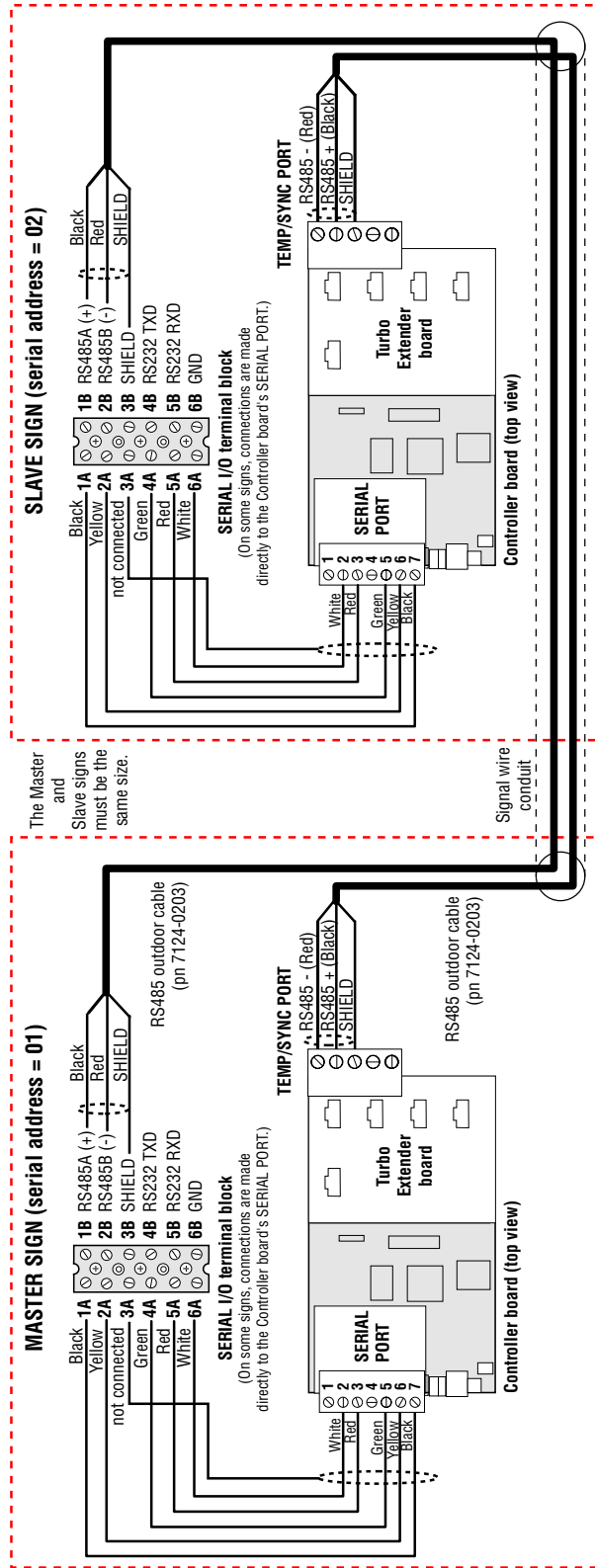
AlphaEclipse™ 2500/2600/3500

Master / Slave sign connection

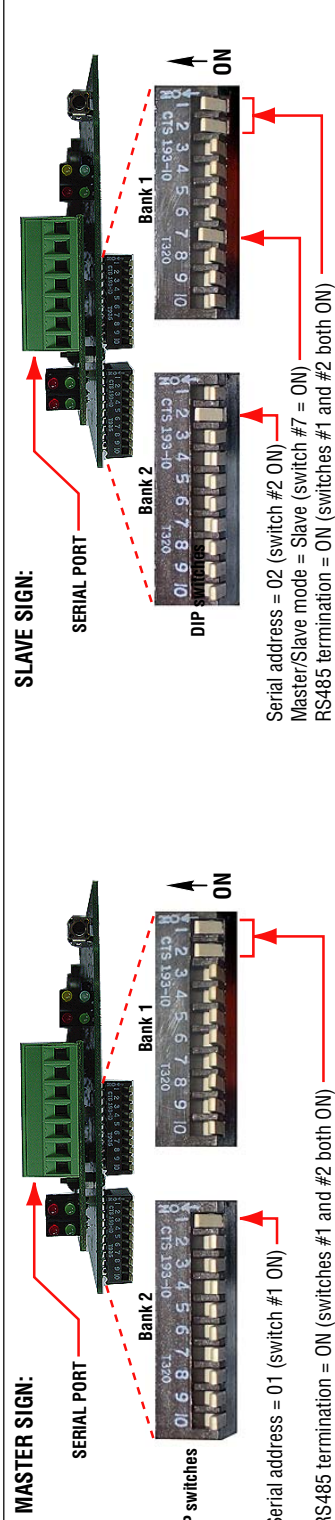
Overview

Two signs connected as a Master/Slave pair will both display the same message at the same time. Messages should be sent to both the Master and Slave signs. To do this, send all messages to serial address "00" or to all the serial addresses ("01", "02", and so on). To display the temperature on signs in a Master/Slave network, a temperature probe must be connected to the Master sign. In Master/Slave sign network, the time is synchronized at the start of each hour and whenever a message is sent using AlphaNET software.

Wiring



DIP switches



DRAWING REVISION 2

Computer-to-sign connections

In order to display messages, a sign must be connected to a computer that is running AlphaNET software. (This computer is referred to as the “messaging computer”).

There are a number of ways to connect the messaging computer to a sign:

Wire

There are several ways to connect a sign directly to a computer:

- Converter box III (page 29) -- using RS485 outdoor wire (pn 7124-0203), a sign can be connected to a computer that could be up to 4000 feet away from the sign.
- Fiber optic (page 30) -- using a factory installed fiber optic mini-modem inside a sign and another mini-modem attached to a computer, a sign can be connected to a computer that could be up to 2 miles away from the sign. Fiber optic cable is immune to electrical interference so the cable can be placed in the same conduit as the sign’s power wires.
- Ethernet (page 31) -- a sign can be connected to an Ethernet network by wiring a Lantronix MSS485 interface to a sign.
- External connection box (page 32 and page 33) -- usually placed close to the sign. Messages are sent to the sign by connecting a computer or IR Message Loader to the connection box.

Modem

By placing a factory installed modem inside a sign and attaching another modem to a computer, messages can be sent to a sign through ordinary phone lines (page 34).

Wireless

For this option, a factory installed wireless transceiver is placed inside the sign and another transceiver is connected to a computer. Wireless transceivers can connect to a sign up to 40 miles away, but actual distance can vary greatly depending on the local environment, obstructions, electrical interference, and so on (page 35, page 36 and page 37).

Converter Box III (RS485) computer-to-sign connection

Converter Box III (RS485)

AlphaEclipse™ 2500/2600/3500

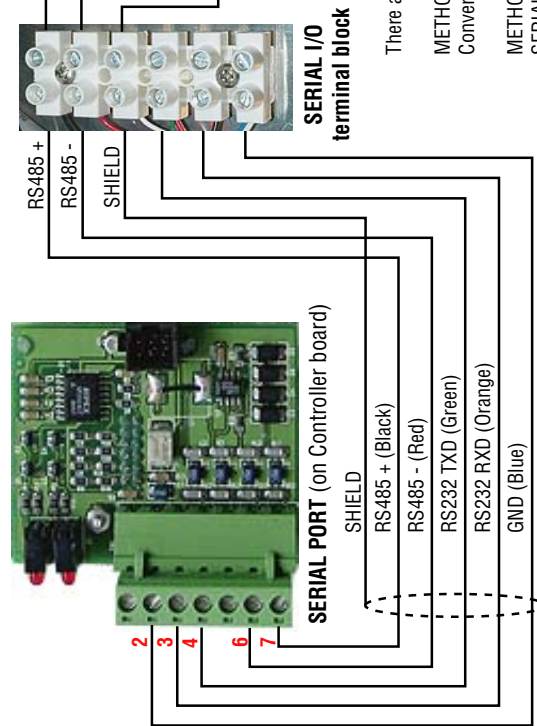
Overview



In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a Converter Box III.

Wiring

METHOD 1 — SERIAL I/O terminal block connection:

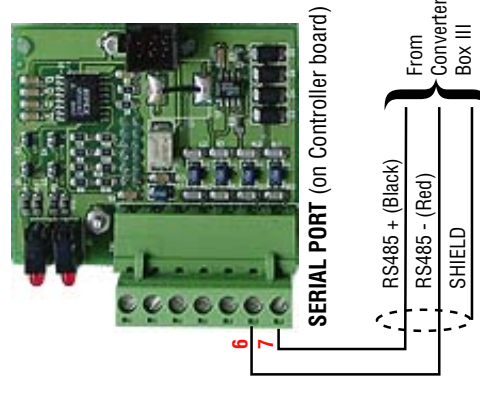


There are two methods of wiring a Converter Box III to a sign:

METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the Converter Box III to this block (above).

METHOD 2: Otherwise, wire the Converter Box III directly to the SERIAL PORT on the sign's Controller board (right).

METHOD 2 — SERIAL PORT connection:



Controller board DIP switches:



Serial address = 01 (switch #1 ON)

RS485 termination = ON (switches #1 and #2 both ON)

Use the DIP switch settings shown on the left when connecting a single sign to a Converter Box III.

If more than one sign is connected to a Converter Box III, then the DIP switch settings will be different. For example, only the Converter Box III and the last sign on the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.

DIP switches

Fiber optic computer-to-sign connection

Fiber optic connection

In order to display messages on a sign, the messaging computer must be connected to the sign, such as with fiber optic modems. Fiber optic modems allow a messaging computer to connect to a sign up to 2 miles away from the computer. The fiber optic modems send data to a sign over an optical RS232 connection.

Messaging computer running AlphaNET software

DB25-to-DB9 cable (Black Box BC00301)

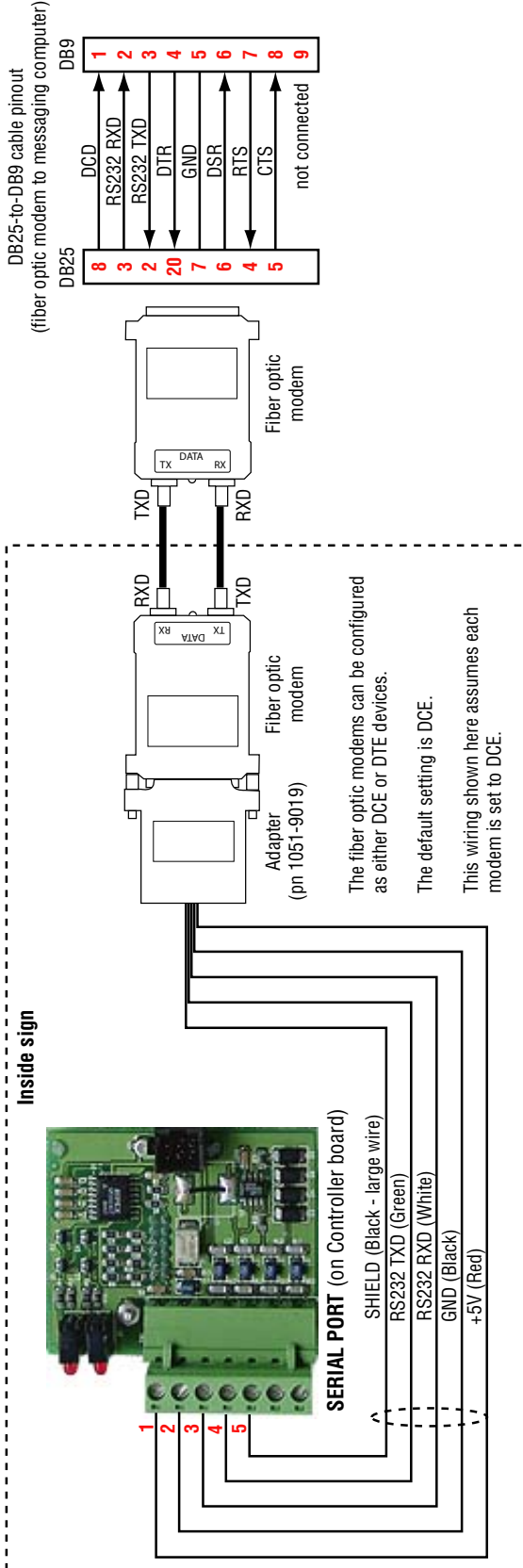
up to 2 miles
Fiber optic cables

Fiber optic mini-modems (Black Box ME605A-FST)

Fiber optic modem adapter (pn 1051-9019)

AlphaEclipse™ sign (inside side)

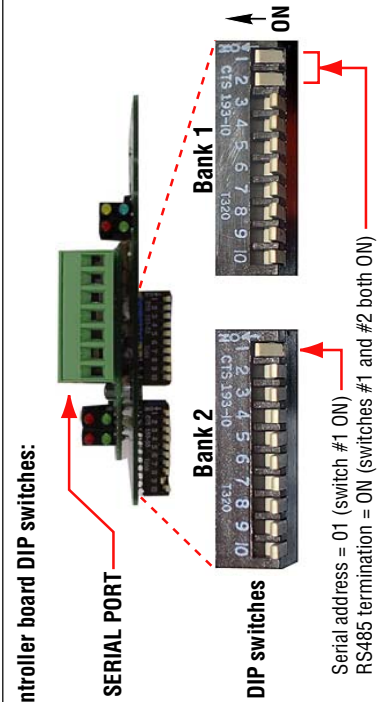
Overview



Wiring

Controller board DIP switches:

Use the DIP switch settings shown on the left when connecting a single sign to a fiber optic modem. If more than one sign is connected to a fiber optic modem, then the DIP switch settings will be different. For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF. Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.



