DakTicker®
KE-1010 Series

Display Manual

ED-11634 ***Rev 8*** ***15 February 2005***

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DAKTRONICS

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Section 1: Introduction

This manual explains the installation and maintenance of the Daktronics DAKTicker™ series KE-1010 displays. 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 seven sections: Introduction, Mechanical Installation, Electrical Installation, Maintenance and Troubleshooting, Appendix A, Appendix B and Appendix C.

- **Introduction** 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.
- **Mechanical Installation** provides general guidance on sign mounting.
- **Electrical Installation** provides general guidance on terminating power and signal cable at the sign.
- **Maintenance & Troubleshooting** addresses such things as removing basic sign components, troubleshooting the sign, performing general maintenance and exchanging sign components.
- **Appendix A** includes the drawings referenced in this manual.
- **Appendix B** includes information on the optional signal converter.
- **Appendix C** includes information on programming the Embedded Serial Server on the controller to receive Ethernet signals.

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-11634**.

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

- **System Riser Diagrams:** overall system layout from control computer to sign, 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 sign components such as power supply assemblies, controller boards, thermostats and light detectors.

Figure 1 illustrates 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**.

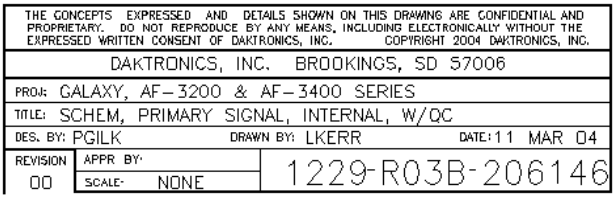


Figure 1: *Drawing Label*

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 location."

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

Reference Drawings:

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

Daktronics displays are built for long life and require little maintenance. However, from time to time, certain display components will need replacing. The **Replacement Parts List** in **Section 4.6** provides the names and part number of components that may need to be ordered during the life of the display. Most 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 4.7**. Refer to these instructions if any sign component needs replacement or repair.

1.1 Safety Precautions

1. Read and understand these instructions before installing.
2. Be sure that the display is properly grounded.
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.
5. Most products are equipped with a 3-wire grounding-type plug—a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a qualified electrician to replace the obsolete outlet. **Do not** defeat the purpose of the grounding-type plug.

1.2 Display Overview

The DAKTicker series KE-1010 displays are designed and manufactured for performance, reliability, easy maintenance and long life. The displays are offered as single-face signs, which are one-sided units. The KE-1010 displays receive information from a third party source, such as a wire service, ticker input, or Internet service.

The KE-1010 display sections consist of an array of LED (light emitting diode) pixels, and are available in several lengths for both the master and the echo. In addition, the 16-high displays can be either one line of 16 pixels high or two separate lines, of 16 pixels high (called a twin-ticker). The 24-high ticker is capable of one line of 24 pixels.

Daktronics KE-1010 displays are all aluminum construction and may consist of separate sections. Tickers are available in tri-color (red, green and amber) characters. Messages appearing on the display scroll from the right side of the sign to the left.

Two types of display sections are available called: “master” and “echo.” Master displays contain a controller board, which receives information from the control computer ticker feed. “Echo” displays do not contain a controller board and require a “master” display to operate.

If the display is built from multiple sections, signal from the left module of the master section is then routed through a ribbon cable to the shift card of the first “echo” section. Signal from the left module of this “echo” is sent to the shift card of the next “echo” section and so on.

The DAKTicker model numbers are described as follows: **KE-1010-HHxCCC-7.62-RG**

KE-1010	=	Indoor Ticker Display
HH	=	The number of pixels high (16 or 24)
CCC	=	The number of columns wide (**200** is 5 feet long, **240** is 6 feet long, **320** is 8 feet long, and **400** is 10 feet long)
7.62	=	Pixel spacing in millimeters
RG	=	Tri-Color (Red, Green, and Amber)

1.3 Network Concepts

The computer outputs RS232 ticker information which is routed to the ticker via one of the two network systems available: RS422 or Ethernet. Signal is sent first to the controller board inside the “master” section of the ticker. The controller board processes the data and relays it to the shift card. The shift card lights the appropriate LEDs accordingly.

RS422 Network

RS422 (EIA/TIA-422-B) is a standard communication interface that utilizes a differential balanced transmission scheme that uses a typical maximum cable length of 1.2km (approximately 4,000 feet). A signal converter is needed to convert the computer's RS232 to RS422. Refer to **Section 3** for more information.

Ethernet Network

The Ethernet network uses copper cable and is a standard communication interface that utilizes a local area network (LAN). Utilizing Cat-5/Cat-5E cable this transmission scheme has a typical maximum cable length of 100 meters (approximately 330 feet) from an Ethernet hub or switch. Refer to **Section 3** for more information.

1.4 Definitions

Cabinet: The cabinet refers to the metal frame of the display (back, bottom, top), and may be expanded to include the end caps.

Column: A vertical line of pixels.

Controller Board: The controller board (in the "master" section) receives and interprets the data from the ticker feed.

End Cap: A metal plate that covers each end of a ticker. End caps are found only on "master" sections.

Ethernet: Ethernet is a standard communication interface that utilizes a local area network (LAN). The maximum cable length is 100 meters.

Face Panel: The transparent polycarbonate panel that sits in front of the modules.

LED: A LED (Light Emitting Diode) is an electrical component that produces light. LEDs produce the text that appears on the ticker display.

Module: A module is either a 16x40 or 24x40 array of LEDs. It is removable from the display unit.

Pixel: A single point of light on a display. In the DAKTicker KE-1010, a pixel consists of one LED.

RS232: RS232 is a standard PC communication type with a maximum cable length of 25 feet (7.6 meters).

RS422: RS422 is a standard differential communication type with a maximum cable length of 4,000 feet (1.2 kilometers).

Row: A horizontal line of pixels.

Shift Card: The shift card relays the signal from the controller board or module of the previous section.

Signal Converter: The signal converter is a Daktronics supplied unit that converts the data from RS232 to RS422.The signal converter is connected to the control PC via a straight through serial cable.

1.5 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.

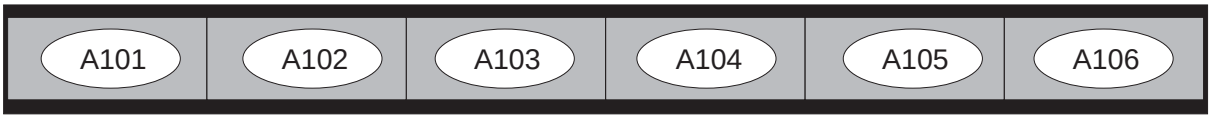


Figure 2: *Module Numbering Example -- KE-1010-16240-2.1 Shown*

A module is the building block of the display. Each module measures either 16 or 24 pixels high by 40 pixels wide. By placing modules side-by-side, a display of any length can be designed and built. Individual modules can be easily removed from the display if required. **Figure 2** illustrates how Daktronics numbers modules on a DAKTicker display. **Figure 3** breaks down the module numbering method.

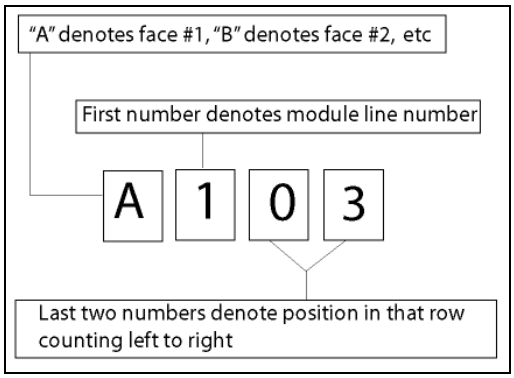


Figure 3: *Module Numbering Method*

The label "A" on a drawing typically denotes an assembly. An assembly can be a single circuit board or a collection of components that function together, usually mounted on a single plate or in a single enclosure. Assemblies are divided into two types: those that route signal and those that route power.

In addition, the following labeling formats might be found on various Daktronics drawings:

- "TB??" denotes a termination block for power or signal cable.
- "F??" denotes a fuse.
- "E??" denotes a grounding point.
- "J??" denotes a power or signal jack.
- "P??" denotes 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-_ _ _ _-_ _ _ _" shows an individual circuit board, such as the internal shift card.
- "0A-_ _ _ _-_ _ _ _" indicates an assembly, such as a circuit board and the plate or bracket to which it is mounted. A collection of circuit boards working as a single unit may also carry an assembly label.
- "W-_ _ _ _" represents a wire or cable. 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 4. The part number is in bold.

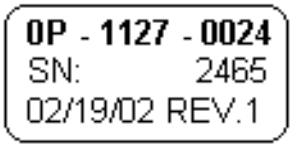


Figure 4: *Typical Label*

Section 2: Mechanical Installation

Note: Daktronics engineering staff must approve **any** changes made to the displays. 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.

2.1 Support Structure Design

Reference Drawing:

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

Support structure design depends on mounting methods, display size and weight. The structure design is critical and should be done only by a qualified individual. It is the customer's responsibility to ensure that the structure and the connectors are adequate. Refer to the **Shop Drawings** for dimensions and mounting clip locations.

Daktronics is not responsible for the installations or the structural integrity of support structures installed by others.

The mechanical specifications of each model are as follows:

Display Size	Approximate Display Height	Approximate Display Length	Approximate Weight (lbs)
16x200	9 ¾ "	5' ¼"	35
16x240	9 ¾"	6' ¼"	40
16x320	9 ¾"	8' ¼"	50
16x400	9 ¾"	10' ¼"	60
24x200	12 7/8"	5' ¼"	45
24x240	12 7/8"	6' ¼"	50
24x320	12 7/8"	8' ¼"	70
24x400	12 7/8"	10' ¼"	80
2-16x200	1' 5"	5' ¼"	45
2-16x240	1' 5"	6' ¼"	55
2-16x320	1' 5"	8' ¼"	75
2-16x400	1' 5"	10' ¼"	95

Attaching or hanging anything from the display will render the warranty null and void.

2.2 Display Mounting

Reference Drawings:

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

It is the customer's responsibility to ensure that the installation will meet local standards. The mounting hardware must be capable of supporting all components to be mounted. The support structure design is critical and should be done only by a qualified individual.

Daktronics recommends either a wall mount or hanging mount method. Remember to have **all** mounted displays inspected by a qualified structural engineer. **Daktronics is not responsible for the installations or the structural integrity of support structures done by others.**

Refer to the **Shop Drawings** for display dimensions and approximate weights.

If the ticker is built using more than one section, it uses a "master-echo" configuration to relay signal. Some additional steps are required when mounting this type of display. These steps are indicated as needed. Refer to the appropriate subsection for details.

In summary, to install the ticker you must:

1. Hang the mounting brackets (if wall mount display), or install the ceiling mounting supports.
2. Remove the end caps on the connecting end of the master ticker if you are using the master-echo configuration.
3. Connect the power cord(s), connect signal cable to master and hang the master ticker display(s) on the bracket or from ceiling mounts. Refer to **Section 3** for power and signal information.
4. Hang the echo sections, and then attach power and connect signal (ribbon cable) from the master display to the echo section(s).
5. Secure the ticker sections (master-echo configuration) using the splice bars.

Assembling Master-Echo Configuration Tickers

The echo sections are shipped without end caps. Remove the left outer end cap from the "master" ticker and attach it to the left-most "echo" ticker (refer to **Figure 5**).

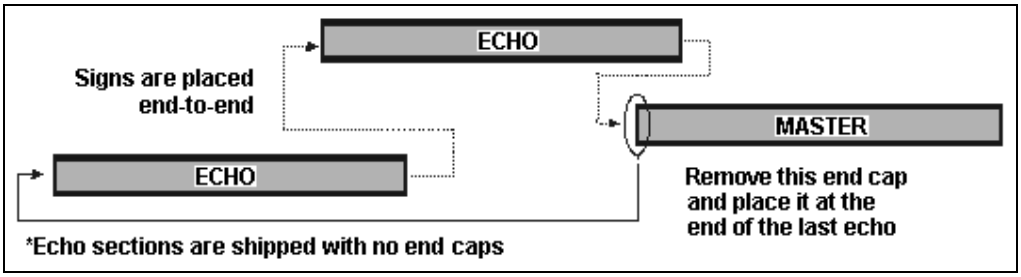


Figure 5: *Master-Echo Installation Detail*

1. Before attempting to connect the sections, check their alignment in relation to each other. If the alignment is off, then you may need to adjust the mounting clips on the back of the tickers.
2. Hang each section (refer to the appropriate following subsection).
3. Refer to **Section 3** for routing power and signal to each section.
4. Slide the sections together.
5. Slide the splice bar over the joint(s) between the displays.
6. Tighten the screws (provided in the splices) using a $^{3}/_{16}$″ hex wrench.

Hanging Mount

Reference Drawings:

Mounting Drawing, Ceiling, KE-1010 .....**Drawing A-118572**

Splice bars, provided by Daktronics, have 3/8″-16 UNC holes that can be used to secure the ticker displays from a ceiling or other overhead structure. **Use the middle hole only when using the splice bars for mounting.** To hang a ticker, refer to **Drawing A-118572** and the following instructions:

1. If it has not already been done, unpack the display and check for any damage that may have occurred during shipping.
2. Determine and mark the locations where the ceiling mounting supports will attach to the overhead structure. The supports, when installed, should form a 90-degree angle with the top of the display (refer to **Drawing A-118572**). **Daktronics does not provide the ceiling mounting supports.**
3. Install the supports. Qualified personnel must approve the ceiling mounting supports. Daktronics is not responsible for ceiling mounting.
4. Secure the splice bars to the supports.
5. Carefully hang each display by fitting the channel on the top of the display over the spice plates and slid it into place (refer to **Drawing A-118572**). When multiple section displays are used, **each joint between displays must have hanging support.**

Wall Mount

Reference Drawings:

Mounting Drawing, Wall, KE-1010-16 .....**Drawing A-118222**
Mounting Drawing, Wall, 15 Deg. .....**Drawing A-119539**
Mounting Drawing, Wall, 30 Deg. .....**Drawing A-119553**
Wall Mounting, KE-1010-2-16x***-7.62 .....**Drawing A-210488**
Detail, Horiz. Wall Mounting, KE-1010-24x***-7.62 .....**Drawing A-214525**
Shop Drawings ..... **Refer to Appendix A**

Hang the master ticker using the mounting clips on the back of the display (refer to **Drawings A-118222**, **A-119539**, **A-119553, A-210488**, and **A-214525** for the type of wall mounting used and the **Shop Drawings** for the location of the display's mounting clips). The clips fit into the slots in the mounting bracket.

1. If it has not already been done, unpack the display and check for any damage that may have occurred during shipping.
2. Determine and mark the locations where the mounting hardware will attach to the wall. The top of the bracket should be located approximately ½″ below the top of the display. There are hardware attachment points every 1″ along the mounting brackets (refer to **Drawing A-118222**, **A-119539**, **A-119553**, **A-210488**, and **A-214525** and the **Shop Drawings**). **Daktronics does not provide the mounting hardware.**
3. Install the mounting bracket(s). **Be sure the bracket is mounted to sufficiently support the weight of the display. Have all mountings inspected by a qualified structural engineer.**
4. Set the display on the wall-mounted bracket. The bracket fits onto the wall mounting clips as shown in the reference drawings.

Section 3: Electrical Installation

3.1 Signal

Cables

The conductor connector used in the network is an industry standard, 6-pin RJ-11 or an 8-pin RJ-45. This connector can be found on many telephones and LANs.

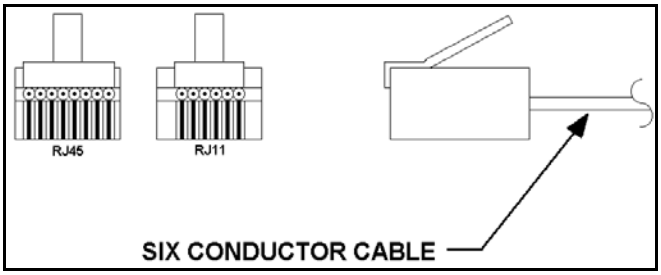


Figure 6: *8-Conductor RJ-45 Connector, and 6-Conductor RJ-11 Connector and Cable*

The cable used in the network is a standard flat six-conductor telephone cable (**standard flipped cable**). Refer to **Figure 6**. This cable has one end that is the mirror image of the other end (i.e. the cable is flipped). Refer to **Figure 7** for a standard flipped cable.

Notice in **Figure 7** that the color code on one connector must be made the opposite on the other connector. When installing a network, it is not easy to remember in which direction the previous end was oriented. One simple way to avoid confusion is to standardize the color code, having one color for the connector going into the output of a display and the opposite color for a connector going into the input of a display. This will help ensure correct cabling since cables are always installed from the output jack of one display to the input jack of the next display.

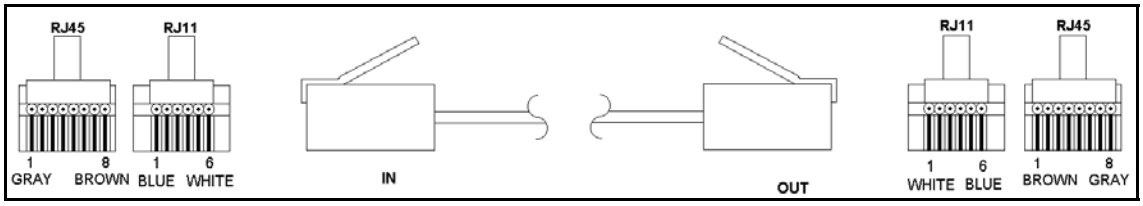


Figure 7: *Flipped Cable with RJ Connectors*

Installing an RJ Connector

Installing an RJ connector on the end of the conductor cable is a simple task when the correct tools are used. The RJ crimping tool (Daktronics part number TH-1033) performs two separate steps.

First, use the crimping tool to strip the outer insulation from the inner wires. This does not result in bare wires since only the gray outer jacket is removed. After correct stripping, the wire will appear as shown in **Figure 8**.

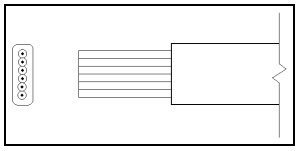


Figure 8: *Wire with Outer Jacket Stripped*

The crimping tool is then used to crimp the RJ connector onto the cable. The RJ connector is locked into a special socket in the tool. The stripped wire is inserted into the RJ connector. Finally, the tool is squeezed like pliers to crimp the connector onto the wire. This completes the installation of an RJ connector onto the wire.

Pin-Outs

Controller's RS422 Jacks

The controller's RS422 jacks have the following pin-out:

INPUT (J4)	
RJ11	**Function**
1	N.C.
2	D1OUT-P
3	D1OUT-N
4	D1IN-P
5	D1IN-N
6	N.C.

OUTPUT (J5)	
RJ11	**Function**
1	N.C.
2	D2OUT-N
3	D2OUT-P
4	D2IN-N
5	D2IN-P
6	N.C.

Controller's Ethernet Jack

The controller's input Ethernet jack has the following pin-out:

RJ45	Function
1	TX+
2	TX-
3	RX+
4	EPWR+
5	EPWR+
6	RX-
7	EPWR-
8	EPWR-

Signal Converter Jacks (J2 and J3)

The signal converter has two RS422 output jacks, with the following pin-out:

RJ45	Function
1	N.C.
2	CHGND
3	TX.A-N
4	TX.A-P
5	RX.A-N
6	RX.A-P
7	CHGND
8	N.C.

3.2 Power

Reference Drawings:

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

Power Requirements

Refer to the following tables and the drawings referenced above for voltage and current requirements. The displays are sufficiently powered by a 120 VAC single-phase outlet. **For multiple section displays, each display section requires a separate outlet.**

Do not connect any display to voltage other than that listed on the Daktronics product label attached to the back of the display.

Power Specifications for Individual Sign Sizes (Master & Echo)

Sign Size	Amps Per Line (120VAC)	Max Watts
16x200	0.9	100
16x240	1.0	120
16x320	1.4	160
16x400	1.7	200
24x200	0.9	120
24x240	1.0	140
24x320	1.4	160
24x400	1.7	200
2-16x200	1.7	200
2-16x240	2.0	240
2-16x320	2.7	280
2-16x400	3.4	400

Power Specifications for Tickers Built Using Multiple Sections

# of Phases	1
Amps Per Line (120VAC)	Sum Of Amps For All Sections (see above table)
Max Watts	Sum Of Watts For All Sections (see above table)
Voltage – Secondary	5VDC

Grounding

Proper grounding is necessary for reliable equipment operation and provides some protection to the equipment from damaging electrical disturbances. All of the displays are supplied with a power cord that contains an earth ground conductor. Make sure to plug this cord into a grounded outlet. If the proper grounding methods are not followed, the warranty will be void.

Note: Displays **must** be earth grounded according to national and local electrical codes.

Power Connection – Power Cord Connected Displays

The DAKTicker displays are each supplied with a six-foot long removable power cord. The socket-outlet should be available near the equipment and easily accessible. Plug the power cord into the socket on the back of the sign as shown in **Figure 9**.

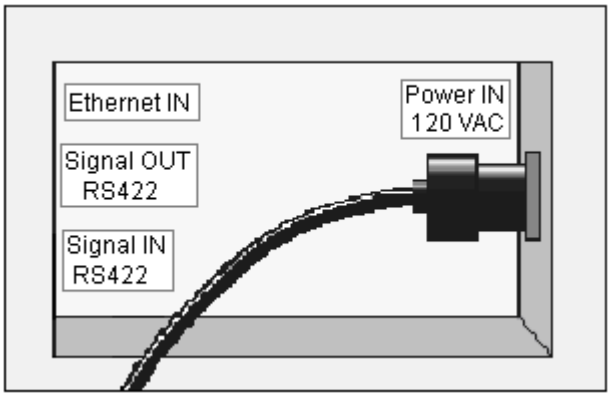


Figure 9: *Power Cord Connection*

3.3 Computer to Master Display Connections

RS422 Connection:

For those tickers that use an RS422 system for communications, a signal converter is required to connect the "master" ticker to the control computer.

1. Plug the serial cable's 25-pin connector into the signal converter.
2. Plug the 9-pin connector into the RS232 COM port to be used.
3. Plug the signal converter's power cord into a 120 VAC grounded outlet.
4. Plug a flipped, 6-conductor RJ11, cable into the "RS422 OUT" of the signal converter and the opposite end into the "RS422 IN" of the "master" ticker.
5. Plug the ticker's power cord into a 120 VAC grounded outlet.

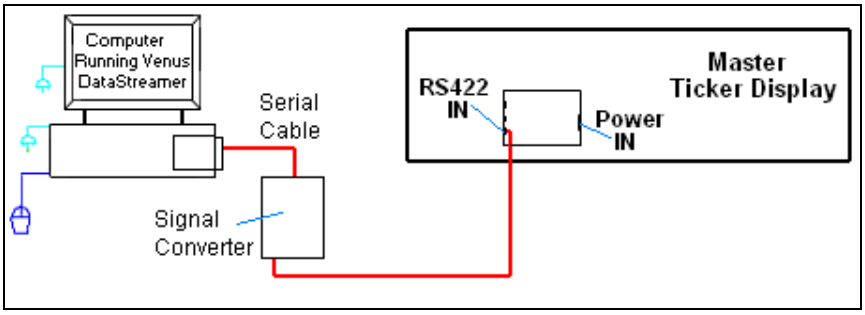


Figure 10: *RS422 Signal Layout*

Ethernet Connection

For those tickers that use an Ethernet system for communications, a network connection will be made from the network hub or switch to the "master" ticker. The controller has an onboard Ethernet port, with a default address that will need to be reconfigured to an address on your network. The default address is: **172.16.192.27**.

1. Plug the computer into a network hub.
2. Plug the network cable into a network hub or switch.
3. Plug the other end of the network cable into the jack labeled "Ethernet IN" on the "master" ticker.
4. Plug the ticker's power cord into a 120 VAC grounded outlet.

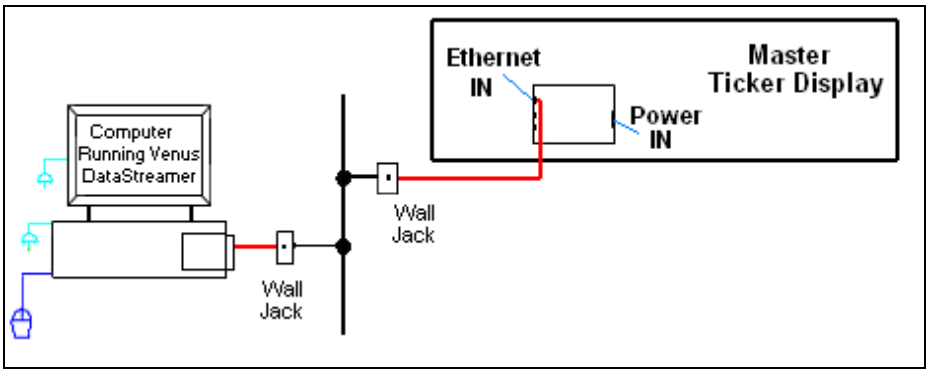


Figure 11: *Ethernet Signal Layout*

3.4 Section to Section Connections

When connecting "master" and "echo" display sections 20-pin ribbon cables are used to connect the sections together.

