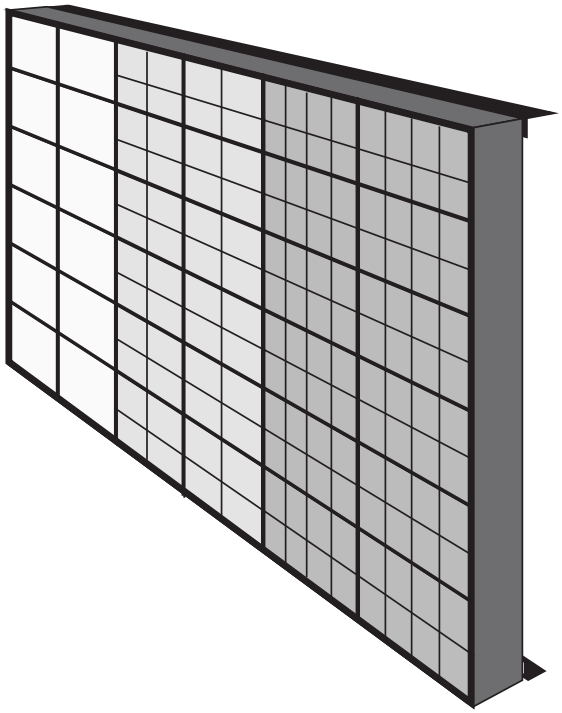
INSTALLATION GUIDE

FLEX Series



FLEX Series Install Guide
Document: CS-0057-02

INFORMATION AND WARNINGS

The installation guide is for general reference only and is not inclusive of all signs and installation types. Some details may be different according to the location, size and type of sign. All installations and electrical connections should be done by professional, licensed personnel. Signs should be properly permitted, and installed according to national and local building codes.

CONTACT TECHNICAL SUPPORT IF YOU HAVE ANY QUESTIONS ON THE INSTALLATION OF THE LED DISPLAY.

VENTILATION

- The sign MUST be properly ventilated to maintain warranty coverage. (See installation guide)

SAFETY

- Follow ALL safety guidelines and instructions. Wear protective head gear and clothing when installing.
- Follow all warning labels on the sign.

ELECTRICAL

- Electrical connections must be installed according to the National Electrical Code (NEC) and all local codes, by a qualified, licensed electrician.
- EXTERNAL DISCONNECT SWITCH REQUIRED PER N.E.C The location of the disconnect switch after installation MUST comply with Article 600 of the National Electrical Code (600.6) http://www.nfpa.org/70
- LED Signs will have different power requirements depending on the model, size and type. Check the documentation that shipped with the sign for requirements specific to your sign.
- The LED Sign should be on a dedicated circuit. DO NOT share the circuit with any other electric device (flood lights, neon signs, fluorescent lights, etc...). LED Sign faces may share circuits with each other if breaker and wire size is sufficient.
- The sign must be properly grounded to the electrical system. The sign must also be *Earth* Grounded according to NEC guidelines.
- The signs are designed to run on single phase, 110 or 240 VAC. Smaller signs are configured for 110 VAC, and larger signs are configured for 240 VAC. Verify the configuration on the documentation that shipped with the sign.
- It is **strongly** recommend to meter the dedicated electrical circuit to ensure the line is clean and free from undervoltage/spike/sag issues prior to and immediately following installation of the system to ensure longevity and optimal performance.

SERVICING

- Power off the display before servicing.
- When circumstances require the sign to be on during troubleshooting, take extreme care not to touch ANY energized circuitry.
- Do not service the sign during rain, heavy wind or snow.

STRUCTURE

- Any structure holding the LED sign should be designed and verified by a professional engineer.
- DO NOT drill or attach directly to the LED sign cabinet. Use only the steel angle on the back of the sign.
- Ensure the sign is properly ventilated.(See Page 5 of the installation guide)

USAGE AND IMPORTANT RECOMMENDATIONS

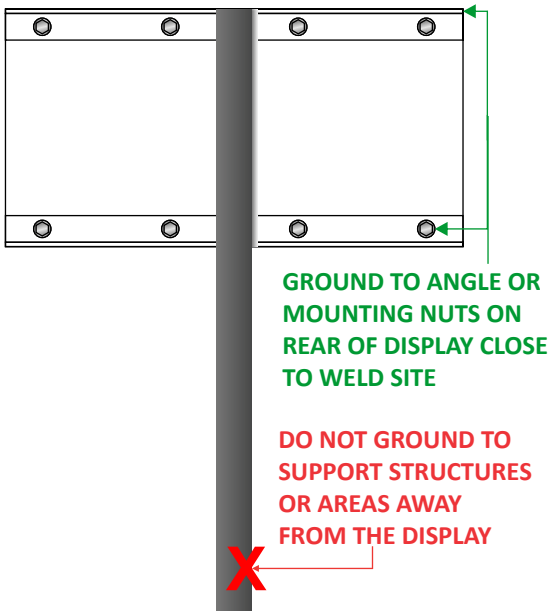
- Play at least 5 different messages on the sign and change the background colors and text often to avoid **Image Burn-in**. Content played over a long period of time may “Burn” into the screen causing it to appear over additional content.
- It is highly recommended to keep the sign powered on 24/7. Use the brightness settings to dim the display to 0% according to your needs. In extremely cold climates it is recommended to install a heat bar near the thermal fans, activating them when the temperature is extremely low. This allows the fans to circulate air during this time and avoid condensation build up.
- Some maintenance is required to be done at a minimum every year, prior to the summer season. This includes checking and cleaning the intake vent filters. (See Maintenance Section)

FCC REGULATIONS

- 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 the instruction manual, 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.
- Any changes or modifications not expressly approved by the seller of this equipment could void your authority to operate the equipment.
- Responsible Party: Vantage LED, 1580 Magnolia Ave, Corona, CA 92879. Phone: 888-595-3956

SENSITIVE ELECTRONIC COMPONENT DAMAGE

When welding the display to the support structure it is important to ground the welding equipment to an appropriate ground nearest to the welding site, such as the angle iron mounting bolts. Failure to do so may damage critical electronic components in the display. Damages caused by failure to ground in this manner will not be covered under warranty.



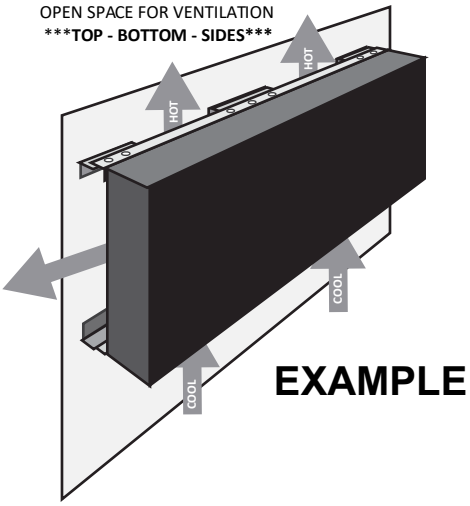
- Only weld to the angle iron or square tubing mounted on the display.
- Protect all electrical and data cables from welding sparks and slag to prevent damage.

DISPLAY VENTILATION REQUIRED

SEE REQUIREMENTS IN INSTALLATION MANUAL

The LED Display(s) are rear ventilated. **To maintain warranty coverage**, air must be allowed to flow unobstructed to and from all display air vents. Air ducts and additional fans may be required to provide an active exchange outside air to the display. This includes vents and channels around the face, through structures the display is mounted in or wraps around the display.

- Do not block the intake or exhaust vents on the back of the sign with any part of the structure.
- Allow a minimum of 3” behind the LED sign and 6-8” when back to back. For Wall installations, add 1” for every 10 feet of sign length.
- Open Ventilation Space is required on the Top, Bottom and Sides of mounting structure. 4 feet of linear space required per 10 feet of sign length for the top and bottom. This must be evenly spaced. (See Diagram)
- Allow a min. of 2” around cabinet when installing with other signs or structures and 5” behind the sign for recessed projects.
- Ambient air temperature in and around structure must be between -22F and 120F to avoid damaging the display components.

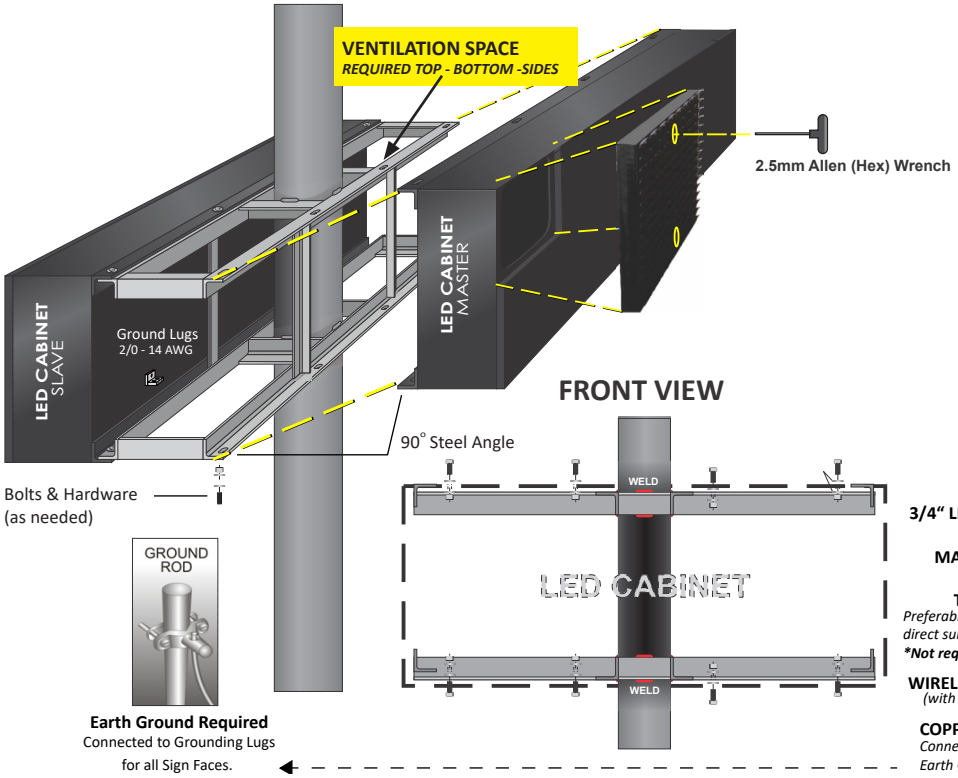


QUICK REFERENCE GUIDE

The information below is for general reference only. It does not replace professionally engineered drawings.
Please consult the drawings and documentation that shipped with your LED sign for specific electrical voltage, amperage and data specifications.
Steel angle is provided on the LED sign only. Fasteners and steel material for the sub structure are not provided.

