SUNRISE SYSTEMS

QUALITY LED DISPLAY SYSTEMS

Installation and Operation Manual

TKR Series LED Signs

S1400673 Rev F

2/23/15

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- S1400671 24H 6-Inch Character Straight Ticker
- S1400672 24H 6-Inch Character Flex Ticker
- S1400738 16H 4.8-Inch Character Flex Ticker
- S1400739 16H 4.8-Inch Character Straight Ticker
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- S1400741 32H 9.6-Inch Character Straight Ticker

Custom sign configurations may require a specific shop drawing to be created.

Section 1: Warnings

- THE TKR LED SIGN IS INTENDED FOR USE IN A DRY PROTECTED INTERIOR ENVIRONMENT ONLY! INSTALLATIONS WHICH INVOLVE ABOVE GROUND OR UNDERGROUND DATA CONNECTIONS BETWEEN BUILDINGS SHOULD USE DIELECTRIC FIBER OPTIC CABLE ONLY TO AVOID LIGHTNING CONDUCTION HAZARDS.

- FLEXIBLE UNITS ARE DESIGNED TO BE CURVED ONCE FOR INSTALLATION AND ARE NOT INTENDED FOR REPEATED FLEXING AND UNFLEXING.

- HAZARDOUS VOLTAGES EXIST IN THE SIGN. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. ALL POWER MUST BE DISCONNECTED BEFORE SERVICING THE SIGN.

- THE NATIONAL ELECTRIC CODE REQUIRES THAT PERMANENTLY WIRED CONNECTIONS MUST BE EQUIPPED WITH A READILY ACCESSIBLE DISCONNECT DEVICE INCORPORATED INTO THE FIXED WIRING IN CLOSE PROXIMITY TO THE SIGN. SUCH A DEVICE MUST DISCONNECT ALL MAINS CIRCUITS FEEDING THE SIGN SIMULTANEOUSLY. SUCH INSTALLATIONS RELY ON BUILDING INSTALLATION.

- TEMPORARY INSTALLATIONS MAY BE CONNECTED WITH A PLUGGABLE CORD. FOR PLUGGABLE CORD CONNECTED UNITS THE SOCKET OUTLET MUST BE INSTALLED NEAR THE EQUIPMENT AND MUST BE EASILY ACCESSIBLE. PLUGGABLE CORD CONNECTED UNITS MAY BE TURNED OFF BY UNPLUGGING THE CORD.

- ALL INSTALLATIONS MUST COMPLY WITH THE REQUIREMENTS OF THE CURRENT NATIONAL ELECTRICAL CODE.

- THE SIGN REQUIRES A GOOD EARTH SAFETY GROUND. LONG SIGNS MADE OF SECTIONS MAY REQUIRE MULTIPLE EARTH GROUND CONNECTIONS TO ACHIEVE A RESISTANCE OF 100 MILLIOHMS OR LESS FROM ANY CHASSIS SURFACE TO EARTH GROUND. SIGNS SUPPLIED IN SECTIONS MUST BE LINKED WITH GROUND STRAPS ACROSS SECTION BOUNDARIES THAT DO NOT REQUIRE REMOVAL TO PERFORM ANY SERVICE OPERATION.

- THE SIGN MUST BE PROTECTED FROM LIQUIDS, METAL PARTICLES AND OTHER FORMS OF DIRT, AND PENETRATION BY SCREWS OR OTHER OBJECTS.

- THE SIGN REQUIRES FREE CONVECTION TO OPERATE PROPERLY. IT IS NOT PERMISSIBLE TO ENCLOSE THE SIGN IN A CAVITY OF INSULATING MATERIAL SUCH AS PLYWOOD AND PLASTIC WITHOUT PROVIDING MANY LARGE VENTS OR FORCED AIR COOLING. THE SIGN CONTAINS ONE OR MORE THERMOSTATS WHICH WILL SHUT THE SIGN DOWN IF THE TEMPERATURE RISES ABOVE SAFE LEVELS.

- Le TKR le SIGNE MENÉ EST DESTINÉ POUR L'UTILISATION DANS UN ENVIRONNEMENT INTÉRIEUR PROTÉGÉ SEC SEULEMENT! LES INSTALLATIONS QUI IMPLIQUENT À LA SURFACE OU LES CONNEXIONS DE DONNÉES SOUTERRAINES ENTRE LES BÂTIMENTS DEVRAIENT UTILISER LA FIBRE DIÉLECTRIQUE LE CÂBLE OPTIQUE SEULEMENT POUR ÉVITER DES HASARDS DE CONDUCTION DE FOUDRE.

- LES UNITÉS FLEXIBLES SONT CONÇUES POUR ÊTRE COURBÉES UNE FOIS POUR L'INSTALLATION ET NE SONT PAS DESTINÉES POUR LE FAIT DE PLIER RÉPÉTÉ ET LE FAIT DE NON PLIER.

