Galaxy 133mm/171mm Large Character Series

Display Manual

ED 15630 *Rev 0* *27 September 2005*

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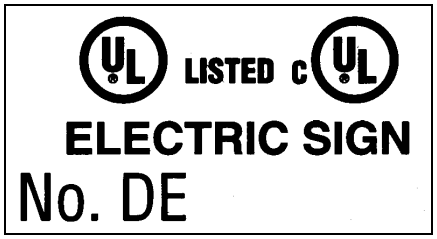

DAKTRONICS, INC.

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Section 1: Introduction

This manual explains the installation, maintenance, and troubleshooting of a Daktronics Galaxy® 133mm/171mm, AF-3400 large character LED display. For questions regarding the safety, installation, operation, or service of this system, please refer to the telephone numbers listed on the cover page of this manual.

The manual is divided into six sections: Introduction, Mechanical Installation, Electrical Installation, Maintenance and Troubleshooting, Appendix A and Appendix B.

- **The Introduction section** covers the basic information needed to make the most of the rest of this manual – take time to read the entire introduction as it defines terms and explains concepts used throughout the manual
- **The Mechanical Installation section** provides general guidance on display mounting
- **The Electrical Installation section** gives general guidance on terminating power and signal cables at the display
- **The Maintenance and Troubleshooting section** addresses such things as removing basic display components, troubleshooting the display, performing general maintenance, and exchanging display components
- **Appendix A** lists the drawings referenced within this manual
- **Appendix B** includes information on the Optional Temperature Sensor

Daktronics identifies manuals by an ED number located on the cover page of each manual. For example, this manual would be referred to as **ED-15630**.

Listed below are a number of drawing types commonly used by Daktronics along with the information that each is likely to provide. This manual may not contain all these drawings:

- **System Riser Diagrams:** Overall system layout from the control computer to the display, power, and phase requirements
- **Shop Drawings:** Fan locations, mounting information, power and signal entrance points, and access method (front and rear)
- **Schematics:** Power and signal wiring for various components
- **Component Placement Diagrams:** Locations of critical internal display components, such as power supply assemblies, controller boards, thermostats, and light detectors

Figure 1 illustrates the Daktronics drawing label. The drawing number is located in the lower-right corner of the drawing. Listing the last set of digits and the letter preceding them identifies drawings in the manual. In the example below, the drawing would be referred to as **Drawing B-206146**. Reference drawings are inserted in **Appendix A**.

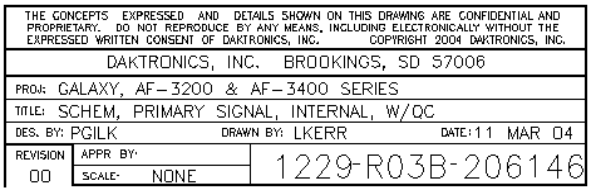

Figure 1: *Drawing Label*

All references to drawing numbers, appendices, figures, or other manuals are presented in **bold** typeface, as shown below.

"Refer to **Drawing B-206146** in **Appendix A** for the power supply connections."

Additionally, drawings referenced in a particular section are listed at the beginning of that section as seen in the following example:

Reference Drawing:

Schem; Primary Signal, Internal, W/QC ..... **Drawing B-206146**

Daktronics displays are built for long life and require little maintenance. However certain display components may need replacing. The **Replacement Parts List** in **Section 1** provides the names and numbers of components that may need to be ordered during the life of the display. Most display components have a white label that lists the part number. The component part number is in the following format: 0P-_ _ _ _-_ _ _ _ (component) or 0A-_ _ _ _-_ _ _ _ (multi-component assembly).

Following the **Replacement Parts List** is the **Daktronics Exchange and Repair and Return Programs** in **Section 4.12.** Refer to these instructions if any display component needs replacement or repair.

1.1 Daktronics Nomenclature

To fully understand some Daktronics drawings, such as schematics, it is necessary to know how various components are labeled in those drawings. This information is also useful when trying to communicate maintenance or troubleshooting efforts.

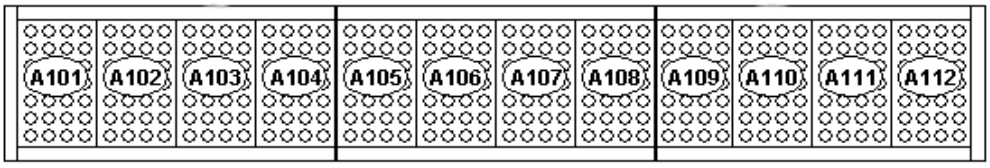

Figure 2: *Module Numbering Example 7X48 Front*

A module is the building block of the Galaxy display. Each module door for the 133mm/171mm displays measure 7 pixels high by 4 pixels wide. Individual pixels can be easily removed from the display if required. **Figure 2** illustrates how Daktronics numbers modules on a Galaxy display.

The following labeling formats might be found on various Daktronics drawings:

- "TB_ _" signifies a termination block for power or signal cable
- "F_ _" represents a fuse
- "E_ _" shows a grounding point
- "J_ _" denotes a power or signal jack
- "P_ _" stands for a power or signal plug for the opposite jack

Finally, Daktronics part numbers are commonly found on drawings. Those part numbers can be used when requesting replacement parts from Daktronics Customer Service. Take note of the following part number formats:

- "0P-_ _ _ _-_ _ _ _" indicates an individual circuit board, such as the internal fiberboard
- "0A-_ _ _ _-_ _ _ _" stands for an assembly, such as a circuit board and the plate or bracket to which it is mounted
- "W-_ _ _ _" represents a wire or cable

Note: A collection of circuit boards working as a single unit may carry an assembly label. Cables may also carry the assembly numbering format in certain circumstances. This is especially true of ribbon cables.

Most circuit boards and components within this display carry a label that lists the part number of the unit. If a circuit board or assembly is not listed in the **Replacement Parts List** in **Section 4**, use the label to order a replacement. A typical label is shown in **Figure 3**. The part number is in bold

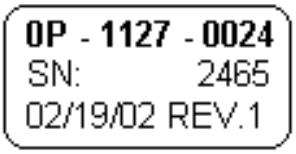

Figure 3: *Typical Label*

1.2 Safety Precautions

Important Safeguards:

1. Read and understand these instructions before installing
2. Be sure the display and external signal enclosures are properly grounded with an earth ground electrode at the display
3. Disconnect power when servicing the display
4. **Do not** modify the display structure or attach any panels or coverings to the display without the written consent of Daktronics, Inc

Note: 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 such cases, the user will be required to correct the interference at their own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

1.3 Network Concepts

The concept of using LED displays as a cost effective, high impact method of communication is rapidly growing throughout many industries and businesses. The reasons for this growth are many, but the need for additional features and the complexity of multiple display installations has emerged. Daktronics display systems have been designed to meet those needs.

The common thread to most client requests is a means of programming and controlling a group of displays from a central control point. Daktronics responded by developing a powerful system of interconnecting and controlling displays. Daktronics has taken great care to design products that will satisfy a wide variety of installations. Some of the design goals of these systems include the following:

- Easy transfer of messages
- The ability to tell a display or group of displays in the network which message should run
- The ability to determine the status of any display on the network
- The ability to control multiple display technologies on the same network

There are seven communication methods available: RS232, RS422, Fiber, Ethernet, Fiber Ethernet, Modem and Radio. They differ on the type of physical connections needed, the distance allowed, and equipment required. A separate manual is provided for the type of communication method ordered with your display. See **Section 3.7** for the communication manual ED numbers.

Up to 240 displays can exist on one network.

1.4 Display Overview

Reference Drawing:

Shop Drawings .....**Refer to Appendix A**

Daktronics 133mm/171mm, AF-3400 Galaxy® displays are designed and manufactured for performance, reliability, easy maintenance, and long life. The pixels have either a 133mm center-to-center spacing or a 171mm center-to-center spacing, and are lit using LEDs (light emitting diodes). A light sensor on the front of the display is used for automatic dimming of the LEDs based on the ambient light levels. The configuration of pixels depends on the model of display ordered.

Refer to the appropriate **Shop Drawing** for the approximate size, weight, and power requirements for your model of display.

The Galaxy® model numbers are described as follows:

AF-3400-RR-CC-MMM-X

AF-3400	**=**	Outdoor Louvered Galaxy Display
RR	**=**	Number of Rows High (7)
CC	**=**	Number of Columns Long (48, 64, 80)
MMM	**=**	Pixel to pixel spacing. (133mm or 171mm)
X	**=**	LED Color, (Red or Amber)

A typical display system has a Windows® based personal computer (PC) running Venus® 1500 software. Venus® 1500 is a software package that runs under Windows® 98, ME™, NT® 4.0, 2000, or XP Home/Professional operating systems on an IBM®-compatible computer.

The displays are offered as single-face units, which are single-sided, stand alone displays. The 133mm/171mm displays are front accessible because the internal components of the display can only be reached by opening module doors.

1.5 Component Identification

The following illustrations depict some of the more commonly accessed Galaxy® display components. Because Daktronics occasionally alters standard design to meet customer needs, the actual display design may vary slightly from the illustrations below.

This is only a brief overview. Refer to **Section 4:** for additional information on maintaining the various display components. Additional definitions are given in the communication manual provided with your display.

Controller: The display's controller is the "brains" of the display (refer to **Figure 4**). The controller receives, translates, and activates the signal information from the computer to the appropriate pixels on the display.

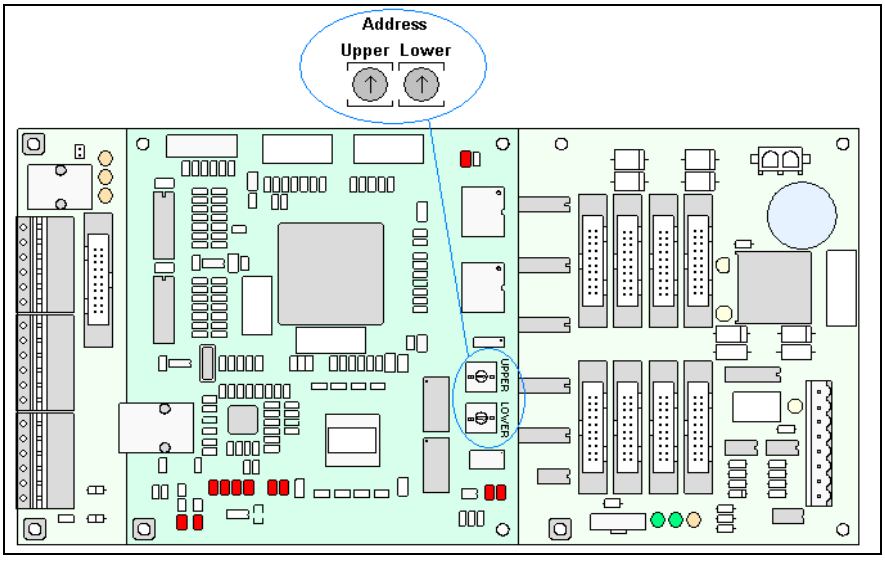

Figure 4: *Version 3 Controller*

Display Address: The display address is an identification number assigned to each display of a network. Rotating the address switches on the controller sets the address identification number for the display. The control software uses the address to locate and communicate with the display.

Driver Board: This driver board is also responsible for the switching and intensity levels of the LEDs. Refer to **Figure 5**.

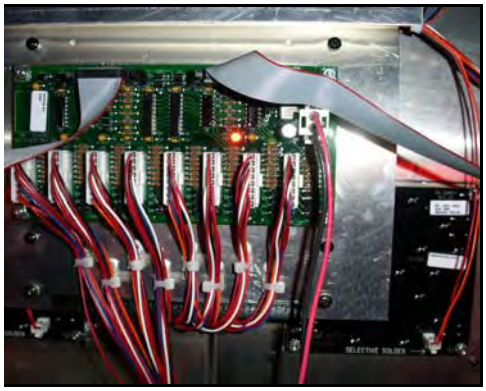

Figure 5: *Driver Board*

Galaxy®: Daktronics trademarked name for LED monochrome, tri-colored, or RGB matrix displays.

LED (light emitting diode): This is a low energy, high intensity lighting unit.

Louver: Black metal shade positioned horizontally above each pixel row. The louvers increase the level of contrast on the display face and direct LED light.

Module: The modules for the 133mm/171mm Galaxy ® displays are 4 pixels wide by 7 pixels high. Because of their large size they are more appropriately called "module doors". The module doors have hinges on the left edge, and can be opened up, much like a door, to access internal components.

Pixel: A pixel is a single LED or cluster of LEDs. The number and color of the LEDs depends on display application.

Power Supply: Converts AC line voltage from the load center to low DC voltage for multiple module driver boards

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Section 2: Mechanical Installation

Note: Daktronics does not guarantee the warranty in situations where the display is not constantly in a stable environment.

The Daktronics engineering staff must approve **any** changes that may affect the weather-tightness of the display. If any modifications are made, detailed drawings of the changes **must** be submitted to Daktronics for evaluation and approval, or the warranty may be void.

Daktronics is not responsible for installations or the structural integrity of support structures done by others. It is the customer's responsibility to ensure that a qualified structural engineer approves the structure and any additional hardware.

2.1 Mechanical Installation Overview

Because every installation site is unique, there is no single Daktronics-approved procedure for mounting the Galaxy® displays. The information contained in this section is general information only and may or may not be appropriate for your particular installation.

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

Read both the mechanical and electrical installation sections of this manual before beginning any installation procedures.

2.2 Accessing the Display

The Daktronics Galaxy 133mm/171mm AF-3400 large character displays are front accessible; meaning, access to the internal components can only be gained from the front of the display. The module doors are approximately 20 ½"X41 ½" for the 133mm and 26 ½"X53 ½" for the 171mm and are 7 pixels high by 4 pixels wide. Follow these steps to open a module door and access the internal components.

1. Locate the latch access fasteners on the module. Refer to **Figure 6** for latch access fastener locations.
2. With a Phillips head screwdriver, turn the latch access fasteners clockwise as shown in **Figure 7**

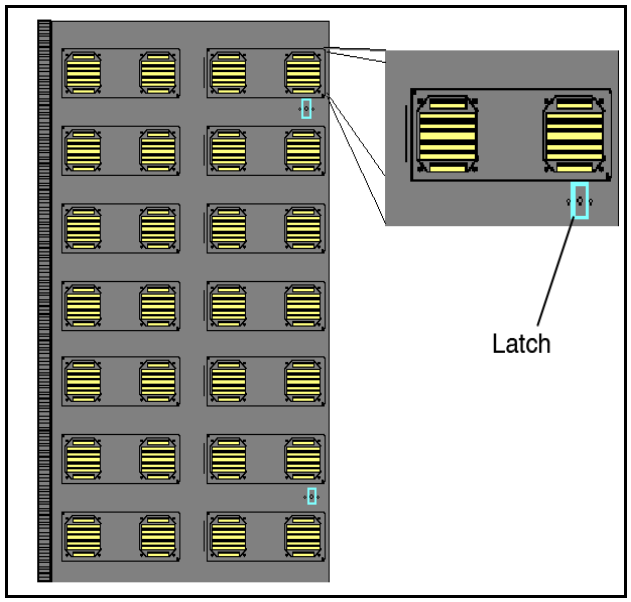


Figure 6: *Latch Fastener Locations on Module Door*

3. Gently pull the module door forward.

4. Gently open the door. The wires connected to the module door provide enough slack to open the module door, however, if you want to remove the door you will have to disconnect the wires.

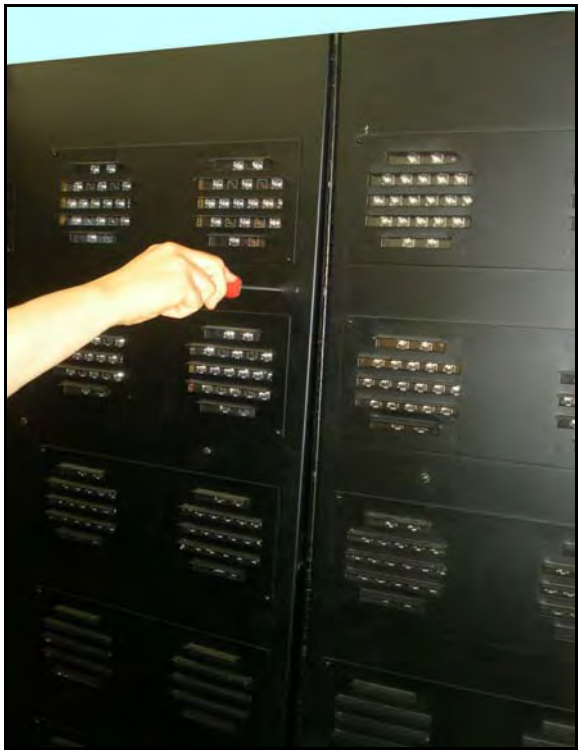


Figure 7: *Opening the Module Door*

2.3 Support Structure Design

Support structure design depends on the mounting methods, display size, and weight. The structure design is critical and should be done only by a qualified individual. Display height and wind loading are also critical factors. It is the customer's responsibility to ensure that the structure and mounting hardware are adequate. **Daktronics is not responsible for the installations or the structural integrity of support structures done by others**.

It is the installer's responsibility to ensure the mounting structure and hardware are capable of supporting the display and will agree with local codes.

Before beginning the installation process, verify the following:

- All clip angles or mounting holes must be attached to the support structure
- The mounting structure will provide a straight and square-mounting frame for the display
- The mounting structure is capable of supporting the display and will not yield at any unsupported points after mounting
- Make sure that 3" of unobstructed space is available above the top of the display to remove the eyebolt.

Note: No clearance is required once the eyebolt is removed. Correct any deficiencies before installation.

2.4 Ventilation Requirements

Reference Drawing:

Shop Drawings..... **Appendix A**

Fans are mounted to the back sheet for ventilation. Cool air is brought in through the bottom half of the sign and then the fans in the back exhaust hot air. Refer to **Figure 8** and the appropriate **Shop Drawing** for fan locations.

If the display cabinet is completely enclosed:

- 6 square inches of unobstructed opening must exist around the bottom and back of the display.
- Allowances must be made to compensate for the percentage of material covering the openings in the structure.
- For adequate cooling, forced ventilation may be required. If air is forced into the enclosed cabinet, 10 cubic feet per minute must be provided per module (10.64" x 10.64" active area).

Figure 8: *Fan on Inside of Backsheet*

If these requirements are not met, the Galaxy® display warranty may be void.

2.5 Lifting the Display

The top of the display is equipped with eyebolts that are used to lift the unit. Take special care to ensure that the rated load of the eyebolts is not exceeded. Refer to the information at the end of this section labeled **Eyebolts** to determine the allowable load of the eyebolts shipped with the display.

Figure 9 illustrates both the correct (left example) and the incorrect (right example) method of lifting a display. Lift the display as shown on the left, with the lifting bar. Use every lifting point provided.
Do not attempt to permanently support the display by the eyebolts.

Eyebolts can be removed from the display to eliminate the need for overhead clearance.

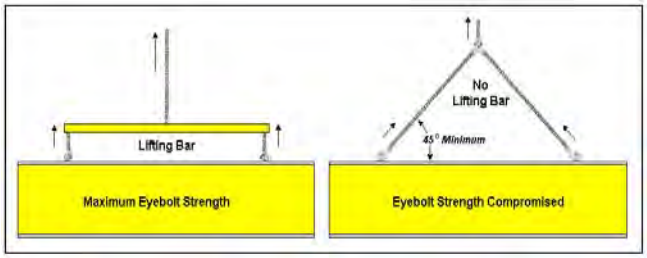


Figure 9: *Lifting the Display (Correct, Left; Incorrect, Right)*

2.6 Display Mounting

Reference Drawing:
Shop Drawings..... **Appendix A**

The method used to mount displays can vary greatly from location to location. For this reason, only general mounting topics can be addressed in this manual.

It is the responsibility of the installer to ensure the installation will adequately meet local codes and standards, as well as the mounting hardware and method.

Before beginning the installation process, verify the following items:

- The mounting structure will provide a straight and square-mounting frame for the display – **height variation in any four-foot horizontal section may not exceed ¼-inch**
- The mounting structure will not give way at any unsupported points after the display is mounted

The back of the display is equipped with 3 x 3 x 3/8" steel clip angles at the locations shown in the **Shop Drawing** for your display size. These angles may be used for mounting purposes. Remember to have **all** mounted displays inspected by a qualified structural engineer.

