IMPACT LED SIGNS

- INSTALLATION GUIDE -

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Ventilation Requirements

Electronic Message Centers (EMCs) require ventilation. As illustrated, Impact EMCs use fans located inside the top of the cabinet to draw fresh/cool air in through vents at the bottom of the cabinet's rear side and out of vents located at the top. Improper ventilation will result in the EMC overheating. Impact's EMCs will shut themselves off when they overheat & will restart after cooling. However, overheating will cause damage, thus ventilation should be carefully considered.

When installing an IMPACT EMC allow a minimum of 24 square inches of total air intake and 24 square inches of exhaust per foot of cabinet length. Ideal ventilation: 2" gap at top and bottom.

Insufficient ventilation will result in the voiding of the warranty.
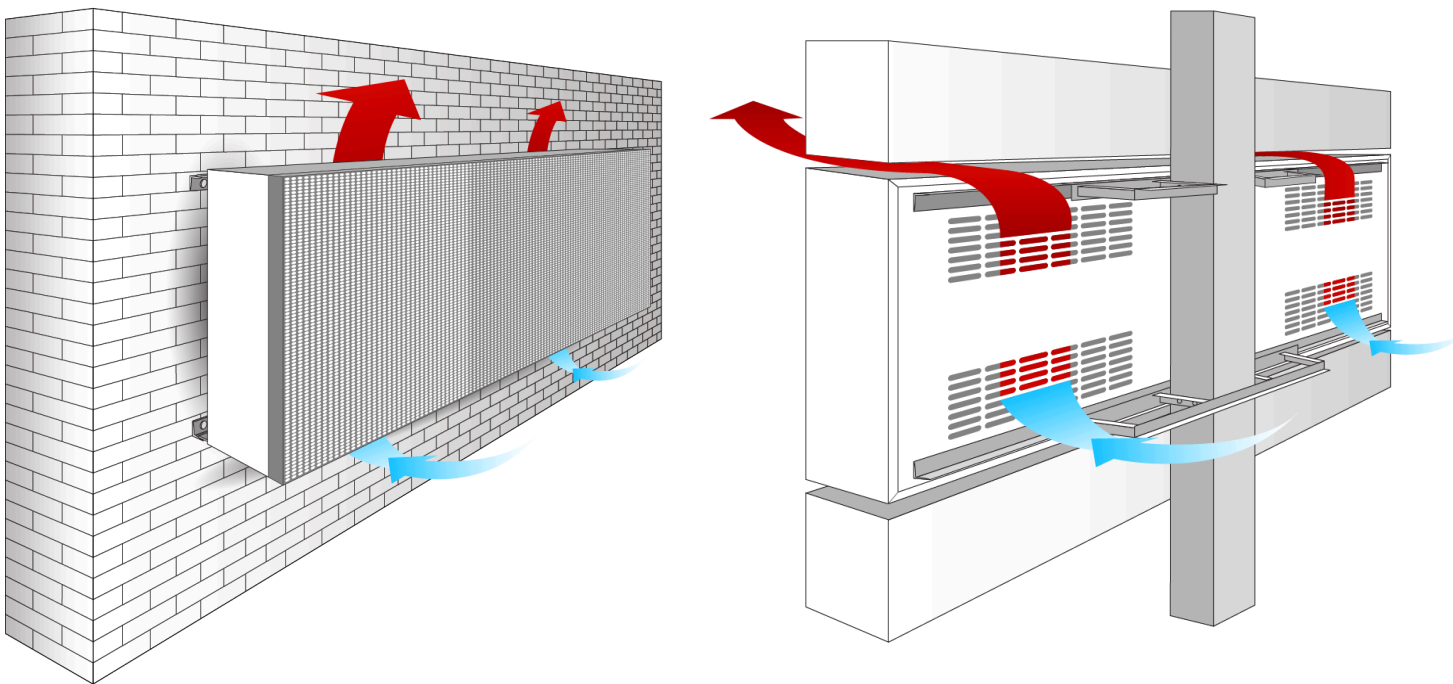
Alternative Acceptable Ventilation Options:
If no ventilation is available at top: Provide a 2" gap on each side and bottom. If perforated panels are used the material should have no less than 40% open area. A horizontal air baffle should be used to discourage exhaust from being recirculated in the cabinet.