- LES VOLTAGES LES HASARDEUX EXISTENT DANS LE SIGNE. IL N'Y A AUCUN UTILISATEUR LES PARTIES UTILES À L'INTÉRIEUR. RENVOYEZ L'ENTRETIEN AU PERSONNEL DE SERVICE QUALIFIÉ. TOUT LE POUVOIR DOIT ÊTRE DÉBRANCHÉ AVANT LE FAIT D'ASSURER L'ENTRETIEN LE SIGNE.

- LE CODE ÉLECTRIQUE NATIONAL EXIGE QUI EN PERMANENCE TÉLÉGRAPHIAIT LES CONNEXIONS DOIVENT ÊTRE ÉQUIPÉES AVEC SANS HÉSITER ACCESSIBLE DÉBRANCHENT L'ARTIFICE INCORPORÉ DANS L'INSTALLATION ÉLECTRIQUE FIXÉE DANS LA PROCHE PROXIMITÉ AU SIGNE. UN TEL ARTIFICE DOIT DÉBRANCHER TOUS LES CIRCUITS DE CONDUITE PRINCIPALE NOURRISSANT LE SIGNE SIMULTANÉMENT. DE TELLES INSTALLATIONS COMPTENT SUR LA CONSTRUCTION DE L'INSTALLATION.

- les INSTALLATIONS TEMPORAIRES PEUT ÊTRE RACCORDÉ AVEC UNE CORDE PLUGGABLE. CAR LA CORDE PLUGGABLE A RACCORDÉ DES UNITÉS L'ISSUE DE DOUILLE DOIT ÊTRE INSTALLÉE PRÈS DE L'ÉQUIPEMENT ET DOIT ÊTRE FACILEMENT ACCESSIBLE. LA CORDE de PLUGGABLE A COMMUNIQUÉ LES UNITÉS PEUVENT ÊTRE ÉTEINTES EN NON BRANCHANT LA CORDE.

- TOUTES LES INSTALLATIONS DOIVENT SE PLIER AUX EXIGENCES DU CODE ÉLECTRIQUE NATIONAL ACTUEL.

- LE SIGNE EXIGE UNE BONNE TERRE DE SÉCURITÉ DE TERRE. LONGTEMPS LES SIGNES FAITS DES SECTIONS PEUVENT EXIGER AUX CONNEXIONS DE TERRE MULTIPLES DE TERRE D'ACCOMPLIR UNE RÉSISTANCE de 100 MILLIOHMS OU MOINS DE N'IMPORTE QUELLE SURFACE DE CHÂSSIS À LA TERRE DE TERRE. LES SIGNES FOURNIS DANS LES SECTIONS DOIVENT ÊTRE RELIÉS AVEC LES COURROIES DE TERRE À TRAVERS LES LIMITES DE SECTION QUI N'EXIGENT PAS À D'ENLÈVEMENT D'EXÉCUTER N'IMPORTE QUELLE OPÉRATION DE SERVICE.

- LE SIGNE DOIT ÊTRE PROTÉGÉ DES LIQUIDES, LES PARTICULES EN MÉTAL ET D'AUTRES FORMES DE CRASSE ET DE PÉNÉTRATION PAR LES VIS OU D'AUTRES OBJETS.

- LE SIGNE EXIGE À LA CONVECTION LIBRE D'OPÉRER CORRECTEMENT. IL N'EST PAS PERMIS D'ENTOURER LE SIGNE DANS UNE CAVITÉ D'ISOLANT THERMIQUE COMME LE CONTREPLAQUÉ ET LE PLASTIQUE SANS FOURNIR BEAUCOUP DE GRANDES BOUCHES OU REFROIDISSEMENT À AIR FORCÉ. LE SIGNE CONTIENT UN OU PLUSIEURS THERMOSTATS QUI FERMERONT LE SIGNE SI LA TEMPÉRATURE MONTE AU-DESSUS DES NIVEAUX SÛRS.

Section 2: Overview of the Displays

This manual provides installation, maintenance and troubleshooting information for Sunrise Systems TKR displays. The TKR displays are built for long life and easy maintenance. To ensure the optimal performance of the display, read and understand all steps in this manual before beginning the installation process. Warranty information is also included within these sections.

2.1 Display Details

Ticker model numbers are described as follows:

Ticker Part Number Configuration					
Sign Model	Mux Level	Row Pixel Height	Character Height	Number Cards in Sign	Chassis Type
T K R M	X	X X	X X	X X X	X
	2 = MUX'D BY 2 4 = MUX'D BY 4 7 = MUX'D BY 7 10 = MUX'D BY 10	7 16 24 32 48	15 = 1.5 inch 48 = 4.8 inch 60 = 6 inch 72 = 7.2 inch 12 = 12 inch 16 = 16 inch 24 = 24 inch		F = Flex R = Rigid

Figure 1: *Part Number Builder*

Note: The display model number is listed on a label located on the right end cap. See figure 2 for the label's approximate location.

