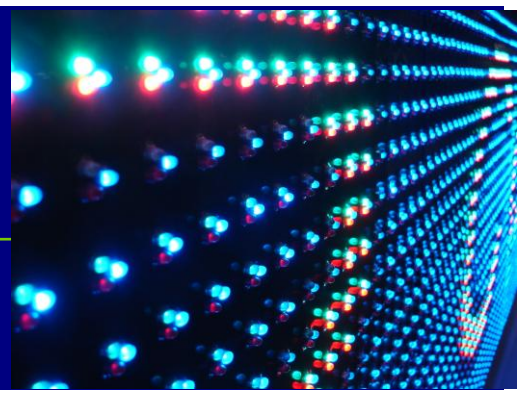


BLAIR COMPANIES



EMC INSTALLATION INSTRUCTIONS

VERSION 1D



BLAIR COMPANIES
ARCHITECTURAL IMAGING
SIGNS • FIXTURES • LOGISTICS

5107 Kissell Avenue
Altoona PA 16601
814-949-8287
blaircompanies.com

REFER TO COLORSPACE MANUAL
ON LAPTOP OR AT
www.blaircompanies.com/ledsupport
FOR SOFTWARE INSTRUCTIONS

Visit www.blaircompanies.com/ledsupport to download these instructions

IMPORTANT WARRANTY INFORMATION PLEASE READ!

Warranty coverage will not begin until the installer completes the warranty card and installation checklist and submits that along with the completion photographs to Blair Companies. Please send these items within 30 days of installation to:

Blair Companies
5107 Kissell Avenue
Altoona, PA 16601
(814) 949-8287

Or email: LEDWarranty@blaircompanies.com

If a failure of the sign occurs before the warranty and installation checklist are submitted, the costs associated with the repair of the sign are the responsibility of the installer or the sign owner.

For more information regarding warranty, see page 4



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A. Revision History

V.1D 1/9/12 *Clarification on installation procedures for data cables (G); Added requirement for radio communication (I)*

V.1C 11/19/10 *Tiles per output for RGB (G); Termination plug for data--RGB only (G); Light sensor (G)*

B. Warranty Information

Note: This system converts a fluorescent sign to an EMC (electronic message center). It is designed to be installed into a UL-48 listed sign only. The UL Listing Mark must be on the sign being retrofitted. Any other use is strictly prohibited.

You must read and understand the instructions listed in this manual PRIOR to beginning installation.

Warranty Terms: The warranty covers normal use and service. It DOES NOT cover damage caused by vandalism, lightning strikes, electrical surges, and any other acts of God. Any consequential or contingent liability is also excluded from this warranty. Warranty claims must be registered with Blair Companies within thirty (30) days of damage or malfunction. Blair reserves the right to visit the site of the installation or to require documentation of the claim before assuming any responsibility under the provisions of the warranty.


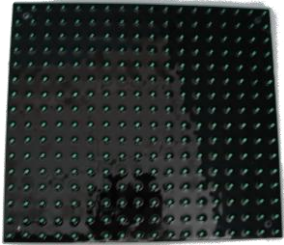








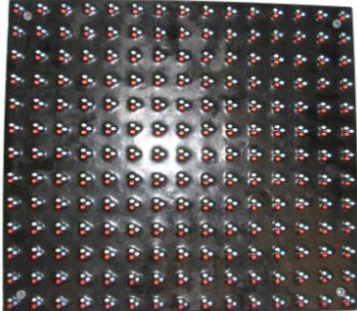
It is the installer's responsibility to provide grounding for the sign.

Installer must submit Warranty and Installation Checklist (Section M), and Completion Photos per photo instructions (Section N).

C. Cautions and Warnings

1. EMC signs are not to be stored outside before installation. Depending on the orientation of the sign, water could enter the control box, causing damage to the electrical components.
2. EMC signs are to be on dedicated 120V AC, 20-amp circuits (see Section F to determine quantity of circuits). Grounding the sign is the responsibility of the installer, and it is required to qualify for our warranty. DO NOT put any other lights or electrical devices on the same circuit with the EMC sign.
3. It is the installer's responsibility to ensure the sign is weather proof upon completion of the installation. This includes installing any lids and covers. **DO NOT modify supplied enclosures.**
4. Never run the EMC portion of the sign off of a generator from a service truck.
5. Always disconnect power from the sign before service. Note: The power supply for the EMC will remain powered for a minute after power has been disconnected.
6. The control panel must be mounted properly inside of the sign to ensure proper operation, and reliability. The control panel should hang from a support inside the sign so that the wires will not get damaged. Also, the panel must be mounted so that it is level. Finally, do not modify the control boxes on the control panel to make it fit into a sign. If it does not fit, you must order a custom panel that will.
7. Low voltage wiring and communication cables need to be routed and secured away from any unenclosed line voltage wiring.
8. Always wear proper Personal Protective Equipment (PPE) when on-site. This includes any harnesses, gloves, safety glasses, vests, hard-hats, etc. Make sure to properly barricade entire work area with at least 4' tall orange fencing prior to starting any work.