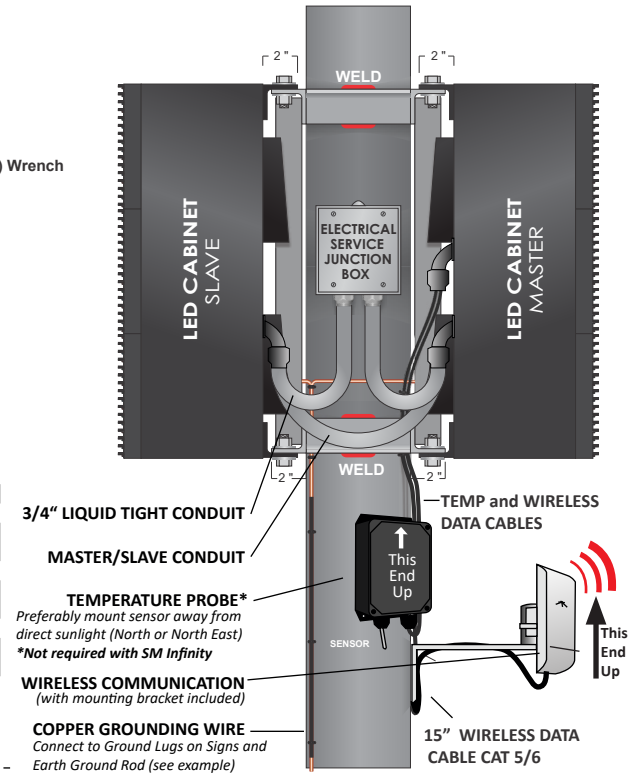
POLE MOUNT

PERSPECTIVE VIEW



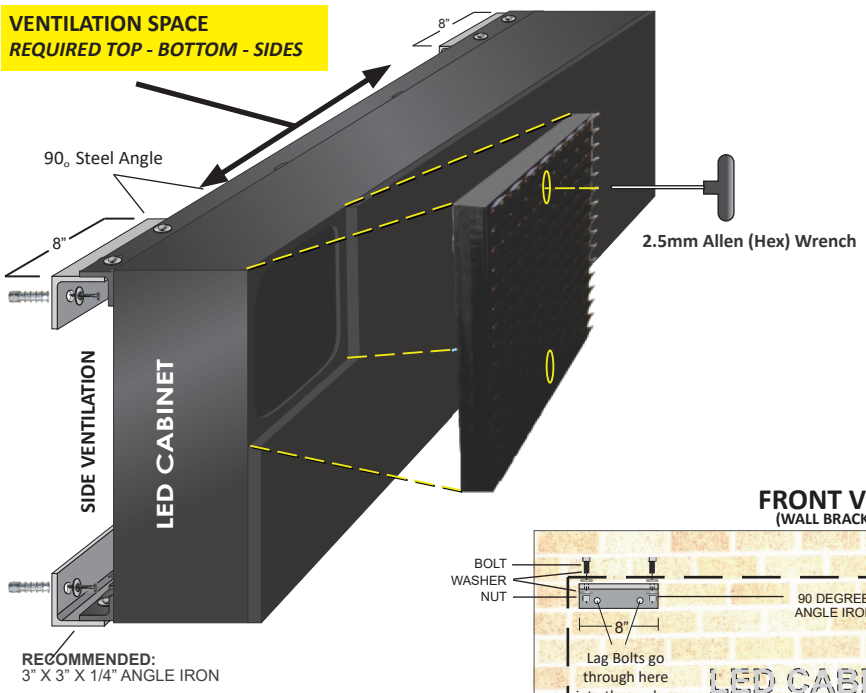
FRONT VIEW

SIDE VIEW

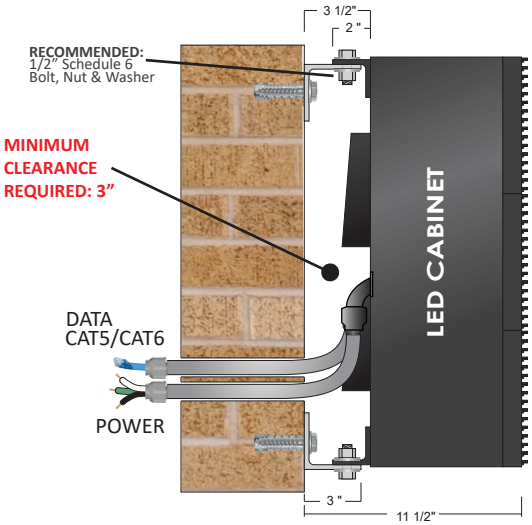


WALL MOUNT

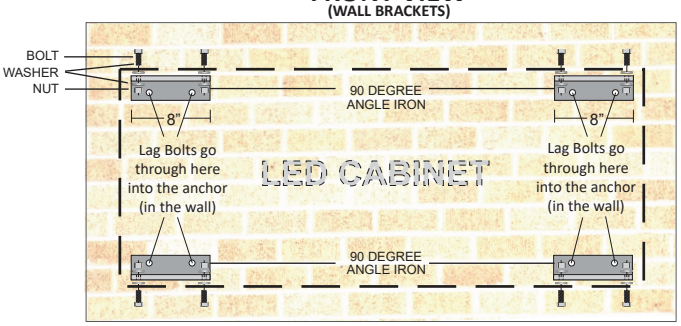
PERSPECTIVE VIEW



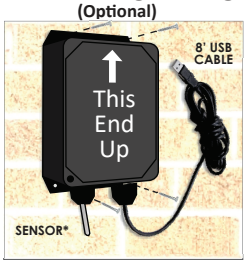
SIDE VIEW



FRONT VIEW
(WALL BRACKETS)



TEMPERATURE PROBE
(Optional)



Preferably mount sensor away from direct sunlight (North or North East)

MAINTENANCE

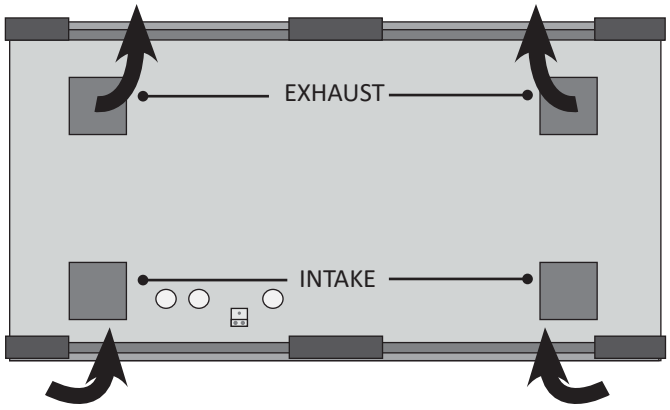
Relatively simple maintenance is required for the long term benefit of sign. The frequency will vary depending on environmental conditions, but the sign should be checked each year at a minimum, prior to the summer season.

CHECK INTAKE VENT FILTERS

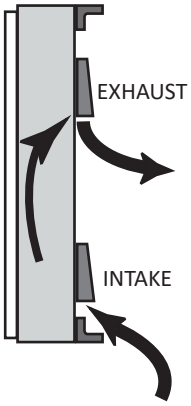
The intake vent filters help remove dust and road grime from the air prior to entering the LED Sign cabinet.

- It is recommended to check the filters each year, before the summer months. In very dusty environments it may be necessary to check more often.
- Clogged vents may cause the sign to overheat. Issues caused by this are not covered under warranty.

REAR VIEW

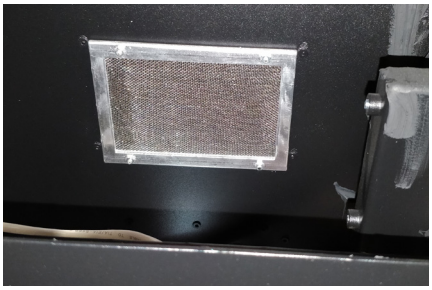


SIDE VIEW

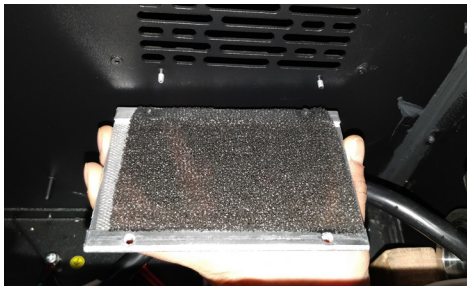


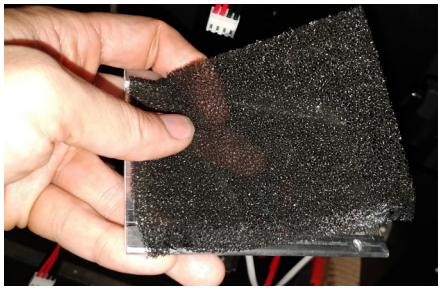
There are multiple vents at the bottom of each sign face. You can see the external shrouds from the rear of the display (see diagram). However, the vent filters are accessed from the FRONT of the display.

Remove the LED module(s) in front of the filter vent at the bottom of the display. (See “Opening the Sign”)



Remove the filter cover unscrewing the 4 hex nuts (7/32”).





The filter material can then be checked and cleaned. Compressed Air is recommended, but water can be used as long as the filters are completely dry prior to re-installation. Place the filter back, and re-install the filter cover using the 4 hex nuts.

GENERAL CONDITION CHECKS

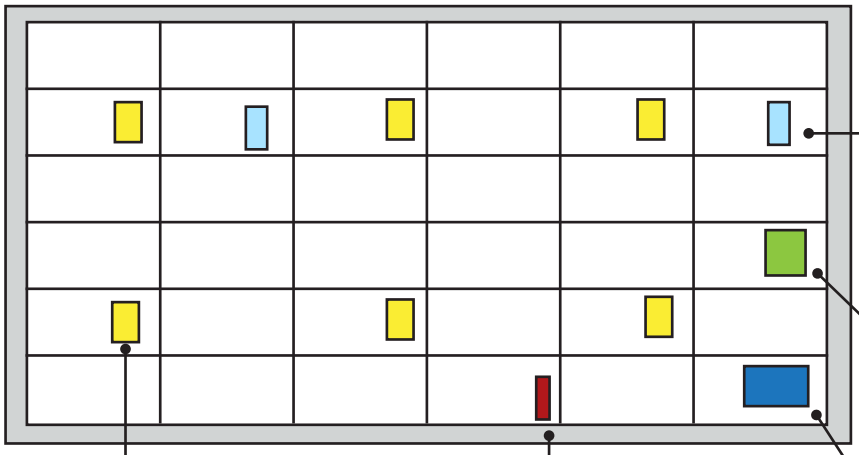
- Check for and remove any animal nests or debris in and around the structure, in between the sign faces, and top of the sign.
- It’s helpful to also check the sign face from time to time, and remove any insect eggs, bird droppings, or other material that can block the LEDs. Rainfall will typically do this on it’s own, but manual removal may be needed in dry climates. DO NOT USE A PRESSURE WASHER. A dry light duty brush with soft plastic bristles is sufficient.
- Check your main electrical panel, wiring, communications radio/antenna and cables for damage or breakage due to animals or vandalism.

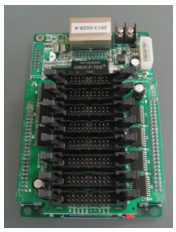
CONTENTS

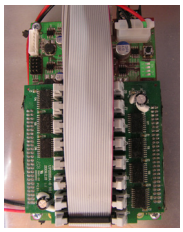
OVERVIEW AND LOCATION

The component locations will vary depending on the sign size, pitch, and type. Please refer to the location diagram shipped with your particular sign for exact component locations, power requirements, and data flow.

FRONT VIEW



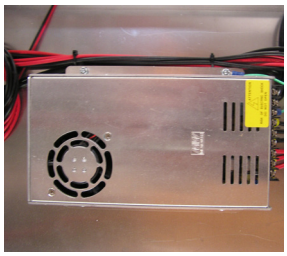




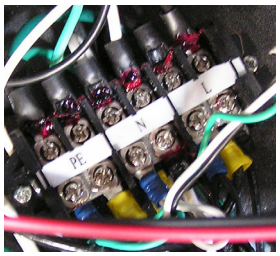
Logic Board:
Sends data to each row of LED Modules. For larger signs, there are more than one logic board per sign face.

DVI Board:
Converts DVI video data from the PC Controller and sends it to the logic board. This is connected directly to the PC controller.

PC Controller:
This is an industrialized PC (IPC). It houses the operating system, and sign software used to display content on the sign.

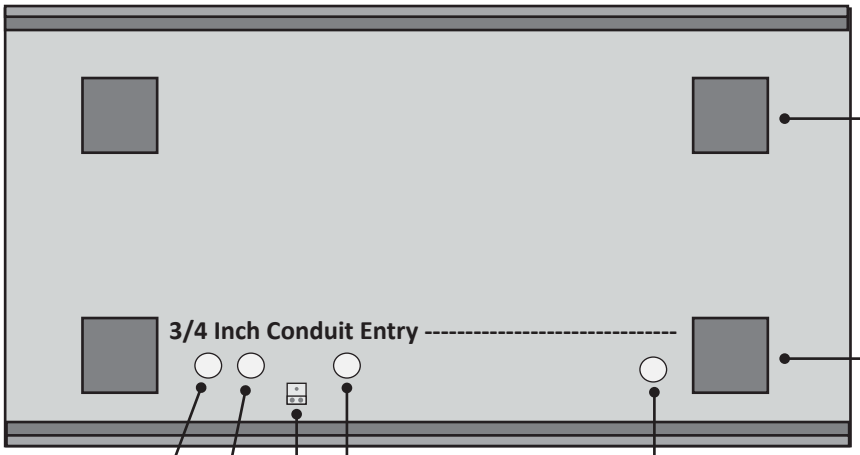


Power Supplies:
These provide power to the LED Modules and internal components.



Power Terminal Block:
This is where the main power is connected. Leads are connected at the factory to the Terminal Block, and run out the back of the sign for easy access. On larger signs, there will be multiple Terminal Blocks.

BACK VIEW



Exhaust Vents:
Pushes air out from the display
DO NOT BLOCK

Intake Vents:
Fresh air is pulled from outside
DO NOT BLOCK

Grounding Lug
Connect to Ground Rod

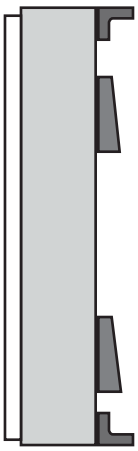
M-S Backup
Where the backup cable is run to connect multi-faced signs.

Comm/Data Entry:
The communications/wireless radio and temperature probe cables are run through here.

Master/Slave Data:
Where the cable is run to connect multi-faced signs.

Power Entry:
The main power is run through here. Location Varies.

SIDE VIEW



Steel Angle:
2" Continuous steel angle used for mounting displays.

Note: 3" is typically used for displays larger than 5' x 12'. See shop drawing to confirm.

UN-CRATING

The LED display is typically shipped 2 sign faces per crate. For larger signs, the sign is shipped in multiple crates for each section. Take great care while unloading and un-crating the displays and follow all safety guidelines. These guidelines are not all inclusive. Damage after delivery due to improper lifting is not covered by the warranty.