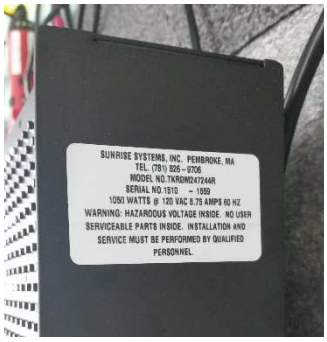

Figure 2: *Display Model # Label*

Sunrise Systems LED ticker displays are an extendable type sign. A LED module is the building block of the ticker display. Each module measures 12-Inches in length with the exception of the 6-inch character. The 6-inch character is 6-inches in length. Each character height has a different number of row pixels. There is also a 9-inch module which is used to extend the sign length in increments of 3-inches. There are (5) different pixel heights. They are 7 high, 16 high, 24 high, 32 high & 48 high. Other configurations are available upon request.

The diagrams in Figure 3 give an overview of the display. Figure 3 shows the front and back view of a typical display.

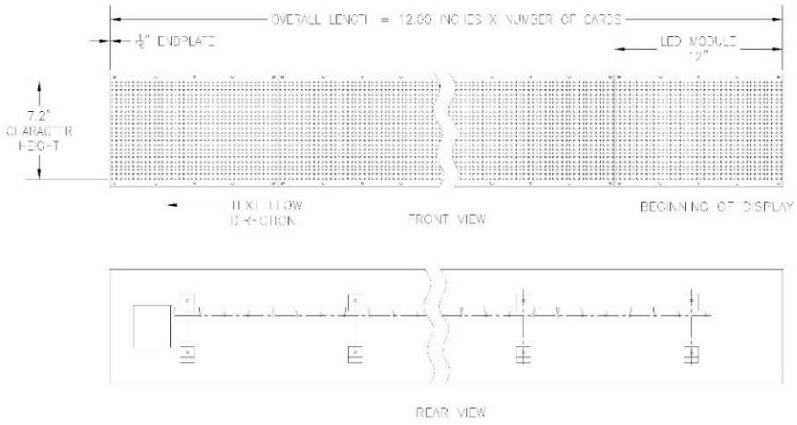

Figure 3: *Front & Rear View of Display*

The TKR displays use high intensity, low energy RGB (Red, Green, Blue) LEDs and are capable of 24 bit color (16.7 million color shades).

Ideal for displaying custom messages or graphical logos.

The TKR display can be supplied in either a rigid or flexible cabinet. Both are constructed of aluminum and finished in a black powder coat.

2.2 Control Platforms

TKR Series LED displays have a versatile controller platform that allows for a variety of programming and data integration options. Each of the options below allows for the TKR LED display to be programmed via IP addressed over a local area network. If you have specific needs for content delivery to your LED display please email support@sunrisesystems.com to discuss your requirements.

a. Standalone Messaging – For text and still image display, XPS Software by Sunrise Systems is a Windows based application that will allow you to upload custom messages and bitmaps to the TKR LED display.
b. Dynamic Data – For data integration from Excel spreadsheets, DDE, RSS, ODBC or CSV files, JetStream Software by C-Scape is a Windows based application that will push content to the TKR LED display from these types of data sources.
c. Third Party Data Subscription – For a constant stream of current information, i.e. News Headlines, Sports Scores, and Financial Information, a subscription to a data delivery service is required. The software supplied by the Data Provider will also allow for custom messages and bitmaps to be added to the streaming content playlists.
    a. Recommended Data Providers:
        i. Rise Display
        ii. C-Scape Software

2.3 Electrical Requirements

Notable Information:

- Only a qualified individual should terminate power and signal cable at the display.
- All proposed modifications must be approved by Sunrise Systems or warranty is void.
- Do not connect the display to any other voltage other than what is listed on the serial number label

The TKR displays can be powered by two different methods. The first is by power cord and the second is by a hardwired termination in a junction box within the sign. The TKR displays require a voltage input of 120 VAC 60Hz. The power input for all displays starts at the right end of the display.

For units that use the power cord option, it may be necessary to power the sign with multiple dedicated circuits depending on the overall length of the display. The display is supplied with a 6 foot long power cord at each power drop that has a right angle plug. The TKR display is spaced sufficiently off the wall to allow for the outlets to be located behind the display. Below is a table depicting the distance between outlets for the different pixel heights.

For units that use the hardwired option, it may be necessary to power the sign with multiple dedicated circuits depending on the overall length of the display. The maximum amperage per length of sign will vary depending on the character height of the sign and is available from the below table. The first junction is located at the right end of the sign.