1. Carefully hang the echo ticker(s) as described in **Section 2.2**. **Do not yet slide the ticker sections together.**
2. The ribbon cable should already be plugged into the "Signal In" jack on the shift card (**Figure 13**) of the first echo ticker. If it isn't, do so at this time.
3. Plug one end of the ribbon cable into the "Out" jack on the back of module A101 (the left end module) of the master ticker.
4. The connection for a master to one echo is shown in **Figure 12**. Repeat steps 1 though 3 to connect and hang each consecutive echo ticker. All other internal wiring between modules has been done by Daktronics.

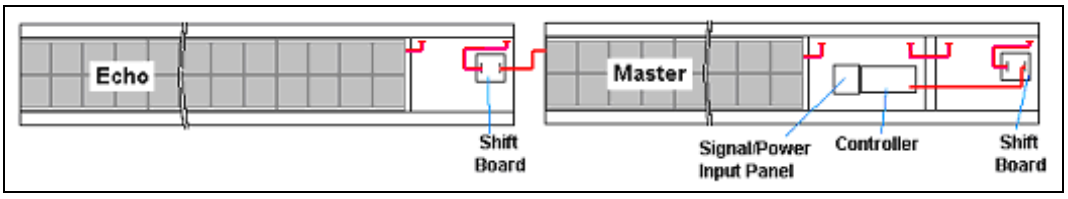


Figure 12: *Master to Echo Connection*

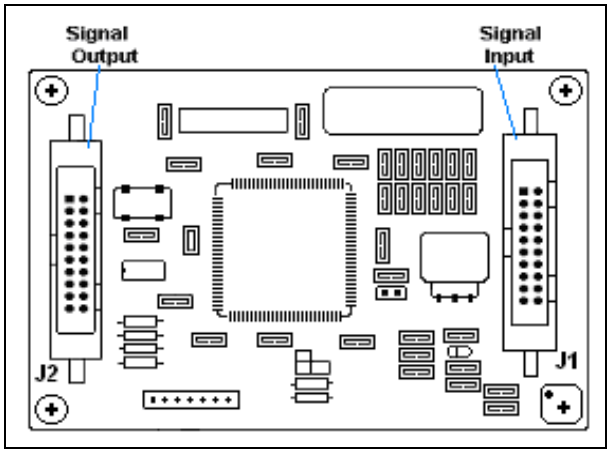


Figure 13: *Shift Board*

3.5 Master to Master Connections

Most displays systems will consist of a master display or a master and one or more echo displays. In those cases when there is more than one master display, signal can be transmitted between master displays using a flipped, 6-conductor RJ11, cable.

The signal into the first display can be either RS422 or Ethernet. The signal connection between displays will be connected from the RS422 OUT on the first display to the RS422 IN on the second display. (See **Section 3.1** for descriptions and methods for making flipped cables.)

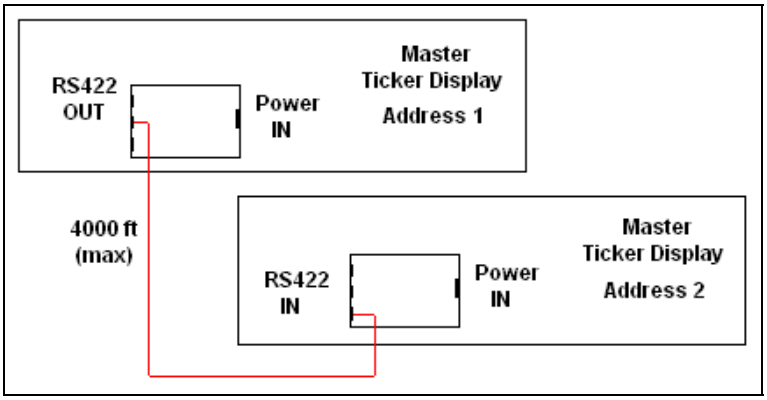


Figure 14: *Master-Master RS422 Connection*

3.6 First Time Turn On

After all connections are made, it is time to turn on the display for the first time.

1. Plug the power cord(s) from the ticker(s) into a grounded 120 VAC single-phase, grounded outlet.
2. Turn power ON to the display(s).
3. Carefully check the voltage between the hot lines and neutral. Normal voltage range is between 120 VAC and 125 VAC.
4. If there are problems with the voltage, check with a local electrician or power company.
5. The ticker will show a boot-up sequence each time power is applied. The following information is displayed:
   - DAKTicker by Daktronics
   - ED10288
   - REV X
   - ADDRESS XX

Section 4: Maintenance & Troubleshooting

IMPORTANT NOTES:

1. **Disconnect power before any repair or maintenance work is done on the display!**
2. **Qualified service personnel must make any access to internal display electronics.**
3. **Disconnect power when the display is not in use.**

The ticker displays are FRONT ACCESS. The components within the displays are not field repairable. In most cases, it is easiest to completely replace the failed part or return it to Daktronics or a Daktronics approved representative for repair.

4.1 Opening & Accessing the Interior of the Sign

Reference Drawings:

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

The internal components of the KE-1010 displays may be reached once the face panel is removed. **Never** attempt to lift the entire display or carry the face panel using the suction cups.

To remove the face panel:

1. Disconnect power to the display.
2. Using the suction cups, provided with the display, slide the face panel up toward the top of the display (refer to the **Shop Drawings**).
3. Pivot the bottom edge of the panel out of the support groove. The face panel should now be free of the display cabinet.
4. Carefully remove the face panel. The LED modules will now be accessible.
5. Remove the appropriate module (refer to **Section 4.2**) to access the internal electronic components.

To replace the face panel:

1. Using the suction cups to hold the face panel, slide the face panel into the groove in the top of the cabinet.
2. Pivot the face panel into the cabinet, and then lower it down into the groove in the bottom of the cabinet (refer to **Face Panel Removal Detail** in the **Shop Drawings**). **Note:** The face panel may be slightly wavy and may not slide neatly down into the groove. If the face panel does not easily slide, then starting at one end of the display, gently press your hand against the bottom edge of face panel to slide it into the bottom support groove.
3. Once the face panel is secure, remove the suction cups from the face panel.

4.2 Display Interior

LED Module Replacement

Reference Drawings:

Schematics .....**Refer to Appendix A**

To remove and replace a LED module:

1. Disconnect the 120 VAC power to the section that you are servicing.
2. Remove the face panel as described in **Section 4.1**.
3. Each module is held in place by #6 nuts at six locations. Remove the securing nuts (refer to **Figure 15**).
4. Carefully lift the module out of the display. **Note:** All power and signal cables are still connected (refer to **Figure 16**).
5. Disconnect the cables from the back of the module. The module is then no longer attached to the display.
6. Follow the previous steps in reverse order to reattach a module. Refer to the **Schematic** for the display's wiring information.

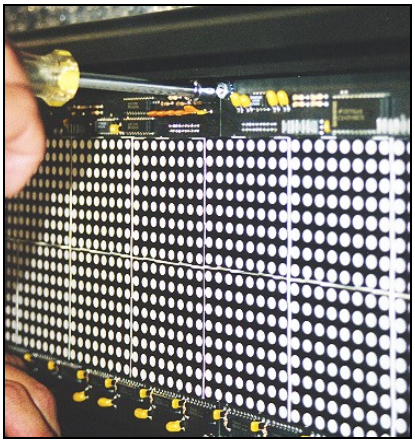


Figure 15: *Detaching a Module*

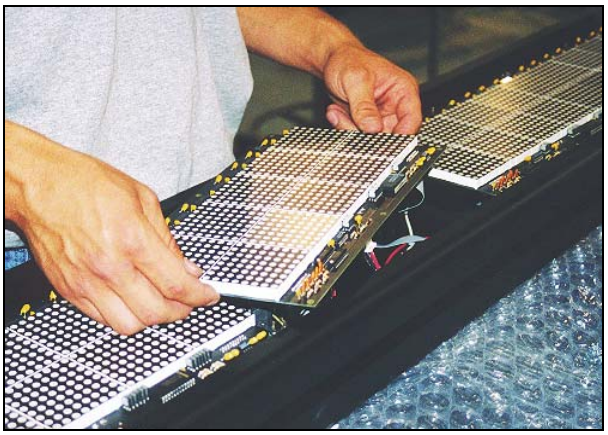


Figure 16: *Removing a Module*

Replacing a Power Supply

Reference Drawings:

Component Layout Drawings ..... **Refer to Appendix A**
Schematics..... **Refer to Appendix A**

Power to the LED modules is provided by +5VDC power supplies. To remove a power supply that has failed:

1. Disconnect the 120 VAC power to the section requiring service.
2. Remove the face panel per **Section 4.1**.
3. Remove the LED module in front of the failed power supply per **Section 4.2**. Refer to the **Component Layout Drawings** for the location of the power supplies.
4. Each power supply is attached to a mounting plate by two (2) M4x8MM metric screws. The plate is secured to the back sheet by two (2) #6 nuts. Remove the #6 nuts to remove the plate with the power supply (refer to **Figure 17**).
5. Lift the power supply and plate out of the display. The metric screws securing the power supply to the plate are now accessible.

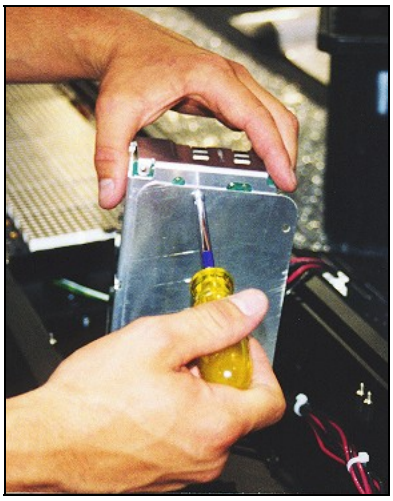


Figure 17: *Disconnecting the Power Supply Mounting Plate*

6. Using a #1 Philips screwdriver, remove the screws to free the power supply.
7. Disconnect all power supply wires. The power supply is now ready for replacement.
8. Follow the previous steps in reverse order to reattach the new power supply. Refer to your display's **Schematic** for the proper wiring information.

Shift Card Replacement

Reference Drawings:

Component Layout Drawings ..... **Refer to Appendix A**
Schematics..... **Refer to Appendix A**

The shift cards are used to relay signal from the controller or last module of the previous section to the LED modules. There is one shift card in the right end of each KE-1010 section (both "master" and "echo"). To replace a failed shift card:

1. Disconnect the 120 VAC power to the section requiring service.
2. Remove the face panel per **Section 4.1**.
3. Remove the last module in the right end of the ticker section per **Section 4.2**. Refer to the **Component Layout Drawings** for the location of the shift card for each ticker display.
4. Remove signal connections from the shift card.

5. The card is attached to the inside of the display with four #6-32 hex-head screws. Remove the attaching screws and carefully lift the card from the display.
6. If there is a jumper, make sure it is in the same location as the board you are replacing.
7. Follow the previous steps in reverse order to attach a new card. Refer to the appropriate display**Schematics** for wiring information.

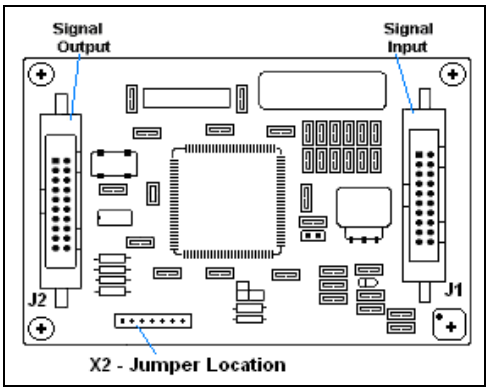


Figure 18*: Shift Board*

Replacing a Controller

Reference Drawings:

Component Layout Drawings .....**Refer to Appendix A**
Schematics .....**Refer to Appendix A**

The controller is mounted to the inside back of the display cabinet near the power and signal jacks. The display controller receives information from the ticker input, interprets it, and activates the corresponding LEDs accordingly. The controller also has a set of eight switches by which an address (from zero to 15) can be set using standard binary code (refer to **Section 4.3**). Display controllers are found **only** in "master" displays.

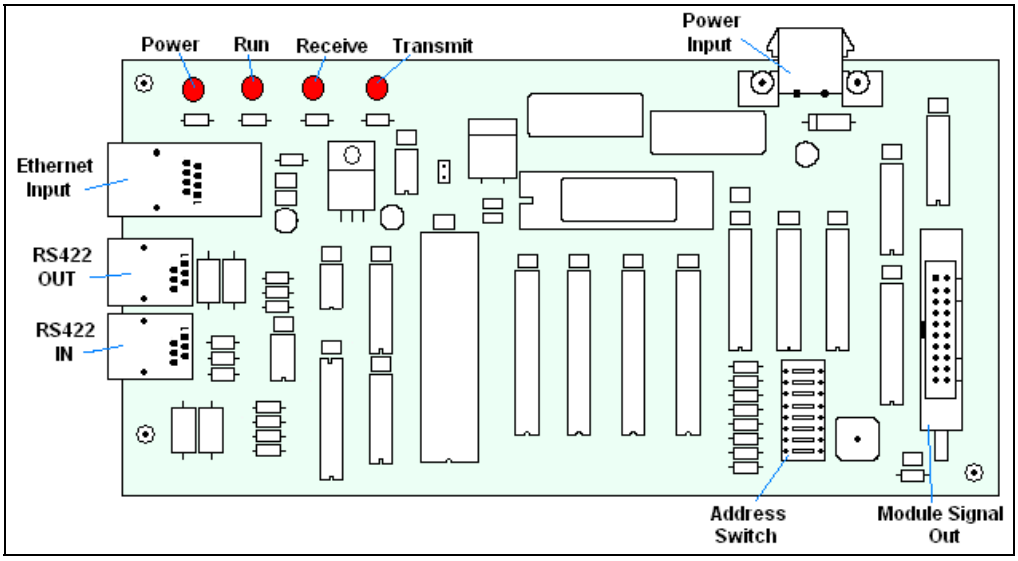


Figure 19: *Display Controller*

To replace a controller:

1. Disconnect the 120 VAC power to the master section.
2. Remove the face panel per **Section 4.1**.
3. Remove the two LED modules on the right end of the master section per **Section 4.2**. Refer to the **Component Layout Drawings** for the location of the display controller in each ticker display.
4. Remove all power and signal connections to the controller.
5. The controller is attached to the inside of the display with four #6-32 hex-head screws. Remove the attaching screws (refer to **Figure 20**), and carefully lift the controller from the display.
6. Follow the previous steps in reverse order to attach a new controller. Refer to the appropriate display **Schematics** for wiring information.

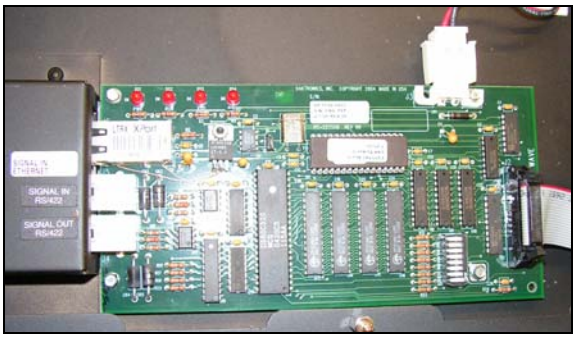


Figure 20: *Removing the Controller*

Note: Be sure to set the new controller's address to the same settings as the one it is replacing.

4.3 Controller Address

The controller has a set of "DIP" switches on the controller as shown in **Figure 19**. These switches set the hardware address. When replacing a controller board, be sure to set the DIP switches in the same address configuration as the defective controller.

Note: DIP Switches 1-4 are for addressing, switch 7 enables test mode, and 5,6,8 are not used.

Switch 8	Switch 7	Switch 6	Switch 5	Switch 4	Switch 3	Switch 2	Switch 1	Address
Off	Off	Off	Off	Off	Off	Off	Off	0
Off	Off	Off	Off	Off	Off	Off	On	1
Off	Off	Off	Off	Off	Off	On	Off	2
Off	Off	Off	Off	Off	Off	On	On	3
Off	Off	Off	Off	Off	On	Off	Off	4
…	…	…	…	…	…	…	…	…
Off	Off	Off	Off	On	On	On	Off	14
Off	Off	Off	Off	On	On	On	On	15
Off	On	Off	Off	Off	Off	Off	Off	Test Mode

4.4 Sign Maintenance

Visual Structural Inspection

Visual inspection should be done annually to check paint and for corrosion or any structural weaknesses or loose welds. Fasteners should be checked and tightened or replaced as required.

Ticker Controller Functionality LED Indicators

The ticker controller has four LEDs that indicate whether the controller is functioning properly.

- **Power LED:** The power LED is labeled "PWR". When the controller is operating properly, this light should be on constantly.
- **Run LED:** The "RUN" LED is labeled "RUN". When power is plugged into the controller, this LED should blink at a set rate of about every half of a second.
- **Receive LED:** The receive LED is labeled "RXD". When the controller is receiving signal from the data feed, this LED with flash each time it receives a bit of information.
- **Transmit LED:** The transmit LED is labeled "TXD". The transmit LED will flash when the controller is transmitting back to the controlling computer. Most of the time LED will be off, but will flash quickly when responding to a get status command.
- **NOTE:** The transmit and receive LEDs will toggle on and off a few times when the controller is establishing communication.

4.5 Troubleshooting

This section lists some symptoms that may be encountered with the ticker displays. For these symptoms, possible cause and corrective actions are indicated. This list does not include every possible problem, but does represent some of the more common situations that may occur.

Symptom/Condition	Possible Cause/Remedy
A single pixel on the display will not light.	• Check signal connection. • Replace the module.
One or more LEDs will not turn off.	• Check signal connection. • Replace module.
Section of display not working.	• Check power to the section. • Check for input power to module. • Replace ribbon cable. • Replace/move the first module not working. • Replace/move the last working module of the previous section. • Check power supply. • Replace shift card. • Replace the controller

Display is garbled or sequence is shifted.	• Check the settings on the data feed PC. • Check signal connections • Refer to the data feed manual.
A group of modules does not work.	• Check for output from power supplies. • Reboot power to the section. • Check/replace ribbon cable. • Replace/move the first module not working. • Replace/move the last working module of the previous section. • Check signal connections.
Entire display does not work.	• Check 120 VAC input power to 1st display section. • Check all signal connections. • Check PC/Feed setting for proper orientation. • Replace controller.
Data feed or software not operating properly.	• Refer to data feed manual. • Check signal connection feed to display • Contact data feed/software provider.
Display resets and restarts	• Reduce the amount of amber pixels used • Remove inverted text

4.6 Replacement Parts

Part Description	Daktronics Part #
Controller Board (16-high, RS422 Input)	0P-1182-0011
Controller Board (16-high, RS422 or Ethernet Input)	0P-1182-0022
Controller Board (24-high, RS422 or Ethernet Input)	0P-1182-0023
Shift Board (16-high)	0P-1182-0012
Shift Board (24-high)	0P-1182-0019
Module; 16x40 Super Bright Red-Green	0P-1182-0014
Module; 24x40 Super Bright Red-Green	0P-1182-0018
Signal Converter; RS232 to RS422	0A-1127-0255
Serial Cable, DB9 to DB25, from PC to Signal Converter	W-1249
Ribbon Cable; 20 Cond. 28 AWG (Between Modules)	W-1357
Ribbon Cable; 20 Cond. 28 AWG (Controller to shift card and shift card to module)	W-1387
Power Supply; +5VDC	A-1632
Digital Light Sensor	0P-1151-0002
Power Cord; 3-Prong 120VAC	W-1181
Splice Bar	EN-1772
Mounting Clip	0M-113394
Section Cup, 2 ¼" Dia.	HS-1338
Filter; RFI Line	Z-1002
Face Panel; 16x240	0A-1182-0015
Face Panel; 16x320	0A-1182-0016
Face Panel; 16x400	0A-1182-0017
Wall Mounting Bracket; 0° Tilt	0M-117501
Wall Mounting Bracket; 15° Tilt	0A-1182-0019

Wall Mounting Bracket; 30° Tilt	0A-1182-0018
DataStreamer Manual	ED-13649

4.7 Daktronics Exchange/Repair & Return Program

To serve customers' repair and maintenance needs, Daktronics offers both an exchange and a repair and return program. The exchange program reduces down time by providing timely replacement of key components. This service is provided to qualified customers who follow the program guidelines explained below. It is our pleasure to provide this service to ensure you get the most from your Daktronics products. Please call our Help Desk (1-877/605-1113) if you have any questions regarding the exchange program or any other Daktronics service.

When you call the Daktronics 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 exchange 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 packaging the replacement part arrived in, fill out and attach the enclosed UPS shipping document and **RETURN THE PART TO DAKTRONICS**. (You may use the same box and packing the exchange part was sent in.) This will speed up the transaction and alleviate confusion when the failed component arrives at Daktronics. (Daktronics expects immediate return of the exchange part if it does not solve the problem.) For most equipment, you will be invoiced for the replacement part at the time it is shipped. This invoice is due when you receive it.

Daktronics reserves the right to refuse equipment that has been damaged due to acts of nature or causes other than normal wear and tear. **If the defective equipment is not shipped to Daktronics within 30 working days from the invoice date, it is assumed you are purchasing the replacement part and you will be invoiced for it.** This second invoice represents the difference between the exchange price and the purchase price of the equipment. This amount is due when you receive the second invoice. If you return the exchange equipment after 30 working days from invoice date, you will be credited for the amount on the second invoice minus a restocking fee.

To avoid a restocking charge, please 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.

Where to Send: To return parts for service, contact your local representative prior to shipment to acquire a Return Material Authorization Number (RMA#). If you have no local representative, call the Daktronics Help Desk for the RMA#. This will expedite the receiving process.

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 either be installed in an enclosure or should be put in an anti-static bag before boxing. Please enclose your name, address, phone number and a clear description of symptoms.