Important Notes

- Unpack the display from the crate in a clear and unobstructed area. It is recommended that a handler should be on each side of the crate when the display is lifted out.
- Do not open the sides of the crate during unpacking. The sides provide support to the display(s) and prevent them from toppling, removing the sides may result in severe damage to the display face.
- Eyebolts are for lifting a single LED Display at a time. Eyebolts cannot be used to lift the sign if it is attached to another sign section or a prefabricated frame.
- If you have a double sided sign, they are typically shipped face to face to avoid external LED damage. Take care when lifting not to drag the sign faces together.
- Lower the display to a solid, stable, flat surface. If the display appears unstable or is at risk of being knocked over by wind or other means, secure the display to a solid anchorage with straps or cable.

CRATING EXAMPLES:

Small Crate with Top Removed

Top open, showing double sided display, shipped face to face with packing material.

Accessories inside of crate.

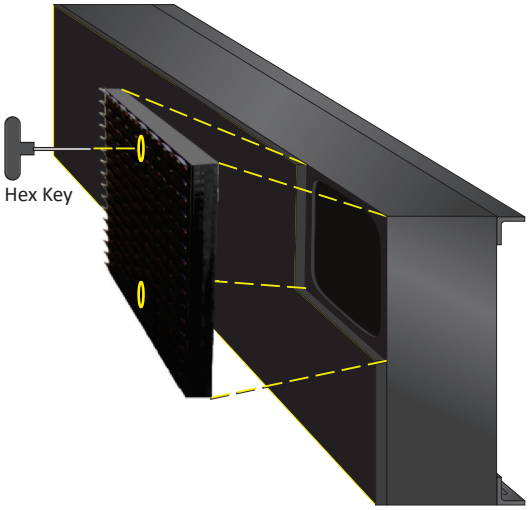
Larger Crate showing skids and interior.

UN-PACKING CHECKLIST

- [ ] LED Display (make sure each section is there).
- [ ] Lifting Bolts
- [ ] Connection and Wiring Guide
- [ ] Software (N/A when using SM Infinity)
- [ ] Communication Devices (Optional)
- [ ] Temp Probe or Brightness Sensor (Optional)
- [ ] Additional Software or Hardware Ordered

OPENING THE SIGN

Prior to lifting the sign, you may need to access the internal components, check the data connections, or re-seat a cable that was knocked loose during shipping. These are accessed from the front of the sign, by removing individual LED modules. Use the location diagram shipped with your particular sign to locate the appropriate component.

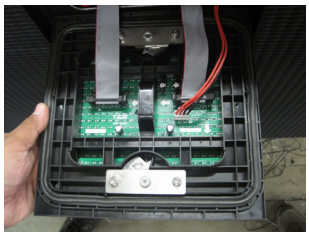


The modules use a **2.5mm Hex Key** (Allen Wrench) for removal.

Insert the Hex Key and twist to the left about 1/2 to unlock each location.

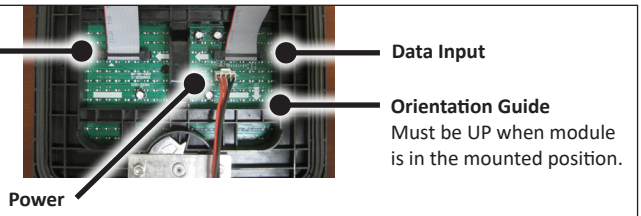
Gently pull out the module, taking care not to pull the cables out.

The data and power cables can be disconnected at the module. Avoid dropping the cables inside the sign.
Do Not hang module by Cables



RE-INSTALLATION OF MODULE:

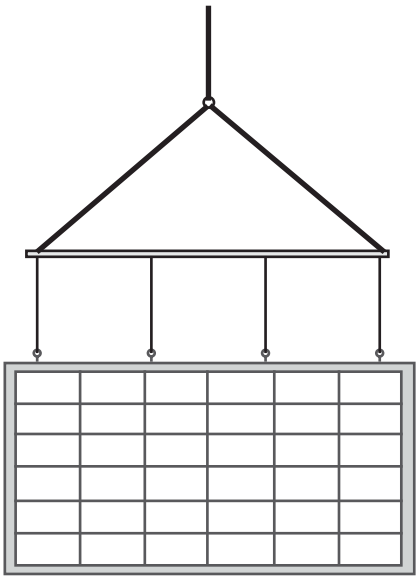
- Take care to connect the cables back in the original locations
- Make sure module is installed right side up.
- Double check the locks and make sure they are secure all the way around. This avoids water entry due to partially sealed LED Modules.



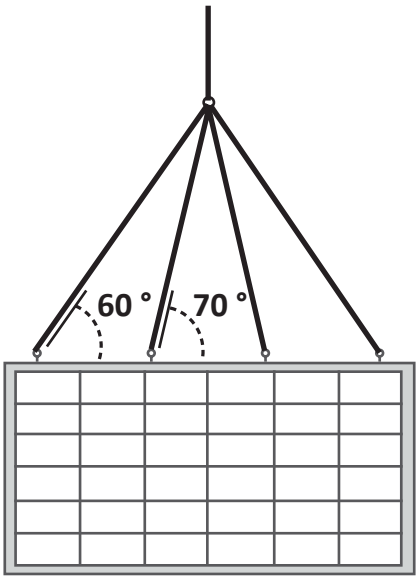
LIFTING

The sign must be lifted with care to avoid damage or injury. Lifting eye bolts are provided, and should be removed after installation. It is the installers responsibility to provide a safe lift. These instructions are only a general guide. All necessary precautions should be taken to assure a safe lift.

- Use EVERY Lift point provided
- A spreader bar is recommended to ease the side pull on the lifting bolts.
- The lifting straps should be long enough to allow no less than **60 °** on the inside angle.
- Only use the lifting eye bolts on (1) section at a time, as they shipped to you. Lifting multiple sections and/or substructures may overload the bolts, causing the sign to fall.



RECOMMENDED METHOD



ALTERNATE METHOD
(AVOID IF POSSIBLE)

INSTALLATION GUIDELINES

It is the installers responsibility to provide an adequate support structure for the sign, conforming to local and national building codes. The diagrams below are not to be used as an official structural or engineering drawing.

MOUNTING STRUCTURE

The sign ships with 2” steel angle pre-mounted to the back, along the top and bottom of the sign. 3” Angle is typically provided on signs larger than 5’ x 12’. See shop drawing to confirm.

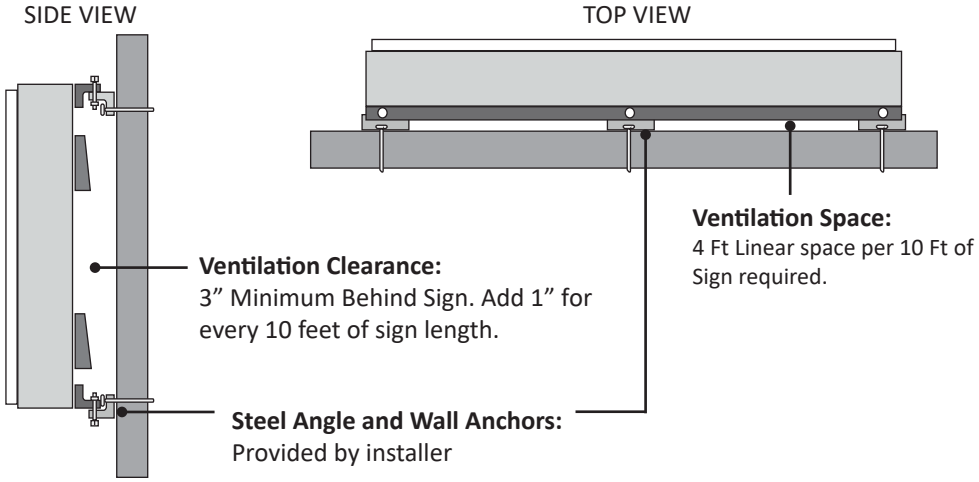
- The sign MUST be mounted using this angle.
- Do not mount directly to the case or remove the angle.
- Both the top and bottom angles should be utilized to ensure structural stability

LED Display weight, size, wind conditions, soil and building codes are important factors that must be taken into consideration when installing an LED sign. To avoid damage or injury, the structure should be designed by a licensed installer or engineer.

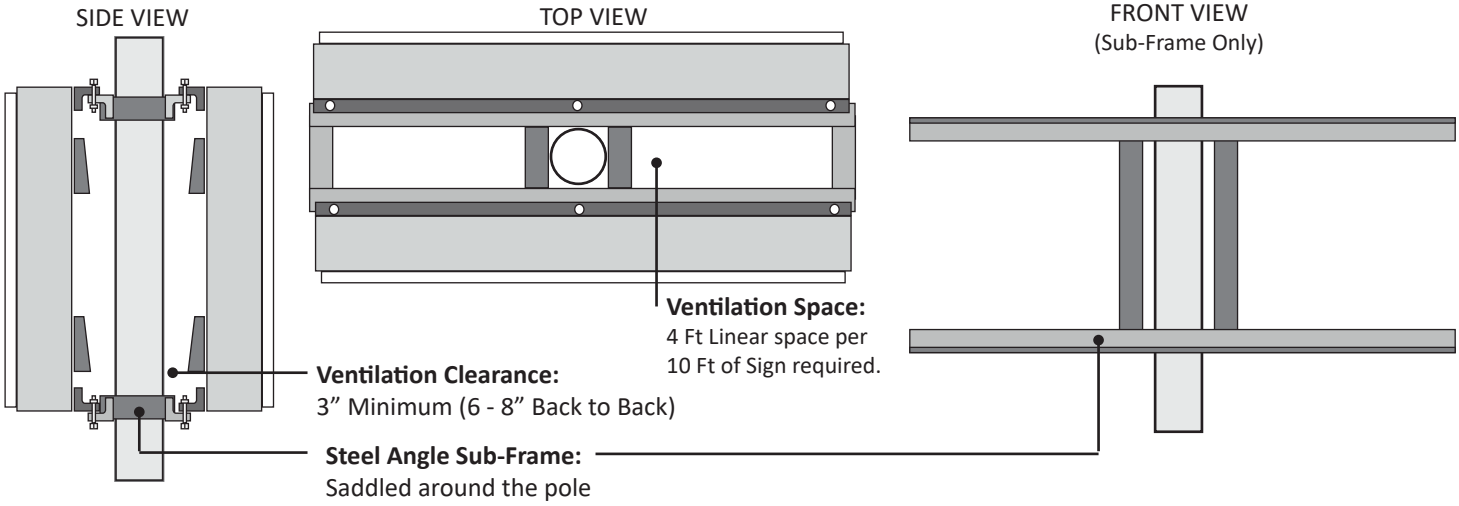
COMMON INSTALLATIONS

Although sign installations vary greatly in complexity and size, there are some common approaches shown here. Actual installations have specific needs and requirements. The illustrations below demonstrate a concept only, and should not be used as official structural or engineer drawings.

WALL MOUNT



POLE MOUNT

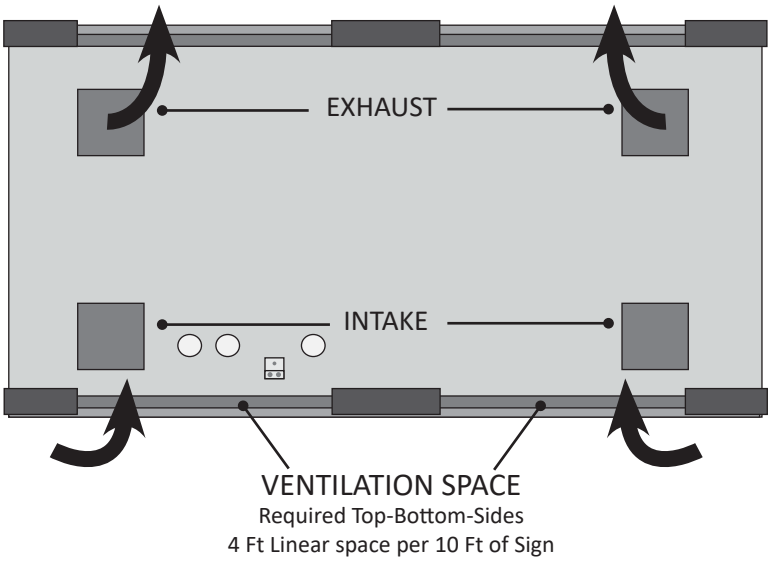


VENTILATION

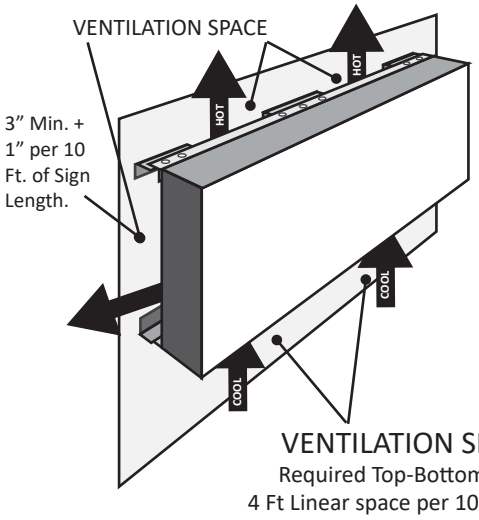
Adequate ventilation must be provided or the sign may overheat causing damage that is not covered by warranty. Intake and exhaust vents are located on the back of each sign. The fans inside the sign push the air out the exhaust on top, while pulling in fresh air from the intake vents on the bottom. Access to fresh air must be provided to **maintain warranty coverage** and avoid damage.