Refer to the appropriate **Shop Drawings** for a suggested wall mount method. The number of attachment points needed and the wall structure **must** be reviewed by a qualified structural engineer and meet all national and local codes. It is the customer's responsibility to determine the proper wall mounting method and location. Daktronics requires using all clip angles or mounting holes as attachment points.

1. Carefully uncrate the display and inspect each side of the display for possible damage that may have occurred during shipping
2. Remove the backsheet assemblies from the sections to be installed as required.
3. Following the guidelines described in **Section 2.4**, lift the display into position on the support structure. Secure the display to the support structure with mounting clips.
4. Align the sections by using through holes as required.
5. Bolt sections together using ½" Grade-5 bolts and hardware to secure the clip angles to the support structure as shown in the **Shop Drawings**. Refer to **Section 3** for information on routing power to the display, and your communication manual for routing the signal.
6. After installation is complete, carefully inspect the display for any holes that may allow water to seep into the display and seal any openings with silicone – **if the eyebolts on the top of the display have been removed, plug the holes with bolts and the rubber-sealing washer that was removed with the eyebolt (unless there is an overhead structure)**

2.7 Optional Temperature Sensor Mounting

If an optional temperature sensor will be used with this display, see **Appendix B** for mounting and signal connections.

Section 3: Electrical Installation

Only a qualified individual should terminate power and signal cable at this Daktronics display.

The Daktronics engineering staff must approve **any** changes made to the display. Before altering the display, submit detailed drawings for the proposed modifications to the Daktronics engineering staff for evaluation and approval or the warranty will be rendered null and void.

3.1 Common Connectors in the Display

The power and signal connections in the displays use many different types of connectors. Take special care when disengaging any connector so as not to damage the connector, the cable, or the circuit board.

When pulling a connector plug from a jack, **do not** pull on the wire or cable; pull on the jack itself. Pulling on the wires may damage the connector.

The following information presents some common connectors encountered during display installation and maintenance:

Ribbon Cable Connectors:
Figure 10 illustrates a typical 20-pin ribbon connector. To disconnect the ribbon cable, push the plastic clips on the sides out to unlock and remove the jack.

Before replacing a ribbon cable connector, spray it with DeoxIT™ contact cleaner to remove any foreign matter that may cause signal problems. In addition, apply a generous amount of CalLube™ protector paste to the plug before inserting it into the jack. This paste will protect both the plug and the jack from corrosion.

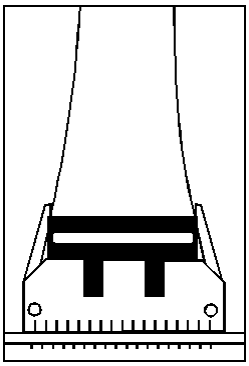


Figure 10: *Ribbon Cable Connector*

Termination Blocks:
Termination blocks are commonly used to connect internal power and signal wires to wires of the same type coming into the display from an external source. Power wires need to have one-half inch of insulation stripped from the end of the wire prior to termination. Insert stripped wires into terminations and make sure the clamp holds the wire firmly. Refer to **Figure 11**.

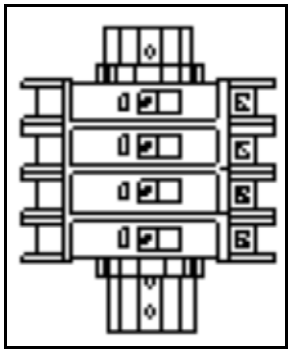


Figure 11: *One Breaker Termination Block*

Phoenix™-Style Connectors:
Phoenix-style connectors, which are usually green, are often used for signal termination on circuit boards. Refer to **Figure 12**. Strip one-quarter inch of insulation from the wire prior to termination. To insert a wire, push the bare wire into the connector and turn the above screw clockwise to lock the wire into place. To remove a wire, turn the above screw counter-clockwise to loosen the connector's grip on the wire.

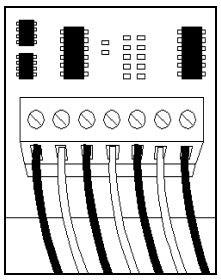


Figure 12: *Phoenix Connector*

Mate-n-Lok™ Connectors:
The Mate-n-Lok connectors found in the displays are white and come in a variety of sizes. **Figure 13** illustrates a four-pin Mate-n-Lok connector. To remove the plug from the jack, squeeze the plastic locking clasps on the side of the plug and pull it from the jack.

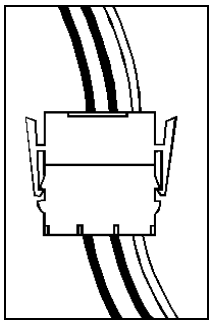


Figure 13: *Mate-n-Loc Connector*

Phone/Network Jacks (RJ11/RJ45 Connectors):
RJ connectors, as seen in **Figure 14**, are similar to the telephone connectors or network jacks found in homes and businesses and are used on the ends of RJ11 or RJ45 cable. In order to remove this plug from the jack, depress the small clip on the underside of the plug.

Before replacing an RJ connector, spray it with DeoxIT™ contact cleaner to remove any foreign matter that may cause signal problems. In addition, apply a generous amount of CalLube™ protector paste to the plug before inserting it into the jack. This paste will protect both the plug and the jack from corrosion.

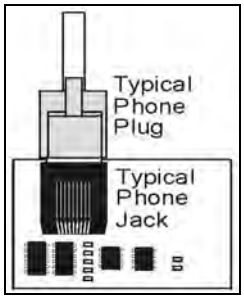


Figure 14: *RJ11 Connector*

Quick Connect Jack:
The display uses quick connect jacks for the connection of the signal termination enclosure, the temperature sensor and possible connection to a mirror display. There is one quick connect input board with three input jacks and one or two output quick connect boards, each with a single jack. The boards are located on the back, with the number of boards depending on the display size, and when not used the attached dust cover should be kept closed.

To attach the cable to a jack, make sure to line up the plug to match the jack, push the plug in then turn the outer collar to lock in place. **Figure 15** illustrates the 6-pin quick connect jack.

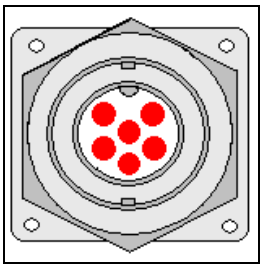


Figure 15: *RS232/6-pin Quick Connect Jack*

3.2 Signal Termination Enclosures

In each communication method the final connection has a weather resistant enclosure to the display. For signal termination to the enclosure, see the manual included in the box with the enclosure

Note the following information when mounting the enclosure:

1. Be sure to mount the enclosure with the cables exiting from the bottom, to prevent water from entering into the enclosure
2. Mount the enclosure securely and, if possible, at a height or location inaccessible to vandalism

Note: Daktronics engineers strongly recommend that the quick connect cable be secured to protect it from weather or vandalism.

3. Earth ground enclosures that use wire signal cable – the resistance to ground should be 10 ohms or less (a grounding electrode conductor is attached to the enclosure to make the necessary earth ground connection)

Do not attach to the structure because the structure does not provide a good ground.

3.3 Conduit

Daktronics **does not** include the conduit. Separate conduit must be used to route:

- Power
- Signal IN wires to the signal termination enclosure, when applicable
- Signal OUT wires (if not using the provided interconnect cable)

Knockout holes for ½" conduit are located at the bottom right (rear view) of the back of the display.

3.4 Preparing for Power/Signal Connection

1. Punch or use ½" (0.875) conduit holes for the desired conduit openings. **Be careful that none of the internal components are damaged**.
2. Attach the conduit.
3. Open the module door as **Section 2.2** describes. Usually the controller is behind module door A101 and the power termination panel is behind module door A102.
4. Locate the controller and power termination box for this display in the appropriate **Shop Drawings** located in **Appendix A.** The controller receives the incoming signal and relays it to the individual modules.
5. Route power to the display through a fused disconnect switch capable of opening all ungrounded power conductors. Install this disconnect within the line of sight of any personnel performing maintenance on the display. If the

disconnect is located out of sight of the display, it must be capable of being locked in the open position.

6. Power conductors from the disconnect to the display should be routed through conduit in agreement with local code.
7. You may route the signal cable from the control computer to the display at this time also.

Note: Depending on the type of signal cable you may have to run the power and signal cables in a separate conduit.

3.5 Power

Reference Drawings:

Power Specs, AF-3400-**X**-133/171-MONO-Domestic ..... **Drawing A-235256**
Power Specs, AF-3400-**S**-133/171-MONO-240 Volt ..... **Drawing A-235257**

Power Requirements

Refer to **Drawing A-235256** and **Drawing A-235257** located in **Appendix A,** for voltage and current requirements for your display size. Domestic displays use 120/240 VAC single-phase power source, or a 120/208 VAC three-phase power source. In other locations, 240 VAC displays use a 240 VAC single-phase power source, or a 240 VAC three-phase power source.

Do not connect the displays to any voltage other than that listed on the Daktronics product label.

Proper power installation is imperative for proper display operation. The following sub-sections give details of display power installation. Qualified personnel must perform the electrical installation. Unqualified personnel should not attempt to install the electrical equipment because serious danger to equipment and personnel could occur if the equipment is improperly installed.

Grounding

This sign is intended to be installed in accordance with the requirements of Article 600 of the National Electrical Code and/or other applicable local codes. This includes proper grounding and bonding of the sign.

Displays **must** be grounded according to the provisions outlined in Article 250 of the National Electrical Code®. Daktronics requires a resistance to ground of 10 ohms or less.

The display system **must** be connected to earth-ground. Proper grounding is necessary for reliable equipment operation. It also protects the equipment from damaging electrical disturbances and lightning. **The display must be properly grounded or the warranty will be void**.

The material of an earth-ground electrode differs from region to region and from conditions present at the site. Consult the National Electrical Code and any local electrical codes that may apply. The support structure of the display **cannot** be used

as an earth-ground electrode. The support is generally embedded in concrete, and if in earth, the steel is either primed or it corrodes, making it a poor ground.

A minimum of one grounding electrode must be installed for each display face. The grounding electrode is typically one grounding rod for each display face. Other grounding electrodes as described in Article 250 of the National Electric Code may be used. Daktronics requires that the resistance to ground be 10 ohms or less. If the resistance to ground is higher than 10 ohms, it will be necessary to install additional grounding electrodes to reduce the resistance. The grounding electrode should be installed within 25 feet of the base of the display. The grounding electrode must be connected to the ground terminal lug on the back of the display.

Power Installation

The power cable **must** contain an isolated earth-ground conductor. Under this circumstance, **do not** connect neutral to ground at the disconnect or at the display. This would violate electrical codes and void the warranty. Use a disconnect so that all hot lines and neutral can be disconnected. The National Electrical Code requires the use of a lockable power disconnect within sight of or at the sign.

3.6 Power Connection

Reference Drawings:

Schematic, AF-3400-7 (8)X16W/INTC-**-*-P-120/240 1PH... **Drawing B-222321**
Schematic, AF-3400-7(8)X16 W/INTC-**-P-*, 3PH ..... **Drawing B-227282**
Schematic, AF-3400-7(8)X16W/INTC-**-*-_240 1PH ..... **Drawing B-228917**

The display is divided into sections, and each section is made up of four (4) module doors. The “master” section, which is the first section of the display, receives the initial power and communication signaling. The power and communication signal wires daisy chain from the master section to the proceeding “echo” section. That “echo” section then daisy chains the signal and power to the following section and so on. Refer to the appropriate **Schematic Drawing** for the your particular displays voltage, and **Figure 16** to better understand the signaling system.

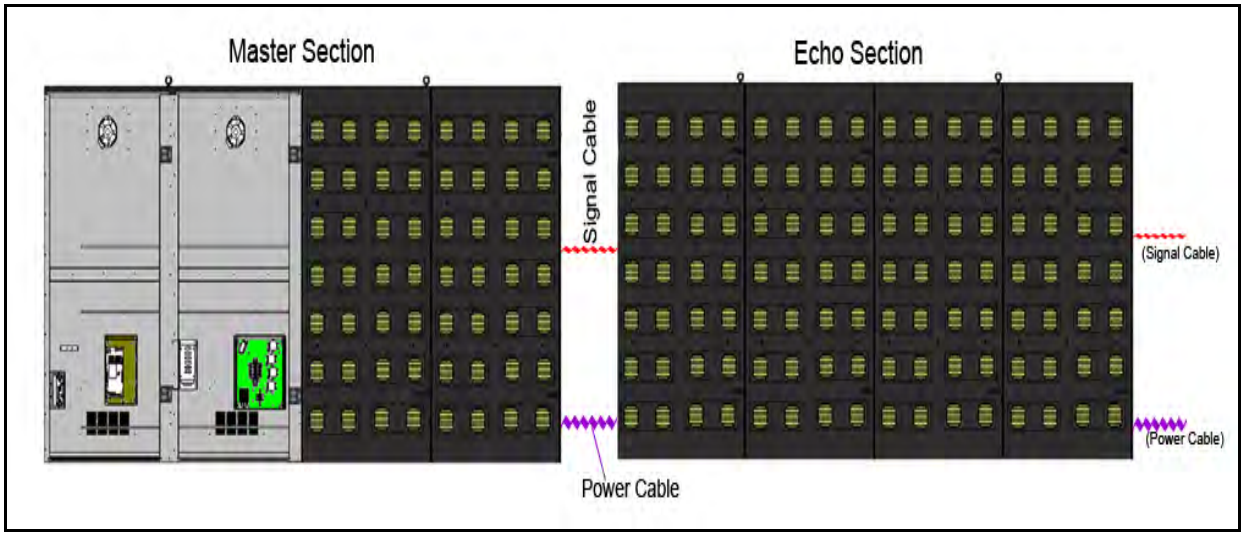


Figure 16 *Cable Connections Between Master and Echo Sections*

Incoming power is connected within the power termination enclosure. Complete the following steps to terminate the hot and neutral wires at the termination block within the enclosure. Refer to the appropriate **Schematic Drawing** for the particular display section, (either **Drawing B-222321, Drawing B-227282**, or **Drawing B-228917**) located in **Appendix A**.

1. Access the power termination enclosure by opening the module door in section A102 as described in **Section 2.2**.
2. Route the power cables through the power conduit in the rear of the sign and to the enclosure.
3. Power line terminations differ for displays with different input AC voltages.

   Domestic Displays

   a. For a 120/240 VAC single-phase display, connect "HOT" wires to "Line 1" and "Line 2" terminals on TB41. Refer to **Drawing B-222321**
   b. For a 120/208 VAC display connect "HOT" wires to "Phase A", "Phase B" and "Phase C" terminals on TB41. Refer to **Drawing B-227282.**

   Foreign Displays

   a. For 240 single phase displays, connect "HOT" wire to "Line 1" terminal on TB41. Refer to **Drawing B-228917.**
   b. For 240 VAC three phase displays, connect "HOT" wires to "Phase A," "Phase B," and "Phase C" terminals on TB41. Refer to **Drawing B-227282**.
4. Connect the white neutral wire to neutral bus.
5. Connect the green grounding wire to the grounding bus E41.

Main Disconnect

The National Electrical Code requires the use of a lockable power disconnect near the display. Provide a lockable disconnect switch (knife switch) at the display location so that all power lines can be completely disconnected. Use a disconnect so that all hot lines and the neutral can be disconnected. The main disconnect should be mounted at or near the point of power supply connection to the display. A main disconnect is to be provided for each supply circuit to the display.

The disconnecting means must be located in a direct line of sight from the display or outline lighting that it controls. This requirement provides protection by enabling a worker to keep the disconnecting means within view while working on the display.

Exception: Disconnecting means that are capable of being locked in the open position may be located elsewhere.

3.7 Computer to Display

The 133mm/171mm, AF-3400 large character displays are designed for quicker signal and power connection to the display. There are seven different methods of communication and, depending on the particular display, Daktronics provides a separate manual for explaining the connection to the signal termination enclosure.

Your manual will be one of these types depending on your display and communication method:

Communication Type	Communication Manual ED#
RS232	**ED-14739**
RS422	**ED-14742**
Fiber	**ED-14743**
Radio	**ED-13932**
Modem	**ED-14744**
Ethernet	**ED-14745**
Fiber Ethernet	**ED-14746**

3.8 First Time Operation

When first operated, the display will run through an initialization in which it will display the following:

1. Product Name (Galaxy®)
2. Display Size (Row x Column)
3. Shading (64 Mono)
4. Bootloader Version (OS X.XX)
5. Firmware Number (**ED-13305**)
6. Firmware Revision (Rev X.XX)
7. Hardware Address (HW:XX)
8. Software Address (SW:XX)
9. IP Address: ((default) IP: 172.16.192.25)
10. Subnet Msk: ((default) Msk: 255.255.0.0)
11. COM1 Configuration (C1:V15) ((Modem C1:V15) If a Modem is present)
12. COM 2 Configuration (C2: RTD)
13. Socket 3001: (IP 3001: V15)
14. Socket 3002: (IP 3002: RTD)
15. Line Frequency (CLK: AUTO (60))
16. Display Name Description (Galaxy Row x Column)

Section 4: Maintenance and Troubleshooting

Important Notes:

1. **Power must be turned off before any repair or maintenance work is done on the display**.

2. **Qualified service personnel must make any access to internal display electronics**.

3. **The Daktronics engineering staff must approve ANY changes made to the display. Before altering the display, detailed drawings for the proposed modifications must be submitted to the Daktronics engineering staff for evaluation and approval or the warranty will be rendered null and void**.

4.1 Maintenance and Troubleshooting Overview

The 133mm/171mm AF-3400 displays are front accessible; meaning access to the internal components can be gained only from the front of the display.

This section provides the following Galaxy display information:

- **Signal Routing Summaries** provide a basic explanation of the way signal travels through the display.
- **Power Routing Summaries** offer a basic explanation of the way power travels through the display.
- **Service and Diagnostics** give instructions for removing various display components and explains the functions of circuit board connectors and the meanings of any diagnostic LEDs.
- **Maintenance** includes a number of steps to take to keep this Galaxy display in safe, working order.
- **Troubleshooting** lists some possible display malfunctions and provides a number of possible causes for that malfunction.
- **Replacement Parts List** suggests the part number and description of display components that could possibly need replacing during the life of this display.
- **Exchange and Repair and Return Programs** explain the Daktronics component return policy.

4.2 Signal Summary

Reference Drawings:

Schematic, AF-3400-7 (8)X16(A)-***-*-p, 120, 120/240..... **Drawing B-211433**
Schematic, AF-3400-7 (8)X16W/INTC-**-*-P-120/240 1PH.. **Drawing B-222321**

Refer to **Drawing B-211433** and **Drawing B-222321** located in **Appendix A** for your particular display. The signal routing for the display can be summarized as follows:

1. Data from the control computer, which runs Venus 1500 software, travels to the display via one of the seven communication methods.
2. From the controller, the signal then travels over 20-conductor ribbon cables to the drivers.
3. Data exits at J1 and is relayed to J2 of the next driver board and so on, traveling down the entire row of modules. The drivers use this display data to control the individual pixel boards and light the LEDs appropriately.