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

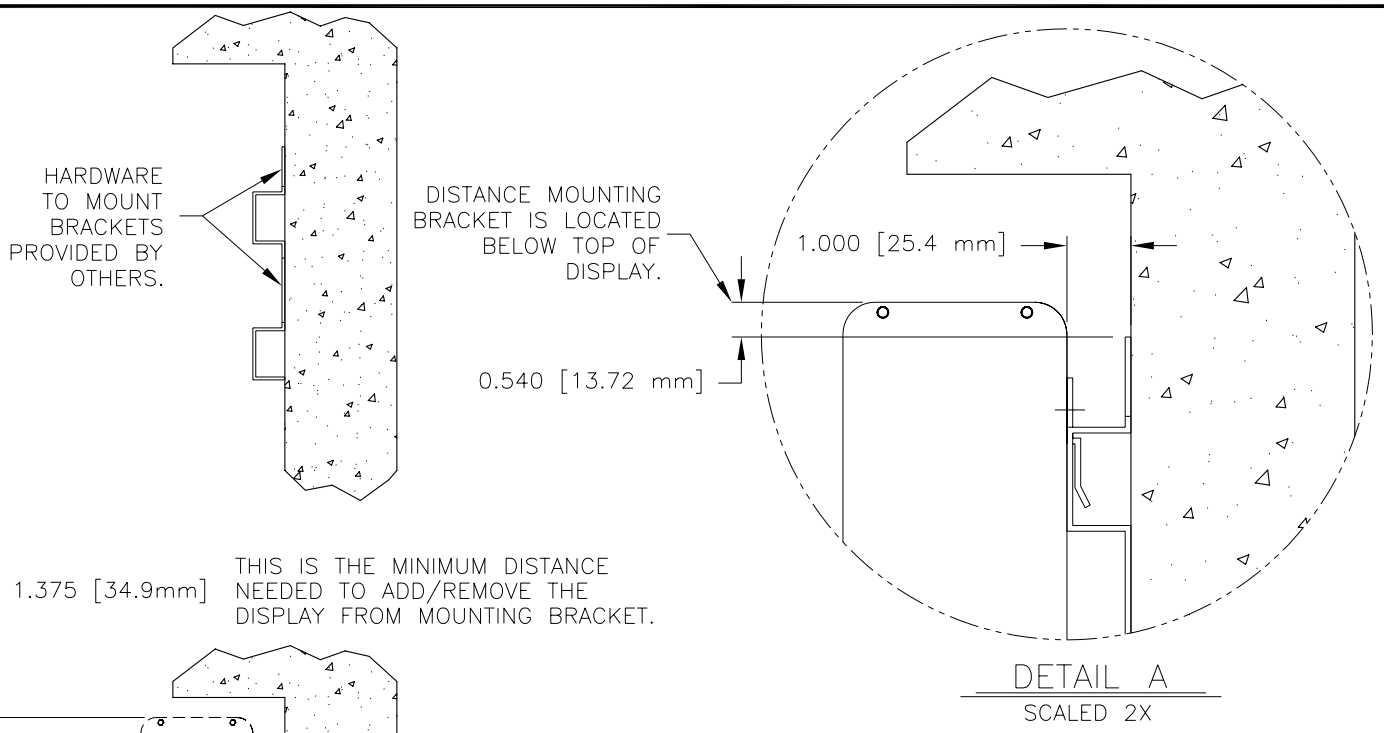
Phone: Daktronics Help Desk: 1-877/605-1113
or 1-605/697-4034

Customer Service Fax: 1-605-697-4444

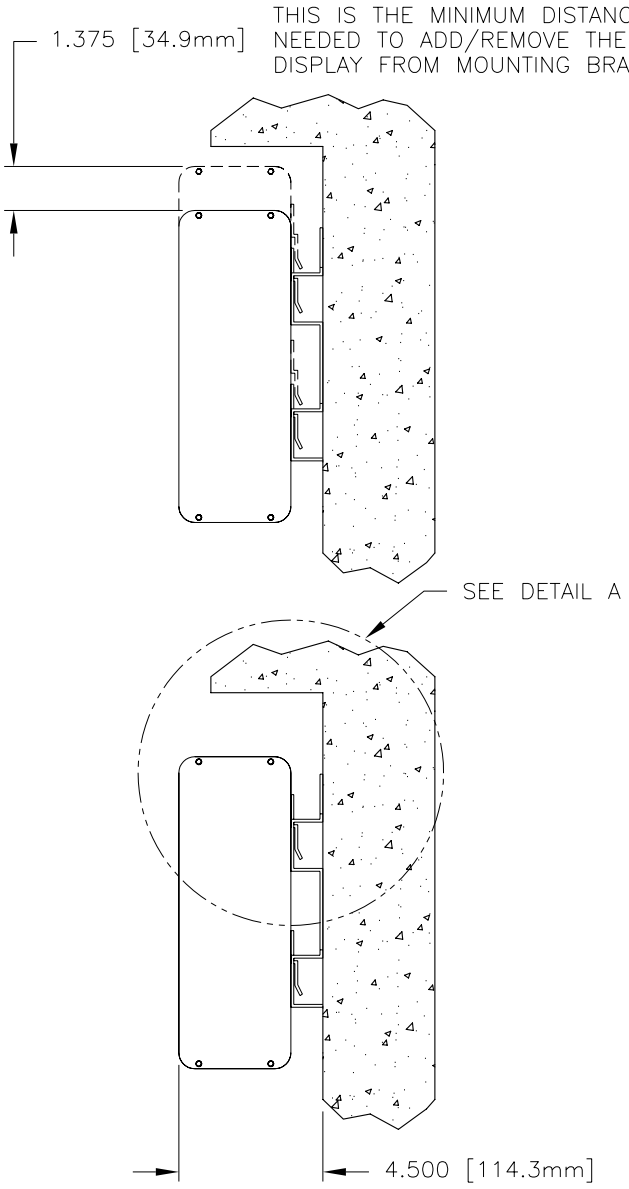
e-mail: helpdesk@daktronics.com

Appendix A: Reference Drawings

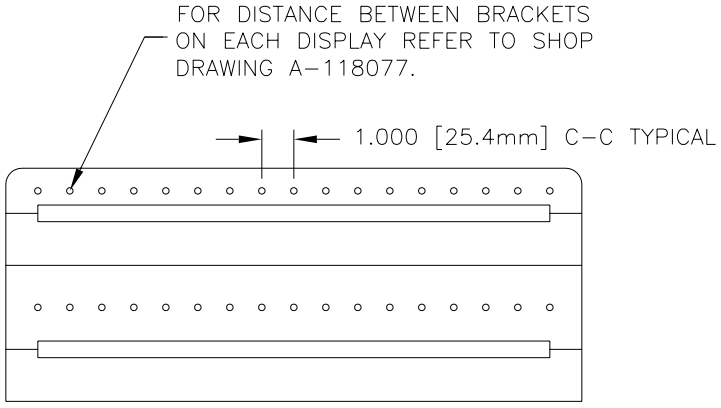
Refer to **Section 1** for information on how to read the drawing number and interpret information on the drawings.



DETAIL A
SCALED 2X



WALL MOUNTING



WALL BRACKET

NOTES:

1) ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]
2) REFER TO DAKTRONICS SHOP DRAWING A-118077 FOR PHYSICAL DIMENSIONS OF THE THREE DIFFERENT DISPLAYS.
3) THE MOUNTING METHOD SHOWN IS THE DAKTRONICS RECOMMENDED MOUNTING METHOD. ANY OTHER METHOD MUST BE DESIGNED AND INSTALLED BY QUALIFIED STRUCTURAL PERSONNEL.
4) REFER TO DETAIL A FOR MOUNTING BRACKET PLACEMENT.

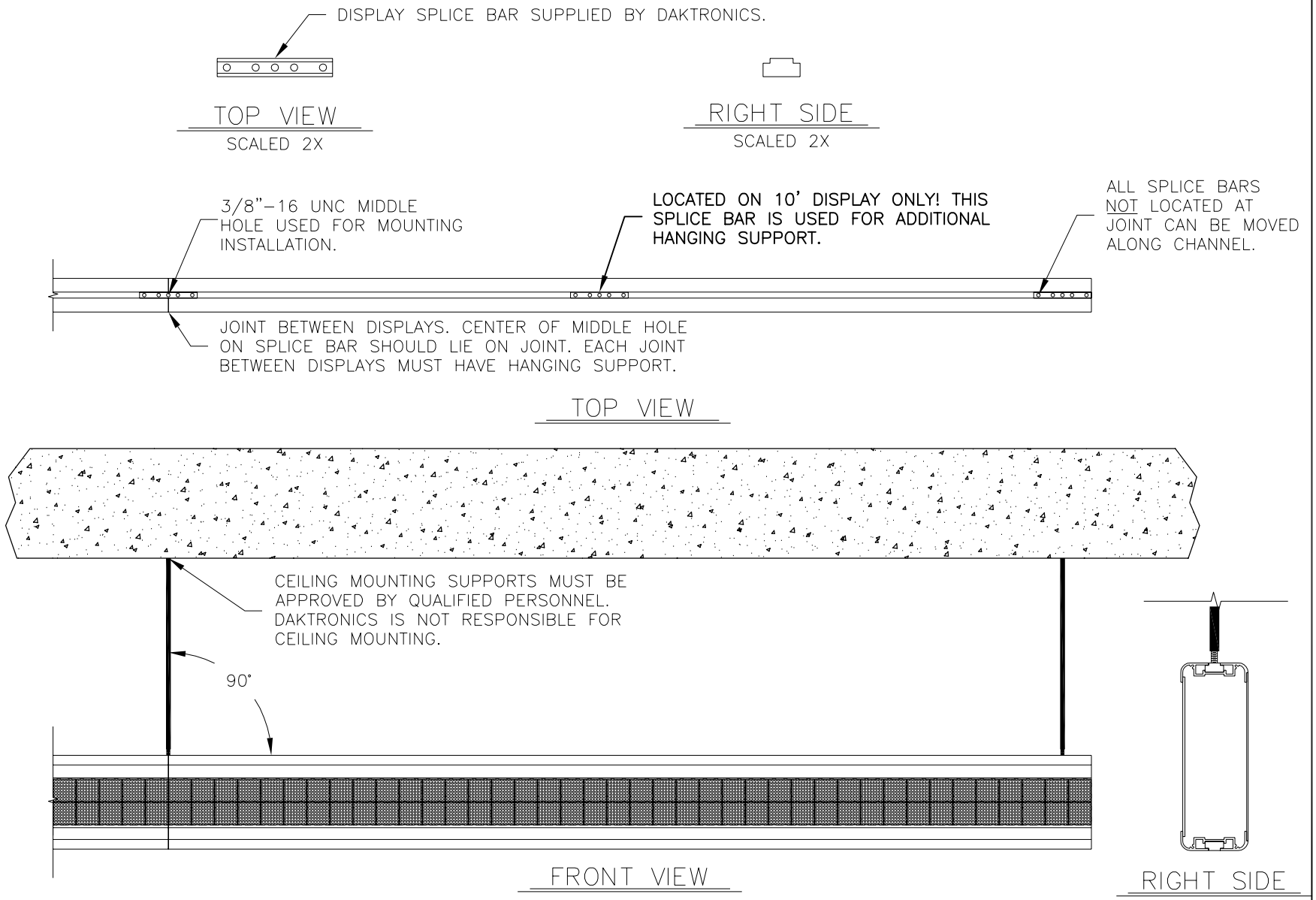
REV.	DATE	DESCRIPTION	BY	APPR.
2	21MAR00	CHANGED BRACKET DEPTH FROM 0.625" TO 1.00" TO BETTER ACCOMIDATE POWER PLUG.	DJD	
1	21SEP99	ADJUSTED WALL BRACKET DIMENSIONS TO SATISFY DRAWING A-117501.	KDK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS
TITLE: SHOP DRAWING, WALL MOUNTING, KE-1010-16***-2.1
DES. BY: DDAGGITT DRAWN BY: KKLUDT DATE: 14JUL99
REVISION 02 APPR. BY: SCALE: 1=6

1182-E10A-118222

REV.	DATE	DESCRIPTION	BY	APPR.
02	18MAR05	CHANGED TITLE AND NOTE 3 FROM SPECIFICALLY FOR 16 HIGH DISPLAY TO A GENERAL DRAWING.	DJD	
1	14FEB01	CORRECTED THREAD CALLED OUT ON SPLICE BAR FROM 3/8-18 TO 3/8-16.	DJD	



NOTES:

1) EACH JOINT BETWEEN DISPLAYS MUST HAVE HANGING SUPPORT.
2) INSTALLATION OF HANGING HARDWARE IS CUSTOMER CUSTOMIZED.
3) FOR DISPLAY DIMENSIONS REFER TO SHOP DRAWING.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

TITLE: MOUNTING DRAWING, CEILING, KE-1010-**X***-2.1

DES. BY: DDAGGITT DRAWN BY: KKLUDT DATE: 16JUL99

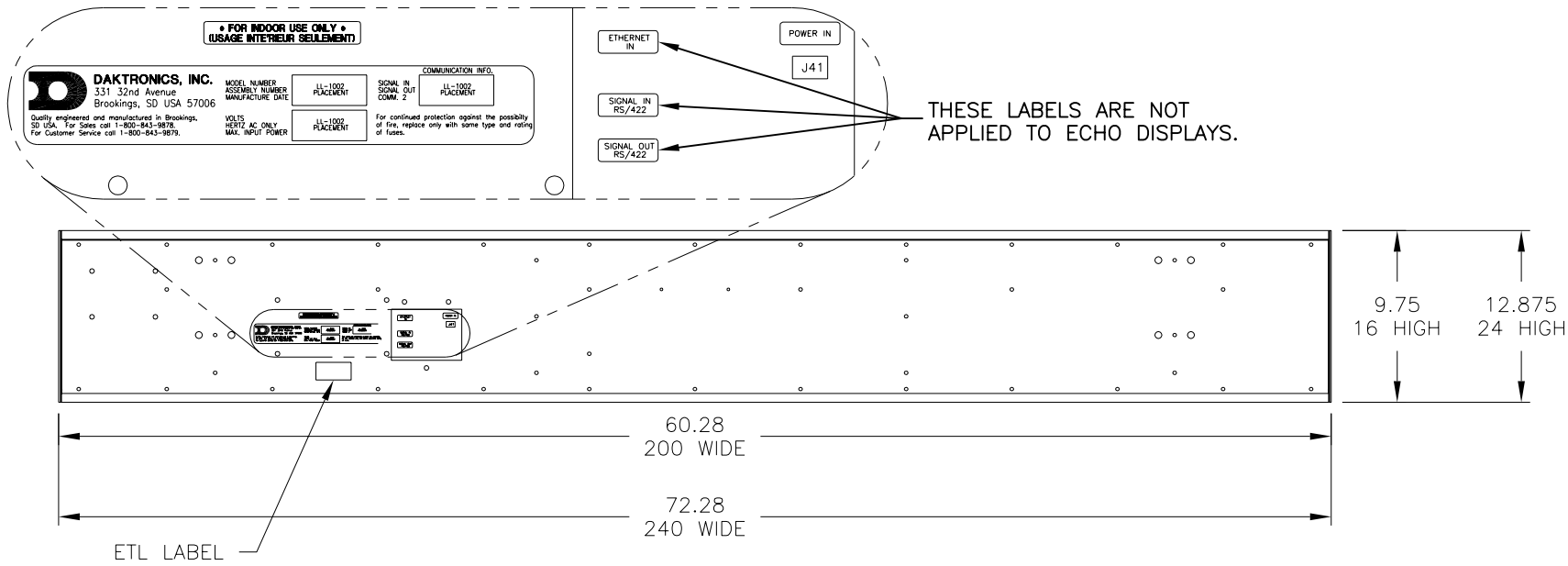
APPR. BY:

SCALE: 1=15

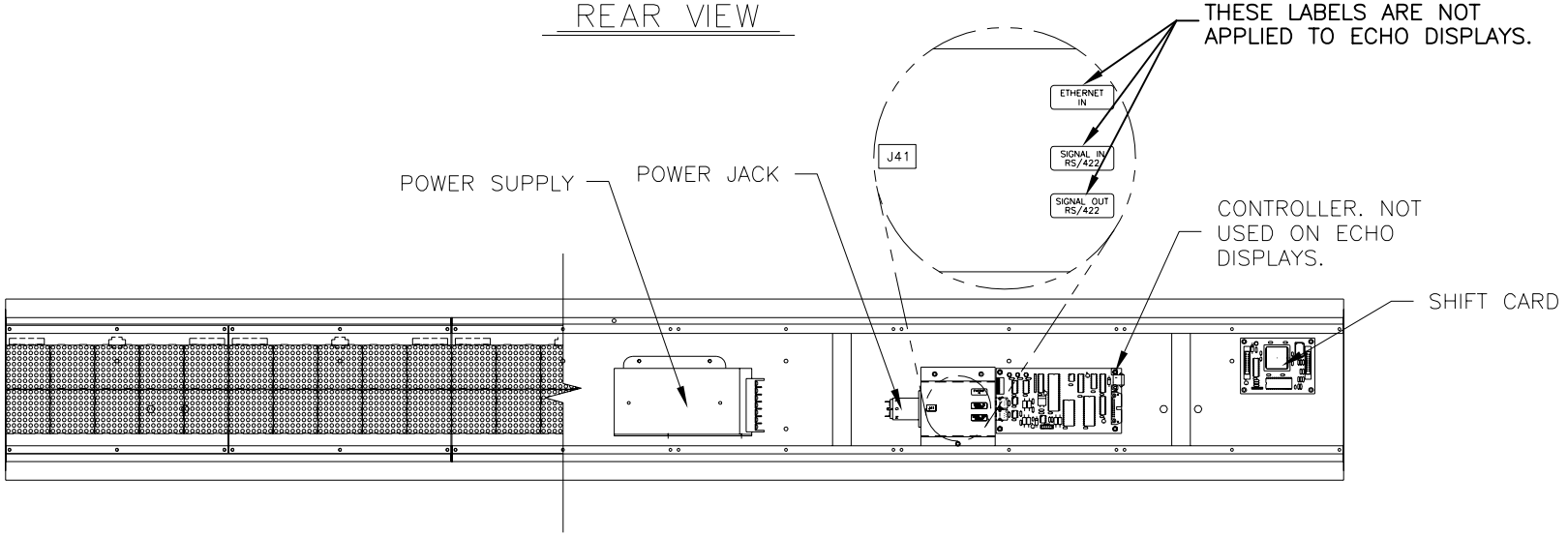
REVISION 02

1182-E10A-118572

REV.	DATE	DESCRIPTION	BY	APPR.
03	20SEP04	ADDED 24 HIGH TO DIMENSION AND TITLE.	SWM	DJD
02	19JUL04	ADDED 200 WIDE TO DIMENSION AND TITLE.	DJD	
01	02AUG99	ADDED ETL LABEL.	DJD	



REAR VIEW



FRONT VIEW

APPLIES TO BOTH 200 AND 240 WIDE DISPLAYS.

APPLIES TO BOTH 16 AND 24 HIGH DISPLAYS.

NOTES:

1) ALL DIMENSIONS ARE IN INCHES.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC.
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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

TITLE: COMP. LAYOUT, KE-1010-(16, 24) X (200, 240)-7.62

DES. BY: DDAGGITT DRAWN BY: KKLUDT DATE: 22JUL99

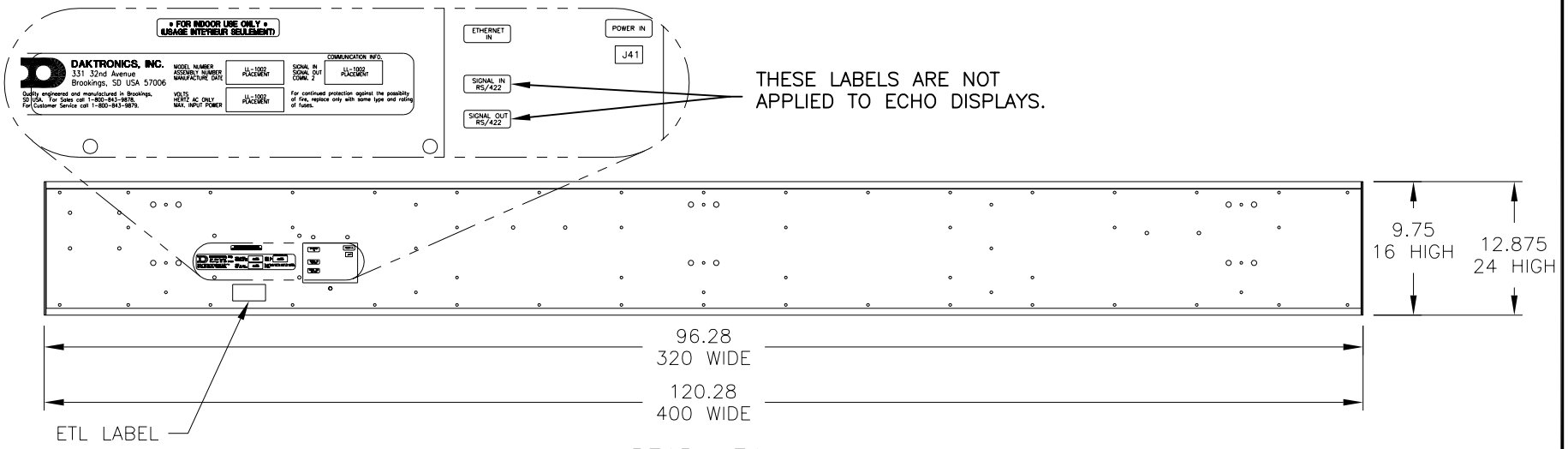
APPR. BY:

SCALE: 1=10

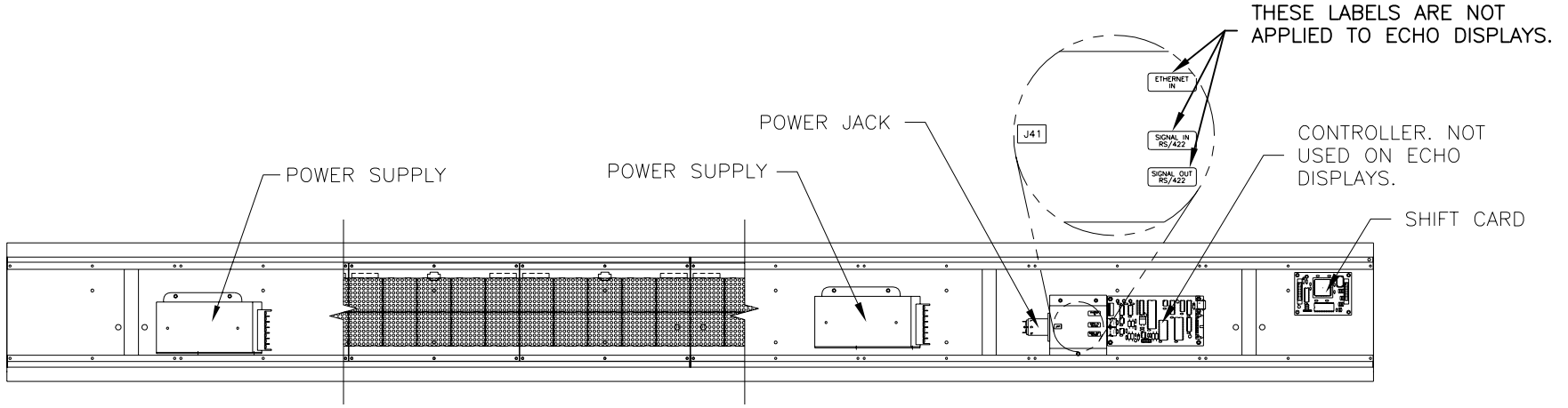
REVISION 03

1182-E10A-118990

REV.	DATE	DESCRIPTION	BY	APPR.
02	20SEP04	ADDED 400 WIDE TO DIMENSION AND TITLE. ADDED 24 HIGH TO DIMENSION AND TITLE. ADDED ECHO DISPLAY EXCLUSION INFO.	SWM	DJD
01	02AUG99	ADDED ETL LABEL.	DJD	



REAR VIEW



FRONT VIEW

APPLIES TO BOTH 320 AND 400 WIDE DISPLAYS.

APPLIES TO BOTH 16 AND 24 HIGH DISPLAYS.

NOTES:

1) ALL DIMENSIONS ARE IN INCHES.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

TITLE: COMP. LAYOUT, KE-1010-(16, 24) X (320, 400)-7.62

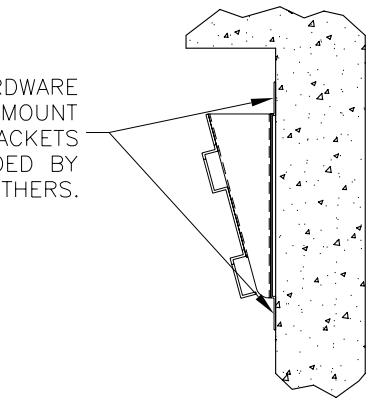
DES. BY: DDAGGITT DRAWN BY: KKLUDT DATE: 22JUL99

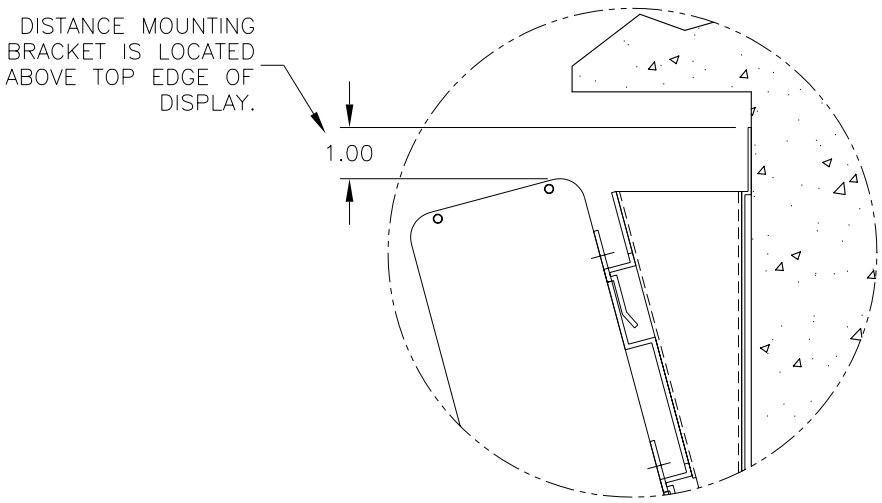
APPR. BY:

SCALE: 1=12

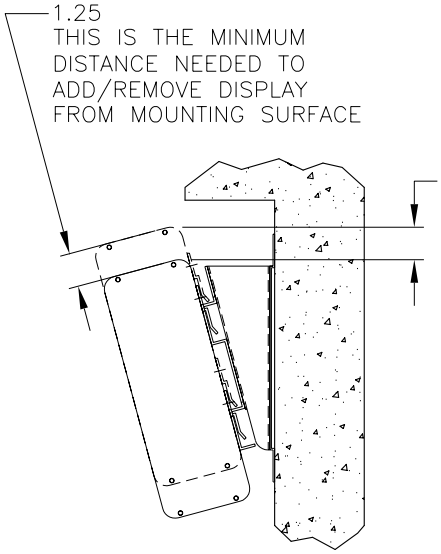
REVISION 02

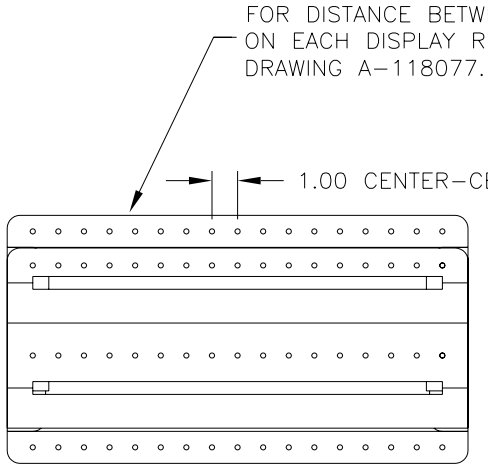
1182-E10A-118995



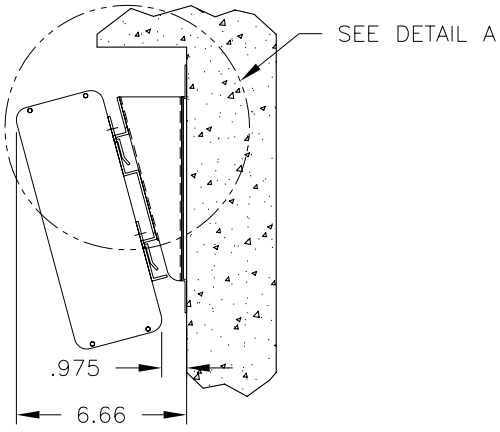


DETAIL A
SCALED 4X





WALL BRACKET
SCALED 2X



WALL MOUNTING
SCALED 2X

NOTES:

1) ALL DIMENSIONS ARE IN INCHES.
2) REFER TO DAKTRONICS SHOP DRAWING A-118077 FOR PHYSICAL DIMENSIONS OF THE THREE DIFFERENT DISPLAYS.
3) THE MOUNTING METHOD SHOWN IS THE DAKTRONICS RECOMMENDED MOUNTING METHOD. ANY OTHER METHOD MUST BE DESIGNED AND INSTALLED BY QUALIFIED STRUCTURAL PERSONNEL.
4) REFER TO DETAIL A FOR MOUNTING BRACKET PLACEMENT.