- **Do not** block the intake or exhaust vents on the back of the sign with any part of the structure.
- Allow a minimum of 3” behind the LED sign and 6-8” when back to back. For Wall installations, add 1” for every 10 feet of sign length.
- Open Ventilation Space is required on the Top, Bottom and Sides of mounting structure. 4 feet of linear space required per 10 feet of sign length for the top and bottom. This must be evenly spaced. (See Diagram)
- Allow a min. of 2” space around cabinet when installing with other signs or structures and 5” behind the sign for recessed projects.
- Ambient air temperature in and around structure must be between -22F and 120F to avoid damaging the display components.

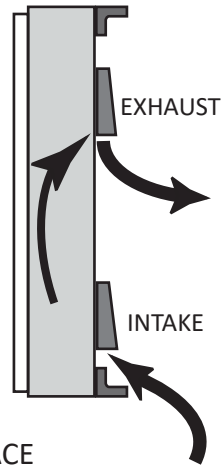
REAR VIEW



PERSPECTIVE

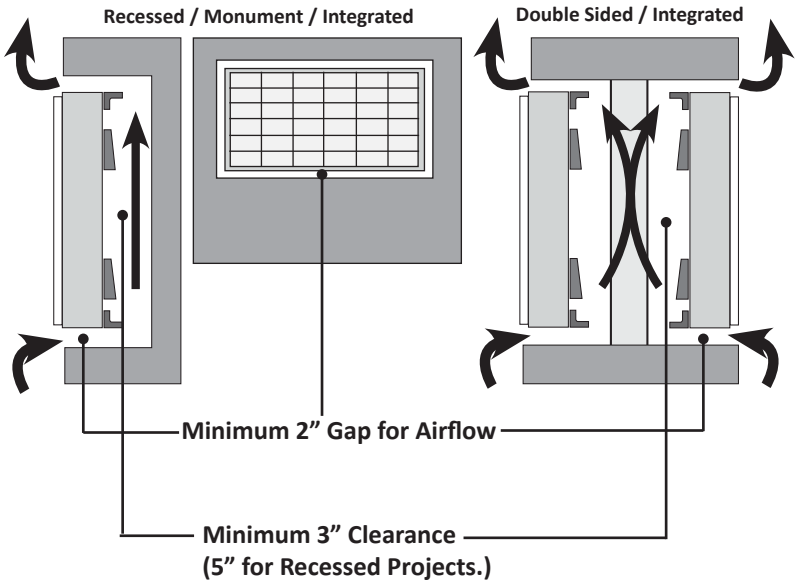


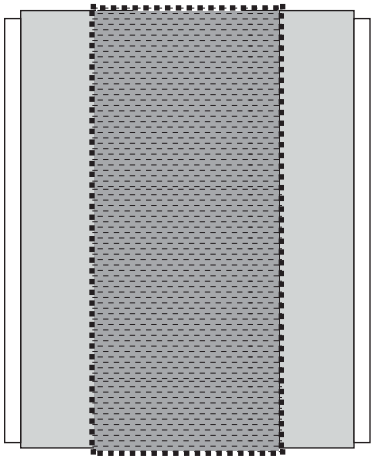
SIDE VIEW



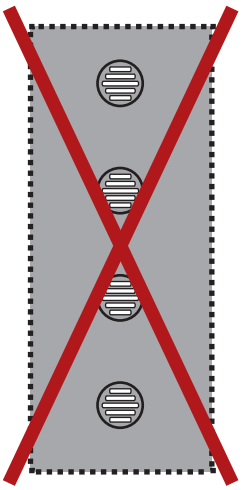
RECESSED OR INTEGRATED INSTALLS:
When installing into a recessed structure **or integrated with other sign structures** you must provide gaps to allow cool air to be pulled into the sign. When covering gaps, 1/16” perforated aluminum is recommended to allow the most airflow.

SKINNING:
When skinning the structure, you **MUST** allow airflow between the sign around the **Top, Bottom and Sides.** 1/16” Perforated Aluminum is highly recommended as it provides the most airflow, while still hiding the structure.
Warning: *Do Not Use Soffit Vents (Round or Square)*





Perforated Aluminum (Recommended)



(Do Not Use)

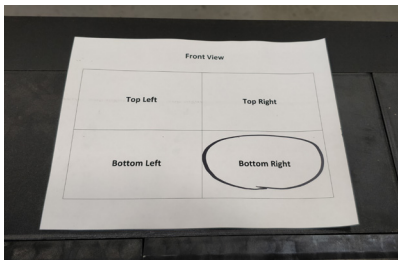
MULTIPLE SECTIONS

Larger signs may ship in multiple sections to be assembled on-site. In these cases the same structure and ventilation requirements apply, but with additional items to consider for assembly and installation.

RECEIVING

Sections will ship in separate crates, 1-2 sections per crate. Crates and Sections are labeled, keep labels attached to ensure correct assembly.

A **Connection Diagram** is shipped with every project that includes the location of all components, power leads, and power requirements.

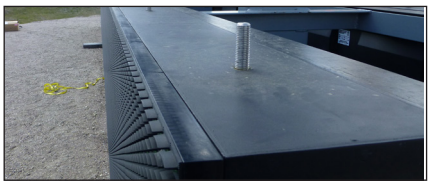


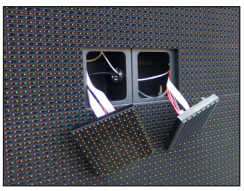
ASSEMBLY

3” steel angle is provided on the back of each section for use when mounting to your superstructure. 2x2 square tubing also incorporated to provide support. Assemble on a flat/level surface to ensure proper alignment. Do not lift sections all together without a superstructure.

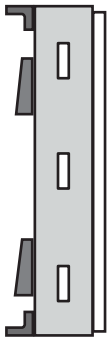
Sections can be assembled to a superstructure on the ground first then lifted **or** assembled onto a superstructure already installed.

Note: The sections are <u>not</u> designed to be lifted all together without a superstructure.





Guide bolts are built into the top of each section that mate with the section above. They are then secured with heavy duty nuts from inside the cabinets by removing the appropriate LED modules at each guide bolt location.

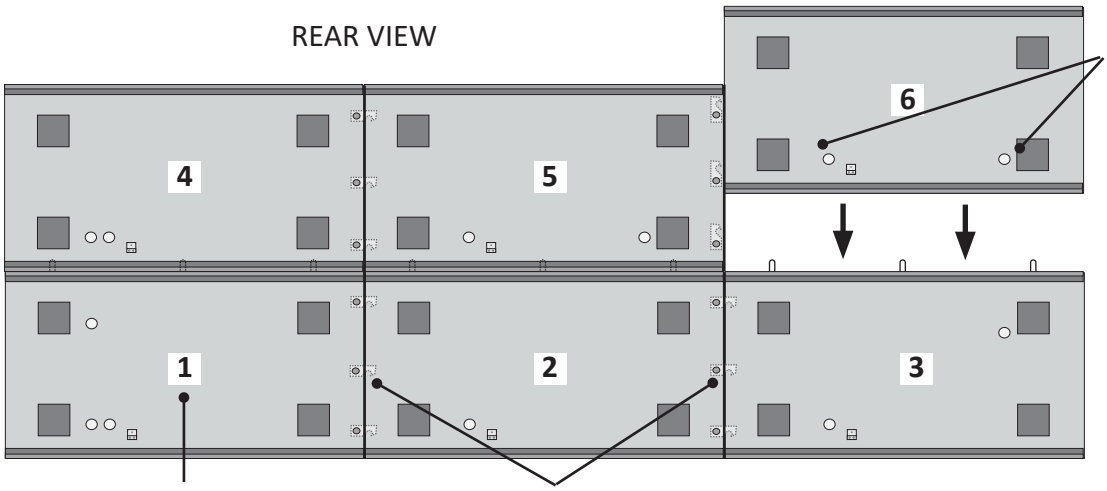


Side View

Lock the sides of each section together with latches using the key shipped with each project.

The number of latches varies with the size of the display sections.

REAR VIEW



During assembly, take care not to pinch power or data cables pre-connected to the section.

Assemble the sections starting on the bottom, and work in rows from one side to the other.

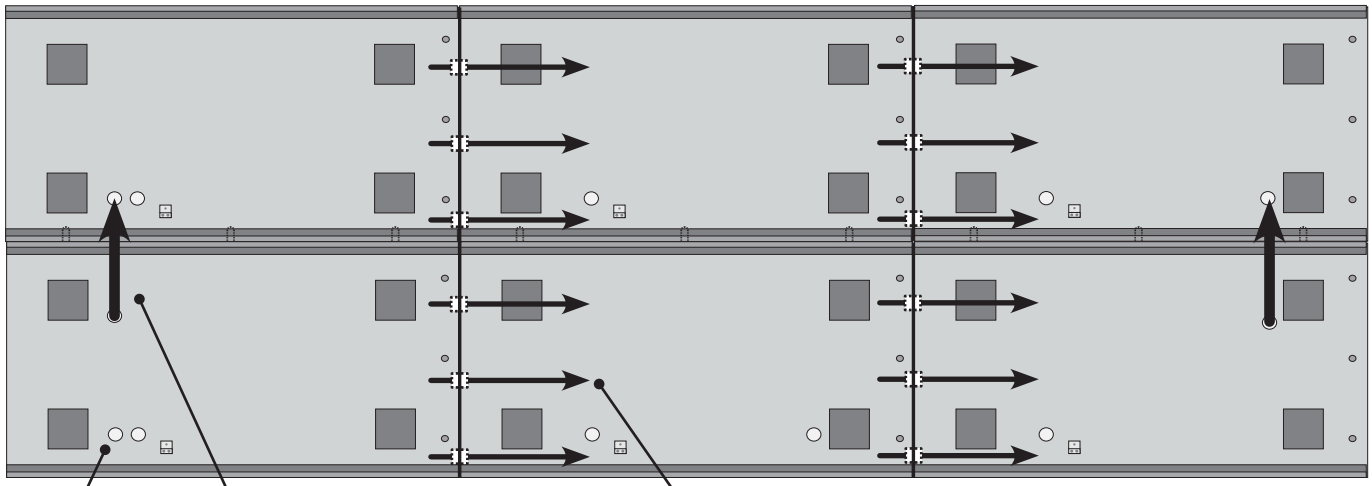
Insert and turn the key to engage the internal latches that connect the sides together. Do this for every latch and every section.

If fine tuning is needed to close any gaps during assembly, the bolts on the steel angle can be loosened for adjustments, then tightened.

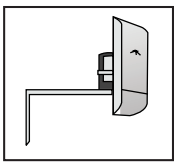
MULTI-SECTION DATA CONNECTIONS

*SEE **DATA CONNECTIONS** SECTION FOR ADDITIONAL REQUIREMENTS*

Vertical connections use external flex conduit (provided). Horizontal connections are run internally.



COMMS

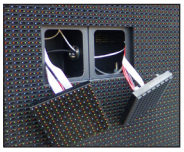


Entry Point for Communications Cable for Hard Line, Wireless Radio, or other options. May also include accessories like a Temp Probe or Light Sensor.