D. Parts List

 <p>240 W Power Supply 32-01-01</p> <p>20 W Power Supply 25-00-14</p>	 <p>Monochrome LED Tile GREEN 33-09-05 RED 33-09-04 BLUE 33-09-03 AMBER 33-07-34 WHITE 33-09-02</p>	 <p>Ethernet Data Cable 32-07-17</p>  <p>Ethernet Jumper Cable 32-07-16</p>
 <p>Controller Board 32-09-16</p>	 <p>Driver Board 32-09-17</p>	 <p>Power Cable 32-07-18</p>  <p>Power Jumper Cable 32-07-19</p>
 <p>Laptop 32-80-01</p>	 <p>Lantronix/Engenius 33-20-10</p>	 <p>Color Led Tile RGB 33-09-18</p>
<p>Temperature Probe</p>	<p>Light Sensor</p>	<p>Antenna</p>

E. System Wiring Guide

1. The black, white, and green wires from the control box must be connected to **dedicated** 120V 20-amp circuits. No other lighting or electrical devices, including LED pricers, should be on the EMC supply circuit(s).
2. Note that it is the installer's responsibility to provide grounding for the sign, and to provide proof (pictures, etc.) with their Warranty and Installation Checklist.

Minimum electrical grounding consists of a dedicated 1/2" x 8' size copper grounding rod for the sign, and a #8 gauge copper grounding electrode which shall be terminated to the ground wire of the supply line. If the sign is surrounded by concrete, the grounding wire must be run back to the store, and terminated there. For Canopy Signs, the grounding wire can terminate to any structural steel member of the canopy. All signs must have the supply ground wire also connected to the steel frame of the sign. Do not use an Aluminum grounding electrode.

In order to prevent any tripping hazards, please locate the grounding rod as close to the sign as possible, and bury the wire leading to the grounding rod at least 1-2 inches under the soil.

3. All line voltage wiring to the controller and power supply assembly needs to be in Listed 1/2in. Trade Size Flexible Metal Conduit secured by Listed conduit fittings.

****A disconnect switch will be provided for Canada installations.****

F. Preparing Sign for EMC Retrofit

Monochrome Specifications

- Monochrome EMC Tile size is 16 pixels H by 18 pixels W
- Monochrome EMC Tile is 11.4" H x 12.825" wide
- Monochrome EMC tile consumes max 30 watts of power each
- Voltage rating of the power supply is 90-264VAC
- Power supply frequency rating is 47-63HZ
- EMC Control Box consumes 7W of power
- EMC Radio consumes 3.5W of power

Tile Matrix	Pixel Matrix	Single Face Watts	Single Face Amps	# of 20A circuits	Double Face Watts	Double Face Amps	# of 20A circuits
1x4	16x72	120W	3A	1	240W	6A	1
2x4	32x72	240W	6A	1	480W	9A	1
1x5	16x90	150W	3A	1	300W	6A	1
2x5	32x90	300W	6A	1	600W	9A	1
3x5	48x90	450W	6A	1	900W	12A	1

Color(RGB) Specifications

- Color (RGB) EMC Tile size is 13 pixels H by 15 pixels W
- Color (RGB) EMC Tile is 11.4" H x 12.825" wide
- Color (RGB) EMC tile consumes max 18 watts of power each
- Voltage rating of the power supply is 90-264VAC
- Power supply frequency rating is 47-63HZ
- EMC Control Box consumes 7W of power
- EMC Radio consumes 3.5W of power

Tile Matrix	Pixel Matrix	Single Face Watts	Single Face Amps	# of 20A circuits	Double Face Watts	Double Face Amps	# of 20A circuits
1x4	13x60	240W	6A	1	480W	9A	1
2x4	26x60	480W	9A	1	960W	15A	1
1x5	13x75	300W	6A	1	600W	9A	1
2x5	26x75	600W	9A	1	1200W	18A	2
3x5	39x75	900W	12A	1	1800W	24A	2

- Determine the number of branch circuits supplying the sign. Also, determine the voltage and current rating of each branch circuit.
- Determine the EMC Tile Matrix to be displayed and whether the sign is single faced or double faced.
- Determine the power consumption of the EMC system using the chart above.

You must add up the power ratings of the EMC faces you'll be installing, plus the power ratings for the EMC Control Box and radio.

Example: A double-faced (2x4 Tile Matrix) monochrome EMC

DF 2x4, EMC Controller Box and a radio

$$480+7+3.5= 490.5 \text{ Watts}$$

- Divide the total power obtained in Step 3 by 240, and round up to the nearest whole number. In this example, $490.5/240 = 2.04$, so it would round up to 3. Our power supplies have a power rating of 240 Watts, so this will determine the number of power supplies your sign will need. In our example, we would need three power supplies.