REV.	DATE	DESCRIPTION	BY	APPR.
1	21SEP99	ADJUSTED WALL BRACKET DIMENSIONS TO SATISFY DRAWINGS A-117501, A-119351, A-119196.	KDK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

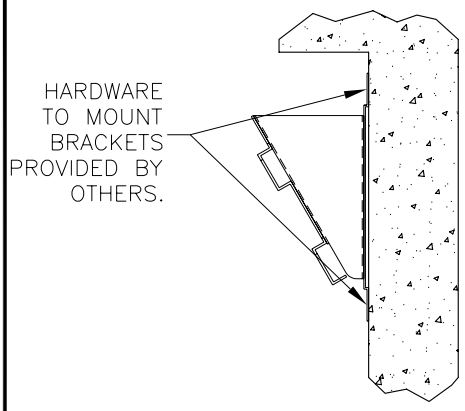
TITLE: MOUNTING DRAWING, WALL, 15 DEG., KE-1010-16X***-2.1

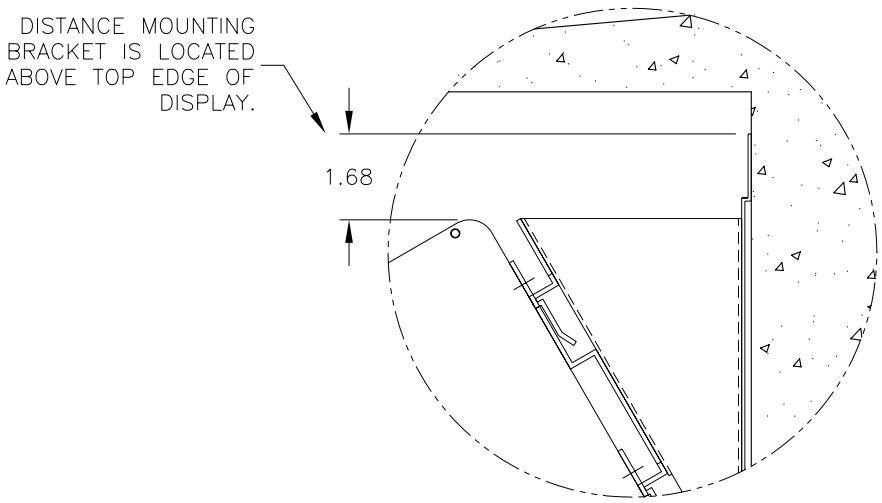
DES. BY: KKLUDT DRAWN BY: KKLUDT DATE: 2AUG99

REVISION APPR. BY:

SCALE: 1=15

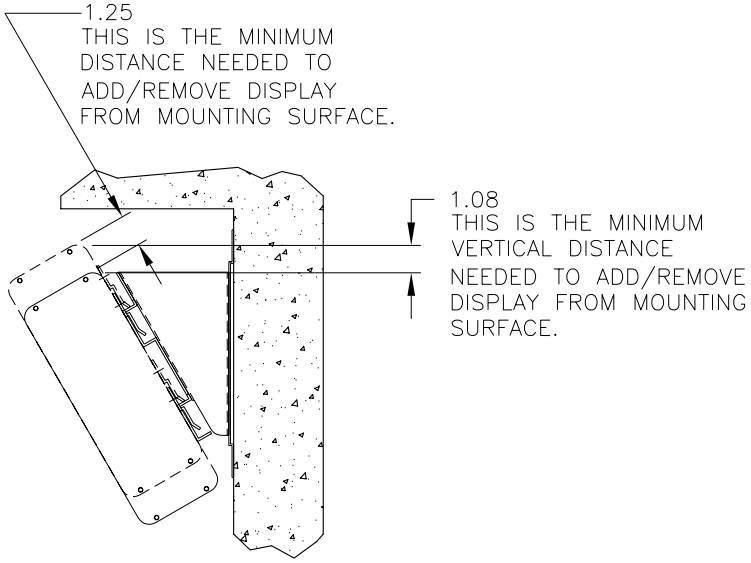
1182-E07A-119539

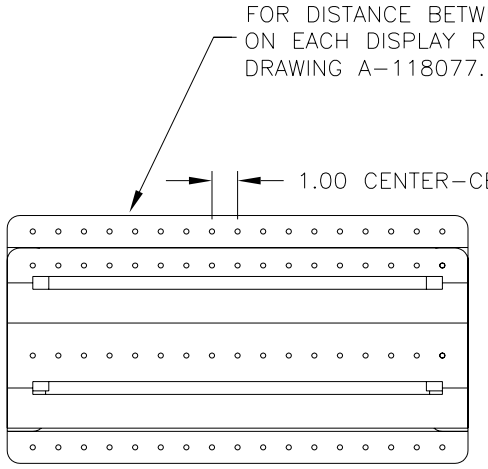




DETAIL A

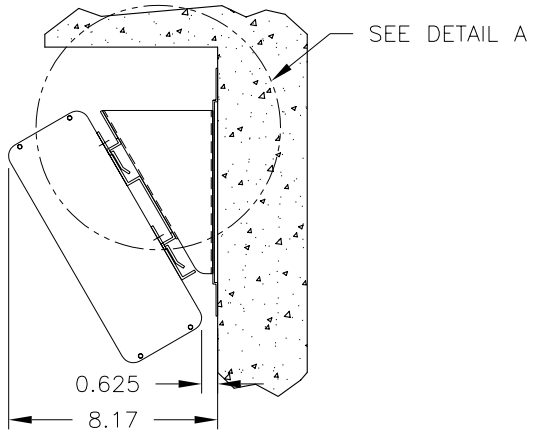
SCALED 4X





WALL BRACKET

SCALED 2X



WALL MOUNTING

SCALED 2X

NOTES:

1) ALL DIMENSIONS ARE IN INCHES.
2) REFER TO DAKTRONICS SHOP DRAWING A-118077 FOR PHYSICAL DIMENSIONS OF THE THREE DIFFERENT DISPLAYS.
3) THE MOUNTING METHOD SHOWN IS THE DAKTRONICS RECOMMENDED MOUNTING METHOD. ANY OTHER METHOD MUST BE DESIGNED AND INSTALLED BY QUALIFIED STRUCTURAL PERSONNEL.
4) REFER TO DETAIL A FOR MOUNTING BRACKET PLACEMENT.

REV.	DATE	DESCRIPTION	BY	APPR.
1	21SEP99	ADJUSTED WALL BRACKET DIMENSIONS TO SATISFY DRAWINGS A-117501, A-117371, A-119196	KDK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

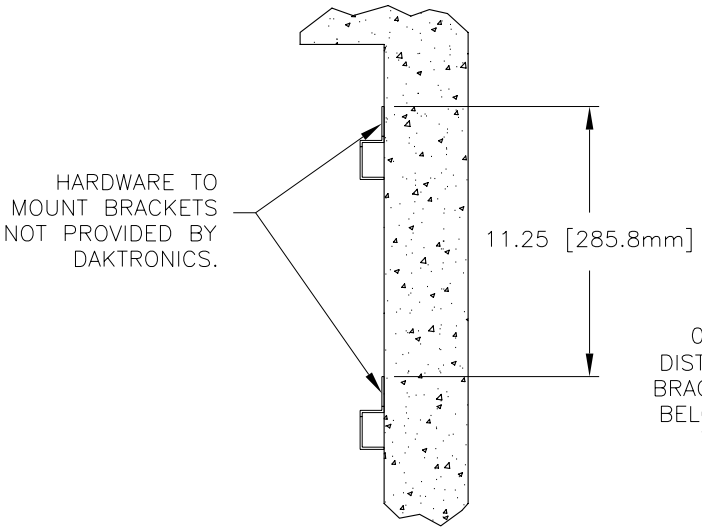
TITLE: MOUNTING DRAWING, WALL, 30 DEG., KE-1010-16X***-2.1

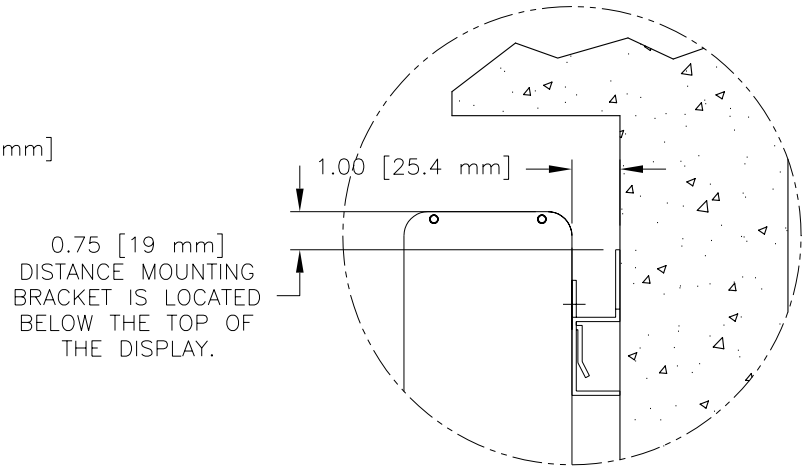
DES. BY: KKLUDT DRAWN BY: KKLUDT DATE: 2AUG99

REVISION APPR. BY:

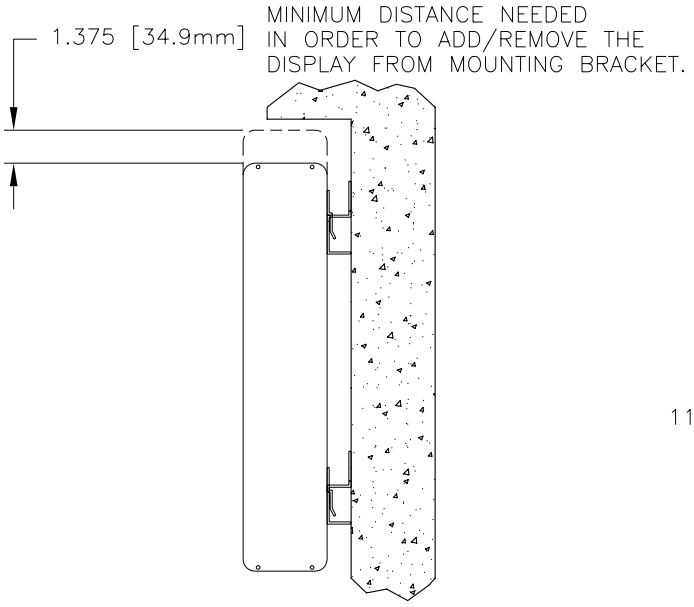
SCALE: 1=15

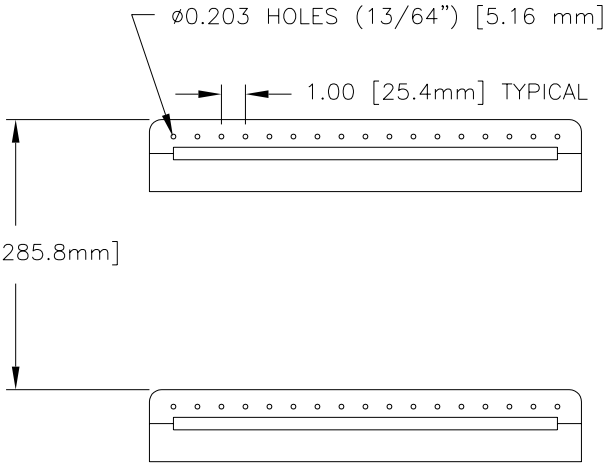
1182-E07A-119553





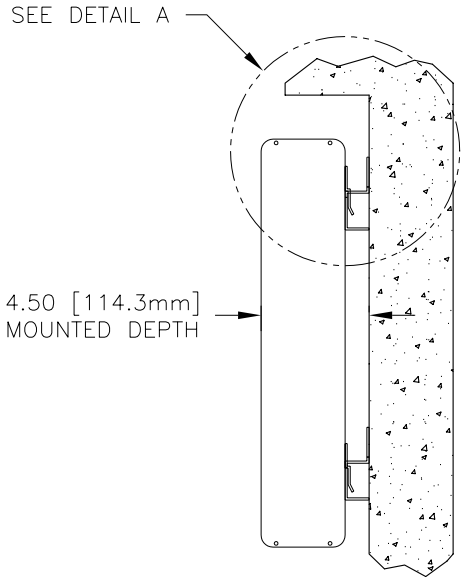
DETAIL A





FRONT VIEW

WALL MOUNTING BRACKET. AS SHOWN, TWO BRACKETS ARE TO BE USED AT EACH MOUNTING LOCATION.
WALL MOUNTING BRACKETS ARE SUPPLIED BY DAKTRONICS.



RIGHT SIDE

WALL MOUNTING DETAILS

NOTES:

1) ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
2) REFER TO DAKTRONICS SHOP DRAWING A-210277 FOR DISPLAY SPECIFIC INFORMATION.
3) THE MOUNTING METHOD SHOWN IS DAKTRONICS RECOMMENDED MOUNTING METHOD. ANY OTHER METHOD MUST BE DESIGNED AND INSTALLED BY QUALIFIED STRUCTURAL PERSONNEL.
4) DAKTRONICS IS NOT RESPONSIBLE FOR THE INTEGRITY OF SUPPORT STRUCTURED THE WALL MOUNTING BRACKETS ARE ATTACHED TO.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DAKTRONICS TICKER DISPLAYS

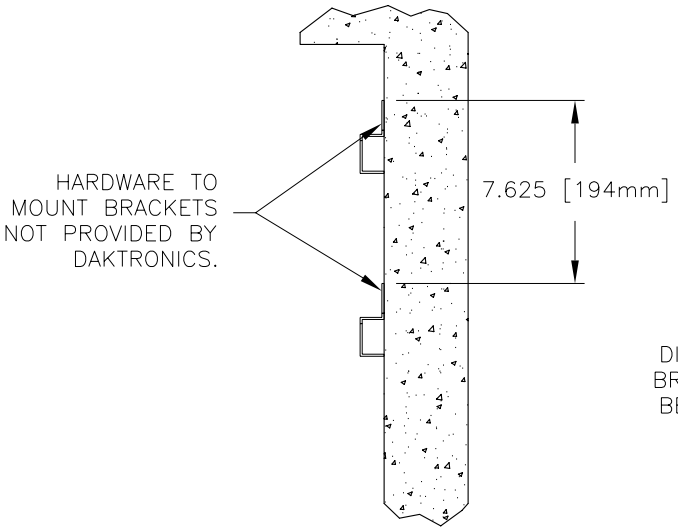
TITLE: SHOP DWG, WALL MOUNTING, KE-1010-2-16X***-7.62

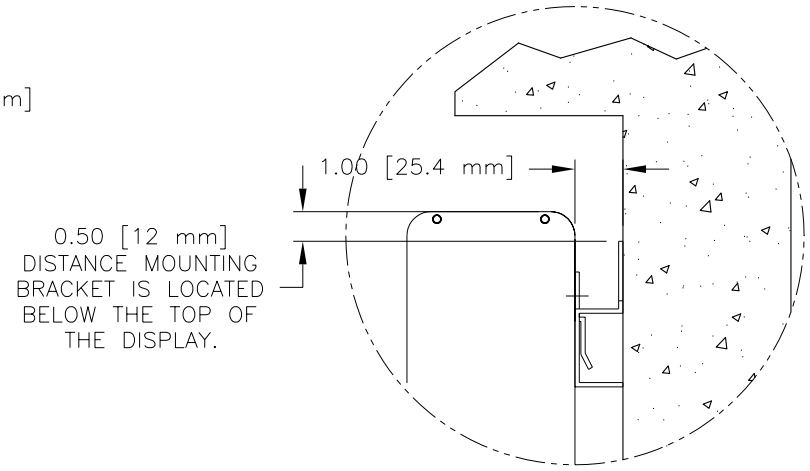
DES. BY: DDAGGITT DRAWN BY: DDAGGITT DATE: 2MAY04

REVISION 00 | APPR. BY: | SCALE: 1=8

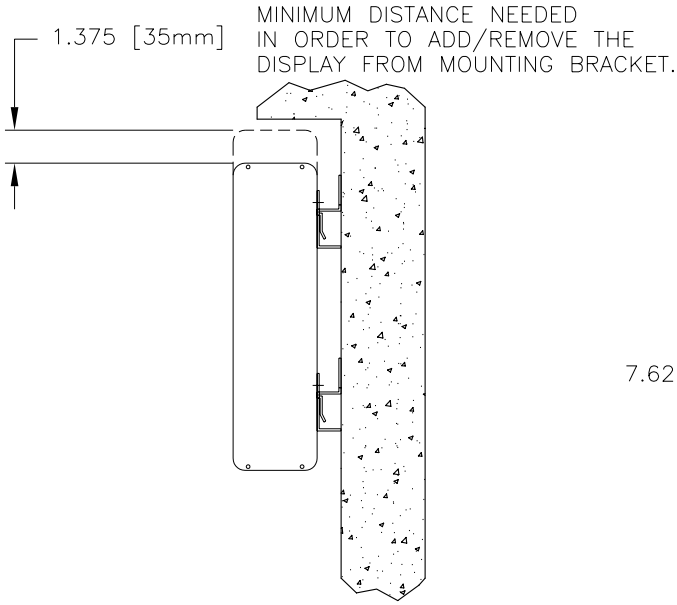
1182-E10A-210488

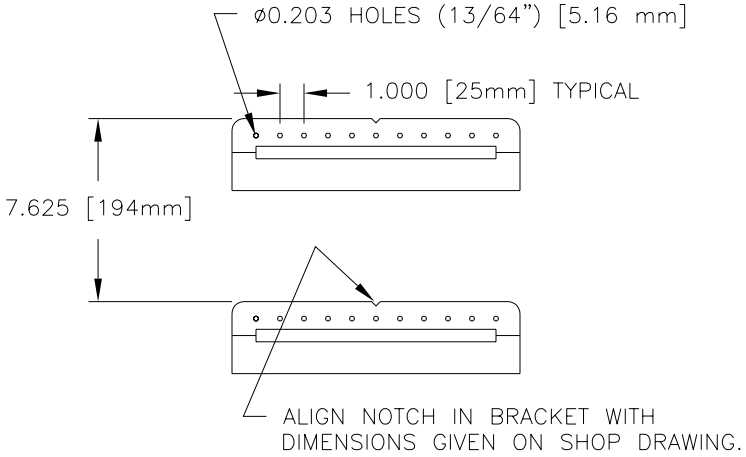
REV.	DATE	DESCRIPTION	BY	APPR.





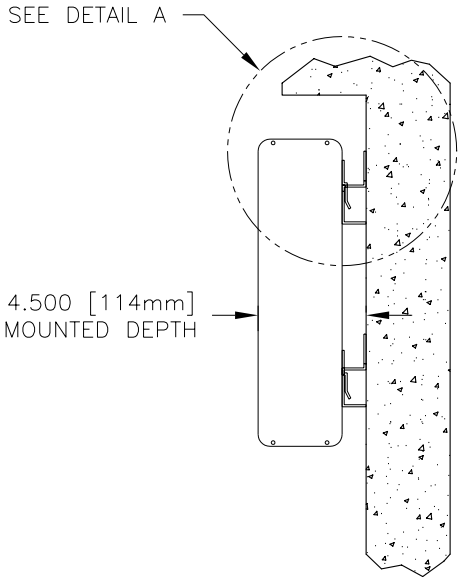
DETAIL A





FRONT VIEW

WALL MOUNTING BRACKET. AS SHOWN, TWO BRACKETS ARE TO BE USED AT EACH MOUNTING LOCATION.
WALL MOUNTING BRACKETS ARE SUPPLIED BY DAKTRONICS.



RIGHT SIDE

WALL MOUNTING DETAILS

NOTES:

1) ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
2) REFER TO DAKTRONICS SHOP DRAWING A-214329 FOR DISPLAY SPECIFIC INFORMATION.
3) THE MOUNTING METHOD SHOWN IS DAKTRONICS RECOMMENDED MOUNTING METHOD. ANY OTHER METHOD MUST BE DESIGNED AND INSTALLED BY QUALIFIED STRUCTURAL PERSONNEL.
4) DAKTRONICS IS NOT RESPONSIBLE FOR THE INTEGRITY OF SUPPORT STRUCTURED THE WALL MOUNTING BRACKETS ARE ATTACHED TO.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

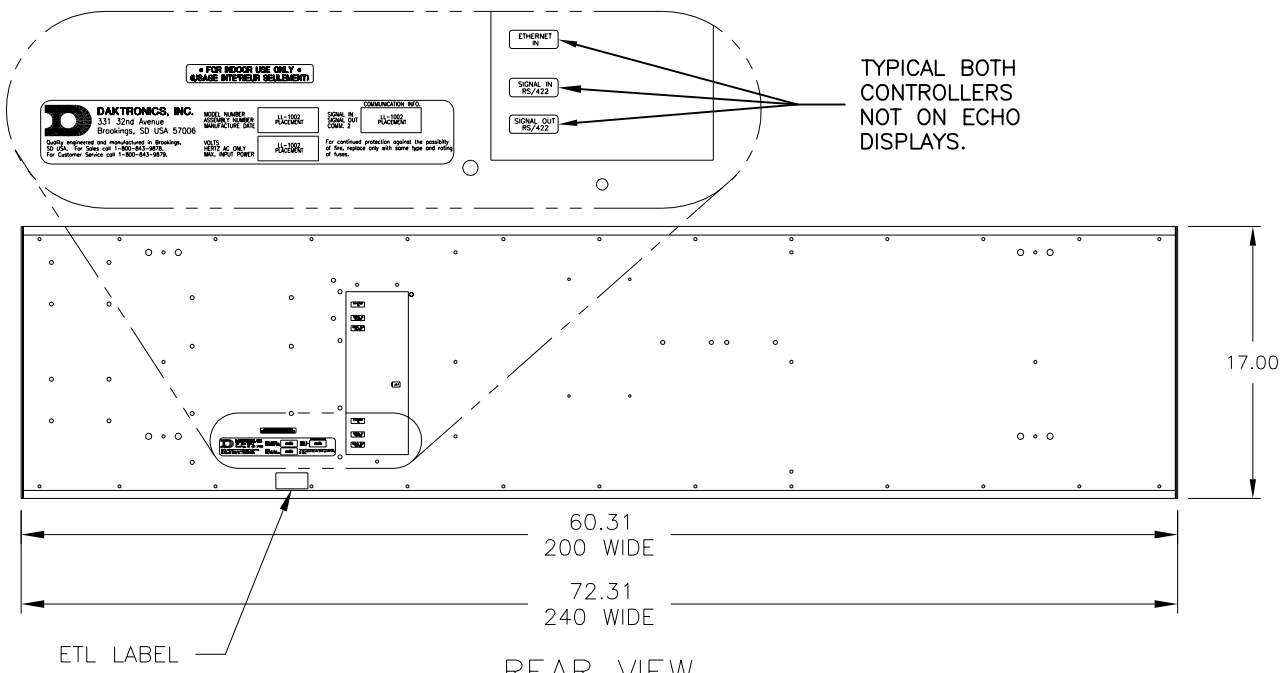
TITLE: DETAIL, HORIZ WALL MOUNTING, KE-1010-24X***-7.62

DES. BY: DDAGGITT DRAWN BY: DDAGGITT DATE: 7JUN04

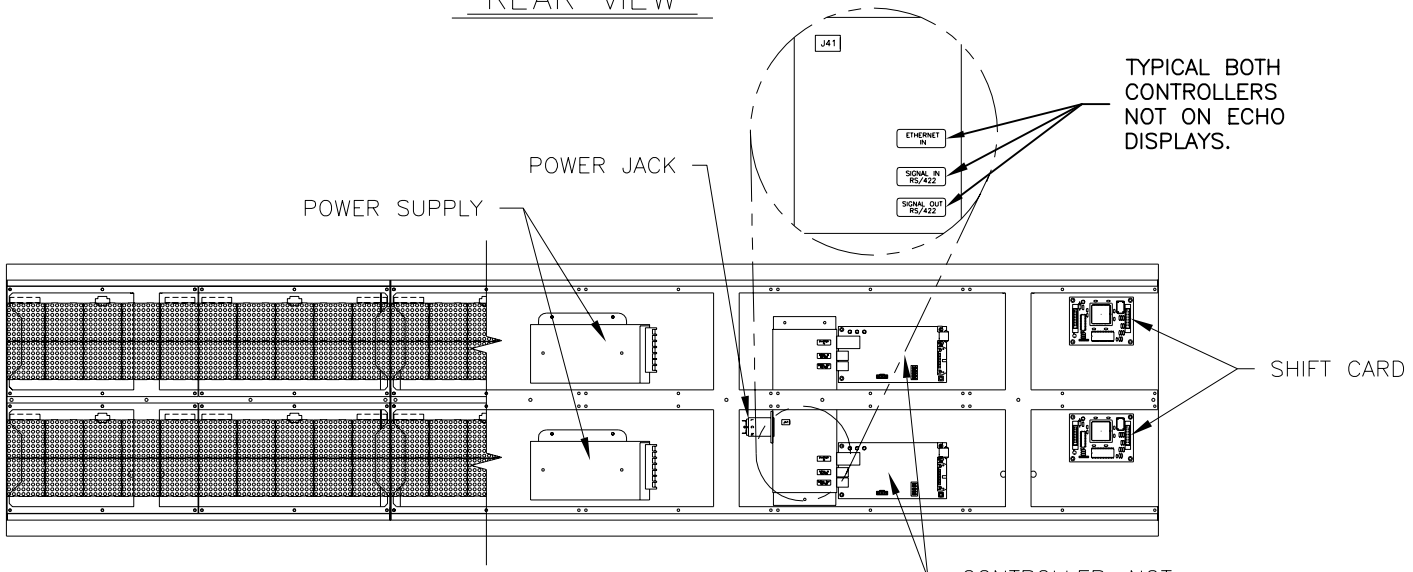
REVISION 00 | APPR. BY: | SCALE: 1=8

1182-E10A-214525

REV.	DATE	DESCRIPTION	BY	APPR.