VERTICAL DATA

Run the pre-connected cable into the section above using the provided flex conduit on the back of the display. Then make the internal connection to the **Logic Board** from the front of the sign (See next instructions)

HORIZONTAL DATA (INTERNAL)

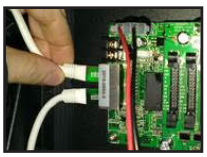


Open Modules

Conduit Coupler

Tool

Data Cable



Logic Board

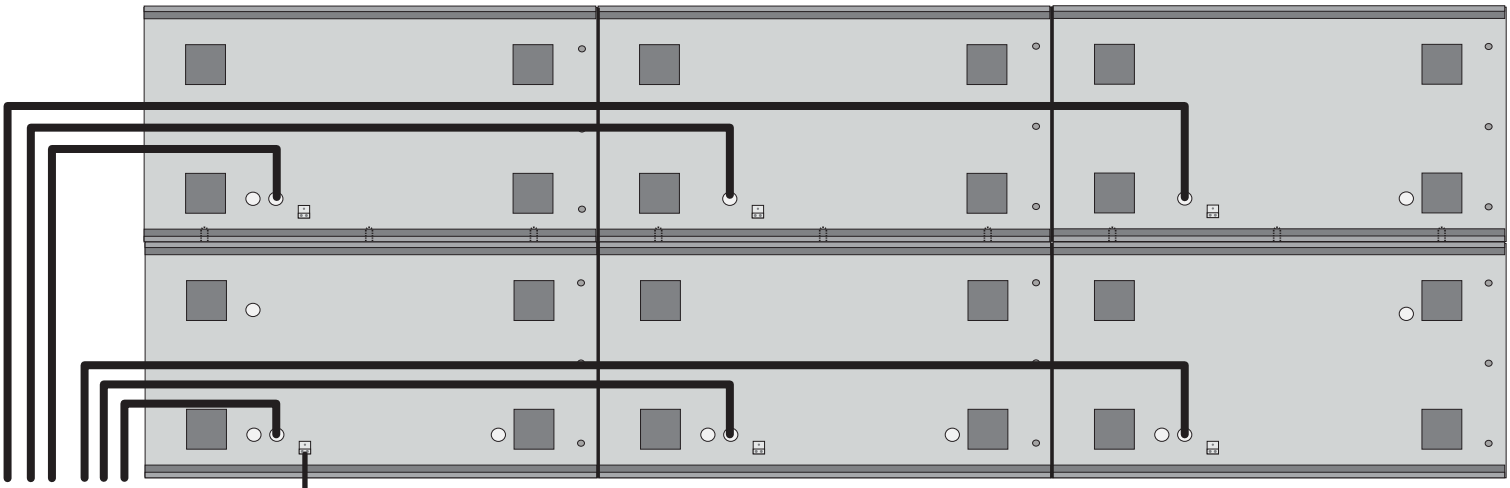
Horizontal Data cables are run internally through internal Conduit Couplers that are provided for each section (vertical connections use external flex conduit).

- Open the LED Modules on the front where the sections meet (check the connection diagram that ships with the display).
- Install the Conduit Couplers thru each section joint using the tool provided. **Note: Use one o-ring on each side of the cabinet.**
- Pull the data cable through to the next section, and connect to the **Logic Board**. (check the connection diagram for location of the logic boards).

MULTI-SECTION POWER and GROUNDING CONNECTIONS

*SEE **POWER CONNECTIONS** SECTION FOR ADDITIONAL REQUIREMENTS*

Each section has its own power leads to connect to main power, and grounding lugs for earth grounding.



POWER LEADS

Short leads (20A Max) are provided from each section. They can be extended to run to individual breakers or combined, as long as breaker sizes and wire sizes meets N.E.C. requirements.

TO GROUND ROD

GROUND LUGS

- Lugs are provided on each section, but only **one per sign face** is required to be connected to the grounding rod via copper ground cable.
- However, they are double barreled to allow connecting multiple lugs to a single grounding rod. Useful when grounding a double sided display.

DATA CONNECTIONS

The sign is shipped with Data and Power entry points on the back of each sign face. Typically, short leads are provided at each power entry point, and data cables are pre-connected at the factory when possible. All electrical connections should be done by a licensed electrician, following national and local electrical codes.

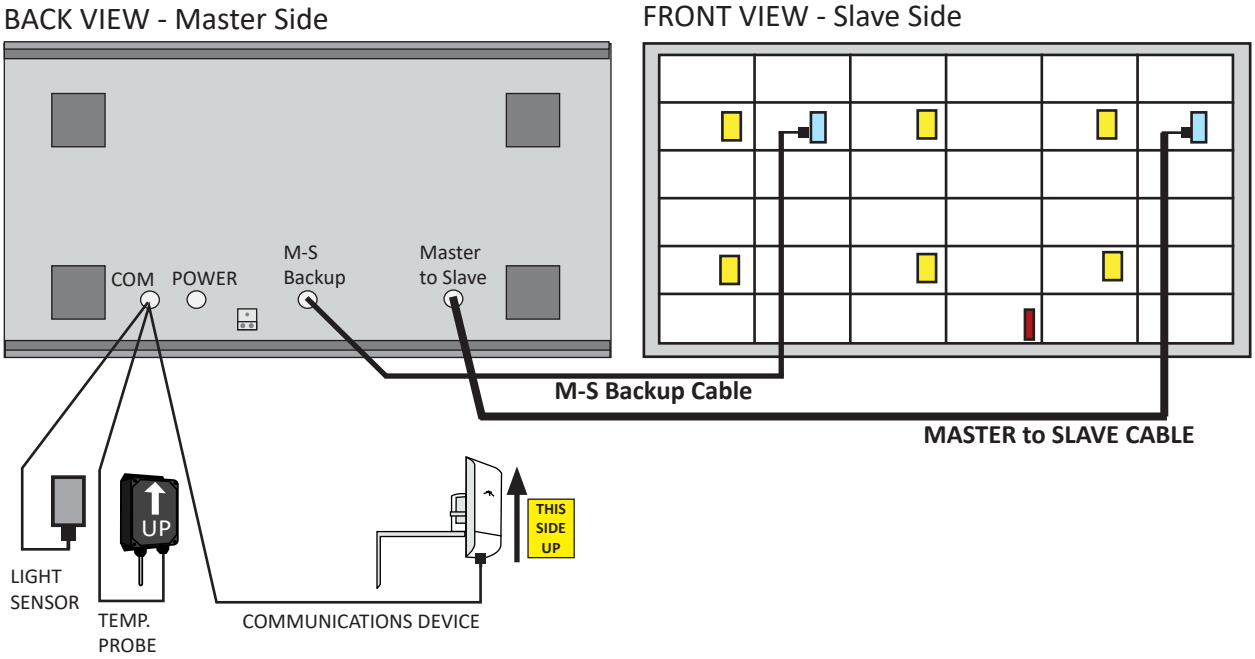
Power, Master/Slave and Data Entry

Communication Entry Point

Power and Master/Slave Entry

DATA CONNECTIONS OVERVIEW

- Please reference the Location Diagram shipped with your sign for specific component location.
- There are no Master/Slave or M-S Backup cables for single sided signs.



OPTIONAL ACCESSORIES

LIGHT SENSOR or TEMPERATURE PROBE

- Mount w/Cable at bottom.
- Mount in area that receives the greatest amount of daylight.
- DO NOT mount to the sign cabinet.

COMMUNICATIONS DEVICE OPTIONS:

Use the instructions shipped with the specific communication option. See the communications section of this manual for an overview.

- Wireless Radios (Shown)
- Hard-wired Network Cable
- Cellular Modem Antenna
- Fiber Optic
- Custom Options

CONNECTION BETWEEN TWO FACES (Primary to Secondary)

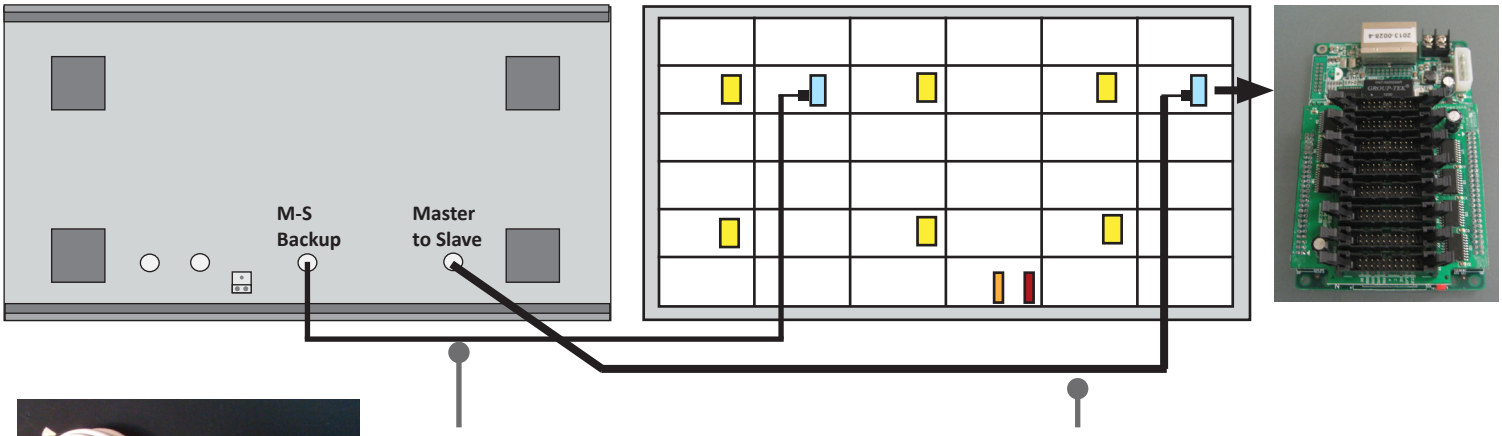
Signs are equipped with a backup Master to Slave data system that helps isolate any data issues on the sign. This requires (2) cables to be connected from the Master Face to the Slave Face.

- Please reference the Location Diagram shipped with your sign for specific component location.
- There are no Master/Slave or M-S Backup cables for single sided signs.

BACK VIEW - Master Side

FRONT VIEW - Slave Side

LOGIC BOARD



Master/Slave Cable

Access Module (labeled)

M-S BACKUP CONNECTION CABLE
Pre Connected to the *MASTER* Sign

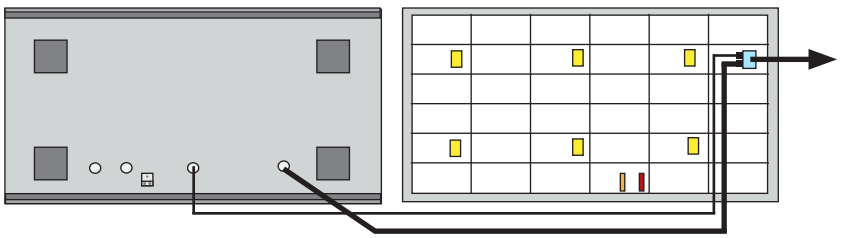
- Run Cable to SLAVE side entry point on back of sign
- Open LED Module on front of sign (labeled)
- Connect Data Backup Cable to the LOGIC BOARD (See Illustration)
- If there is more than one LOGIC BOARD, connect to the board on the far left.

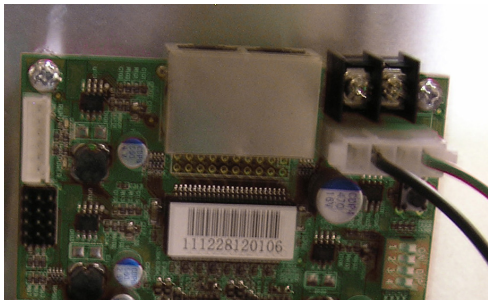
MASTER to SLAVE CONNECTION CABLE
Pre Connected to the *MASTER* Sign

- Run Cable to SLAVE side entry point on back of sign
- Open LED Module on front of sign (labeled)
- Connect Master/Slave cable to the LOGIC BOARD (See Illustration)

SIGNS WITH ONLY ONE LOGIC BOARD

- The Master to Slave and M-S Backup cables connect to both ports on the single Logic Board.
- Logic Board Ports are Interchangeable.



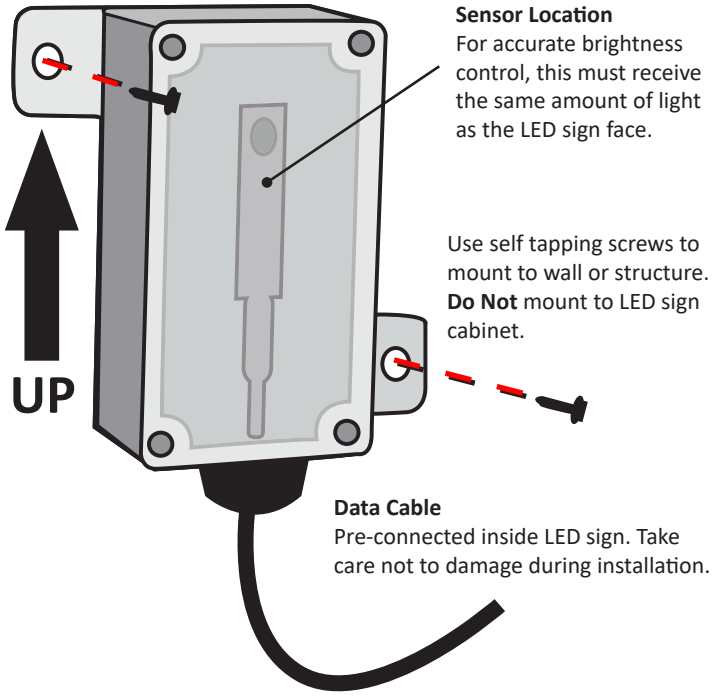


Logic Board Ports

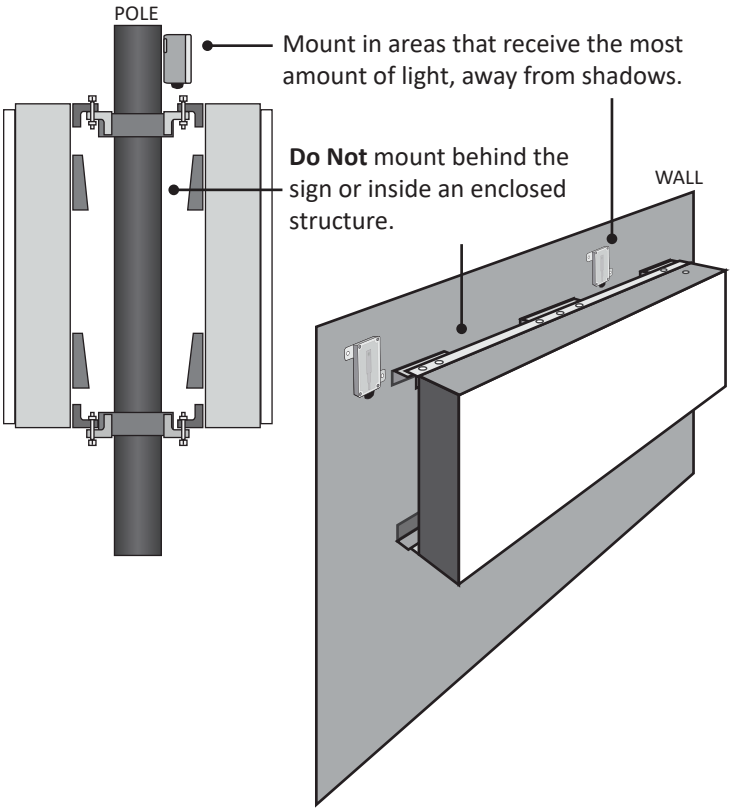
LIGHT SENSOR (Optional Equipment)