Refer to **Figure 17** for the signal summary in the display

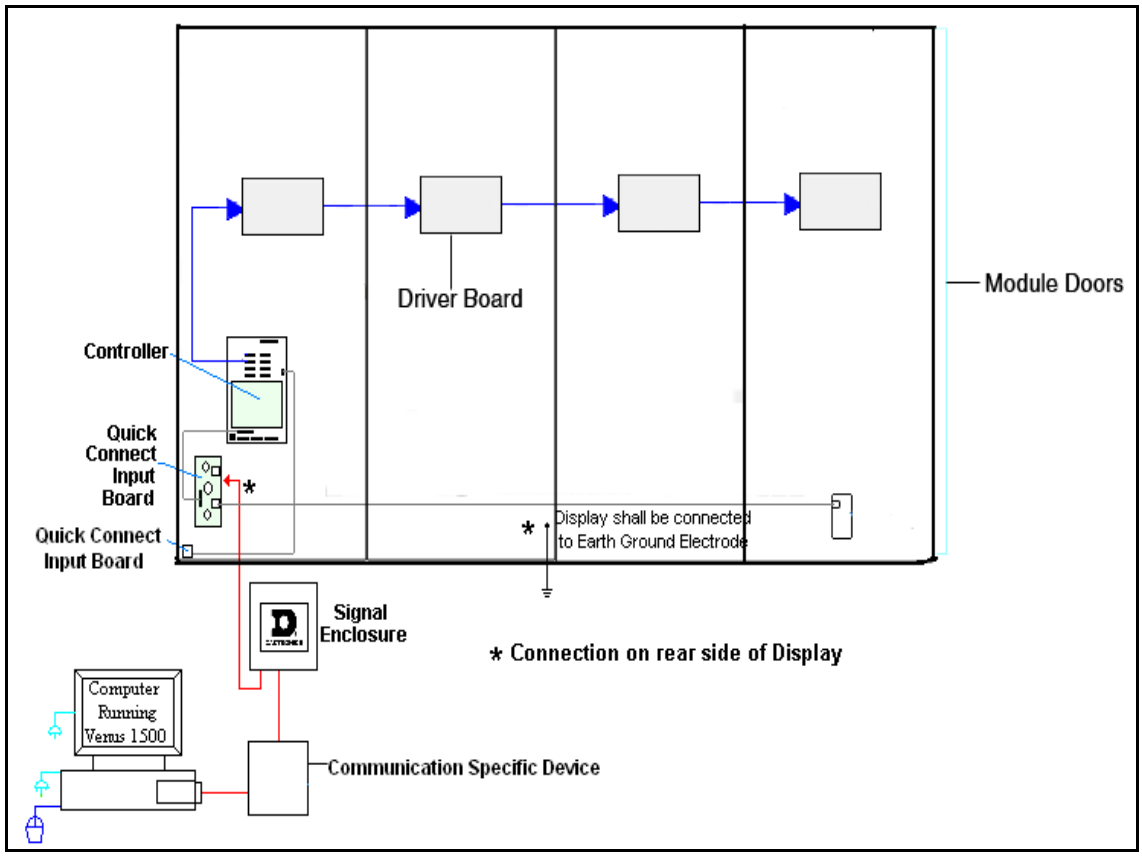


Figure 17: *Signal Summary*

4.3 Power Summary

Reference Drawings:

Schematic, AF-3400-7 (8)X16(A)-***-*-p, 120, 120/240 ..... **Drawing B-211433**
Schematic, Power Supply Configuration..... **Drawing A-215504**
Schematic, AF-3400-7 (8)X16W/INTC-**-*-P-120/240 1PH . **Drawing B-222321**

Refer to **Drawing B-211433** and **Drawing B-222321,** located in **Appendix A**, for your particular display. The power routing for the display can be summarized as follows:

The power routing for the display can be summarized as follows:

1. Incoming power terminates at the power termination enclosure. Before leaving the enclosure, power is sent through a circuit breaker and an RFI electrical filter as shown in **Figure 18**.
2. Power for the controller board passes through a transformer located on the controller/power panel.
3. Power supplies are used to power the modules. Power supplies are preset. Contact Daktronics Customer Service for the proper settings.
4. Monochrome Galaxy displays use red and amber LEDs. Each 12.5 VDC power supply provides power to two module doors in a display that uses 24 red LEDs per pixel board. Each 13VDC power supply provides power to two modules in a display that uses 24 amber LEDs per pixel board

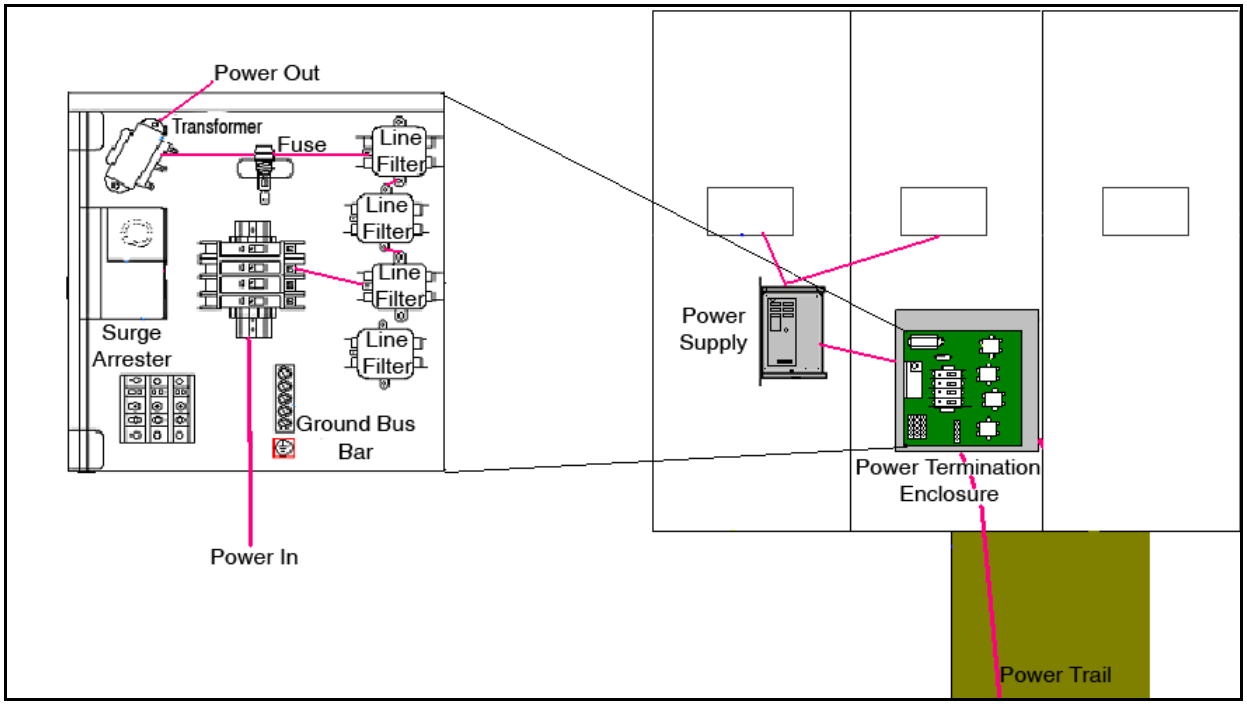


Figure 18: *Power Routing*

4.4 Service and Diagnostics

Reference Drawings:

Schematic, AF-3400-7 (8)X16W/INTC-**-*-P-120/240 1PH..... **Drawing B-222321**

The following sub-sections address servicing of the following display components:

- transformer, RFI filter
- controller
- modules, drivers and power supplies
-

Remember: Disconnect power before servicing any internal components.

Transformer and RFI Filter

Transformer

The transformer is located in the upper portion of the power termination box as **Figure 19** shows. To replace the transformer, first disconnect and label all the wires attached to it. **Turn off power to the display before removing the wires.** Then release the hardware, securing it to the inside of the enclosure. Position the new transformer in its place, and tighten it down. Re-connect all the wires using **Drawing B-222321** as a reference.

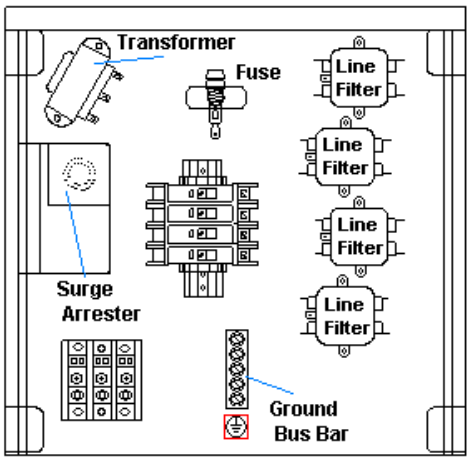


Figure 19: *Power Termination Box*

RFI Filter

The RFI electrical filters are mounted within the power termination box. Like the transformer, first removing all connecting wires, and then releasing the attachment hardware can replace the filters. Install the new filter using **Drawing B-222321** as a wiring reference.

Controller

The controller sends data to the modules. Refer to the signal summary in **Section 4.2** for more information. **Figure 20** illustrates a typical controller.

The Rotary switches set the hardware address, which the software uses to identify that particular display. When replacing a controller board, be sure to set the rotary switches in the same address configuration as the defective controller. Each controller in a network needs a unique address.

Note: Setting the rotary switches to address 0 (set the switches to 0 by rotating them counter clockwise until the arrow points to 0) can activate a test mode. The display's power must be turned off, and then turned back on to run the test mode.

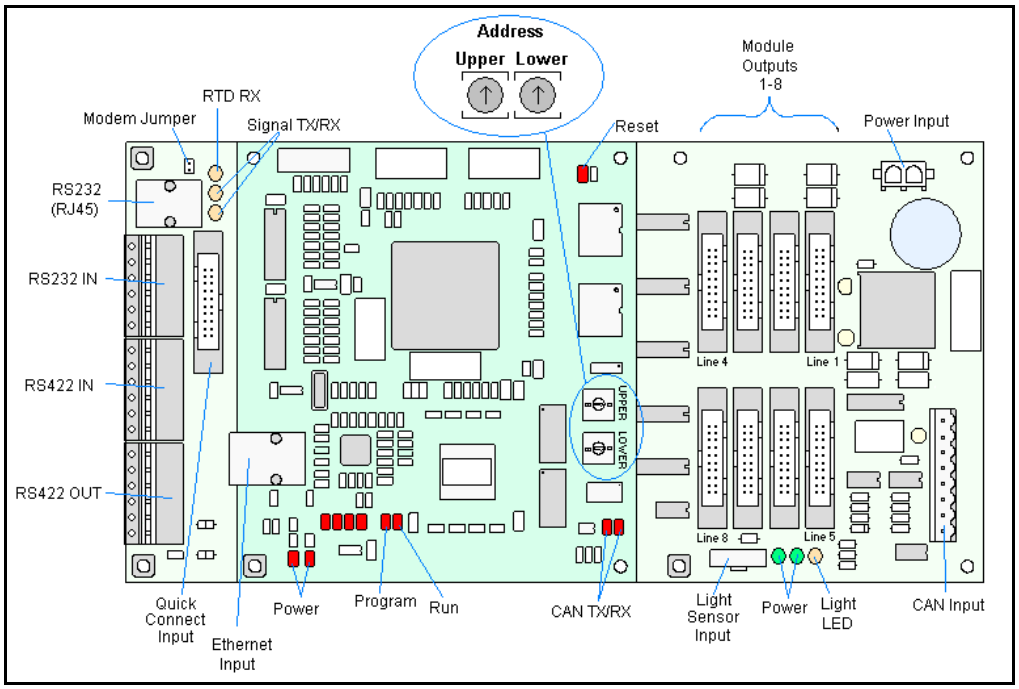


Figure 20: *Controller Component Layout*

Controller Address Settings		
Upper	**Lower**	**Address**
0	0	Test Mode
0	1	1
0	2	2
0	3	3
0	4	4
0	5	5
0	6	6
0	7	7
0	8	8
0	9	9
0	A	10
0	B	11
0	C	12
0	D	13
0	E	14
0	F	15
1	0	16
1	1	17
…	…	…
F	0	240

Four diagnostic LEDs are located on the controller; the table below tells what each LED denotes:

CPU			
LED	**Color**	**Function**	**Operation**
DS1	Red	CAN TxD	Flashes when controller is transmitting CAN information.
DS2	Red	CAN RxD	Flashes when controller is receiving CAN information.
DS3	Red	System Reset	Off when controller is functioning properly. Flashes at 1.5-second rate if controller is not resetting the watchdog timer.
DS4	Red	Run	A steady flash indicates the controller is running properly. Normal flash rate is about once per second.
DS5	Red	U15 Programmed	On when U15 contains a valid logic program.
DS7	Red	Link	On when Ethernet interface is in the link-up condition. Flashes when the Ethernet chip detects transmits or receives activity.
DS8	Red	Speed	On when the Ethernet interface is at 100Mbps. Off when the Ethernet interface is at 10Mbps.
DS9	Red	Duplex	On when the Ethernet interface is at full duplex. Off when the Ethernet interface is at half-duplex.
DS10	Red	Collision	Flashes when the Ethernet interface detects a collision in half-duplex.
DS12	Red	+3.3V	On when +3.3V power supply is functioning.
DS13	Red	+2.5V	On when +2.5V power supply is functioning.
Product Board			
LED	**Color**	**Function**	**Operation**
DS1	Green	+5V	On when +5V power supply is functioning.
DS2	Green	+3.3V	On when +3.3V power supply is functioning.
DS3	Yellow	COM1 TxD	Flashes when transmitting serial information.
DS4	Yellow	COM1 RxD	Flashes when receiving serial information.
DS5	Yellow	Light	Flashed when receiving signal from the light sensor
DS6	Yellow	Com 2 RX2	Normal state is ON. When connected to receive RTD input, the LED will be OFF. The LED flashed when receiving signal from RTD input device.
Temp/Light Sensor			
LED	**Color**	**Function**	**Operation**
DS1	Green	+5V	On when +5V power supply is functioning.
DS2	Red	Run	A steady flash indicates the controller is running correctly. Normal flash rate is about once a second. Flashes faster when the sensor is transmitting temp or light information.

Complete the following steps to remove the controller from the display:

1. Disconnect power from J5.
2. Remove all power and signal connections from the board. “Locked” connectors are released by pushing apart the latches then carefully pulling them from the jack. When replacing the board, it is helpful to have the cables labeled as to which was removed from which connector.
3. Remove each of the six nuts holding the board in place.
4. Follow the previous steps in reverse order to install a new controller board.

Modules and Drivers

Each module contains 28 individual pixels. In the event that a pixel should have to be replaced, complete the following steps:

1. Open the module door with the defective pixel as described in Section **2.2**.
2. Locate the malfunctioning pixel, and remove the 2 pin connector from the back of the pixel board (squeeze the locking connector in order to release the connection). Refer to .
3. Remove the four keps nuts from the corners of the pixel board
4. Remove the pixel board
5. Place the new pixel board on the module, and reverse steps one through four

Power Supplies

Reference Drawing:

Schematic; Power Supply Configuration ..... **Drawing A-215504**
Shop Drawings..... **Appendix A**

The LED power supplies are located on the lower half of the Galaxy display. The display specific **Shop Drawings** provide the location of power supplies in each block of the display. Power supplies are referred to as Detail (A).

Complete the following steps to remove a power supply from the display:

1. Open the module door to the appropriate section as described in **Section 2.2**.
2. Remove the cover from the power supply by removing the screws located on the bottom section of the enclosure
3. Disconnect and label all the wires connected to the power supply
4. Remove the hardware holding the power supply in place to free the unit.
5. Follow these steps in reverse order to install a new power supply. Refer to **Drawing A-215504** when reconnecting the wires.

Light Detector

Reference Drawings:

Schematic, AF-3400-7 (8)X16(A)-***-*-p, 120, 120/240**Drawing B-211433**
Shop Drawings..... **Appendix A**

The light detector is internally mounted and wired at Daktronics. It is located in the bottom left corner on the front of the display (refer to the appropriate **Shop Drawings**). A 4-conductor cable connects the light detector to the signal termination panel. The cable is terminated at the terminal block on the light sensor and at the signal termination panel. Refer to **Drawing B-211433**.

Light Detector Pin No. (TB1)	Cable Wires Color
1	Red
2	Green
3	White
4	Black

4.5 Ventilation System

Ventilation fans should be checked after 1,500 hours of operation and every 1,500 hours after that to ensure the display is being cooled properly. Fans should be checked more often if the display is located in a dusty or harsh weather environment (i.e. along a gravel road with dust laden air).

- 1,500 hours is equivalent to 83 days if the display is operated for 18 hours a day and the power to the display is turned off when not in use.
- 1,500 hours is equivalent to 62 days if the display is running non-stop for 24 hours a day. Each time a module is removed, for whatever reason, take a minute to inspect the fans.
- Check the fan blades for dirt and debris. Fan blades must be kept clean to maintain fan efficiency and ensure proper cooling.
- Spin the fan blades with a pen or pencil to ensure that the bearings are free and the fan is still in balance.

To check the operation of the fans, push the bypass button (momentary contact) on the thermostat enclosure to temporarily turn the fans on (The bypass button is located in the upper left hand corner).

- Hold your hand or a piece of light paper beneath the hoods to detect air movement.
- If the fan does not turn or does not operate smoothly, replace it.

4.6 Thermostats

A thermostat controls the operation of the ventilation fans in the display. The ventilation fans turn on when the inside of the display reaches 85° F (29° C), and turn off at 70° F (21° C).

4.7 Weather Stripping

To ensure that the display is water shedding, weather stripping has been provided around the top portion of the display. It is important that the weather stripping is installed properly at all times or water may leak into the display and damage the components.

4.8 Display Maintenance

A yearly inspection should be completed to maintain safe and dependable display operation. This inspection should address the following issues:

- **Loose Hardware**
  Verify fasteners, such as bolts and rivets, have not come loose. Fasteners should be checked and tightened or replaced as required.

- **Excessive Dust Buildup**
  Occasionally it may be necessary to vacuum the inside of the display cabinet to remove dust/dirt buildup that may interfere with airflow.

- **Water Intrusion – Water Stain Marks**
  Water can enter the display where weather stripping has come loose or deteriorated, where fasteners have come loose allowing gaps in the panels, or where moisture may be entering around hardware. Be sure to check around the lift eyes and bolts to ensure that water has not entered there. If so, replace hardware immediately to prevent more water from entering the display. Also, check electronic components for possible corrosion.

- **Corrosion**
  Check the paint, and look for possible corrosion especially at footings, structural tie points, and ground rods.

If any of the above conditions are noticed, action must be taken to correct the situation.

4.9 Troubleshooting

This sub-section contains some symptoms that may be encountered in the displays. This list does not include every possible symptom, but does represent common situations that may occur.

Symptom/Condition	Possible Cause/Remedy
One or more LEDs on a single pixel fail to light.	• Replace/check the 2 pin connector on the pixel. • Replace the driver.
One or more LEDs on a single pixel fail to turn off.	• Replace/check 2 pin connectors on the pixel. • Replace the driver.
A section of the display is not working.	• Move/replace the driver on the module that is not working. • Replace the power supply assembly on the first module that is not working. • Replace the ribbon cable to the driver.
A group of modules, which share the same power supply assembly, fail to work.	• Check the wire connections at the power supply. • Replace the power supply assembly.

Entire display fails to work.	• Check for proper line voltage into the power termination panel. • Check for correct power to controller and modules. • Check/replace the ribbon cable from the controller to the modules. • Check the voltage settings on the power supplies. • Check/replace the signal cable to the controller. • Replace the controller. • Verify proper use of the software in the V1500 Controller manual (**ED13530**).
Temperature always reads –196F/-127C degrees F/0 degrees C	• Check temperature sensor connections. • Replace the temperature sensor. • Replace the controller.
Display is stuck on bright or dim.	• Check Manual/Auto dimming in Venus 1500 software. • Check light detector cable. • Check the address on the Light Sensor. • Check light detector for obstructions. • Replace the light detector. • Replace the controller.

4.10 Initialization Operation Information

Every time the display is operated, the display will run through an initialization in which it will display the following:

1. Product Name (Galaxy®)
2. Display Size (Row x Column)
3. Shading (64 Mono)
4. Bootloader Version (OS X.XX)
5. Firmware Number (**ED-13305**)
6. Firmware Revision (Rev X.XX)
7. Hardware Address (HW:XX)
8. Software Address (SW:XX)
9. IP Address: ((default) IP: 172.16.192.25)
10. Subnet Msk: ((default) Msk: 255.255.0.0)
11. COM1 Configuration (C1:V15) ((Modem C1:V15) If a Modem is present)
12. COM 2 Configuration (C2: RTD)
13. Socket 3001: (IP 3001: V15)
14. Socket 3002: (IP 3002: RTD)
15. Line Frequency (CLK: AUTO (60))
16. Display Name Description (Galaxy Row x Column)

4.11 Replacement Parts List

The following tables contain some of the items that may need to be replaced in these displays over a period of time. Many of the parts within the display also list their part numbers on labels affixed to them.

To prevent theft Daktronics recommends purchasing a lockable cabinet to store manuals and replacement/spare parts.

Part Description	Part Number
Controller Galaxy 8 Conn	0A-1229-0009
Power Supply 133/171 Red	0A-1320-0702
Power Supply 133/171 Amber	0A-1320-0703
Thermostat Enclosure 85 Closed 65 Open	0A-1327-3101
Digital Light Sensor	0A-1241-4013
Fan	B-1019
Transformer; Pri 115V, Sec 10VCT@3A (120V Displays)	T-1119
Filter, RFI Line 20 AMP 120 VAC	Z-1007
Fan Finger Guard	HS-1130
Ribbon Assy; 20 pos, 84”	0A-1000-0023
Ribbon Assy; 20 pos, 108”	0A-1000-0025
Manual; Venus 1500 Operator’s, Version 3.0	**ED13530**
Cable; 22 AWG (Light Sensor/Temp Sensor to Controller)	W-1234
Digital Temp Sensor	0P-1247-0008
Electrical Contact Cleaner Lubricant / Cal-Lube	CH-1019
Module, AF-3400-7X4-133-R	0A-1320-2000
Module, AF-3400-8X4-133-A	0A-1320-2011
Module, AF-3400-7X4-171-R	0A-1320-2100
Module, AF-3400-7X4-171-A	0A-1320-2101

4.12 Daktronics Exchange and Repair and Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an Exchange Program and a Repair and Return Program.