REAR VIEW



FRONT VIEW

APPLIES TO BOTH 200 AND 240 WIDE DISPLAYS.

NOTES:

1) ALL DIMENSIONS ARE IN INCHES.

REV.	DATE	DESCRIPTION	BY	APPR.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

TITLE: COMP. LAYOUT, KE-1010-2-16 X (200, 240)-7.62

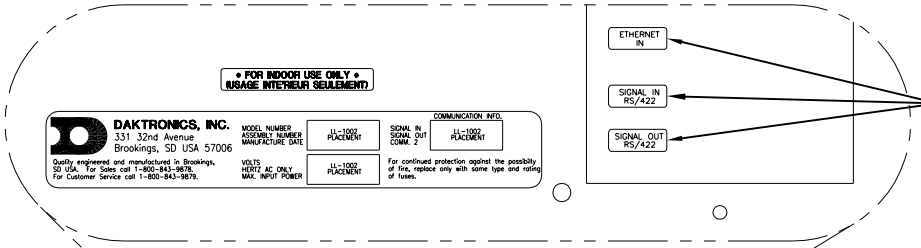
DES. BY: DDAGGIT DRAWN BY: SMENNIN DATE: 20SEP04

APPR. BY:

SCALE: 1=12

REVISION 00

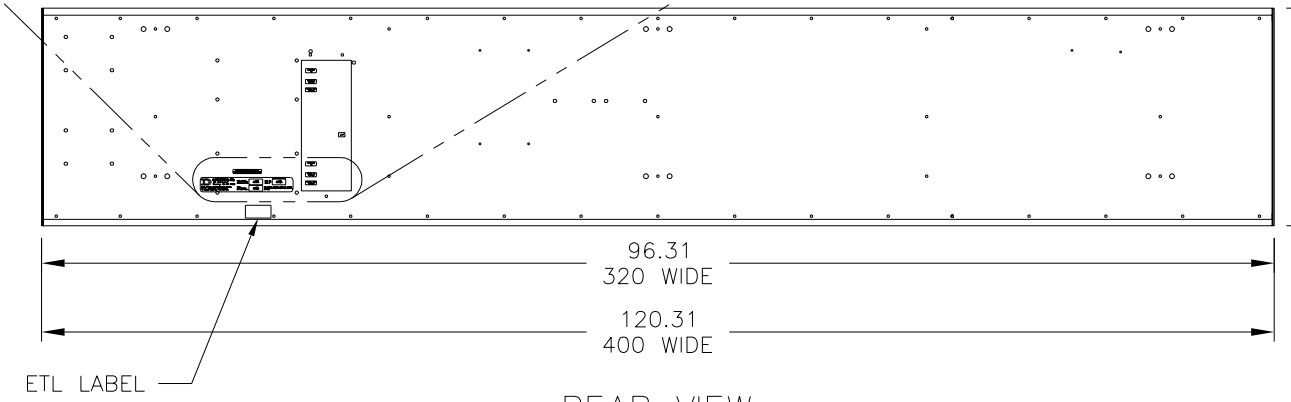
1182-E10A-223638



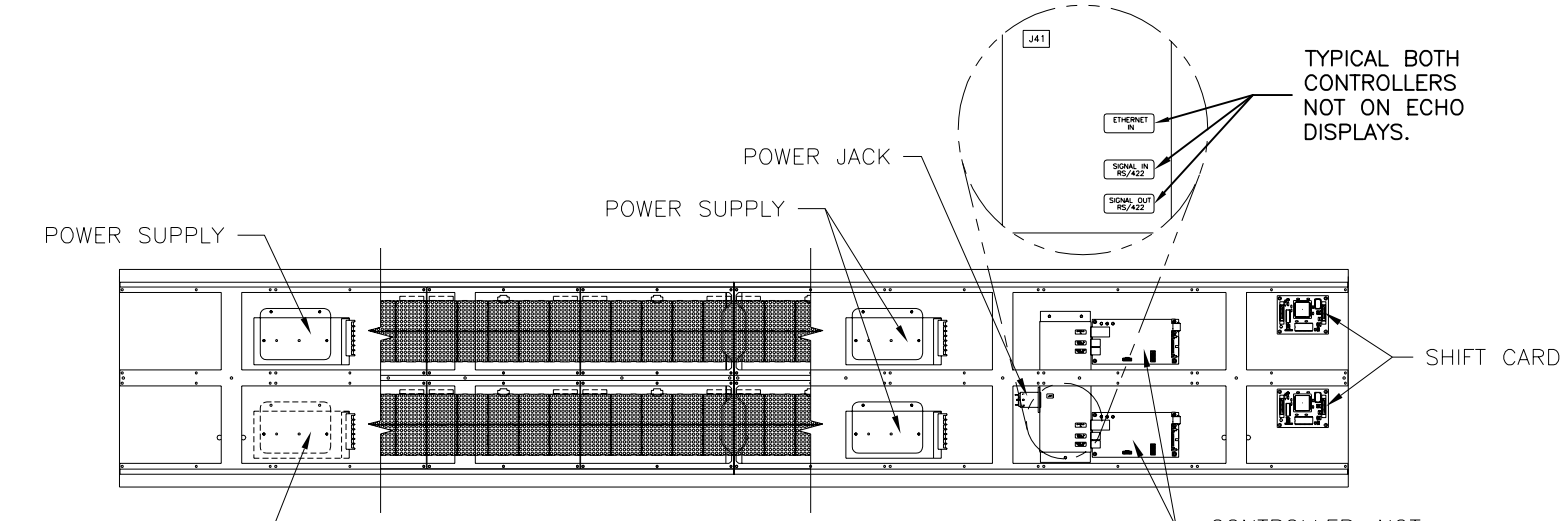
TYPICAL BOTH CONTROLLERS NOT ON ECHO DISPLAYS.

NOTES:

1) ALL DIMENSIONS ARE IN INCHES.



REAR VIEW



FRONT VIEW

APPLIES TO BOTH 320 AND 400 WIDE DISPLAYS.

REV.	DATE	DESCRIPTION	BY	APPR.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

TITLE: COMP. LAYOUT, KE-1010-2-16 X (320, 400)-7.62

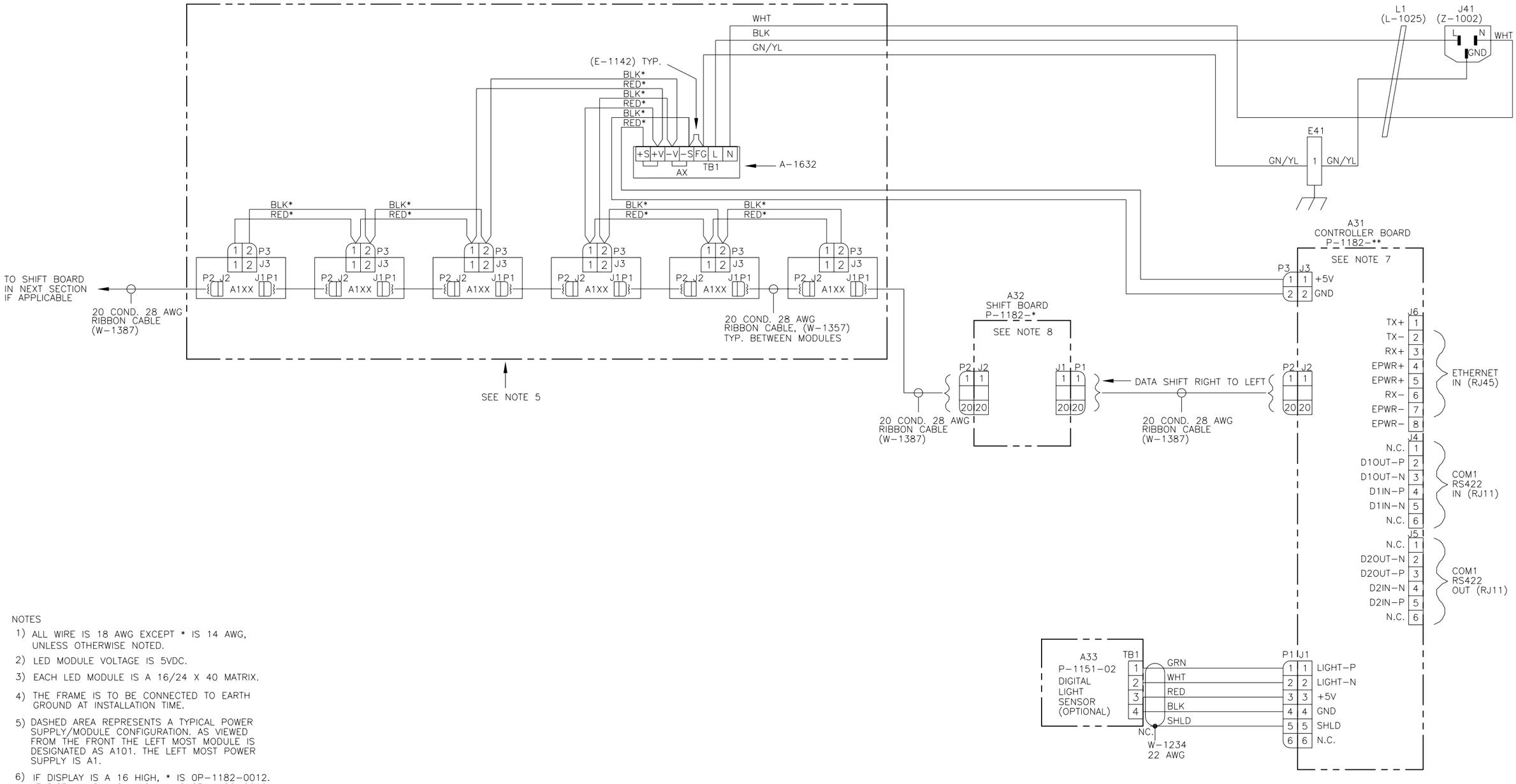
DES. BY: DDAGGIT DRAWN BY: SMENNIN DATE: 21SEP04

APPR. BY:

SCALE: 1=15

REVISION 00

1182-E10A-223724



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
   IF DISPLAY IS A 16 HIGH WITH OUT ETHERNET, ** IS 0P-1182-0011.
   IF DISPLAY IS A 24 HIGH WITH ETHERNET, ** IS 0P-1182-0023.
   IF DISPLAY IS A 16 HIGH WITH ETHERNET, ** IS 0P-1182-0022.
7) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
8) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 6 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1
MAXIMUM WATTS	120
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
03	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS 0P-1182-0020 TO 0P-1182-0023 AND 0P-1182-0021 TO 0P-1182-0022.	WRS	DJM
02	30JUL04	ADDED 0P-1182-0021 AND DESCRIPTION TO 0P-1182-0011 AND -0020.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES. ADDED J6 (ETHERNET IN) TO CONTROLLER.	DJM	

DAKTRONICS, INC. BROOKINGS, SD 57006

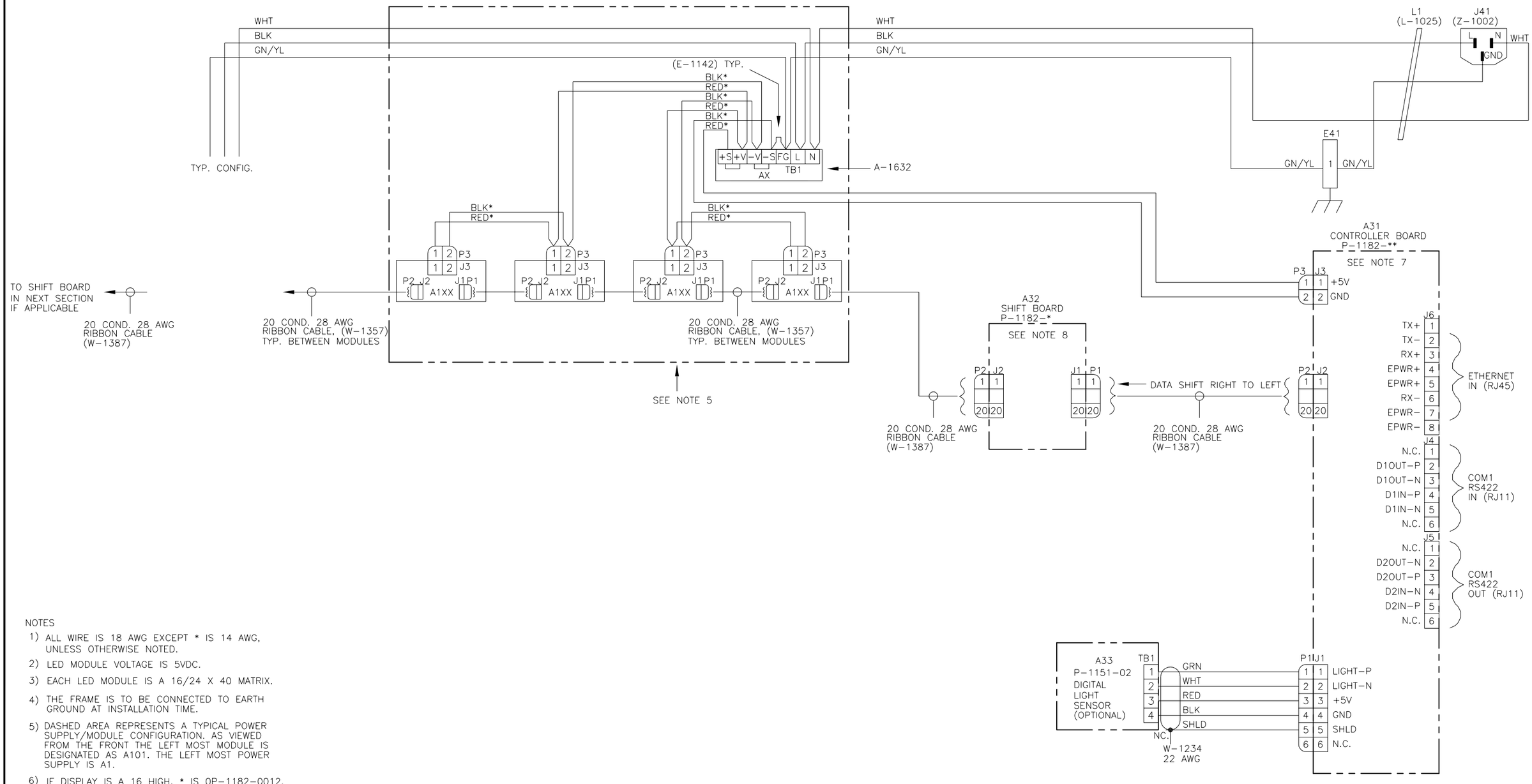
PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-16/24X240-7.62-RG-MASTER

DES. BY: DRAWN BY: L KERR DATE: 15JUN99

REVISION 03 | APPR. BY: | SCALE: 1=1

1182-R03B-117180



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
   IF DISPLAY IS A 16 HIGH WITH OUT ETHERNET, ** IS 0P-1182-0011.
   IF DISPLAY IS A 24 HIGH WITH ETHERNET, ** IS 0P-1182-0023.
   IF DISPLAY IS A 16 HIGH WITH ETHERNET, ** IS 0P-1182-0022.
7) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
8) INSERT JUMPER SHUNT IN "320" POSITION.

POWER REQUIREMENT 8 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1.4
MAXIMUM WATTS	160
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
03	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS 0P-1182-0020 TO 0P-1182-0023 AND 0P-1182-0021 TO 0P-1182-0022.	WRS	DJM
02	30JUL04	ADDED 0P-1182-0021 AND DESCRIPTION TO 0P-1182-0011 AND -0020.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES. ADDED J6 (ETHERNET IN) TO CONTROLLER.	DJM	

DAKTRONICS, INC. BROOKINGS, SD 57006

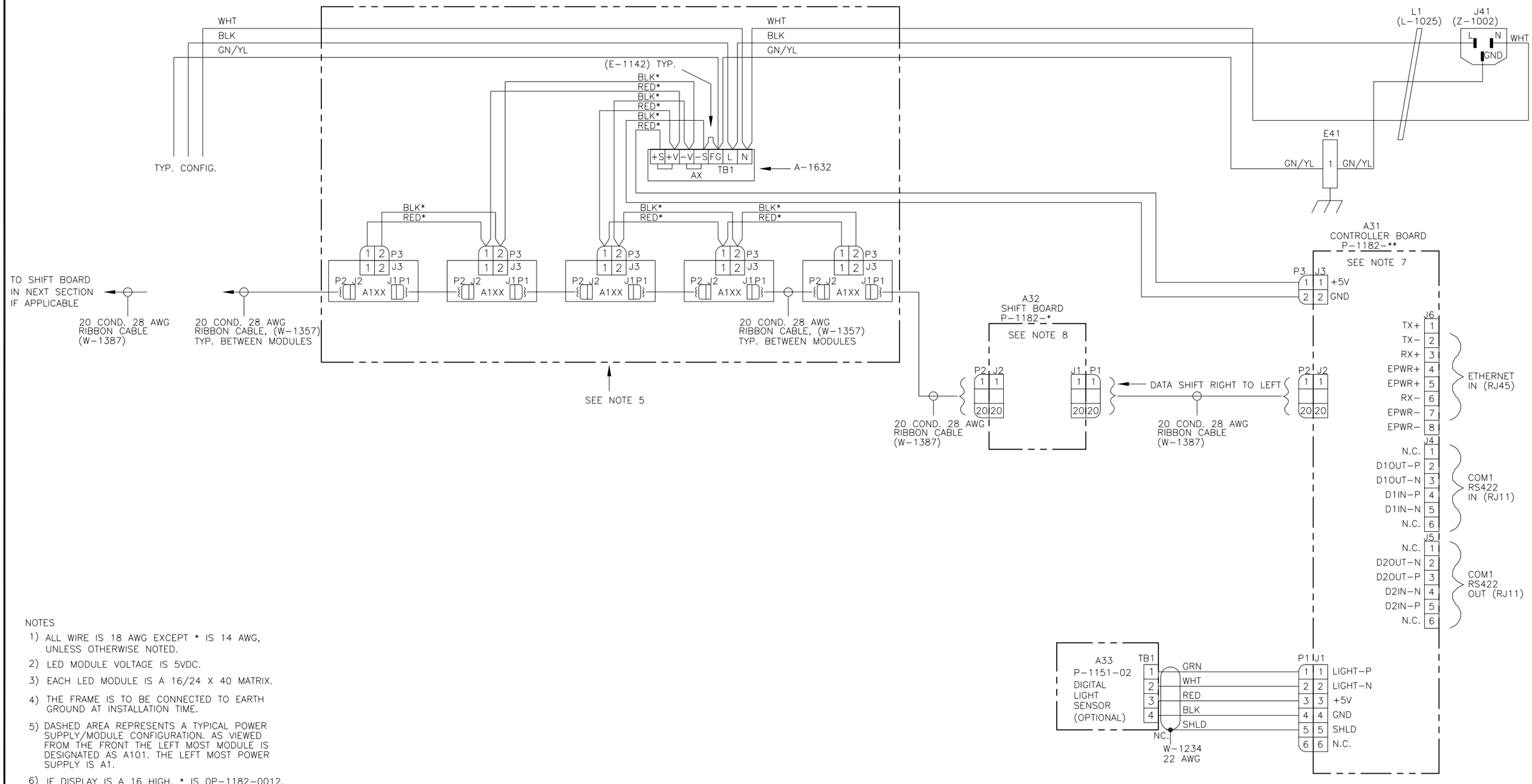
PROJ: TICKER;INDOOR

TITLE: SCHEMATIC: KE-101*-16/24X320-7.62-RG, MASTER

DES. BY: DRAWN BY: L KERR DATE: 15JUN99

REVISION 03 | APPR. BY: | SCALE: 1=1

1182-R03B-117181



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
   IF DISPLAY IS A 16 HIGH WITH OUT ETHERNET, ** IS 0P-1182-0011.
   IF DISPLAY IS A 24 HIGH WITH ETHERNET, ** IS 0P-1182-0023.
   IF DISPLAY IS A 16 HIGH WITH ETHERNET, ** IS 0P-1182-0022.
7) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
8) INSERT JUMPER SHUNT IN "400" POSITION.