5. Multiply the number of power supplies calculated in Step 4 by 3. In this example, 3 multiplied by 3 = 9. Our power supplies use 3 amps of current from the electrical supply, so this will determine how many amps of current the EMC system will use.
6. Look at the existing sign nameplate to find its voltage and current ratings. Then, add the EMC system current calculated in Step 5 to the current rating on the nameplate of the sign. This will be the signs' new current usage.
7. Determine the amp rating of the existing sign's electrical circuit. If the new current usage calculated in Step 5 is > 80% of the rated amperage of the existing circuit, more power will be required. If the existing circuit's rating is 15 amps, it could be replaced with a 20-amp circuit. If the existing circuit is already rated at 20 amps, an additional circuit will need to be run to power the EMC system. **Caution: If more than one circuit is used to power the sign, all sign branch circuit breakers must be disconnected before service.** Consult NEC Article 600 for details.

G. Retrofitting LED Display into an Existing Sign

NOTE: Any deviation from the mounting instructions outlined here can result in damage to the control system. Because of this, our warranty on the control system is VOID if the control box is not mounted properly. The warranty will also be void if the control box is modified in any way.

1. Remove lower product panels.
2. Remove lamps from this section.
3. The control panel should be mounted to a support member directly behind the LED panels, where the fluorescent lamps were located. If supports are not in the correct location, additional aluminum brackets may need to be fabricated. The control panel has locations for power supplies and control box. **Do not drill into the control box enclosure.**

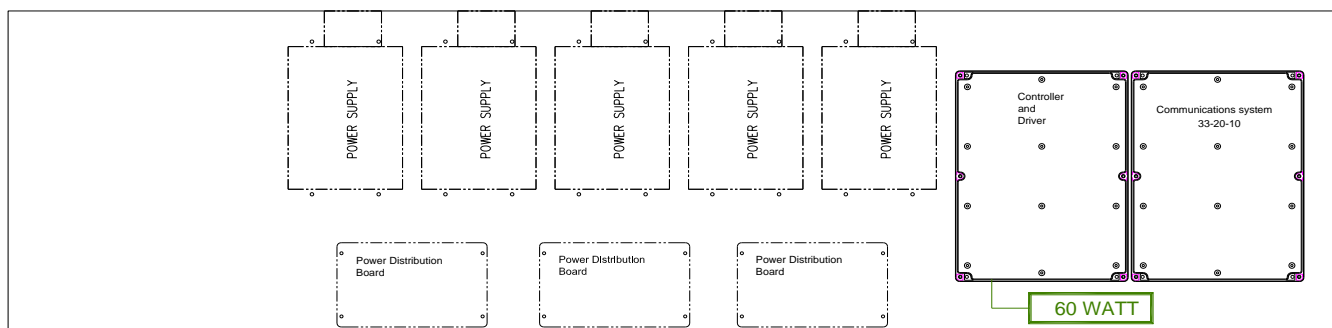


Figure 1: Installation of control panel

The supplied conduit, or other UL Listed conduit must be used to route the electrical power to the control box from the raceway inside of the sign. If flexible conduit is used, it must be secured correctly. It must be securely fastened every three feet or less, AND it must also be fastened within 12 inches of the control box. Consult NEC Article 356 for details.

4. If retrofit panels are not supplied, a mounting pattern for the EMC tiles will be supplied. Use this pattern to transfer necessary holes to the face. Attach EMC tiles. Make connections per the wiring diagram. Attach drip covers (opening DOWN) with double-stick tape.
5. Install retrofit panels in place of old panels. Attachment method is same. Replace reveal strips. Drip covers are oriented to prevent any water dripping in the sign from getting on plug connections at each LED module (open at bottom). See Figure 2.

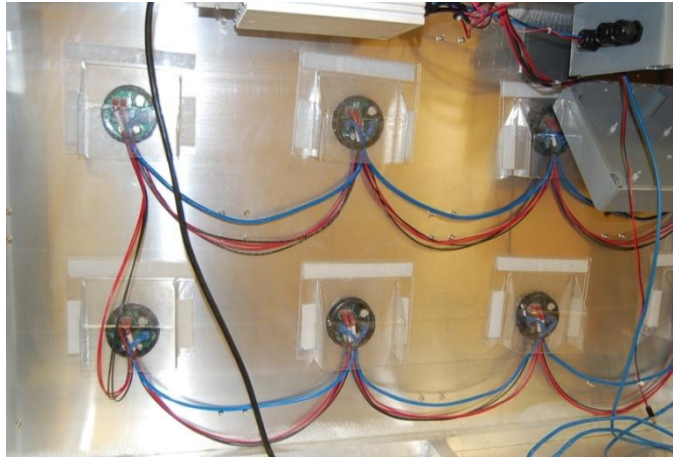
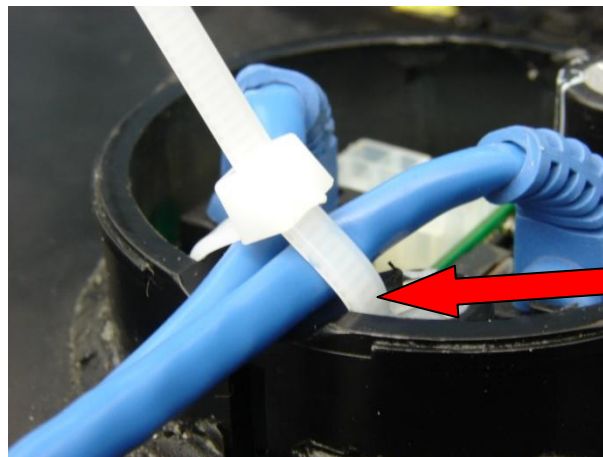


