

DakTicker[®]
KE-1010 Series
GEN II

Installation/Operation Manual

ED-15353

Rev 1

27 April 2007

DAKTRONICS

Fill in the chart with specific information about this display so the details are readily available when calling for service or replacement parts.

Information needed for technicians and/or Customer Service	Fill in the blanks
Location address of the display:	
Model number of this display:	KE-1010
Version of software being used: (Consult software for this information.)	
Method of communication:	<input type="checkbox"/> RS-422 or <input type="checkbox"/> Ethernet
Network address:	

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Section 1: Introduction

The Daktronics DakTicker™ KE-1010 displays are designed and manufactured for performance, reliability, easy maintenance, and long life. To ensure the optimal performance of this display, the manual explains the installation and maintenance of the KE-1010 displays. **Sections 2, 3, and 4** provide mechanical, power, and signal installation instructions. Later sections include diagnostic and parts replacement information, along with the instructions for obtaining parts from Daktronics Customer Service. Definitions of terms are provided in **Section 5.3**. A DakTicker display is shown in **Figure 1**.



Figure 1: KE-1010 Display

1.1 Display Overview

The DakTicker model number is described as follows:

KE-1010-HHxCCC-7.62-RG		
KE-1010	=	Indoor DakTicker display
HH	=	Number of pixels high (16 or 24)
CCC	=	Number of columns wide (120, 160, 200, 240, 280, 320, 360, 400)
7.62	=	Pixel spacing in millimeters
RG	=	Tri-color (Red, Green, and Amber)

The displays are offered as single-face (one-sided) units which may consist of a number of separate sections. Two types of display sections are used, one called the “master” and the other an “echo.” Master sections contain the controller board which receives information from the computer. Echo displays do not contain a controller board and require a master display to operate. Displays show information from a third party source, such as a wire service, ticker input, or Internet service, and scroll these messages from right to left on the display. A generic KE-1010 setup is illustrated in **Figure 2**.

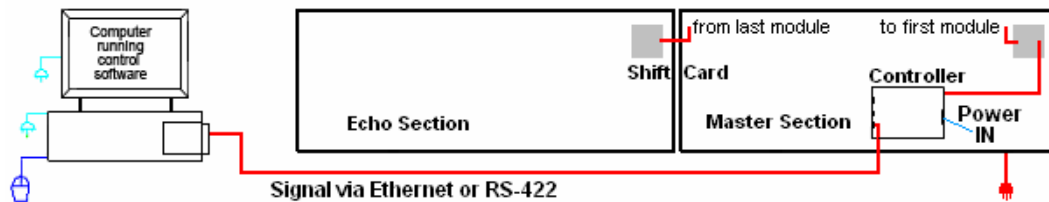


Figure 2: Basic Display Setup

A module is the building block of the DakTicker display. 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. KE-1010 modules consist of an array of LED (light emitting diode) pixels that are available in several matrix sizes. The height options include 16-pixels high and 24-pixels high as well as a twin ticker with two separate sections of 16 pixels high. Text can be configured into one large font or two to three lines of smaller fonts, as shown in **Figure 1**. Tickers are available in tri-color (red, green and amber) characters.

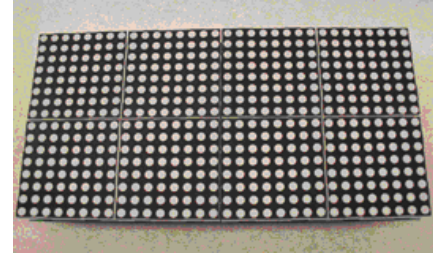


Figure 3: Front of 16 x 40 Module

1.2 Drawing References

Drawings may be referenced at the beginning of a section and also within the text. The reference number consists of the last set of digits and the letter preceding them on the drawing label (**Figure 4**). The drawing number is located in the lower-right corner of the drawing. In the example below, the drawing would be referred to as **Drawing B-206146**. Reference drawings are inserted or listed in **Appendix A**.

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: GALAXY, AF-3200 & AF-3400 SERIES			
TITLE: SCHEM, PRIMARY SIGNAL, INTERNAL, W/QC			
DES. BY: PGILK		DRAWN BY: LKERR	DATE: 11 MAR 04
REVISION	APPR BY:	1229-R03B-206146	
00	SCALE: NONE		

Drawing number

Figure 4: Drawing Label

1.3 Safety Precautions



- Read and understand these instructions before installing.
- Be sure that the display is properly grounded.
- **Disconnect power when servicing the display.**
- **Do not** modify the display structure or attach any panels or coverings to the display without the written consent of Daktronics.

Section 2: Mechanical Installation

Mechanical installation includes both support structure design and mounting methods. Two mounting methods are explained in this section, wall mount and ceiling mount.



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

Reference Drawings:

Shop Drawings	Listed in Appendix A
Mounting Drawing, Ceiling, KE-1010	Drawing A-118572
Shop Dwg, Horiz. Wall Mount, Gen II KE-1010	Drawing A-234483

2.1 Support Structure Design

DakTicker KE-1010 displays are generally mounted on the wall or from the ceiling. Support structure design depends on mounting methods, display size, and weight. (**Figure 5**). 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** listed in **Appendix A** for dimensions and mounting clip locations.

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

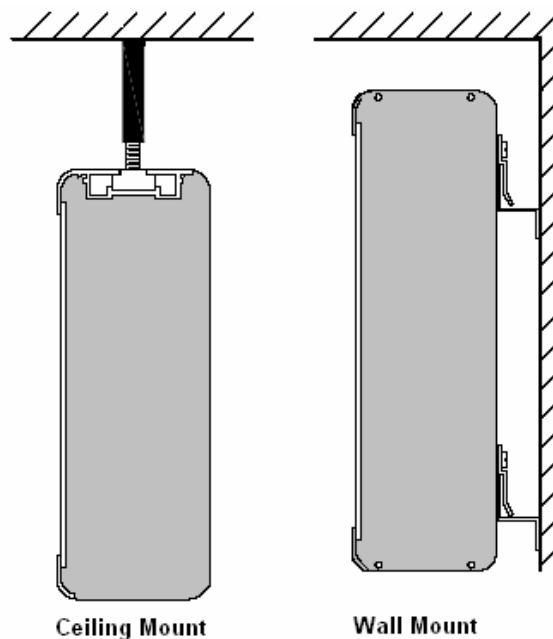


Figure 5: Mounting Options

2.2 Display Mounting



- 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.

Daktronics recommends either a wall mount or hanging mount method (**Figure 5**). Remember to have **all** mounted displays inspected by a qualified structural engineer.

Ceiling Mount

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.** Daktronics does not provide the ceiling mounting supports. To hang a ticker, refer to **Drawing A-118572** and the following instructions:

1. 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 (**Figure 6**).
2. Install the supports. Qualified personnel must approve the ceiling mounting supports. Daktronics is not responsible for ceiling mounting.
3. Secure the splice bars to the supports.
4. Carefully hang each display by fitting the channel on the top of the display over the splice plates and slide it into place (refer to **Drawing A-118572**). When multiple sections are used, each joint between displays must have hanging support.

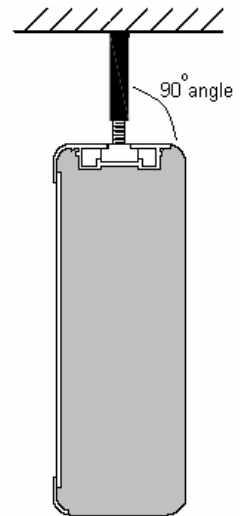


Figure 6: Ceiling Mount

Wall Mount

The wall mount method includes the installation of Z-brackets to hold the mounting clips attached to the back of the displays. Refer to **Figure 7**.

1. Determine the desired location of the top of the ticker display. Refer to **Drawing A-234483**.
2. From the desired location for the top of the display, measure down the distance listed in the chart following or **Drawing A-234483**. This is the height location where the bottom Z-bracket is going to be attached to the wall.
3. Determine the desired location of the end of the ticker display. Measure from this point 3/4" in toward the display body if the display has an endcap, or 1/2" if an endcap is not present.
4. Mount the bottom Z-bracket at this location.
5. Once the bottom Z-bracket is mounted place the metal spacers (provided by Daktronics) on top of the bottom Z-bracket. Be sure the arrow points up.
6. Mount the top Z-bracket so that the bottom of the bracket touches the top of the spacer and the ends align with the bottom bracket.

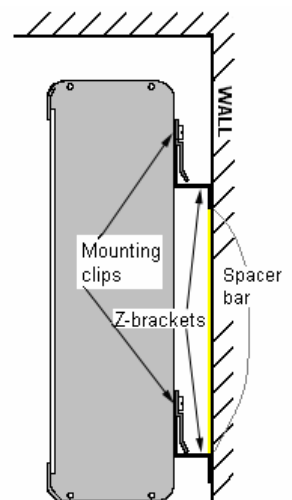


Figure 7: Wall Mount

Display	Distance From Display Top To Bottom Bracket Attachment Point
KE-1010-16x***-7.62	0'-10 ¼" (260 mm)
KE-1010-24x***-7.62	0'-13 ¼" (337 mm)
KE-1010-2-16x***-7.62	0'-17 ¼" (438 mm)

Mounting Multi-section 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 8**).

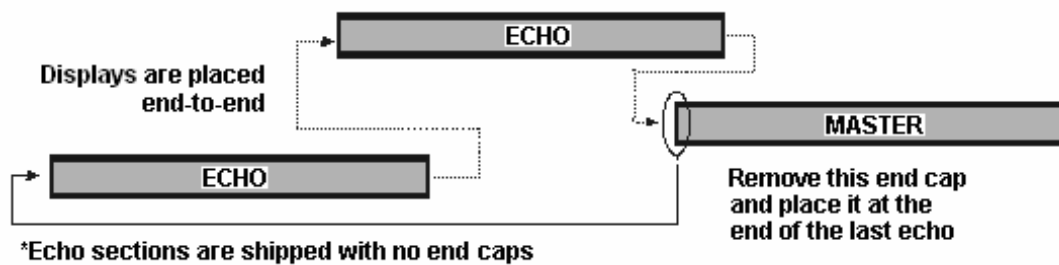


Figure 8: Master-Echo Installation Detail

1. Before attempting to connect the sections, check their mounted alignment in relation to each other. If the alignment is off, then adjust the mounting clips on the back of the tickers.
2. Hang each section according to the appropriate mounting directions.
3. Refer to **Section 3** for routing power and **Section 4** for signal installation 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.

Section 3: Power Installation



- Only a qualified individual should terminate power and signal cable at this Daktronics display.
- All proposed changes must be approved by Daktronics engineering staff or the warranty will be rendered null and void.

Reference Drawings:

Power Specs, GEN II, KE-101*-16x***, 24x***, 2-16*** **Drawing A-234168**
 Shop Drawings.....in **Appendix A**
 Schematics.....in **Appendix A**

3.1 Power Requirements

The displays accept a universal input voltage of 100-240 VAC at 50-60 Hz. Refer to the following table and the drawings referenced at the beginning of the section for voltage and current requirements. The displays are sufficiently powered by a 100-240 VAC single-phase outlet. Refer to **Drawing A-234168** for the power specifications for individual DakTicker display sizes.

No more than two additional sections may be powered from one powered section. Total display length powered from one section is not to exceed 20 feet (6.1 M).

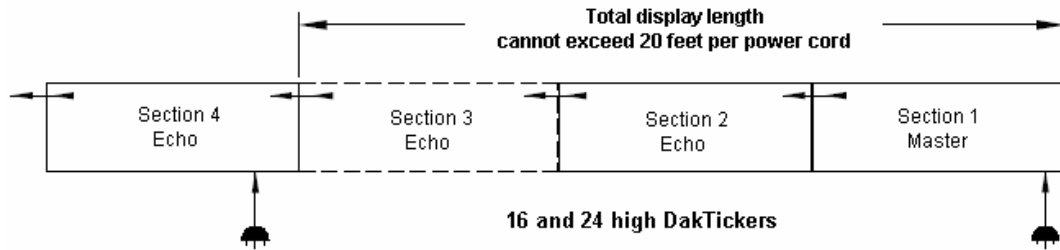


Figure 9: 16 and 24 High DakTickers Power Connection

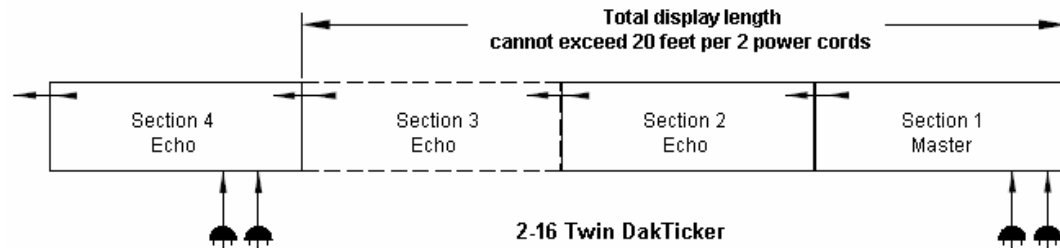


Figure 10: 16 High Twin DakTicker Power Connection

Power Specifications for Tickers with Multiple Sections

# of Phases	16 and 24 High	Twin 16 High
Amps Per Line (100-240VAC)	6.9 (Sum of 3 Sections)	13.8 (Sum of 3 Sections)
Max Watts	825 Watts (Sum of 3 Sections)	1650 Watts (Sum of 3 Sections)
Voltage – Secondary	5VDC	5VDC

3.2 Power Cord - Grounding



Note: 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 an essential safety feature. If the correct outlet is not available for this plug, contact a qualified electrician to replace the obsolete outlet. **Do not** defeat the purpose

of the grounding-type plug.

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 display, as shown in **Figure 11**.

Note: No more than two additional display sections can be powered from this section. Total length of the display cannot exceed 20 feet (6.1 M)

If proper grounding methods are not followed, the warranty will be void.

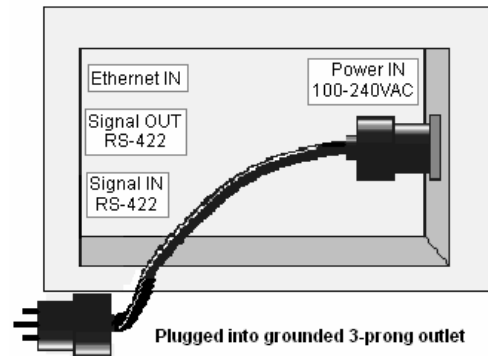


Figure 11: Power Cord Connection

Section 4: Signal Installation

To display messages on a KE-1010 display, signal is sent from the computer to the ticker via one of two possible network systems: RS-422 or Ethernet. Signal is received by 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 relays signal to the modules, then the appropriate LEDs create the messages which scroll across the ticker display.

Reference Drawings:

Concept System Riser Diagram TCP/IP **Drawing A-229840**
Concept System Riser Diagram RS-422 **Drawing A-229912**
Schematics..... in **Appendix A**

4.1 Network Options

RS-422 Connections

An RS-422 communication system requires a signal converter to change the computer's RS-232 output into RS-422 signal for the controller. The typical maximum cable length is 1.2km (approximately 4,000 feet). Refer to **Appendix B** for information on the signal converter. Refer to **Figure 12** for an overview of this communication layout.

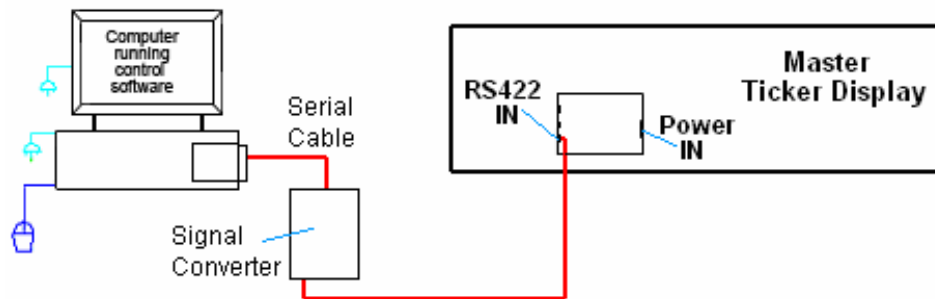


Figure 12: RS-422 Signal Layout

To connect RS-422 signal, follow these steps:

1. Plug the serial cable's 25-pin connector into the signal converter.
2. Plug the 9-pin connector into the RS-232 COM port to be used.
3. Plug the signal converter's power cord into a grounded outlet.
Note: The signal converter requires a specific supply voltage of 120 or 240 VAC.
4. Plug a flipped 6-conductor RJ11 cable into the "RS-422 OUT" of the signal converter and the opposite end into the "RS-422 IN" of the master section.
5. Plug the ticker's power cord into a 100-240 VAC grounded outlet.

RS-422 Pin-outs

The controller's RS-422 jacks have the following pin-outs:

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.

Signal Converter Pin-outs

The signal converter has two RS-422 output jacks, with the following pin-out:

OUTPUT	
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.

Ethernet Connections

For DakTickers using an Ethernet system for communication, a network connection will be made from the network hub or switch to the master section. The Cat-5/Cat-5E cable has a typical maximum length of 100 meters (approximately 300 feet). The controller has an onboard Ethernet port with a default address that will need to be reconfigured to an address on the local network. Refer to **Appendix C**. The default address is **172.16.192.27**.

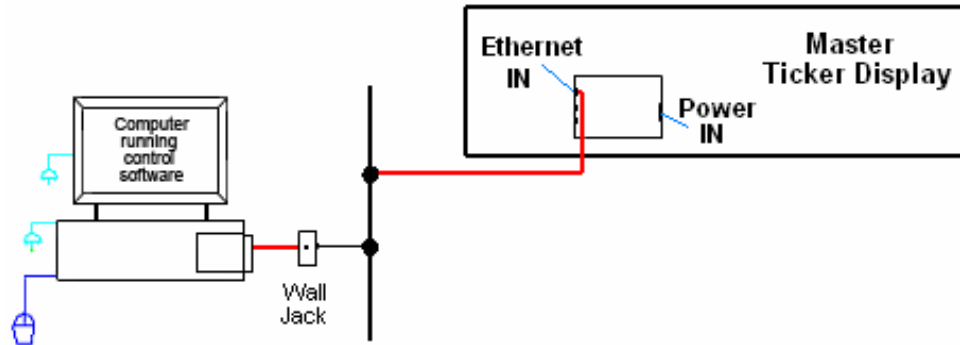


Figure 13: Ethernet Signal Layout

Follow these steps to set up the Ethernet system:

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 RJ45 network cable into the jack labeled "Ethernet IN" on the controller in the master section.
4. Plug the ticker's power cord into a 100-240 VAC grounded outlet.

Ethernet Pin-outs

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

INPUT (J6)	
RJ45	Function
1	TX+
2	TX-
3	RX+
4	EPWR+
5	EPWR+
6	RX-
7	EPWR-
8	EPWR-

4.2 Section to Section Connections

The signal between the master and echo sections is connected using 20-pin ribbon cables between the shift board and the last module of the previous section (**Figure 15**). Follow these steps to connect display sections.

1. Carefully hang the echo section(s) as described in **Section 2.2**. Do not yet slide the sections together.
2. A ribbon cable should already be plugged into the “Signal In” jack on the shift board (**Figure 14**) of the first echo section. 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 section.
4. If an echo section is present, plug P42/P43 of the echo section into J42/J43 of the master section to complete the interconnection of power. Repeat this for additional sections. **Note:** Total display length cannot exceed 20 feet per power cord.
5. The connection for a master to one echo is shown in **Figure 15**. Repeat steps 1 through 3 to connect and hang each consecutive echo ticker. All other internal wiring between modules has been done by Daktronics.

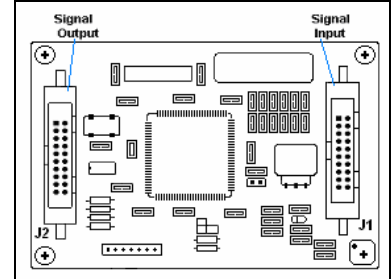


Figure 14: Shift Board

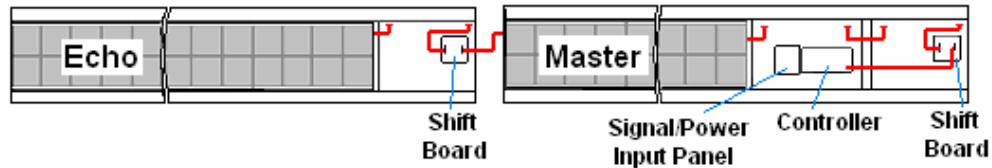


Figure 15: Master to Echo Connection

4.3 Master to Master Connections

In some cases, more than one master display is used instead of the master-echo configuration. In this case, signal can be transmitted between master displays using a flipped 6-conductor RJ11 cable running RS-422. To connect multiple master displays:

1. Signal into the first display can be either RS-422 or Ethernet.
2. Connection between displays will always be RS-422. Connect from RS-422 OUT on the first display to RS-422 IN on the second display (**Figure 16**).
3. Master displays connected in this way will need to have different addresses set on each controller.

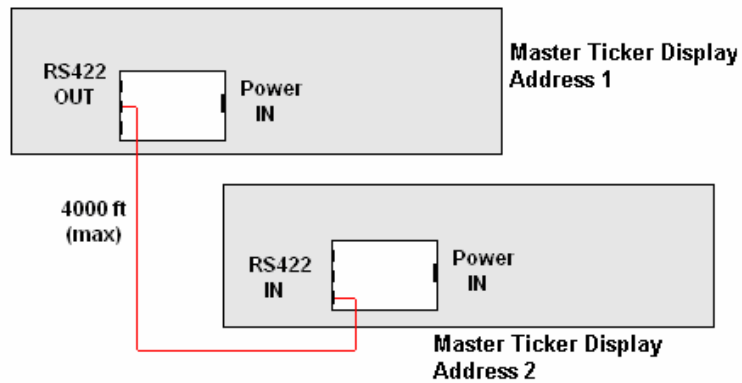


Figure 16: Master to Master RS-422 Connection

4.4 Installation Checklist

After installation is complete, go over these steps to make sure that the display is properly connected and ready to operate correctly.

1. Carefully check the voltage between the hot lines and neutral. Normal voltage range is between 100 VAC and 240 VAC.
2. If problems arise with the voltage, check with a local electrician or power company.
3. Plug the power cord(s) from the ticker(s) into a grounded 100-240 VAC single-phase, grounded outlet(s).
4. Turn power ON to the outlet(s).

4.5 Boot Up Sequence

Each time the KE-1010 is powered up, the following information is shown on the display face. The Xs represent numbers that will change according to the specific installation.

- DakTicker by Daktronics
- ED10288
- REV X
- ADDRESS XX
- IP Address

Section 5: Maintenance and Troubleshooting

This section covers the basic maintenance needed to keep the display operating effectively. Also included are diagnostic and troubleshooting information to pinpoint display problems and provide solutions. Following this are definitions of terms used in the manual.



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

5.1 Display Maintenance

Controller Diagnostic LEDs

The ticker controller has four LEDs that indicate whether the controller is functioning properly. Note that the transmit and receive LEDs will toggle on and off a few times when the controller is first establishing communication.