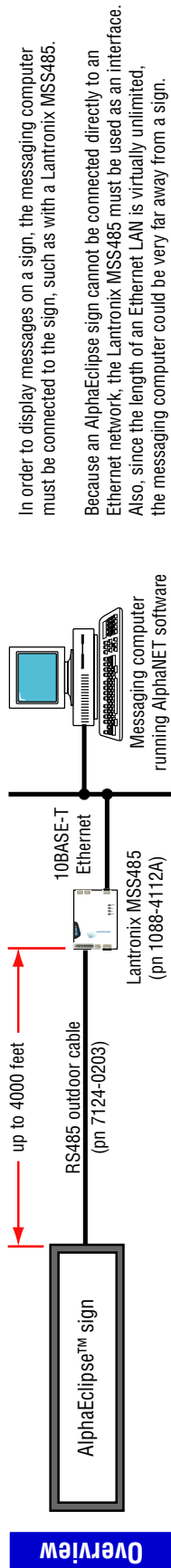
DIP switches

DRAWING REVISION 2

Ethernet computer-to-sign connection

AlphaEclipse™ 2500/2600/3500

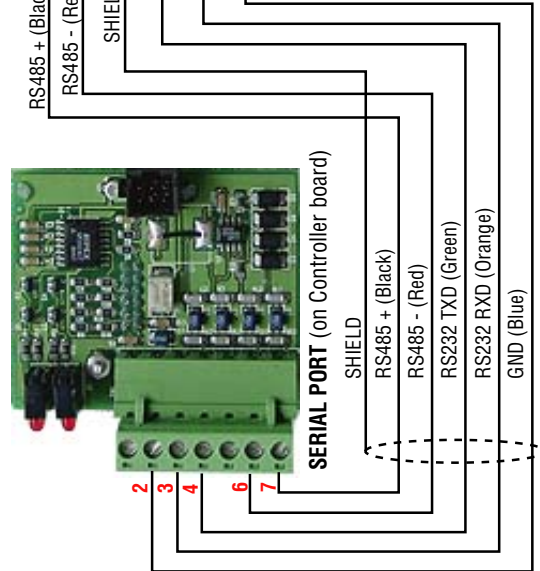
Ethernet connection



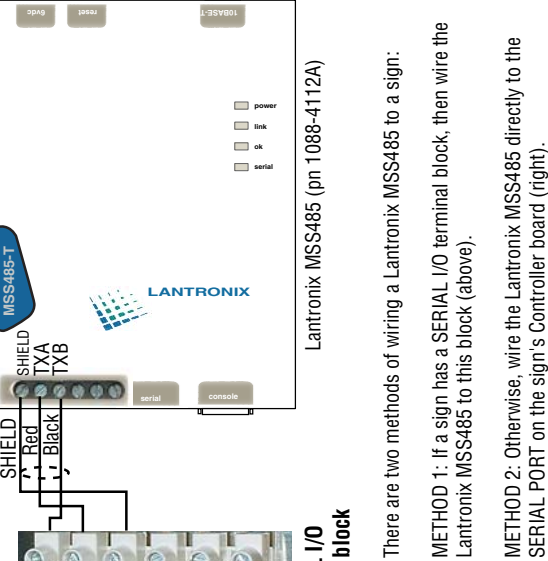
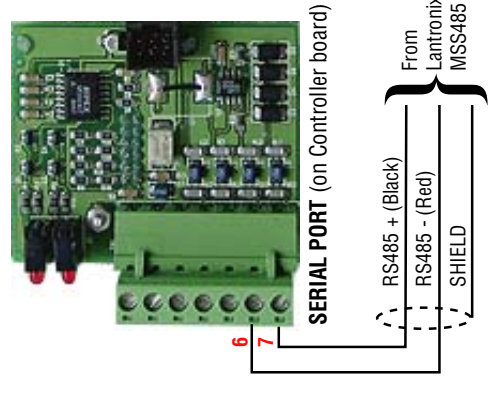
Overview

In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a Lantronix MSS485. Because an AlphaEclipse sign cannot be connected directly to an Ethernet network, the Lantronix MSS485 must be used as an interface. Also, since the length of an Ethernet LAN is virtually unlimited, the messaging computer could be very far away from a sign.

METHOD 1 — SERIAL I/O terminal block connection:

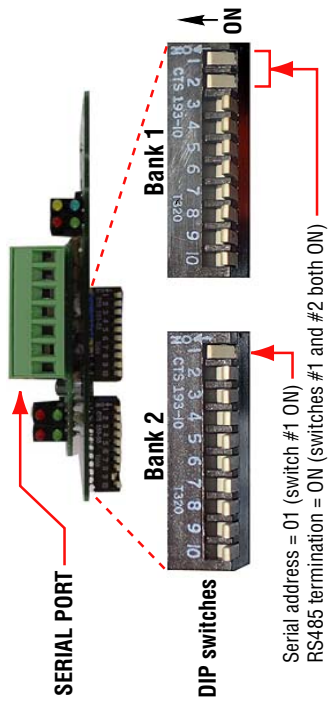


METHOD 2 — SERIAL PORT connection:



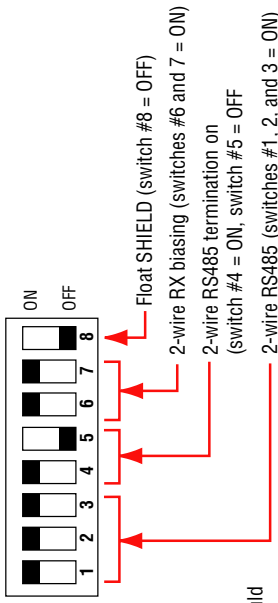
There are two methods of wiring a Lantronix MSS485 to a sign:
METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the Lantronix MSS485 to this block (above).
METHOD 2: Otherwise, wire the Lantronix MSS485 directly to the SERIAL PORT on the sign's Controller board (right).

Controller board DIP switches:



Serial address = 01 (switch #1 ON)
 RS485 termination = ON (switches #1 and #2 both ON)

Lantronix MSS485 DIP switches:



Use the DIP switch settings shown on the left when connecting a single sign to a Lantronix MSS485. If more than one sign is connected to a Lantronix MSS485, then the DIP switch settings will be different. For example, only the last sign should have its two RS485 termination DIP switches set to OFF.
 Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.

DRAWING REVISION 2

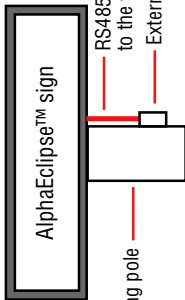
Wiring

DIP switches

External connection box (RS232) computer-to-sign connection

External connection box (RS232) — for a computer connection

AlphaEclipse™ 2500/2600/3500



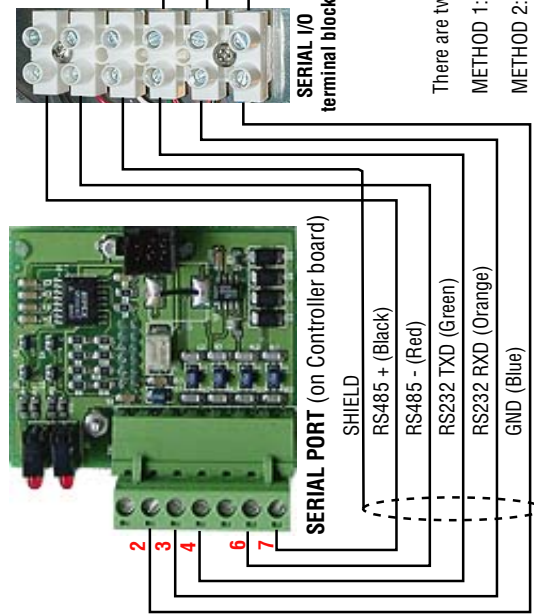
Overview

In order to display messages on a sign or troubleshoot a sign, a messaging computer can be connected directly to a sign.

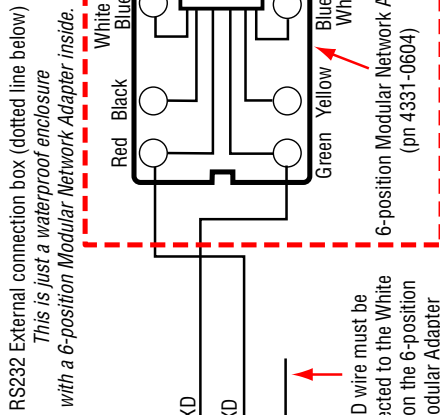
The computer must have an external 9-pin RS232 COM port available.

The RS232 External connection box can be up to 50 feet from a sign.

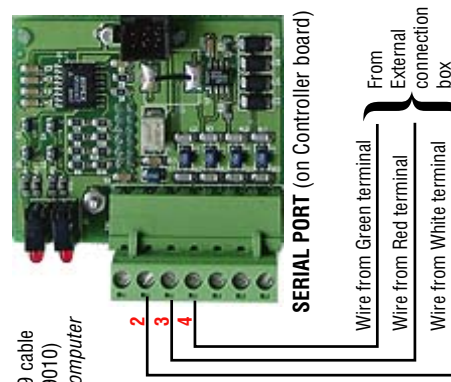
METHOD 1 — SERIAL I/O terminal block connection:



Wiring



METHOD 2 — SERIAL PORT connector



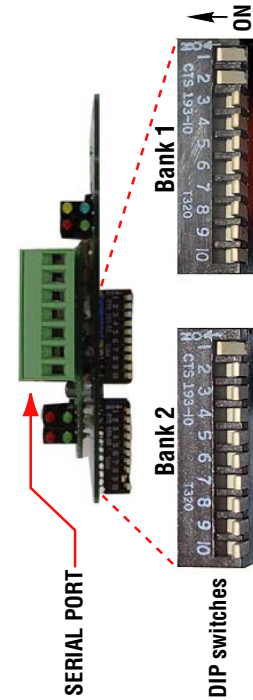
RS232 External connection box (dotted line below)
This is just a waterproof enclosure with a 6-position Modular Network Adapter inside.

There are two methods of wiring an External connection box to a sign:

METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the box to this block (above).

METHOD 2: Otherwise, wire the box directly to the SERIAL PORT on the sign's Controller board (right).

Controller board DIP switches:



DIP switches

Use the DIP switch settings shown on the left when connecting a single sign to an External connection box.

If more than one sign is connected to a connection box, then the DIP switch settings will be different. For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.

Serial address = 01 (switch #1 ON)
RS485 termination = ON (switches #1 and #2 both ON)

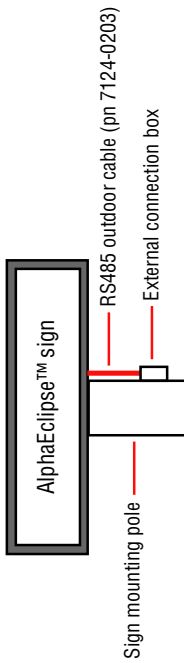
DRAWING REVISION 2

External connection box (RS485) computer-to-sign connection

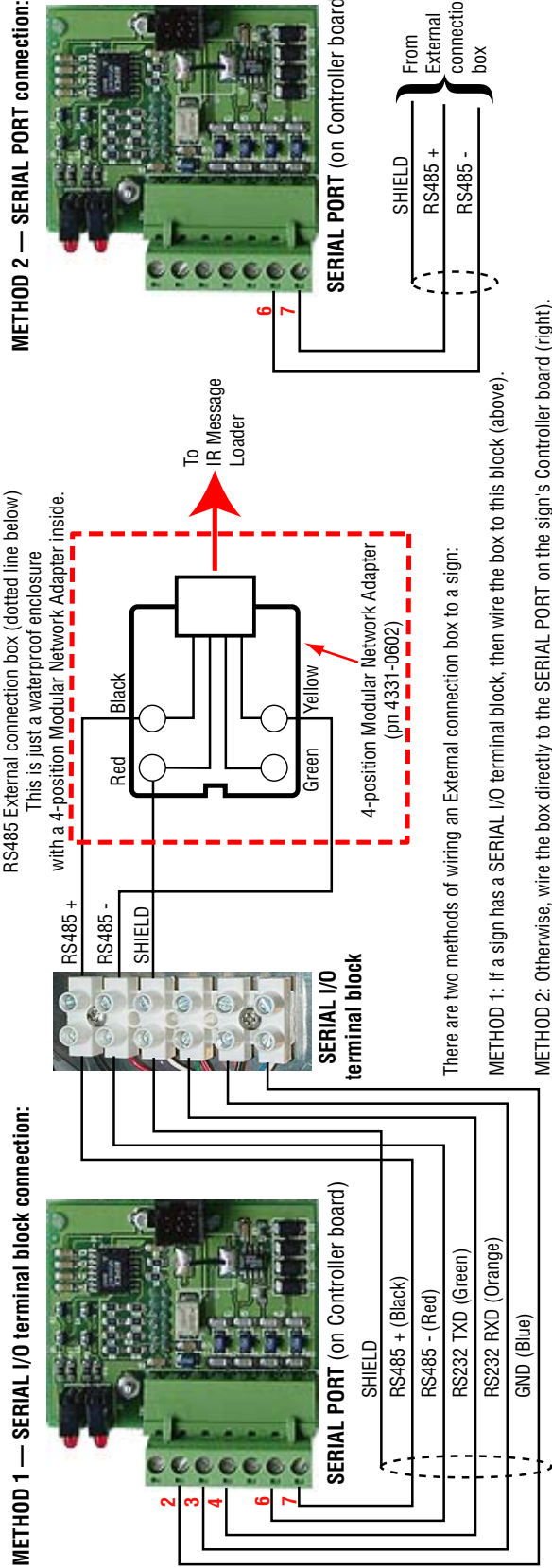
External connection box (RS485) — for an IR Message Loader

In order to display messages on a sign, an IR Message Loader can be used to transfer messages from a computer to an AlphaEclipse sign. For more information, see "How to use the IR Message Loader to Display Messages on AlphaEclipse Signs" (pn 9707-1004).