- **The Light Sensor MUST be mounted in a position to receive the same light as the LED sign face.**
- **DO NOT Mount the Light Sensor directly to the sign cabinet.**
- **The Light Sensor MUST be mounted right side up, or water damage will occur and warranty void.**
- **The Light Sensor is pre-connected to the hardware inside the sign. The data cable is run through the "COMM" port, along with the Communications Cable and Temperature Probe Cable (optional).**
- **Take care not to damage the Light Sensor or cable during installation.**

MOUNTING INSTRUCTIONS



IDEAL MOUNTING LOCATIONS



CORRECT MOUNTING

- **Receiving the same light as the sign.**
- **Mounted away from shadows**
- **Unobstructed by any structures or enclosures.**
- **NOT mounted on LED Sign Cabinet**

NOT CORRECT

- **Mounted in a dark area.**
- **Obstructed by existing structures and components.**

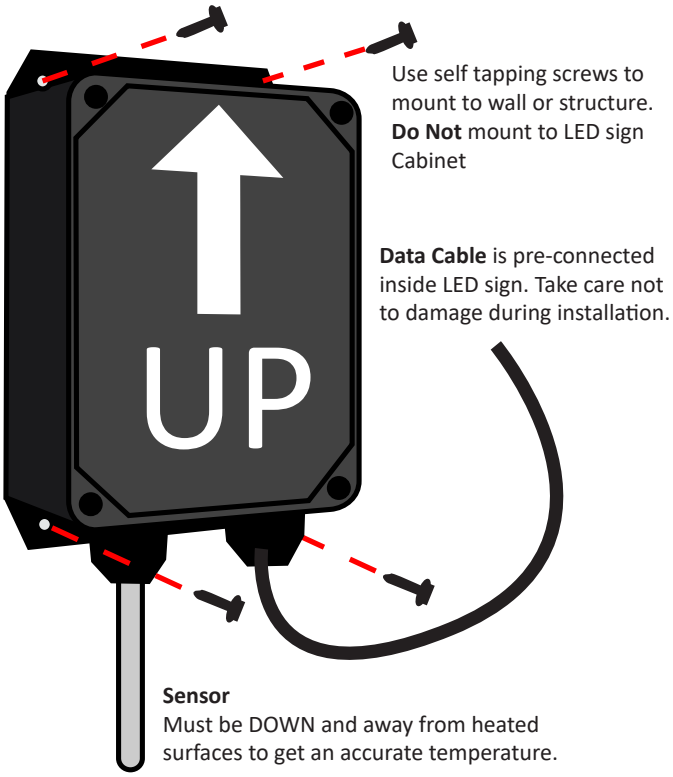
Please contact your Dealer or Factory Support with any questions on the correct installation of the Light Sensor.

TEMPERATURE PROBE (Optional Equipment)

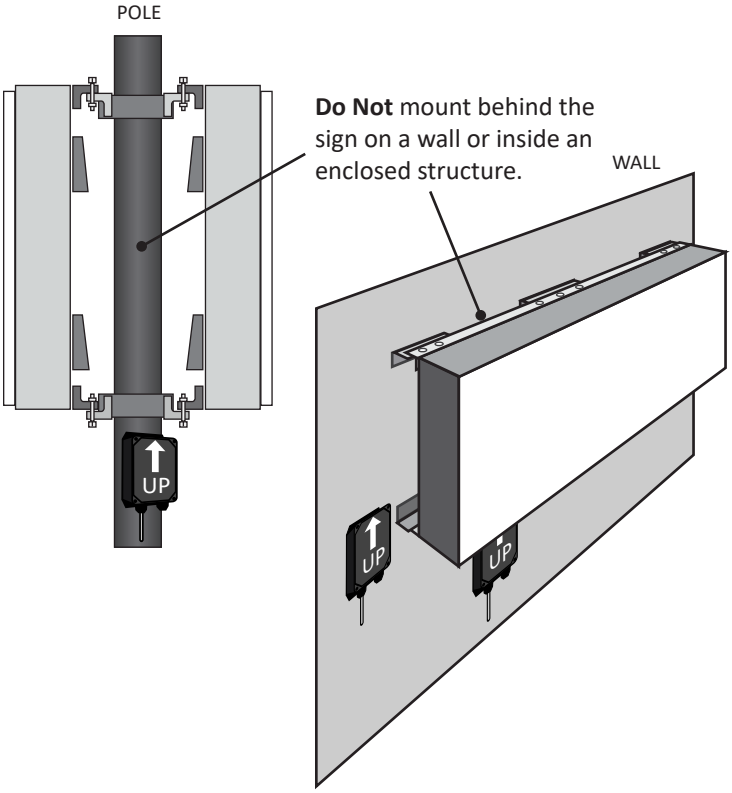
LightSpeed Software Only - Projects configured with SM Infinity use online temperature data.

- **The Temperature Probe MUST be mounted right side up, or water damage will occur and warranty void.**
- **DO NOT Mount the Temperature Probe directly to the sign cabinet.**
- **DO NOT Mount the Temperature Probe behind the cabinet, near the exhaust vents, or any other false source of heat or cold.**
- **The Temperature Probe is pre-connected to the hardware inside the sign. The data cable is run through the "COMM" port, along with the communications Data Cable (Wireless or Wired).**
- **Take care not to damage the Temperature Probe or cable during installation.**

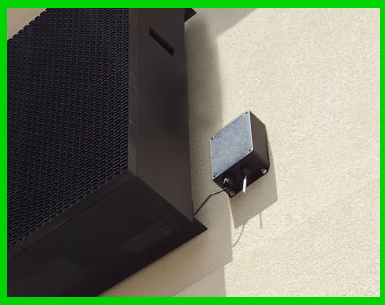
MOUNTING INSTRUCTIONS



IDEAL MOUNTING LOCATIONS



CORRECT MOUNTING



- **Sensor facing down.**
- **Away from exhaust vents and other heat sources.**
- **Not mounted to sign cabinet.**

NOT CORRECT

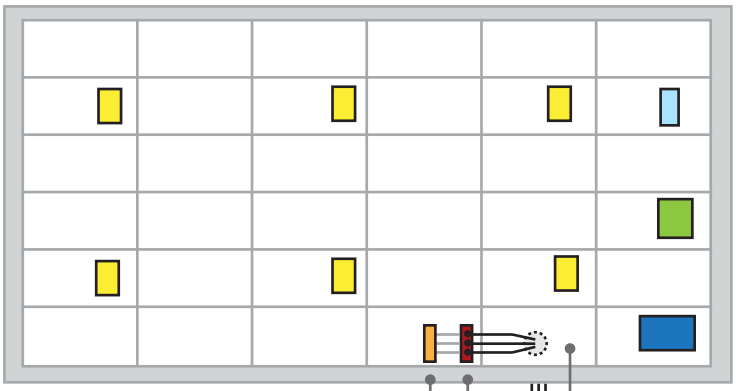
Please contact your Dealer or Factory Support with any questions on the correct installation of the Temperature Probe.

POWER CONNECTIONS

- Main electrical connections should be done by a licensed electrician following all N.E.C. and Local codes.
- Clean, properly grounded power with the correct voltage, wire size and breaker size must be supplied to the sign or damage will occur and warranty voided.
- A proper Earth Ground must be run from the sign, to a grounding rod using N.E.C. standards. connections should be done by a licensed electrician, following national and local electrical codes.

MAIN POWER:
Each sign face has a power entry point with a pre-connected "lead" or "whip". Larger signs will have more that one lead, depending on amperage. Generally each lead will not pull more than 16 Amps. Please see the diagram that shipped with your sign for specific Voltage, Amperage, and number of leads provided. The suggested breaker size is for reference only. The electrician is responsible for breaker size according to N.E.C and Local codes.

FRONT VIEW INTERIOR



Entry Point with Lead

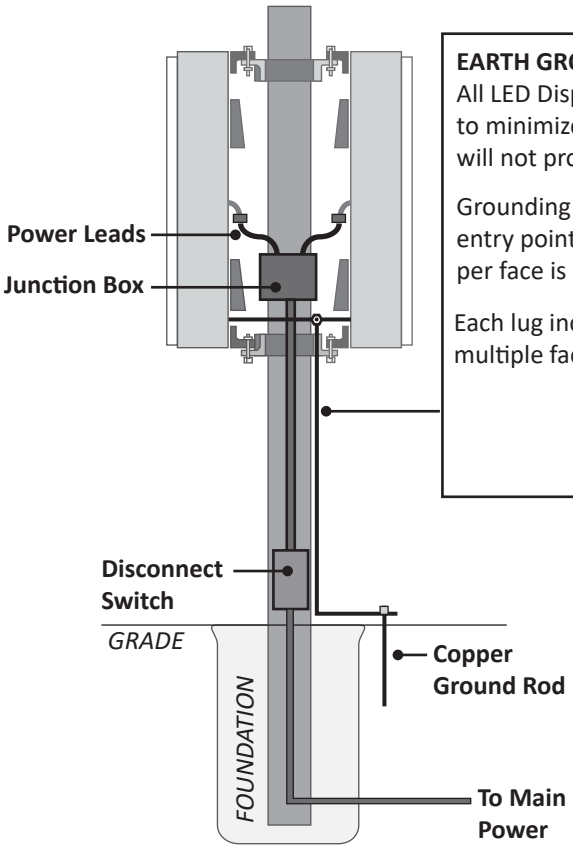

Large Sign with Multiple Leads

Surge Protector (Optional)

Power Terminal

Entry Point with Conduit Connector

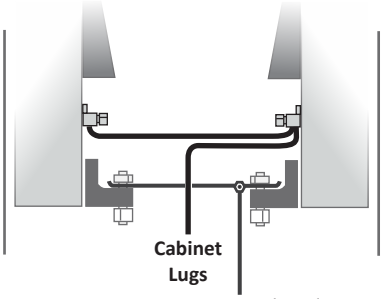
Electrical Lead:
Pre-connected to Surge Protector (if equipped) or Power Terminal inside the sign.



EARTH GROUND
All LED Displays must be earth grounded using a properly installed copper ground rod to minimize static currents and lightning damage. The sign structure or foundation will not provide a sufficient earth ground.

Grounding Lugs are provided at every electrical entry point for convenience. However, only (1) lug per face is required to be used.

Each lug incorporates dual barrels to allow multiple faces, to connect to a single ground rod.



EXTERNAL DISCONNECT SWITCH REQUIRED PER N.E.C

The location of the disconnect switch after installation MUST comply with Article 600 of the National Electrical Code (600.6).

http://www.nfpa.org/70

BEFORE DISPLAY POWER UP:

- Conduit fittings must be tight & sealed.
- Conduit run must not block access.
- Check connections for exposed wires.
- Clear any fabrication debris.
- Turn on main power and verify proper voltage is supplied.

COMMUNICATIONS and SOFTWARE

Verify the communications and software type configured with your display. If you are using a custom or 3rd party option, contact the 3rd party or follow the instructions shipped with the custom project.

SM INFINITY (Online)

The display MUST be connected to the internet using a Cellular Modem option at the sign, OR using the internet connection at the building with wireless radios or other communication option. This means the communication device or cable at the building must connect to a network switch or router.