Sign Cabinet

Impact EMCs are built to last. Both the lightweight aluminum cabinet and steel mounting angle are powder coated for a durable finish. Lifting plates are located at the top of the display and can be removed as their threaded cavities do not pass through to the inside of the cabinet - Impact recommends filling the cavity with silicone or utilizing the bolt after removing the lifting plate to prevent water from freezing and breaking the seal.
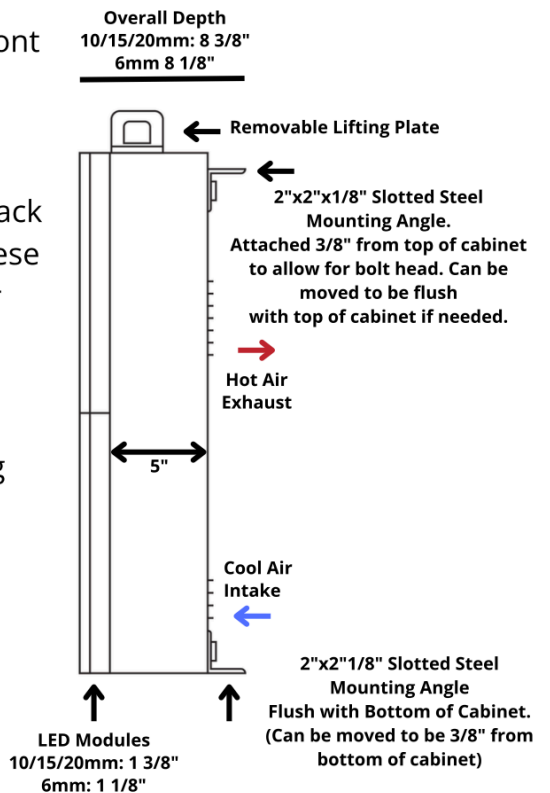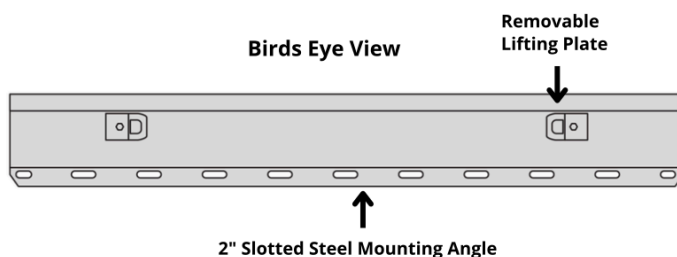
A 2"x2"x1/8" steel mounting angle runs the length of the top and bottom of each Impact single cabinet enclosure EMC. This design provides tremendous flexibility in mounting. Angle may vary based on product line selected. Always refer to the production drawing for measurements.

Electronic Message Center Cabinets

Impact Electronic Message Centers come built onto the front of an **Aluminum black powder coated cabinet.** No additional weatherproofing or cabinetry is required.

Steel mounting angles near the top and bottom of the back of the aluminum cabinet allow for an easy installation. These mounting angles are punched with mounting slots further simplifying the installation by eliminating the need to drill holes.

The **removable lifting plates** are designed to make lifting the cabinet simple and safe.

Overall Depth
10/15/20mm: 8 3/8"
6mm 8 1/8"

← Removable Lifting Plate

2"x2"x1/8" Slotted Steel Mounting Angle. Attached 3/8" from top of cabinet to allow for bolt head. Can be moved to be flush with top of cabinet if needed.

Hot Air Exhaust

5"

Cool Air Intake

2"x2"1/8" Slotted Steel Mounting Angle Flush with Bottom of Cabinet. (Can be moved to be 3/8" from bottom of cabinet)

LED Modules
10/15/20mm: 1 3/8"
6mm: 1 1/8"