Figure 2: Installed retrofit panel

6. Make cable connections per supplied wiring diagram. Data cable brings data from controller to each row (Left side when viewing the face). Data jumpers daisy chain boards together, in segments up to 5 wide for monochrome, and 16 wide for RGB. If a row is wider than this number of tiles, it will have another Data cable feeding the next subset. Power cables run to boards as specified in schematic. Power jumpers daisy chain sections of 8 boards monochrome and 12 boards RGB together as specified in the schematic. See Figure 4.
7. For monochrome tiles, make sure that the data cables and jumpers are tied to the supplied hook on the drip cover for each tile. (Figure 3) This ensures that the proper connection will be maintained throughout the life of the sign. Failure to properly tie these wires will result in intermittent and sporadic failures of the sign.



Make sure that the cable tie passes below this hook.

Figure 3: Cable Tie used to secure data cables to the tile

8. A termination plug will be supplied to snap into the last output of each row/string of tiles for RGB systems. Ensure it is plugged in.
9. Automatic dimming has been added as of November 2010. The light sensor is provided as part of a Heyco bushing (Figure 5). It should be oriented pointed down (preferred) or sideways, but never up. The light sensor must be exposed to ambient light; ensure that it won't later be covered by cladding. If pointed horizontally, it should face away from direct traffic wherever possible. The light sensor will be connected to the control box. Drill a hole for the bushing and attach it. The light sensor must be elevated enough on the sign so that it will not be affected by snow.

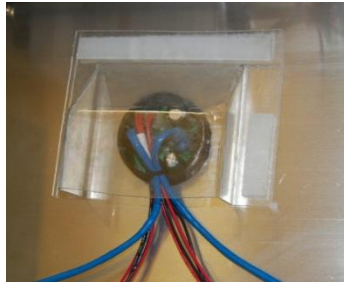


Figure 4: Cable Connections



Figure 5: Light Sensor

10. Check all connections, and then apply power to the sign. A default message should display.

H. Communication Methods

1. Standard communication uses a WiFi Ethernet connection to communicate from the store to the sign. Other methods can include direct wired Ethernet cable and fiber optic communication. This will be dictated by site conditions.
2. WiFi Connection requires a direct line of sight between the laptop and the sign radio, up to 300'.
3. There are many outside factors, which can effect the operation of the radio. Things such as road construction, chain link fences, metal obstructions, and other radio frequency controlled devices can and do have an effect on signal strength.
4. An omni-directional antenna is used in the installation of this method of communication. The antenna will be mounted to the black face of the sign in a way that it is visible from inside the store where the laptop is located.