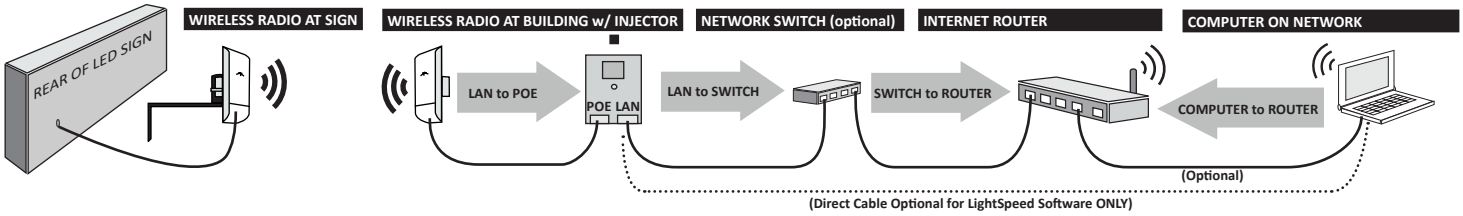
LIGHTSPEED (Local)

The display is controlled directly from a computer with the software installed. With this option, communications can be connected directly to a single computer, OR over a network. Internet access is not required by the sign. If using live video the software is pre-installed on the controller or workstation in the press box.

COMMUNICATION OPTIONS (See instructions shipped with your display)

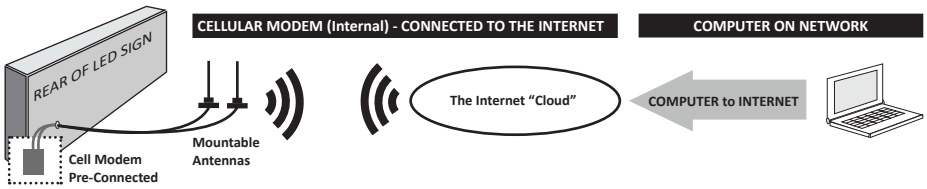
WIRELESS RADIOS

- *SIGN END Radio MUST be mounted outside display structure.*
- *OFFICE END radio must be installed at the building.*
- *BOTH Radios MUST have good signal strength between them (Signal Lights on Back)*



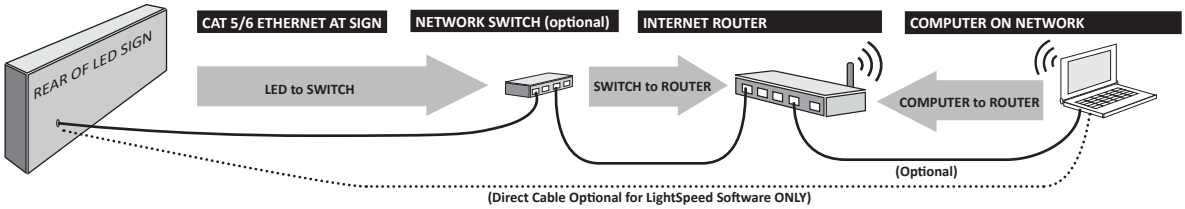
CELLULAR MODEM (Internal) with EXTERNAL ANTENNAS

- *Antennas MUST be mounted outside display structure in open, away from materials that block cell signal.*



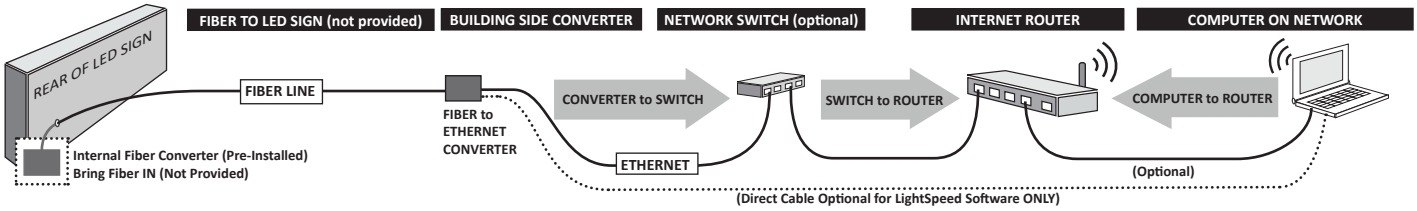
HARD WIRED - ETHERNET

- *Standard Cat5/6 network cable can be used to connect the controller inside the sign, to a network or computer.*



HARD WIRED - FIBER OPTIC CONVERTERS (ETHERNET to FIBER)

- *We provide two converters. One pre-installed in the sign, and the other to be installed at the building.*
- *We DO NOT provide the fiber optic cable.*



SM Infinity ™ - COMMUNICATIONS

The display needs to connect to SM Infinity in order to modify content and updates. Unless the display shipped with a Cellular Modem, the display will use your local network to connect to SM Infinity online.

Before you Start:

- Make sure the display is powered on.
- Verify the communication devices have signal.
- Verify the communication device at the building is plugged into the network switch or router.

WARNING: If you are unfamiliar with Network Configuration, please contact your Network Administrator, Tech Support, or your display provider for assistance. These instructions carry no guarantee, and no liability.

AUTOMATIC (DHCP)

This is the default, and most common configuration for displays using SM Infinity. The controller in the display is pre-configured to automatically get an IP address from your network and try to go online.

- After connecting all devices and power, go to **sminfinity.com** and login to your account. If you did not get an account, please contact your dealer or support for assistance.
- Verify if the display is online in the My Displays section of SM Infinity.

If the display is not connecting to the internet.

- Turn the display OFF, wait 30 seconds, then back ON. Wait 10-15 minutes, then check sminfinity.com again.
- Verify your network isn't blocking the display from SM Infinity. The following domains, and all sub-domains, must be allowed on your network.
    - sminfinity.com
    - sminfinitymedia.com
- Contact your network admin, or support for further assistance if needed.

MANUAL IP CONFIGURATION

If requested, your display may have been manually configured at the factory for a static IP address. In most cases, this is requested by an IT or Network team prior to shipment. After connecting all devices and turning on power, you'll need to temporarily configure your computer, set the IP address of the display, then connect it to your network and verify connection to SM Infinity.

A quick guide is below for IT professionals, or those comfortable with networking. Detailed instructions are provided later in this guide.

QUICK NETWORK GUIDE (use only if you are familiar with networking)

1. Use a computer on the same network as the sign to verify the existing IP network information by using **ipconfig /all** in a **cmd** window (IP, SUB, Gate, DNS)
2. Configure the network adapter with the same ip settings provided by DHCP (IP, SUB, Gate, DNS) to avoid any IP conflicts, then add a secondary IP address to the adapter on the same range as the sign (IE 192.168.0.100) using the **Advanced** button.
3. Apply the settings then **Ping** the LED sign's default IP address (192.168.0.2) to verify settings and local communication with the sign.
4. Use UltraVNC (vantageled.com/download) to remotely log into the LED Sign Controller. Contact the dealer or factory support for the password.
5. Use the "Minimize" button on the SM Player to access the desktop. *Note: the sign will go blank during this process.*
6. Configure the LED Sign Controller's network adapter to a compatible scheme for the existing network, including IP, SUB, Gate, and DNS. Make sure to use an IP address that will NOT be used for another computer over DHCP.
7. Add a secondary IP to the adapter (Advanced button) set to the default IP address of the sign as a fail-safe.
8. Apply the settings. This will may disconnect the VNC session while the settings are changed.
9. Log back in with UltraVNC with the NEW IP address and verify the controller has access to the internet. Once confirmed, close all open windows, maximize the SM Player application, and exit out of Ultra VNC.

The sign will now sync with the SM Infinity servers over the internet and any changes made in the SM Infinity account will be reflected on the sign. If there are any issues or questions, please contact your Dealer or Factory Support team.

LightSpeed (SignScheduler) - COMMUNICATIONS

The display is managed by a computer connected directly to the display, or over a network. This option does NOT require the display to be connected online, but does require you to install the LightSpeed software on your computer. If this is a Live Video configuration, you will use the software pre-installed on the workstation or controller.

WARNING: If you are unfamiliar with Network Configuration, please contact your Network Administrator, Tech Support, or your display provider for assistance. These instructions carry no guarantee, and no liability.

Before you Start:

- Make sure the display is powered on.
- Verify the communication devices have signal.
- Verify the communication device at the building is plugged into your computer directly, or over a network.

MANUAL IP CONFIGURATION

By default, the display's IP address is 192.168.0.2. However, if requested, your display may have been manually configured at the factory for a different IP address. In most cases, this is requested by an IT or Network team prior to shipment.

After connecting all devices and turning on power, you'll need to temporarily configure your computer, set the IP address of the display, then verify connection directly or across your network.
A quick guide is below for IT professionals, or those comfortable with networking. Detailed instructions are provided later in this guide.

QUICK NETWORK GUIDE (use only if you are familiar with networking)

1. Use a computer on the same network as the sign to verify the existing IP network information by using **ipconfig /all** in a **cmd** window (IP, SUB, Gate, DNS)
2. Configure the network adapter with the same ip settings provided by DHCP (IP, SUB, Gate, DNS) to avoid any IP conflicts, then add a secondary IP address to the adapter on the same range as the sign (IE 192.168.0.100) using the **Advanced** button.
3. Apply the settings then **Ping** the LED sign's default IP address (192.168.0.2) or the IP address requested by your IT team to verify settings and local communication with the sign.
4. Use UltraVNC (vantageled.com/download) to remotely log into the LED Sign Controller. Contact the dealer or factory support for the password.
5. You will see the SignPlayback application running and playing content on the top left corner of the screen. Avoid windows in this area as they will show up on the display.
6. Configure the LED Sign Controller's network adapter to a compatible scheme for your existing network, including IP, SUB, Gate, and DNS. Make sure to use an IP address that will NOT be used for another computer over DHCP.
7. Add a secondary IP to the adapter (Advanced button) set to the default IP address of the sign as a fail-safe.
8. Double check, then apply the settings. This will may disconnect the VNC session while the settings are changed.
9. Log back in with UltraVNC with the NEW IP address and verify the controller communications. Once confirmed, close all open windows, make sure the SignPlayback application is running, and exit out of Ultra VNC.

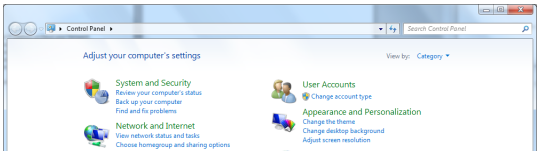
You can now send messages to the display using the LightSpeed software installed on any computer with access to this display directly, or over your network.

1. Install LightSpeed (SignScheduuler) from the disc that shipped with the display.
2. Go to **Tools>Options** and select **TCP/IP**.
3. Add the IP address of your display and save. (leave the port at the default setting)
4. Press OK
5. Begin creating and sending content to your display. Use the Help menu or go to vantageled.com/online-training for instructions on using LightSpeed.

MANUAL IP CONFIGURATION - CONFIGURE YOUR IP ADDRESS

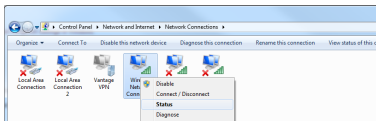
NOTE: The instructions below assume you want to have your computer connected to both the display and your network/internet. If you are using LightSpeed and only want to connect directly to the sign, you can skip steps 3-4, and simply change your main IP address on step 7, then save.

1. Go to the Windows **Start** menu and select **Control Panel**

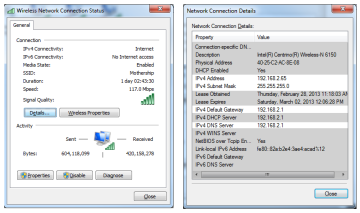


2. Type **adapter** in the search box, then select **View Network Connections**.
   Note: *If you are using an earlier version of windows, just click on the Network Connections icon in the control panel.*

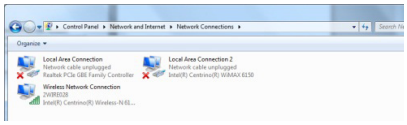
3. **Right-Click** on the network connection that you will use to connect to the sign, and select **Status**.



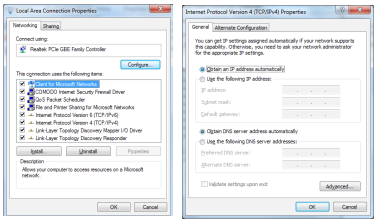
4. Click on **Details** and write down the **IPv4 Address**, **Subnet Mask**, **Default Gateway** and **DNS Server** for future reference. Then close the **Details** and **Status** Windows.



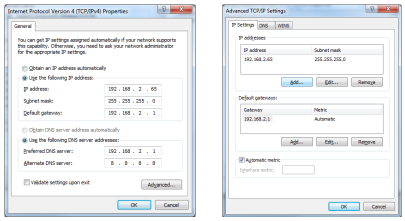
5. **Double-Click** on the network connection that you will use to connect to the sign.



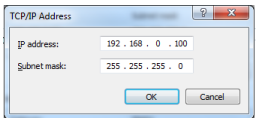
6. **Double-Click** on **Internet Protocol Version 4**



7. Select **Use the following IP address** and enter the IP address information that you wrote down earlier, then click the **Advanced** button.