Rev 4/29/2023

Birds Eye View

Removable Lifting Plate

2" Slotted Steel Mounting Angle

General Mounting Guidelines

This information is for general reference. It does not replace professionally engineered drawings. Please contact the Impact LED Project Management Team with any specific questions. **Project Management can be reached at (800) 398-0576 x 5**
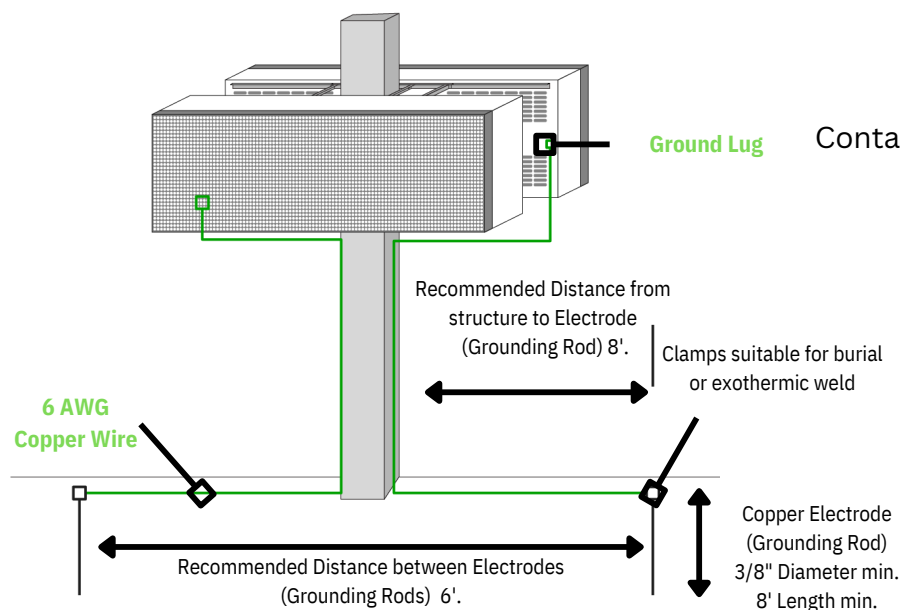
Steel mounting angles are provided on the back of each LED sign cabinet. Fasteners, support columns, brackets and electrical wiring conduit/accessories are not provided unless specifically included as a line item from Impact LED.

Welded or Bolted

Electrical Service Junction Box

Copper grounding wire connected to earthing rod
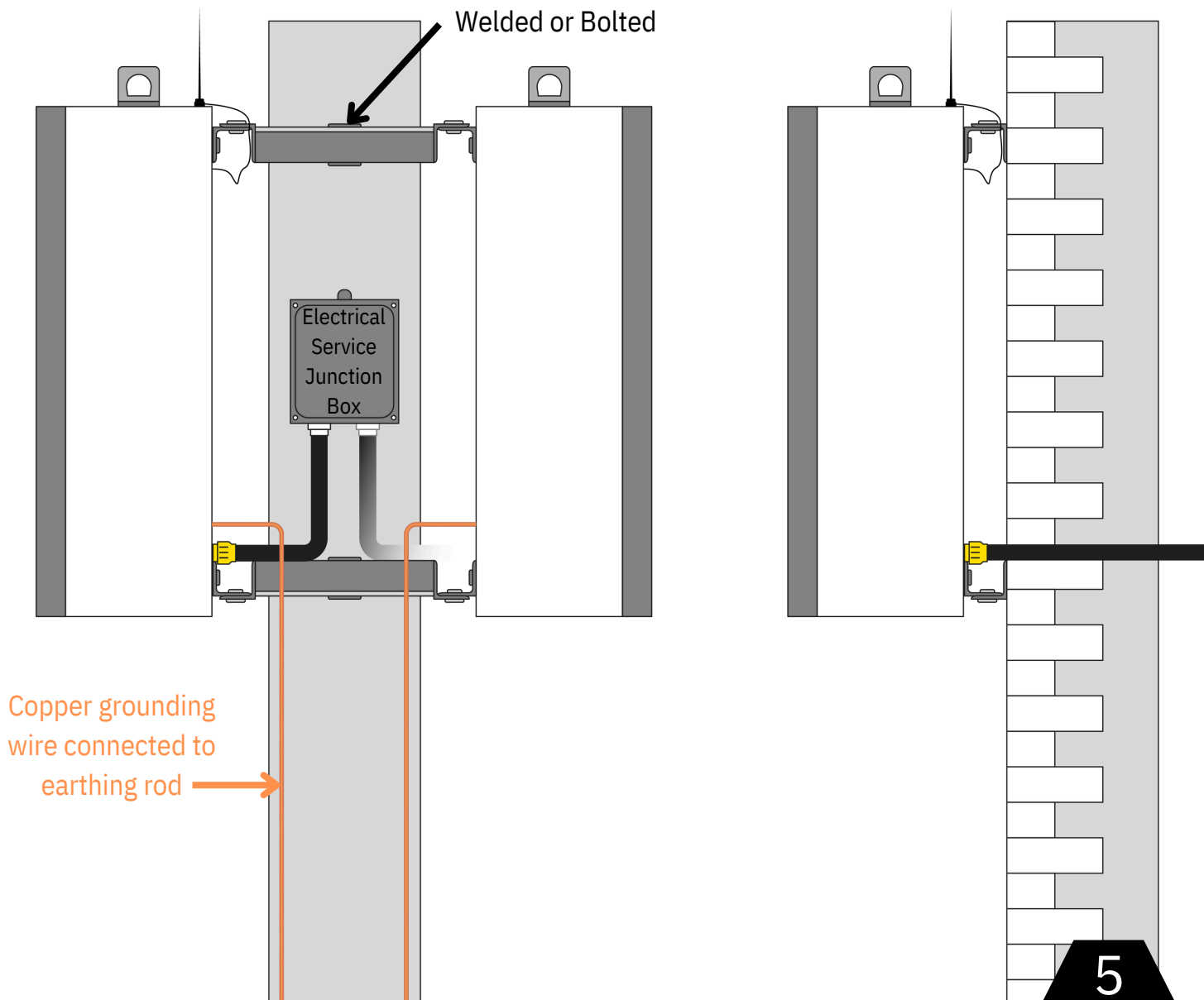
Electrical Information