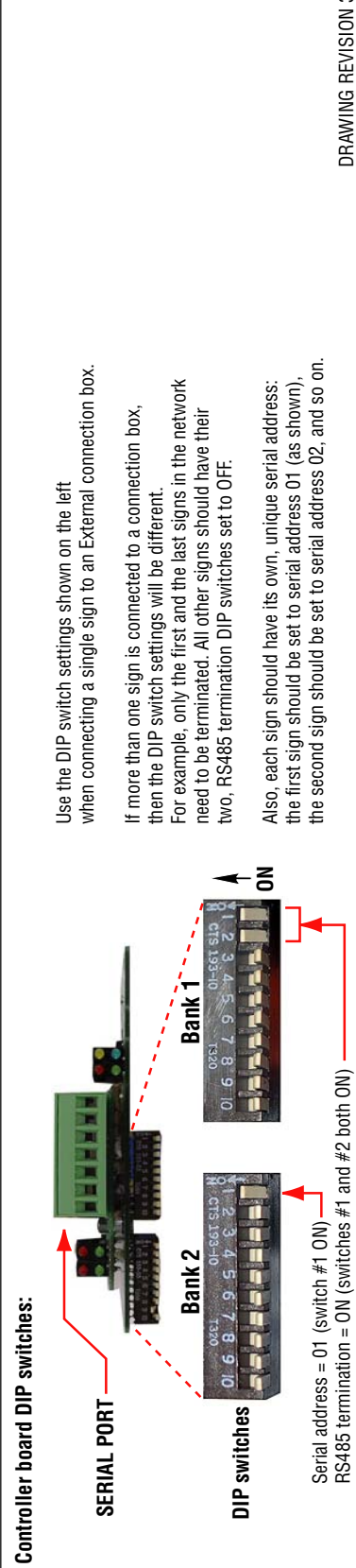
An RS485 External connection box allows an IR Message Loader to download messages to a sign. This connection box is typically attached near the base of the sign's mounting pole.



Overview



Wiring



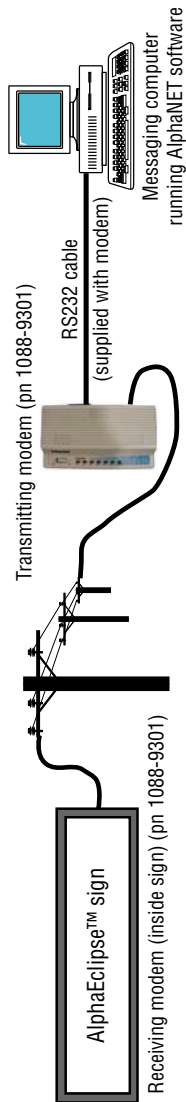
DIP switches

DRAWING REVISION 3

Modem computer-to-sign connection

Modem connection

In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a pair of telephone modems (a Transmitting modem attached to the messaging computer and a Receiving modem attached to a sign).
Modems can connect to a sign that is almost anywhere. However, a sign must have its own phone line.



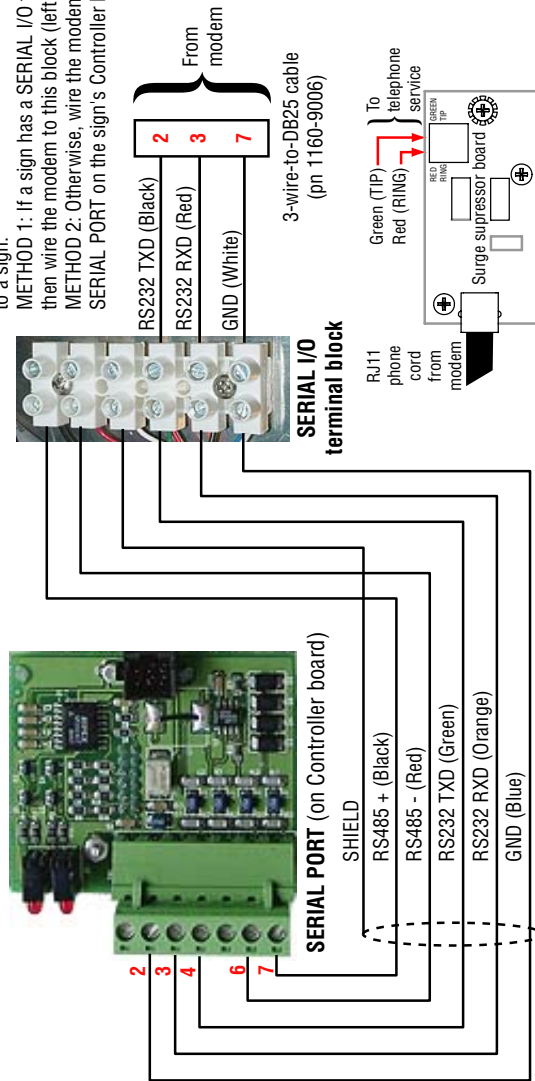
Overview

AlphaEclipse™ 2500/2600/3500

METHOD 1 — SERIAL I/O terminal block connection:

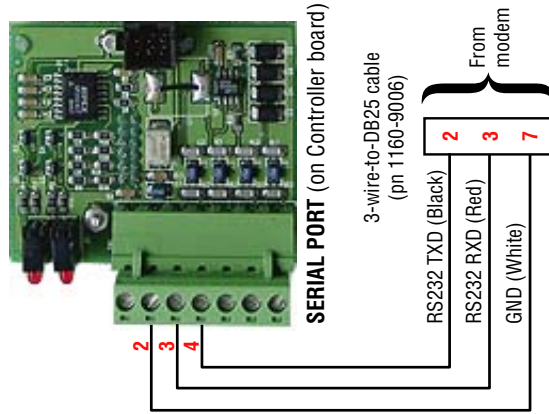
There are two methods of wiring the Receiving modem to a sign:

- METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the modem to this block (left).
- METHOD 2: Otherwise, wire the modem directly to the SERIAL PORT on the sign's Controller board (right).

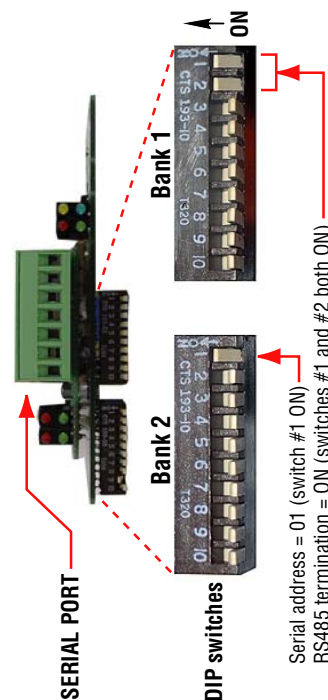


Wiring

METHOD 2 — SERIAL PORT connection:



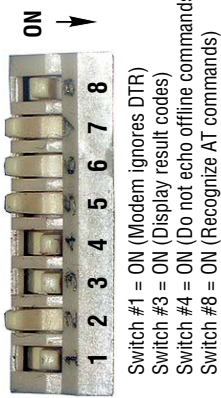
Controller board DIP switches:



DIP switches

Serial address = 01 (switch #1 ON)
RS485 termination = ON (switches #1 and #2 both ON)

Modem DIP switch settings:



- Switch #1 = ON (Modem ignores DTR)
- Switch #3 = ON (Display result codes)
- Switch #4 = ON (Do not echo offline commands)
- Switch #8 = ON (Recognize AT commands)

Modem AT command setup string:

AT&H0&R1&B1&N6&Y0&W0

DRAWING REVISION 2

Wireless (Locus transceiver) computer-to-sign connection

Wireless connection (Locus transceiver)

AlphaEclipse™ 2500/2600/3500

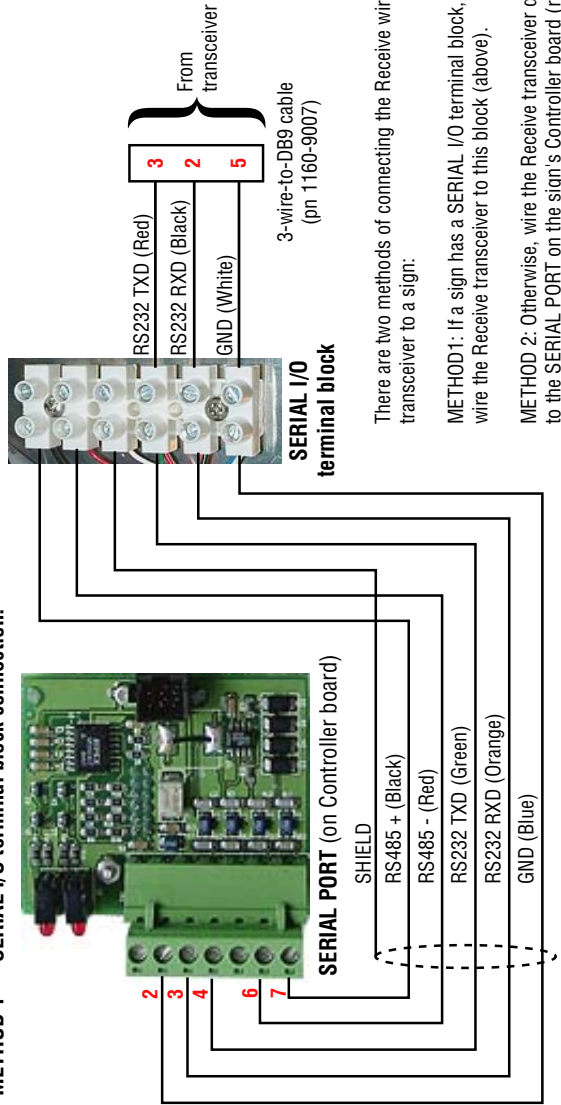
In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a pair of wireless transceivers (a Master transceiver attached to the messaging computer and a Receive transceiver attached to a sign).

Wireless transceivers can connect to a sign that is up to 2 miles away. (Actual distance depends on the local environment, obstructions, electrical interference, and so on.)



Overview

METHOD 1 — SERIAL I/O terminal block connection:

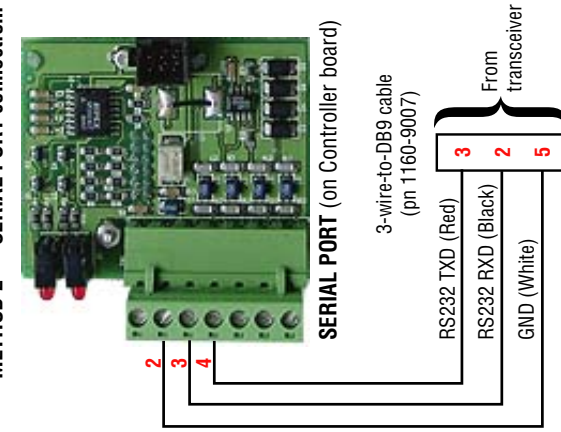


There are two methods of connecting the Receive wireless transceiver to a sign:

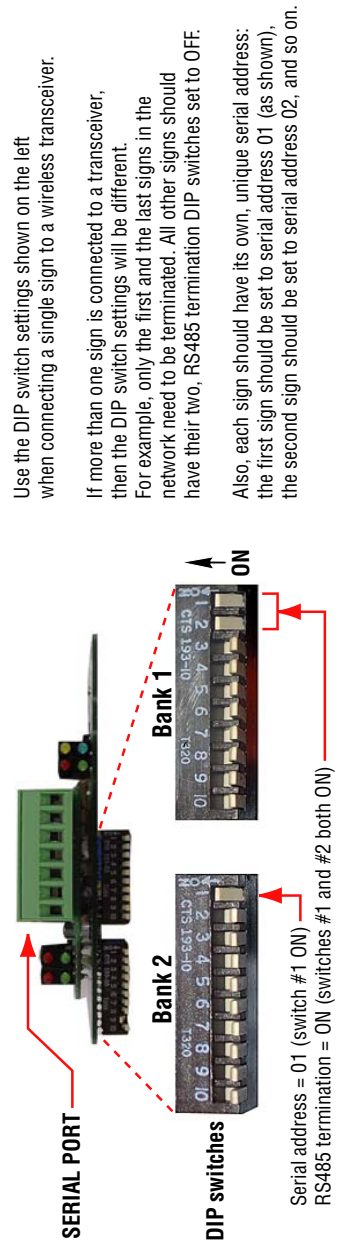
METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the Receive transceiver to this block (above).

METHOD 2: Otherwise, wire the Receive transceiver directly to the SERIAL PORT on the sign's Controller board (right).