LED Name	Label	Indication
Power	PWR	On constantly when operating correctly.
Run	RUN	Blinks at a rate of every half second when power is on.
Receive	RXD	Flashes each time data is received.
Transmit	TXD	Flashes when sending data from the controller to the computer. Most of the time, this LED is off.

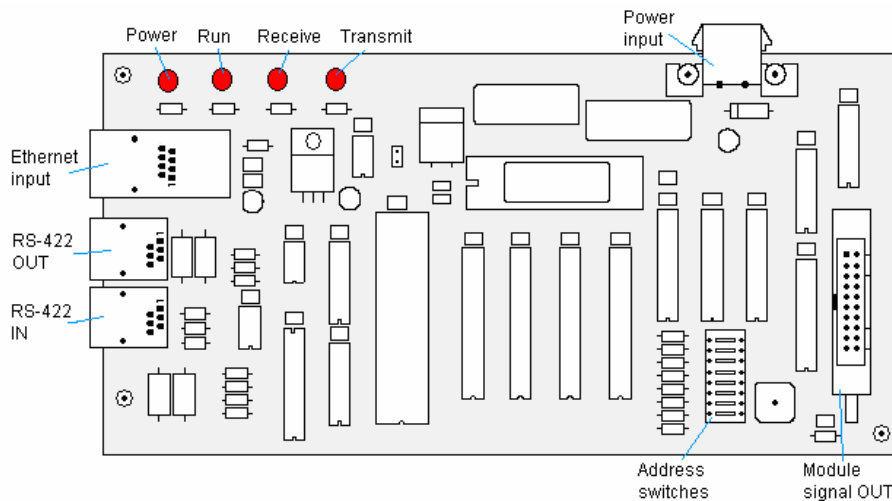


Figure 17: Controller with Diagnostic LEDs

Visual Structural Inspection

At least once a year, check the display to make sure that the structure and components are in good condition. Inspect the paint and cabinet for corrosion. Make sure that fasteners are tight; if not, tighten or replace as required.

5.2 Troubleshooting

This chart lists some symptoms that may be encountered with the ticker displays. For each symptom, possible causes 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.	<ul style="list-style-type: none"> • Check signal connection. • Replace the module.
One or more LEDs will not turn off.	<ul style="list-style-type: none"> • Check signal connection. • Replace the module.
Section of display is not working.	<ul style="list-style-type: none"> • Check power to the section. • Check for input power to the 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.	<ul style="list-style-type: none"> • Check the data settings on the computer. • Check signal connections. • Refer to the data feed manual.
A group of modules does not work.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Check 100-240 VAC input power to 1st section. • Check all signal connections. • Check PC/Feed setting for proper orientation. • Replace controller.
Data feed or software is not operating properly.	<ul style="list-style-type: none"> • Refer to data feed manual. • Check signal connection feed to display. • Contact data feed/software provider.
Display resets and restarts.	<ul style="list-style-type: none"> • Reduce the amount of amber pixels used. • Remove inverted text.

5.3 Definitions

Cabinet: The metal frame of the display (back, bottom, top); may also include the end caps.

Column: A vertical line of pixels.

Controller: The component in the master section that receives and interprets the data from the computer's ticker feed.

End Cap: A metal plate that covers each end of a ticker.

Ethernet: A standard communication interface that utilizes a local area network (LAN). The maximum cable length is 300 feet (100 meters).

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

LED: (Light Emitting Diode) A low energy, high intensity lighting unit that shows the text on the ticker display.

Module: A 16 x 40 or 24 x 40 array of LEDs. Modules may be individually removed from the display unit.

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

RS-232: A standard PC communication type with a maximum cable length of 25 feet (7.6 meters).

RS-422: A standard differential communication type with a maximum cable length of 4,000 feet (1.2 kilometers).

Row: A horizontal line of pixels.

Shift Board: Relays the signal from the controller board to the first module and then between ticker sections.

Signal Converter: A Daktronics supplied unit that converts the data from RS-232 to RS-422. The signal converter is connected to the control PC via a straight through serial cable.

Section 6: Parts Replacement



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

DakTicker displays are built for long-term reliable operation; however, on occasion parts may need to be replaced. (Components within the displays are not field repairable.) To access internal components, modules may easily be removed. This section provides instructions for removing modules and replacing basic components.

Reference Drawings:

Component Layout Drawings.....	Inserted into Appendix A
Shop Drawings.....	Listed in Appendix A
Schematics.....	Listed in Appendix A

6.1 Replacement Parts List

The following part labeling formats might be found on various Daktronics drawings. These part numbers can be used when requesting replacement parts from Daktronics Customer Service.

- “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.
- “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, such as 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**, use the label to order a replacement. A typical label is shown in **Figure 18** with the part number in bold.

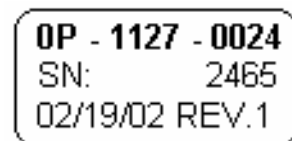


Figure 18: Typical Label

Consult this list for the Daktronics part number for basic display components. Refer to **Section 6.4** for instructions on obtaining parts from Daktronics.

Part Description	Daktronics Part #
Controller Board (16-high, RS-422 Input)	0P-1182-0011
Controller Board (16-high, RS-422 or Ethernet Input)	0P-1182-0022
Controller Board (24-high, RS-422 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 RS-422, 120V	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
Power Cord; 3-Prong 120VAC	W-1181
Splice Bar	EN-1772
Mounting Clip, KE-1010-**x***-7.62	0M-233464
Suction Cup, 2 ¼" Dia.	HS-1338
Filter; RFI Line	Z-1014
Face Panel; 16x240	0A-1182-0015
Face Panel; 16x320	0A-1182-0016
Face Panel; 16x400	0A-1182-0017
Z-Mounting, GEN II, KE-1010-**x120-7.62	0M-233463
Z-Mounting, GEN II, KE-1010-**x160-7.62	0M-234569
Z-Mounting, GEN II, KE-1010-**x200-7.62	0M-234704
Z-Mounting, GEN II, KE-1010-**x240-7.62	0M-234712
Z-Mounting, GEN II, KE-1010-**x280-7.62	0M-234719
Z-Mounting, GEN II, KE-1010-**x320-7.62	0M-234723
Z-Mounting, GEN II, KE-1010-**x360-7.62	0M-234728
Z-Mounting, GEN II, KE-1010-**x400-7.62	0M-234733
Z-Mounting, GEN II, KE-1010-24x***-7.62	0M-235529
DataStreamer Manual	ED-13649

6.2 Removing the Face Panel

The internal components of the KE-1010 displays may be accessed after the face panel and modules are removed. Refer to **Figure 19** for a visual diagram of the steps involved in removing the face panel. **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 (**Figure 19**).
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 to access the internal electronic components.

To replace the face panel, follow the previous steps in reverse order.

Note: When replacing the face panel, it may be slightly wavy and not slide neatly down into the groove. If the face panel is not easily reinserted, then start at one end of the display and gently press your hand against the bottom edge of face panel to slide it into the bottom support groove.

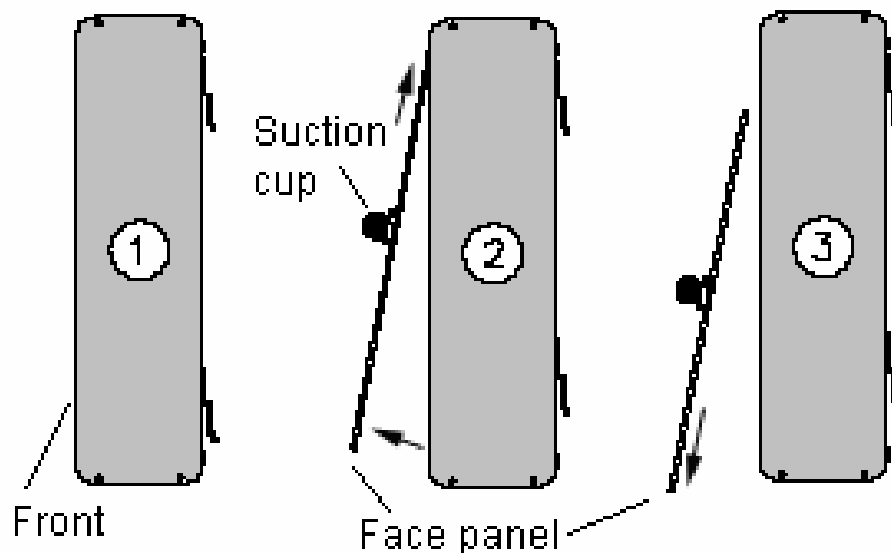


Figure 19: Removing the Face Panel

6.3 Instructions for Replacing Parts

LED Module Replacement

To remove and replace an LED module:

1. Disconnect the main supply power to the section being serviced.
2. Remove the face panel as described in Section 6.2.
3. Each module is held in place by 5/16" hex nuts at six locations. Remove the securing nuts (refer to **Figure 20**).
4. Carefully lift the module out of the display. **Note:** All power and signal cables are still connected (**Figure 21**).
5. Disconnect the cables from the back of the module, noting their location. 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 additional wiring information.



Figure 20: Detaching a Module

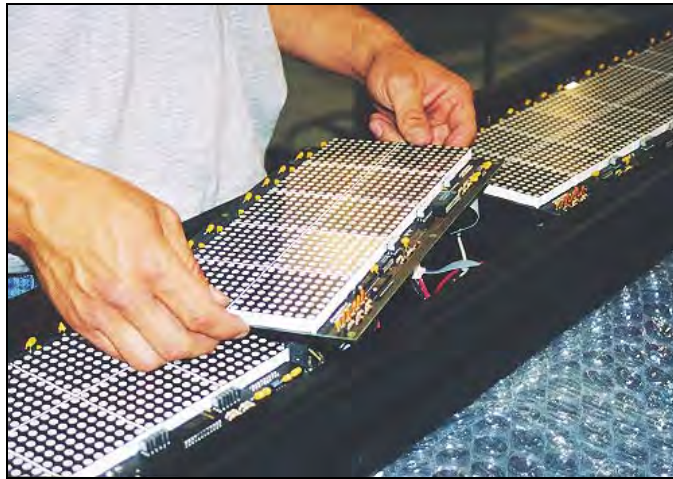


Figure 21: Removing a Module

Power Supply Replacement

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

1. Disconnect the main supply power to the section requiring service.
2. Remove the face panel per **Section 6.2**.
3. Remove the LED module in front of the failed power supply. Refer to the appropriate **Component Layout Drawing** for the location of the power supplies.
4. 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. Lift the power supply and plate out of the display.
5. Each power supply is attached to a mounting plate by two (2) M4x8MM metric screws. Using a #1 Philips screwdriver, remove the screws to free the power supply.
6. Disconnect all power supply wires, noting their connections (**Figure 22**). The power supply is now ready for replacement.
7. Follow the previous steps in reverse order to reattach the new power supply.

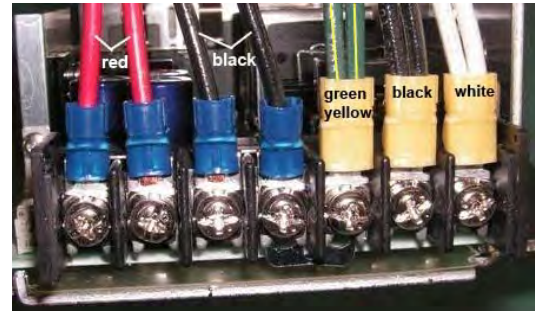


Figure 22: Power Supply Wiring

Shift Card Replacement

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

1. Disconnect the main supply power to the section requiring service.
2. Remove the face panel per **Section 6.2**.
3. Remove the last module in the right end of the selected ticker section.
4. Remove signal cables from the shift card, noting the correct connections (**Figure 23**).
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 a jumper is present, make sure it is in the same location as the board being replaced.
7. Follow the previous steps in reverse order to attach a new shift card. Refer to the appropriate display Schematics for wiring information.

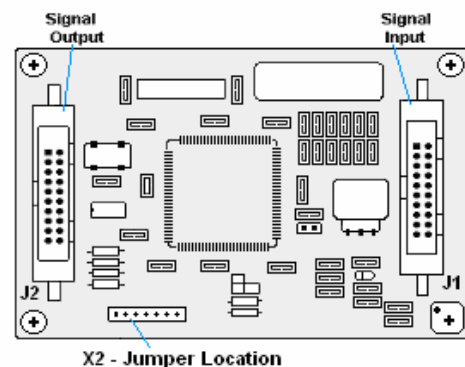


Figure 23: Shift Board

Controller Replacement

The controller is mounted inside the master display on the back of the cabinet (**Figure 24**). It is typically located behind the second module from the right end. The display controller receives information from the ticker input, interprets it, and activates the corresponding LEDs. The controller has a set of eight switches, the first four of which are used to set the hardware address using standard binary code. Refer to the following section for instructions on setting the address. Display controllers are found **only** in master displays.

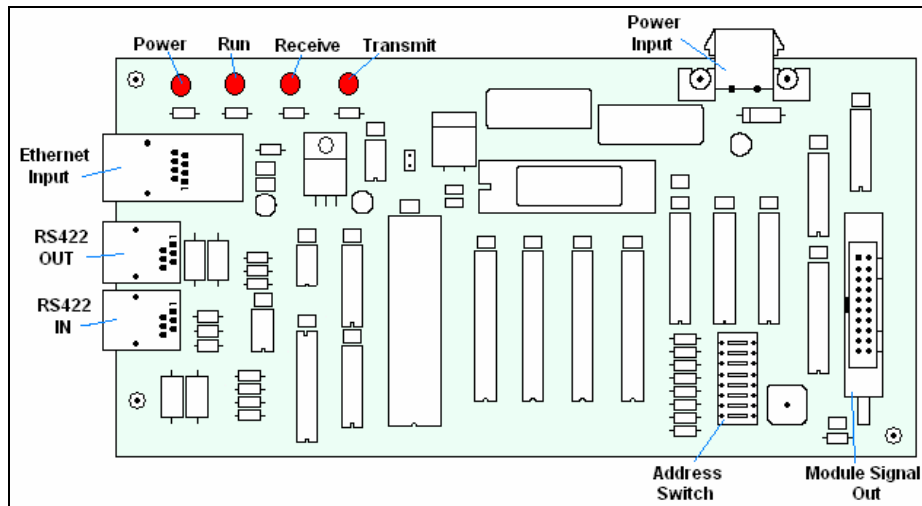


Figure 24: Display Controller

To replace a controller:

1. Disconnect the main supply power to the master section.
2. Remove the face panel per **Section 6.2**.
3. Remove the two LED modules on the right end of the master section.
4. Remove all power and signal cables to the controller, noting their connections. (Signal to the controller may also be connected from the back of the display.)
5. The controller is attached to the inside of the display with four #6-32 hex-head screws. Remove the attaching screws 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 **Schematic** for wiring information.

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

Controller Address

The controller has a set of “DIP” switches or address switches, as shown in **Figure 24**. These switches set the hardware address for the display system. When replacing a controller board, be sure to set the DIP switches on the new controller to the same address configuration as the controller which was removed.

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

Switch 7	Switch 4	Switch 3	Switch 2	Switch 1	Address
Off	Off	Off	Off	Off	0
Off	Off	Off	Off	On	1
Off	Off	Off	On	Off	2
Off	Off	Off	On	On	3
Off	Off	On	Off	Off	4
...
Off	On	On	On	Off	14
Off	On	On	On	On	15
On	Off	Off	Off	Off	Test Mode

6.4 Daktronics Exchange and Repair & Return Program

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

Exchange Program

Daktronics unique Exchange Program is a quick service for replacing key parts in need of repair. If a part requires repair or replacement, Daktronics sends the customer a replacement, and the customer sends the defective part to Daktronics. This decreases display downtime.

Before Contacting Daktronics

Insert important part numbers here:

Fill in these numbers before calling Customer Service:

Display Serial Number: _____

Display Model Number: **KE-1010 DakTicker 7.62 mm** _____

Contract Number: _____

Date Installed: _____

Location of Display: _____

Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps:

- 1. Call Daktronics Customer Service: 866-343-3122**
- 2. When the new exchange part is received, mail the old part to Daktronics.**

If the replacement part fixes the problem, send in the part which is being replaced.

 - a. Package the old part in the same shipping materials in which the replacement part arrived.
 - b. Fill out and attach the enclosed UPS shipping document.
 - c. Ship the part to Daktronics.
- 3. A charge will be made for the replacement part immediately, unless a qualifying service agreement is in place.**

In most circumstances, the replacement part will be invoiced at the time it is shipped.
- 4. If the replacement part does not solve the problem, return the part within 30 working days or the full purchase price will be charged.**

If the equipment is still defective after the exchange was made, please contact Customer Service immediately. Daktronics expects immediate return of an exchange part if it does not solve the problem. The company also reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair & Return Program

For items not subject to exchange, Daktronics offers a Repair & Return Program. To send a part for repair, follow these steps:

- 1. Call or fax Daktronics Customer Service:**
Phone: 866-343-3122 Fax: 605-697-4444
- 2. Receive a Return Materials Authorization (RMA) number before shipping.**
This expedites repair of the part.
- 3. Package and pad the item carefully to prevent damage during shipment.**
Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing. Daktronics does not recommend Styrofoam peanuts in packaging.
- 4. Enclose:**
 - your name
 - address
 - phone number
 - the RMA number
 - a clear description of symptoms

Shipping Address

Daktronics Customer Service
PO Box 5128
331 32nd Avenue
Brookings, SD 57006

Appendix A: Reference Drawings

Drawings are inserted here according to this list, with generic drawings first, followed by Component Layout, Schematic, and Shop Drawings. Under each category, drawings are inserted by matrix size.

General Drawings

Mounting Drawing, Ceiling, KE-1010-16x***-2.1	Drawing A-118572
Shop DWG, Mounting, GEN II, Splice Bar, KE-1010	Drawing A-118728
Concept System Riser Diagram TCP/IP	Drawing A-229840
Concept System Riser Diagram RS/422	Drawing A-229912
Mounting Clip, GEN II, KE-1010-**x***-7.62	Drawing A-233464
Power Specs, Gen II, KE-101*-16x***, 24x***, 2-16x***	Drawing A-234168
Shop DWG, Horiz Wall Mount, GEN II KE-1010 Ticker	Drawing A-234483
Shop DWG, Vert Wall Mount, GEN II KE-1010-24x***	Drawing A-234529

Drawings listed by matrix size:

Component Layout, KE-1010-16x***-7.62	Drawing A-302699
Component Layout, KE-1010-24***-7.62	Drawing A-302700
Component Layout, KE-1010-2-16x***-7.62	Drawing A-302701

Schematic: GEN II, KE-101*-**x120-7.62-RG	Drawing B-234114
Schematic: GEN II, KE-101*-**x160-7.62-RG	Drawing B-234115
Schematic: GEN II, KE-101*-**x200-7.62-RG	Drawing B-234122
Schematic: GEN II, KE-101*-**x240-7.62-RG	Drawing B-233964
Schematic: GEN II, KE-101*-**x280-7.62-RG	Drawing B-234634
Schematic: GEN II, KE-101*-**x320-7.62-RG	Drawing B-234635
Schematic: GEN II, KE-101*-**x360-7.62-RG	Drawing B-234636
Schematic: GEN II, KE-101*-**x400-7.62-RG	Drawing B-234637

Shop DWG, GEN II, KE-1010-16x120/160/200/240	Drawing B-237159
Shop DWG, GEN II, KE-1010-16x280/320/360/400	Drawing B-118077
Shop DWG, GEN II, KE-1010-2-16x280/320/360/400	Drawing B-210277
Shop DWG, GEN II, KE-1010-2-16x120/160/200/240	Drawing B-237160
Shop DWG, GEN II, KE-1010-24x120/160/200/240	Drawing B-237161
Shop DWG, GEN II, KE-1010-24x280/320/360/400	Drawing B-214329

DISPLAY SPLICE BAR SUPPLIED BY DAKTRONICS.



TOP VIEW
SCALED 2X

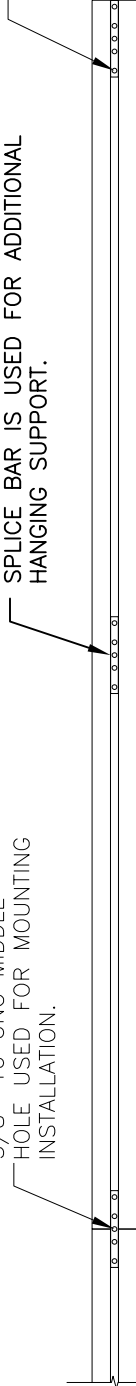


RIGHT SIDE
SCALED 2X

ALL SPLICE BARS NOT LOCATED AT JOINT CAN BE MOVED ALONG CHANNEL.

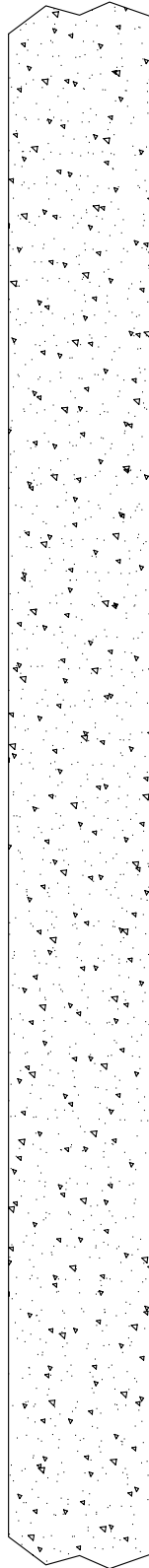
LOCATED ON 10' DISPLAY ONLY! THIS SPLICE BAR IS USED FOR ADDITIONAL HANGING SUPPORT.

3/8" - 16 UNC MIDDLE HOLE USED FOR MOUNTING INSTALLATION.



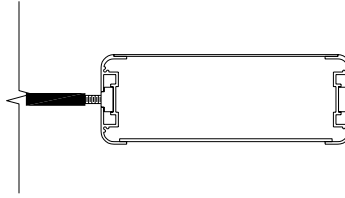
JOINT BETWEEN DISPLAYS. CENTER OF MIDDLE HOLE ON SPLICE BAR SHOULD LIE ON JOINT. EACH JOINT BETWEEN DISPLAYS MUST HAVE HANGING SUPPORT.

TOP VIEW

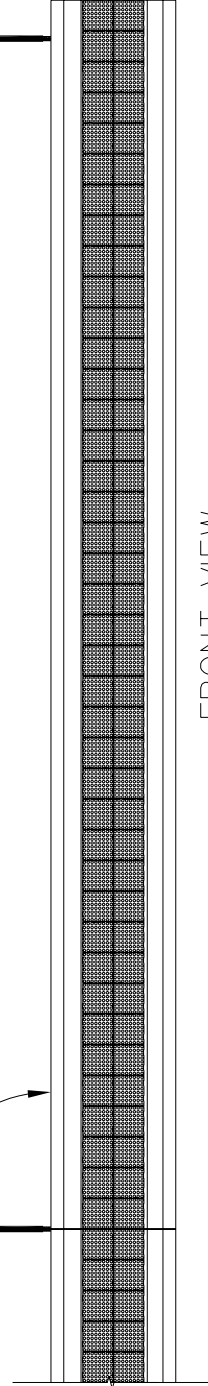


CEILING MOUNTING SUPPORTS MUST BE APPROVED BY QUALIFIED PERSONNEL. DAKTRONICS IS NOT RESPONSIBLE FOR CEILING MOUNTING.