Product	Description	Power/Foot	Distance Between Outlets*	**Distance Between Junction Boxes
TKR-M10-16-48	16 High, .3" Pitch	19 watts/ft	52-Feet	113 Feet
TKR-M10-24-72	24 High, .3" Pitch	29 watts/ft	34-Feet	74 Feet
TKR-M10-32-96	32 High, .3" Pitch	38 watts/ft	26-Feet	56 Feet
TKR-M4-24-12	40 High, .5" Pitch	43 watts/ft	24-Feet	50 Feet
TKR-M4-32-16	32 High, .5" Pitch	58 watts/ft	17-Feet	37 Feet
TKR-M4-48-24	48 High, .5" Pitch	86 watts/ft	12-Feet	25 Feet

Figure 4: *Electrical Requirements*

*The first outlet or electrical service should be located a minimum of 24" from the right end of the sign.
**Calculations based on using a 20 Amp circuit.

- A dedicated circuit is defined as one hot, one neutral and on ground wire
- Size conductors of circuits delivering power to TKR display according to local and national electrical codes. So that power distribution systems can deliver full-load power to the display while maintaining a voltage within 5 percent to the utility nominal voltage.

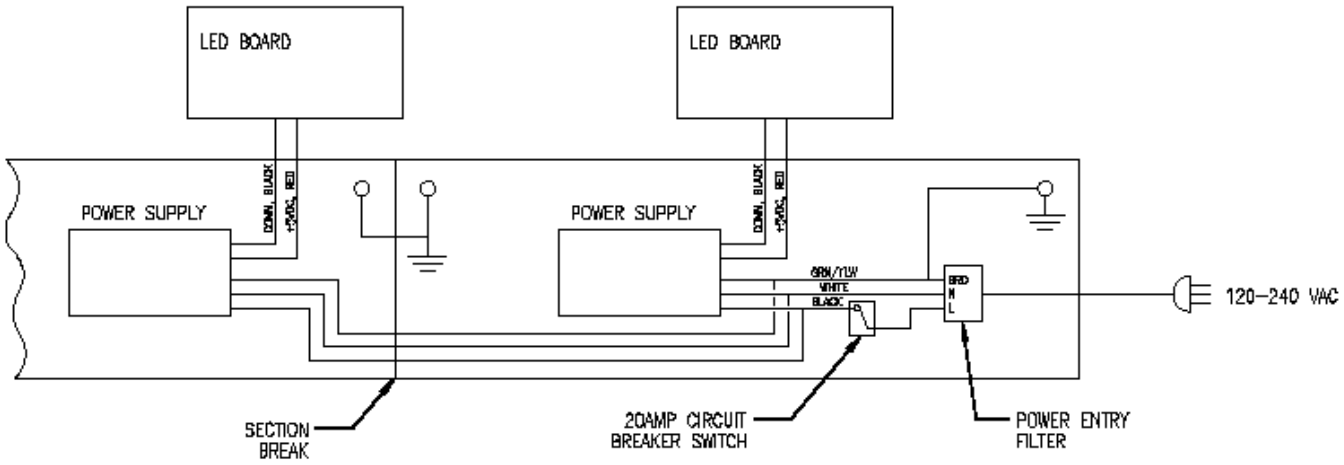

Figure 5: *Grounding Diagram*

2.4 Safety Precautions

- Please read and understand installation instructions before installing.
- Do not disassemble control equipment or electronics components of the display; failure to follow this safeguard will void the warranty.
- Disconnect display power before servicing power supplies to avoid electrical shock.

Section 3: Display Installation

Sunrise Systems engineering staff must approve any changes that may affect the display. If any modifications are made, detailed drawings of the changes must be submitted to Sunrise Systems for evaluation and approval, or the warranty may be void. Sunrise Systems is not responsible for installations or the structural integrity of support structures done by others.

3.1 Support Structure Requirements

The installer is responsible for ensuring that the mounting structure and hardware are capable of supporting the display, and the structure follows all local codes.

Because every installation site is unique, no single procedure is approved by Sunrise Systems for mounting Ticker displays. The information contained in this section is general information only and may or may not be appropriate for this particular installation. Refer to Figure 3 and Figure 4 for basic display set-ups.

A qualified individual must make all decisions regarding the mounting of this display.

Support structure design depends on the mounting methods, display size, and weight. In general, the front of the display needs to be unobstructed to allow for air flow and internal access. Also note the location of the mounting brackets and the power/signal cords on the back of the display. Refer to Figure 2 for the back view of a typical display.

3.2 Pre-installation Checklist

Verify the following before proceeding with installation:

- Unpack the boxes and make an inspection to verify that the goods are not damaged. Handle the sign sections carefully because they have fragile links keeping them straight, and these will collapse if stressed too hard.
- All z-clip or mounting brackets are attached to the sign.
- Adequate support is provided for the display so that the structure will not yield at any unsupported points after mounting.
- Clearance in front of the display is maintained to allow unobstructed air flow through the vents and to allow access to internal components.
- Required Tools:
    - Cordless screwdriver/drill with #1 & #2 Phillips bit
    - Standard set of drill bits
    - ¼” Nut driver
    - 5/16” Nut Driver
    - Level
    - Chalk Line
    - Tape Measure

- Black Sharpie (for “painting” exposed mounting screws and any touch up of chassis)
- Wire cutters/strippers

- Required Supplies Installer Needs to Provide:
  - Wall anchors appropriate for wall type for mounting cleat rail or sign.