Daktronics' unique Exchange Program is a quick, economical service for replacing key components in need of repair. If a component fails, Daktronics sends the customer a replacement, and the customer, in turn, sends the failed component to Daktronics. This not only saves money, but also decreases display downtime.

Daktronics provides these plans to ensure users get the most from their Daktronics products, and it offers the service to qualified customers who follow the program guidelines explained below. Please call the Help Desk – 877-605-1113 – if you have questions regarding the Exchange Program or any other Daktronics service.

When you call the Help Desk, a trained service technician will work with you to solve the equipment problem. You will work together to diagnose the problem and determine which replacement part to ship. If, after you make the exchange, the equipment still causes problems, please contact our Help Desk immediately.
If the replacement part fixes the problem, package the defective part in the same box and packaging in which the replacement part arrived, fill out and attach the enclosed UPS shipping document, and **return the part to Daktronics**. In most circumstances, you will be invoiced for the replacement part at the time it is shipped. This bill, which represents the exchange price, is due when you receive it.

Daktronics expects immediate return of an exchange part if it does not solve the problem. The company also reserves the right to refuse equipment that has been damaged due to acts of nature or causes other than normal wear and tear.

If you do not ship the defective equipment Daktronics within 30 working days from the invoice date, Daktronics assumes you are purchasing the replacement part outright (with no exchange), and you will be invoiced for it. This second invoice represents the difference between the exchange price and the full purchase price of the equipment. The balance is due when you receive the second invoice. If you return the exchange equipment after 30 working days from the invoice date, you will be credited for the amount on the second invoice, minus a restocking fee. **To avoid a restocking charge, you must return the defective equipment within 30 days from the invoice date.**

Daktronics also offers a Repair and Return Program for items not subject to exchange.

Return Materials Authorization: To return parts for service, contact your local representative prior to shipment to acquire a Return Material Authorization (RMA) number. If you do not have a local representative, call the Daktronics Help Desk for the RMA. This expedites repair of your component when it arrives at Daktronics.

Packaging for Return: Package and pad the item well so that it will not be damaged in shipment. Electronic components such as printed circuit boards should be installed in an enclosure or placed in an antistatic bag before boxing. Please enclose your name, address, phone number, and a clear description of symptoms.

This is how to reach us:

Mail: Customer Service, Daktronics Inc.
PO Box 5128
331 32nd Ave
Brookings SD 57006

Phone: Daktronics Help Desk: 877-605-1113 (toll free)
or 605-697-4034

Fax: 605-697-4444

Appendix A: Reference Drawings

Refer to **Section 1** for information on reading drawing numbers. The following drawings are split into sections according to drawing type, and then listed in numerical order by size (A, B, etc.).

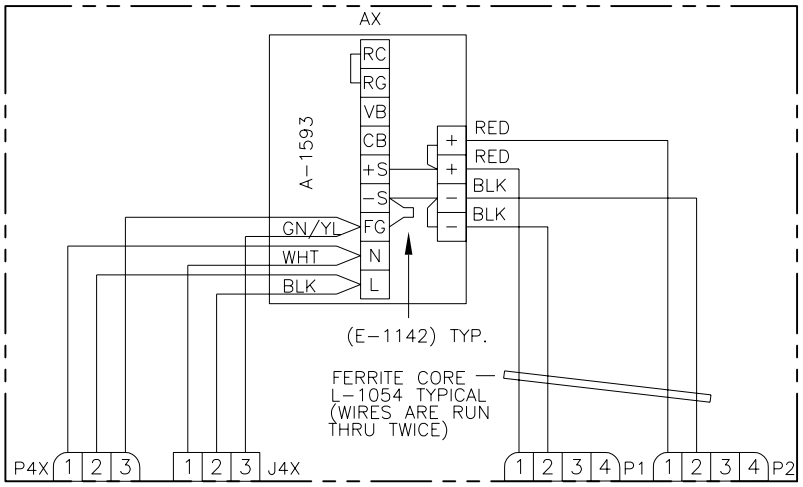
Schematic; Power Supply Configuration ..... **Drawing A-215504**
Power Specs, AF-3400-**X**-133/171-MONO-DOMESTIC ..... **Drawing A-235256**
Power Specs, AF-3400-**X**-133/171-MONO-240 VOLT ..... **Drawing A-235257**
Schematic, AF-3400-7 (8)X16(A)-***-*-P, 120,120/240 ..... **Drawing B-211433**
Schematic, AF-3400-7(8)X16W/INTC-**-*-P-120/240 1PH ..... **Drawing B-222321**
Schematic, AF-3400-7(8)x16 W/INTC-**-P-*, 3 PH ..... **Drawing B-227282**
Schematic, AF-3400-7(8)X16W/INTC-**-*-_240 1PH ..... **Drawing B-228917**

Section, AF-3400-7X16-133-* ..... **Drawing B-238349**
Section, AF-3400-7X16-171-* ..... **Drawing B-239684**
Section, AF-3400-8X16-171-* ..... **Drawing B-239757**

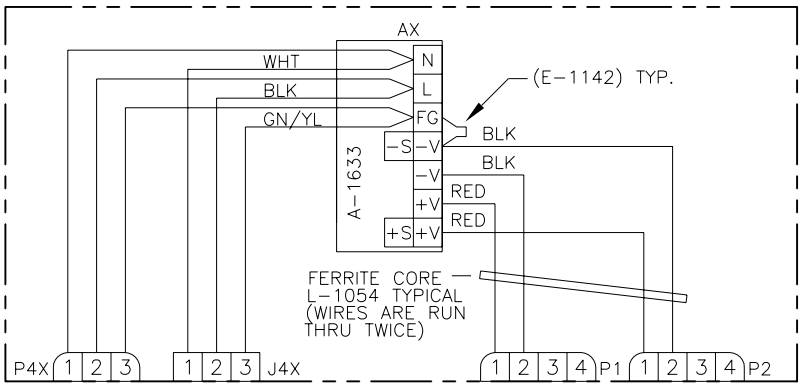
Shop Drawing, AF-3400-7X64-133-* ..... **Drawing B-237156**
Shop Drawing, AF-3400-7X48-133-* ..... **Drawing B-238617**
Shop Drawing, AF-3400-7X80-133-* ..... **Drawing B-238690**
Shop Drawing, AF-3400-16X64-133-* ..... **Drawing B-238939**
Shop Drawing, AF-3400-7X48-171-* ..... **Drawing B-239793**
Shop Drawing, AF-3400-7X64-171-* ..... **Drawing B-239816**
Shop Drawing, AF-3400-7X80-171-* ..... **Drawing B-239841**

216/260 mm

16.5VDC VERSION (AMBER)
0A-1320-0701
(SET POWER SUPPLIES TO 16.5VDC)

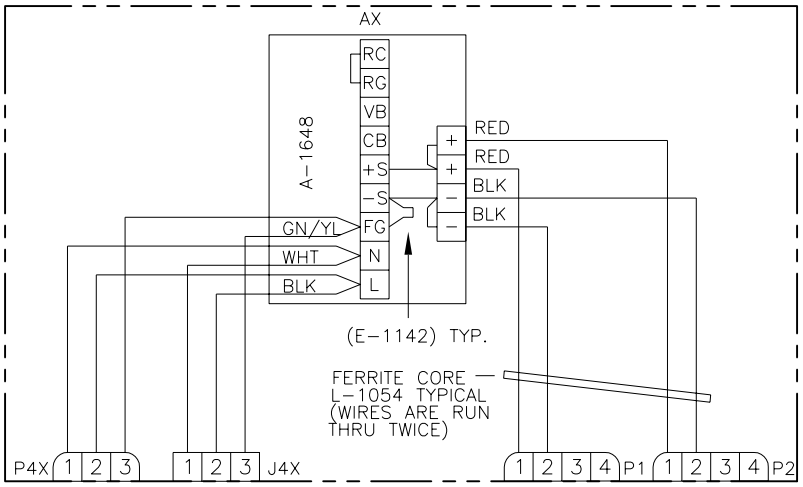


10.0VDC VERSION (RED)
0A-1320-0700
(SET POWER SUPPLY TO 10.0VDC)

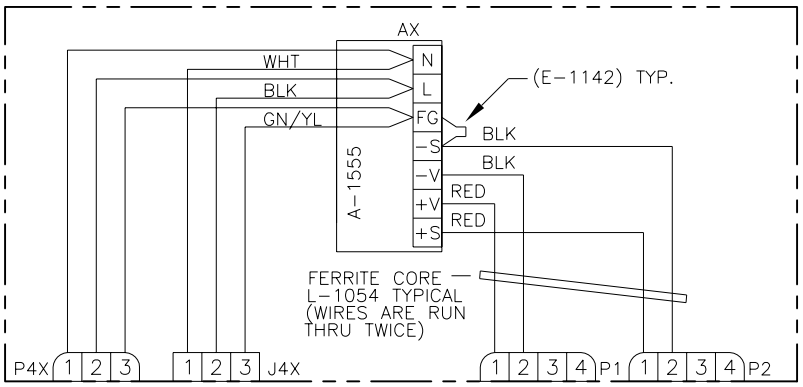


133/171 mm

13.0VDC VERSION (AMBER)
0A-1320-0703
(SET POWER SUPPLIES TO 13.0VDC)



12.5VDC VERSION (RED)
0A-1320-0702
(SET POWER SUPPLY TO 12.5VDC)



BE CERTAIN ALL TERMINALS ON POWER SUPPLY ARE TIGHTENED.

NOTES

1) ALL WIRE IS 14 AWG EXCEPT * IS 18 AWG UNLESS OTHERWISE NOTED.
2) REFER TO ASSEMBLY PACKET FOR WIRE ROUTING COMING OFF OF POWER SUPPLIES.

REV.	DATE	DESCRIPTION	BY	APPR.
04	08AUG05	CHANGED -0703 ASSEMBY FROM 12.0 TO 13.0. CHANGED -0702 ASSEMBY FROM 12.0 TO 12.5.	LLK	
03	29MAR05	ADDED ASSEMBLIES -0702 AND -0703.	LLK	
02	22DEC04	CHANGED 0Z-11445-3100PS TO 0A-1320-0701 CHANGED 0Z-11366-3300PS TO 0A-1320-0700	LLK	
01	09AUG04	CHANGED THE RED POWER SUPPLY FROM 9.0VDC TO 10.0VDC.	LLK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY

TITLE: SCHEMATIC; POWER SUPPLY CONFIGURATIONS

DES. BY: DRAWN BY: LKERR DATE: 15 JUN 04

APPR. BY:

SCALE:

REVISION 04

1320-R03A-215504

133/171 MM
GALAXY, RED LEDS
POWER SPECIFICATION CHART

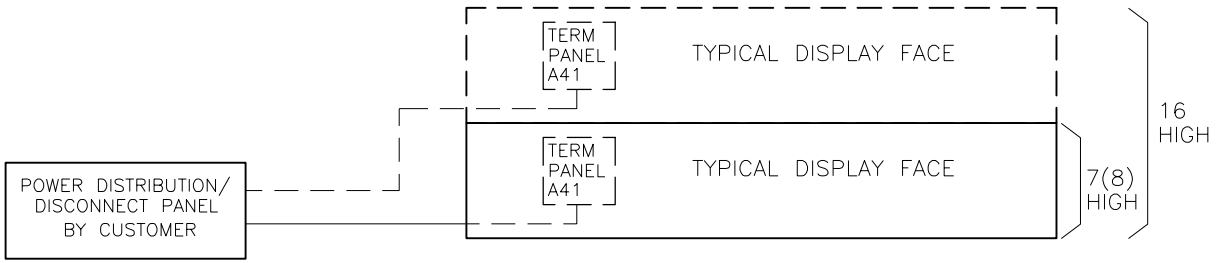
MATRIX SIZE	WATTS	120/208, 4 WIRE + GND			120/240 3 WIRE + GND	
		PHASE A AMPS	PHASE B AMPS	PHASE C AMPS	LINE 1 AMPS	LINE 2 AMPS
7(8)X16	436	2.30	0.00	1.33	2.30	1.33
7(8)X32	857	2.30	2.18	2.67	2.30	4.84
7(8)X48	1278	2.30	2.18	6.18	4.48	6.18
7(8)X64	1699	4.48	2.18	7.51	6.65	7.51
7(8)X80	2120	4.48	4.35	8.84	6.65	11.02
7(8)X96	2541	4.48	4.35	12.35	8.83	12.35
7(8)X112	2962	6.65	4.35	13.68	11.00	13.68
7(8)X128	3383	6.65	6.53	15.02	11.00	17.19
7(8)X144	3804	6.65	6.53	18.53	13.18	18.53
16X16	857	4.48	0.00	2.67	4.48	2.67
16X32	1699	4.48	4.35	5.33	4.48	9.68
16X48	2541	4.48	4.35	12.35	8.83	12.35
16X64	3383	8.83	4.35	15.02	13.18	15.02
16X80	4226	8.83	8.70	17.68	13.18	22.04
16X96	5068	8.83	8.70	24.70	17.53	24.70
16X112	5910	13.18	8.70	27.37	21.88	27.37
16X128	6752	13.18	13.05	30.04	21.88	34.39
16X144	7594	13.18	13.05	37.05	26.23	37.05

133/171 MM
GALAXY, AMBER LEDS
POWER SPECIFICATION CHART

MATRIX SIZE	WATTS	120/208, 4 WIRE + GND			120/240 3 WIRE + GND	
		PHASE A AMPS	PHASE B AMPS	PHASE C AMPS	LINE 1 AMPS	LINE 2 AMPS
7(8)X16	879	5.99	0.00	1.33	5.99	1.33
7(8)X32	1743	5.99	5.87	2.67	5.99	8.53
7(8)X48	2607	5.99	5.87	9.87	11.86	9.87
7(8)X64	3471	11.86	5.87	11.20	17.73	11.20
7(8)X80	4335	11.86	11.73	12.53	17.73	18.40
7(8)X96	5199	11.86	11.73	19.73	23.59	19.73
16X16	1743	11.86	0.00	2.67	11.86	2.67
16X32	3471	11.86	11.73	5.33	11.86	17.07
16X48	5199	11.86	11.73	19.73	23.59	19.73
16X64	6927	23.59	11.73	22.40	35.33	22.40
16X80	8655	23.59	23.47	25.07	35.33	36.80
16X96	10383	23.59	23.47	39.47	47.06	39.47

NOTES:

1. SPECS LISTED ABOVE ARE FOR A SINGLE FACE DISPLAY.



REV.	DATE	DESCRIPTION	BY	APPR.
01	11AUG05	CHANGED POWER SPECIFICATIONS PER POWER SUPPLY VOLTAGE CHANGE.	RBN	LLK

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY, LARGE CHARACTER

TITLE: P SPECS, AF-3400-**X**-133/171-MONO-DOMESTIC

DES. BY: LKERR DRAWN BY: WSCHNEI DATE: 25 FEB 05

APPR. BY: LLK

SCALE: NONE

REVISION 01

1320-R10A-23525 6

133/171 MM GALAXY, RED LEDS POWER SPECIFICATION CHART (240) VOLT

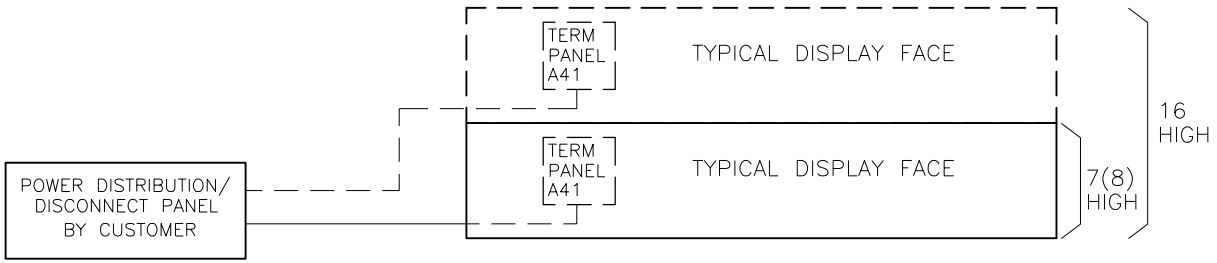
MATRIX SIZE	WATTS	240 3 PH,4 WIRE + GND			240 1 PHASE 2 WIRE + GND
		PHASE A AMPS	PHASE B AMPS	PHASE C AMPS	AMPS
7(8)X16	436	1.15	0.00	0.67	1.82
7(8)X32	857	1.15	1.09	1.33	3.57
7(8)X48	1278	1.15	1.09	3.09	5.33
7(8)X64	1699	2.24	1.09	3.75	7.08
7(8)X80	2120	2.24	2.18	4.42	8.83
7(8)X96	2541	2.24	2.18	6.18	10.59
7(8)X112	2962	3.33	2.18	6.84	12.34
7(8)X128	3383	3.33	3.26	7.51	14.10
7(8)X144	3804	3.33	3.26	9.26	15.85
16X16	857	2.24	0.00	1.33	3.57
16X32	1699	2.24	2.18	2.67	7.08
16X48	2541	2.24	2.18	3.18	10.59
16X64	3383	4.41	2.18	7.51	14.10
16X80	4226	4.41	4.35	8.84	17.61
16X96	5068	4.41	4.35	12.35	21.12
16X112	5910	6.59	4.35	13.68	24.62
16X128	6752	6.59	6.53	15.02	28.13
16X144	7594	6.59	6.53	18.53	31.64

133/171 MM GALAXY, AMBER LEDS POWER SPECIFICATION CHART (240) VOLT

MATRIX SIZE	WATTS	240 3 PH,4 WIRE + GND			240 1 PHASE 2 WIRE + GND
		PHASE A AMPS	PHASE B AMPS	PHASE C AMPS	AMPS
7(8)X16	879	3.00	0.00	0.67	3.66
7(8)X32	1743	3.00	2.93	1.33	7.26
7(8)X48	2607	3.00	2.93	4.93	10.86
7(8)X64	3471	5.93	2.93	5.60	14.46
7(8)X80	4335	5.93	5.87	6.27	18.06
7(8)X96	5199	5.93	5.87	9.87	21.66
16X16	1743	5.93	0.00	1.33	7.26
16X32	3471	5.93	5.87	2.67	14.46
16X48	5199	5.93	5.87	9.87	21.66
16X64	6927	11.80	5.87	11.20	28.86
16X80	8655	11.80	11.73	12.53	36.06
16X96	10383	11.80	11.73	19.73	43.26

NOTES:

1. SPECS LISTED ABOVE ARE FOR A SINGLE FACE DISPLAY.



REV.	DATE	DESCRIPTION	BY	APPR.
01	11AUG05	CHANGED POWER SPECIFICATIONS PER POWER SUPPLY VOLTAGE CHANGE.	RBN	LLK

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY,LARGE CHARACTER

TITLE: P SPECS, AF-3400-**X**-133/171-MONO-240 VOLT

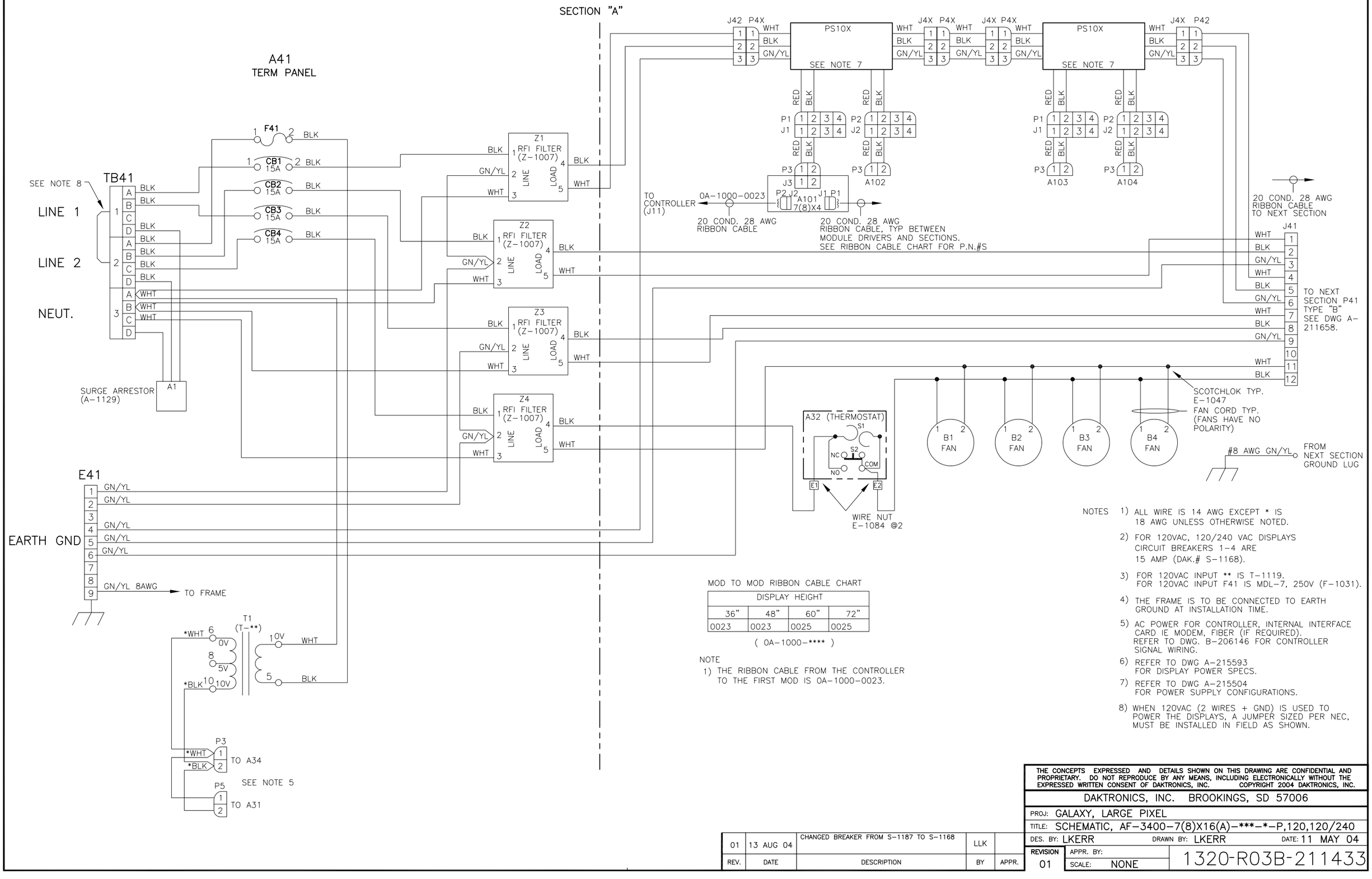
DES. BY: LKERR DRAWN BY: WSCHNEI DATE: 25 FEB 05

APPR. BY: LLK

SCALE: NONE

REVISION 00

1320-R10A-235257



MOD TO MOD RIBBON CABLE CHART

DISPLAY HEIGHT			
36"	48"	60"	72"
0023	0023	0025	0025

(0A-1000-****)

NOTE
1) THE RIBBON CABLE FROM THE CONTROLLER TO THE FIRST MOD IS 0A-1000-0023.

NOTES
1) ALL WIRE IS 14 AWG EXCEPT * IS 18 AWG UNLESS OTHERWISE NOTED.
2) FOR 120VAC, 120/240 VAC DISPLAYS CIRCUIT BREAKERS 1-4 ARE 15 AMP (DAK.# S-1168).
3) FOR 120VAC INPUT ** IS T-1119. FOR 120VAC INPUT F41 IS MDL-7, 250V (F-1031).
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) AC POWER FOR CONTROLLER, INTERNAL INTERFACE CARD IE MODEM, FIBER (IF REQUIRED). REFER TO DWG. B-206146 FOR CONTROLLER SIGNAL WIRING.
6) REFER TO DWG A-215593 FOR DISPLAY POWER SPECS.
7) REFER TO DWG A-215504 FOR POWER SUPPLY CONFIGURATIONS.
8) WHEN 120VAC (2 WIRES + GND) IS USED TO POWER THE DISPLAYS, A JUMPER SIZED PER NEC, MUST BE INSTALLED IN FIELD AS SHOWN.

REV.	DATE	DESCRIPTION	BY	APPR.
01	13 AUG 04	CHANGED BREAKER FROM S-1187 TO S-1168	LLK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY, LARGE PIXEL

TITLE: SCHEMATIC, AF-3400-7(8)X16(A)-***-*-P,120,120/240

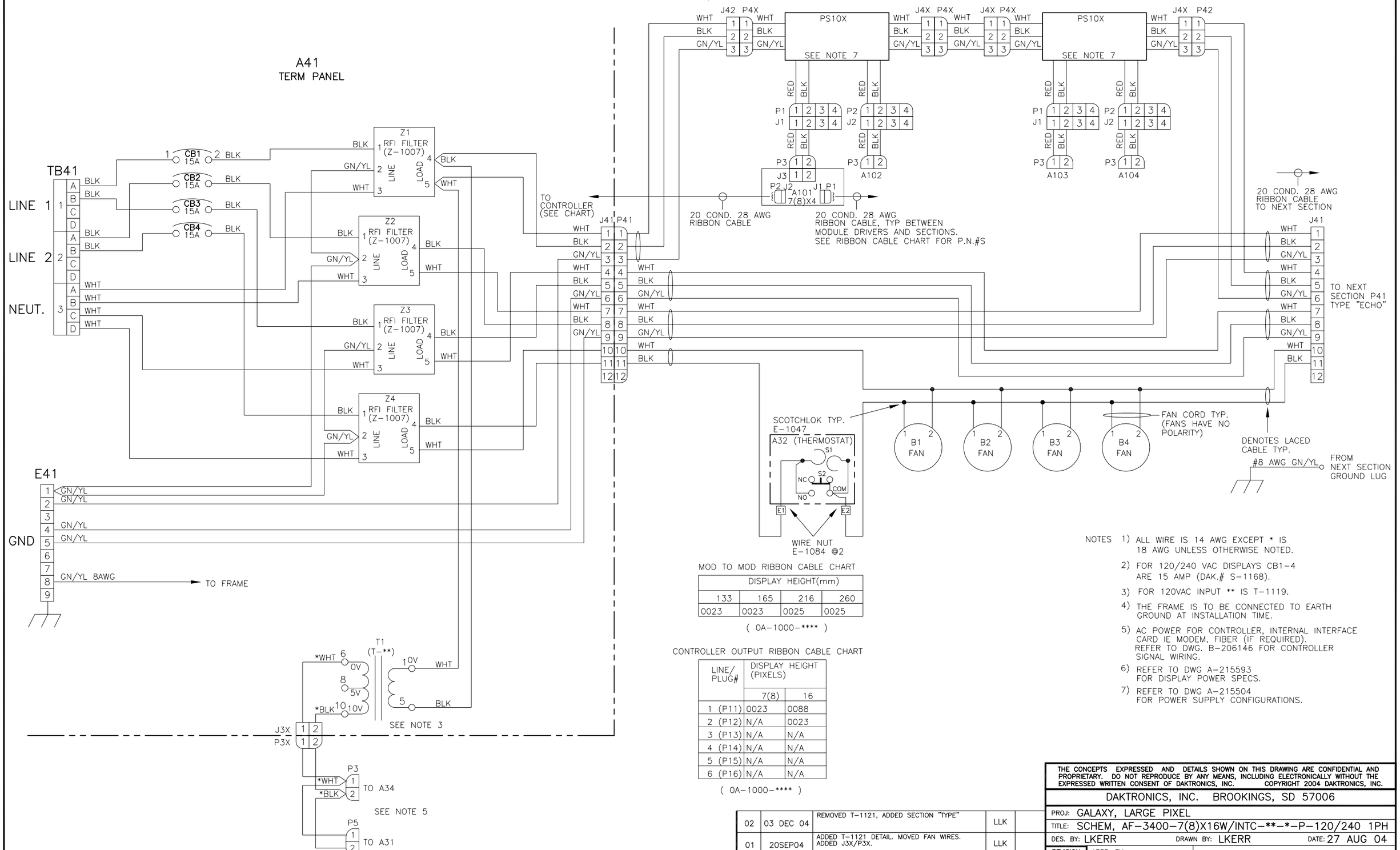
DES. BY: LKERR DRAWN BY: LKERR DATE: 11 MAY 04

REVISION 01 APPR. BY:

SCALE: NONE

1320-R03B-211433

SECTION TYPE "MASTER/POWER ECHO"



MOD TO MOD RIBBON CABLE CHART

DISPLAY HEIGHT(mm)			
133	165	216	260
0023	0023	0025	0025

(0A-1000-****)

CONTROLLER OUTPUT RIBBON CABLE CHART

LINE/ PLUG#	DISPLAY HEIGHT (PIXELS)	
	7(8)	16
1 (P11)	0023	0088
2 (P12)	N/A	0023
3 (P13)	N/A	N/A
4 (P14)	N/A	N/A
5 (P15)	N/A	N/A
6 (P16)	N/A	N/A

(0A-1000-****)

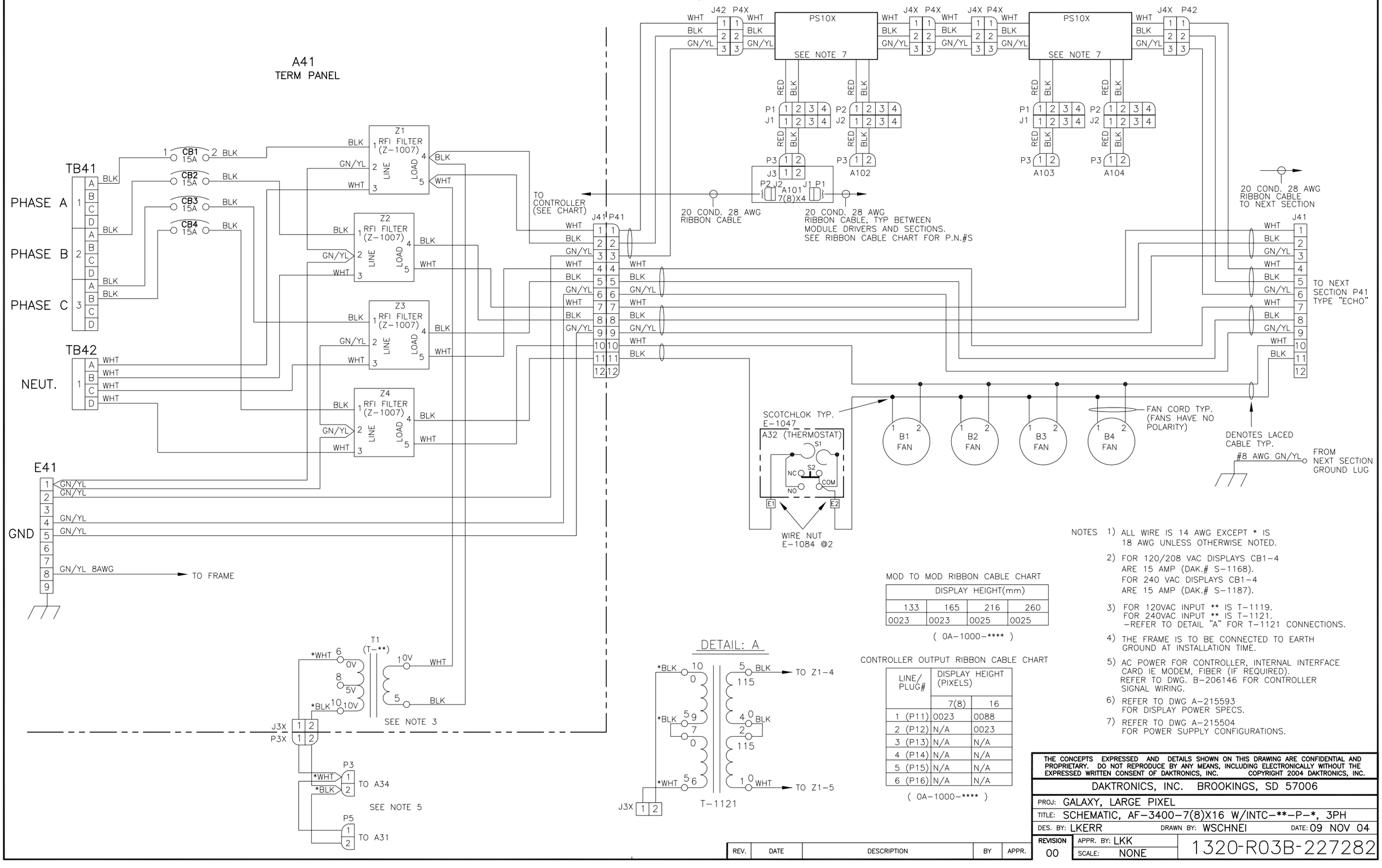
NOTES
1) ALL WIRE IS 14 AWG EXCEPT * IS 18 AWG UNLESS OTHERWISE NOTED.
2) FOR 120/240 VAC DISPLAYS CB1-4 ARE 15 AMP (DAK.# S-1168).
3) FOR 120VAC INPUT ** IS T-1119.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) AC POWER FOR CONTROLLER, INTERNAL INTERFACE CARD IE MODEM, FIBER (IF REQUIRED). REFER TO DWG. B-206146 FOR CONTROLLER SIGNAL WIRING.
6) REFER TO DWG A-215593 FOR DISPLAY POWER SPECS.
7) REFER TO DWG A-215504 FOR POWER SUPPLY CONFIGURATIONS.

REV.	DATE	DESCRIPTION	BY	APPR.
02	03 DEC 04	REMOVED T-1121, ADDED SECTION "TYPE"	LLK	
01	20SEP04	ADDED T-1121 DETAIL. MOVED FAN WIRES. ADDED J3X/P3X.	LLK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY, LARGE PIXEL
TITLE: SCHEM, AF-3400-7(8)X16W/INTC-**-*-P-120/240 1PH
DES. BY: LKERR DRAWN BY: LKERR DATE: 27 AUG 04
REVISION 02 APPR. BY: SCALE: NONE
1320-R03B-222321

SECTION TYPE "MASTER/POWER ECHO"



MOD TO MOD RIBBON CABLE CHART

DISPLAY HEIGHT(mm)			
133	165	216	260
0023	0023	0025	0025

(0A-1000-****)

CONTROLLER OUTPUT RIBBON CABLE CHART

LINE/ PLUG#	DISPLAY HEIGHT (PIXELS)	
	7(8)	16
1 (P11)	0023	0088
2 (P12)	N/A	0023
3 (P13)	N/A	N/A
4 (P14)	N/A	N/A
5 (P15)	N/A	N/A
6 (P16)	N/A	N/A

(0A-1000-****)

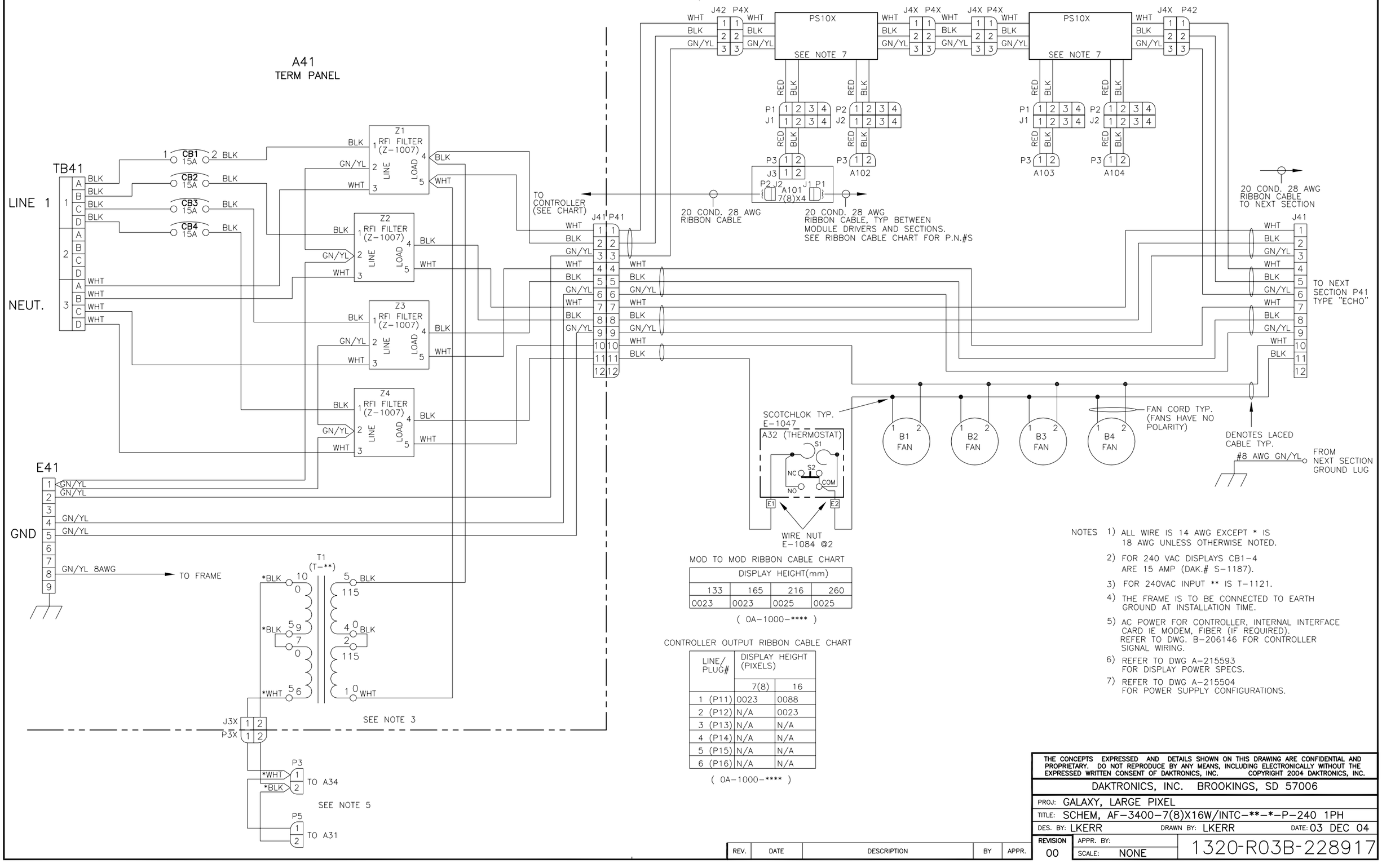
NOTES
1) ALL WIRE IS 14 AWG EXCEPT * IS 18 AWG UNLESS OTHERWISE NOTED.
2) FOR 120/208 VAC DISPLAYS CB1-4 ARE 15 AMP (DAK.# S-1168). FOR 240 VAC DISPLAYS CB1-4 ARE 15 AMP (DAK.# S-1187).
3) FOR 120VAC INPUT ** IS T-1119. FOR 240VAC INPUT ** IS T-1121. -REFER TO DETAIL "A" FOR T-1121 CONNECTIONS.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) AC POWER FOR CONTROLLER, INTERNAL INTERFACE CARD IE MODEM, FIBER (IF REQUIRED). REFER TO DWG. B-206146 FOR CONTROLLER SIGNAL WIRING.
6) REFER TO DWG A-215593 FOR DISPLAY POWER SPECS.
7) REFER TO DWG A-215504 FOR POWER SUPPLY CONFIGURATIONS.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY, LARGE PIXEL
TITLE: SCHEMATIC, AF-3400-7(8)X16 W/INTC-**-P-*, 3PH
DES. BY: LKERR DRAWN BY: WSCHNEI DATE: 09 NOV 04
REVISION 00 APPR. BY: LKK SCALE: NONE
1320-R03B-227282

REV.	DATE	DESCRIPTION	BY	APPR.