90°



RIGHT SIDE
SCALED 2X



FRONT VIEW

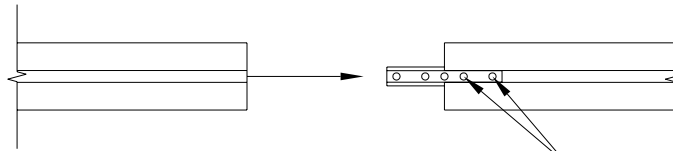
NOTES:

- 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

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	

PROJ: KE-1010 TICKER DISPLAYS	
TITLE: MOUNTING DRAWING, CEILING, KE-1010-***X***-2.1	
DES. BY: DDAGGITT	DATE: 16JUL99
REVISION	APPR. BY:
02	SCALE: 1=15
1182-E10A-118572	



TOP VIEW

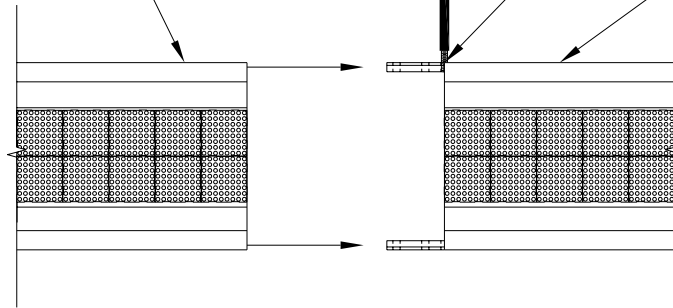
TIGHTEN DOWN SET SCREWS ON DISPLAY WHERE SPLICE BAR IS PRESENTLY LOCATED.

TOP VIEW IS CONSISTENT WITH BOTH CEILING MOUNT & WALL MOUNT.

POSITION DISPLAY SO SPLICE BARS SLIDE INTO GROOVE OF EXTRUSION. ADVANCE DISPLAY (IN DIRECTION OF ARROWS) UNTIL BOTH DISPLAYS ARE FLUSH WITH EACH OTHER. TIGHTEN DOWN SET SCREWS USING 3/16" ALLEN WRENCH.

MIDDLE HOLE IN SPLICE BAR IS RESERVED FOR CEILING MOUNT.

THIS DISPLAY IS ALREADY IN HANGING POSITION.

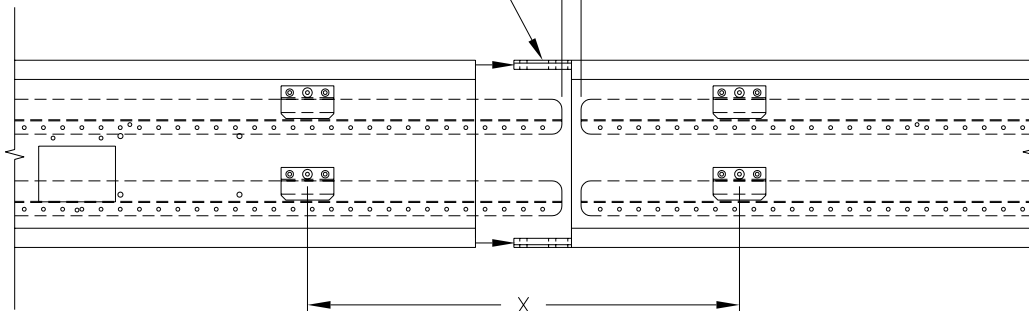


FRONT VIEW

CEILING MOUNT

SLIDE DISPLAYS TOGETHER USING THE SPLICE BARS PROVIDED BY DAKTRONICS. WHEN DISPLAYS ARE FLUSH WITH EACH OTHER TIGHTEN DOWN SET SCREWS USING 3/16" ALLEN WRENCH.

0'-1" TYPICAL DISTANCE BETWEEN MOUNTING BRACKETS



CENTER TO CENTER DISTANCE FOR MOUNTING CLIPS BETWEEN DISPLAYS IN THEIR FINAL POSITION.

NOTES:

- 1) ALL DIMENSIONS ARE IN FEET AND INCHES.
- 2) FRONT VIEWS AND TOP VIEW SHOW PARTIAL VIEWS OF ENTIRE DISPLAY.

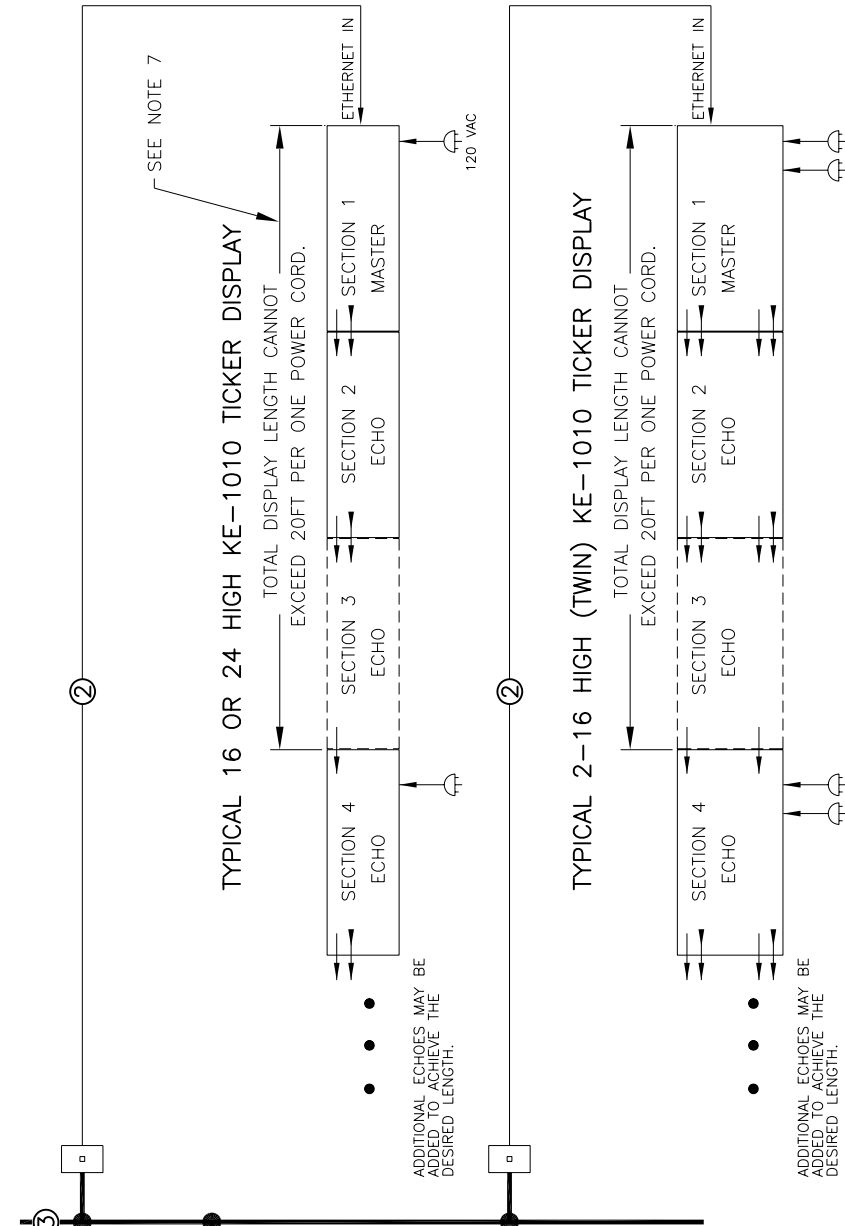
FRONT VIEW

WALL MOUNTING

DISPLAY SIZE	X
16X***	1'-6"
24X***	2'-0"
2-16X***	1'-6"

REV.	DATE	DESCRIPTION	BY	APPR.
03	21MAR05	UPDATED MOUNTING CLIPS AND BRACKETS PER GEN II DESIGN CHANGES. UPDATED TO INCLUDE ALL SIZES.	RTV	
02	18JUN04	ADDED SHOP DRAWING TO TITLE.	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 DWG, MOUNTING, GEN II, SPLICE BAR, KE-1010	
DES. BY: DDAGGITT	DRAWN BY: KKLUDT
DATE: 20JUL99	
REVISION 03	APPR. BY: 1182-E10A-118728
SCALE: 1=10	

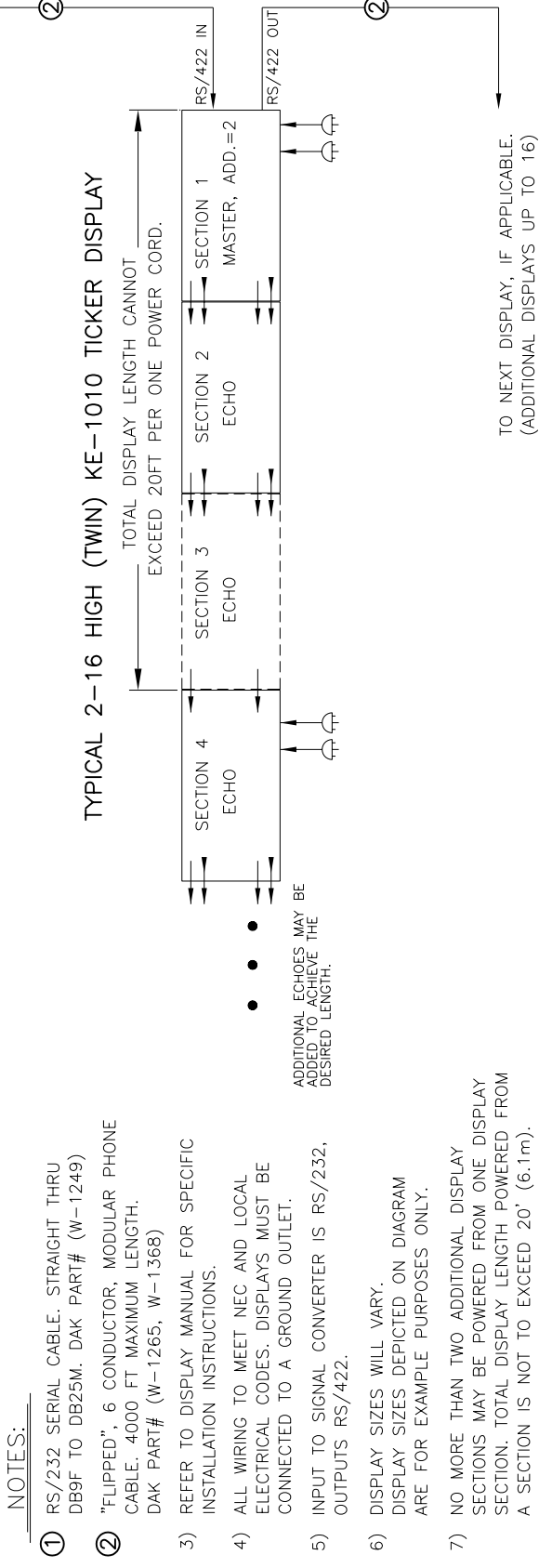
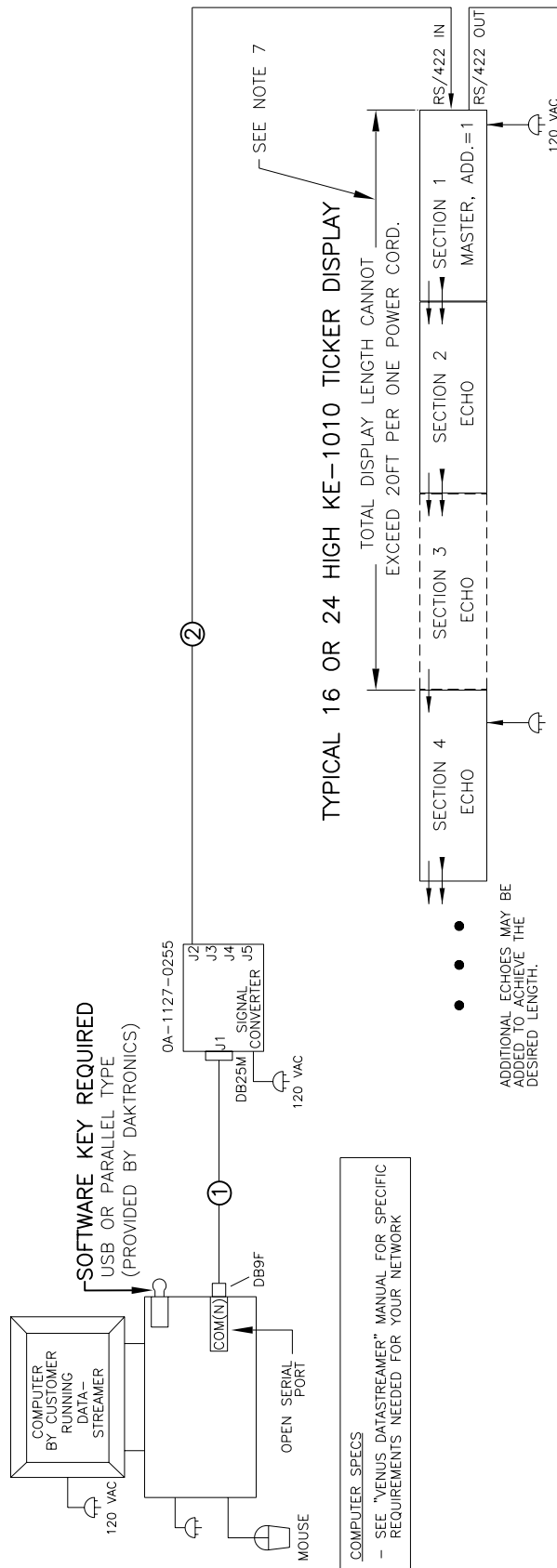


NOTES:

- ① ETHERNET CARD (BY CUSTOMER)
 - ② ETHERNET CABLE (BY CUSTOMER)
 - ③ ETHERNET NETWORK (BY CUSTOMER)
 - 4) REFER TO DISPLAY MANUAL FOR SPECIFIC INSTALLATION INSTRUCTIONS.
 - 5) ALL WIRING TO MEET NEC AND LOCAL ELECTRICAL CODES. DISPLAYS MUST BE CONNECTED TO A GROUND OUTLET.
 - 6) DISPLAY SIZES WILL VARY. DISPLAY SIZES DEPICTED ON DIAGRAM ARE FOR EXAMPLE PURPOSES ONLY.
 - 7) NO MORE THAN TWO ADDITIONAL DISPLAY SECTIONS MAY BE POWERED FROM ONE DISPLAY SECTION. TOTAL DISPLAY LENGTH POWERED FROM A SECTION IS NOT TO EXCEED 20' (6.1m).
 - 8) CONFIGURE IP ADDRESS AT TIME OF DISPLAY INSTALLATION. REFER TO DISPLAY MANUAL FOR CONFIGURATION INSTRUCTIONS.
- ↓ ARROW REPRESENTS MODULE SIGNAL INTERCONNECT TYPICALLY BY DAKTRONICS. DAK P.N. (W-1387)
 ↓ ARROW REPRESENTS SECTION POWER INTERCONNECT TYPICALLY BY DAKTRONICS. MATE-N-LOK TYPE JACK AND PLUG

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 2005 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: INDOOR TICKER, GEN II			
TITLE: CONCEPT SYSTEM RISER DIAGRAM, TCP/IP			
DES. BY: DMATHER		DRAWN BY: WSCHNEI	
DATE: 17 DEC 04			
REVISION	APPR. BY:	1182-R01A-229840	
00	SCALE: NONE	1182-R01A-229840	

REV.	DATE	DESCRIPTION	BY	APPR.



SOFTWARE KEY REQUIRED
 USB OR PARALLEL TYPE
 (PROVIDED BY DAKTRONICS)

COMPUTER SPECS
 - SEE "VENUS DATASTREAM" MANUAL FOR SPECIFIC REQUIREMENTS NEEDED FOR YOUR NETWORK

NOTES:

- 1) RS/232 SERIAL CABLE. STRAIGHT THRU DB9F TO DB25M. DAK PART# (W-1249)
- 2) "FLIPPED", 6 CONDUCTOR, MODULAR PHONE CABLE. 4000 FT MAXIMUM LENGTH. DAK PART# (W-1265, W-1368)
- 3) REFER TO DISPLAY MANUAL FOR SPECIFIC INSTALLATION INSTRUCTIONS.
- 4) ALL WIRING TO MEET NEC AND LOCAL ELECTRICAL CODES. DISPLAYS MUST BE CONNECTED TO A GROUND OUTLET.
- 5) INPUT TO SIGNAL CONVERTER IS RS/232, OUTPUTS RS/422.
- 6) DISPLAY SIZES WILL VARY. DISPLAY SIZES DEPICTED ON DIAGRAM ARE FOR EXAMPLE PURPOSES ONLY.
- 7) NO MORE THAN TWO ADDITIONAL DISPLAY SECTIONS MAY BE POWERED FROM ONE DISPLAY SECTION. TOTAL DISPLAY LENGTH POWERED FROM A SECTION IS NOT TO EXCEED 20' (6.1m).

ARROW REPRESENTS
 MODULE SIGNAL INTERCONNECT
 TYPICALLY BY DAKTRONICS.
 DAK P.N. (W-1387)

ARROW REPRESENTS
 SECTION POWER INTERCONNECT
 TYPICALLY BY DAKTRONICS.
 MATE-N-LOK TYPE JACK AND PLUG

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 2005 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	INDOOR TICKER, GEN II		
TITLE:	CONCEPT SYSTEM RISER DIAGRAM, RS/422		
DES. BY:	DMATHER	DRAWN BY:	WSCHNEI
DATE:	20 DEC 04		
REVISION	APPR. BY: DJM	1182-R01A-229912	
00	SCALE: NONE		

REV.	DATE	DESCRIPTION	BY	APPR.

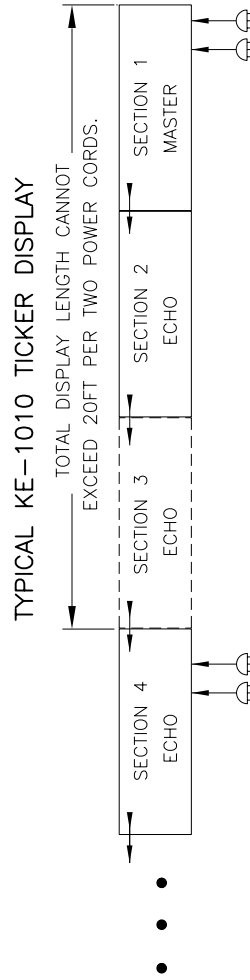
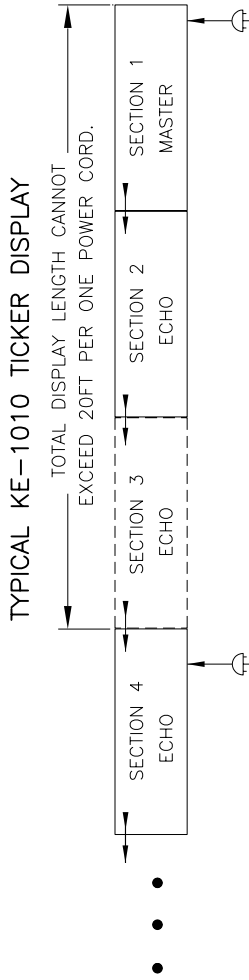
INDOOR TICKER 7.62 RED-GREEN(RG) DISPLAYS POWER SPECIFICATION CHARTS

MATRIX SIZE	TOTAL WATTS	120V AMPS	240V AMPS
16X120	132	1.10	0.55
16X160	172	1.43	0.72
16X200	213	1.77	0.89
16X240	253	2.11	1.06
16X280	294	2.45	1.22
16X320	334	2.79	1.39
16X360	375	3.12	1.56
16X400	415	3.46	1.73
24X120	132	1.10	0.55
24X160	172	1.43	0.72
24X200	213	1.77	0.89
24X240	253	2.11	1.06
24X280	294	2.45	1.22
24X320	334	2.79	1.39
24X360	375	3.12	1.56
24X400	415	3.46	1.73

MATRIX SIZE	TOTAL WATTS	120V AMPS	240V AMPS
2-16X120	263	2.19	1.10
2-16X160	344	2.87	1.43
2-16X200	425	3.55	1.77
2-16X240	506	4.22	2.11
2-16X280	588	4.90	2.45
2-16X320	669	5.57	2.79
2-16X360	750	6.25	3.12
2-16X400	831	6.92	3.46
EACH POWER CORD HANDLES APPROXIMATELY HALF OF THE LISTED NUMBERS.			

NOTES

- 1) A SINGLE POWER INPUT MAY BE USED FOR MULTIPLE SECTIONS, AS LONG AS THE LENGTH DOES NOT EXCEED 20 FT. ADDITIONAL INPUTS MAY BE REQUIRED TO POWER THE TOTAL TICKER LENGTH.
TICKER SECTIONS MUST ALL BE OF A COMMON HEIGHT.
16 AND 24 HIGH TICKERS USE ONE POWER CORD PER 20FT LENGTH. 16 HIGH TWIN TICKER (2-16X***) USE TWO POWER CORDS PER 20 FT LENGTH.
SEE ABOVE ILLUSTRATIONS.



- 2) THE DISPLAY SIZES SHOWN ON THE CHART CAN BE POWERED BY EITHER 120VAC (2 WIRE + GND), OR 240VAC (2 WIRE + GND) SERVICES.
- 3) STANDARD DISPLAY(120VAC) INCLUDES IEC320 POWER JACK AND POWER CORD(NEMA 5-15P TO IEC320 PLUG). NON-TYPICAL DISPLAY(240VAC) INCLUDES IEC320 POWER JACK. POWER CORD IS NOT PROVIDED.