POWER REQUIREMENT 10 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1.7
MAXIMUM WATTS	200
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
03	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS 0P-1182-0020 TO 0P-1182-0023 AND 0P-1182-0021 TO 0P-1182-0022.	WRS	DJM
02	30JUL04	ADDED 0P-1182-0021 AND DESCRIPTION TO 0P-1182-0011 AND -0020.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES. ADDED J6 (ETHERNET IN) TO CONTROLLER.	DJM	

DAKTRONICS, INC. BROOKINGS, SD 57006

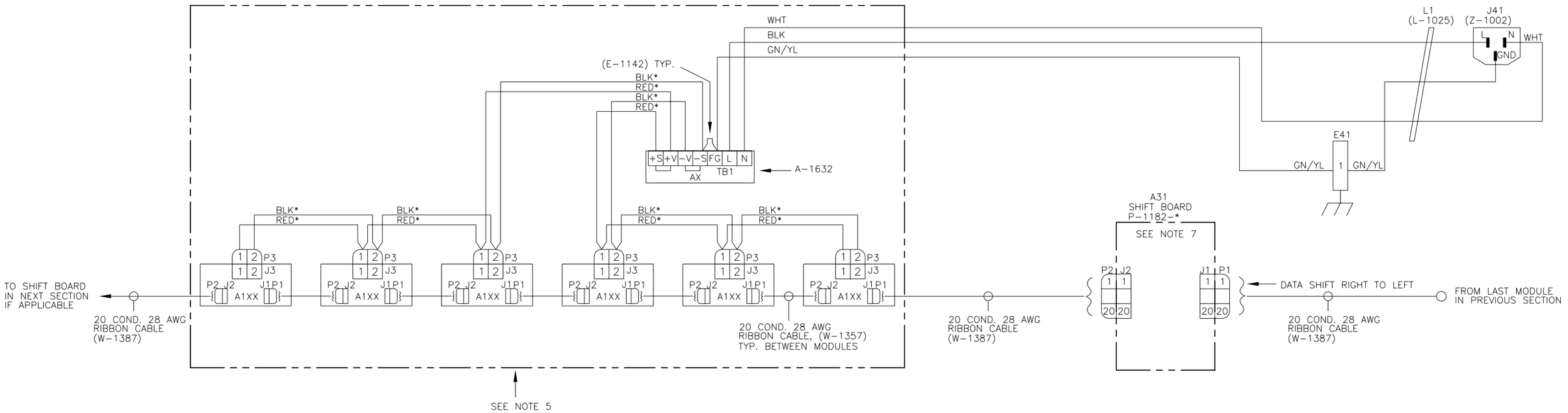
PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-16/24X400-7.62-RG, MASTER

DES. BY: DRAWN BY: L KERR DATE: 15JUN99

REVISION 03 | APPR. BY: | SCALE: 1=1

1182-R03B-117189



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 6 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1
MAXIMUM WATTS	120
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
02	30JUL04	ADDED 0P-1182-0019 AND DESCRIPTION TO 0P-1182-0012 AND -0019.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES.	DJM	

DAKTRONICS, INC. BROOKINGS, SD 57006

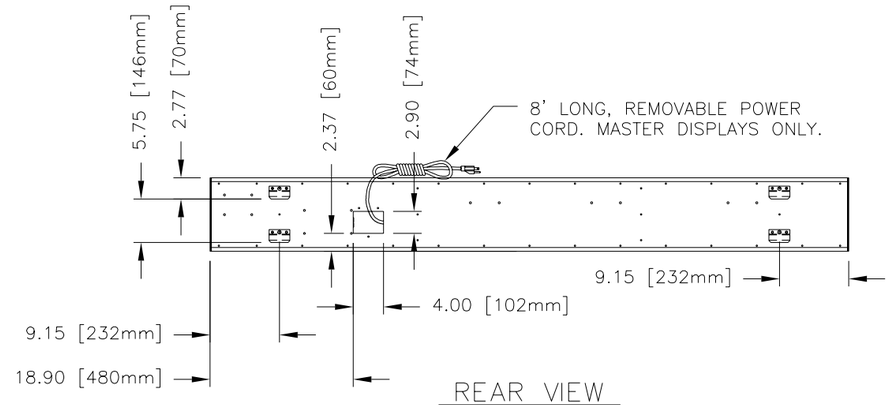
PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-16/24X240-7.62-RG, ECHO

DES. BY: DRAWN BY: L KERR DATE: 15JUN99

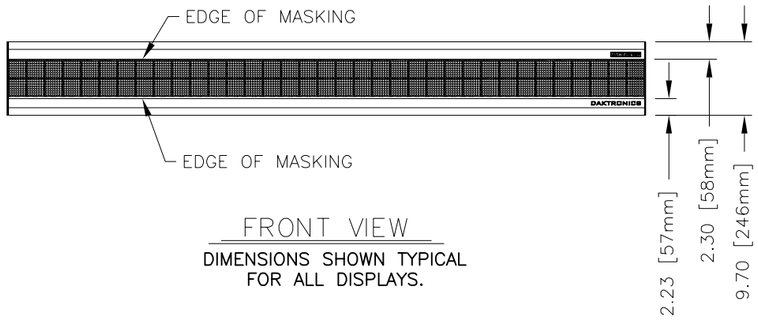
REVISION 02 | APPR. BY: | SCALE: 1=1

1182-R03B-117191



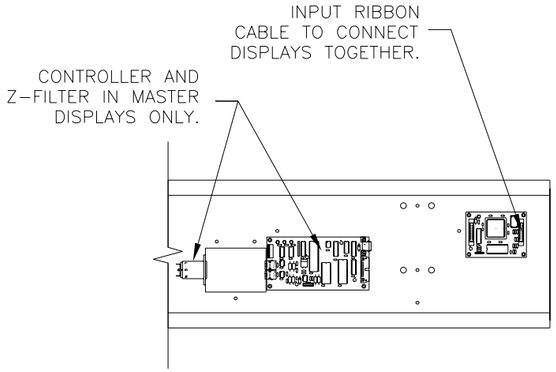
REAR VIEW

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



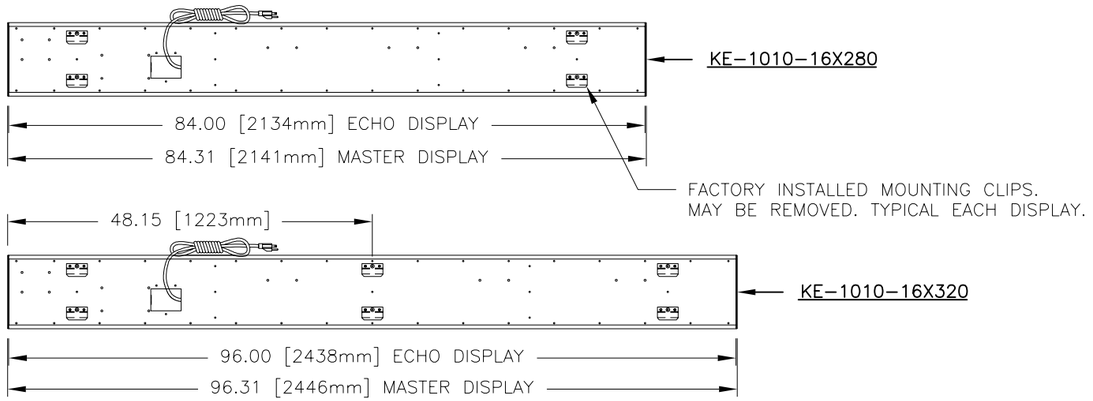
FRONT VIEW

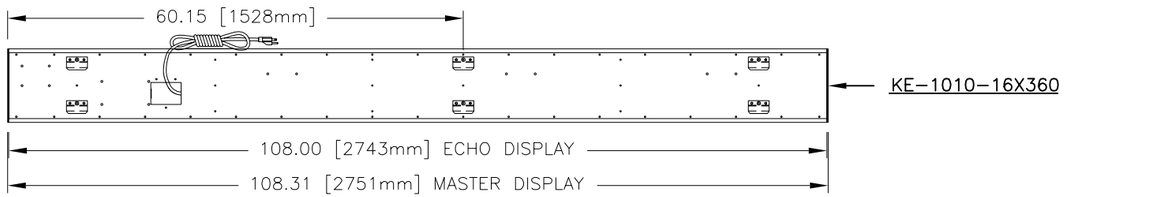
DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.

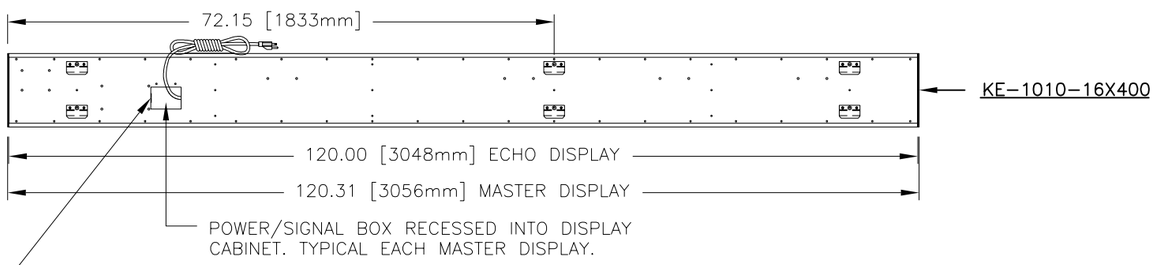


SECTION VIEW

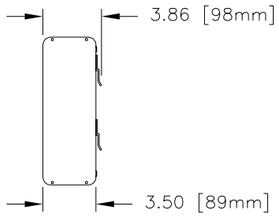
(2X SCALE)







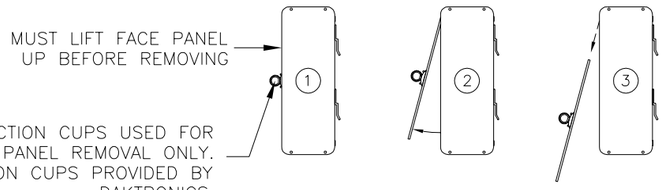
REAR VIEW



RIGHT SIDE

(2X SCALE)

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



FACE PANEL REMOVAL DETAIL

(2X SCALE)

NOTES:

1) ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION.
3) DISPLAY CABINET COLOR IS FLAT BLACK.
4) SERVICE INTERNAL COMPONENTS FROM THE FRONT AFTER REMOVING THE FACE PANEL (SEE REMOVAL DETAIL).
5) DISPLAY WEIGHTS ARE SHOWN IN TABLE BELOW.
6) DAKTRONICS IS NOT RESPONSIBLE FOR THE MAIN ELECTRICAL DISCONNECT.
7) DAKTRONICS IS NOT RESPONSIBLE FOR MOUNTING HARDWARE.
8) DAKTRONICS IS NOT RESPONSIBLE FOR THE SUPPORT STRUCTURE.
9) FACE PANEL IS 0.125" NOMINAL (0.118" ACTUAL) THICK POLYCARBONATE WITH A LOW-GLARE MATTE FINISH.
10) LED'S ARE TRICOLOR: RED, GREEN, AMBER.
11) DISPLAY POWER REQUIREMENTS ARE SHOWN IN TABLE BELOW.

	APPROXIMATE			
DISPLAY	WEIGHT LBS (Kg)	MAXIMUM POWER (WATTS)	AMPS @120VAC	AMPS @240VAC
KE-1010-16X280-7.62-RG	46 (21)	294	2.45	1.22
KE-1010-16X320-7.62-RG	52 (24)	334	2.79	1.39
KE-1010-16X360-7.62-RG	59 (27)	375	3.12	1.56
KE-1010-16X400-7.62-RG	65 (29)	415	3.46	1.73

REV.	DATE	DESCRIPTION	BY	APPR.
05	19MAR05	CHANGED TO 7,8,9,10 FT SECTIONS ONLY. UPDATED SPEC BLOCK AND DIMENSIONS PER GEN II DESIGN CHANGE.	ASH	
04	16 SEPT 04	UPDATED DRAWING TO INCLUDE ALL STANDARD SIZES: 200, 240, 320, AND 400. CHANGED SCALE FROM 1=25 ON 'A' SIZE PAPER TO 1=20 ON 'B'	RTV	
03	16 JUN 04	ADDED RJ45 ETHERNET JACK TO SIGNAL IN NOTE.	DJD	
02	21 MAR 00	ADDED METRIC DIMENSIONS.	DJD	
01	01 NOV 99	UPDATED OVERALL DIMENSIONS FOR NEW END CAP. ADDED ECHO DIMENSIONS TO KE-1010-16X240 DISPLAY.	DJD	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

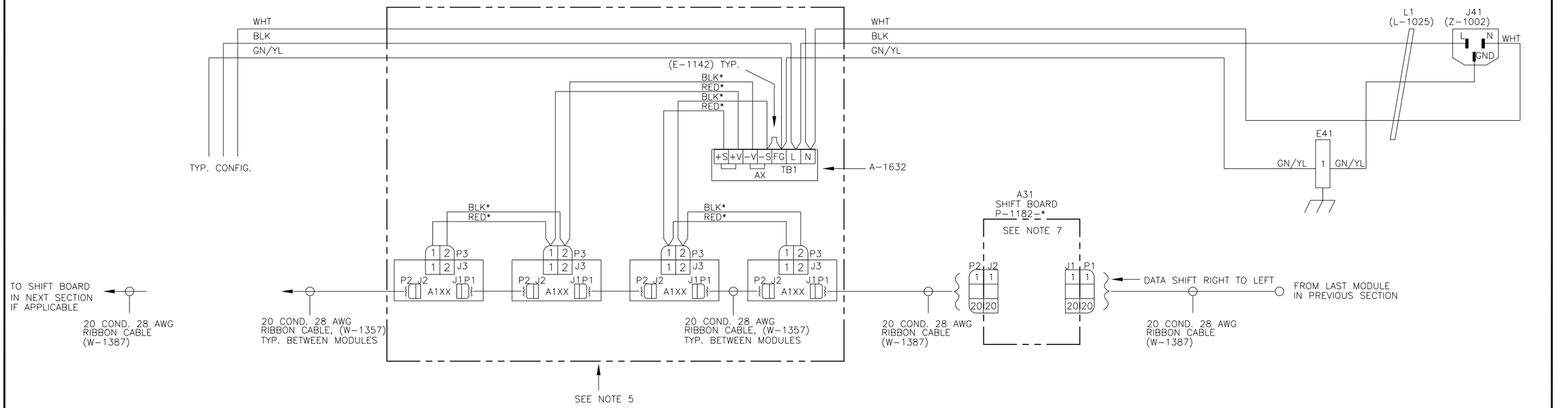
TITLE: SHOP DWG, GEN II, KE-1010-16X280/320/360/400

DES. BY: DDAGGITT DRAWN BY: KKLUDT DATE: 13 JUL 99

REVISION 05 APPR. BY:

SCALE: 1 = 20

1182-E10B-118077



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "320" POSITION.

POWER REQUIREMENT 8 MODULE

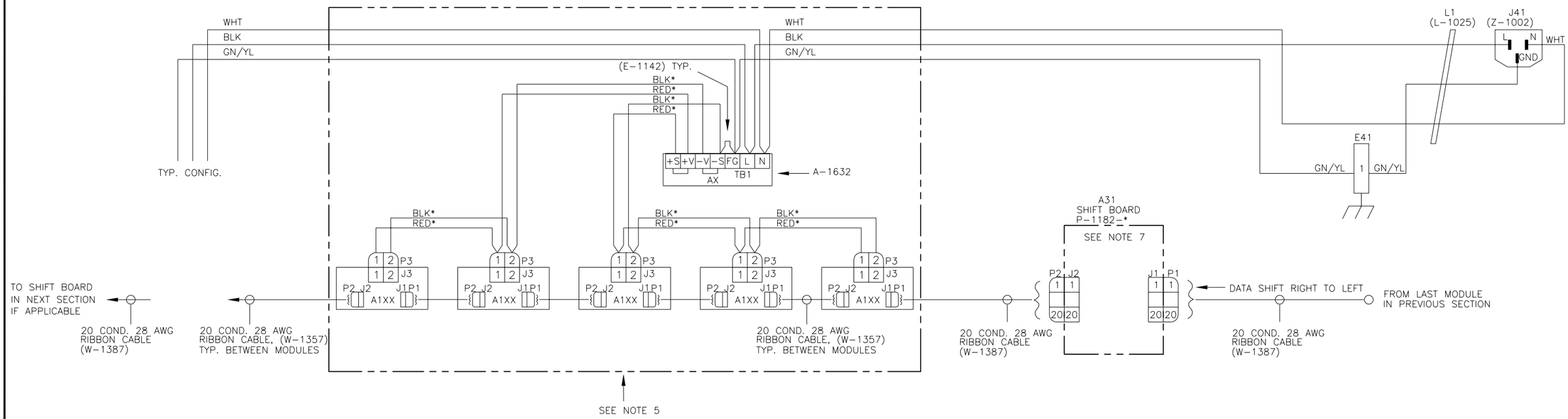
VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1.4
MAXIMUM WATTS	160
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
02	30JUL04	ADDED 0P-1182-0019 AND DESCRIPTION TO 0P-1182-0012 AND -0019.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES.	DJM	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER;INDOOR
TITLE: SCHEMATIC: KE-101*-16/24X320-7.62-RG, ECHO
DES. BY: DRAWN BY: L KERR DATE: 22JUL99
REVISION 02 APPR. BY:
SCALE: 1=1

1182-R03B-119029



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "400" POSITION.

POWER REQUIREMENT 10 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1.7
MAXIMUM WATTS	200
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
02	30JUL04	ADDED 0P-1182-0019 AND DESCRIPTION TO 0P-1182-0012 AND -0019.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES.	DJM	

DAKTRONICS, INC. BROOKINGS, SD 57006

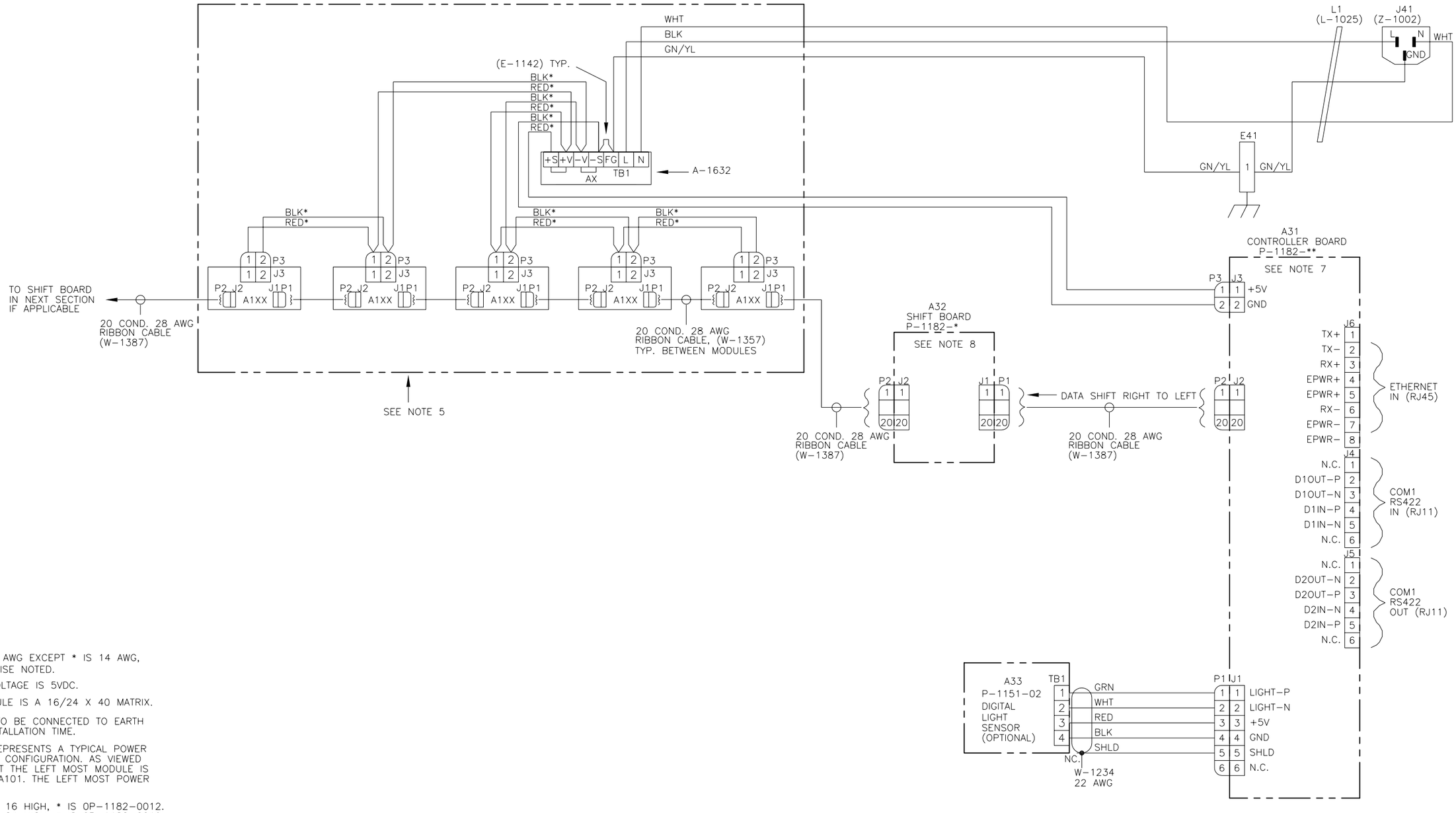
PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-16/24X400-7.62-RG, ECHO

DES. BY: DRAWN BY: L KERR DATE: 22MAY01

REVISION 02 | APPR. BY: | SCALE: 1=1

1182-R03B-149188



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
   IF DISPLAY IS A 16 HIGH WITH OUT ETHERNET, ** IS 0P-1182-0011.
   IF DISPLAY IS A 24 HIGH WITH ETHERNET, ** IS 0P-1182-0023.
   IF DISPLAY IS A 16 HIGH WITH ETHERNET, ** IS 0P-1182-0022.
7) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
8) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 5 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	0.83
MAXIMUM WATTS	100
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
03	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS 0P-1182-0020 TO 0P-1182-0023 AND 0P-1182-0021 TO 0P-1182-0022.	WRS	DJM
02	30JUL04	ADDED 0P-1182-0021 AND DESCRIPTION TO 0P-1182-0011 AND -0020.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES. ADDED J6 (ETHERNET IN) TO CONTROLLER.	DJM	

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-16/24X200-7.62-RG-MASTER

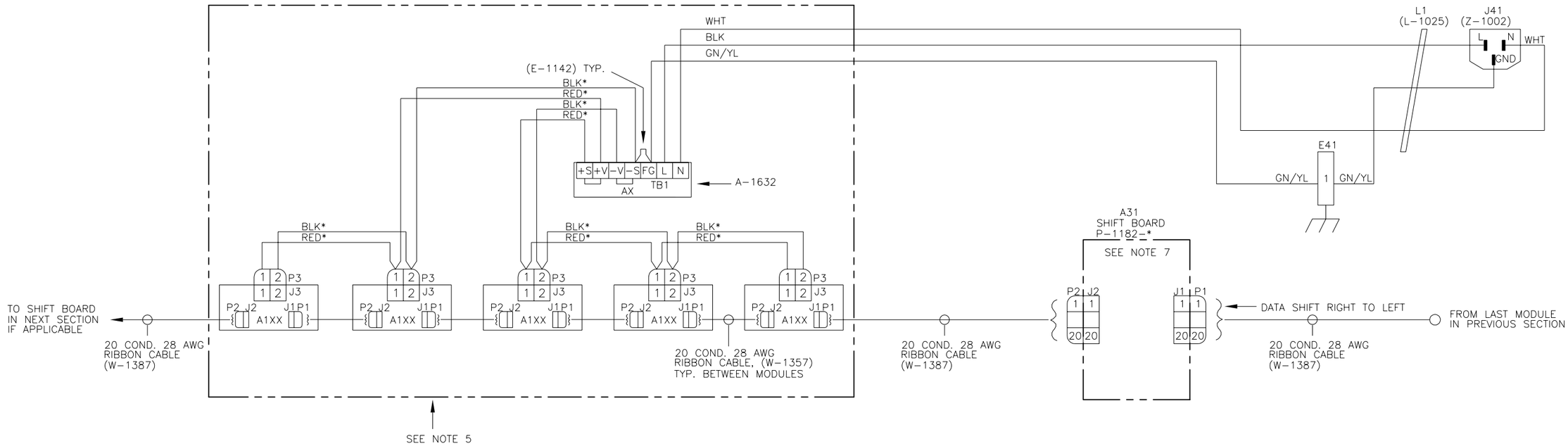
DES. BY: DRAWN BY: DMATHERN DATE: 28 APR 03

REVISION 03

APPR. BY:

SCALE: 1=1

1182-R03B-187729



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 5 MODULE

VOLTAGE-PRIMARY	
120	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	0.83
MAXIMUM WATTS	100
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
02	30JUL04	ADDED 0P-1182-0019 AND DESCRIPTION TO 0P-1182-0012 AND -0019.	DJM	
01	16JUN04	REVISED DRAWING TO REFERENCE 16 AND 24 HIGH MODULES.	DJM	

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR

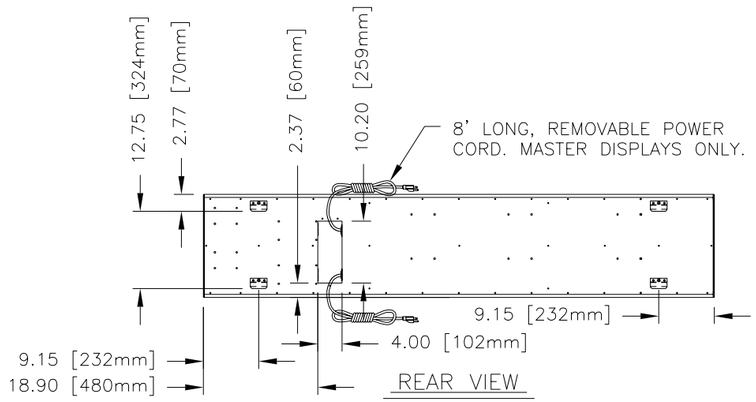
TITLE: SCHEMATIC: KE-101*-16/24X200-7.62-RG-ECHO

DES. BY: DRAWN BY: DMATHERN DATE: 28 APR 03

REVISION 02 APPR. BY:

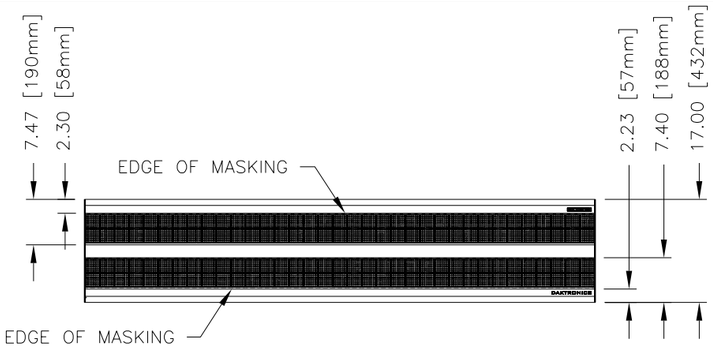
SCALE: 1=1

1182-R03B-187730



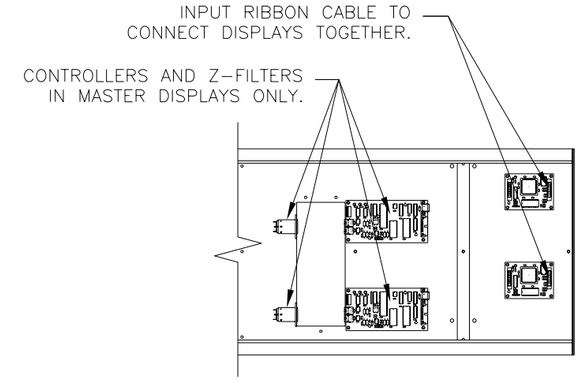
REAR VIEW

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



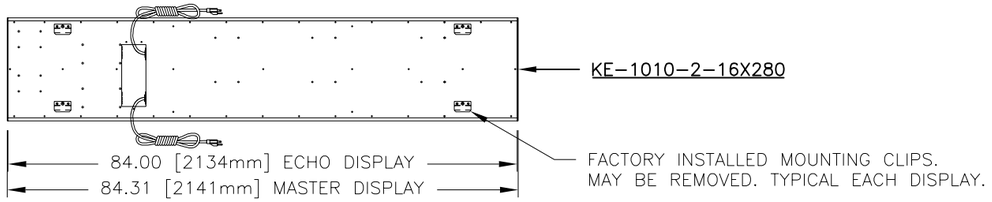
FRONT VIEW

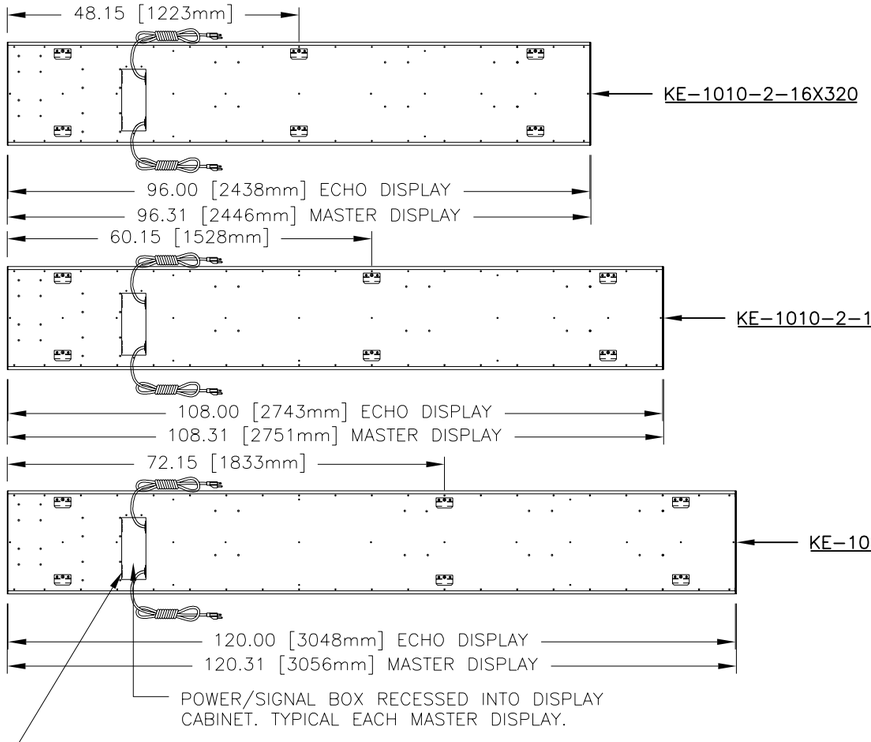
DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