- Install according to the National Electric Code and local regulations.
- Per NEC code article 250.52.5 each EMC should have an in-earth 3/8" copper ground electrode (rod) at least 8' long. Per NEC 250.53.4 the rod shall be installed so that at least 8 ft of the rod is in contact with the soil. Per NEC Sec. 250-54 the resistance to ground of a single-made electrode must be 25 ohms or less.
    - Per NEC Code the support structure, pole, cannot be used as a means of grounding.
    - Impact LED Signs recommends, but does not require, the use of one electrode (rod) per face. Impact LED recommends the grounding wire be connected to the grounding rod by exothermic weld.
    - 8' is recommended between the sign's structure and grounding rod. When using multiple grounding rods, the recommended minimum distance between rods is 6'.
    - Copper grounding wire must run directly from the cabinet's grounding lug to grounding rod. For signs built out of multiple cabinets a single grounding wire from one cabinet per side is suitable.
    - Per NEC 250.64C the grounding wire must be one continuous length without a splice or joint.
    - Failure to provide proper grounding may result in the voiding of the warranty.
- Consult Impact LED shop drawing for voltage and electrical load requirements.
- The National Electric Code Article 600.5 (A) requires signs to be on a dedicated circuit rated at least 20 amperes.
- Impact LED Signs recommends, but does not require, each face to be on a dedicated circuit rated at least 20 amperes.
- Connection to the EMC should be run to a watertight junction box or breaker panel and then a secondary whip, provided with the sign, connecting the junction point to the back of the sign cabinet at the Power Input.
- Always follow Lock-Out/Tag-Out procedures to ensure safety when working on, installing, or connecting to electrical lines.
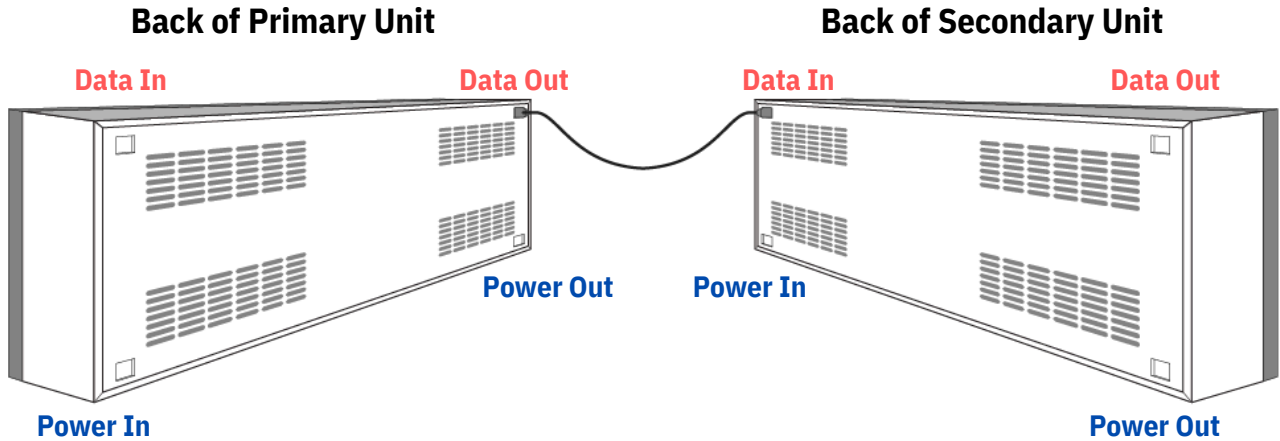- Always verify primary power voltage and continuity before connecting power to the EMC.