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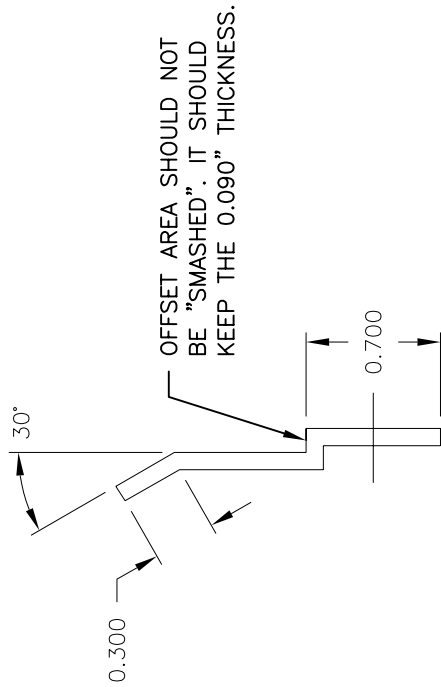
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: INDOOR TICKER DISPLAYS, 7.62-RG
 TITLE: POWER SPECS, GEN II, KE-101*-16X***,24X***,2-16X***
 DES. BY: DMATHER DRAWN BY: WSCHNEI DATE: 14FEB05

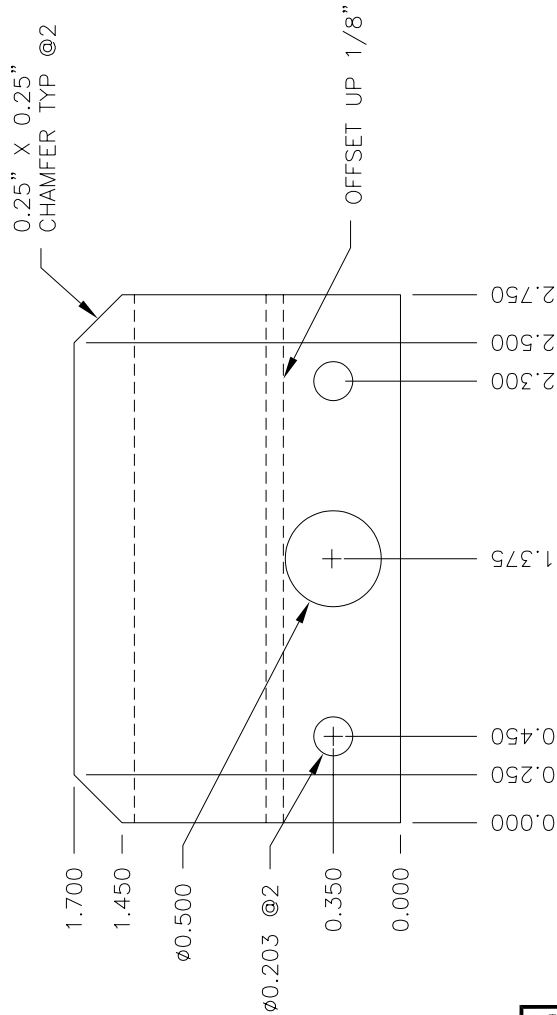
REVISION 00 APPR. BY: DJM SCALE: 1=1

1182-R10A-234168

REV.	DATE	DESCRIPTION	BY	APPR.



FORMED VIEW
RIGHT SIDE VIEW

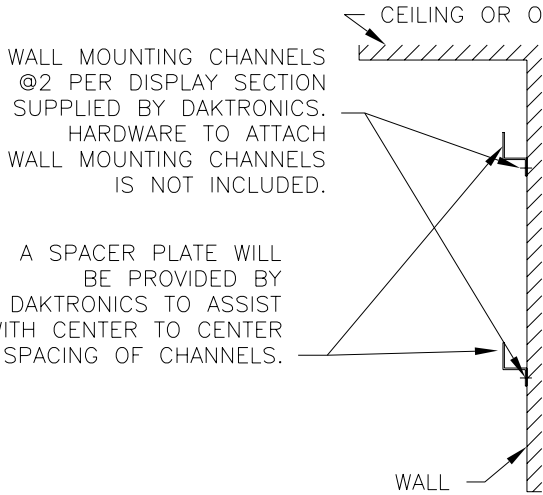


LAYOUT VIEW

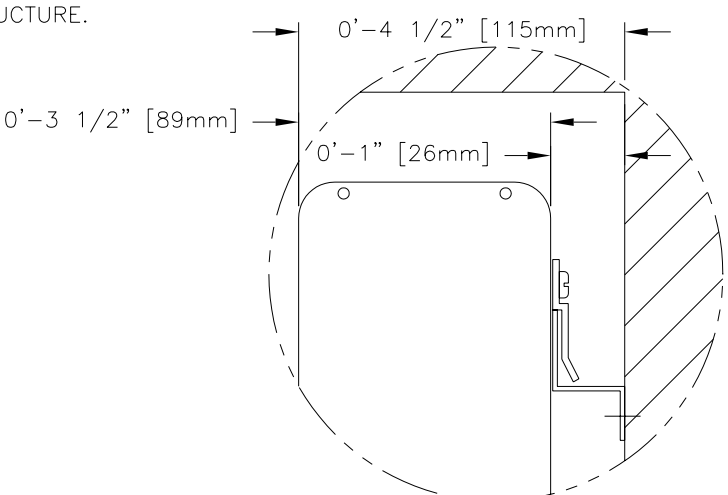
TOLERANCES:
 LAYOUT DIMENSIONS (CNC) ----- ±0.005
 LAYOUT DIMENSIONS (NON CNC) ----- ±0.031
 C-C SPACINGS (CNC) ----- ±0.005
 C-C SPACINGS (NON CNC) ----- ±0.031
 FORMED DIMENSIONS ----- ±0.020
 ANGLES ----- ±1.0°
 UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. USE TOLERANCES LISTED:
 DO NOT SCALE DRAWING:
 FINISH: NONE
 PART NAME: MTG CLIP
 PART NUMBER: 0M-233464
 LAYOUT DIMENSION: 2.750 X 1.700
 RAW MATERIAL QTY: 0.033 FT2
 MATERIAL SPECIFICATION: HEX-014
 5052-H34 ALUMINUM SHEET

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 2005 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: KE-1010 INDOOR TICKER DISPLAYS			
TITLE: MOUNTING CLIP, GEN II, KE-1010-***X***-7.62-*			
DES. BY: DDAGGITT		DRAWN BY: RVOSS	
DATE: 03 FEB 05			
REVISION	APPR. BY:	1182-E07A-233464	
01	SCALE: 1 = 1*		

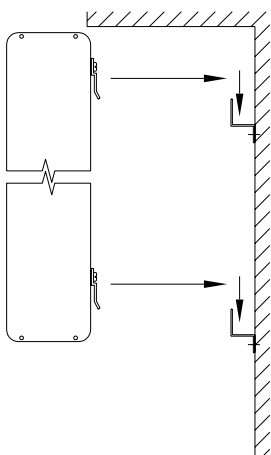
01	17FEB05	MOVED 0.50 HOLE DOWN BY 0.075" TO BE IN-LINE WITH 0.203 HOLES	DJD	
REV.	DATE	DESCRIPTION	BY	APPR.



RIGHT SIDE



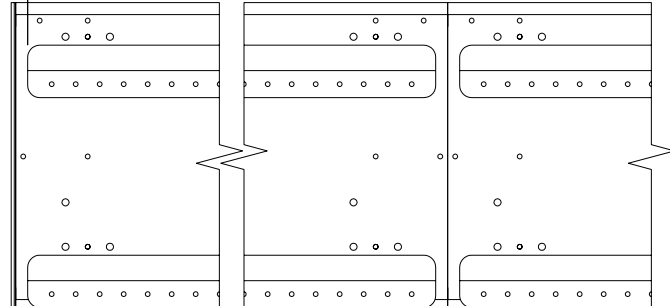
DETAIL: A
(3 X SCALE)



RIGHT SIDE

POSITION MOUNTING BRACKETS IN FROM END OF DISPLAY AS SHOWN. DIMENSIONS TYPICAL BOTH ENDS.

0'-0 3/4" [19mm] WITH ENDCAP
0'-0 1/2" [13mm] WITHOUT ENDCAP

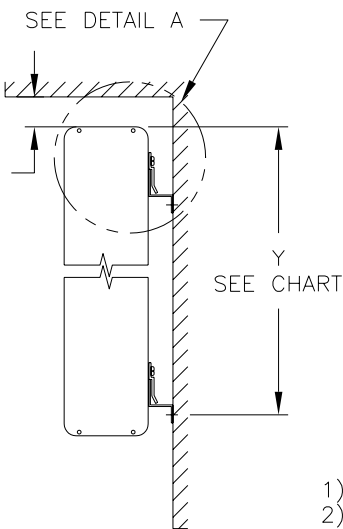


0'-1" [25mm]

WITH A MULTIPLE SECTION DISPLAY THERE IS 1" SPACE BETWEEN BRACKETS ON SUBSEQUENT DISPLAYS.

REAR VIEW

0'-1 1/4" [32mm]
MINIMUM DISTANCE ABOVE DISPLAY NEEDED TO ADD OR REMOVE THE DISPLAY FROM THE WALL MOUNTING CHANNELS.



RIGHT SIDE

DISPLAY	Y DIMENSION DISTANCE FROM TOP OF DISPLAY TO ATTACHMENT POINT OF BOTTOM BRACKET.
KE-1010-16X***-7.62	0'-10 1/4" [260mm]
KE-1010-24X***-7.62	0'-13 1/4" [337mm]
KE-1010-2-16X***-7.62	0'-17 1/4" [438mm]

- NOTES:
- 1) ALL DIMENSIONS ARE IN FEET AND INCHES [MILLIMETERS].
 - 2) REFER TO THE DISPLAY SHOP DRAWINGS FOR DETAILED DISPLAY SPECIFICATIONS.
 - 3) DAKTRONICS CAN NOT BE HELD RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF PARTS THAT ARE NOT SUPPLIED BY DAKTRONICS.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: INDOOR TICKER DISPLAYS

TITLE: SHOP DWG, HORIZ WALL MOUNT, GEN II KE-1010 TICKER

DES. BY: DDAGGITT DRAWN BY: DDAGGITT DATE: 17FEB05

REVISION 00 APPR. BY: SCALE: 1=8 1182-E10A-234483

REV.	DATE	DESCRIPTION	BY	APPR.

CEILING OR OTHER STRUCTURE

SEE DETAIL A

WALL MOUNTING CHANNELS @2 OR @3 PER DISPLAY (REFER TO SHOP DRAWING) SUPPLIED BY DAKTRONICS. HARDWARE TO ATTACH THE WALL MOUNTING CHANNELS IS NOT INCLUDED.

REFER TO SHOP DRAWING FOR CENTER TO CENTER SPACING OF MOUNTING CHANNELS.

1'-1 7/16" [341mm]
DISTANCE BELOW DESIRED LOCATION FOR THE TOP OF THE DISPLAY TO ATTACH THE TOP MOUNTING CHANNEL.

0'-10 5/16" [262mm]
DISTANCE FROM BOTTOM OF DISPLAY TO ATTACH THE BOTTOM MOUNTING CHANNEL.

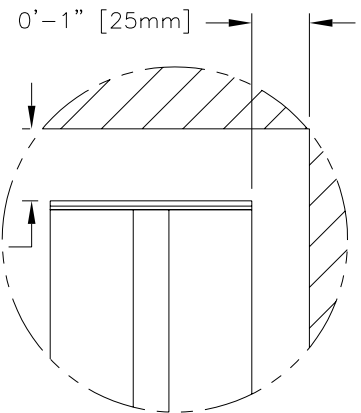
RIGHT SIDE

RIGHT SIDE

NOTES:

- 1) ALL DIMENSIONS ARE IN FEET AND INCHES [MILLIMETERS].
- 2) REFER TO THE DISPLAY SHOP DRAWING FOR DETAILED DISPLAY SPECIFICATIONS.
- 3) DAKTRONICS CAN NOT BE HELD RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF PARTS THAT ARE NOT SUPPLIED BY DAKTRONICS.

0'-1 1/4" [32mm]
MINIMUM DISTANCE ABOVE DISPLAY NEEDED TO ADD OR REMOVE THE DISPLAY FROM THE WALL MOUNTING CHANNELS.



DETAIL: A
(3 X SCALE)

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: INDOOR TICKER DISPLAYS

TITLE: SHOP DWG, VERT WALL MOUNT, GEN II KE-1010-24X***

DES. BY: DDAGGITT

DRAWN BY: DDAGGITT

DATE: 17FEB05

REVISION

APPR. BY:

REV.	DATE	DESCRIPTION	BY	APPR.
00				

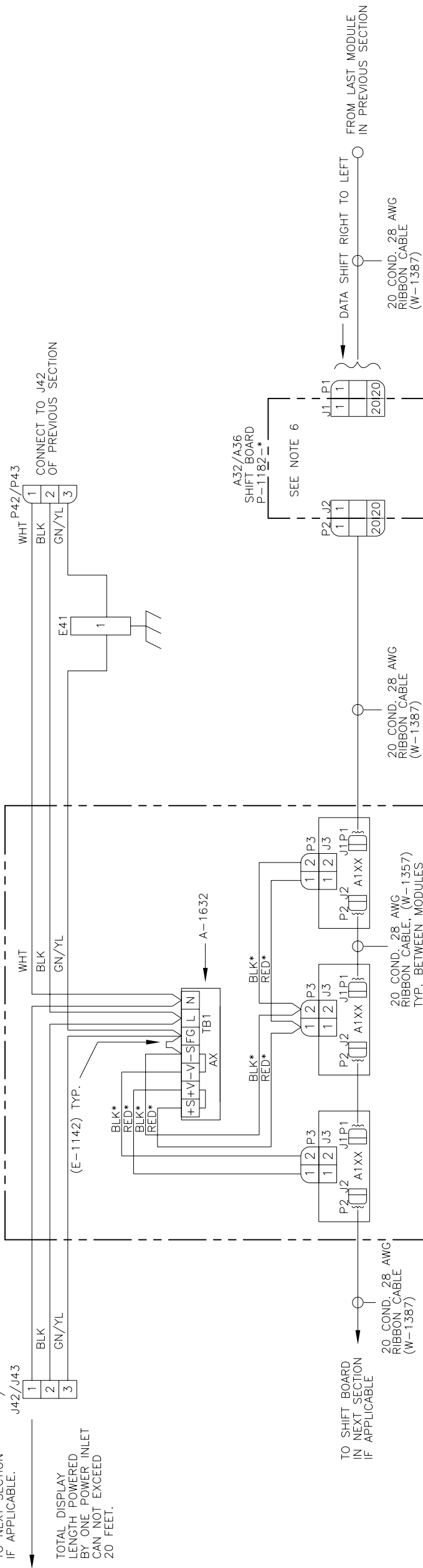
SCALE: 1=10

1182-E10A-234529

SEE FIGURE 1.

TO NEXT SECTION
IF APPLICABLE.

TOTAL DISPLAY
LENGTH POWERED
BY ONE POWER INLET
CAN NOT EXCEED
20 FEET.

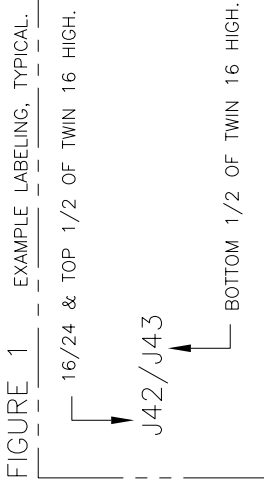


SEE NOTE 5

 ABOVE LAYOUT REPEATED FOR BOTTOM 1/2 OF TWIN 16 HIGH DISPLAY.

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) REFER TO DWG-234168 FOR DISPLAY POWER REQUIREMENTS.



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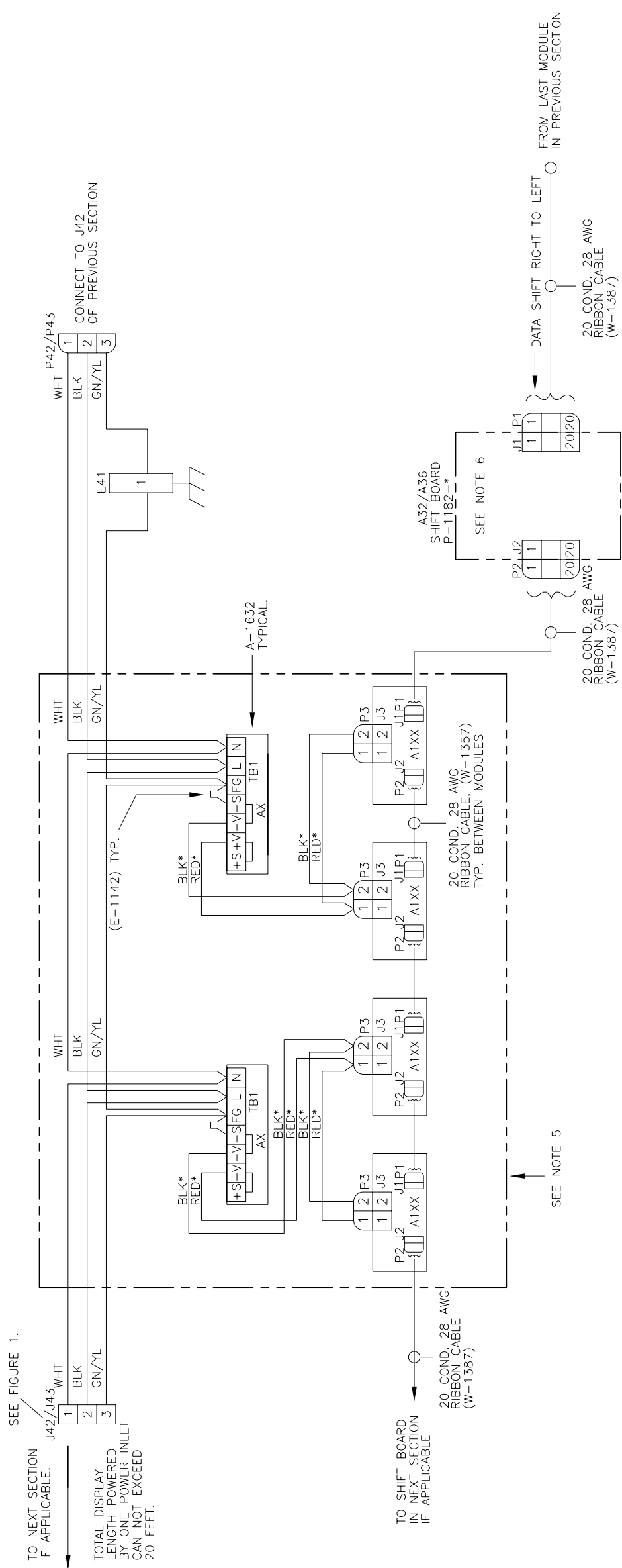
PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X120-7.62-RG

DES. BY: DMATHER DRAWN BY: WSCHNEI DATE: 09FEB05

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

1182-R03B-234114

REV.	DATE	DESCRIPTION	BY	APPR.
00				



SEE FIGURE 1.
 J42/J43
 1 WHT
 2 BLK
 3 GN/YL
 TO NEXT SECTION IF APPLICABLE.
 TOTAL DISPLAY LENGTH POWERED BY ONE POWER INLET CAN NOT EXCEED 20 FEET.

TO SHIFT BOARD IN NEXT SECTION IF APPLICABLE
 20 COND. 28 AWG RIBBON CABLE (W-1387)

SEE NOTE 5

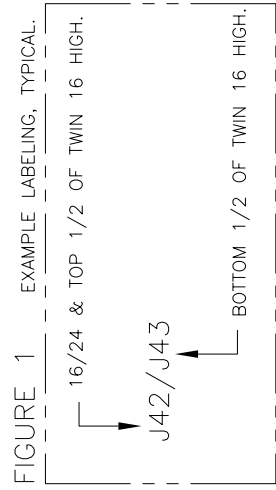
20 COND. 28 AWG RIBBON CABLE, (W-1357) TYP. BETWEEN MODULES

20 COND. 28 AWG RIBBON CABLE (W-1387)

FROM LAST MODULE IN PREVIOUS SECTION
 20 COND. 28 AWG RIBBON CABLE (W-1387)

 ABOVE LAYOUT REPEATED FOR BOTTOM 1/2 OF TWIN 16 HIGH DISPLAY.

- 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) REFER TO DWG-234168 FOR DISPLAY POWER REQUIREMENTS.



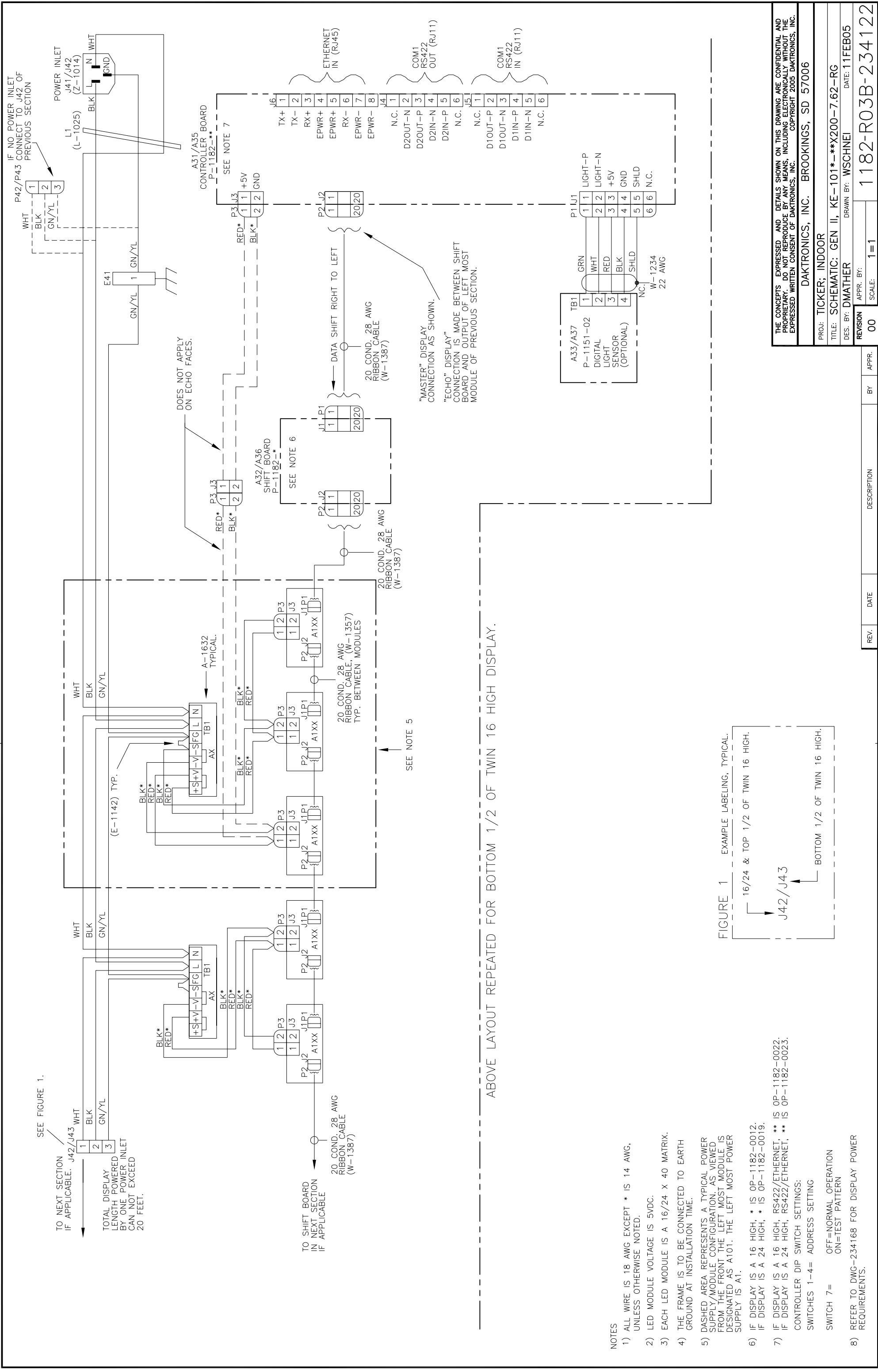
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PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X160-7.62-RG
 DES. BY: DMATHER DRAWN BY: WSCHNEI DATE: 09FEB05

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

1182-R03B-234115

REV.	DATE	DESCRIPTION	BY	APPR.