SECTION TYPE "MASTER/POWER ECHO"



MOD TO MOD RIBBON CABLE CHART

DISPLAY HEIGHT(mm)			
133	165	216	260
0023	0023	0025	0025

(0A-1000-****)

CONTROLLER OUTPUT RIBBON CABLE CHART

LINE/ PLUG#	DISPLAY HEIGHT (PIXELS)	
	7(8)	16
1 (P11)	0023	0088
2 (P12)	N/A	0023
3 (P13)	N/A	N/A
4 (P14)	N/A	N/A
5 (P15)	N/A	N/A
6 (P16)	N/A	N/A

(0A-1000-****)

NOTES
1) ALL WIRE IS 14 AWG EXCEPT * IS 18 AWG UNLESS OTHERWISE NOTED.
2) FOR 240 VAC DISPLAYS CB1-4 ARE 15 AMP (DAK.# S-1187).
3) FOR 240VAC INPUT ** IS T-1121.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) AC POWER FOR CONTROLLER, INTERNAL INTERFACE CARD IE MODEM, FIBER (IF REQUIRED). REFER TO DWG. B-206146 FOR CONTROLLER SIGNAL WIRING.
6) REFER TO DWG A-215593 FOR DISPLAY POWER SPECS.
7) REFER TO DWG A-215504 FOR POWER SUPPLY CONFIGURATIONS.

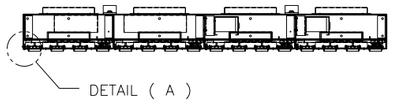
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY, LARGE PIXEL
TITLE: SCHEM, AF-3400-7(8)X16W/INTC-**-*-P-240 1PH
DES. BY: LKERR DRAWN BY: LKERR DATE: 03 DEC 04

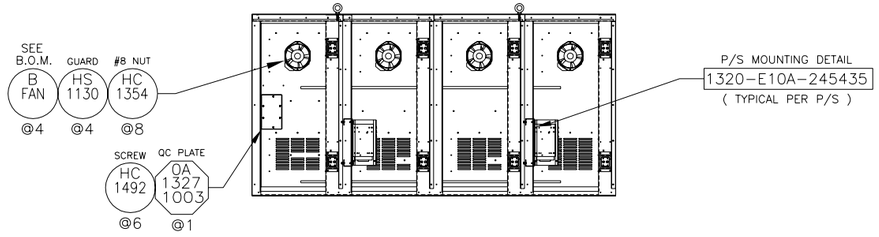
REV.	DATE	DESCRIPTION	BY	APPR.

REVISION 00 APPR. BY: SCALE: NONE

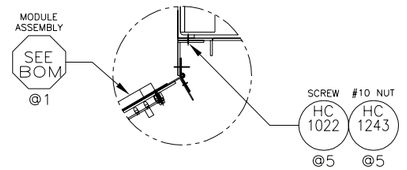
1320-R03B-228917



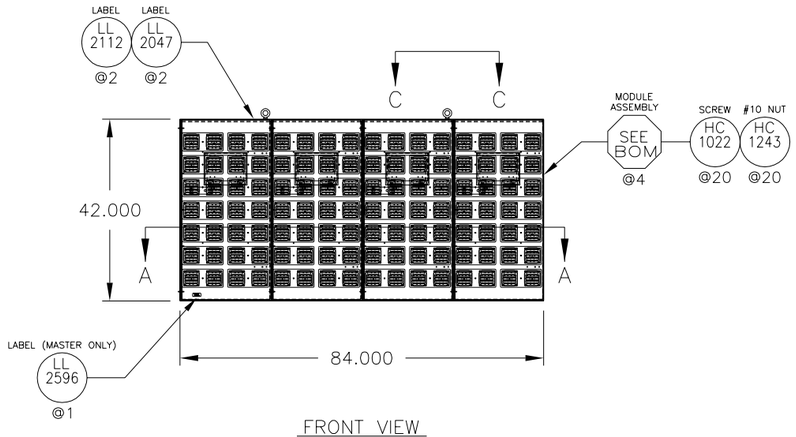
SECTION: A–A
(1 X SCALE)



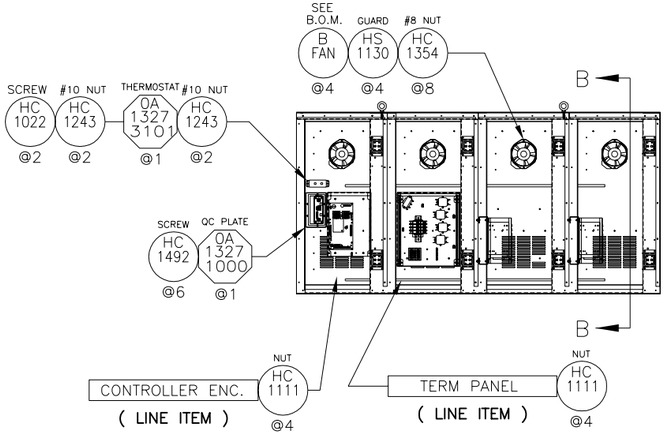
FRONT VIEW
(SECTION ECHO FIELD / ECHO 7X16–133–*)
(MODULE PANELS NOT SHOWN FOR CLARITY)



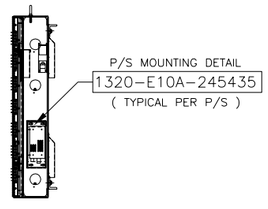
DETAIL: A
(4 X SCALE)



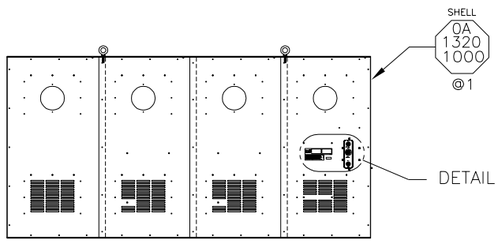
FRONT VIEW



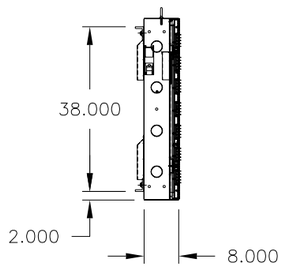
FRONT VIEW
(SECTION MASTER, AF–3400–7X16–133–*)
(MODULE PANELS NOT SHOWN FOR CLARITY)



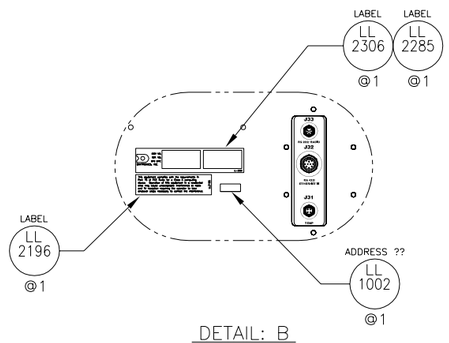
SECTION: B–B
(1 X SCALE)



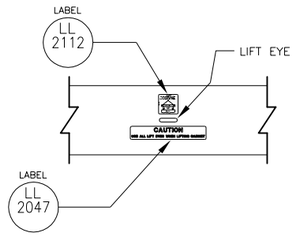
REAR VIEW



RIGHT SIDE



DETAIL: B
(4 X SCALE)



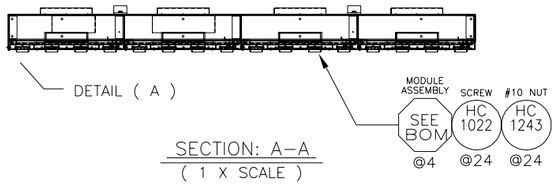
SECTION: C–C

REV.	DATE	DESCRIPTION	BY	APPR.
01	08AUG05	UPDATED PER DESIGN CHANGES	JTELLIN	

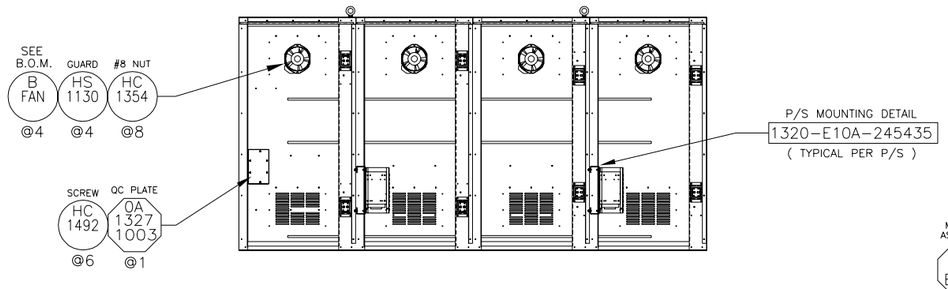
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER
TITLE: SECTION, AF–3400–7X16–133–*
DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 5APL05
REVISION 01 APPR. BY:
SCALE: 1=35

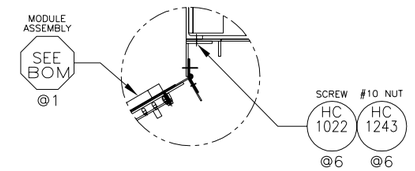
1320-E10B-238349



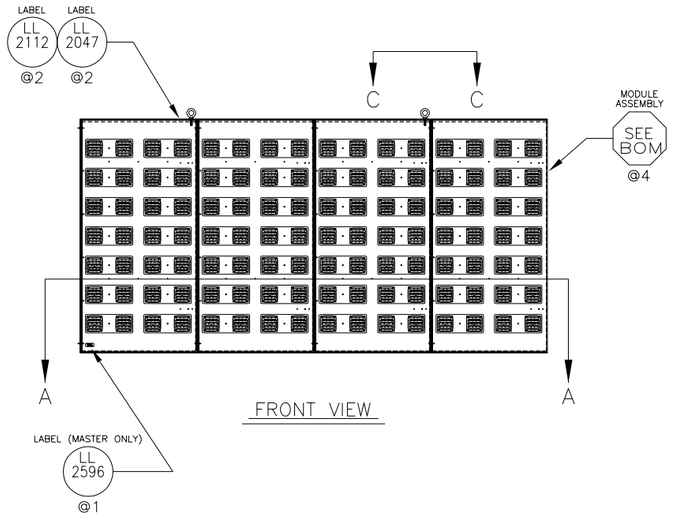
SECTION: A–A
(1 X SCALE)



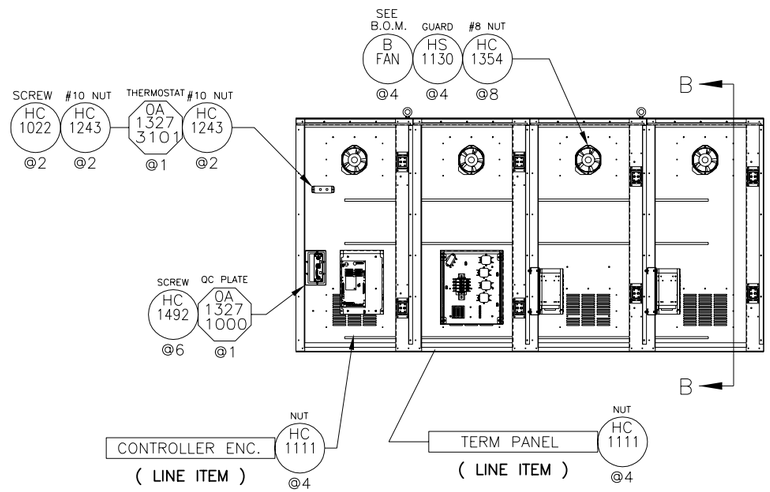
FRONT VIEW
(SECTION ECHO FIELD / ECHO 7X16–171–*)
(MODULE PANELS NOT SHOWN FOR CLARITY)



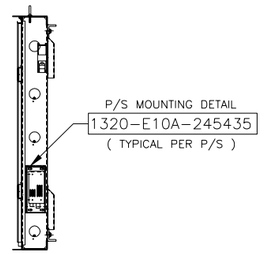
DETAIL: A
(4 X SCALE)



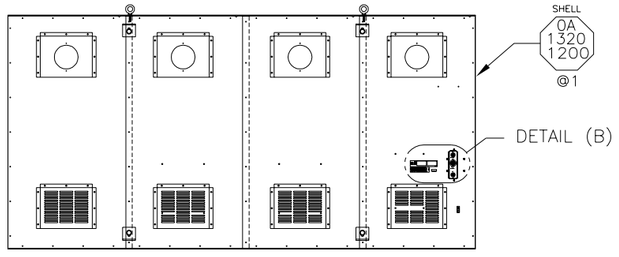
FRONT VIEW



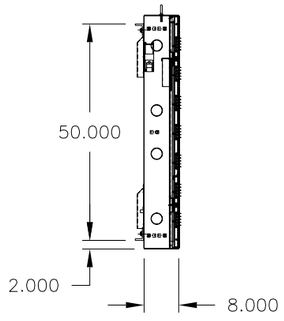
FRONT VIEW
(SECTION MASTER, AF–3400–7X16–171–*)
(MODULE PANELS NOT SHOWN FOR CLARITY)



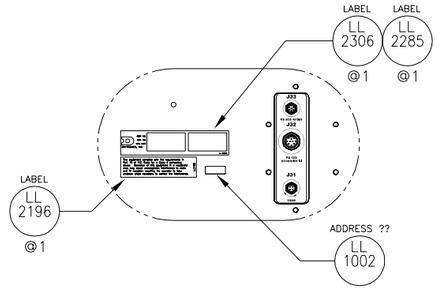
SECTION: B–B
(1 X SCALE)



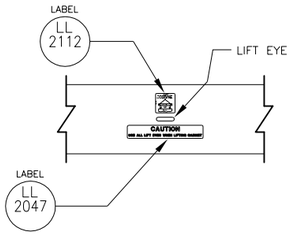
REAR VIEW



RIGHT SIDE



DETAIL: B
(4 X SCALE)



SECTION: C–C

REV.	DATE	DESCRIPTION	BY	APPR.
01	10AUG05	UPDATED PER DESIGN CHANGE	JTELLIN	

DAKTRONICS, INC. BROOKINGS, SD 57006

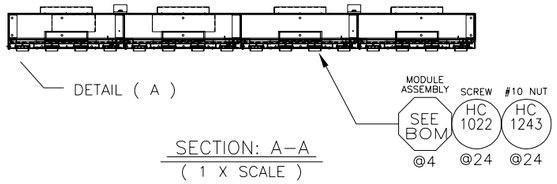
PROJ: GALAXY LARGE CHARACTER

TITLE: SECTION, AF–3400–7X16–171–*

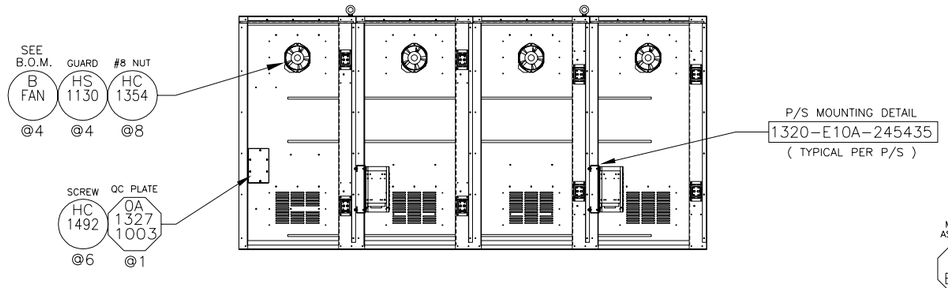
DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 21APL05

REVISION 01 | APPR. BY: | SCALE: 1=35

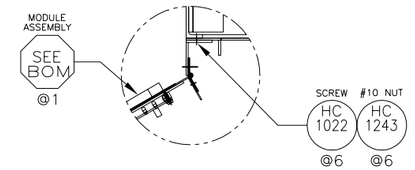
1320-E10B-239684



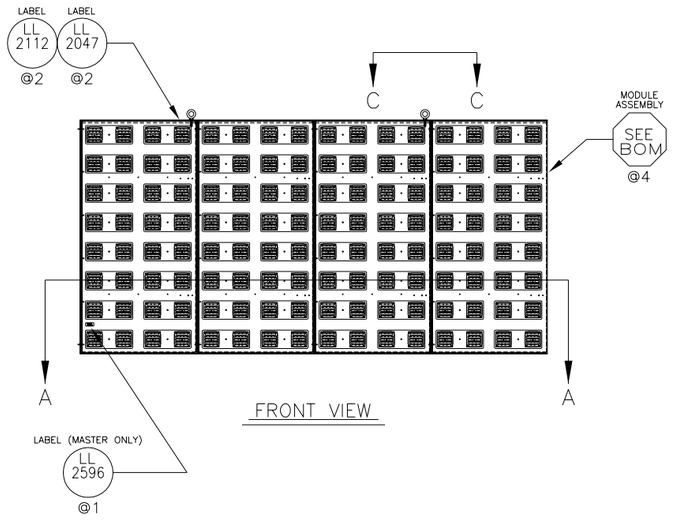
SECTION: A–A
(1 X SCALE)



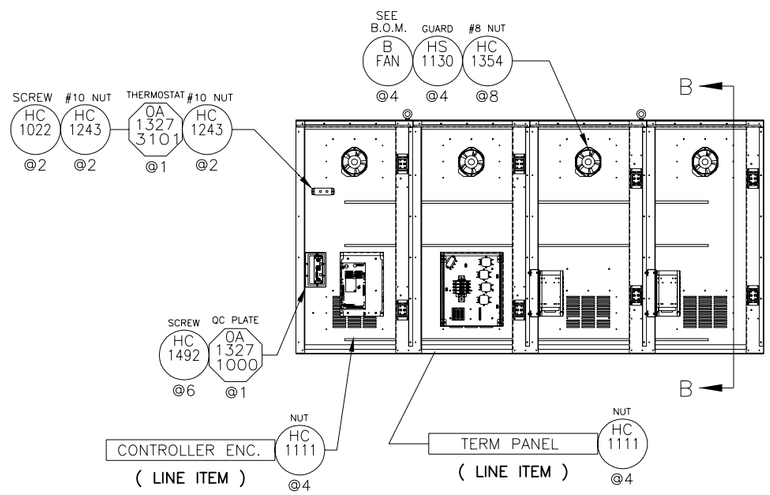
FRONT VIEW
(SECTION ECHO FIELD / ECHO 7X16–171–*)
(MODULE PANELS NOT SHOWN FOR CLARITY)



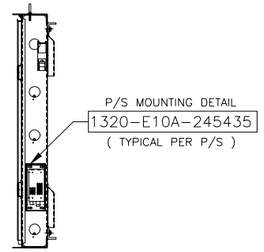
DETAIL: A
(4 X SCALE)



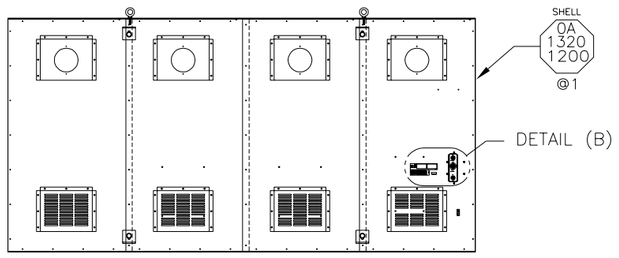
FRONT VIEW



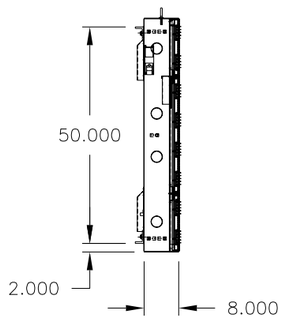
FRONT VIEW
(SECTION MASTER, AF–3400–7X16–171–*)
(MODULE PANELS NOT SHOWN FOR CLARITY)



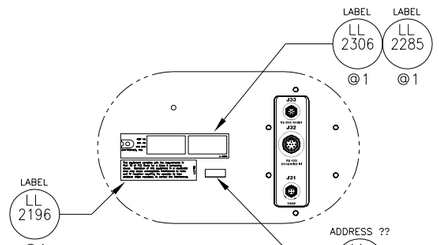
SECTION: B–B
(1 X SCALE)



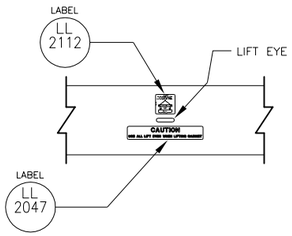
REAR VIEW



RIGHT SIDE



DETAIL: B
(4 X SCALE)