Ground Lug

Questions?
Contact Impact LED Project Management
at 1-800-398-0576 x 5

Recommended Distance from structure to Electrode (Grounding Rod) 8'.

Clamps suitable for burial or exothermic weld

6 AWG Copper Wire

Recommended Distance between Electrodes (Grounding Rods) 6'.

Copper Electrode (Grounding Rod) 3/8" Diameter min. 8' Length min.

Primary/Secondary Sides of an EMC

The information on this page is only applicable to Two-Sided Displays built in a Primary/Secondary configuration.

Back of Primary Unit   **Back of Secondary Unit**

Data In   Data Out   Data In   Data Out

Power Out   Power In

Power In   Power Out

Locate the quick access data connection ports on the Primary unit and Secondary unit. Firmly seat the cable to ensure a solid connection. Gather and zip tie any loose cable. The **Input Data Port** is located on the left side when looking at the back of the unit.

The **Output Data Port** is located on the right side when looking at the back side of the Primary unit.

Primary Unit   Secondary Unit

DATA OUT   DATA IN
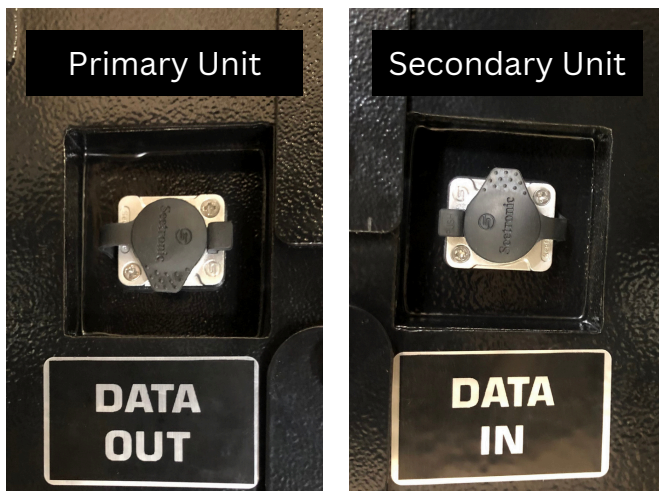
Removing Modules

TURN POWER TO THE EMC OFF!

Each LED module features a hole in each corner, approximately 1" from each edge. This hole on the 10, 15, and 20mm modules accepts a 3mm hex head wrench, and the 6mm modules accept a 2mm hex wrench. Insert the wrench and once seated gently turn counter clockwise to disengage the module locking mechanism. A "click" sound will indicate the lock is fully disengaged. All four locks will need to be disengaged to remove the module.
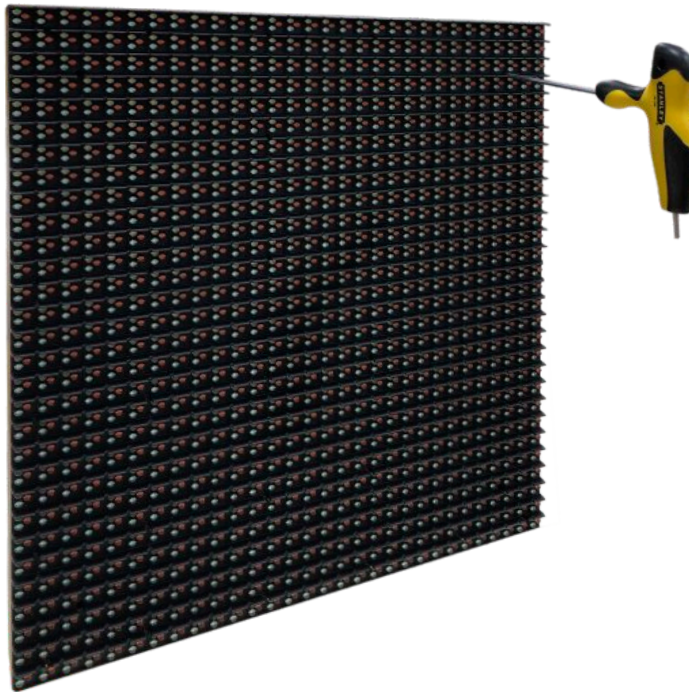
As you remove the module from the EMC, disconnect the power and data cables.