METHOD 2 — SERIAL PORT connection:



Controller board DIP switches:



Use the DIP switch settings shown on the left when connecting a single sign to a wireless transceiver.

If more than one sign is connected to a transceiver, then the DIP switch settings will be different.

For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.

DIP switches

DRAWING REVISION 2

Wireless (Alpha RF900 transceiver) computer-to-sign connection

Wireless connection (Alpha RF900 transceiver)

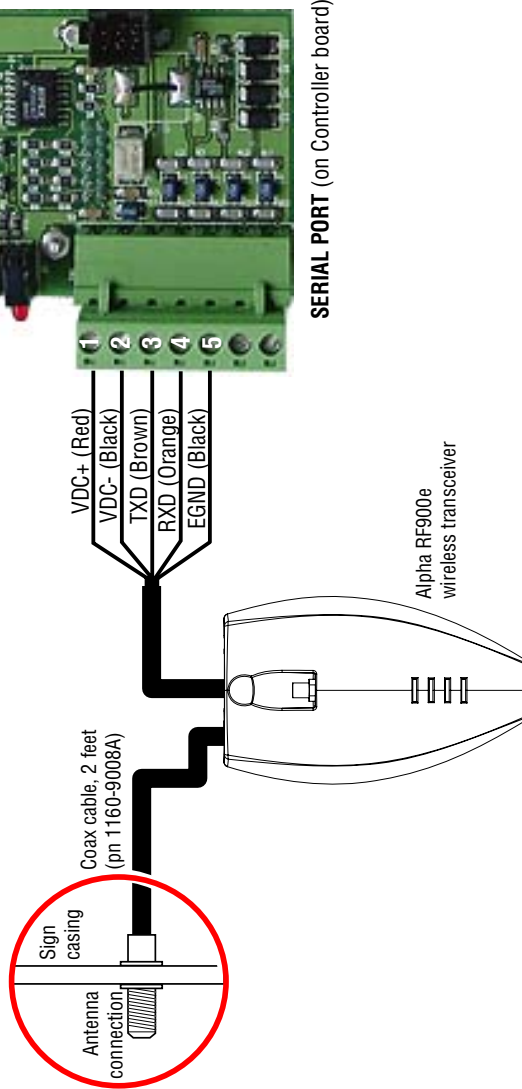
AlphaEclipse™ 2500/2600/3500

In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a pair of wireless transceivers (a server transceiver attached to the messaging computer and a client transceiver attached to a sign).

Alpha RF900 transceivers have an indoor transmission range of 300 to 500 feet and an outdoor range of 3500 feet line-of-site.



Overview



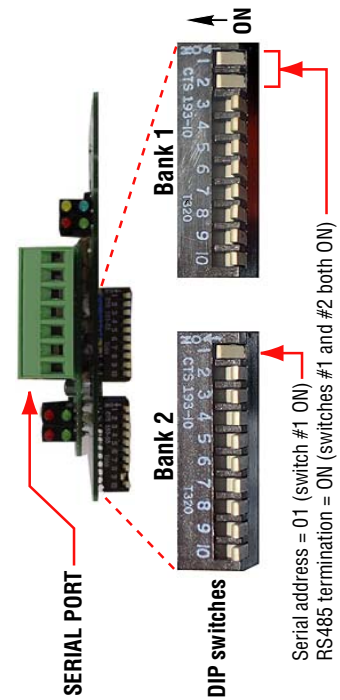
Wiring

Controller board DIP switches:

Use the DIP switch settings shown on the left when connecting a single sign to a wireless transceiver.

If more than one sign is connected to a transceiver, then the DIP switch settings will be different. For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.



DIP switches

Serial address = 01 (switch #1 ON)
 RS485 termination = ON (switches #1 and #2 both ON)

DRAWING REVISION 2

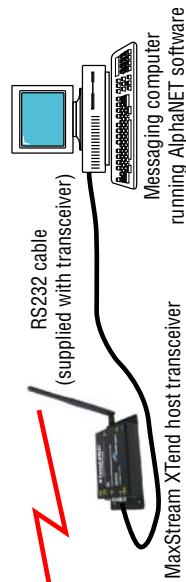
Wireless (MaxStream XTend 900MHz Transceiver) computer-to-sign connection

Wireless connection (MaxStream XTend 900MHz Transceiver)

AlphaEclipse 2500/2600/3500

In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a pair of wireless transceivers (a server transceiver attached to the messaging computer and a client transceiver attached to a sign).

At 9600 baud, MaxStream XTend transceivers have an indoor transmission range of up to 3000 feet and an outdoor range of up to 40 miles line-of-site (actual distance may vary).

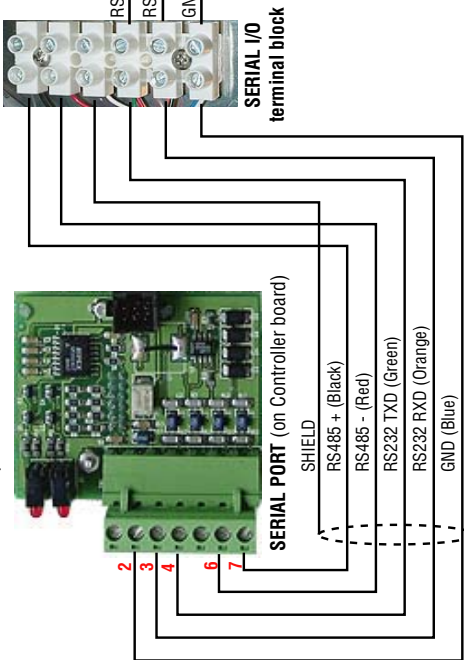


Overview

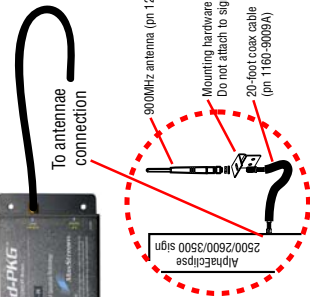
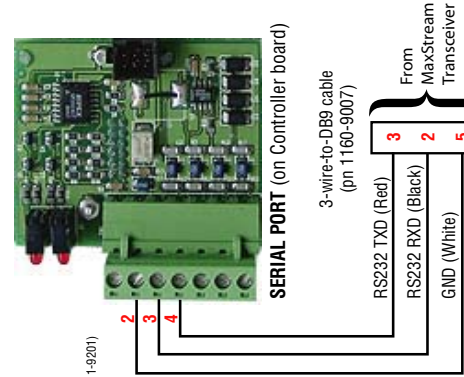
AlphaEclipse 2500/2600/3500 sign

MaxStream Transceiver (inside sign)

METHOD 1 — SERIAL I/O terminal block connection:



METHOD 2 — SERIAL PORT connection:



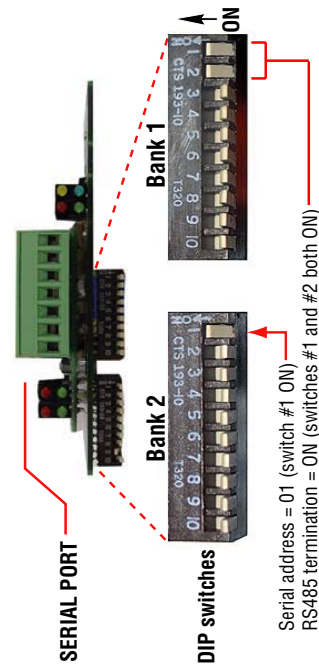
There are two methods of connecting the Receive wireless transceiver to a sign:

METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the Receive transceiver to this block (above).

METHOD 2: Otherwise, wire the Receive transceiver directly to the SERIAL PORT on the sign's Controller board (right).

Wiring

Controller board DIP switches:



DIP switches

Use the DIP switch settings shown on the left when connecting a single sign to a wireless transceiver.

If more than one sign is connected to a transceiver, then the DIP switch settings will be different. For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique serial address: the first sign should be set to serial address 01 (as shown), the second sign should be set to serial address 02, and so on.

Appendix

Serial address of a sign

The serial address of a sign is a number used to identify one sign from another when messages are sent.

Each AlphaEclipse is factory programmed with a serial address. Though a sign's address can be changed, it is usually not necessary or desirable to do so.

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

Method 1

Look on the back of the sign. A label similar to the following will identify a sign's serial address and whether the sign is set up as a Master or a Slave sign:



Method 2

Remove power to the sign and then reapply power. A series of startup messages will appear on the sign. Look for text similar to the following:

Hex	Decimal
00	0
01	1
.	.
09	9
0A	10
0B	11
0C	12
0D	13
0E	14
0f	15

"M" = Master sign
 "S" = Slave sign
 Serial address of sign in hexadecimal

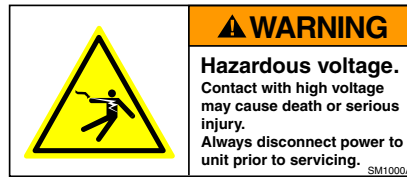
ECLIPSE
M-096x016
SER ADDR
0C HEX

Sign display size in pixels (length X height)

Opening and Closing an AlphaEclipse 2500/2600 sign

Remove power from the sign

1. Remove power from the sign.

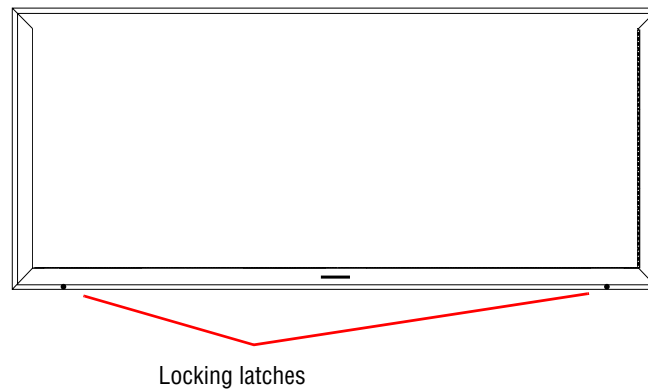


Unlock and open the door

2. Use the pn 6811-7149 latchkey to open the locking latches which are located along the lower edge of the sign's front.



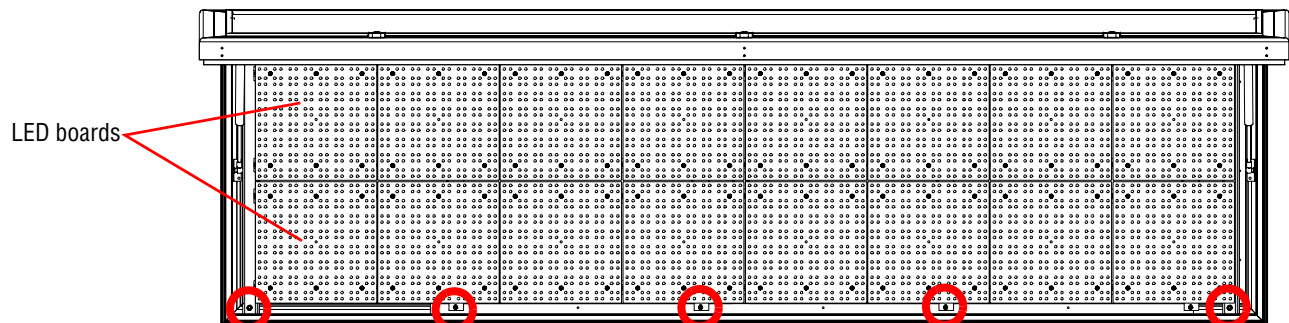
Latch key
(pn 6811-7149)



3. Stand away from the front of the unit. Then lift the door upward. Swing each safety bar up and attach it to the bolt inside the sign using the supplied wing nut. (See Figure 2 on page 40.)

Raise the LED boards

4. Remove the rail screws (circled below) at the bottom of each internal vertical rail. The number of rail screws varies with the size of the sign:



5. Carefully lift the LED boards up by placing your fingers in the mounting rail holes-- not underneath an LED board.



6. Unfasten each red prop rod from underneath the LED boards. Then place each rod in its fastener hole:

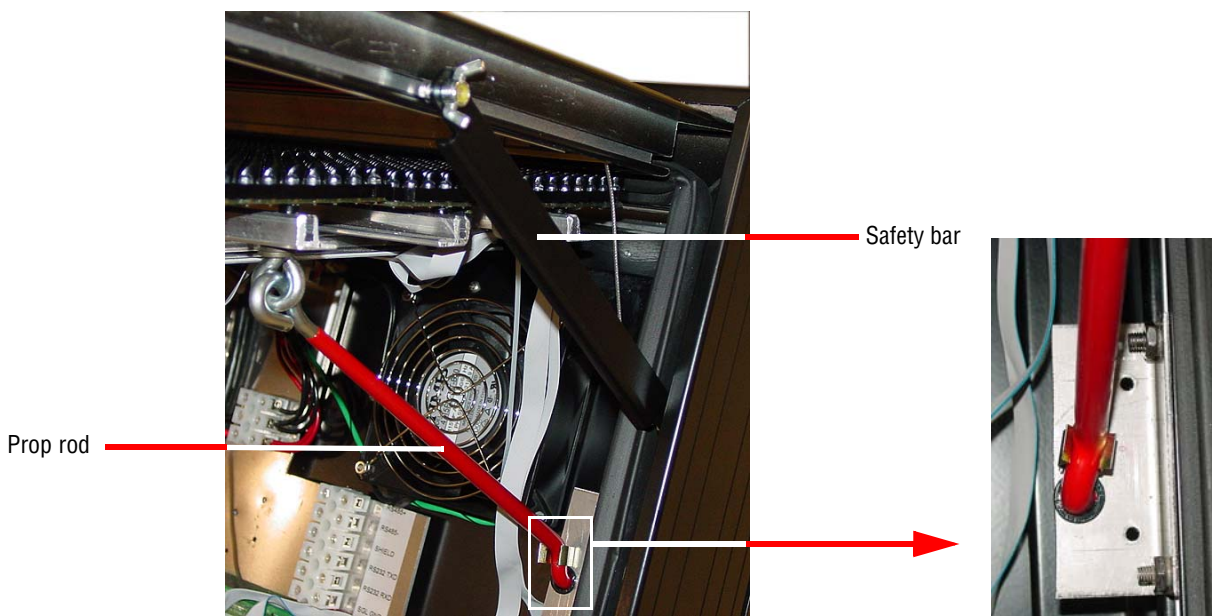


Figure 2: Safety bar and prop rod

7. After the LED boards are raised and all the prop rods are fastened, turn off the sign's internal power switch by pressing 0 on the switch.