SEE FIGURE 1.

TO NEXT SECTION IF APPLICABLE. J42/J43 WHT
 1
 2
 3
 GN/YL
 BLK
 WHT

TOTAL DISPLAY LENGTH POWERED BY ONE POWER INLET CAN NOT EXCEED 20 FEET.

TO SHIFT BOARD IN NEXT SECTION IF APPLICABLE

20 COND. 28 AWG RIBBON CABLE (W-1387)

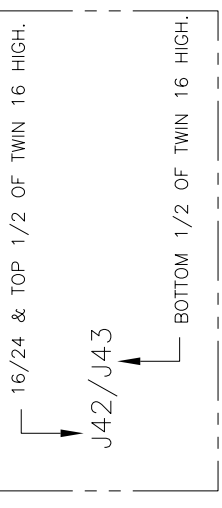
SEE NOTE 5

ABOVE LAYOUT REPEATED FOR BOTTOM 1/2 OF TWIN 16 HIGH DISPLAY.

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 OP-1182-0012. IF DISPLAY IS A 24 HIGH, * IS OP-1182-0019.
 - 7) IF DISPLAY IS A 16 HIGH, RS422/ETHERNET, ** IS OP-1182-0022. IF DISPLAY IS A 24 HIGH, RS422/ETHERNET, ** IS OP-1182-0023.
- CONTROLLER DIP SWITCH SETTINGS:
 SWITCHES 1-4= ADDRESS SETTING
 SWITCH 7= OFF=NORMAL OPERATION
 ON=TEST PATTERN
- 8) REFER TO DWG-234168 FOR DISPLAY POWER REQUIREMENTS.

FIGURE 1 EXAMPLE LABELING, TYPICAL.



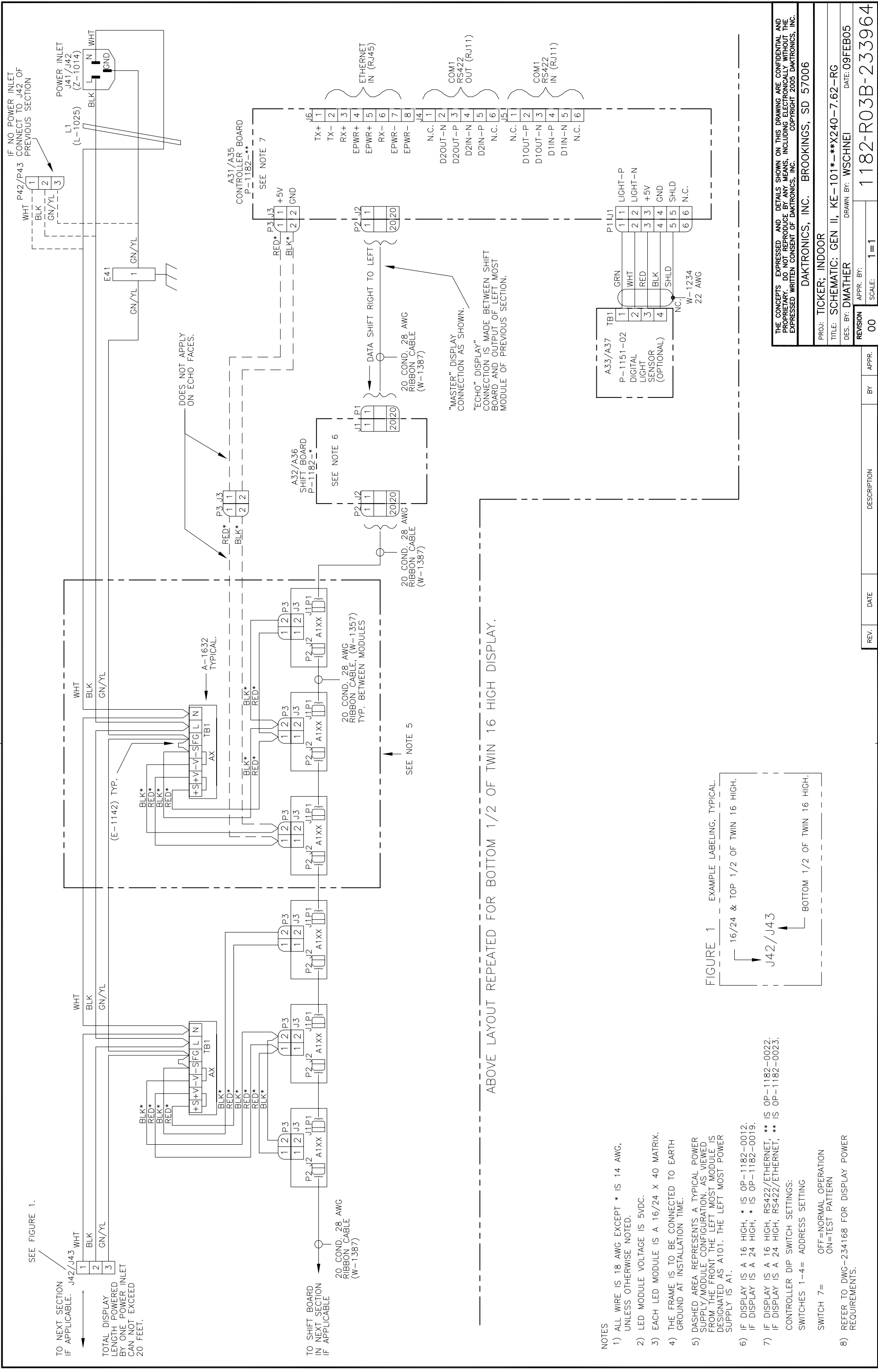
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PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X200-7.62-RG
 DES. BY: DMATHER DRAWN BY: WSCHNEI DATE: 11FEB05

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

DAKTRONICS, INC. BROOKINGS, SD 57006

1182-R03B-234122



SEE FIGURE 1.

TO NEXT SECTION IF APPLICABLE. J42/J43

TOTAL DISPLAY LENGTH POWERED BY ONE POWER INLET CAN NOT EXCEED 20 FEET.

TO SHIFT BOARD IN NEXT SECTION IF APPLICABLE

20 COND. 28 AWG RIBBON CABLE (W-1387)

SEE NOTE 5

SEE NOTE 6

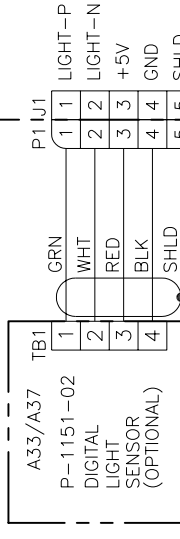
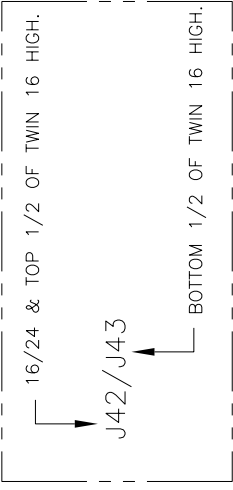
SEE NOTE 7

ABOVE LAYOUT REPEATED FOR BOTTOM 1/2 OF TWIN 16 HIGH DISPLAY.

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) IF DISPLAY IS A 16 HIGH, RS422/ETHERNET, ** IS 0P-1182-0022. IF DISPLAY IS A 24 HIGH, RS422/ETHERNET, ** IS 0P-1182-0023. CONTROLLER DIP SWITCH SETTINGS: SWITCHES 1-4= ADDRESS SETTING SWITCH 7= OFF=NORMAL OPERATION ON=TEST PATTERN
- 8) REFER TO DWG-234168 FOR DISPLAY POWER REQUIREMENTS.

FIGURE 1 EXAMPLE LABELING, TYPICAL.

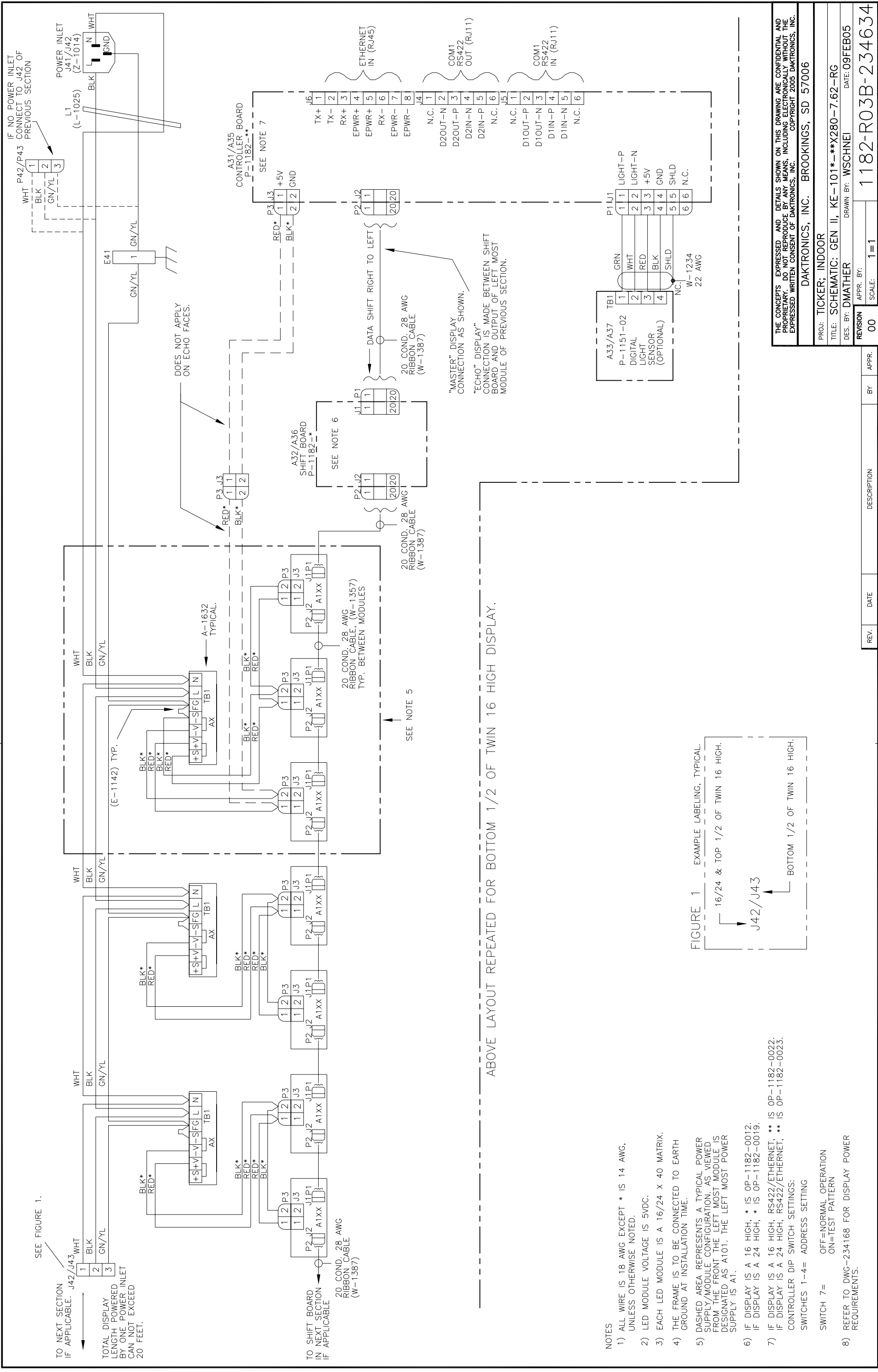


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PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X240-7.62-RG
 DES. BY: DMATHER DRAWN BY: WSCHEINI DATE: 09FEB05

REVISION 00 APPR. BY: SCALE: 1=1

1182-R03B-233964



SEE FIGURE 1.

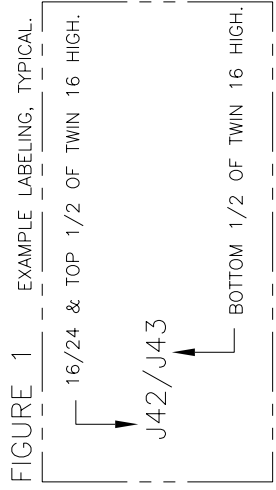
TO NEXT SECTION IF APPLICABLE, J42/J43

TOTAL DISPLAY LENGTH POWERED BY ONE POWER INLET CAN NOT EXCEED 20 FEET.

TO SHIFT BOARD IN NEXT SECTION IF APPLICABLE

20 COND. 28 AWG RIBBON CABLE (W-1387)

- 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) IF DISPLAY IS A 16 HIGH, RS422/ETHERNET, ** IS 0P-1182-0022. IF DISPLAY IS A 24 HIGH, RS422/ETHERNET, ** IS 0P-1182-0023. CONTROLLER DIP SWITCH SETTINGS: SWITCHES 1-4= ADDRESS SETTING SWITCH 7= OFF=NORMAL OPERATION ON=TEST PATTERN
 - 8) REFER TO DWG-234168 FOR DISPLAY POWER REQUIREMENTS.



ABOVE LAYOUT REPEATED FOR BOTTOM 1/2 OF TWIN 16 HIGH DISPLAY.

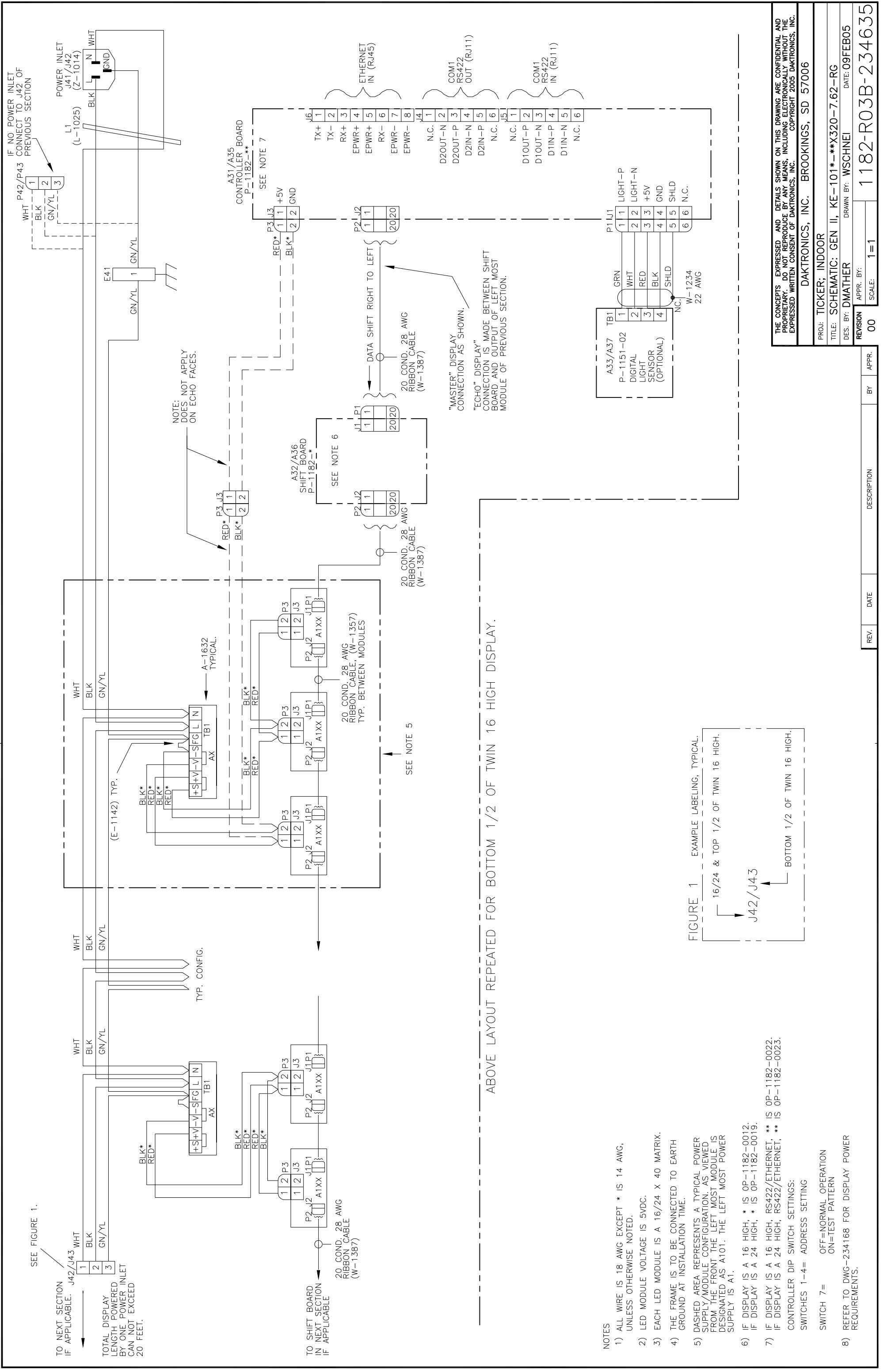
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PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X280-7.62-RG
 DES. BY: DMATHER DRAWN BY: WSCHEINI DATE: 09FEB05

REVISION 00 APPR. BY: SCALE: 1=1

1182-R03B-234634

REV.	DATE	DESCRIPTION	BY	APPR.
00				



SEE FIGURE 1.

TO NEXT SECTION IF APPLICABLE. J42/J43

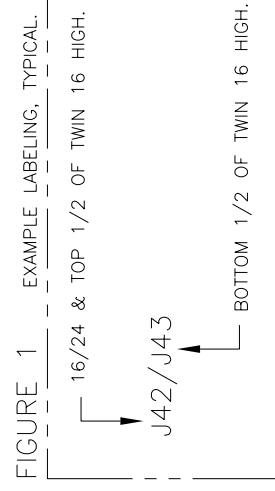
TOTAL DISPLAY LENGTH POWERED BY ONE POWER INLET CAN NOT EXCEED 20 FEET.

TO SHIFT BOARD IN NEXT SECTION IF APPLICABLE

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 OP-1182-0012. IF DISPLAY IS A 24 HIGH, * IS OP-1182-0019.
 - 7) IF DISPLAY IS A 16 HIGH, RS422/ETHERNET, ** IS OP-1182-0022. IF DISPLAY IS A 24 HIGH, RS422/ETHERNET, ** IS OP-1182-0023.
- CONTROLLER DIP SWITCH SETTINGS:
 SWITCHES 1-4= ADDRESS SETTING
 SWITCH 7= OFF=NORMAL OPERATION
 ON=TEST PATTERN

8) REFER TO DWG-234168 FOR DISPLAY POWER REQUIREMENTS.

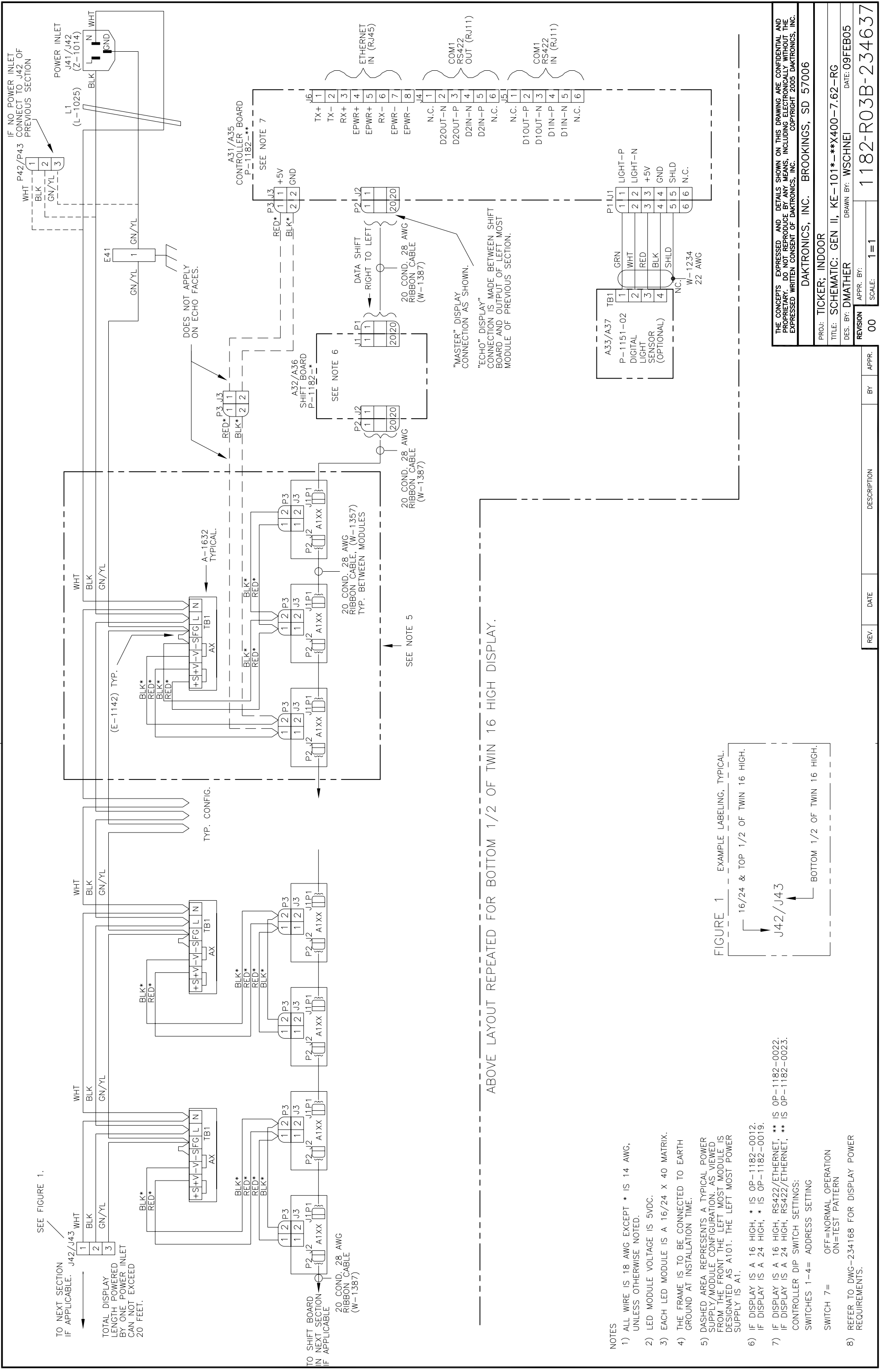


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PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X320-7.62-RG
 DES. BY: DMATHER DRAWN BY: WSCHEINI DATE: 09FEB05

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

1182-R03B-234635

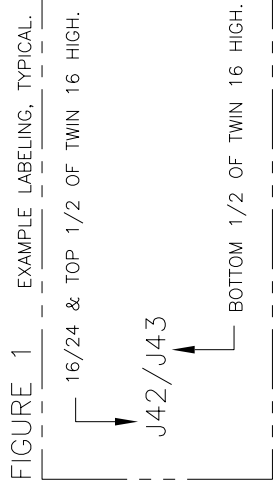


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PROJ: TICKER; INDOOR
 TITLE: SCHEMATIC: GEN II, KE-101*-**X400-7.62-RG
 DES. BY: DMATHER DRAWN BY: WSCHNEI DATE: 09FEB05