NEVER LET MODULES HANG FROM POWER/DATA CONNECTIONS

A SAFETY CABLE IS INSTALLED TO PREVENT THE MODULE FROM FALLING. ALWAYS REINSTALL SAFETY CABLE WHEN REPLACING MODULE.

Ambient Light Sensor

The ambient light sensor picks up the surrounding light level to automatically dim and brighten the display.

The ambient light sensor features removable, threaded washers which can be used to secure the sensor to a bracket or panel. Be sure to coil, zip tie and secure any excess cable.

The brightness sensor should be facing the direction that will allow for the most light to access the sensor as early in the day as possible. Typically that is either on the Southern exposed face or on the top of the sign. Try not to put the brightness sensor in the shade or behind any objects.

Temperature Sensor

Most Impact Electronic Message Centers do NOT come with a temperature sensor. This is because the Impact Cloud+ software (compatible with all connectivity methods) automatically retrieves weather and temperature information via an online weather application.

In the event your sign is running Impact PC Pro (Impact's PC based software), the temperature function is not a standard feature. If the temperature function is required please contact our technical support for assistance.

Technical Support can be reached at (800) 398-0576 x 3

Network Configuration Requirements

Any Electronic Message Center communicating with our Cellular Modem option is considered to be "Plug and Play" and does not require additional configurations to be made. Electronic Message Centers communicating with our Wireless Network Bridge option leaves the factory configured for DHCP by default. To ensure a swift and easy installation, the local network may need to be prepped for our cloud controllers.
The fall-back addresses are:
Sign Side Radio: 192.168.0.219
Building Side Radio: 192.168.0.218

General Connectivity Configuration

On most networks, minimal configuration is needed and the signs are plug and play. Network Traffic for the EMC needs to be opened to our Main Server Address:
Access.Impactledsigns.com

For Cloud signs to communicate properly,
Ports:
HTTPS 443/TCP
websocket 8443/TCP
NTP 123/UDP

- **Network traffic must be open to Amazon S3 bucket: weather.cloudled.com**
- **Network traffic access needs to be granted through all firewalls and all filtering systems.**
- **This is a basic outline of the network configuration requirements, additional changes may be required.**

For technical questions please reach out to tech@impactledsigns.com or 1-800-398-0576 x 3

Connectivity Methods

Cellular

Impact LED utilizes the Verizon network infrastructure. Connectivity can vary from location to location depending on tower coverage and ambient conditions. Even though the modem is mounted and powered inside the LED sign cabinet, Impact LED provides external antennas with each modem and requires that they be external to the sign, as high as possible above the LED sign. It is the Dealer's responsibility to securely mount and document the location of the antenna as well as test connectivity prior to leaving the installation.
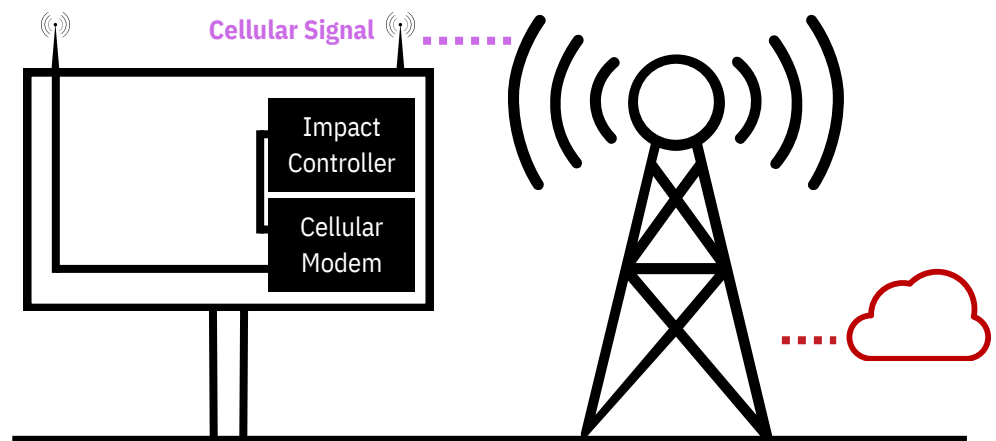
Wireless Network Bridge