Closing the sign

1. Push 1 on the sign's internal power switch
2. Raise each red prop rod out of its hole and fasten each rod to a clip underneath the LED boards

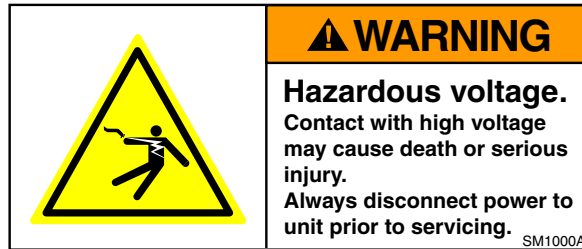
NOTE: If a prop rod is not fastened, it could swing free and damage internal sign components.

3. Lower the LED boards.
4. Refasten rail screws to the internal vertical rails.
5. Unfasten each safety bar and place inside the sign.
6. Lower the sign's door.
7. Using the latch key, turn each locking latch to lock the door shut.
8. Apply power to the sign.

Opening and Closing an AlphaEclipse 3500 sign

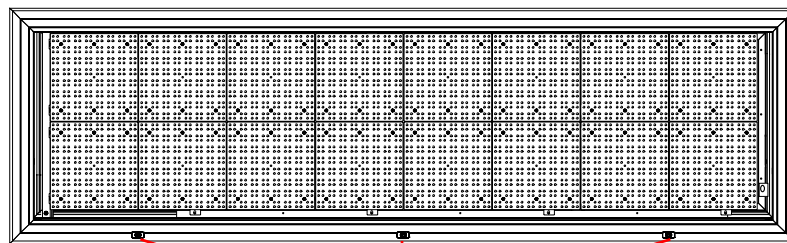
Remove power from the sign

1. Remove power from the sign.



Open the AlphaEclipse 3500 sign

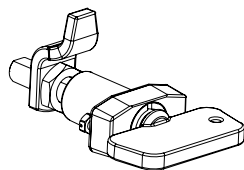
2. Use the pn 6811-6061 latch key to unlock and open the latches along the lower edge of the sign's front:



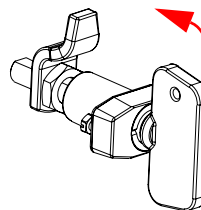
Locking Latches



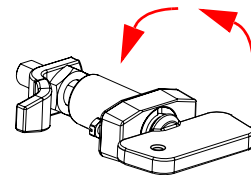
pn 6811-6061 latch key



Locking latch, closed, with latch key inserted



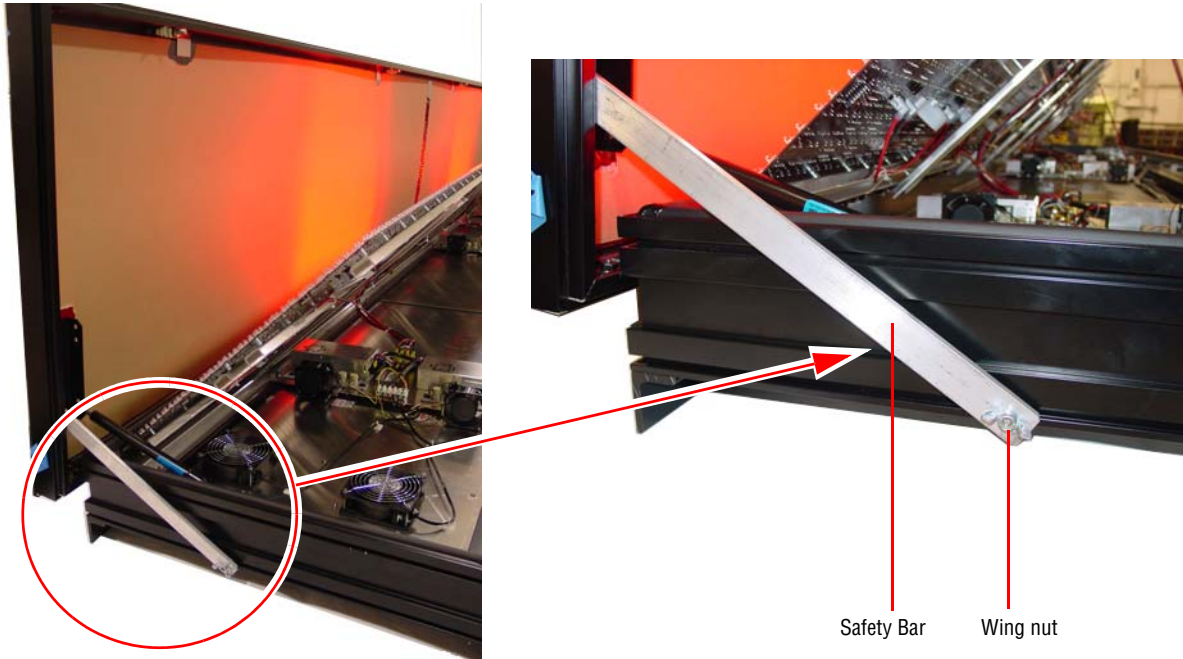
Turn latch key 90 to the left to release initial lock tension



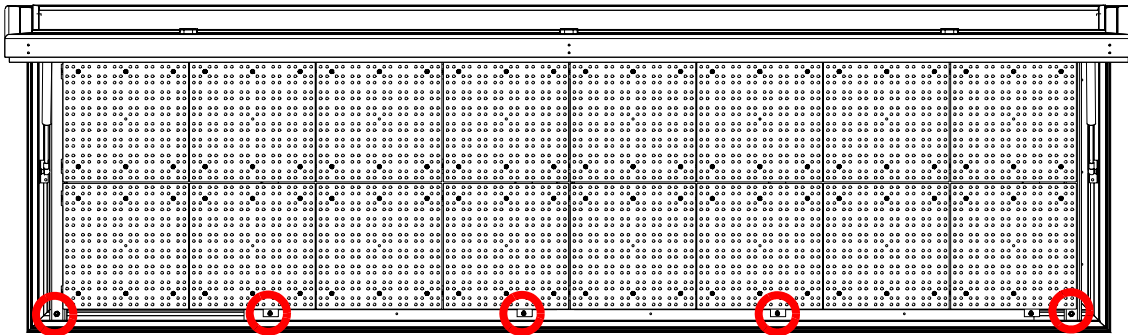
Turn latch key 180 to the left to fully unlock the case

3. Stand away from the sign. Then lift the sign door upward.

4. Remove the wing nut from each safety bar. Then swing each safety bar down and attach it to the bolt outside the sign using the wing nut.

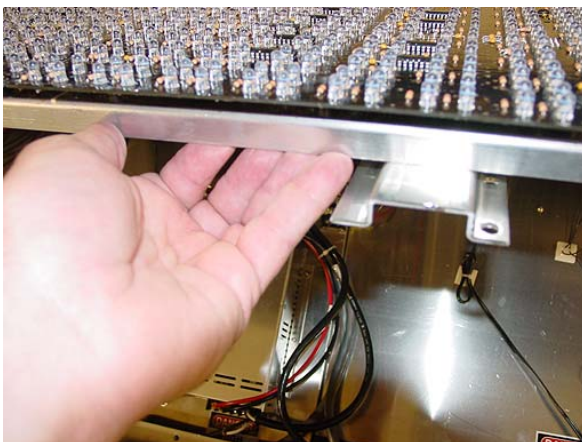


5. Remove the rail screws (circled below) at the bottom of each internal vertical rail. The number of rail screws varies with the size of the sign:

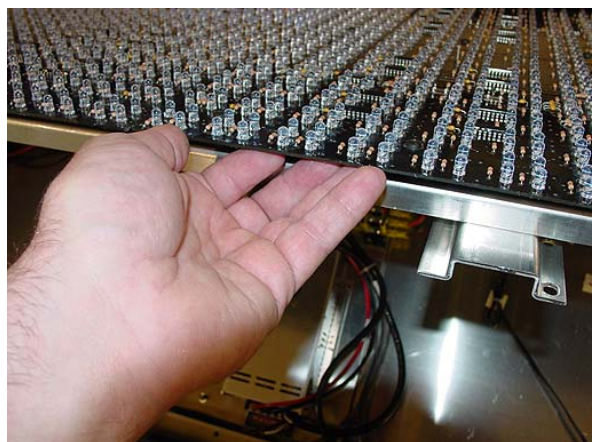


6. Carefully lift the LED boards up by placing your hands underneath the mounting rails -- not underneath an LED board:

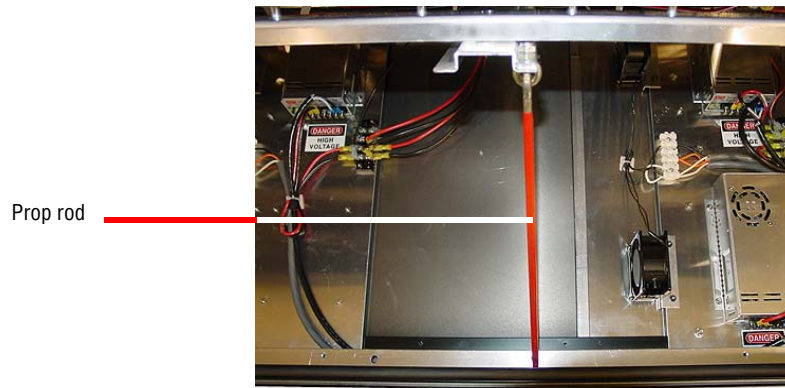
RIGHT WAY to Lift



WRONG WAY to Lift



7. Lower and fasten each red prop rod:



Close the sign

8. Push 1 on the sign's internal power switch.
9. Raise each red prop rod and fasten each rod to a clip underneath the LED boards.
NOTE: If a prop rod is not fastened, it could swing free and damage internal sign components.
10. Lower the LED boards.
11. Refasten the rail screws to the internal vertical rails.
12. Unfasten each safety bar and place inside the sign.
13. Lower the sign's door.
14. use the locking latch to lock the door shut.
15. Apply power to the sign.

RS485 termination

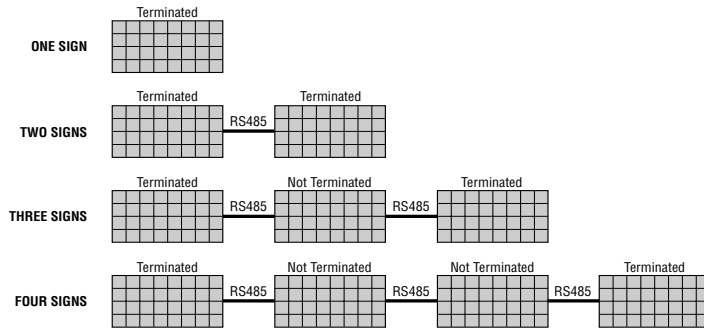
What is RS485 termination?

When signs are connected together using RS485 wiring, it is necessary to terminate each end of the network to ensure that the signs communicate with each other.

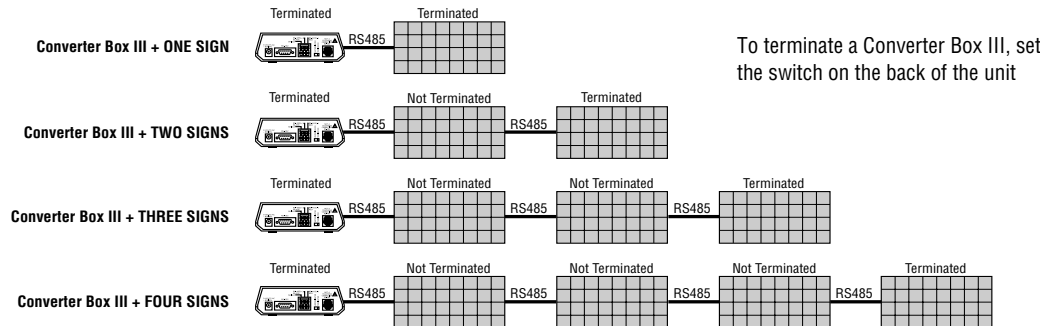
If signs are not correctly terminated, messages could display improperly.

When is termination used?