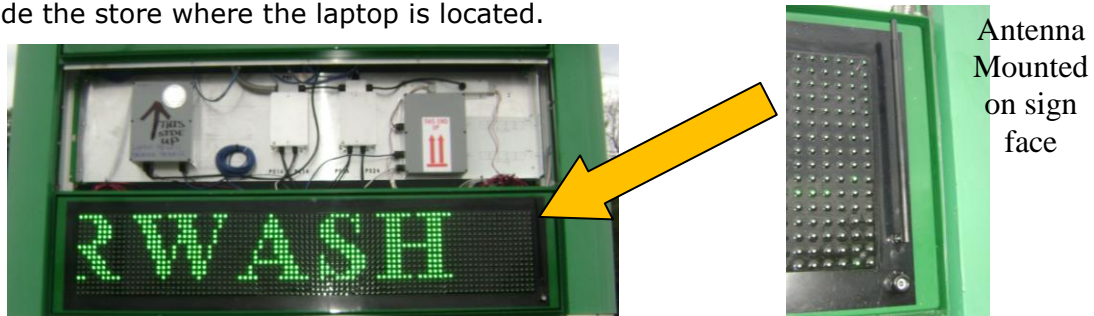


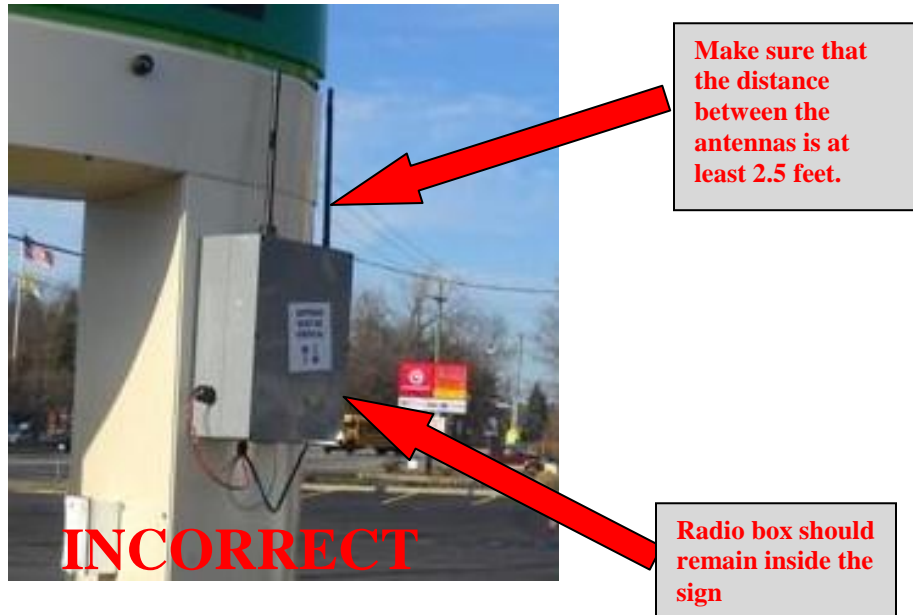
Figure 6: Wifi Omni-Directional Antenna location

I. Radio Installation

Radio Guidelines for Best Performance:

1. The antenna on each radio must be vertical.
2. The antenna at the sign must be mounted outside of the sign, Drill a ¼" hole in the face of the sign and pass the antenna wire through. Antenna will then attach to this hole and be oriented vertically.

Note: If the sign is already equipped with an electronic price change unit that is controlled wirelessly, care must be taken so that the antennas are at least two and a half feet away from one another. Failure to do this will result in poor performance.



3. The radio box should not be relocated outside. Only the antenna will be outside. The radio at the sign is supplied in a weatherproof box, and located on the control panel.
4. Laptop inside the store should be placed near windows that face toward the sign whenever possible. Each antenna should be oriented in the same direction.
5. The laptop in the store should not be hidden. It is possible that the radio will work when hidden, but the position must be tested.
6. Finally, do not mount antennae inside of metal enclosures, or where metallic objects will be in the line of sight between the laptop and the sign radio. Doing so will seriously degrade their performance.



Figure 7: Radios mounted, with line of sight

Communications from inside the Store:

Setup inside the store includes a laptop PC. It should not be used for other communication. **Do not use the computer for personal use.**

Setting Up PC Connection

1. Unpack the laptop PC.
2. Install laptop battery and connect power plug (Figure 8).
3. When sending messages to the sign, ensure that the laptop is within line of sight to the sign face. This will ensure an efficient transfer of data from the laptop to the sign.

Note: If the sign is already equipped with an electronic price change unit that is controlled wirelessly, care must be taken so that the antennas are at least two and a half feet away from one another. Failure to do this will result in poor performance.



4. Turn on laptop.
5. Open Colorspace from desktop icon.
6. Click in the 'Message Text' box (Figure 9), and type a test message.
7. Click 'File', 'Save As', and enter 'Sample message' as filename. Click 'Save'.
8. Click the blue arrow at upper right, 'Export to Scheduler Library'.
9. Close Colorspace.
10. Double click on the 'EMC Serial File Sending Program' on the laptop desktop (Figure 10). It should go through a connection routine, then 'Go' will be highlighted. Click 'Go'.
11. The program should go through steps of sending program and storing to memory. It will automatically close. At this point the test message should be displayed on the EMC.
12. If not working, please fill out the EMC Service Call sheet before calling Blair Service at 814-949-8287 for assistance.