Wi-Fi bridge kits are also a viable solution for many applications. This WPA encrypted connection is a point-to-point link between two transceivers, which have been pre-paired to communicate with each other. With a clear line of sight, a Wi-Fi bridge kit can provide 100mbps transmissions over distances in excess of 1 mile. Both transceivers should be facing towards each other with as few (if any) obstructions between them as possible. The "Receiving" transceiver should always be mounted on the outside of the sign. The "Sending" transceiver should be mounted external to the building.
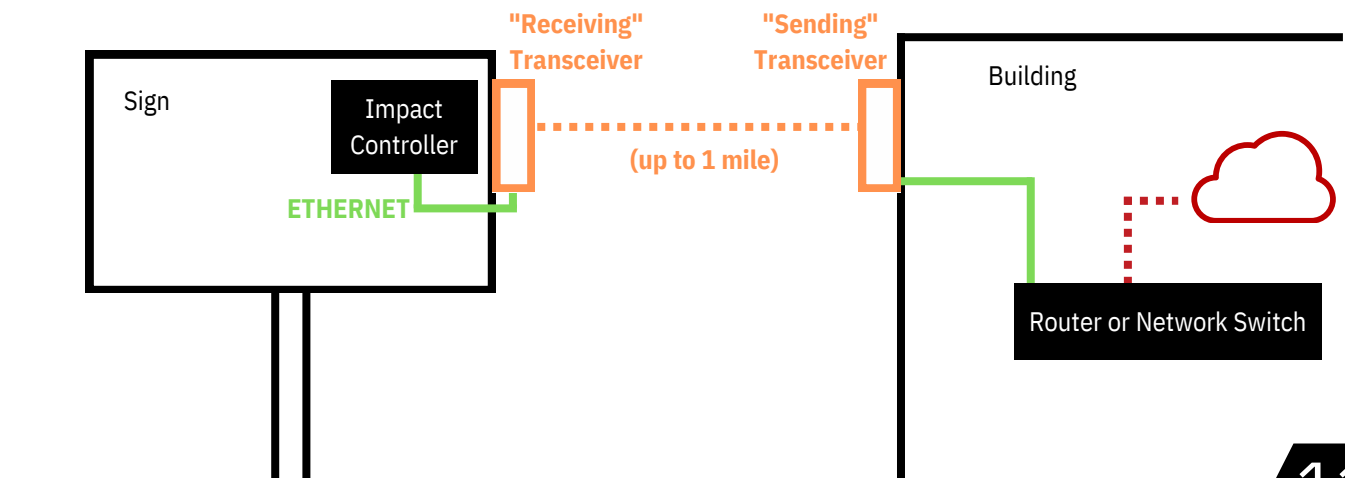
Connectivity Methods

Direct Ethernet

Impact LED signs accept a standard RJ45 ethernet connection. This is also referred to as a Cat5e/Cat6e cable, network cable, or LAN cable. The cable would be connected to the router or network switch inside the building and the back of the primary unit of the Impact LED Sign. Any cable run over 300' should be boosted by a network switch.