RULE: Terminate the first and the last sign in a network:

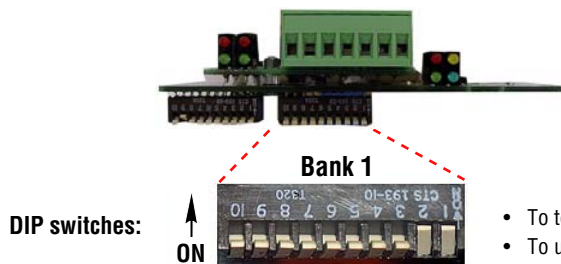


RULE: If a Converter Box III is used, treat the converter box as if it were a sign:



How to terminate and un-terminate a sign

1. Open the sign
 - For AlphaEclipse 2500/2600 signs see "Opening and Closing an AlphaEclipse 2500/2600 sign" on page 39
 - For AlphaEclipse 3500 signs see "Opening and Closing an AlphaEclipse 3500 sign" on page 41.
2. On the controller board, set or un-set Bank 1 DIP switches #1 and #2:



- To terminate a sign, set switches #1 and #2 to ON.
- To un-terminate a sign, set switches #1 and #2 to OFF.

DIP switch settings

Sign operation settings (Bank 1 and Bank 2 DIP switches)

* indicates that this DIP switch setting can be set using the *AlphaNET Diagnostics* software.

Controller board (side view)

Bank 2 Bank 1

ON

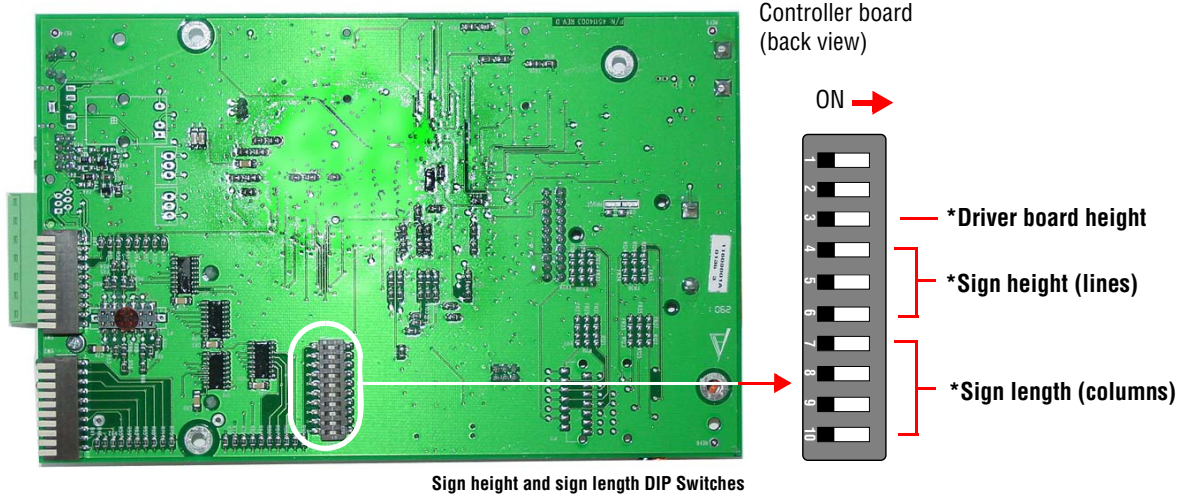
*Diagnostics *Data format *Serial address *Memory clear *Test mode *Master/Slave *Baud RS485 Termination

Bank 2 DIP switches			Bank 1 DIP switches						
	10	9	Description						
Diagnostics	Off	Off	Normal messaging (default)						
	Off	On	Goes through several test patterns to test for unlit LEDs and other irregularities.						
	On	Off	All LEDs are lit to test for uniform LED display						
	On	On	Software override — When enabled, prevents setting DIP switches from software, and the sign will operate using the current DIP switch settings. <i>DIP switches 9 and 8 on Bank 1 must also be both on.</i>						
	8	Description							
Data format	Off	8N1 — 8 data bits, No parity, 1 stop bit (default)							
	On	7E2 — 7 data bits, Even parity, 2 stop bits							
Serial address (address 0 = default)	7 (MSB)	6	5	4	3	2	1 (LSB)	Address	
								Dec	Hex
	Off	Off	Off	Off	Off	Off	Off	0	00
	Off	Off	Off	Off	Off	Off	On	1	01
	Off	Off	Off	Off	Off	On	Off	2	02
	Off	Off	Off	Off	Off	On	On	3	03

	On	On	On	On	On	Off	On	125	7D
	On	On	On	On	On	On	Off	126	7E
On	On	On	On	On	On	On	127	7F	
	10	Description							
Memory Clear	Off	Do NOT clear memory (default)							
	On	Clear memory on powerup							
	9	8	Description						
Test Mode	Off	Off	Normal mode (default)						
	Off	On	Production test mode						
	On	Off	Display temperature test						
	On	On	Software override — When enabled, prevents setting DIP switches from software, and the sign will operate using the current DIP switch settings. <i>DIP switches 10 and 9 on Bank 2 must also be both on.</i>						
	7	Description							
Master/Slave	Off	Master mode (default)							
	On	Slave mode							
Baud rate	5	4	3	Description					
	Off	Off	Off	Autobaud (see NOTE below)					
	Off	Off	On	1200					
	Off	On	Off	2400					
	Off	On	On	4800					
	On	Off	Off	9600					
	On	Off	On	19200					
	On	On	Off	38400					
On	On	On	Autobaud (see NOTE below)						
NOTE: When Autobaud is on, the sign will automatically try to set itself to the baud rate and data format (8N1 or 7E2) of the transmitting modem. Also, make sure that Data format (Bank 2, switch 8) is set to Off.									
	2	1	Description (see)						
Termination	Off	Off	Termination off (default)						
	On	On	Termination on						

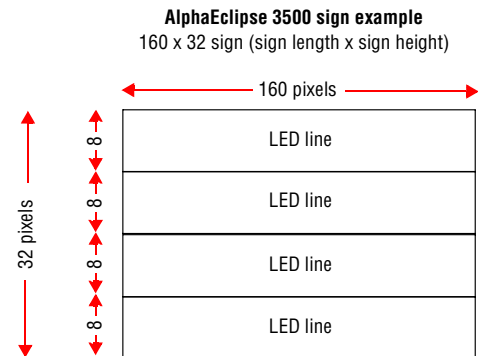
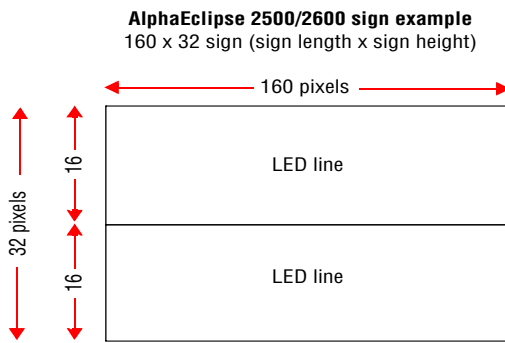
Sign size settings (Bank 3 DIP switches)

* indicates that this DIP switch setting can be set using the *AlphaNET Diagnostics* software.



Sign height and sign length DIP Switches

Sign size is typically represented in pixels, like 160 (columns) x 48 (rows). This means the sign is 160 pixels long and 48 pixels high. In AlphaEclipse 2500/2600 signs, each line is 16 pixels high. So a 160 x 48 sign has a Sign height = 3 (48/16) and a Sign length = 160.



Bank 3 DIP switches

Sign length (columns)				Description
10	9	8	7	
Off	Off	Off	Off	64 columns (default)
Off	Off	Off	On	16 columns
Off	Off	On	Off	32 columns
Off	Off	On	On	48 columns
Off	On	Off	Off	64 columns
Off	On	Off	On	80 columns
Off	On	On	Off	96 columns
Off	On	On	On	112 columns
On	Off	Off	Off	128 columns
On	Off	Off	On	144 columns
On	Off	On	Off	160 columns
On	Off	On	On	176 columns
On	On	Off	Off	192 columns
On	On	Off	On	208 columns
On	On	On	Off	224 columns
On	On	On	On	240 columns

Sign height (lines)			Description
6	5	4	
Off	Off	Off	1 line (default)
Off	Off	On	2 lines
Off	On	Off	3 lines
Off	On	On	4 lines
On	Off	Off	5 lines
On	Off	On	6 lines
On	On	Off	7 lines
On	On	On	8 lines

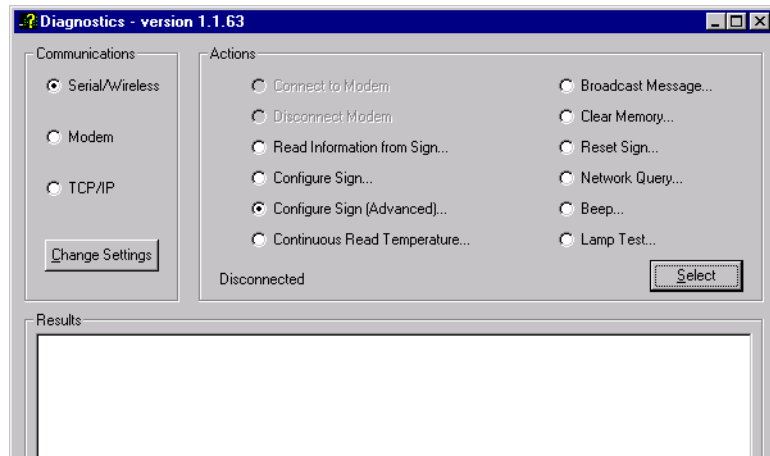
Not valid for 2500/2600 signs

Driver board height	
3	Description
Off	8-row high (default)
On	16-row high — use for a 2500/2600 sign

Using AlphaNET software to set DIP switches

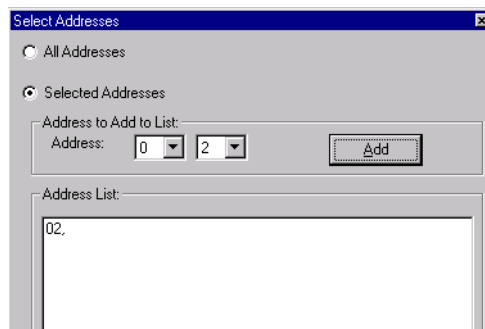
AlphaNET software version 2.0.3 and greater can be used to set the Bank 1, 2, or 3 DIP switches explained previously. Version 2.0.3 is documented below.

1. To do this, select the AlphaNET *Diagnostics* software:

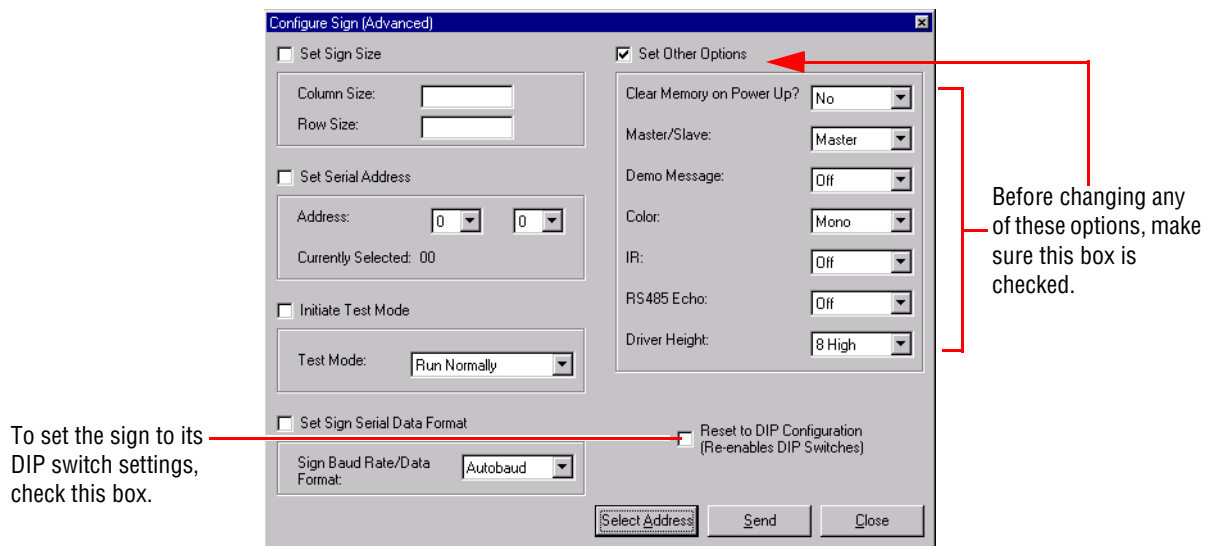


2. Select *Configure Sign (Advanced)* > *Select Address*:

Select the serial address(es) of the signs you want to configure.