3.3 Small Items

Your sign may be shipped with program CD and instructions. It may also come with data cable extension, RS-422 converter, brackets, thread rods or back extrusions depending on your installation situation. Put all cables, converters, cd's, instructions and plugs aside for safekeeping. You will not need them until later.

3.4 Section Numbering

The TKR signs are shipped in sections of eight feet or less. If your sign has more than two sections, they will be numbered starting at 1 going right to left as you view the front of the sign. Special connections may be included if specified at the time of order. The section numbers are marked on the top right end of each section. The sections must be installed in this order. If your sign has only two sections you need only connect the two sections at the ends without end caps. The right end as you view the sign from the front is where the power and data connections are made.

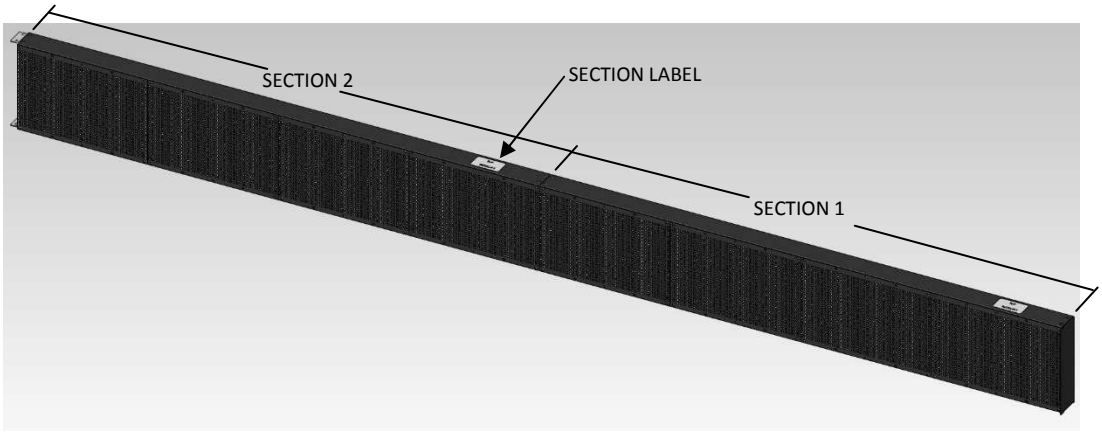

Figure 6: *Chassis Section Diagram*

3.5 Joining Plates Identified

If your sign is comprised of a single section you may ignore the following paragraph.

The joints between sections are spanned by two small flat plates on the top and bottom surfaces and a larger flat plate for the inside rear. The larger flat plate is only used for flexible type signs. These are already attached to the left ends of the appropriate sections. They should have the required screws for the mating section in them already. You will have to remove these screws to insert the plates into the adjacent section and reinstall the screws in the countersunk holes.

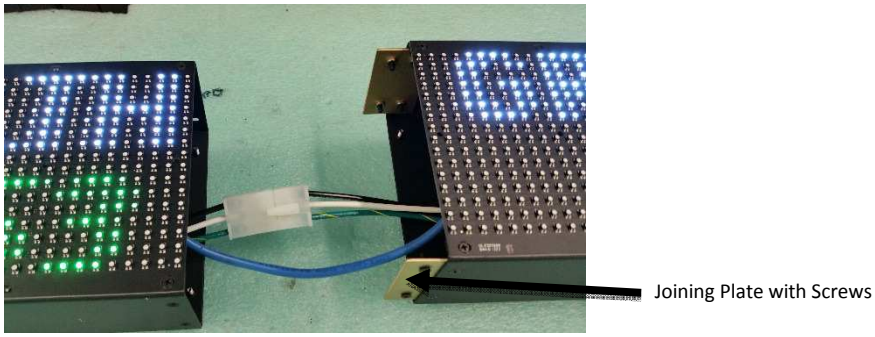

Figure 7: *Joining Plates*

3.6 Cutout Links Identified

If your model is designed to be curved, you will see that the chassis has numerous slots which divide it into ribs. If your sign is straight with a solid metal chassis you may ignore the following paragraph.