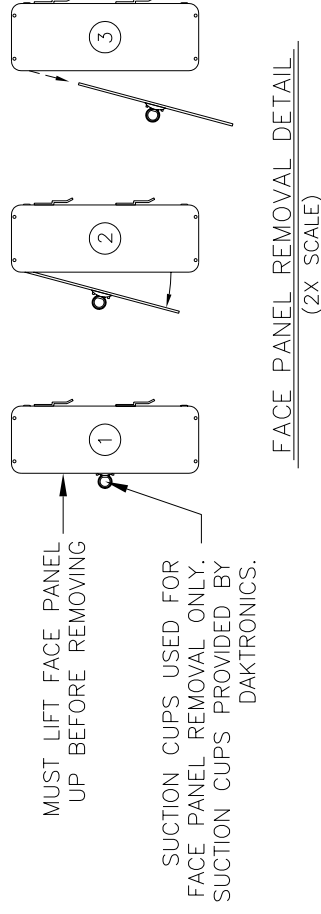
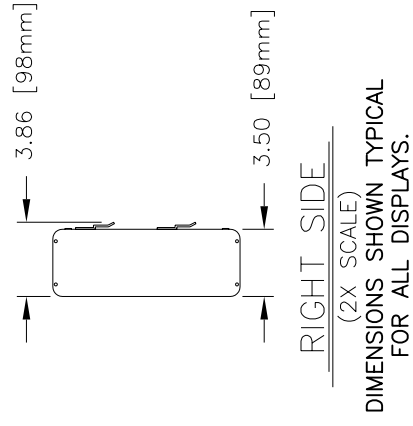
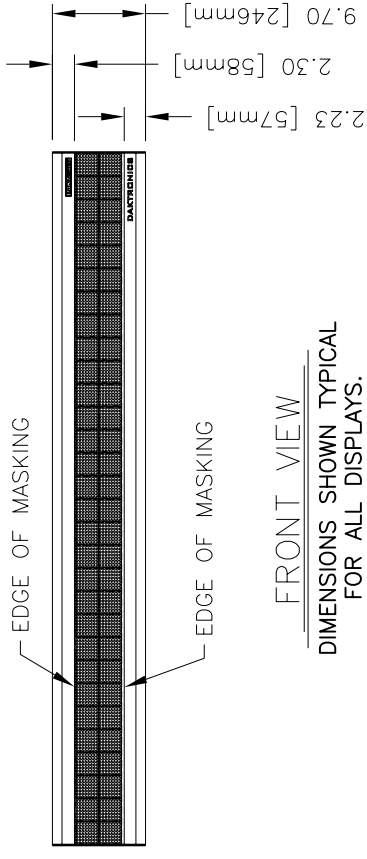
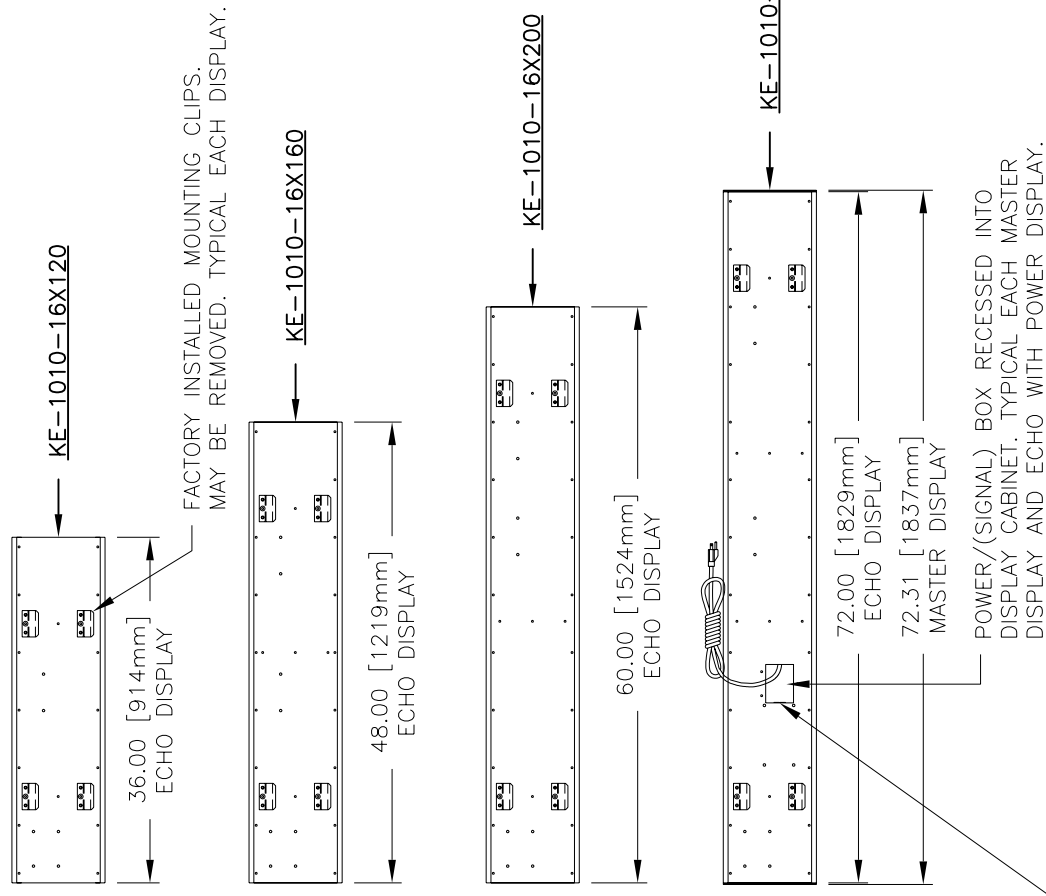
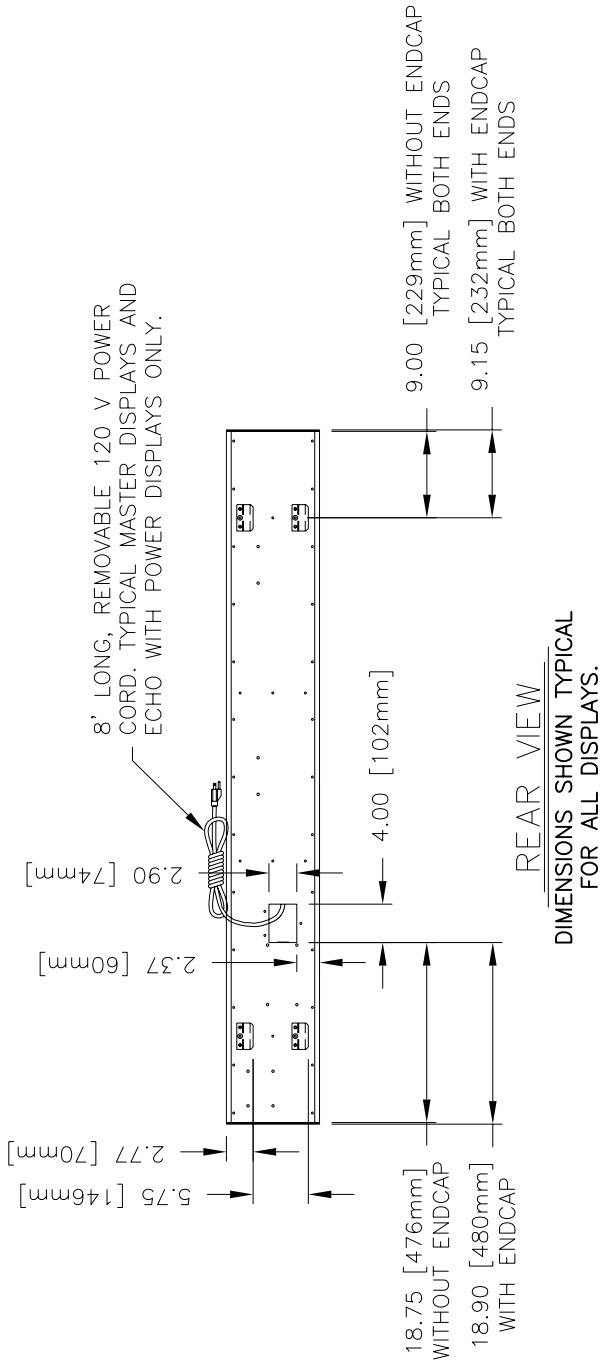
REVISION 00 APPR. BY: 1=1 SCALE: 1=1

1182-R03B-234637



ABOVE LAYOUT REPEATED FOR BOTTOM 1/2 OF TWIN 16 HIGH DISPLAY.

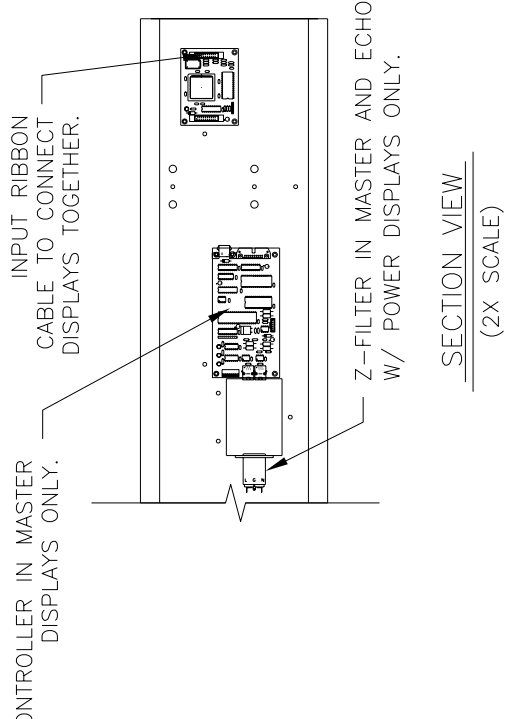
- NOTES
- 1) ALL WIRE IS 18 AWG EXCEPT * IS 14 AWG, UNLESS OTHERWISE NOTED.
 - 2) LED MODULE VOLTAGE IS 5VDC.
 - 3) EACH LED MODULE IS A 16/24 X 40 MATRIX.
 - 4) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
 - 5) DASHED AREA REPRESENTS A TYPICAL POWER SUPPLY/MODULE CONFIGURATION, 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 OP-1182-0012. IF DISPLAY IS A 24 HIGH, * IS OP-1182-0019.
 - 7) IF DISPLAY IS A 16 HIGH, RS422/ETHERNET, ** IS OP-1182-0022. IF DISPLAY IS A 24 HIGH, RS422/ETHERNET, ** IS OP-1182-0023. CONTROLLER DIP SWITCH SETTINGS:
 SWITCHES 1-4= ADDRESS SETTING
 SWITCH 7= OFF=NORMAL OPERATION ON=TEST PATTERN
 - 8) REFER TO DWG-234-168 FOR DISPLAY POWER REQUIREMENTS.



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.

DISPLAY	APPROXIMATE			
	WEIGHT LBS (Kg)	MAXIMUM POWER (WATTS)	AMPS @120VAC	AMPS @240VAC
KE-1010-16X120-7.62-RG	20 (9)	132	1.10	0.55
KE-1010-16X160-7.62-RG	26 (12)	172	1.43	0.72
KE-1010-16X200-7.62-RG	33 (15)	213	1.77	0.89
KE-1010-16X240-7.62-RG	39 (18)	253	2.11	1.06



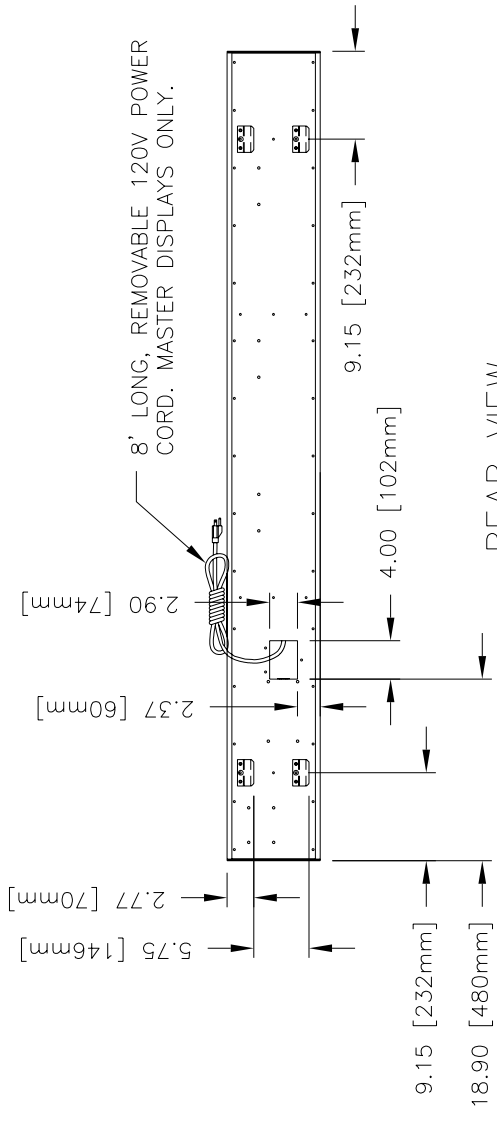
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PROJ: INDOOR TICKER DISPLAYS
TITLE: SHOP DWG, GEN II, KE-1010-16X120/160/200/240
DES. BY: DDAGGITT DRAWN BY: RYOSS DATE: 22 MAR 05

REVISION 00 APPR. BY: SCALE: 1 = 20

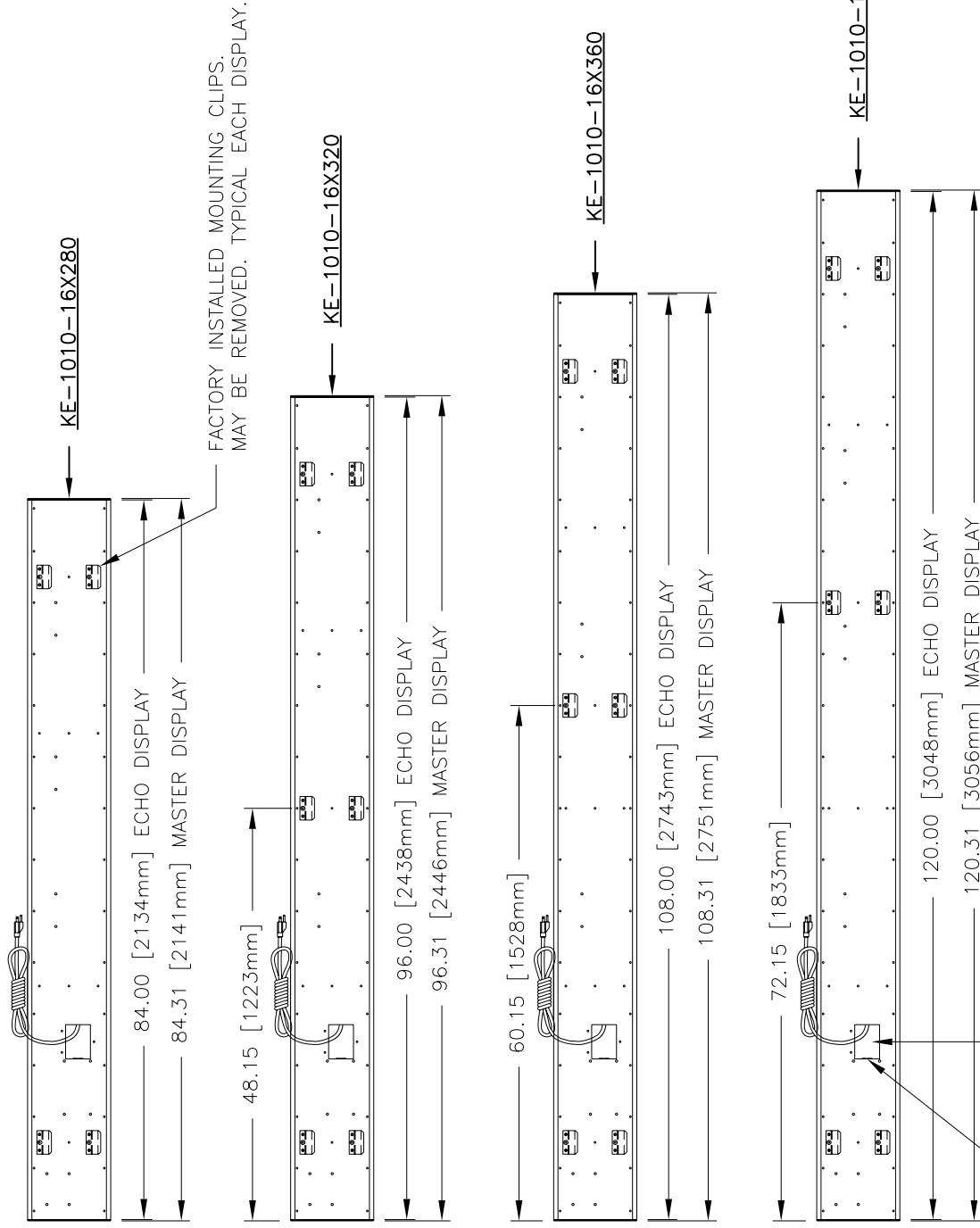
1182-E10B-237159

REV.	DATE	DESCRIPTION	BY	APPR.



REAR VIEW

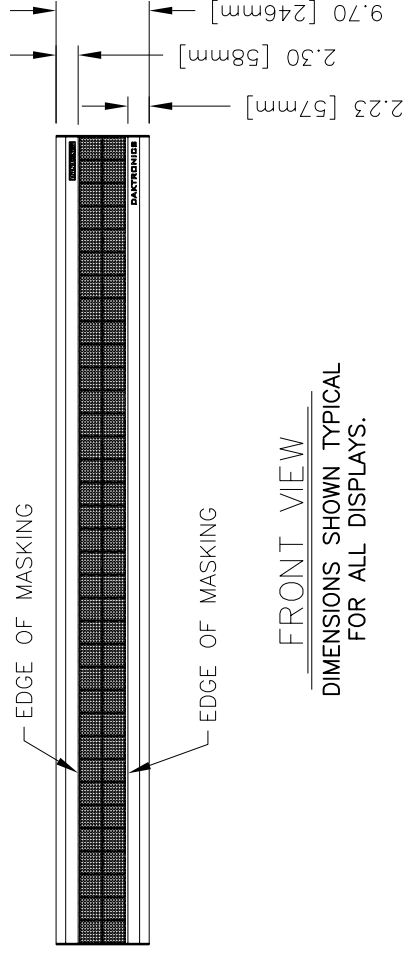
DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



POWER/SIGNAL BOX RECESSED INTO DISPLAY CABINET. TYPICAL EACH MASTER DISPLAY.

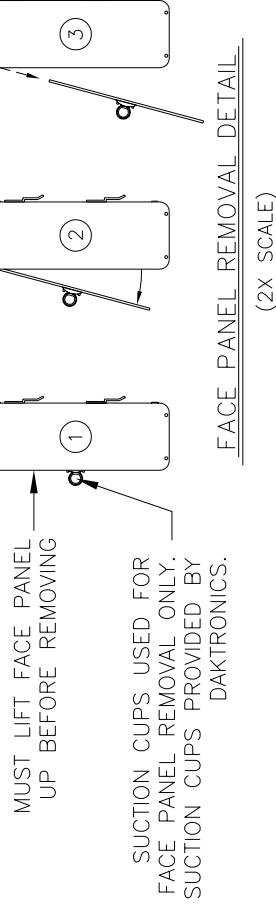
RJ-45 RECEPTACLE FOR ETHERNET IN. RJ-11 RECEPTACLE FOR RS422 SIGNAL IN, AND RJ-11 RECEPTACLE FOR RS422 SIGNAL OUT. TYPICAL EACH MASTER DISPLAY. THERE ARE NO SIGNAL JACKS ON ECHO DISPLAYS.

REAR VIEW



FRONT VIEW

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.

RIGHT SIDE
(2X SCALE)

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.

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

APPROXIMATE

REV.	DATE	DESCRIPTION	BY	APPR.
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 'B1'.	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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PROJ: KE-1010 TICKER DISPLAYS
DAKTRONICS, INC. BROOKINGS, SD 57006

TITLE: SHOP DWG, GEN II, KE-1010-16X280/320/360/400
DES. BY: DDAGGIT
DRAWN BY: KKLUDT

DATE: 13 JUL 99

REVISION 05
APPR. BY:

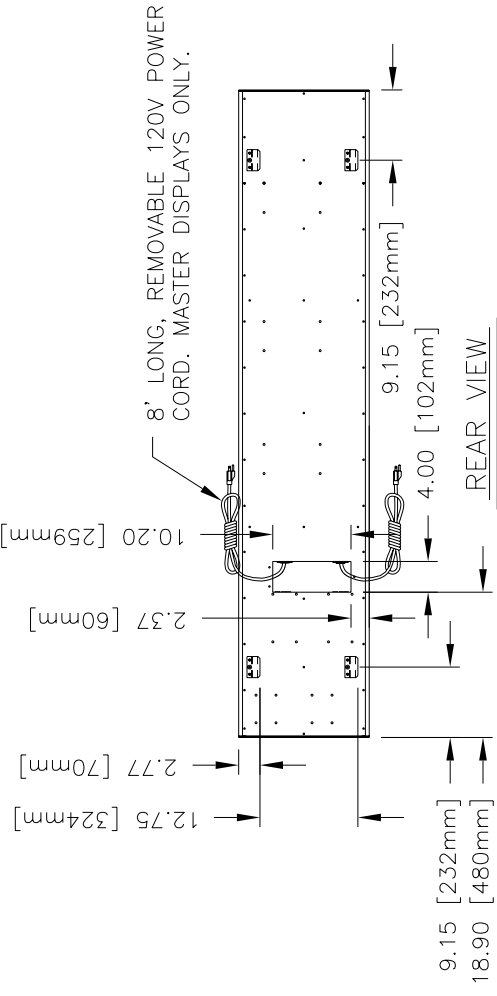
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1182-E10B-118077

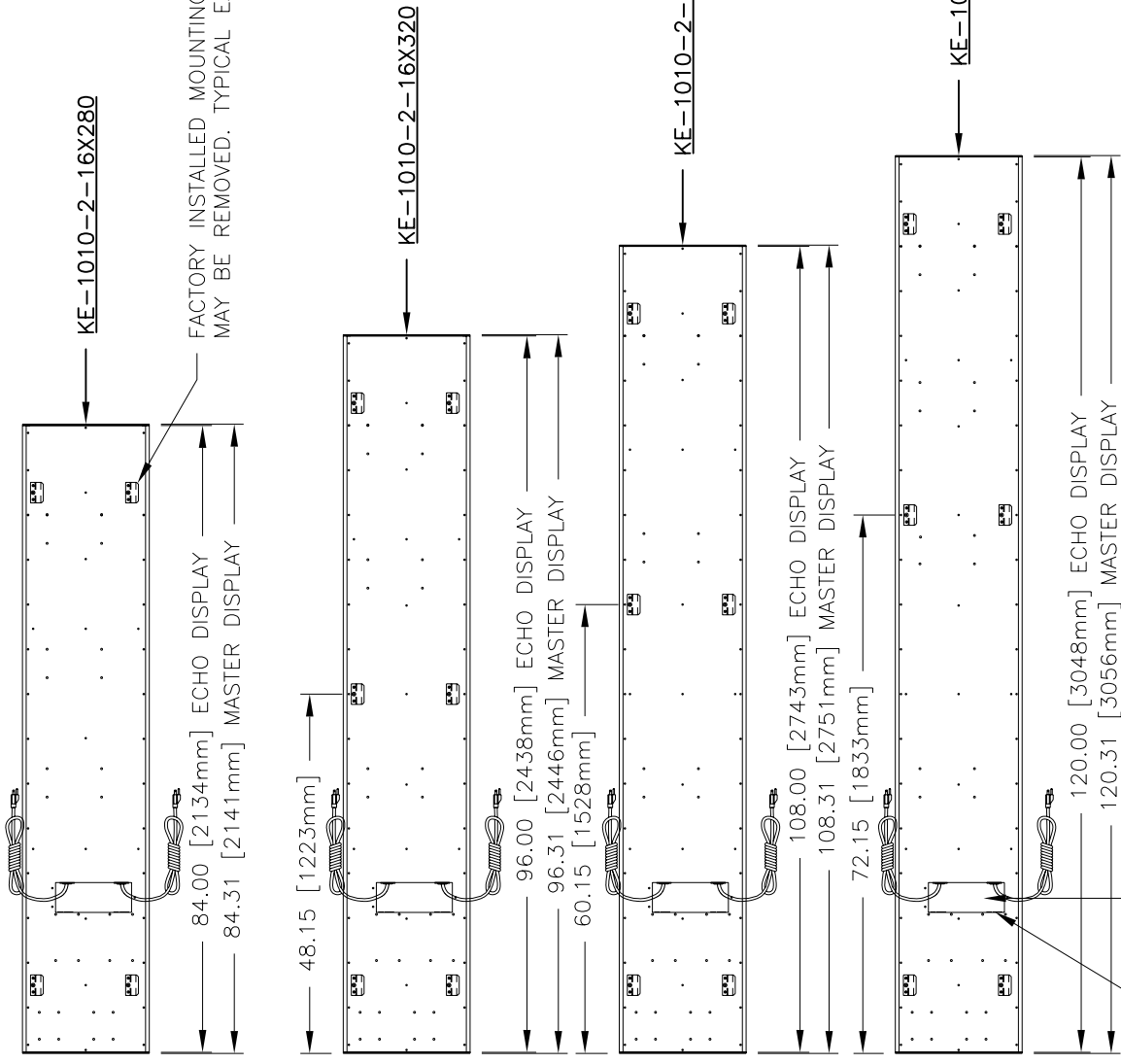
ASH

CHANGED TO 7.62 FT SECTIONS ONLY. UPDATED SPEC BLOCK AND DIMENSIONS PER GEN II DESIGN CHANGE.