SECTION: C–C

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

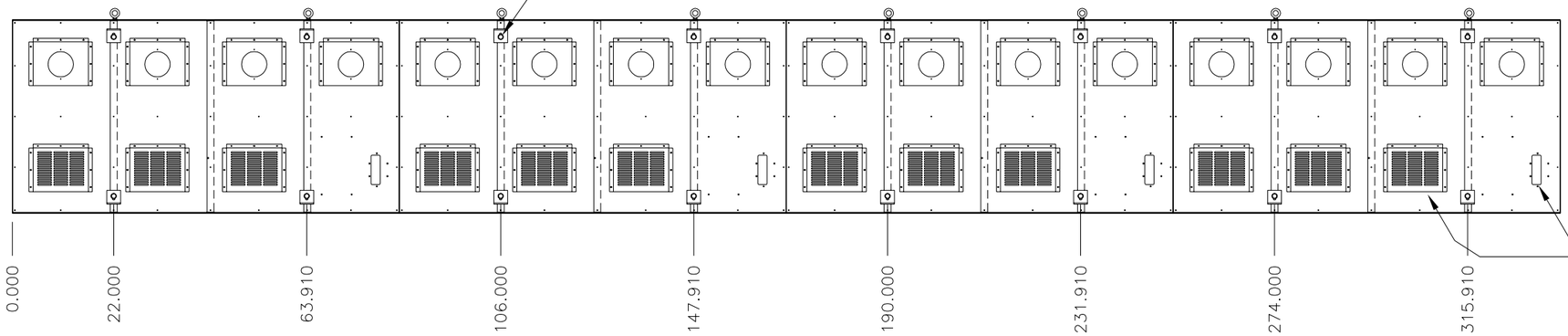
TITLE: SECTION, AF–3400–8X16–171–*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 21APL05

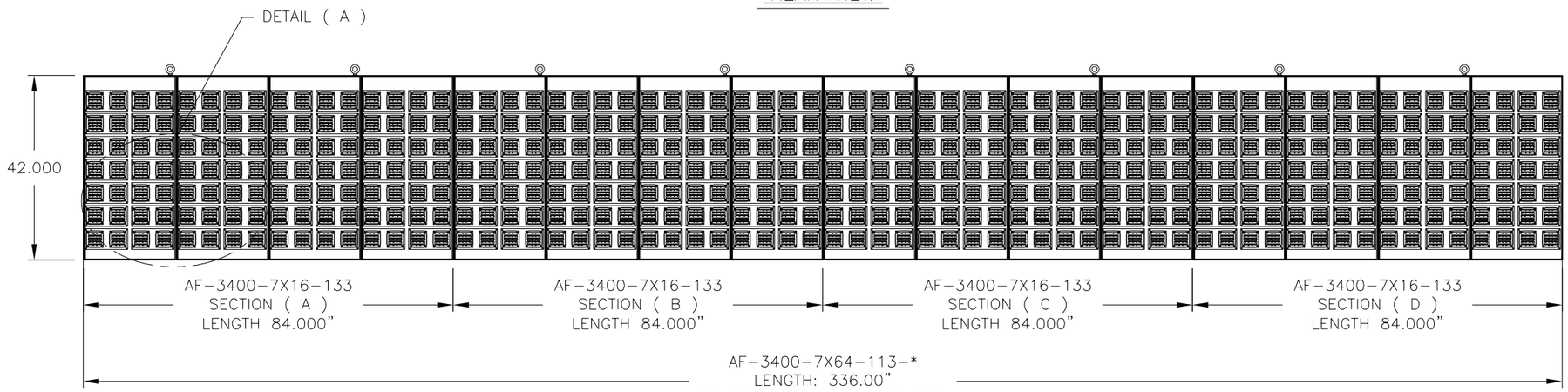
REVISION 01 APPR. BY: SCALE: 1=35

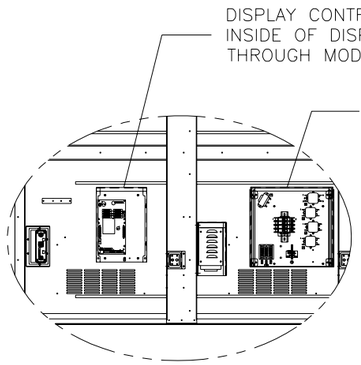
1320-E10B-239757

REV.	DATE	DESCRIPTION	BY	APPR.
01	10AUG05	UPDATED PER DESIGN CHANGE	JTELLIN	



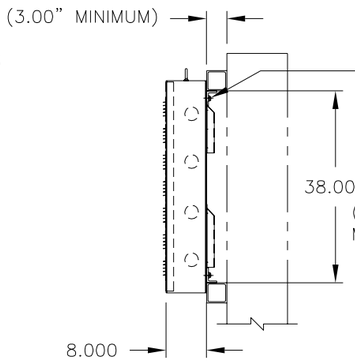
REAR VIEW





DETAIL: A
(NOT TO SCALE)

FRONT VIEW



SIDE VIEW

MINIMUMS SHOWN ARE
FOR VENTILATION REQUIREMENTS.

NOTE:
ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.

NOTES:

1) ALL DIMENSIONS ARE GIVEN IN INCHES
2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION WITH STEEL MOUNTING CLIP ANGLES / HARDWARE.
3) DISPLAY IS PAINTED FLAT BLACK
4) SERVICE ACCESS FOR ALL DRIVERS AND ELECTRONICS IS FROM THE FRONT.
5) LIFT EYES WILL BE PROVIDED IN EACH SECTION FOR INSTALLATION PURPOSES. HOLES IN TOP OF THE TOP SECTIONS MUST BE FILLED AND SEALED TO PREVENT EXCESS WATER FROM ENTERING CABINET.
6) DISPLAY CONTROLLER AND LOAD CENTERS SUPPLIED BY DAKTRONICS AND MOUNTED INTERNALLY. SIGNAL TO BE RAN IN CONDUIT OR RACEWAY FROM COMPUTER LOCATION TO SIGNAL ENTRANCE IN BACK OF DISPLAY.
7) POWER CABLE / SIGNAL CABLE, ALL CONDUIT, AND ALL LABOR TO BE PROVIDED BY CUSTOMERS ELECTRICAL CONTRACTOR.

REV.	DATE	DESCRIPTION	BY	APPR.

DAKTRONICS, INC. BROOKINGS, SD 57006

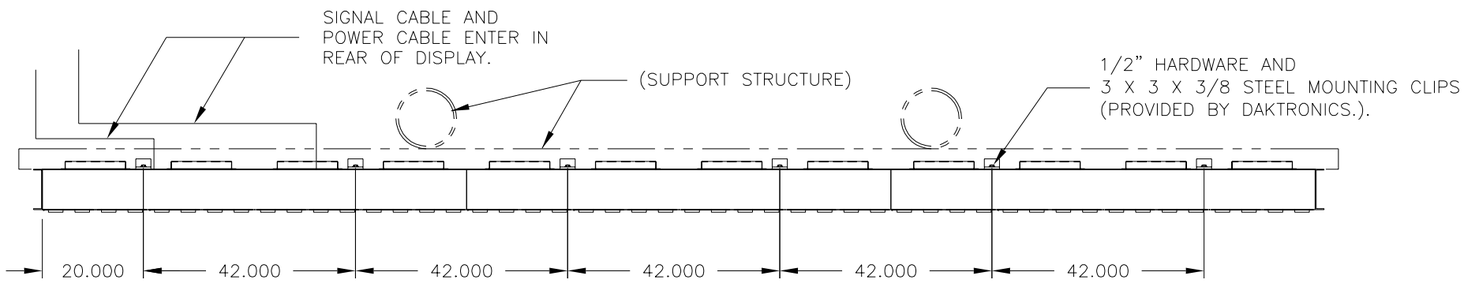
PROJ: GALAXY LARGE CHARACTER

TITLE: SHOP DRAWING, AF-3400-7X64-133-*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 22MAR05

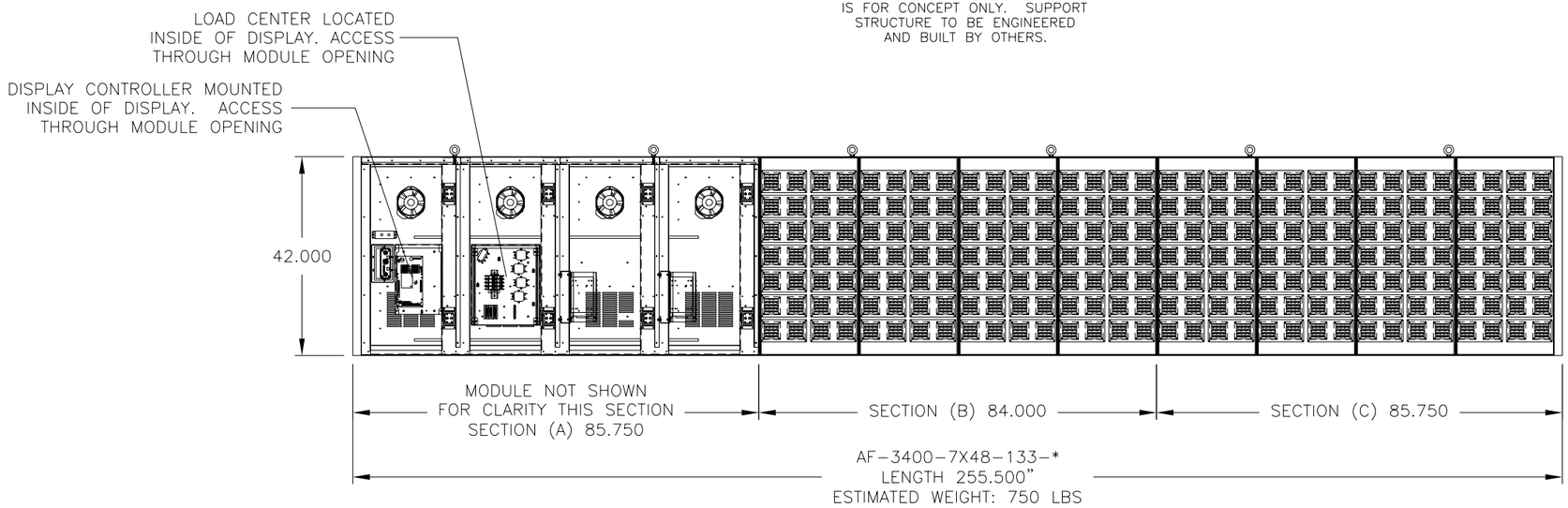
REVISION 00 | APPR. BY: | SCALE: 1=30

1320-E10B-237156



TOP VIEW

ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.



FRONT VIEW

NOTES:

1) ALL DIMENSIONS ARE GIVEN IN INCHES

2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION WITH STEEL MOUNTING CLIP ANGLES / HARDWARE.

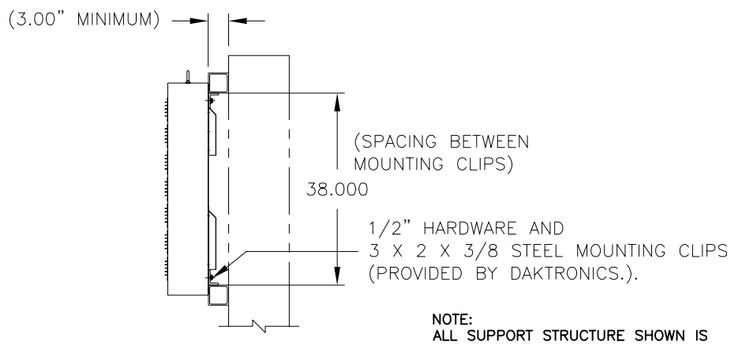
3) DISPLAY IS PAINTED FLAT BLACK

4) SERVICE ACCESS FOR ALL DRIVERS AND ELECTRONICS IS FROM THE FRONT.

5) LIFT EYES WILL BE PROVIDED IN EACH SECTION FOR INSTALLATION PURPOSES. HOLES IN TOP OF THE TOP SECTIONS MUST BE FILLED AND SEALED TO PREVENT EXCESS WATER FROM ENTERING CABINET.

6) DISPLAY CONTROLLER AND LOAD CENTERS SUPPLIED BY DAKTRONICS AND MOUNTED INTERNALLY. SIGNAL TO BE RAN IN CONDUIT OR RACEWAY FROM COMPUTER LOCATION TO SIGNAL ENTRANCE IN BACK OF DISPLAY.

7) POWER CABLE / SIGNAL CABLE, ALL CONDUIT, AND ALL LABOR TO BE PROVIDED BY CUSTOMERS



SIDE VIEW

MINIMUMS SHOWN ARE FOR VENTILATION REQUIREMENTS.

NOTE:
ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.

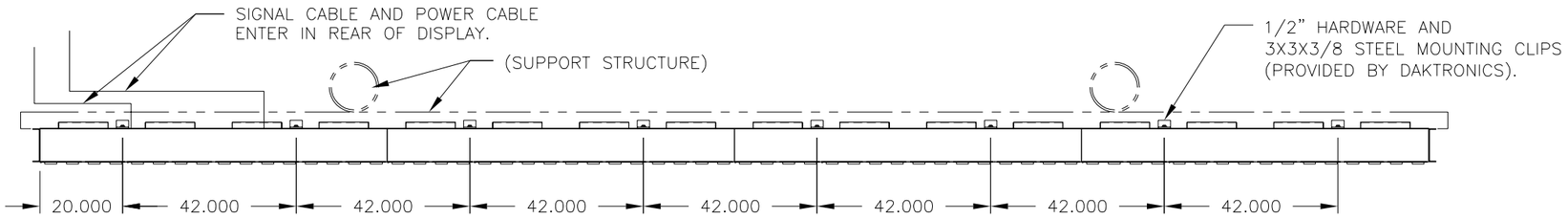
01	09AUG05	UPDATED PER DESIGN CHANGE	NKJ

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

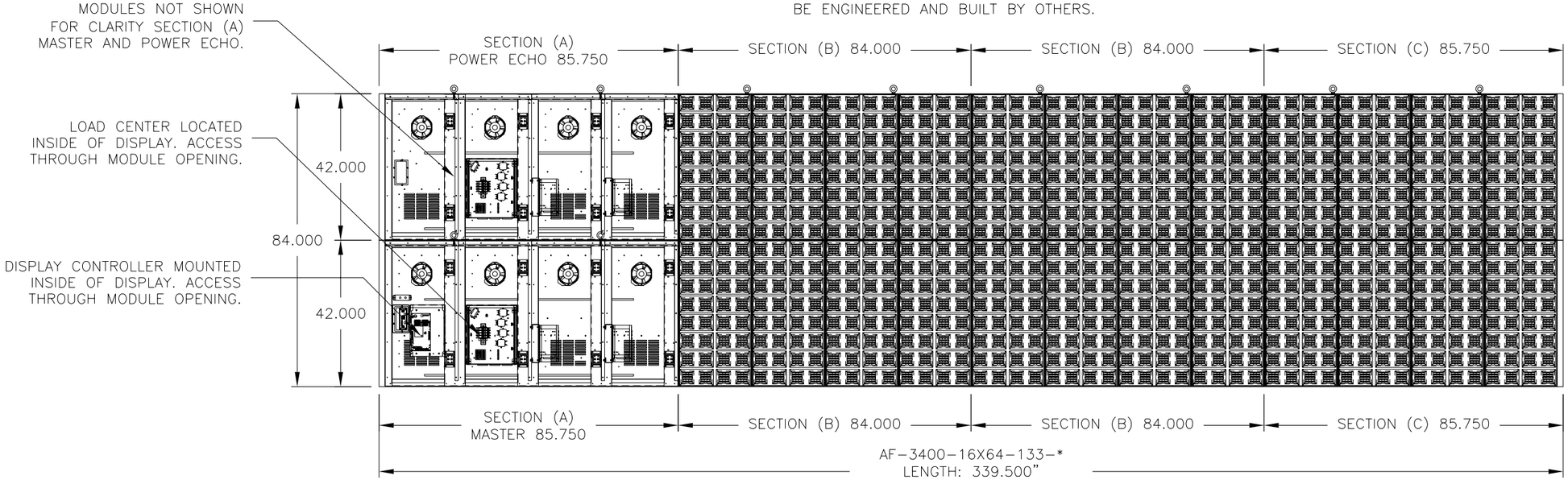
TITLE: SHOP DRAWING, AF-3400-7X48-133-*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 8APL05



TOP VIEW

ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.



NOTES:

1) ALL DIMENSIONS ARE GIVEN IN INCHES

2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION WITH STEEL MOUNTING CLIP ANGLES / HARDWARE.

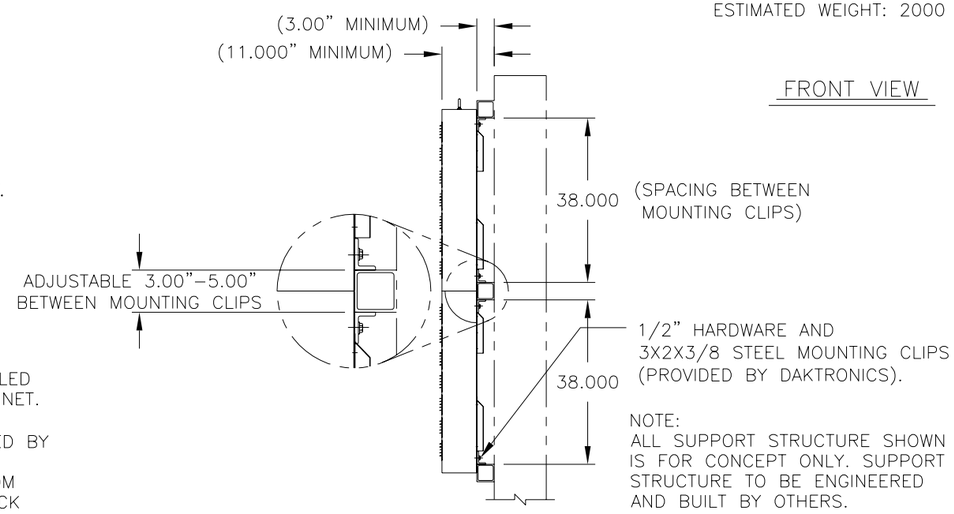
3) DISPLAY IS PAINTED FLAT BLACK

4) SERVICE ACCESS FOR ALL DRIVERS AND ELECTRONICS IS FROM THE FRONT.

5) LIFT EYES WILL BE PROVIDED IN EACH SECTION FOR INSTALLATION PURPOSES. HOLES IN TOP OF THE TOP SECTIONS MUST BE FILLED AND SEALED TO PREVENT EXCESS WATER FROM ENTERING CABINET.

6) DISPLAY CONTROLLER AND LOAD CENTERS SUPPLIED BY DAKTRONICS AND MOUNTED INTERNALLY. SIGNAL TO BE RAN IN CONDUIT OR RACEWAY FROM COMPUTER LOCATION TO SIGNAL ENTRANCE IN BACK OF DISPLAY.

7) POWER CABLE / SIGNAL CABLE, ALL CONDUIT, AND ALL LABOR TO BE PROVIDED BY CUSTOMERS ELECTRICAL CONTRACTOR.



FRONT VIEW

RIGHT SIDE

MINIMUMS SHOWN ARE VENTILATION REQUIREMENTS

REV.	DATE	DESCRIPTION	BY	APPR.
01	09AUG05	UPDATED PER DESIGN CHANGE	NKJ	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

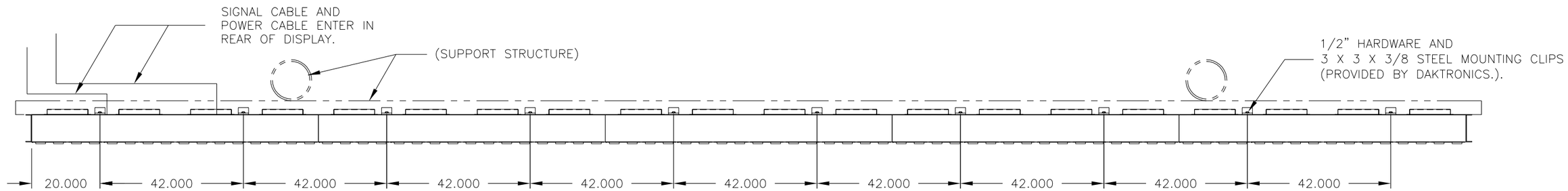
TITLE: SHOP DRAWING, AF-3400-16X64-133-*

DES. BY: JTELLIN DRAWN BY: RVOSS DATE: 12 APR 05

REVISION 01 APPR. BY:

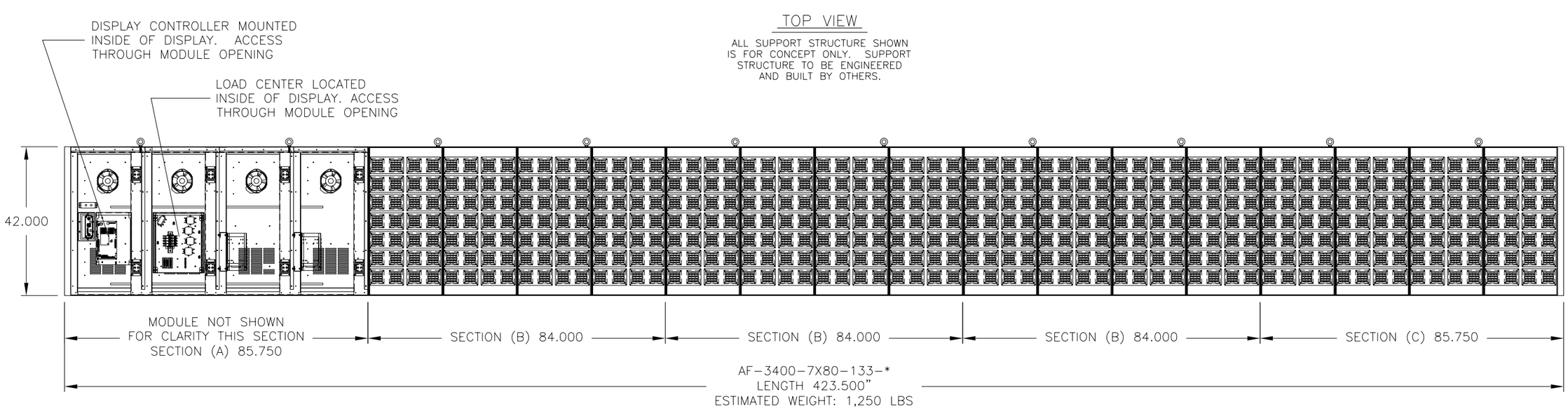
SCALE: 1 = 35

1320-E10B-238939



TOP VIEW

ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.