8. Click the **Add** button and enter an IP Address that is on the same scheme as the sign (Example: 192.168.0.100). Then press the **Tab** key to automatically fill in the **Subnet Mask** then press **OK.**



DO NOT *use the following:*

192.168.0.1	*192.168.0.20*
192.168.0.2	*192.168.0.21*

Note: *Make sure this IP address is not being used by another computer on the network, and it different from the default IP address of the sign (192.168.0.2). If you have any questions, ask your Network Admin.*

9. Press **OK** on the **Advanced Settings Window**, and **Close** button on the **Network Connections Properties Window** to save the new IP Address settings.

10. **Verify** communication to your network by opening up a web page.

CONNECT TO THE SIGN and VERIFY

CONNECT

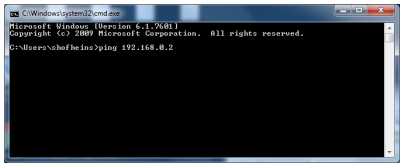
Option 1 - THROUGH NETWORK: Leave the Building Radio connected to the network router or switch. If you have any trouble, you may need to use option 2.

Option 2 - DIRECT: Connect the Building Radio to your computer's network port. This will allow a direct connection to the sign. **If your display is using SM Infinity remember to plug it back into to the network router or switch after you have set the IP address.**

VERIFY

Verify communication to the sign using a "PING" test.

1. Click the Windows **Start** menu.
2. In the Search box type **cmd** then press the **ENTER**. This will bring up a command window.



3. Type the word **ping,** hit the spacebar then type in the **IP address** of the sign (Default is 192.168.0.2*) then* Press **ENTER.** If you see *Request timed out* or *Destination host unreachable* then you will need to verify your computers IP address and any communications hardware. If you **do** get a response, then you are in low level communication with the sign.

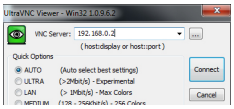
   You can now move onto the next section and change the IP Address of the Sign Controller.
   Note: *To check your IP address, type* ***IPCONFIG*** *in the cmd window, and press enter. This will list all your active network adapters, and their corresponding IP address information.*

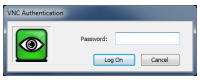
MANUAL IP CONFIGURATION - CONFIGURE THE SIGN'S IP ADDRESS

The Sign Controller must be on the same IP scheme as the network to connect to your computer (LightSpeed) or the internet (SM Infinity). If you have any questions on what IP address to use, please consult your Network Administrator or contact technical support.

1. Download and Install the latest Windows version of Ultra VNC by going to: https://vantageled.com/download

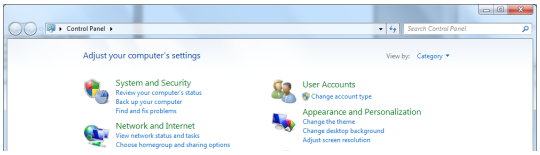
2. Open Ultra VNC and type in the IP address of the sign, then hit **Connect**. A password prompt will appear. Please contact your dealer or tech support for this password.





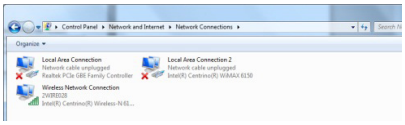
3. You will now see the internal sign controller.
SM Infinity: Press the Minimize button to show the windows desktop
LightSpeed: You can keep the SignPlayback application running.

4. Go to the Windows **Start** menu and select **Control Panel**

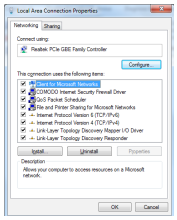


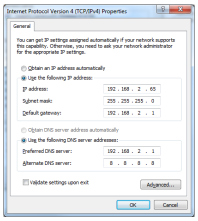
5. Type **adapter** in the search box, then select **View Network Connections**.
Note: *If you are using an earlier version of windows, just click on the Network Connections icon in the control panel.*

6. **Double-Click** on **Local Area Connection (connected).**



7. **Double-Click** on **Internet Protocol Version 4**



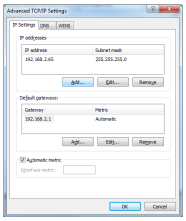


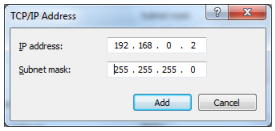
8. Select **"Use the following IP address"** Change the IP address to one that is compatible with your network, and is **NOT** going to be used by any other computer. *Note: This MUST be different from your computer's IP address.*

9. Enter a Subnet, Gateway and DNS that are compatible with your network.

10. Click the **Advanced** button.

11. Click the **Add** button and enter the original IP Address that the sign shipped with. IE "192.168.0.2". Then press the **Tab** key to automatically fill in the **Subnet Mask** then press **OK.**





12. Press **OK** on the **Advanced Settings Window**, and **Close** button on the **Network Connections Properties Window** to activate the new IP Address settings. You may lose the connection to the sign. If this happens , reconnect using the new IP address.

13. A new network window may have opened on the screen. Select "Home" network. Then close any open network windows.

14. Verify the controller has internet access by opening a webpage in a browser. If it will not connect to the internet, contact technical support.

15. Close the browser and any other background windows.

16. **Click on the SM Player to maximize if the display is using LightSpeed, make sure the SignPlayback application is running (top left corner).** Then close the **Ultra VNC** window.

VERIFY SIGN IS ONLINE in SM Infinity ™

If you do not have your SM Infinity login yet, contact your sign provider, then continue below.

- Login to SM Infinity at www.sminfinity.com
- Navigate to the **My Displays** section.
- Select your display (if you have more than one).
- Verify your sign is ONLINE from the **Display Communications** area. The **Last Check In** date and time should be current.
Note: The page may need to be refreshed.

IF THE SIGN IS OFFLINE

- **Wait 5-10 minutes and refresh the page.**
- **Verify your internet is working.**
- **Contact your sign provider or factory support.**

CONNECT WITH LIGHTSPEED (SignScheduler)

You can now use the LightSpeed (SignScheduler) software to control your display.

1. Install LightSpeed (SignScheduuler) from the disc that shipped with the display.
2. Go to **Tools>Options** and select **TCP/IP.**
3. Add the IP address of your display and save. (leave the port at the default setting)
4. Press OK
5. Begin creating and sending content to your display. Use the Help menu or go to vantageled.com/online-training for instructions.

IF YOU CANNOT CONNECT TO THE SIGN

- **Check all Communication Devices and Cables**
- **Check power to the display**
- **Verify you have the correct IP address entered in LightSpeed**
- **Contact your sign provider or factory support for further assistance.**

DATE/TIME ADJUSTMENT

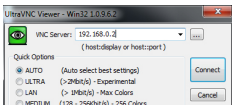
You may need to set or adjust the time to show correctly on your display according to your location. This is done by logging directly onto the sign controller using VNC. If you have any questions, please contact technical support.

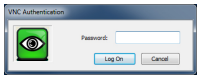
ACCESS THE SIGN CONTROLLER DIRECTLY

For the Safety and Security of the LED Sign, please contact your Network Administrator, Dealer or Factory Support team for assistance.

1. Download and Install the latest Windows version of Ultra VNC by going to: https://vantageled.com/download

2. Open Ultra VNC and type in the IP address of the sign, then hit **Connect**. A password prompt will appear. Please contact your dealer or tech support for this password.

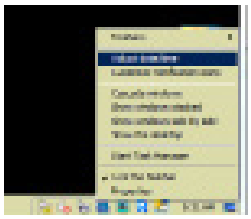




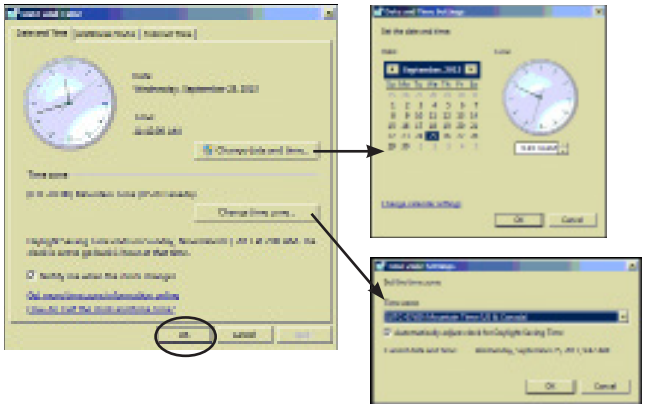
3. You will now see the internal sign controller and the SM Player application running. Press the Minimize button to show the windows desktop

ADJUST TIME/DATE SETTINGS

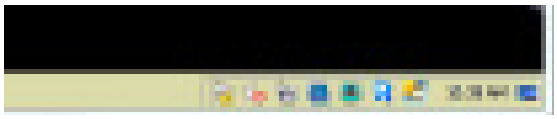
1. Navigate to the lower right portion of the desktop, and **Right-Click** on the time. Select **Adjust Date/Time**



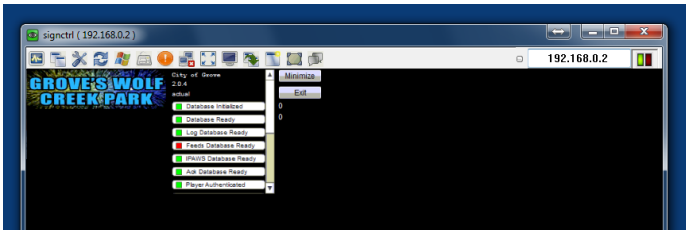
2. Adjust the Time Zone, Date and Time as desired, then press **OK.**



3. Verify the time is correct on the lower right corner of the desktop.



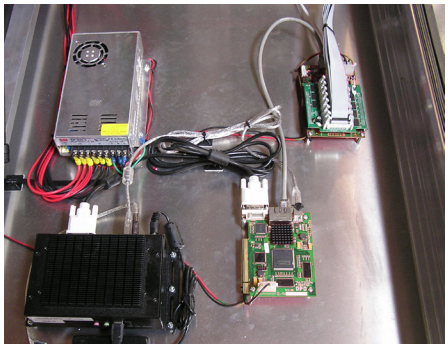
4. **Click on the SM Player to maximize.** This will hide the desktop and display your sign content. Then close the **Ultra VNC** window.



- **If there are any issues or questions, please contact your dealer or factory support team.**

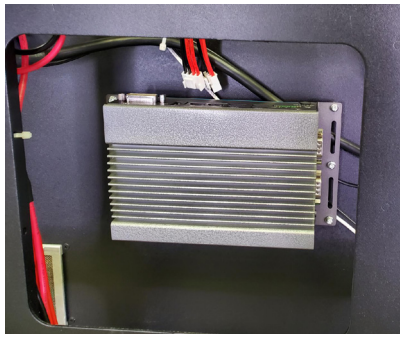
COMPONENT IDENTIFICATION

Parts may vary from picture depending on specific model and ongoing product improvement.



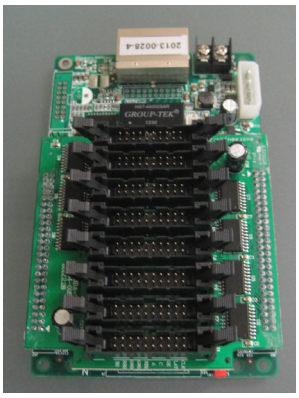
Basic system view, including Power Supply, Controller, DVI Board, and Logic Board

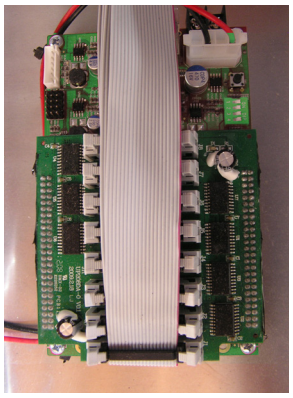
PC Controller showing connections.



PC Controller shown inside sign.

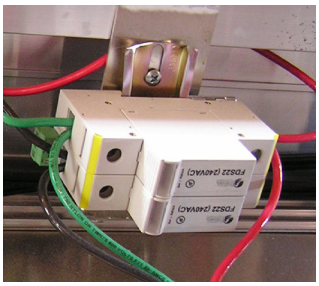
DVI Board



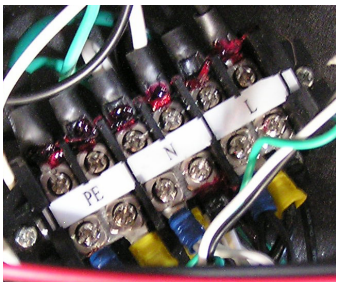


Logic Board shown with and without ribbon cables

Power Supply



Surge Protection (optional)



Power Terminal

Wireless Radio and Accessories

Wireless Radio with cover off and cable connected

Temperature Probe (optional)

Light Sensor (optional)

Rear of Wireless Radio showing Power, LAN, and Signal Strength

POE Injector

VANTAGE LED
INNOVATIVE DISPLAY SOLUTIONS