Impact
Controller

Router or Network Switch

ETHERNET
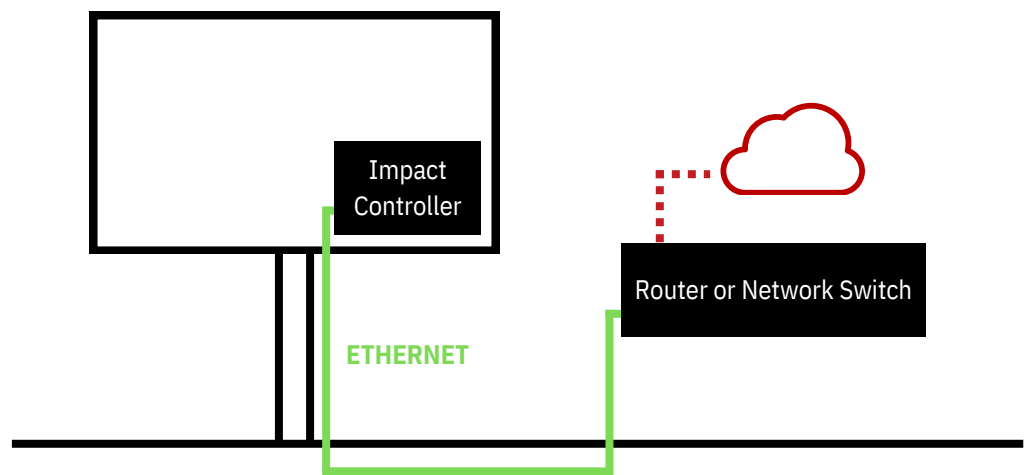
Fiber

Fiber can be a great option for locations with no cellular service who require connectivity over a significant distance. Confirm the fiber specifications with your Impact LED Project Manager prior to installation. Impact LED provides SC fiber media converters which are wide temperature/industrial grade.

Impact
Controller

Fiber Media
Converter

Router or Network Switch

Fiber Media
Converter

FIBER
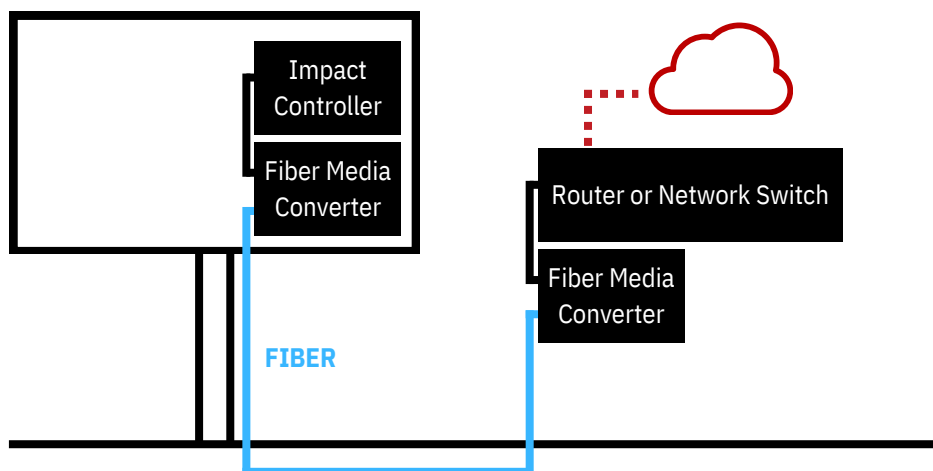
The outer cabinet should be washed only with water. A garden hose without a nozzle and a lint-free cloth should be sufficient and gentle enough to wash the EMC – water should be applied on the top of the sign and allow it to flow down like rain. Never spray up or sideways at the LEDs. No pressurized water should be used at any time.

No chemical solutions should be used on the sign, the pixels, rear covers, or doors.

No type of abrasive cleaner should be used to clean any part of the display. This includes sponges with light or harsh abrasives, or brushes. Using these types of cleaners could slowly remove or damage the paint on the cabinet over time.

If touch-ups on the metal surfaces of the cabinet are necessary, use Black, Semi-Gloss exterior paint. Wipe down with mineral spirits or denatured alcohol before painting.

The internal hardware of the display should be cleaned with compressed air at the end of every summer to remove any build-up of dust and dirt. **The AC power to the display must turned OFF before you begin**. This is for your safety and to prevent damage to any components.

Ventilation System: The ventilation system should be checked yearly to ensure that the display venting system is operating correctly before the summer season begins. The exhaust fans should be checked bi-annually if the display is installed in a dusty, hot environment or areas where insects are problematic.
- Exhaust Fans: Exhaust fans should be cleaned before each summer season begins or after any large dusty days/construction.
- Turn the AC power OFF to the display.
- Use a thin screwdriver or q-tip and insert it between the fan blades to prevent the fan from moving or spinning.
- Use a small compressor or industrial portable vacuum to blow out dust.
- Perform this to all exhaust fans in the display. Do not do this while AC power is ON, or allow the fans to spin while you clean them.
- Failure to do so may cause the fans to over spin and damage the fans.
- Dust Build Up: At times, it may be necessary to vacuum the inside of the display to remove any dirt/dust that may interfere with airflow.

Loose Hardware: Verify that screws or bolts have not come loose on vital components such as power supplies or receiving cards.

Cabinet: It is extremely important to clean out all dust or dirt in the display near the electronic components. Failure to do so will result in dust/dirt being pulled back into the power supplies, causing the fans to seize. A 4" paint brush is recommended to dislodge any standing dirt/dust and a vacuum to remove the dirt/dust.