05 19MAR05

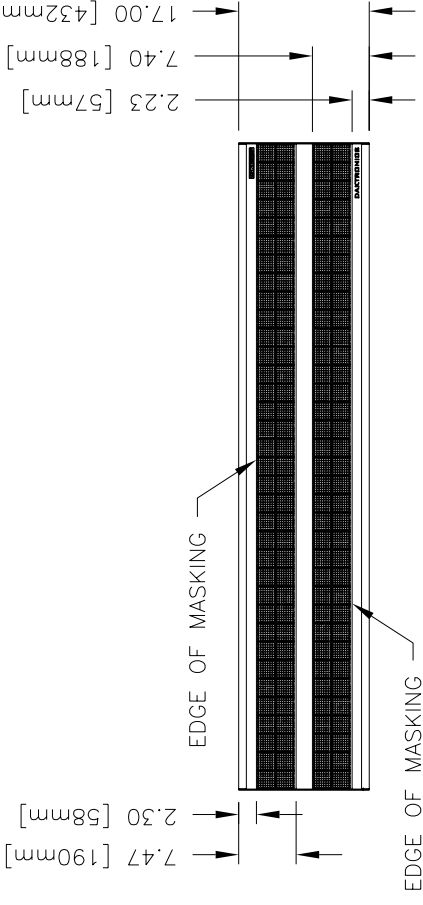


DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.

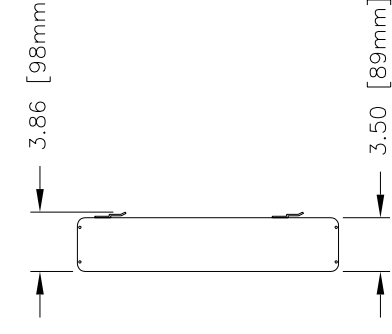


POWER/SIGNAL BOX RECESSED INTO DISPLAY CABINET. TYPICAL EACH MASTER DISPLAY.

RJ-45 RECEPTACLE FOR ETHERNET IN, RJ-11 RECEPTACLE FOR RS422 SIGNAL IN, AND RJ-11 RECEPTACLE FOR RS422 SIGNAL OUT. TYPICAL EACH MASTER DISPLAY. THERE ARE NO SIGNAL JACKS ON ECHO DISPLAYS.

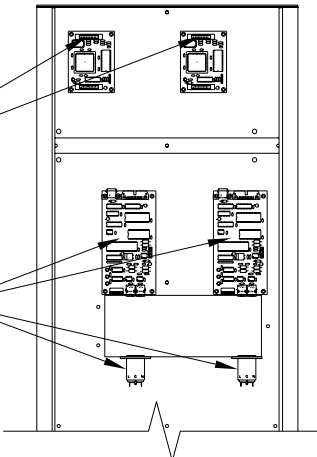


DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.

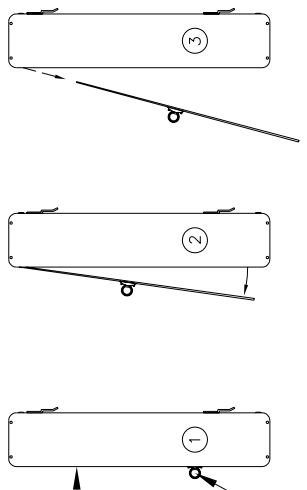


DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.

INPUT RIBBON CABLE TO CONNECT DISPLAYS TOGETHER.
CONTROLLERS AND Z-FILTERS IN MASTER DISPLAYS ONLY.



SECTION VIEW (2X SCALE)



FACE PANEL REMOVAL DETAIL (2X SCALE)

MUST LIFT FACE PANEL UP BEFORE REMOVING.
SUCTION CUPS USED FOR FACE PANEL REMOVAL ONLY. SUCTION CUPS PROVIDED BY DAKTRONICS.

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	WEIGHT LBS (Kg)	APPROXIMATE		
		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

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: KE-1010 TICKER DISPLAYS

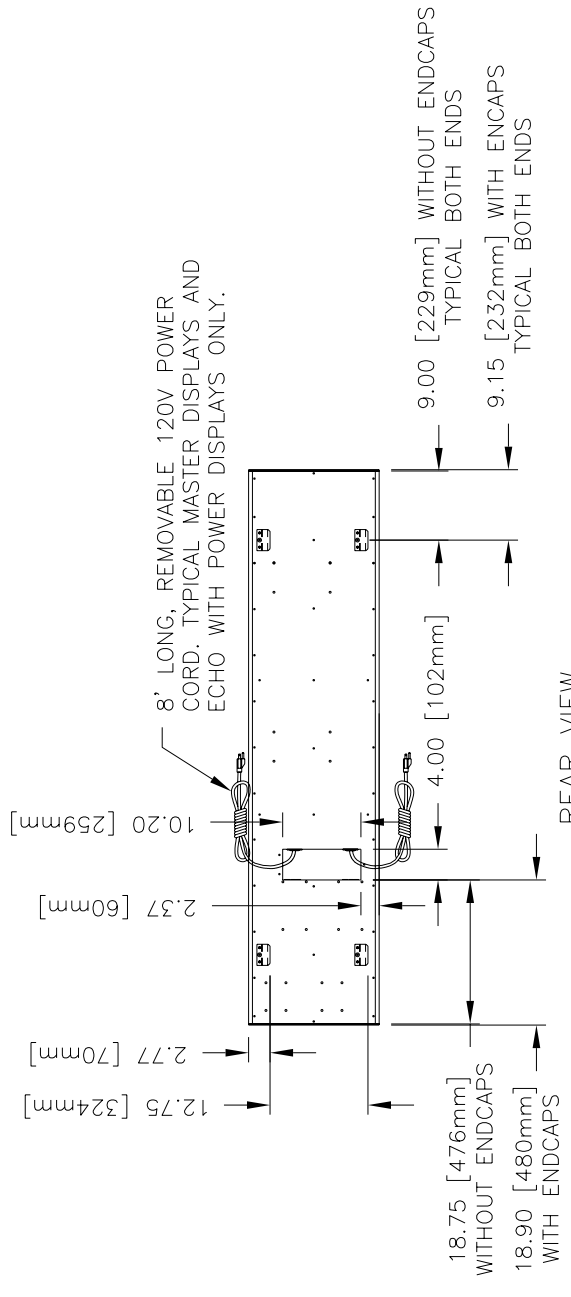
TITLE: SHOP DWG, GEN II, KE-1010-2-16X280/320/360/400

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

REVISION 03 APPR. BY: DDAGGITT SCALE: 1 = 25

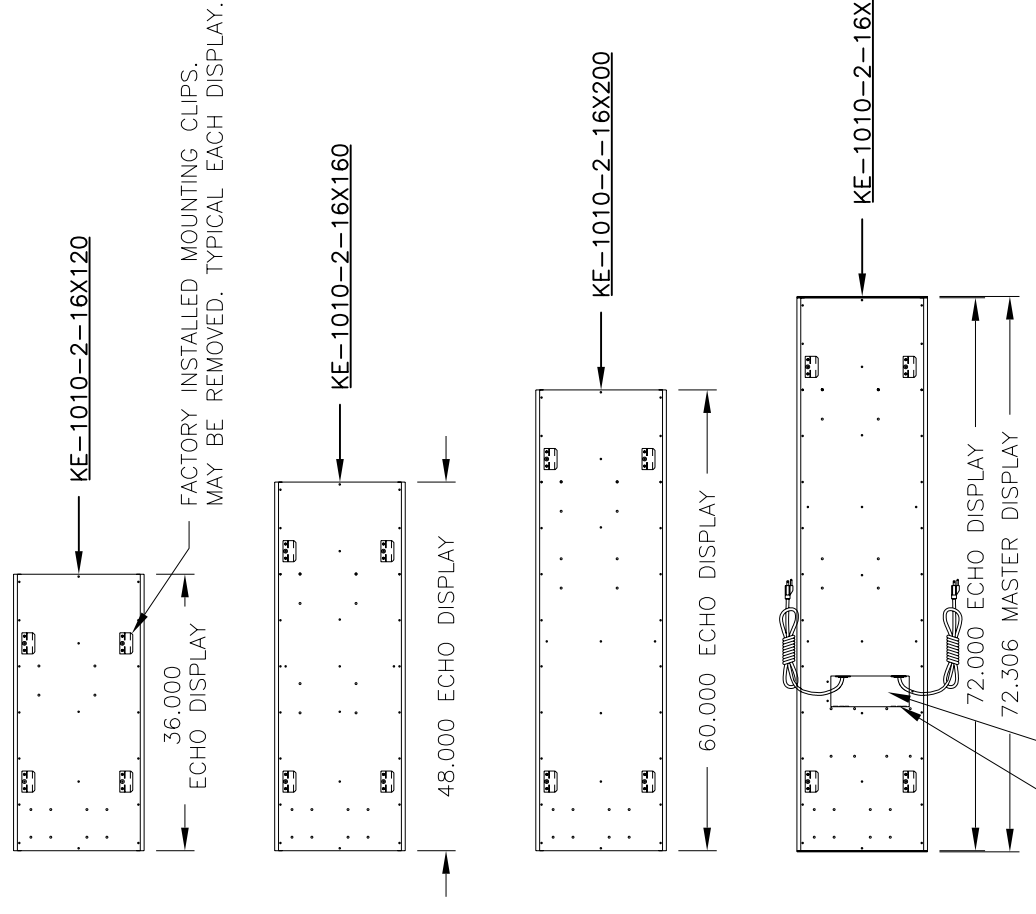
1182-E10B-210277

REV.	DATE	DESCRIPTION	BY	APPR.
03	19MAR05	7.89,10 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 2-16X360 AND 2-16X400. CHANGED FORMAT FROM A TO B SIZE PAPER.	RTV	
01	05 MAY 04	ADDED 320 WIDE DISPLAY.	DJD	

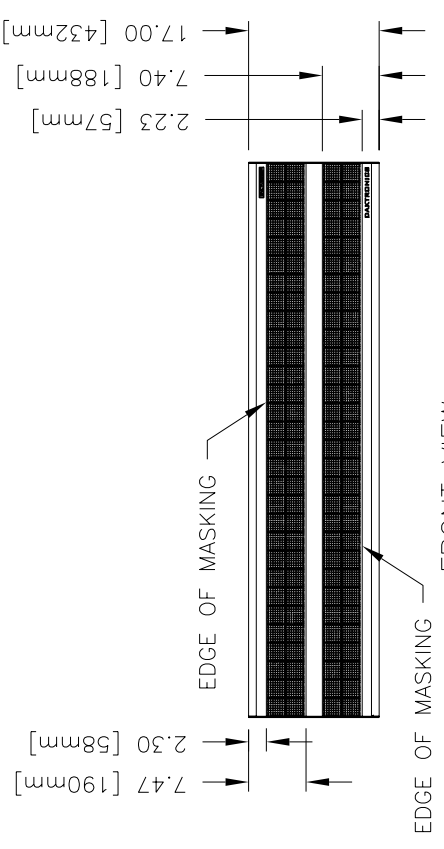


REAR VIEW

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.

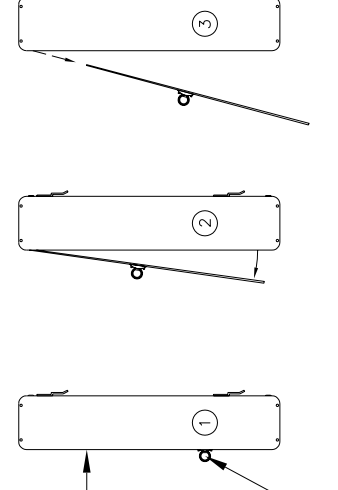
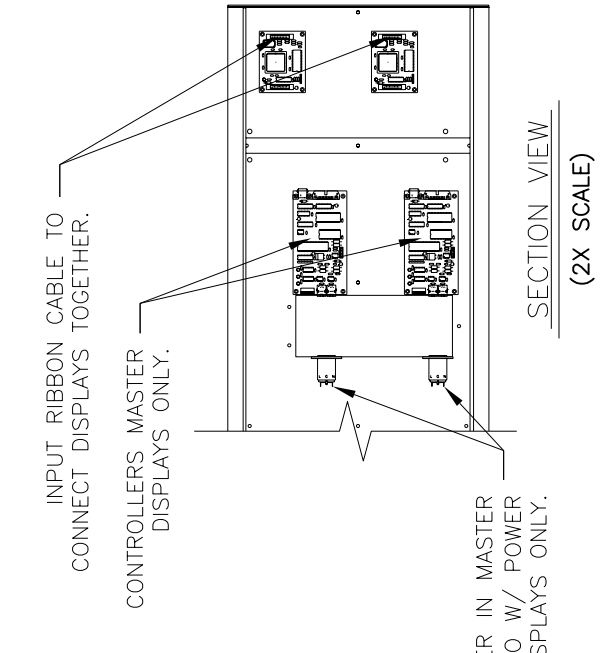


REAR VIEW



FRONT VIEW

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



FACE PANEL REMOVAL DETAIL

(2X SCALE)

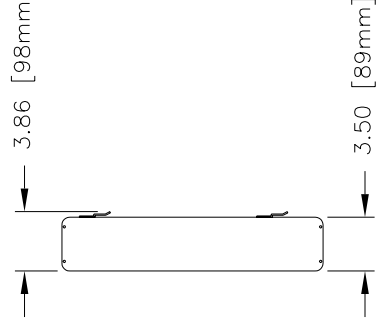
NOTES:

- 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.

RIGHT SIDE

(2X SCALE)

DIMENSIONS SHOWN TYPICAL FOR ALL DISPLAYS.



DISPLAY	APPROXIMATE			
	WEIGHT LBS (Kg)	MAXIMUM POWER (WATTS)	AMPS @120VAC	AMPS @240VAC
KE-1010-2-16X120-7.62-RG	29 (13)	263	2.19	1.10
KE-1010-2-16X160-7.62-RG	38 (17)	344	2.87	1.43
KE-1010-2-16X200-7.62-RG	48 (22)	425	3.55	1.77
KE-1010-2-16X240-7.62-RG	57 (26)	506	4.22	2.11

POWER/SIGNAL BOX RECESSED INTO DISPLAY CABINET. TYPICAL EACH MASTER DISPLAY AND ECHO WITH POWER DISPLAY.

RJ-45 RECEPTACLE FOR ETHERNET IN, RJ-11 RECEPTACLE FOR RS422 SIGNAL IN, AND RJ-11 RECEPTACLE FOR RS422 SIGNAL OUT. TYPICAL EACH MASTER DISPLAY. THERE ARE NO SIGNAL JACKS ON ECHO DISPLAYS.

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PROJ: INDOOR TICKER DISPLAYS
TITLE: SHOP DWG, GEN II, KE-1010-2-16X120/160/200/240

DES. BY: DDAGGITT DRAWN BY: RVOSS DATE: 22 MAR 05

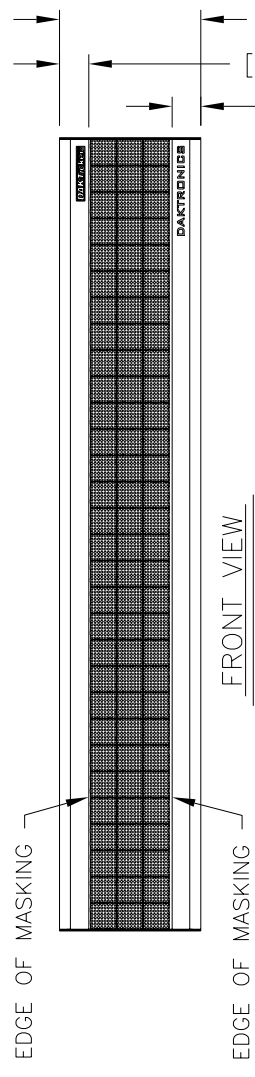
REVISION 00 APPR. BY: SCALE: 1 = 25

1182-E10B-237160

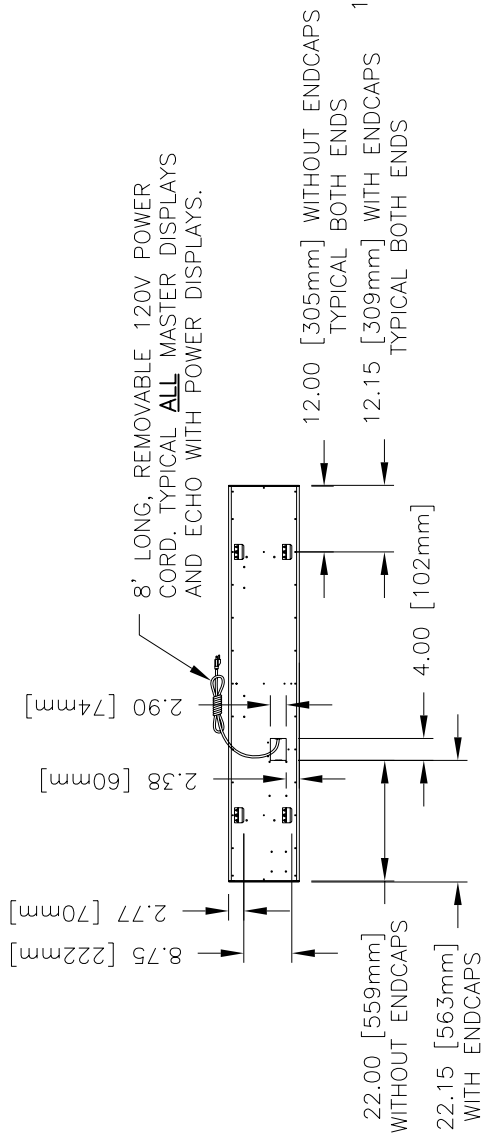
APPROXIMATE			
DISPLAY	WEIGHT LBS (Kg)	MAXIMUM POWER (WATTS)	AMPS @120VAC
KE-1010-24X120-7.62-RG	23 (11)	132	1.10
KE-1010-24X160-7.62-RG	31 (14)	172	1.43
KE-1010-24X200-7.62-RG	39 (18)	213	1.77
KE-1010-24X240-7.62-RG	47 (21)	253	2.11

AMPS @240VAC
0.55
0.72
0.89
1.06

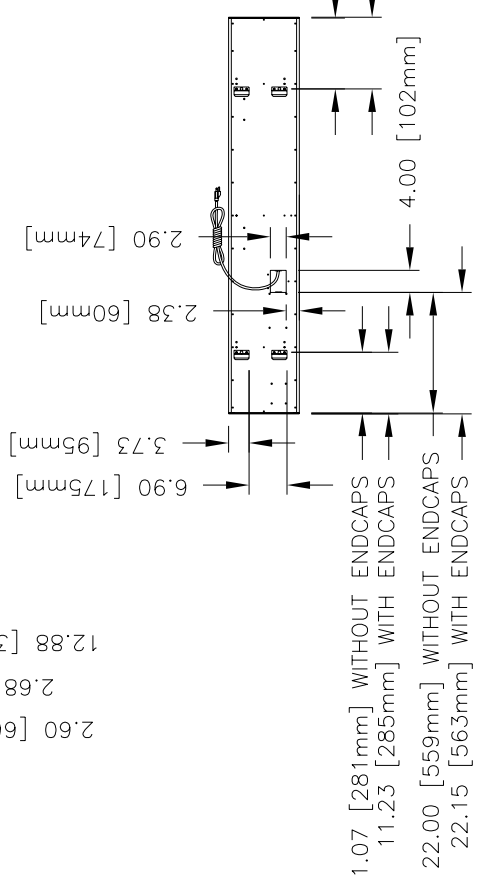
- NOTES:**
- 1) ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).
 - 2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION.
 - 3) DISPLAY CABINET COLOR IS FLAT BLACK.
 - 4) SERVICE INTERNAL COMPONENTS FROM THE FRONT AFTER REMOVING THE FACE PANEL (SEE REMOVAL DETAIL).
 - 5) DISPLAY WEIGHTS ARE SHOWN IN TABLE ABOVE.
 - 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.