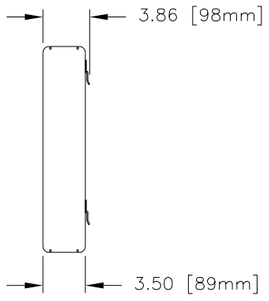
SECTION VIEW

(2X SCALE)





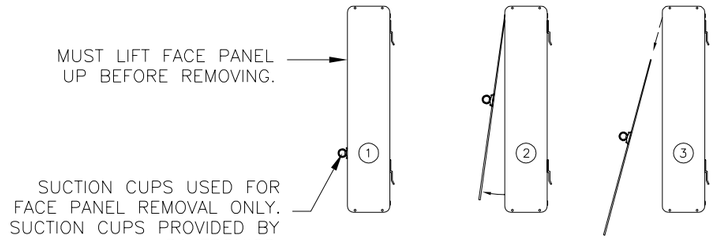
REAR VIEW



RIGHT SIDE

(2X SCALE)

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



FACE PANEL REMOVAL DETAIL

(2X SCALE)

NOTES:

1) ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION.
3) DISPLAY CABINET COLOR IS FLAT BLACK.
4) SERVICE INTERNAL COMPONENTS FROM THE FRONT AFTER REMOVING THE FACE PANEL (SEE REMOVAL DETAIL).
5) DISPLAY WEIGHTS ARE SHOWN IN TABLE ABOVE.
6) DAKTRONICS IS NOT RESPONSIBLE FOR THE MAIN ELECTRICAL DISCONNECT.
7) DAKTRONICS IS NOT RESPONSIBLE FOR MOUNTING HARDWARE.
8) DAKTRONICS IS NOT RESPONSIBLE FOR THE SUPPORT STRUCTURE.
9) FACE PANEL IS 0.125" NOMINAL (0.118" ACTUAL) THICK POLYCARBONATE WITH A LOW-GLARE MATTE FINISH.
10) LED'S ARE TRICOLOR: RED, GREEN, AMBER.
11) DISPLAY POWER REQUIREMENTS ARE SHOWN IN TABLE ABOVE.

DISPLAY	APPROXIMATE WEIGHT LBS (Kg)	MAXIMUM POWER (WATTS)	AMPS @120VAC	AMPS @240VAC
KE-1010-2-16X280-7.62-RG	67 (30)	588	4.90	2.45
KE-1010-2-16X320-7.62-RG	76 (34)	669	5.57	2.79
KE-1010-2-16X360-7.62-RG	86 (39)	750	6.25	3.12
KE-1010-2-16X400-7.62-RG	95 (43)	831	6.92	3.46

REV.	DATE	DESCRIPTION	BY	APPR.
03	19MAR05	7,8,9,10 FT DISPLAYS ONLY UPDATED SPEC BLOCK UPDATED DIMENSIONS PER GEN II DESIGN CHANGE	ASH	
02	17 SEPT 04	REMOVED SIZE 2-16X320 AND ADDED SIZES 2-16X200/400. UPDATED DETAILS/DIMENSIONS. CHANGED FORMAT FROM A TO B SIZE PAPER.	RTV	
01	05 MAY 04	ADDED 320 WIDE DISPLAY.	DJD	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

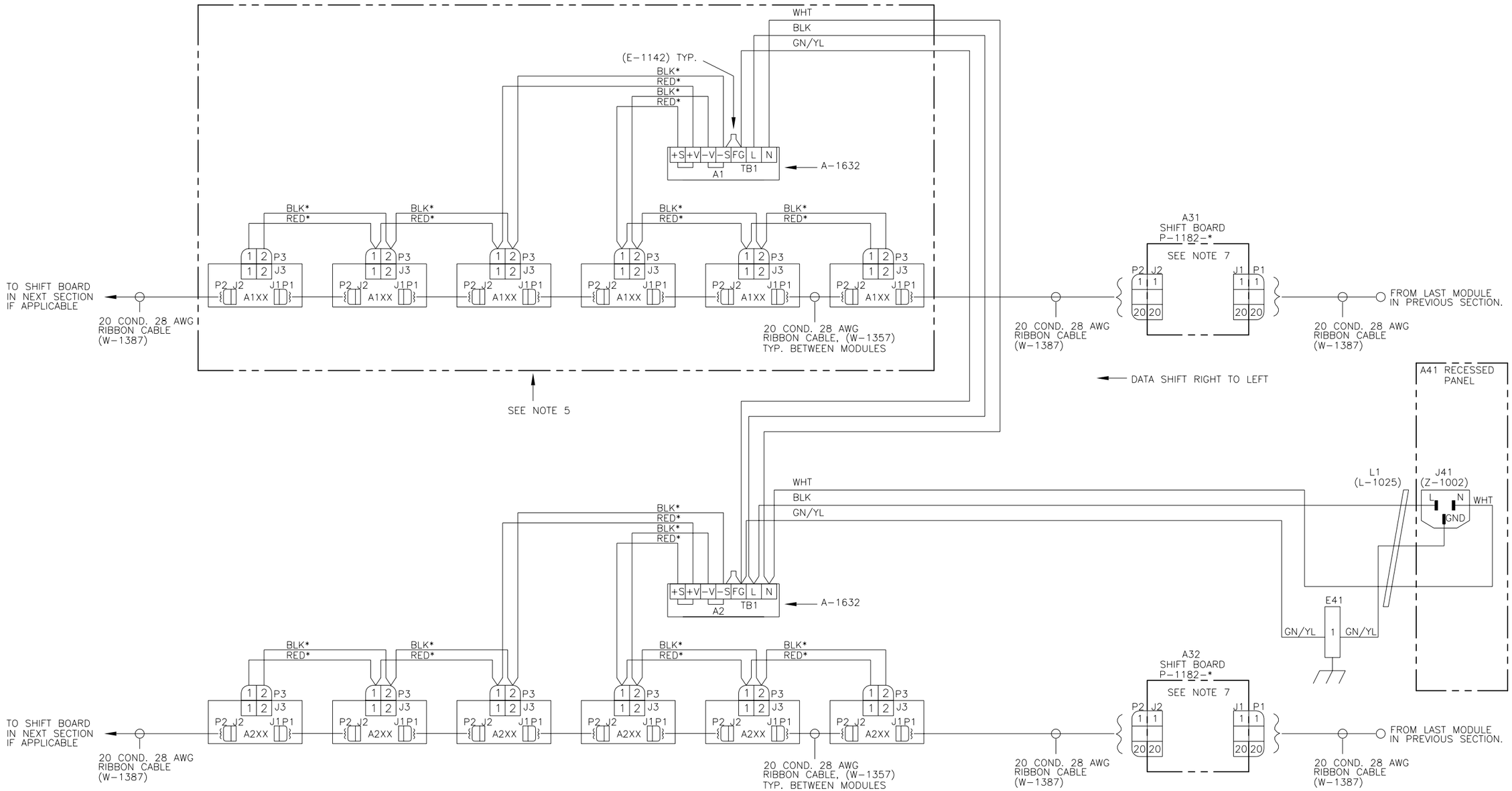
TITLE: SHOP DWG, GEN II, KE-1010-2-16X280/320/360/400

DES. BY: DDAGGITT DRAWN BY: DDAGGITT DATE: 30 APR 04

REVISION 03 APPR. BY:

SCALE: 1 = 25

1182-E10B-210277



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 2-24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 12 MODULE

VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	2
MAXIMUM WATTS	240
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
01	08JUL04	ADDED 24 HIGH. ADDED NOTE 6	LLK	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR

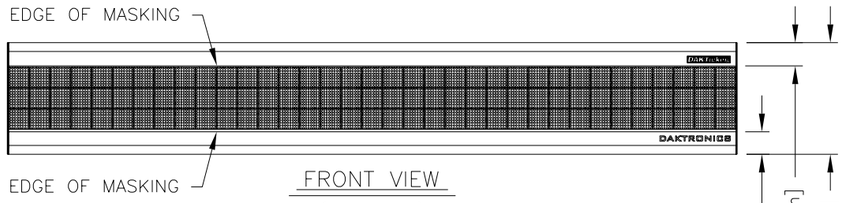
TITLE: SCHEMATIC: KE-101*-2-16/24X240-7.62-RG-ECHO

DES. BY: DMATHER DRAWN BY: DMATHER DATE: 10 MAY 04

REVISION 01 APPR. BY:

SCALE: 1=1

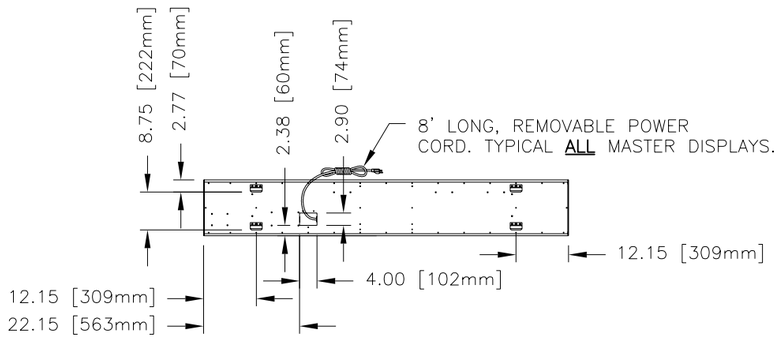
1182-R03B-211250



FRONT VIEW

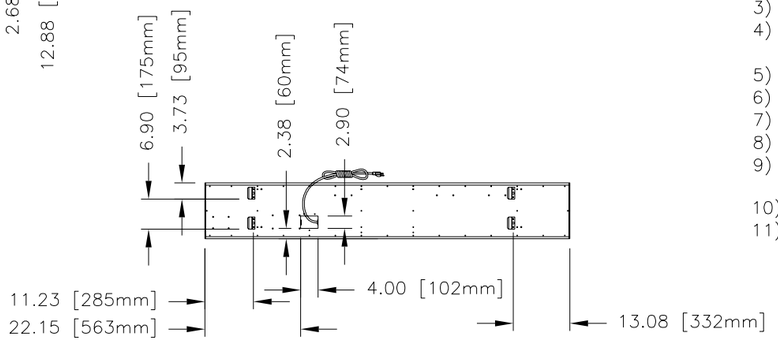
(2X SCALE)

DIMENSIONS SHOWN TYPICAL FOR ALL HORIZONTAL AND VERTICAL DISPLAYS



REAR VIEW

DIMENSIONS SHOWN TYPICAL FOR ALL HORIZONTAL DISPLAYS



REAR VIEW

DIMENSIONS SHOWN TYPICAL FOR ALL VERTICAL DISPLAYS

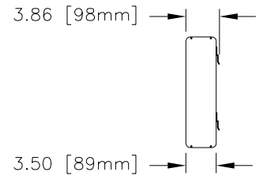
DISPLAY	APPROXIMATE WEIGHT LBS (Kg)	MAXIMUM POWER (WATTS)	AMPS @120VAC	AMPS @240VAC
KE-1010-24X280-7.62-RG	54 (25)	294	2.45	1.22
KE-1010-24X320-7.62-RG	62 (28)	334	2.79	1.39
KE-1010-24X360-7.62-RG	70 (32)	375	3.12	1.56
KE-1010-24X400-7.62-RG	78 (35)	415	3.46	1.73

NOTES:

1) ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).
2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION.
3) DISPLAY CABINET COLOR IS FLAT BLACK.
4) SERVICE INTERNAL COMPONENTS FROM THE FRONT AFTER REMOVING THE FACE PANEL (SEE REMOVAL DETAIL).
5) DISPLAY WEIGHTS ARE SHOWN IN TABLE ABOVE.
6) DAKTRONICS IS NOT RESPONSIBLE FOR THE MAIN ELECTRICAL DISCONNECT.
7) DAKTRONICS IS NOT RESPONSIBLE FOR MOUNTING HARDWARE.
8) DAKTRONICS IS NOT RESPONSIBLE FOR THE SUPPORT STRUCTURE.
9) FACE PANEL IS 0.125 NOMINAL (0.118" ACTUAL) THICK POLYCARBONATE WITH A LOW-GLARE MATTE FINISH.
10) L.E.D.'S ARE TRICOLOR: RED, GREEN, AMBER.
11) DISPLAY POWER REQUIREMENTS ARE SHOWN IN TABLE ABOVE.

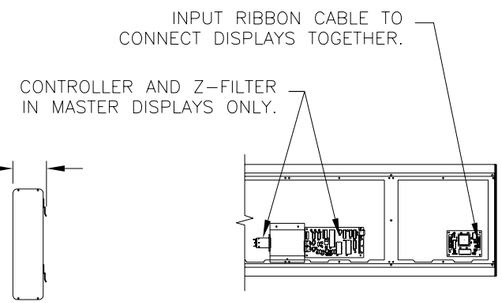
REAR VIEW

REAR VIEW



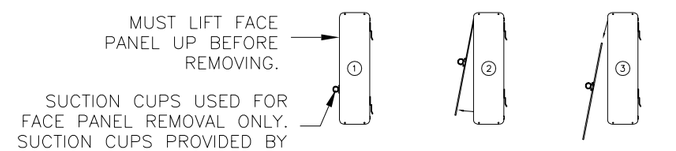
RIGHT SIDE

(2X SCALE)



SECTION VIEW

(2X SCALE)



FACE PANEL REMOVAL DETAIL

(2X SCALE)

REV.	DATE	DESCRIPTION	BY	APPR.
03	21MAR05	7,8,9,10 FT SECTIONS ONLY UPDATED SPEC BLOCK UPDATED DIMENSIONS PER GEN II DESIGN CHANGE	ASH	
02	20 SEPT 04	CHANGED DWG SCALE FROM 1=30 TO 1=35. REMOVED 24X280 AND ADDED 24X200. UPDATED NOTES AND DETAILS.	RTV	
01	16 JUN 04	ADDED NOTE ABOUT SIGNAL JACKS IN AND OUT.	DJD	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

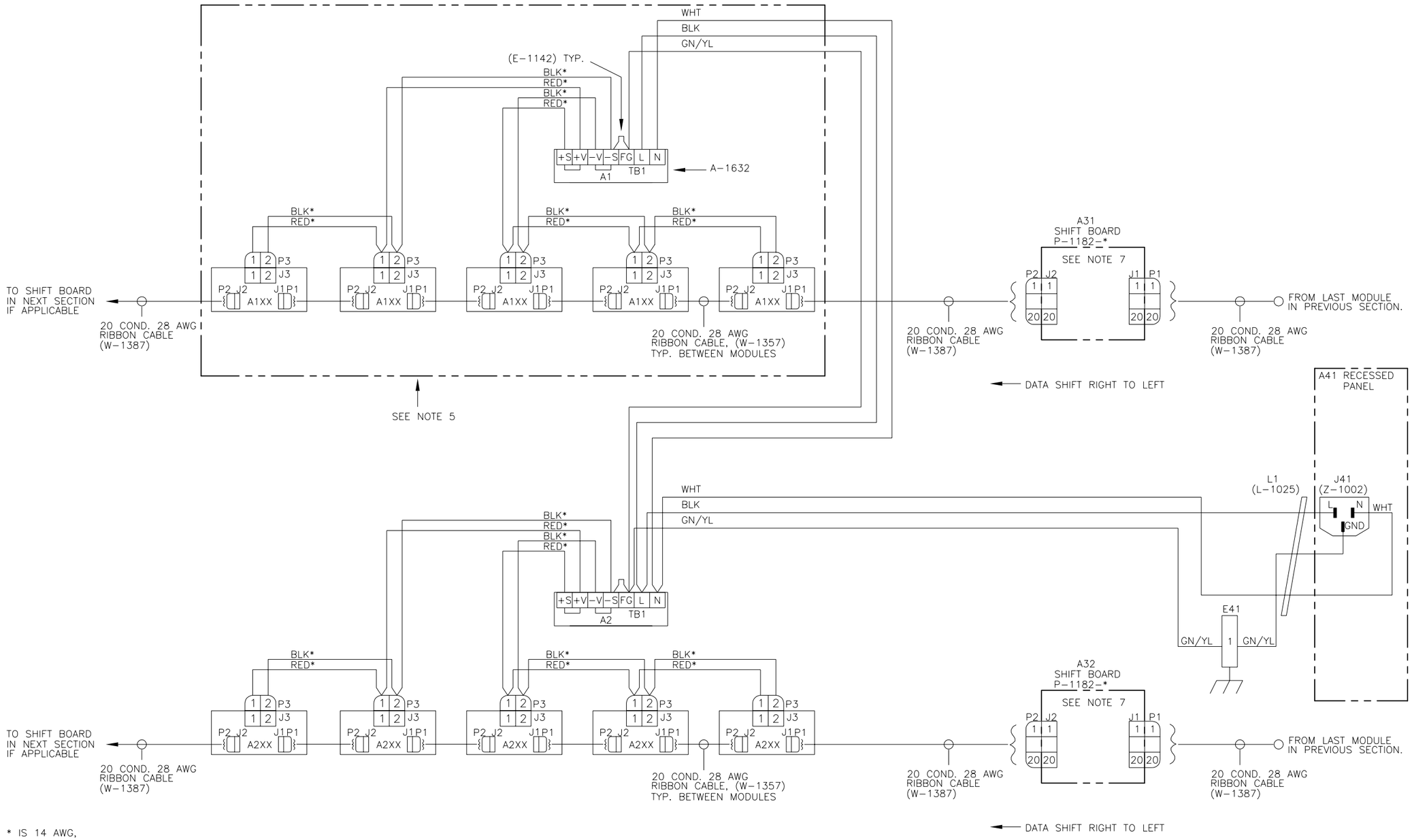
TITLE: SHOP DWG, GEN II, KE-1010-24X280/320/360/400

DES. BY: DDAGGITT DRAWN BY: DDAGGITT DATE: 04 JUN 04

REVISION 03 APPR. BY:

SCALE: 1 = 35

1182-E10B-214329



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 2-24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 10 MODULE

VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1.67
MAXIMUM WATTS	200
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.

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DAKTRONICS, INC. BROOKINGS, SD 57006

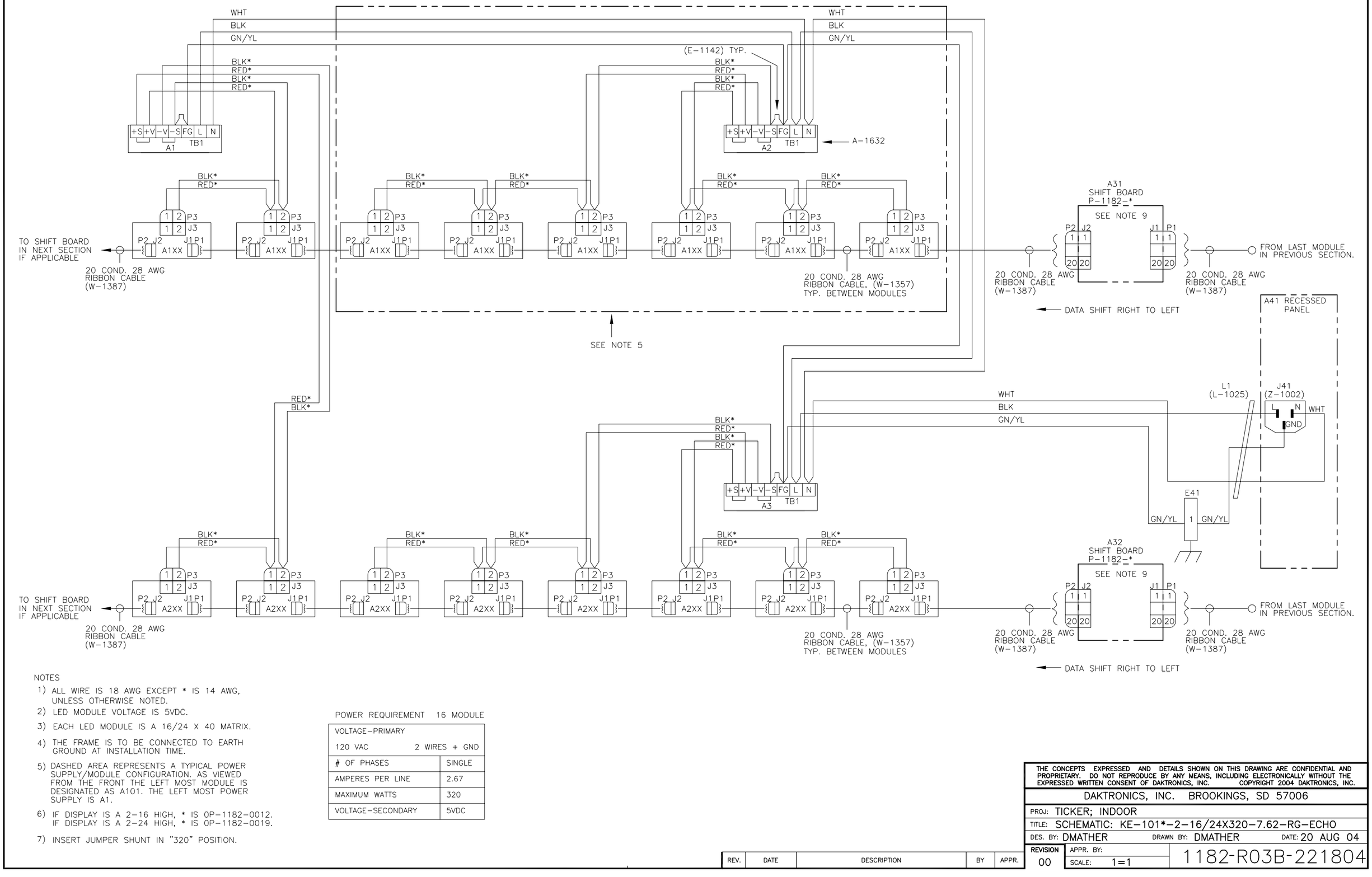
PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-2-16/24X200-7.62-RG-ECHO

DES. BY: DMATHER DRAWN BY: DMATHER DATE: 20 AUG 04

REVISION 00 APPR. BY: SCALE: 1=1

1182-R03B-221801



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 2-24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "320" POSITION.