Figure 8: Laptop setup



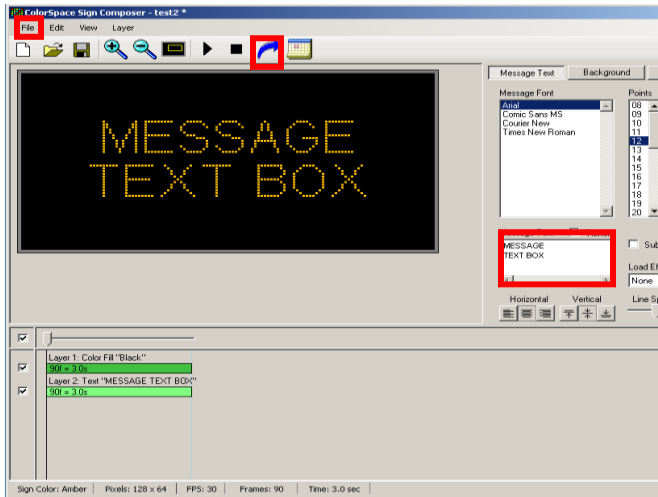


Figure 9: Colorspace Setup

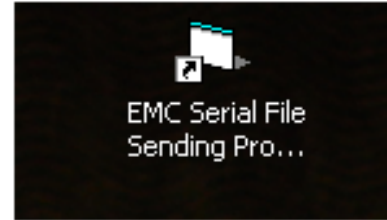
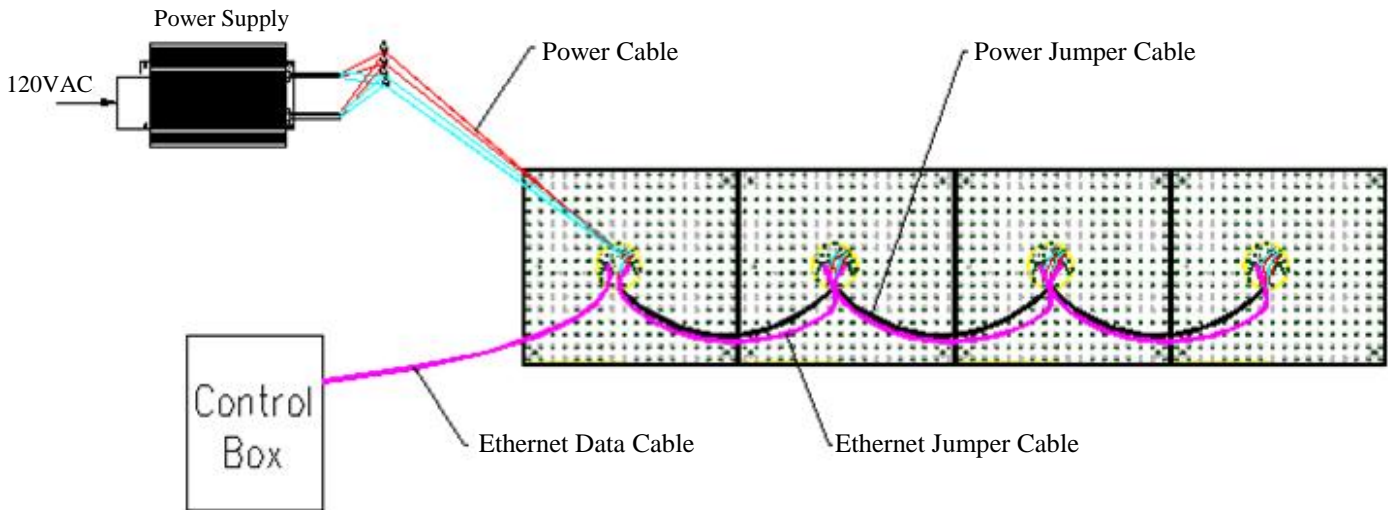


Figure 10: EMC File Sending Program

J. Sample Wiring Schematic

16x72 Monochrome Matrix View from Front Face



**REFER TO COLORSPACE MANUAL
ON LAPTOP OR AT
www.blaircompanies.com/ledsupport
FOR SOFTWARE INSTRUCTIONS**

K. Troubleshooting

Note: CALL BLAIR COMPANIES FIRST if you have any service issues!
(See Contact List located in the back of the manual.)

1. **Clearly define symptoms!!** This is the most critical step in troubleshooting. You must clearly understand the problem before you can attempt to solve it.
 - a. Is the problem unique to one panel?
 - b. Do the affected panel(s) on both faces display the same symptom?
 - c. Are the symptoms intermittent (They are not there all the time)?
 - i. If the symptoms are intermittent, what are the conditions when the problem is observed? Temperature, weather, and time of day can all be factors.

2. If one or more of the tiles on the sign are not lighting correctly:
 - a. If the problem is located on a single tile only, the most likely cause is the tile itself. Try swapping it with another tile.
 - b. If there is more than one tiles with the same problem, and they are in the same portion of a row, there is likely a problem with the cable going to the first board (facing the sign, on the left). Note this could be a jumper cable from the board to the left, or from the driver/controller box if it is the first of 5 monochrome or 16 RGB.
 - c. If there are more than 5 monochrome tiles not coming on (up to 8) then it is likely a power supply issue. Check the power supply incoming voltage, and output voltage (12VDC). Check cable connections to the boards.
 - d. If all tiles display the same problem, it is almost certainly either the controller or the driver, as those are the only parts common to all tiles in the sign. Change the controller board first, and then try the driver.

3. If none of the LEDs are lighting:
 - a. Verify there is a scheduled message running at the sign through PC Colorspace program and Scheduler. See Section G.
 - b. Verify there is adequate power to the sign. There must be 120v power to the sign at all times or the power supply will go into safe mode and shut down.
 - c. Verify there is nothing else on the circuit that powers the sign.
 - d. Check input and output voltage of the power supply.
The Input voltage should read 120v AC.
The Output voltage should read 12v DC.

4. If the Sign is not Communicating Properly:
 - a. Verify that the sign and laptop are powered and connected properly.
 - b. Go to the laptop Windows Start Menu, click on 'Programs', then 'Accessories', then 'Command Prompt'. Type: "ping 192.168.1.99" (no quotations) and press enter. It will go through the ping request, and the Ping statistics should indicate 4 Packets sent, 4 received, and 0 lost. If the ping is successful, the laptop is communicating with the Lantronix (radio) receiver. If files cannot be sent, check all connections on the controller—power & radio.
 - c. If the ping is not successful, check the Lantronix/Engenious (radio) is connected properly.
 - d. It may be necessary to relocate the laptop in the store to establish a consistent wireless link.