3. Select one or more of the available options (*Set Sign Size*, *Set Serial Address*, and so on) and click on *Send*:



Shop drawings

The following drawings are attached:

AlphaEclipse 2500/2600 sign

- 11700000-01C AlphaEclipse 2500/2600 Series Product Specifications (page 49)

AlphaEclipse 3500 sign

- 11600000-19J AlphaEclipse 3500 Series B Sales Drawing (page 53)

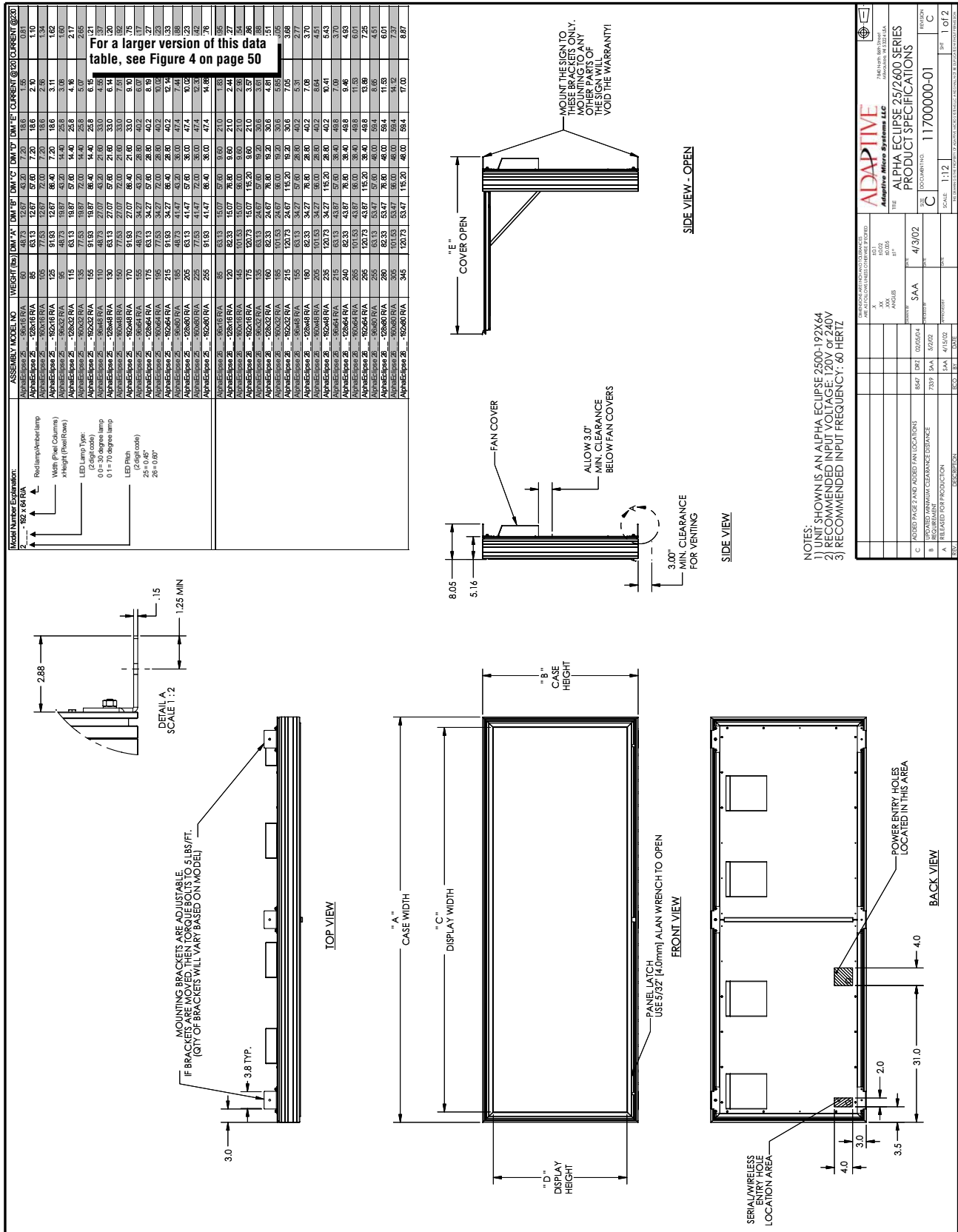


Figure 3: 11700000-01C AlphaEclipse 2500/2600 Series Product Specifications (sheet 1 of 2)

Model Number Explanation:	ASSEMBLY MODEL NO	WEIGHT (lbs)	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	CURRENT @120	CURRENT @230
2- - - - 192 x 64 R/A	AlphaEclipse 25 - 96x16 R/A	60	48.73	12.67	43.20	7.20	18.6	1.55	0.81
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 128x16 R/A	85	63.13	12.67	57.60	7.20	18.6	2.10	1.10
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 160x16 R/A	105	77.53	12.67	72.00	7.20	18.6	2.56	1.34
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 192x16 R/A	125	91.93	12.67	86.40	7.20	18.6	3.11	1.62
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 96x32 R/A	95	48.73	19.87	43.20	14.40	25.8	3.08	1.60
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 128x32 R/A	115	63.13	19.87	57.60	14.40	25.8	4.16	2.17
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 160x32 R/A	135	77.53	19.87	72.00	14.40	25.8	5.07	2.65
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 192x32 R/A	155	91.93	19.87	86.40	14.40	25.8	6.15	3.21
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 96x48 R/A	110	48.73	27.07	43.20	21.60	33.0	4.55	2.37
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 128x48 R/A	130	63.13	27.07	57.60	21.60	33.0	6.14	3.20
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 160x48 R/A	150	77.53	27.07	72.00	21.60	33.0	7.51	3.92
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 192x48 R/A	170	91.93	27.07	86.40	21.60	33.0	9.10	4.75
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 96x64 R/A	155	48.73	34.27	43.20	28.80	40.2	6.07	3.17
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 128x64 R/A	175	63.13	34.27	57.60	28.80	40.2	8.19	4.27
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 160x64 R/A	195	77.53	34.27	72.00	28.80	40.2	10.02	5.23
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 192x64 R/A	215	91.93	34.27	86.40	28.80	40.2	12.14	6.33
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 96x80 R/A	185	48.73	41.47	43.20	36.00	47.4	7.44	3.88
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 128x80 R/A	205	63.13	41.47	57.60	36.00	47.4	10.02	5.23
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 160x80 R/A	225	77.53	41.47	72.00	36.00	47.4	12.30	6.42
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 25 - 192x80 R/A	255	91.93	41.47	86.40	36.00	47.4	14.88	7.76
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 96x16 R/A	85	63.13	15.07	57.60	9.60	21.0	1.83	0.95
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 128x16 R/A	120	82.33	15.07	76.80	9.60	21.0	2.44	1.27
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 160x16 R/A	145	101.53	15.07	96.00	9.60	21.0	2.96	1.54
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 192x16 R/A	175	120.73	15.07	115.20	9.60	21.0	3.57	1.86
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 96x32 R/A	135	63.13	24.67	57.60	19.20	30.6	3.61	1.88
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 128x32 R/A	160	82.33	24.67	76.80	19.20	30.6	4.81	2.51
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 160x32 R/A	185	101.53	24.67	96.00	19.20	30.6	5.85	3.05
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 192x32 R/A	215	120.73	24.67	115.20	19.20	30.6	7.05	3.68
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 96x48 R/A	155	63.13	34.27	57.60	28.80	40.2	5.31	2.77
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 128x48 R/A	180	82.33	34.27	76.80	28.80	40.2	7.08	3.70
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 160x48 R/A	205	101.53	34.27	96.00	28.80	40.2	8.64	4.51
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 192x48 R/A	235	120.73	34.27	115.20	28.80	40.2	10.41	5.43
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 96x64 R/A	215	63.13	43.87	57.60	38.40	49.8	7.09	3.70
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 128x64 R/A	240	82.33	43.87	76.80	38.40	49.8	9.46	4.93
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 160x64 R/A	265	101.53	43.87	96.00	38.40	49.8	11.53	6.01
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 192x64 R/A	295	120.73	43.87	115.20	38.40	49.8	13.89	7.25
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 96x80 R/A	255	63.13	53.47	57.60	48.00	59.4	8.65	4.51
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 128x80 R/A	280	82.33	53.47	76.80	48.00	59.4	11.53	6.01
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 160x80 R/A	305	101.53	53.47	96.00	48.00	59.4	14.12	7.37
▲▲▲▲ - 192 x 64 R/A	AlphaEclipse 26 - 192x80 R/A	345	120.73	53.47	115.20	48.00	59.4	17.00	8.87

Figure 4: 11700000-01C AlphaEclipse 2500/2600 Series Product Specifications (sheet 1 of 2)
Sign Dimensions and Current Requirements Table

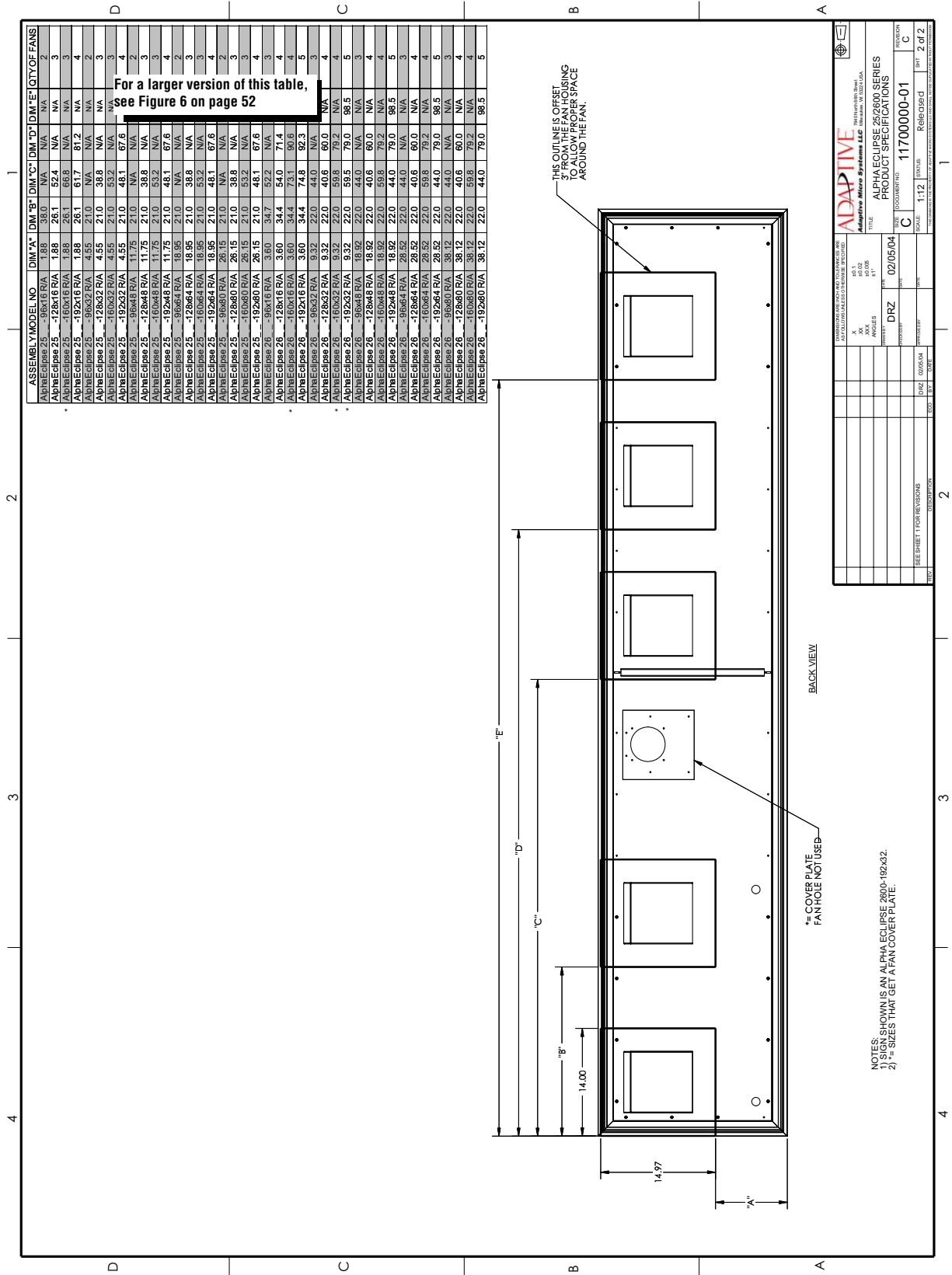
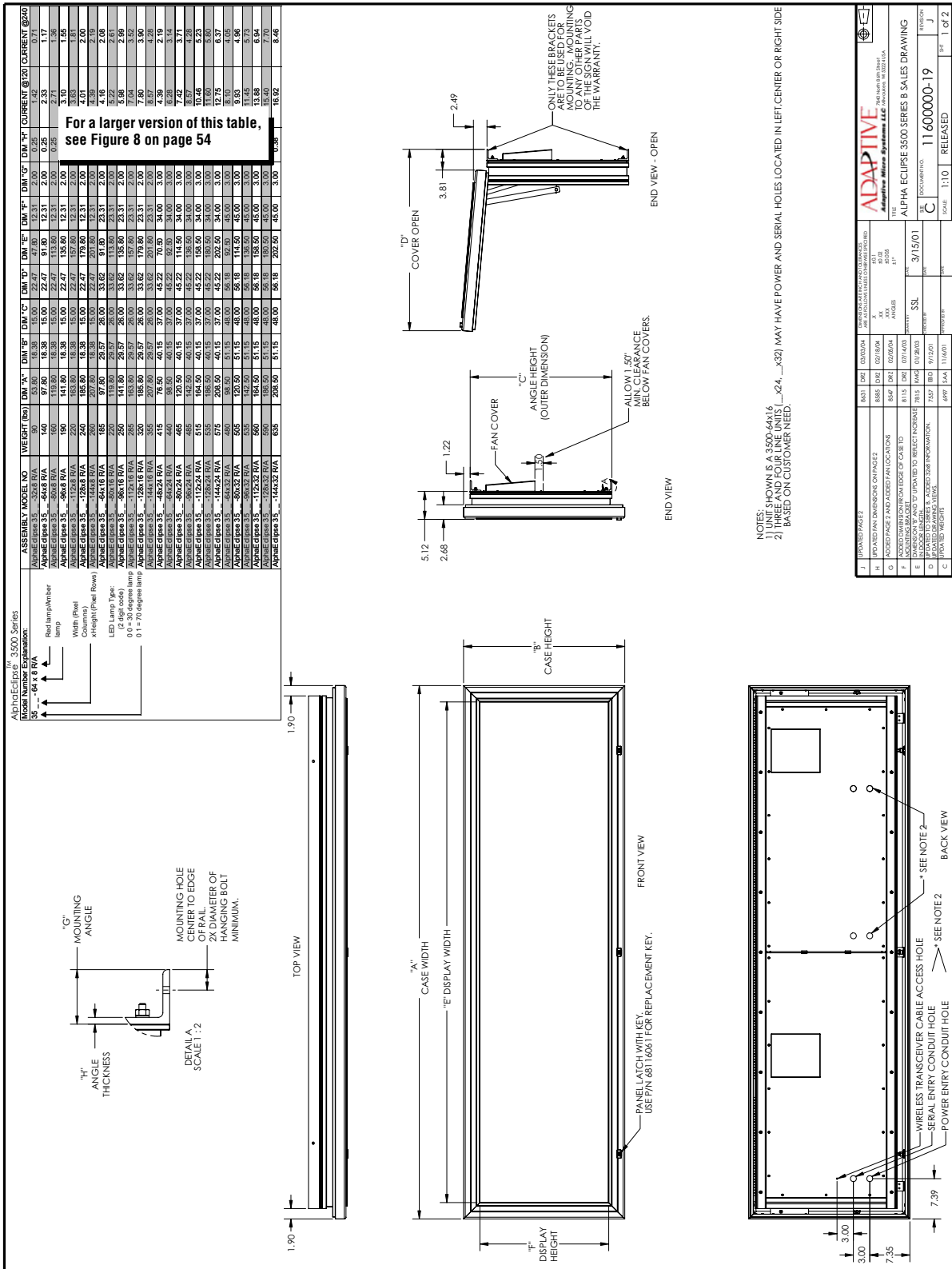