POWER REQUIREMENT 16 MODULE

VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	2.67
MAXIMUM WATTS	320
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
00				

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

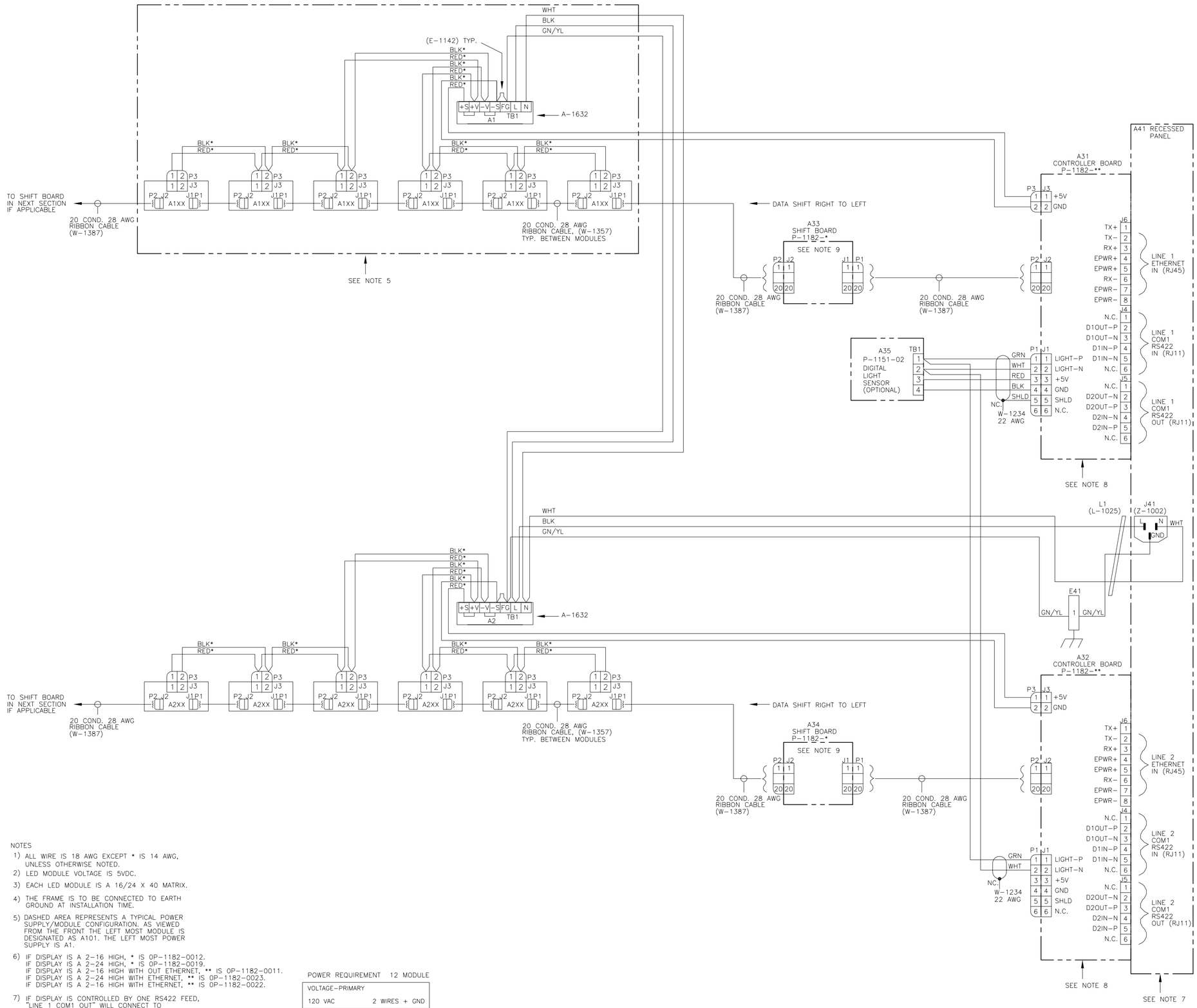
PROJ: TICKER; INDOOR

TITLE: SCHEMATIC: KE-101*-2-16/24X320-7.62-RG-ECHO

DES. BY: DMATHER DRAWN BY: DMATHER DATE: 20 AUG 04

REVISION 00 APPR. BY: SCALE: 1=1

1182-R03B-221804



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 2-24 HIGH, * IS OP-1182-0019.
   IF DISPLAY IS A 2-16 HIGH WITH OUT ETHERNET, ** IS OP-1182-0011.
   IF DISPLAY IS A 2-24 HIGH WITH ETHERNET, ** IS OP-1182-0023.
   IF DISPLAY IS A 2-16 HIGH WITH ETHERNET, ** IS OP-1182-0022.
7) IF DISPLAY IS CONTROLLED BY ONE RS422 FEED, "LINE 1 COM1 OUT" WILL CONNECT TO "LINE 2 COM1 IN" BY A RJ11 6 COND. FLIPPED CABLE.
8) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
9) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 12 MODULE	
VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	2
MAXIMUM WATTS	240
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
03	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS OP-1182-0020 TO OP-1182-0023 AND OP-1182-0021 TO OP-1182-0022.	WRS	DJM
02	22JUL04	ADDED OP-1182-0021 AND DES TO OP-1182-0011 AND -0020	HJB	
01	08JUL04	REMOVED LANTRONIX BOX AND ASSOCIATED COMPONENTS. ADDED 24 HIGH. ADDED NOTE 7.	LLK	

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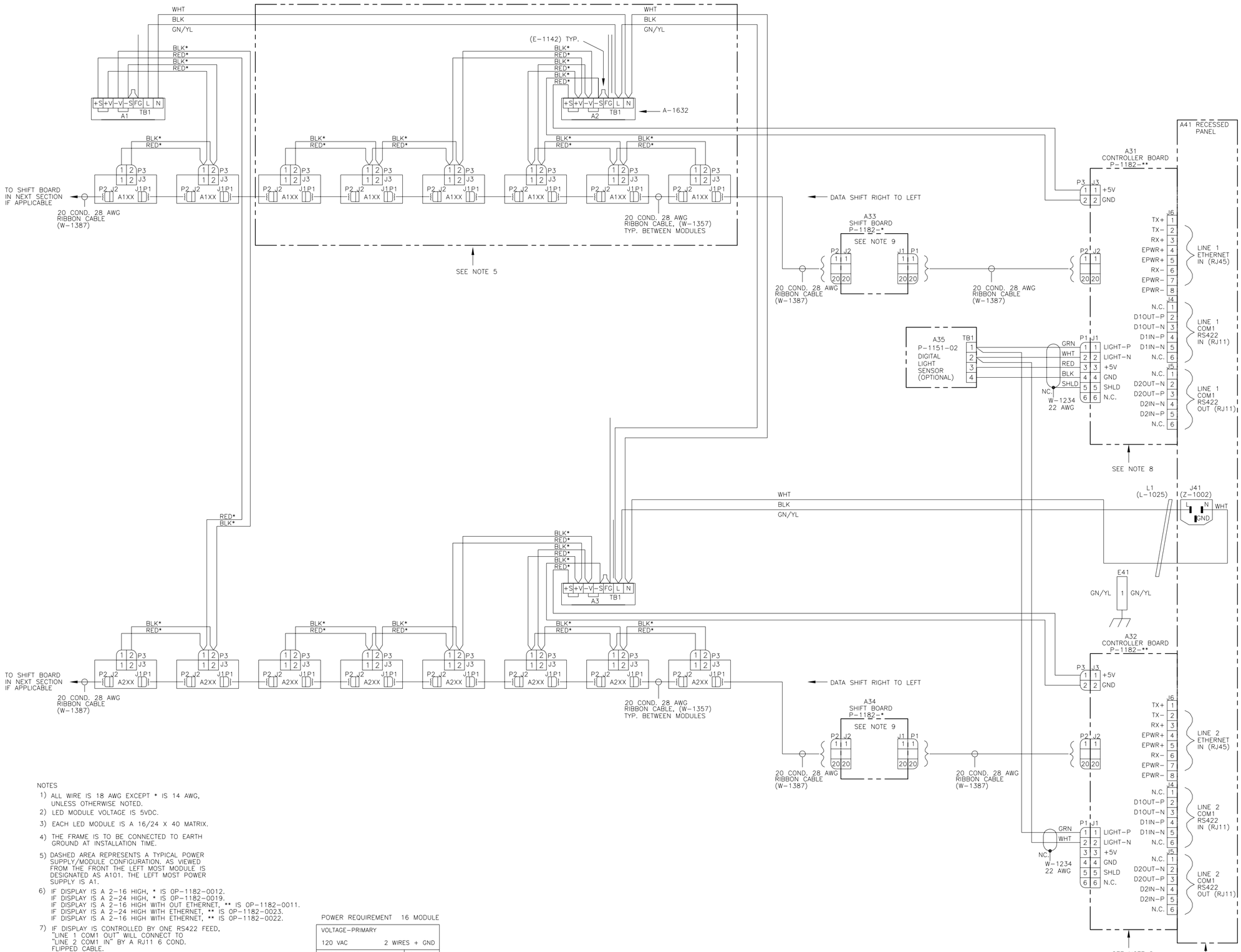
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR
TITLE: SCHEMATIC: KE-101*-2-16/24X240-7.62-RG-MASTER
DES. BY: DMATHER DRAWN BY: DMATHER DATE: 10 MAY 04
REVISION 03 APPR. BY:
SCALE: 1=1

1182-R03C-211153



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION, AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 2-24 HIGH, * IS 0P-1182-0019.
   IF DISPLAY IS A 2-16 HIGH WITH OUT ETHERNET, ** IS 0P-1182-0011.
   IF DISPLAY IS A 2-24 HIGH WITH ETHERNET, ** IS 0P-1182-0023.
   IF DISPLAY IS A 2-16 HIGH WITH ETHERNET, ** IS 0P-1182-0022.
7) IF DISPLAY IS CONTROLLED BY ONE RS422 FEED, "LINE 1 COM1 OUT" WILL CONNECT TO "LINE 2 COM1 IN" BY A RJ11 6 COND. FLIPPED CABLE.
8) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
9) INSERT JUMPER SHUNT IN "320" POSITION.

POWER REQUIREMENT 16 MODULE	
VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	2.67
MAXIMUM WATTS	320
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
03	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS OP-1182-0020 TO OP-1182-0023 AND OP-1182-0021 TO OP-1182-0022.	WRS	DJM
02	22JUL04	ADDED OP-1182-0021 AND DES TO OP-1182-001 AND -0020	HJB	
01	08JUL04	REMOVED LANTRONIX BOX AND ASSOCIATED COMPONENTS. ADDED 24 HIGH. ADDED NOTE 7	LLK	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR

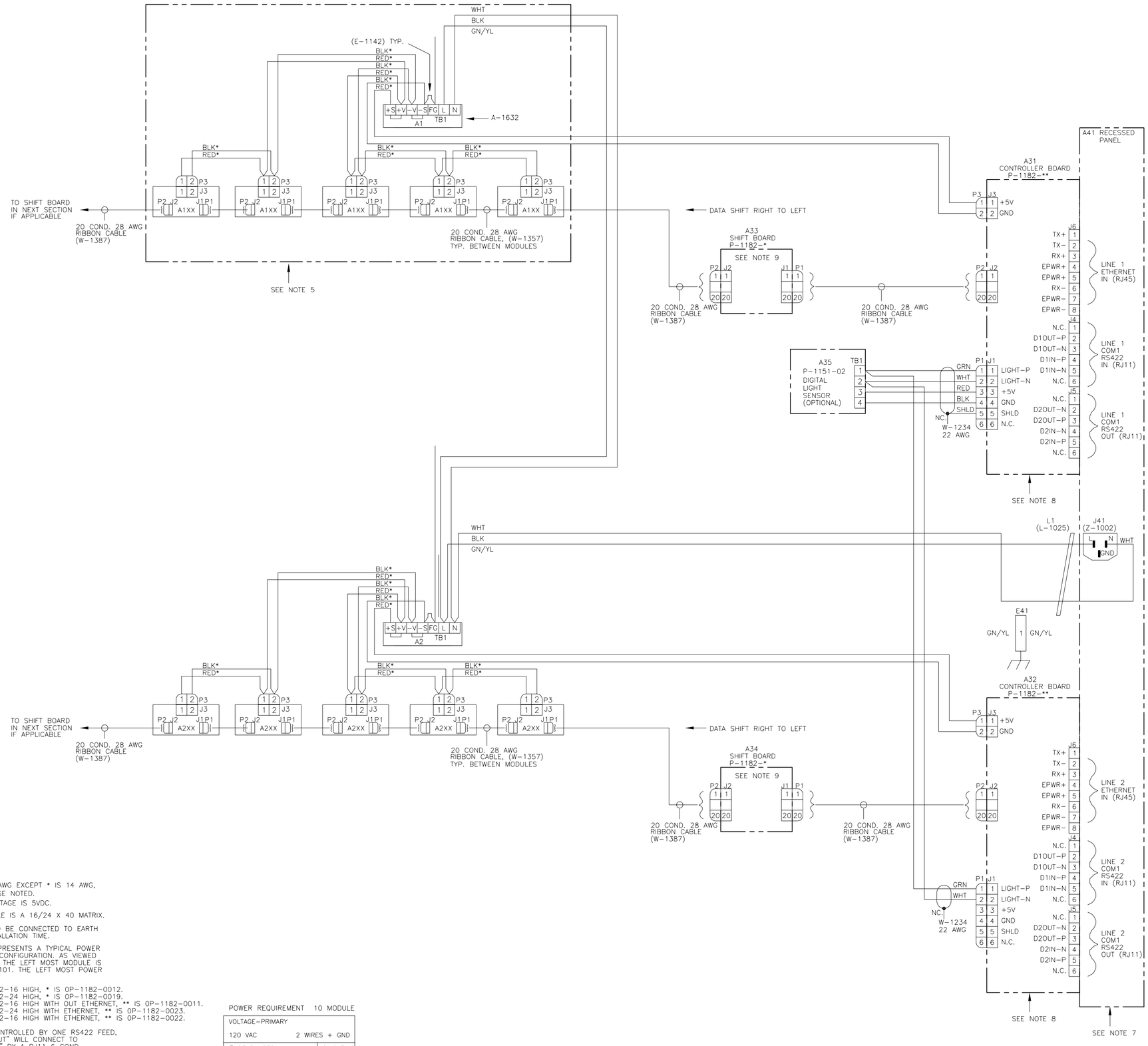
TITLE: SCHEMATIC: KE-101*-2-16/24X320-7.62-RG-MASTER

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

REVISION 03 APPR. BY:

SCALE: 1=1

1182-R03C-211417



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION. AS VIEWED FROM THE FRONT THE LEFT MOST MODULE IS DESIGNATED AS A101. THE LEFT MOST POWER SUPPLY IS A1.
6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012.
   IF DISPLAY IS A 2-24 HIGH, * IS 0P-1182-0019.
   IF DISPLAY IS A 2-16 HIGH WITH OUT ETHERNET, ** IS 0P-1182-0011.
   IF DISPLAY IS A 2-24 HIGH WITH ETHERNET, ** IS 0P-1182-0023.
   IF DISPLAY IS A 2-16 HIGH WITH ETHERNET, ** IS 0P-1182-0022.
7) IF DISPLAY IS CONTROLLED BY ONE RS422 FEED, "LINE 1 COM1 OUT" WILL CONNECT TO "LINE 2 COM1 IN" BY A RJ11 6 COND. FLIPPED CABLE.
8) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
9) INSERT JUMPER SHUNT IN "240" POSITION.

POWER REQUIREMENT 10 MODULE	
VOLTAGE-PRIMARY 120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	1.67
MAXIMUM WATTS	200
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
01	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS OP-1182-0020 TO OP-1182-0023 AND OP-1182-0021 TO OP-1182-0022.	WRS	DJM

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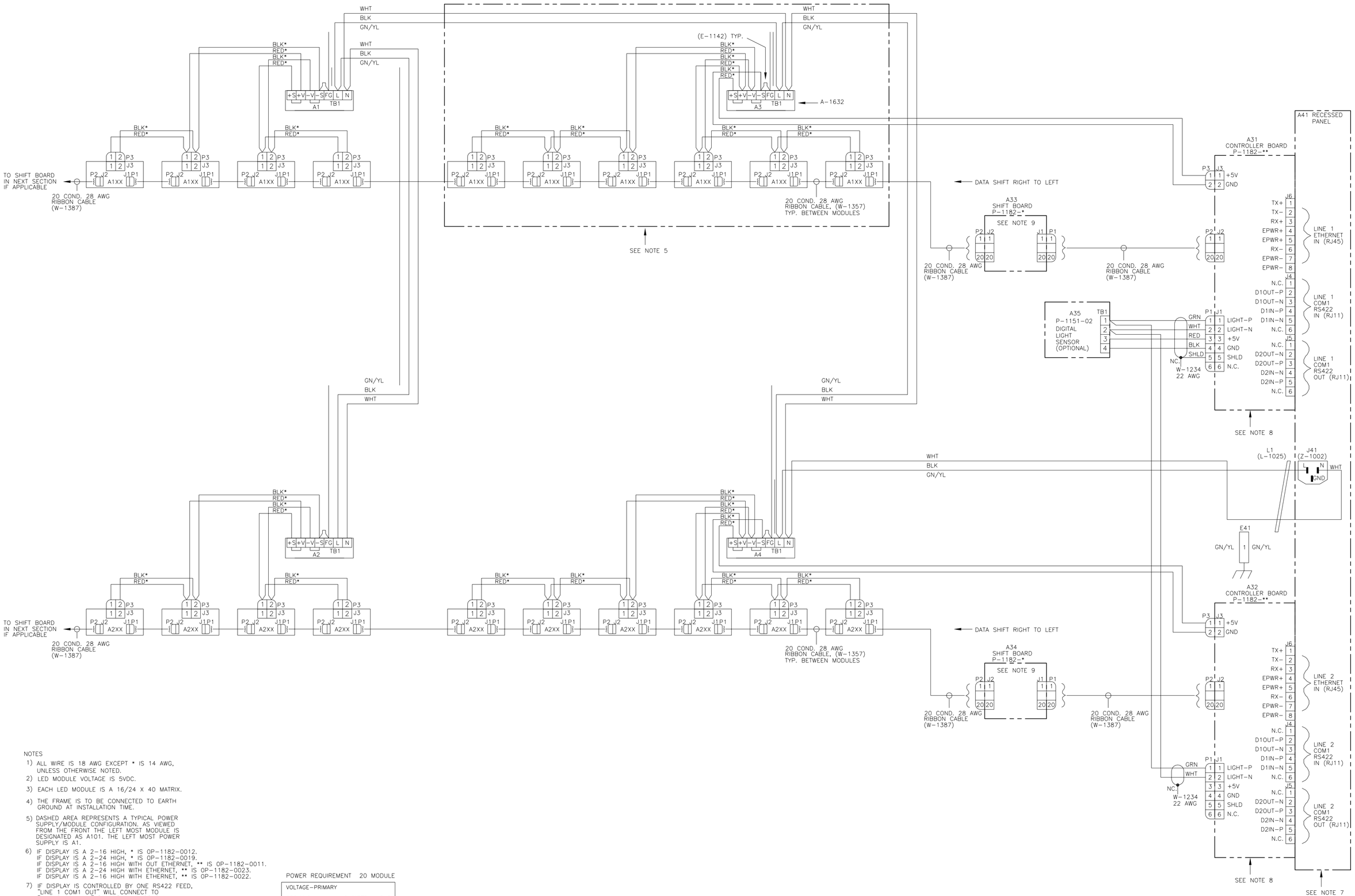
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR
TITLE: SCHEMATIC: KE-101*-2-16/24X200-7.62-RG-MASTER
DES. BY: DMATHER DRAWN BY: DMATHER DATE: 20 AUG 04
REVISION 01 APPR. BY:
SCALE: 1=1

1182-R03C-221797



NOTES

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   IF DISPLAY IS A 2-24 HIGH, * IS OP-1182-0019.
   IF DISPLAY IS A 2-16 HIGH WITH OUT ETHERNET, ** IS OP-1182-0011.
   IF DISPLAY IS A 2-24 HIGH WITH ETHERNET, ** IS OP-1182-0023.
   IF DISPLAY IS A 2-16 HIGH WITH ETHERNET, ** IS OP-1182-0022.
7) IF DISPLAY IS CONTROLLED BY ONE RS422 FEED, "LINE 1 COM1 OUT" WILL CONNECT TO "LINE 2 COM1 IN" BY A RJ11 6 COND. FLIPPED CABLE.
8) CONTROLLER DIP SWITCH SETTINGS:
   SWITCHES 1-4= ADDRESS SETTING
   SWITCH 7= OFF=NORMAL OPERATION
   ON=TEST PATTERN
9) INSERT JUMPER SHUNT IN "400" POSITION.

POWER REQUIREMENT 20 MODULE

VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	3.33
MAXIMUM WATTS	400
VOLTAGE-SECONDARY	5VDC

REV.	DATE	DESCRIPTION	BY	APPR.
01	27JAN05	UPDATED CONTROLLER BOARD PART NUMBERS OP-1182-0020 TO OP-1182-0023 AND OP-1182-0021 TO OP-1182-0022.	WRS	DJM

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR

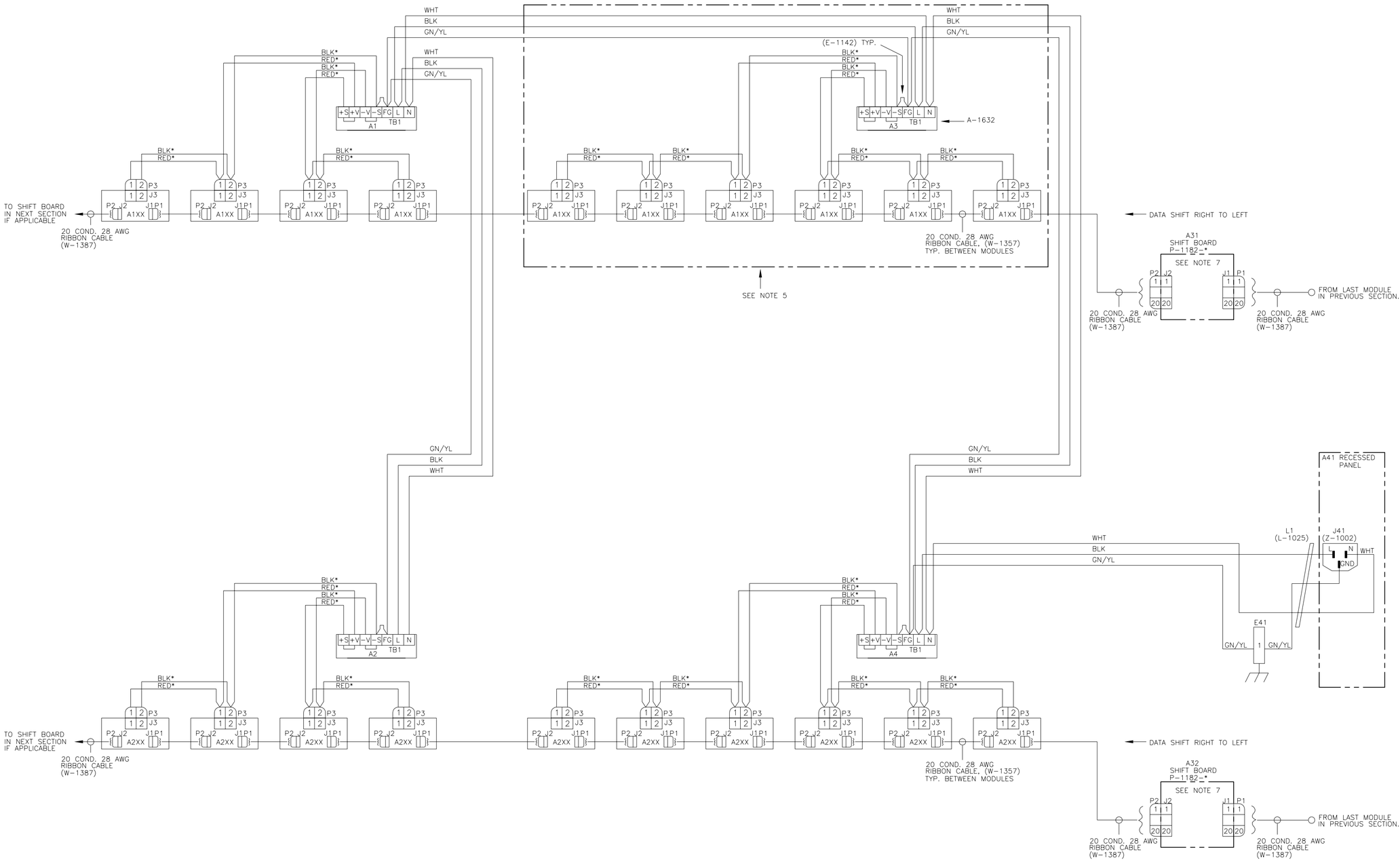
TITLE: SCHEMATIC: KE-101*-2-16/24X400-7.62-RG-MASTER

DES. BY: DMATHER DRAWN BY: DMATHER DATE: 20 AUG 04

REVISION 01 APPR. BY:

SCALE: 1=1

1182-R03C-221822



NOTES

1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
2) LED MODULE VOLTAGE IS 5VDC.
3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
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6) IF DISPLAY IS A 2-16 HIGH, * IS 0P-1182-0012. IF DISPLAY IS A 2-24 HIGH, * IS 0P-1182-0019.
7) INSERT JUMPER SHUNT IN "400" POSITION.

POWER REQUIREMENT 20 MODULE	
VOLTAGE-PRIMARY	
120 VAC	2 WIRES + GND
# OF PHASES	SINGLE
AMPERES PER LINE	3.33
MAXIMUM WATTS	400
VOLTAGE-SECONDARY	5VDC

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TICKER; INDOOR
TITLE: SCHEMATIC: KE-101*-2-16/24X400-7.62-RG-ECHO
DES. BY: DMATHER DRAWN BY: DMATHER DATE: 20 AUG 04
REVISION 00 APPR. BY: SCALE: 1=1
1182-R03C-221843

REV.	DATE	DESCRIPTION	BY	APPR.