L. EMC SERVICE CALL SHEET

Person Calling:

Phone Number:

Email Address:

@

Fax Number:

Original M#:

Year Installed:

Size of sign: _____ X _____

Type of sign: Full Color: _____ Mono: _____ Unilum: _____ Yaham: _____ Other _____

Is issue on both sides: Yes _____ or No _____

Windows XP: _____ Windows 7: _____

Router: _____ Engenius: _____ Hardwire: _____ Other: _____

Is it connected to Blair EMC: _____

Signal Strength: _____

Ping: (go to start menu, all programs, accessories, command prompt):

Router	Engenius	Hardwire	Other
Router 192.168.1.1	Eengenius 192.168.1.2	Lantronix 192.168.1.99	
Lantronix 192.168.1.99	Lantronix 192.168.1.99		

Check cpr manager to make sure the comport is opening (see notes below):

HOW TO CHECK THE CPR MANGER TO MAKE SURE COMPORT 7 IS OPENING:

- GO TO START MENU
- ALL PROGRAMS → LANTRONIX → CPR MANAGER
- LEFT SIDE OF SCREEN CLICK ON COM 7 (this takes you to settings screen)
- LOOK AT THE TOP OF THE SETTINGS SCREEN THERE WILL BE A TAB COM 7 TEST
- CLICK ON THE TAB (COM 7 TEST)
- CLICK ON OPEN
- YOU CAN SEE THE TEST RUNNING ON THE BOTTOM RIGHT HAND SIDE OF THE SCREEN
- CLOSE

Check the static IP address (see notes below):

ENGENIUS ONLY

WINDOWS 7 STATIC IP ADDRESS:

- GO TO THE BARS AT THE BOTTOM RIGHT HAND SIDE OF SCREEN AND LEFT CLICK (this is where you see if you are connected to the Blair EMC)
- GO TO THE BOTTOM OF THE SCREEN AND CLICK ON OPEN NETWORK SHARING CENTER
- LOOK FOR CHANGE ADAPTER SETTINGS ON LEFT HAND SIDE OF SCREEN CLICK
- GO TO THE LOCAL AREA CONNECTIONS CLICK ON IT
- MAKE SURE THAT INTERNET PROTOCOL VERSION 4 IS CHECKED.
- CLICK ON INTERNET PROTOCOL VERSION 4 SO IT IS HIGHLIGHTED
- CLICK ON PROPERTIES AND TYPE IN 192.168.1.1 IN THE IP ADDRESS
- CLICK ON SUBNET MASK AND TYPE IN 255.255.255.0
- CLICK OK

WINDOWS XP STATIC IP ADDRESS:

- GO TO START MENU LEFT CLICK
- THEN GO TO CONTROLPANEL (LEFT CLICK)
- GO TO NETWORK CONNECTIONS OR SHARING NETWORK CONNECTIONS (DOUBLE LEFT CLICK)
- CLICK ON LOCAL AREA CONNECTIONS AND GO TO PROPERTIES
- LEFT CLICK ONE TIME TO HIGH LIGHT INTERNET PROTOCOL (TCP/IP)
- CLICK ON PROPERTIES
- MAKE SURE THE “USE THE FOLLOWING IP ADDRESS” IS CHECKED
- TYPE IN 192.168.1.2 IN THE IP ADDRESS
- TYPE IN 255.255.255.0 IN THE SUBNET MASK
- CLICK OK

TO REINSTALL COLOR SPACE:

- GO TO THE DESK TOP
- FIND THE FOLDER “NEW WINDOWS”
- GO TO COLOR SPACE AND INSTALL
- GO TO THE EMC FILE SENDING PROGRAM AND INSTALL
- DOUBLE CLICK
- AND THEN CLICK ON OKS AFTER THAT

UNILUMIN EMC:

If the sign has a settle dish do the following:

- Settle dish has the router inside of it we are ping the router ... ping 192.168.1.1
- This is the computer in the sign (see if there is a black laptop or a silver laptop in the sign) ping 192.168.1.100
- This is the computer in the sign (there are two outputs) ping 192.168.1.99

REV. 1 8/2/2012

M. Contacts

For installation problems, call:

Hector Ortiz
Supervisor - Technical Services
(814) 283-2038
Cell (814) 934-8662
hortiz@blaircompanies.com

Kim Kurtz
Project Manager
(814) 283-2037
kkurtz@blaircompanies.com

Matthew Barton
Product Engineer
(814)949-6419
mbarton@blaircompanies.com

For warranty or service issues, call:

Blair Companies
1 (800) 581-0709
service@blaircompanies.com

Kim Kurtz
(814) 283-2037
kkurtz@blaircompanies.com

Hector Ortiz
(814) 283-2038
Cell (814) 934-8662
hortiz@blaircompanies.com

Scott Hoffer
(814) 283-2036
Cell (814) 935-8506
shoffer@blaircompanies.com

**Blair Companies 24 hr Emergency Service:
800-563-9598**



M. REQUIRED WARRANTY & INSTALLATION CHECKLIST

Please complete one form for each location

SIGN OWNER

Company: _____
 Contact: _____
 Contact Phone: _____
 Store Address: _____

 Store Number: _____
 Sign Phone No: _____
 (if applicable)

INSTALLER

Company: _____
 Phone: _____
 Address: _____

 Blair M#: _____

CONFIRM THE FOLLOWING ITEMS AS COMPLETED. Email or fax completed checklist, invoice, and photos to initiate the warranty. Send to LEDwarranty@blaircompanies.com or fax to 814-949-8293, Attn: LED Warranty.

- Sign Mounting: *Please check with the owner or general contractor for any changes to the sign placement, height, or orientation before proceeding. Report any discrepancy from the plans.*
- Receipt of all required parts (sign, control panel, laptop and radio)
- Receipt of all documents:
 - Instruction Manual (on web)
 - Operator Instruction Manual
- Upon completion of the installation, all manuals left with store manager or owner AND the site was trained on using the laptop.
- Proper installation of all the following components is in accordance with Blair Companies' Installation Guide to assure that each component is operating properly. *(Please make note of any problems/resolutions on a separate sheet of paper and submit with this checklist.)*
 - Control Panel
 - LED Tiles on both sides
 - Grounding Rod
 - Light sensor at 4'-5' high
 - Data Cables tied to the hook of each monochrome tile
 - Radios – Exterior radio mounted to exterior of sign at 4'-5' high; interior laptop in line of site and away from potential electronic interference.
- Each set of number modules is fully tested and operational.
- After installation, please send photos, invoice, and this form to Blair Companies. Photos must include the following:
 - **Control Panel** – How & Where the control panel is mounted with silicone around the lid
 - **Data Cables** – Showing cables tied to the hook on a tile
 - **Grounding Rod** – Interior or Exterior
 - **Laptop in Store** – Must be in clear line of sight to the sign. Placed at least 2.5' away from any existing antennas.
 - **Radio on Sign** – Antenna must be mounted on exterior of sign up or down **NOT** sideways, and at least 2.5' away from any existing antennas.
 - **Light sensor** – Must be mounted 4-5' off ground
 - **Top of Sign** – Taken from Interior or Exterior showing sign is sealed and weatherized
 - **Faces of Sign** – Showing LEDs are lighting on both sides of sign with NO outages. Photo needs to be taken from a distance of 5X height of display

INSTALLER: By signing, I agree that the sign described at the location above was installed according to the guidelines and that all items on the above checklist were completed. I understand that failure to perform any of the items on the checklist or to install per instructions will result in Installer liability. I also understand that in the event that additional work is required to properly install the sign, all incurred costs will be at my expense.

Installer Name: _____ Signature: _____
 Date of Install: _____

STORE MANAGER / OWNER: By signing, I agree that the installation of the sign described at the location above was demonstrated by the installer to be functioning correctly. The installer has reviewed the Installation Checklist with me and I agree that the installer has completed all items in accordance with the checklist.

Owner Name: _____ Signature: _____
 Date: _____

N. Completion Photo Guidelines

The following photos are necessary to verify proper installation and operation of the system. Note that digital cameras can capture images that may not reflect what is perceived by the human eye, particularly the LED display. This includes brightness/dimness or splotchy LED patterns. Take 2-3 photos of each required view, and check the picture on the camera to verify it reflects actual sign display. Camera settings like exposure setting may need to be increased to accurately portray the situation.

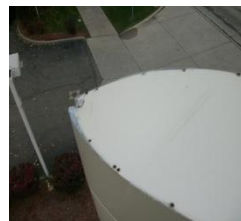
Email photos, along with job number/information to trabenstein@blaircompanies.com

- **Control panel** – How & Where the panel is mounted
- **Tile Cables** - Each Face showing cables tied
- **Grounding Rod** – Interior or Exterior
- **Radio in Store** – Must be in clear line of the sign. Mounted up or down **NOT** sideways or under cabinet, and at least 2.5' away from any existing antennas.
- **Radio on Sign** – Antenna must be mounted on exterior of sign up or down **NOT** sideways, and at least 2.5' away from any existing antennas.
- **Light Sensor** – Must be mounted 4-5' off ground
- **Top of Sign** – Taken from Interior or Exterior showing sign is sealed and weatherized
- **Faces of Sign** – Showing LEDs are lighting on both sides of sign with NO outages. Photo needs to be taken from a distance of 5X height of display

Sample photos



Control Panel



Top of Sign



Tied Cables
(monochrome only)



Face – Side 1



Grounding Rod



Face – Side 2



Radio in Store at least 2.5'
away from other antennas



Radio on Sign at least 2.5'
away from other antennas



Light Sensor