Figure 5: 11700000-01C AlphaEclipse 2500/2600 Series Product Specifications (sheet 2 of 2)

ASSEMBLY MODEL NO	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	QTY OF FANS
AlphaEclipse 25 - 96x16 R/A	1.88	38.0	N/A	N/A	N/A	2
AlphaEclipse 25 -128x16 R/A	1.88	26.1	52.4	N/A	N/A	3
AlphaEclipse 25 -160x16 R/A	1.88	26.1	66.8	N/A	N/A	3
AlphaEclipse 25 -192x16 R/A	1.88	26.1	61.7	81.2	N/A	4
AlphaEclipse 25 - 96x32 R/A	4.55	21.0	N/A	N/A	N/A	2
AlphaEclipse 25 -128x32 R/A	4.55	21.0	38.8	N/A	N/A	3
AlphaEclipse 25 -160x32 R/A	4.55	21.0	53.2	N/A	N/A	3
AlphaEclipse 25 -192x32 R/A	4.55	21.0	48.1	67.6	N/A	4
AlphaEclipse 25 - 96x48 R/A	11.75	21.0	N/A	N/A	N/A	2
AlphaEclipse 25 -128x48 R/A	11.75	21.0	38.8	N/A	N/A	3
AlphaEclipse 25 -160x48 R/A	11.75	21.0	53.2	N/A	N/A	3
AlphaEclipse 25 -192x48 R/A	11.75	21.0	48.1	67.6	N/A	4
AlphaEclipse 25 - 96x64 R/A	18.95	21.0	N/A	N/A	N/A	2
AlphaEclipse 25 -128x64 R/A	18.95	21.0	38.8	N/A	N/A	3
AlphaEclipse 25 -160x64 R/A	18.95	21.0	53.2	N/A	N/A	3
AlphaEclipse 25 -192x64 R/A	18.95	21.0	48.1	67.6	N/A	4
AlphaEclipse 25 - 96x80 R/A	26.15	21.0	N/A	N/A	N/A	2
AlphaEclipse 25 -128x80 R/A	26.15	21.0	38.8	N/A	N/A	3
AlphaEclipse 25 -160x80 R/A	26.15	21.0	53.2	N/A	N/A	3
AlphaEclipse 25 -192x80 R/A	26.15	21.0	48.1	67.6	N/A	4
AlphaEclipse 26 - 96x16 R/A	3.60	34.7	52.2	N/A	N/A	3
AlphaEclipse 26 -128x16 R/A	3.60	34.4	54.0	71.4	N/A	4
AlphaEclipse 26 -160x16 R/A	3.60	34.4	73.1	90.6	N/A	4
AlphaEclipse 26 -192x16 R/A	3.60	34.4	74.8	92.3	109.8	5
AlphaEclipse 26 - 96x32 R/A	9.32	22.0	44.0	N/A	N/A	3
AlphaEclipse 26 -128x32 R/A	9.32	22.0	40.6	60.0	N/A	4
AlphaEclipse 26 -160x32 R/A	9.32	22.0	59.8	79.2	N/A	4
AlphaEclipse 26 -192x32 R/A	9.32	22.0	59.5	79.0	98.5	5
AlphaEclipse 26 - 96x48 R/A	18.92	22.0	44.0	N/A	N/A	3
AlphaEclipse 26 -128x48 R/A	18.92	22.0	40.6	60.0	N/A	4
AlphaEclipse 26 -160x48 R/A	18.92	22.0	59.8	79.2	N/A	4
AlphaEclipse 26 -192x48 R/A	18.92	22.0	44.0	79.0	98.5	5
AlphaEclipse 26 - 96x64 R/A	28.52	22.0	44.0	N/A	N/A	3
AlphaEclipse 26 -128x64 R/A	28.52	22.0	40.6	60.0	N/A	4
AlphaEclipse 26 -160x64 R/A	28.52	22.0	59.8	79.2	N/A	4
AlphaEclipse 26 -192x64 R/A	28.52	22.0	44.0	79.0	98.5	5
AlphaEclipse 26 - 96x80 R/A	38.12	22.0	44.0	N/A	N/A	3
AlphaEclipse 26 -128x80 R/A	38.12	22.0	40.6	60.0	N/A	4
AlphaEclipse 26 -160x80 R/A	38.12	22.0	59.8	79.2	N/A	4
AlphaEclipse 26 -192x80 R/A	38.12	22.0	44.0	79.0	98.5	5

Figure 6: 11700000-01C AlphaEclipse 2500/2600 Series Product Specifications (sheet 2 of 2)
Fan Spacing Table



AlphaEclipse™ 3500 Series

Model Number Explanation:	ASSEMBLY MODEL NO	WEIGHT (lbs)	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"	DIM "G"	DIM "H"	CURRENT @120	CURRENT @240
35 - 64 x 8 R/A	AlphaEclipse 35 - 32x8 R/A	90	53.80	18.38	15.00	22.47	47.80	12.31	2.00	0.25	1.42	0.71
	AlphaEclipse 35 - 64x8 R/A	140	97.80	18.38	15.00	22.47	91.80	12.31	2.00	0.25	2.33	1.17
	AlphaEclipse 35 - 80x8 R/A	160	119.80	18.38	15.00	22.47	113.80	12.31	2.00	0.25	2.71	1.36
	AlphaEclipse 35 - 96x8 R/A	190	141.80	18.38	15.00	22.47	135.80	12.31	2.00	0.25	3.10	1.55
	AlphaEclipse 35 - 112x8 R/A	220	163.80	18.38	15.00	22.47	157.80	12.31	2.00	0.25	3.63	1.81
	AlphaEclipse 35 - 128x8 R/A	240	185.80	18.38	15.00	22.47	179.80	12.31	2.00	0.25	4.01	2.00
	AlphaEclipse 35 - 144x8 R/A	260	207.80	18.38	15.00	22.47	201.80	12.31	2.00	0.25	4.39	2.19
	AlphaEclipse 35 - 64x16 R/A	185	97.80	29.57	26.00	33.62	91.80	23.31	2.00	0.25	4.16	2.08
	AlphaEclipse 35 - 80x16 R/A	220	119.80	29.57	26.00	33.62	113.80	23.31	2.00	0.25	5.22	2.61
	AlphaEclipse 35 - 96x16 R/A	250	141.80	29.57	26.00	33.62	135.80	23.31	2.00	0.25	5.98	2.99
	AlphaEclipse 35 - 112x16 R/A	285	163.80	29.57	26.00	33.62	157.80	23.31	2.00	0.25	7.04	3.52
	AlphaEclipse 35 - 128x16 R/A	320	185.80	29.57	26.00	33.62	179.80	23.31	2.00	0.25	7.80	3.90
	AlphaEclipse 35 - 144x16 R/A	355	207.80	29.57	26.00	33.62	201.80	23.31	2.00	0.25	8.57	4.28
	AlphaEclipse 35 - 48x24 R/A	415	76.50	40.15	37.00	45.22	70.50	34.00	3.00	0.38	4.39	2.19
	AlphaEclipse 35 - 64x24 R/A	440	98.50	40.15	37.00	45.22	92.50	34.00	3.00	0.38	6.28	3.14
	AlphaEclipse 35 - 80x24 R/A	465	120.50	40.15	37.00	45.22	114.50	34.00	3.00	0.38	7.42	3.71
	AlphaEclipse 35 - 96x24 R/A	485	142.50	40.15	37.00	45.22	136.50	34.00	3.00	0.38	8.57	4.28
	AlphaEclipse 35 - 112x24 R/A	515	164.50	40.15	37.00	45.22	158.50	34.00	3.00	0.38	10.46	5.23
	AlphaEclipse 35 - 128x24 R/A	535	186.50	40.15	37.00	45.22	180.50	34.00	3.00	0.38	11.60	5.80
	AlphaEclipse 35 - 144x24 R/A	575	208.50	40.15	37.00	45.22	202.50	34.00	3.00	0.38	12.75	6.37
	AlphaEclipse 35 - 64x32 R/A	480	98.50	51.15	48.00	56.18	92.50	45.00	3.00	0.38	8.10	4.05
	AlphaEclipse 35 - 80x32 R/A	505	120.50	51.15	48.00	56.18	114.50	45.00	3.00	0.38	9.93	4.96
	AlphaEclipse 35 - 96x32 R/A	535	142.50	51.15	48.00	56.18	136.50	45.00	3.00	0.38	11.45	5.73
	AlphaEclipse 35 - 112x32 R/A	560	164.50	51.15	48.00	56.18	158.50	45.00	3.00	0.38	13.88	6.94
	AlphaEclipse 35 - 128x32 R/A	590	186.50	51.15	48.00	56.18	180.50	45.00	3.00	0.38	15.40	7.70
	AlphaEclipse 35 - 144x32 R/A	635	208.50	51.15	48.00	56.18	202.50	45.00	3.00	0.38	16.92	8.46

Model Number Explanation:

- 35 - 64 x 8 R/A
- Red lamp/Amber lamp
- Width (Pixel Columns) x Height (Pixel Rows)
- LED Lamp Type: (2 digit code)
 - 0 0 = 30 degree lamp
 - 0 1 = 70 degree lamp

Figure 8: 11600000-19J AlphaEclipse 3500 Series B Sales Drawing (sheet 1 of 2) Sign Dimensions and Current Requirements Table

ASSEMBLY MODEL NO	DIM "A"	DIM "B"	QTY OF FANS
AlphaEclipse 35 -32x8 R/A	9.4	36.4	2
AlphaEclipse 35 -64x8 R/A	27.5	76.9	2
AlphaEclipse 35 -80x8 R/A	27.5	98.9	2
AlphaEclipse 35 -96x8 R/A	27.5	120.9	2
AlphaEclipse 35 -112x8 R/A	27.5	142.9	2
AlphaEclipse 35 -128x8 R/A	27.5	164.9	2
AlphaEclipse 35 -144x8 R/A	27.5	186.9	2
AlphaEclipse 35 -64x16 R/A	21.0	76.9	2
AlphaEclipse 35 -80x16 R/A	21.0	98.9	4
AlphaEclipse 35 -96x16 R/A	21.0	120.9	4
AlphaEclipse 35 -112x16 R/A	21.0	142.9	4
AlphaEclipse 35 -128x16 R/A	21.0	164.9	4
AlphaEclipse 35 -144x16 R/A	21.0	186.9	4
AlphaEclipse 35 -64x24 R/A	21.0	77.4	4
AlphaEclipse 35 -80x24 R/A	21.0	99.4	4
AlphaEclipse 35 -96x24 R/A	21.0	121.4	4
AlphaEclipse 35 -112x24 R/A	21.0	143.4	6
AlphaEclipse 35 -128x24 R/A	21.0	165.4	6
AlphaEclipse 35 -144x24 R/A	21.0	187.4	6
AlphaEclipse 35 -64x32 R/A	21.0	77.4	4
AlphaEclipse 35 -80x32 R/A	21.0	99.4	6
AlphaEclipse 35 -96x32 R/A	21.0	121.4	6
AlphaEclipse 35 -112x32 R/A	21.0	143.4	8
AlphaEclipse 35 -128x32 R/A	21.0	165.4	8
AlphaEclipse 35 -144x32 R/A	21.0	187.4	8

**Figure 10: 11600000-19J AlphaEclipse 3500 Series B Sales Drawing (sheet 2 of 2)
Fan Spacing Table**