FRONT VIEW

NOTES:

1) ALL DIMENSIONS ARE GIVEN IN INCHES

2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION WITH STEEL MOUNTING CLIP ANGLES / HARDWARE.

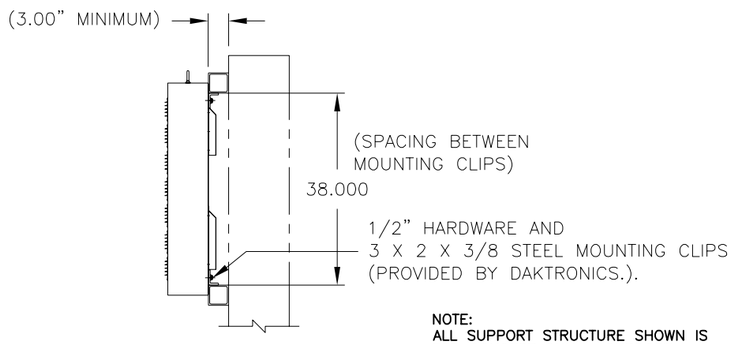
3) DISPLAY IS PAINTED FLAT BLACK

4) SERVICE ACCESS FOR ALL DRIVERS AND ELECTRONICS IS FROM THE FRONT.

5) LIFT EYES WILL BE PROVIDED IN EACH SECTION FOR INSTALLATION PURPOSES. HOLES IN TOP OF THE TOP SECTIONS MUST BE FILLED AND SEALED TO PREVENT EXCESS WATER FROM ENTERING CABINET.

6) DISPLAY CONTROLLER AND LOAD CENTERS SUPPLIED BY DAKTRONICS AND MOUNTED INTERNALLY. SIGNAL TO BE RAN IN CONDUIT OR RACEWAY FROM COMPUTER LOCATION TO SIGNAL ENTRANCE IN BACK OF DISPLAY.

7) POWER CABLE / SIGNAL CABLE, ALL CONDUIT, AND ALL LABOR TO BE PROVIDED BY CUSTOMERS



SIDE VIEW

MINIMUMS SHOWN ARE FOR VENTILATION REQUIREMENTS.

NOTE:
ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.

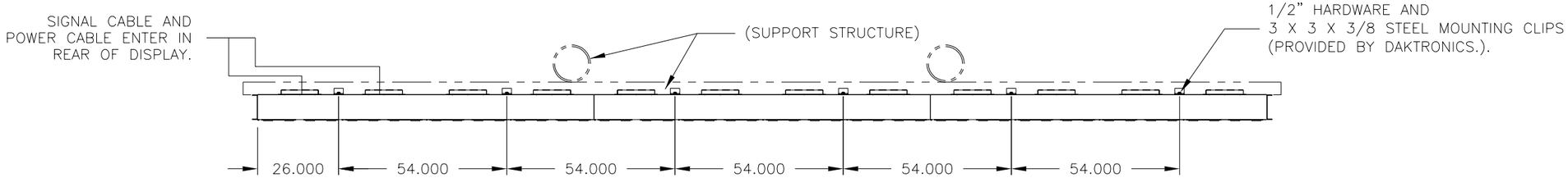
01	09AUG05	UPDATED PER DESIGN CHANGE	NKJ

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

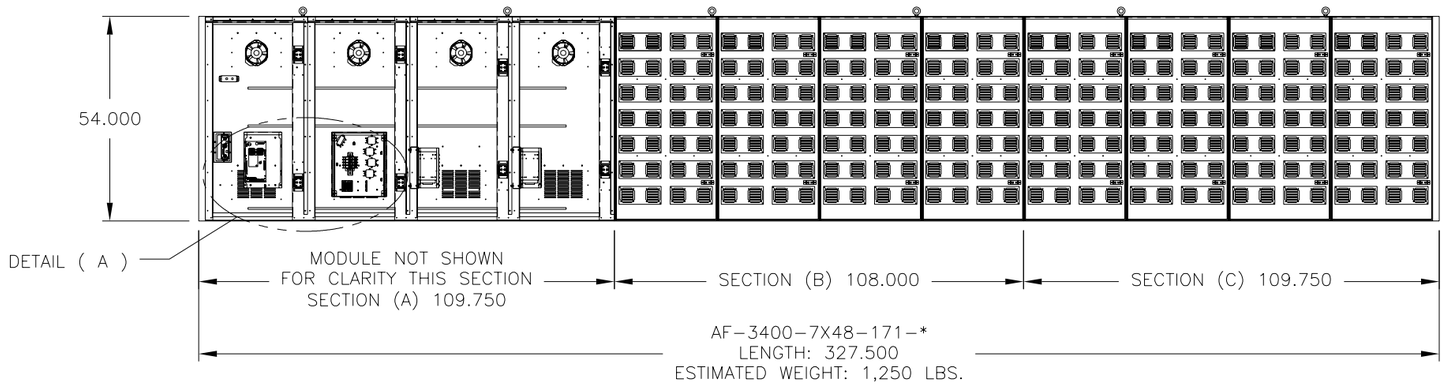
TITLE: SHOP DRAWING, AF-3400-7X80-133-*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 8APL05



TOP VIEW

ALL SUPPORT STRUCTURE SHOWN
IS FOR CONCEPT ONLY. SUPPORT
STRUCTURE TO BE ENGINEERED
AND BUILT BY OTHERS.



FRONT VIEW

NOTES:

1) ALL DIMENSIONS ARE GIVEN IN INCHES

2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION
WITH STEEL MOUNTING CLIP ANGLES / HARDWARE.

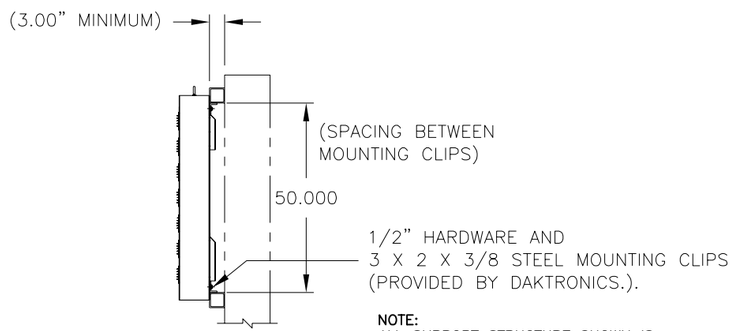
3) DISPLAY IS PAINTED FLAT BLACK

4) SERVICE ACCESS FOR ALL DRIVERS AND
ELECTRONICS IS FROM THE FRONT.

5) LIFT EYES WILL BE PROVIDED IN EACH SECTION
FOR INSTALLATION PURPOSES. HOLES IN TOP
OF THE TOP SECTIONS MUST BE FILLED AND SEALED
TO PREVENT EXCESS WATER FROM ENTERING CABINET.

6) DISPLAY CONTROLLER AND LOAD CENTERS SUPPLIED BY
DAKTRONICS AND MOUNTED INTERNALLY.
SIGNAL TO BE RAN IN CONDUIT OR RACEWAY FROM
COMPUTER LOCATION TO SIGNAL ENTRANCE IN BACK
OF DISPLAY.

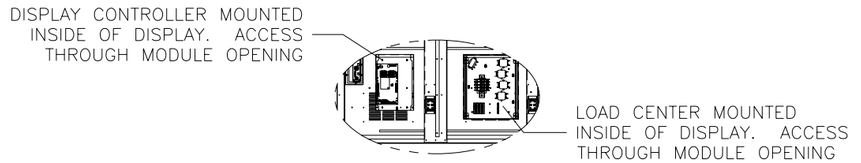
7) POWER CABLE / SIGNAL CABLE, ALL CONDUIT, AND
ALL LABOR TO BE PROVIDED BY CUSTOMERS
ELECTRICAL CONTRACTOR.



NOTE:
ALL SUPPORT STRUCTURE SHOWN IS
FOR CONCEPT ONLY. SUPPORT
STRUCTURE TO BE ENGINEERED AND
BUILT BY OTHERS.

SIDE VIEW

MINIMUMS SHOWN ARE
FOR VENTILATION REQUIREMENTS.



DETAIL: A
(1 X SCALE)

REV.	DATE	DESCRIPTION	BY	APPR.
01	11AUG05	UPDATED PER DESIGN CHANGE	NKJ	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

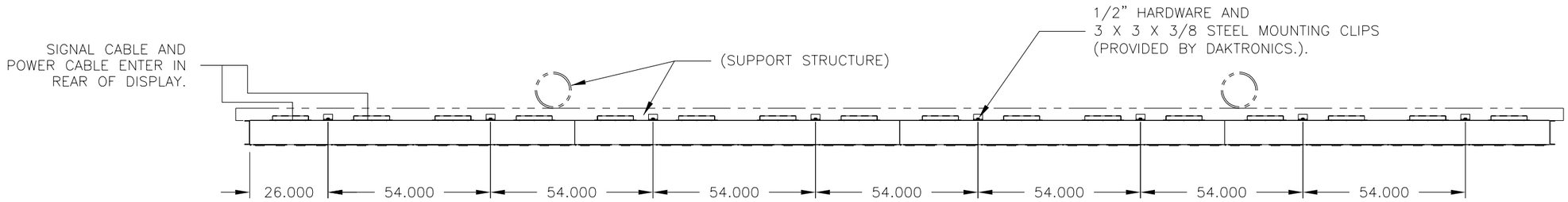
TITLE: SHOP DRAWING, AF-3400-7X48-171-*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 8APL05

REVISION 01 APPR. BY:

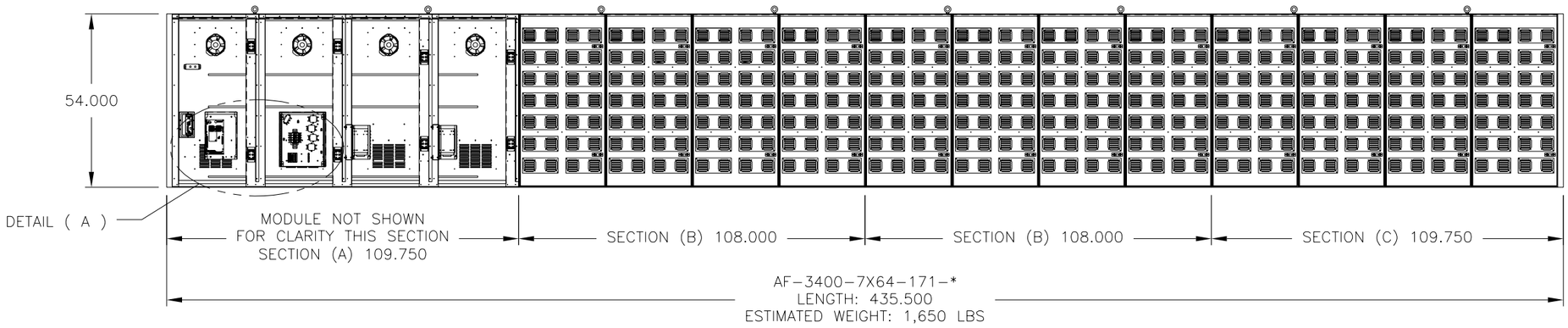
SCALE: 1=40

1320-E10B-239793



TOP VIEW

ALL SUPPORT STRUCTURE SHOWN
IS FOR CONCEPT ONLY. SUPPORT
STRUCTURE TO BE ENGINEERED
AND BUILT BY OTHERS.



FRONT VIEW

NOTES:

1) ALL DIMENSIONS ARE GIVEN IN INCHES

2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION
WITH STEEL MOUNTING CLIP ANGLES / HARDWARE.

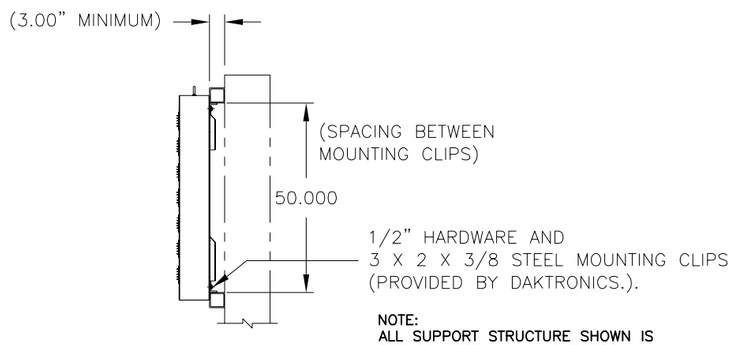
3) DISPLAY IS PAINTED FLAT BLACK

4) SERVICE ACCESS FOR ALL DRIVERS AND
ELECTRONICS IS FROM THE FRONT.

5) LIFT EYES WILL BE PROVIDED IN EACH SECTION
FOR INSTALLATION PURPOSES. HOLES IN TOP
OF THE TOP SECTIONS MUST BE FILLED AND SEALED
TO PREVENT EXCESS WATER FROM ENTERING CABINET.

6) DISPLAY CONTROLLER AND LOAD CENTERS SUPPLIED BY
DAKTRONICS AND MOUNTED INTERNALLY.
SIGNAL TO BE RAN IN CONDUIT OR RACEWAY FROM
COMPUTER LOCATION TO SIGNAL ENTRANCE IN BACK
OF DISPLAY.

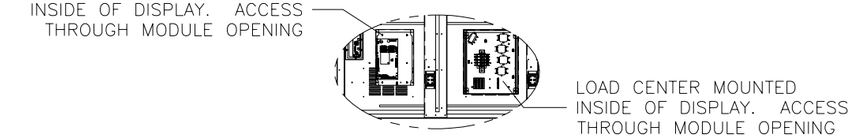
7) POWER CABLE / SIGNAL CABLE, ALL CONDUIT, AND
ALL LABOR TO BE PROVIDED BY CUSTOMERS
ELECTRICAL CONTRACTOR.



NOTE:
ALL SUPPORT STRUCTURE SHOWN IS
FOR CONCEPT ONLY. SUPPORT
STRUCTURE TO BE ENGINEERED AND
BUILT BY OTHERS.

SIDE VIEW

MINIMUMS SHOWN ARE
FOR VENTILATION REQUIREMENTS.



DETAIL: A
(1 X SCALE)

REV.	DATE	DESCRIPTION	BY	APPR.
01	11AUG05	UPDATED PER DESIGN CHANGE	NKJ	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

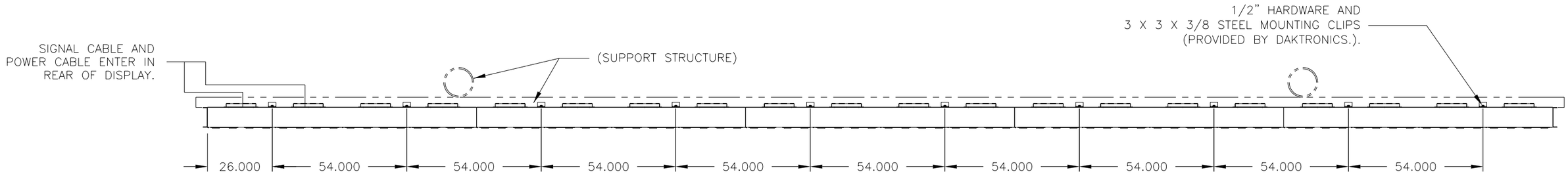
TITLE: SHOP DRAWING, AF-3400-7X64-171-*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 8APL05

REVISION 01 APPR. BY:

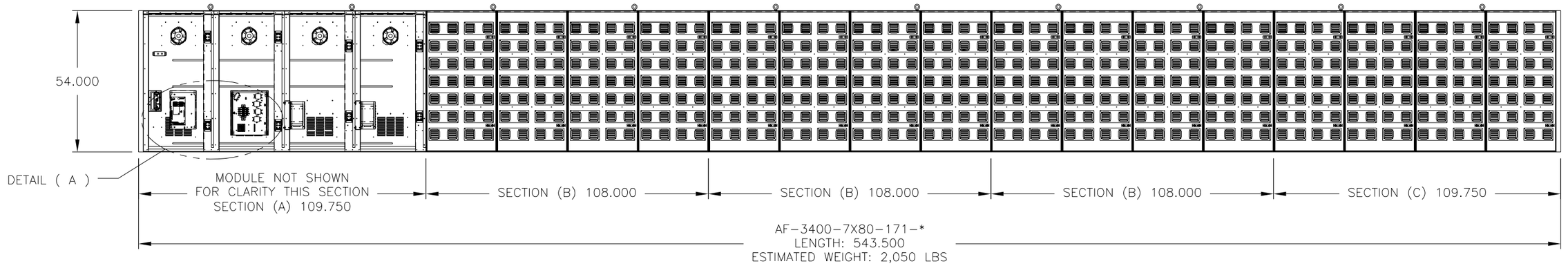
SCALE: 1=40

1320-E10B-239816



TOP VIEW

ALL SUPPORT STRUCTURE SHOWN IS FOR CONCEPT ONLY. SUPPORT STRUCTURE TO BE ENGINEERED AND BUILT BY OTHERS.



FRONT VIEW

NOTES:

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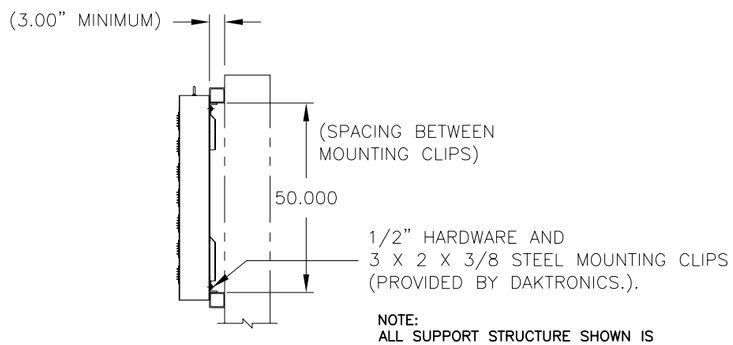

NOTE:
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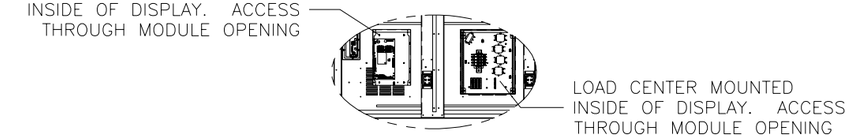
SIDE VIEW

MINIMUMS SHOWN ARE FOR VENTILATION REQUIREMENTS.



DETAIL: A
(1 X SCALE)

REV.	DATE	DESCRIPTION	BY	APPR.
01	11AUG05	UPDATED PER DESIGN CHANGE	NKJ	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GALAXY LARGE CHARACTER

TITLE: SHOP DRAWING, AF-3400-7X80-171-*

DES. BY: JTELLIN DRAWN BY: JTELLIN DATE: 8APL05

REVISION 01 APPR. BY:

SCALE: 1=40

1320-E10B-239841

Appendix B: Optional Temperature Sensor