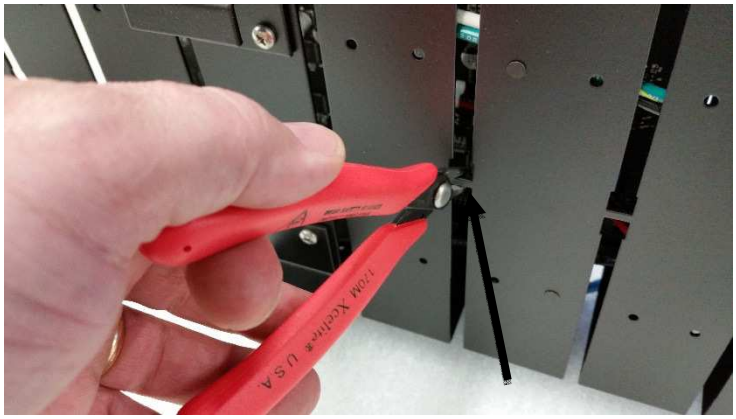

Figure 8: *Flex Chassis Link*

Notice the small links on the back wall of each section that join the ribs of the sign together. These keep the sign straight and make it easy and safe to handle until it is installed. These links should be left intact wherever the sign is to remain straight when installed. They must be cut out with a sharp diagonal cutter wherever the sign must curve. To achieve the tightest possible convex bend, you should cut each link twice, flush down to the base on each side. Concave bends only require cutting each link once.

IT IS EXTREMELY IMPORTANT NOT TO DROP ANY METAL CLIPPINGS DOWN INTO THE SIGN! When you cut a link entirely out, be sure to get the chip out of the sign.

3.7 General Installation Sequence

If your sign is supplied in one section with one power cord, you may skip ahead to section 7.

For a sign with multiple sections, we recommend starting at the right end where the power and data cables will enter and working leftward. The installation involves making a power, data and mechanical connection at each section joint. Power, data and mechanical connections should all be made and completed for one section before going on to the next section. In general, the best order to make the connections is 1) power 2) data and 3) mechanical.

3.8 Power Connections Across Sections

As each section is installed you must connect the power across the sections. Signs shipped in multiple sections will be marked with a nameplate voltage and current rating at the points where branch circuit power entry is required. Very long signs will require that power be supplied by multiple branch circuits. Branch circuits must be sized appropriately for the nameplate current rating.

Figure 9: *Ground connection*

IMPORTANT: Connect the ground link with the green/yellow striped wire between the two grounding studs with the washers and nuts provided. The grounding lug should have a toothed washer underneath and a lock washer above it with an 8-32 hex nut above that.

To connect power from one sign section to the next sign section on the same circuit, connect the three position connector to the next sign segment. Be sure that when the connection is being made that the white, green and black wiring match. It is possible to do all this without disassembling the LED matrix. Position the two sign sections about two inches apart when performing the work so that after the power and data connections are made, the two inch gap may be closed.

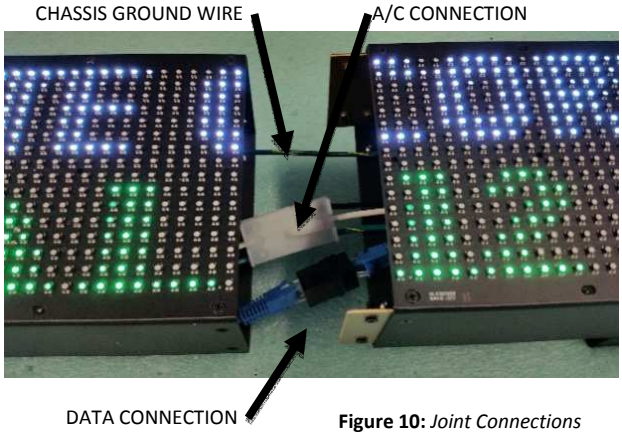

Figure 10: *Joint Connections*

Alternatively, you may elect to disassemble the LED matrix by unscrewing retaining hardware and disconnecting cabling. Don't lose the hardware. HANDLE THE CIRCUIT BOARD CAREFULLY. AVOID STATIC ELECTRICITY. WARNING - .DO NOT LET THE LED MODULE HANG BY THE DATA CABLES OR DC POWER CABLE. THIS WILL CAUSE DAMAGE.

This method may be easier to manage in some situations, allowing the final mechanical connection to be made before connecting the power and data across sections.

3.9 Data Connections Across Sections

The next step is to join the data circuits across the sections by plugging the RJ45 cable or 16 conductor ribbon cable to the next LED board.

3.10 Mechanical Connection of Sections

While the power and data connection process is the same in all cases, the mechanical installation procedure will vary depending on the type of support method used.

There are three basic mounting systems in use:

A) Cleat & Rail Method:

There is an aluminum cleat rail supplied in lengths of approximately six feet long. This is to be screwed to the wall at close intervals. Screws must be drilled into studs or plywood or other solid material, not just sheetrock. The basic cleat rail is not strong enough to resist deformation if the support points are very far apart. Check the stiffness of the cleat rail along its entire length after attachment to be sure it is acceptable before mounting sign sections.

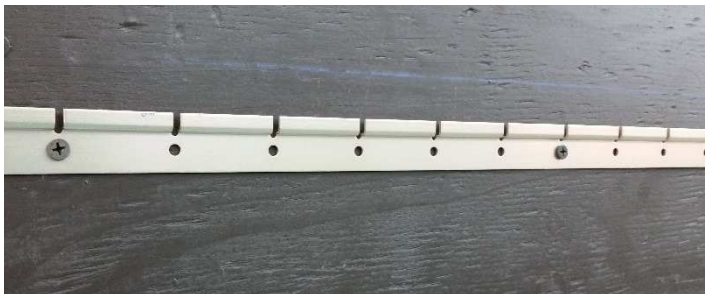

Figure 11: *Rail*

The hooked lip of the cleat sticks upward approximately 1/8" off the wall. Similar small cleat sections are screwed on the back of the sign at intervals using sheet metal screws. These cleat hooks face downward. Put the sign against the wall over the cleat and slide it down so that the cleat segments on the back engage the cleat rail on the wall. Be sure that the cleat rail is mounted on the wall far enough below the ceiling to permit the sign to be lifted off the cleat far enough for installation.

As you join successive sections together, you may find that there is too much friction to allow the sign section to slide left and right after the cleats are engaged. If this happens, you will have to lift the end of the first section up off the cleat far enough to mate the ends and screw the joining links together before dropping the whole assembly down onto the cleat.

Figure 12: *Cleat & Rail Method*

B) Screw Through Chassis Method:

Where it is appropriate to directly mount the chassis with screws to the wall there are holes in the back of the sign cabinet to do so. For a flex chassis there are 24 mounting holes per 12” of length of chassis and for a rigid chassis there are 4 mounting holes per 12” of length. Each hole is .137” diameter and are arranged in 2 rows in the back surface of the chassis. The rows are spaced vertically 3.70” apart and are symmetric above and below horizontal centerline. Note that the LED modules must be removed in order to take advantage of this mounting method.

C) Hanging mount:

For top or hanging installations we supply fittings that are screwed to the top inside surface of the cabinet. The fitting has a ½” female pipe thread that should be used to support the ticker. The location of the fitting and the total number of fittings used to support the sign is highly dependent on the total length and the configuration of the display. Please consult the factory to determine the fitting locations and quantity.

Figure 13: *Hanger*

In circular and serpentine hanging installations, the small metal links on the back of the sign that hold the ribs together must be clipped out as described earlier. Since there is no wall to define the form of the sign it is necessary to use other means to fix the curvature once it is established. The normal method of doing this is attaching plastic back extrusions to the rear surface of the sign by means of special mounting standoffs and screws. The sign is then configured into its curved form and the plastic extrusions hold it in place.

In all cases the mechanical connection process is completed by screwing flathead screws into the top and bottom surfaces of the sign to engage the joining plates that span the joints. Tuck the data and electrical cables into the right side as the last step before you align the plates and put the screws in.

3.11 Special considerations for the Extreme Right End

The right end of the right section is the point where power and data first enter the sign. There is a male IEC receptacle recessed in a pocket in the rear surface of the display. On the bottom surface of the sign just below the recessed pocket are two holes which contain a 20amp circuit breaker rocker switch which controls the power to the sign. A receptacle and rocker switch will be located at each branch circuit location. Power can alternately be brought in through the top or end of the sign.

Figure 14: *Right End*

If you will be hard wiring power into the sign, it will be necessary to remove the rightmost LED circuit board to gain access to the junction box. HANDLE THE CIRCUIT BOARD CAREFULLY. AVOID STATIC ELECTRICITY. CAREFULLY NOTE RIBBON CABLE PLACEMENTS AND EDGE STRIPE POSITIONS SO YOU CAN RE-CONNECT THEM CORRECTLY IF YOU UNPLUG THEM.

When you have the rightmost junction box open connect a dedicated 120 volt 20 Amp circuit (or 230 volt 10 Amp if configured and marked for 230 volt use) to the three conductor screw terminal blocks using standard color code with black live and white neutral. Replace the junction box cover. Plug in any cables that were disconnected.

3.12 Data Connections

The data cable exits through a RJ45 bulkhead connector recessed in a pocket in the rear surface of the display. This can be connected to a RJ45 receptacle that connects the sign to the site network. This is usually a cat 5 cable with an RJ45 connector terminating it for Ethernet connections. Depending on the installation, the sign may contain an RS-422 to Ethernet converter or a specialized controller.

Section 4: Start Up Procedure

4.1 Start Up Checklist

- ✓ **Is the sign connected to power?**
  The power exits the sign from an IEC receptacle to a power cord that will need to be plugged into a receptacle. The sign could also be hardwired. In both cases, make sure that the circuit breakers for any of the electrical circuits are switched on.

- ✓ **Is the sign connected to RJ45 network jack?**
  If the sign is designed to use a feed from a data provider, the sign will need to connect to the internet.

4.2 Start Up & Test

When all connections have been made, the sign may be tested and operated:

If the sign is intended to be used with a third party data provider:

- As long as the sign has a valid internet connection and power, then after 60 to 90 seconds the sign will begin to scroll content.

If the sign is intended to be used as a standalone messaging center:

- The sign will normally be supplied with a test program loaded. The sign will begin to display content almost immediately once power is turned on. Please refer to the XPS software manual in order to understand how to operate and program the sign.

If the sign is intended to be used with a dynamic data application:

- As long as the sign has a valid internet connection and power, then after 10-20 seconds the will begin to scroll content. The sign is supplied with a default RSS configuration. Please refer to the RSS software manual in order to understand how to operate and program the sign.

If there is a problem in the sign you may first check to see if power is present. Near the center of each LED board are power connector pins. Measure between the pins to see if 5 volts is present. If you do not get a reading of 5 volts check to be sure you have AC power. If AC power is present and the problem persists you may need to replace the power supply within the sign.

Another potential source for problems in the sign is the data signals as they pass through cables from sign section to section. If a short circuit occurs in any section, it can cause all sections to fail. Disconnecting the data cable plugs between the rightmost section and the section to the left of it can eliminate this possibility. You may also remove the rightmost LED board and inspect inside to be sure no cables have come unplugged. If problems persist, please call (781) 826-9706 for assistance.

Section 5: Maintenance & Troubleshooting

5.1 Maintenance

- Visual Inspection – At least once a year, check the display to ensure that the mounting structure and components are in good working condition. Make sure fasteners are tight. Tighten or replace as required.

5.1 Troubleshooting

Section 6: Limited Warranty

Limited Warranty:

Sunrise Systems Inc. warrants for a period of one (1) year from the date of delivery to Buyer that the Product will be free from defects in materials and workmanship when installed and operated in accordance with the product specifications and manuals.

Claims Procedure:

Warranty claims hereunder should be submitted in writing by post, fax, or email, and must recite the nature and details of the claim, the date on which the cause of the claim was first observed, and the model number and serial number of the Product concerned. A Return Material Authorization (RMA) will be issued. Materials returned for warrantee service must be shipped freight prepaid and must be accompanied by a printed copy of the RMA and the RMA number must be displayed on the outside of the shipping carton.

Services:

Upon receipt of an RMA shipment, Sunrise Systems, Inc. will evaluate the materials and, subject to the exclusions listed herein, will repair or replace at its option such materials as it deems necessary to restore the materials to operational condition in accordance with published specifications and internal standards. Sunrise Systems, Inc. will perform warranty repair or replacement services as promptly as possible and will return the materials by prepaid surface freight within the continental United States. During the term of the Limited Warranty, Sunrise Systems, Inc. will provide telephone technical support to Buyer at no charge in connection with diagnosing faults, removing, and replacing subassemblies. Unless Buyer has a paid-up on-site service contract in force, Buyer is responsible for providing competent labor to perform all on-site diagnosis and servicing procedures required to identify and replace defective subassemblies.

Exclusions:

This Limited Warranty is void if Product is not installed and operated in accordance with the Product specifications and manuals or if Product is modified after delivery except as may be specifically authorized by Sunrise Systems, Inc. Product is not weather resistant or suitable for exterior applications unless so stated in written product specifications furnished by Sunrise Systems, Inc. at the time of order. Accidental damage, cosmetic damage, and damage caused by vandalism, lightning, or other environmental stresses exceeding ratings is not covered by this Limited Warranty.

Disclaimer:

The Warranty recited herein is in lieu of all other warranties, expressed or implied, which are hereby disclaimed and excluded by Sunrise Systems Inc., including without limitation any warranty of merchantability or fitness for a particular purpose or use and all obligations or liabilities on the part of Sunrise Systems Inc. for damages arising out of or in connection with the use, repair or performance of the Product. This Warranty is granted solely to the Buyer and all claims hereunder must be made by Buyer. Buyer's sole remedy for liability of any kind by Sunrise Systems, Inc., including liability for negligence, with respect to the Product shall be the repair or replacement of any defective materials returned to Sunrise Systems Inc. as provided for herein. In no event shall Sunrise Systems Inc.'s liability include any special, indirect, incidental or consequential losses or damages allegedly attributed to the use or misuse of this Product.

Section 7: Repair Program

Sunrise Systems offers a repair program for warranty and non-warranty repairs. Please follow the procedure below in order to have your part(s) repaired:

1. Contact Sunrise Systems in order to request an RMA number:
    a. Email: support@sunrisesystems.com
    b. Phone: 781-826-9706
    c. Fax: 781-826-0061
2. Package your part carefully for shipment.
3. Include in your package the following information.
    a. Your Name
    b. Address
    c. Phone Number
    d. The RMA Number
    e. A Clear Description of the Symptoms
4. Ship to Address:

    Sunrise Systems Inc.
    720 Washington St
    Pembroke, MA 02359
    Attn: Support RMA# _____

Appendix A