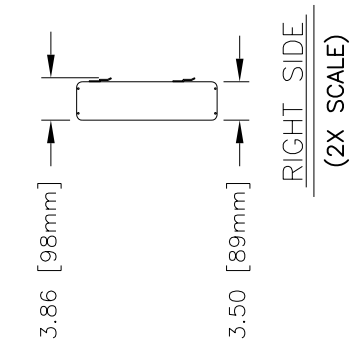
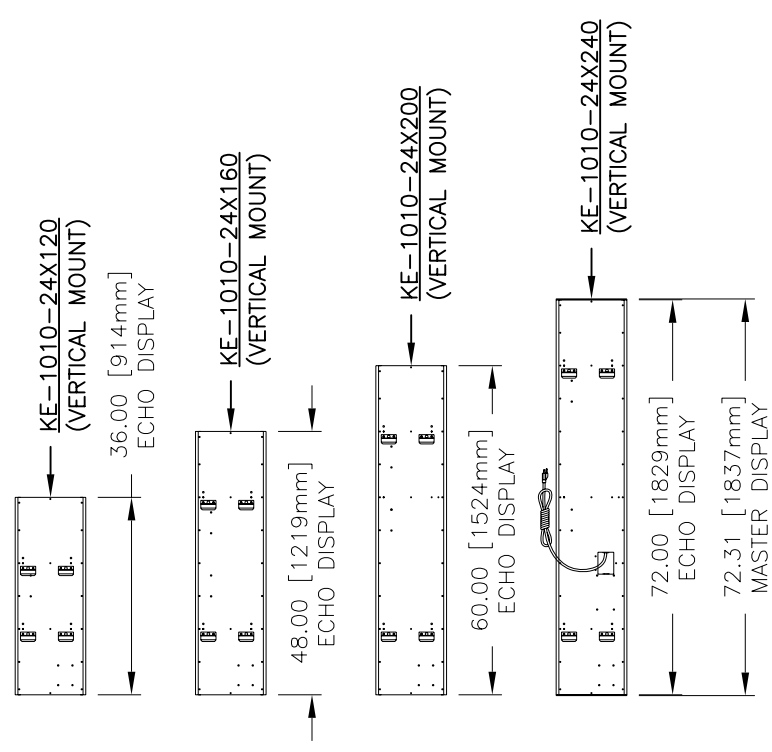
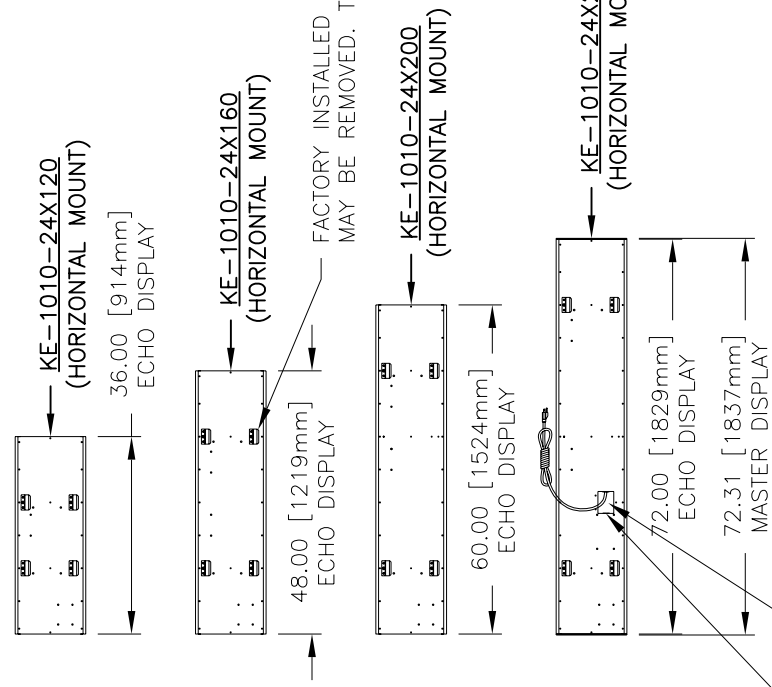
FRONT VIEW
(2X SCALE)
DIMENSIONS SHOWN TYPICAL FOR ALL HORIZONTAL AND VERTICAL DISPLAYS



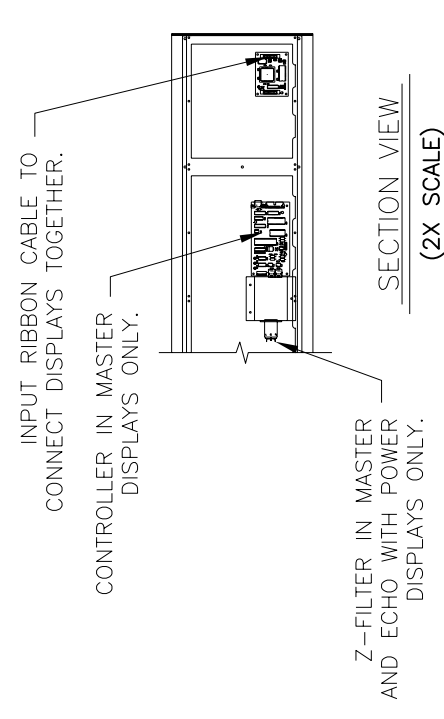
REAR VIEW
DIMENSIONS SHOWN TYPICAL FOR ALL HORIZONTAL DISPLAYS



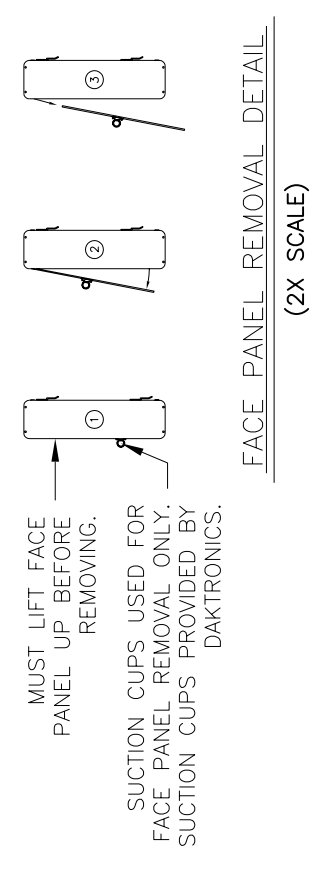
REAR VIEW
DIMENSIONS SHOWN TYPICAL FOR ALL VERTICAL DISPLAYS



RIGHT SIDE
(2X SCALE)



SECTION VIEW
(2X SCALE)



FACE PANEL REMOVAL DETAIL
(2X SCALE)

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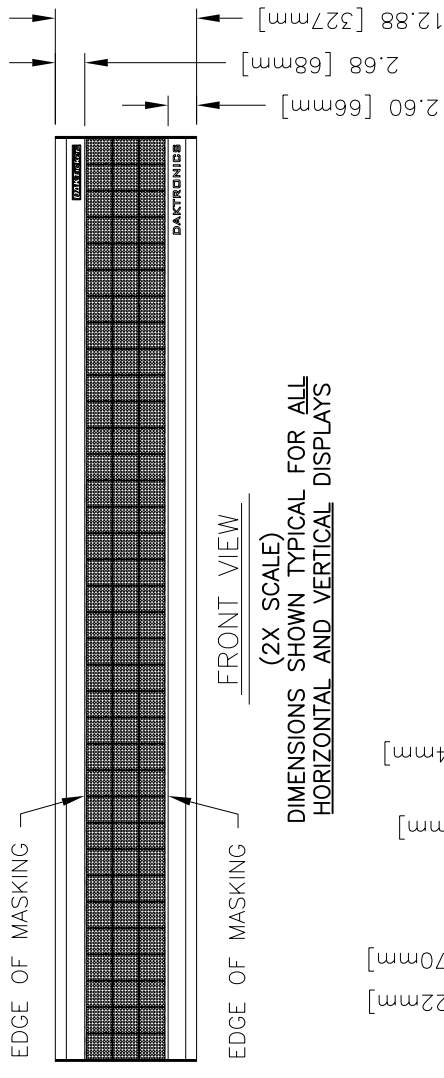
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: INDOOR TICKER DISPLAYS
TITLE: SHOP DWG, GEN II, KE-1010-24X120/160/200/240
DES. BY: DDAGGITT DRAWN BY: RYOSS DATE: 22 MAR 05

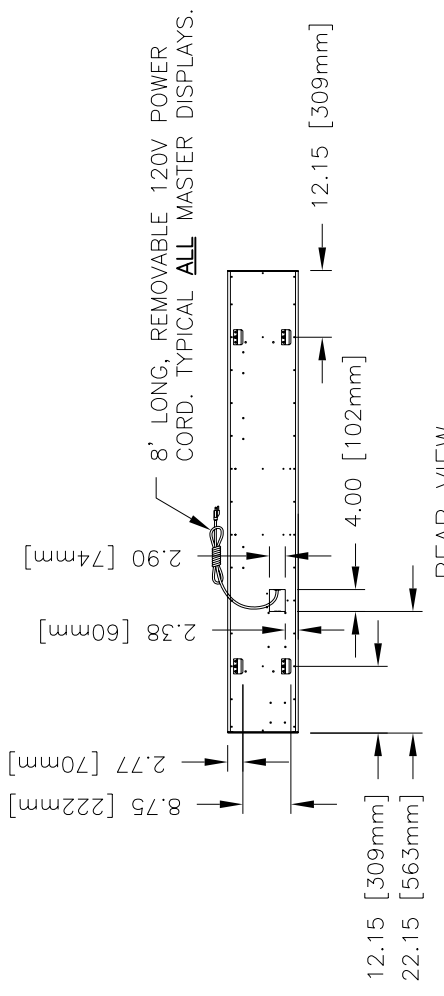
REVISION 00 APPR. BY: SCALE: 1 = 35

1182-E10B-237161

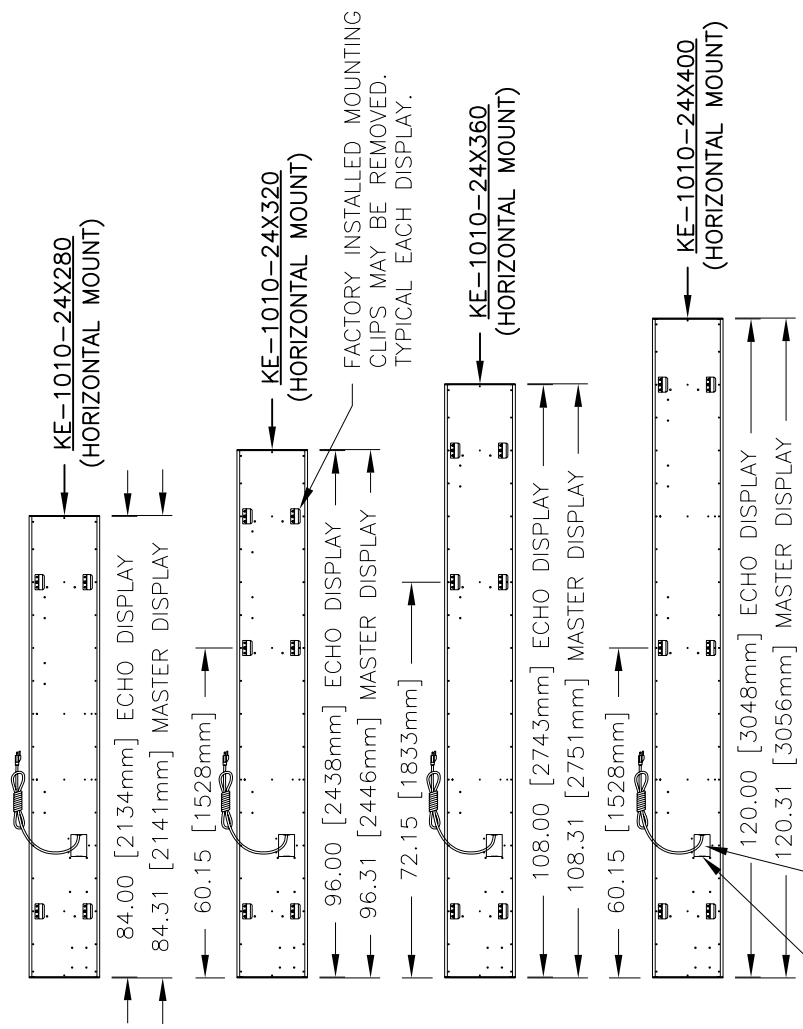
REV.	DATE	DESCRIPTION	BY	APPR.



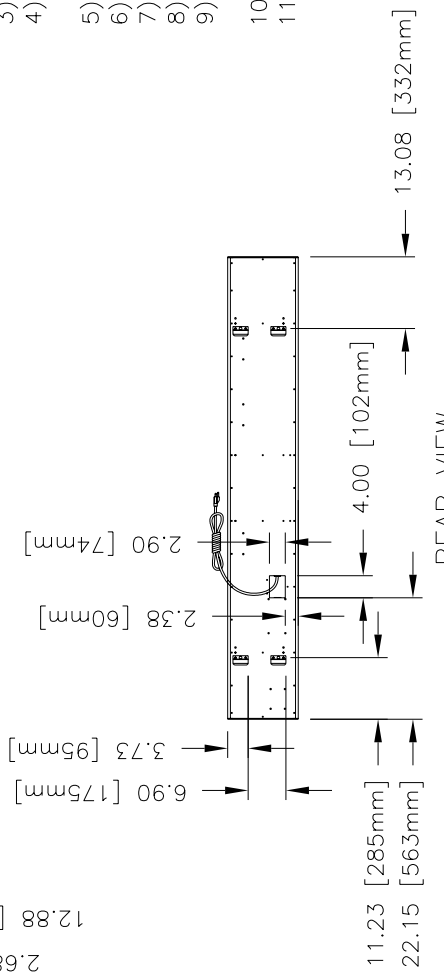
FRONT VIEW
(2X SCALE)
DIMENSIONS SHOWN TYPICAL FOR ALL HORIZONTAL AND VERTICAL DISPLAYS.



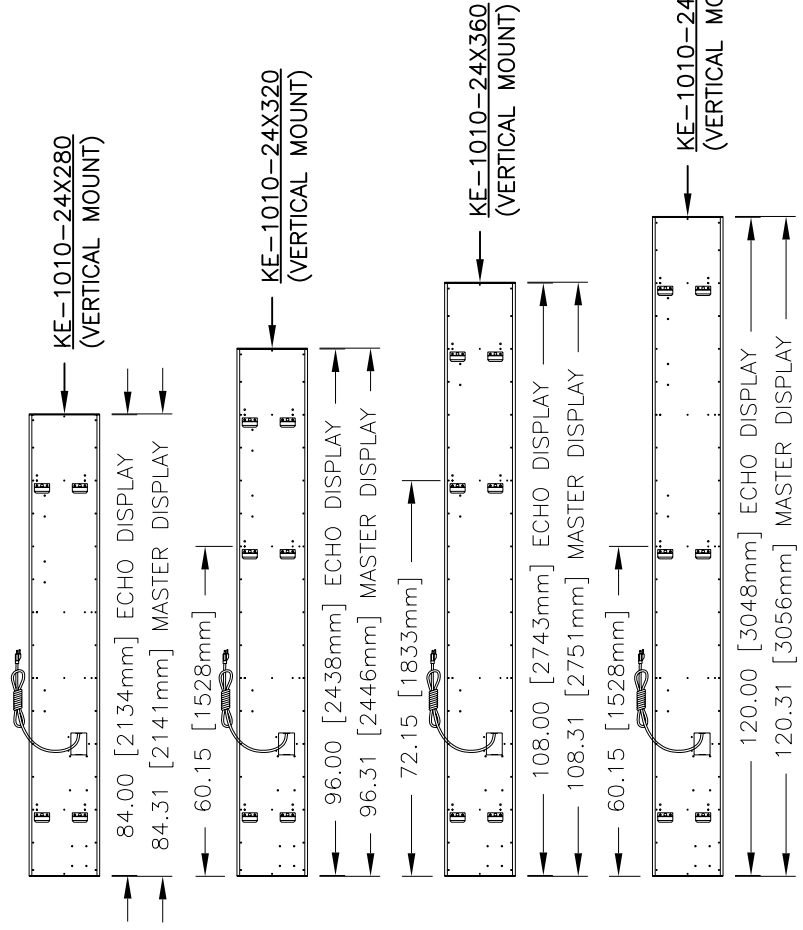
REAR VIEW
DIMENSIONS SHOWN TYPICAL FOR ALL HORIZONTAL DISPLAYS.



REAR VIEW



REAR VIEW
DIMENSIONS SHOWN TYPICAL FOR ALL VERTICAL DISPLAYS.



REAR VIEW

DISPLAY	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

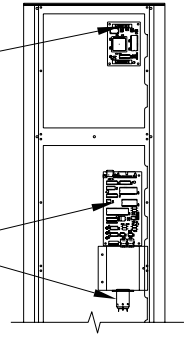
APPROXIMATE

NOTES:

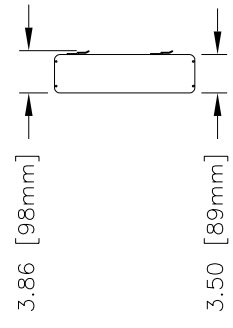
- 1) ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).
- 2) DISPLAY IS OF ALL ALUMINUM CONSTRUCTION.
- 3) DISPLAY CABINET COLOR IS FLAT BLACK.
- 4) SERVICE INTERNAL COMPONENTS FROM THE FRONT AFTER REMOVING THE FACE PANEL (SEE REMOVAL DETAIL).
- 5) DISPLAY WEIGHTS ARE SHOWN IN TABLE ABOVE.
- 6) DAKTRONICS IS 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.

INPUT RIBBON CABLE TO CONNECT DISPLAYS TOGETHER.

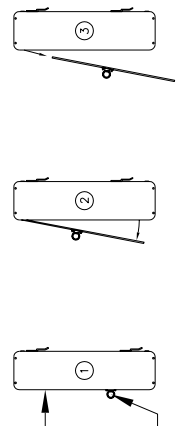
CONTROLLER AND Z-FILTER IN MASTER DISPLAYS ONLY.



SECTION VIEW
(2X SCALE)



RIGHT SIDE
(2X SCALE)



FACE PANEL REMOVAL DETAIL
(2X SCALE)

MUST LIFT FACE PANEL UP BEFORE REMOVING.

SUCTION CUPS USED FOR FACE PANEL REMOVAL ONLY. SUCTION CUPS PROVIDED BY DAKTRONICS.

POWER/SIGNAL BOX RECESSED INTO DISPLAY CABINET. TYPICAL ALL MASTER DISPLAYS.
RJ-45 RECEPTACLE FOR ETHERNET IN, RJ-11 RECEPTACLE FOR RS422 SIGNAL IN, AND RJ-11 RECEPTACLE FOR RS422 SIGNAL OUT. TYPICAL ALL MASTER DISPLAYS. THERE ARE NO SIGNAL JACKS ON ECHO DISPLAYS.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND NOT TO BE REPRODUCED BY ANY MEANS, INCLUDING ELECTRONICALLY, WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.

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 02
APPR. BY: SCALE: 1 = 35

1182-E10B-214329

REV.	DATE	DESCRIPTION	BY	APPR.
03	21 MAR 05	7.89, 10 FT SECTIONS ONLY UPDATED SPEC BLOCK	ASH	
02	20 SEPT 04	CHANGED DWG SCALE FROM 1"=30" TO 1"=35" AND ADDED 24X200. NOTES AND DETAILS.	RTV	
01	16 JUN 04	ADDED NOTE ABOUT SIGNAL JACKS IN AND OUT.	DJD	

Appendix B: Signal Converter

Signal Converters and Loop-back Testing for Direct Connections

The following table gives the typical state of the signal converter when the LEDs are either on or off. Refer to **Figure 25** for an illustration of the signal converter and the location of the various components.

LEDs	Typical States		Troubleshooting
Power	ON	Signal Converter (SC) is receiving power	
	OFF	Signal Converter is not receiving power	Check power/Replace fuse
		Internal 1 AMP fuse is bad	Replace fuse
TX	On Steady	Signal Converter is not connected to a serial port	Connect to open computer COM port
		1. Serial port or serial cable is bad 2. Computer COM port is in sleep mode	1. Try another port or replace serial cable 2. Communicate with display
	OFF Steady	Normal state, Signal Converter is not transmitting data	
	Brief Flicker	SC is transmitting data	
RX	ON Steady	1. Field cabling between Signal Converter and display is bad	1. Eliminate cabling by disconnecting wire/cable from SC to display controller 2. Check connections and terminations 3. Eliminate by disconnecting wire/cable to display controller
		2. Is connected to display output jack or terminated incorrectly	
		3. Bad COM port is on display controller	
	OFF Steady	Normal state, Signal Converter is not receiving data	
	Brief Flicker	SC is receiving data	
TX/RX	ON Steady	(If serial cable is connected) Bad Signal Converter	Replace Signal Converter

RS-422 Wire Signal Converter

The following tables list the jack pin-outs for a wire signal converter:

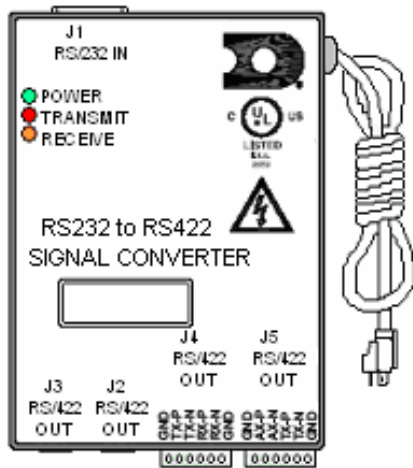


Figure 25: RS-232 to RS-422 Signal Converter

J4 and J5 – Phoenix	
PIN	OPERATION
1	GND
2	RX-P (in)
3	RX-N (in)
4	TX-P (out)
5	TX-N (out)
6	GND

J2 and J3 – RJ/11	
PIN	OPERATION
1	GND
2	TX-N (out)
3	TX-P (out)
4	RX-N (in)
5	RX-P (in)
6	GND

J1 – 25 Pin DB-F	
PIN	OPERATION
2	TX-P (out)
3	RX-P (in)
7	GND

RS-422 Loop-Back Test (Indoor/Outdoor Displays)

All indoor displays and some outdoor displays (AE-3010, AF-3010, AF-3020, and X-1000) use RJ11 plugs or connectors. In those cases, a “Network Cable Tester” is provided to conduct the test.

The network cable tester is used to test for two things:

- verify that a flipped RJ11 cable is being used.
- verify that a good connection is made from a computer or signal converter.

The use of a flipped (reversed) or straight cable can be determined visually. Use the figures below as a guide, or use the Network Cable Tester box for assistance.

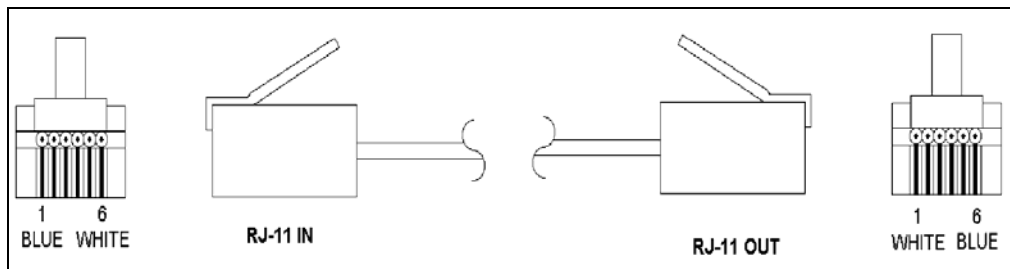


Figure 26: Flipped Cable (Reversed)

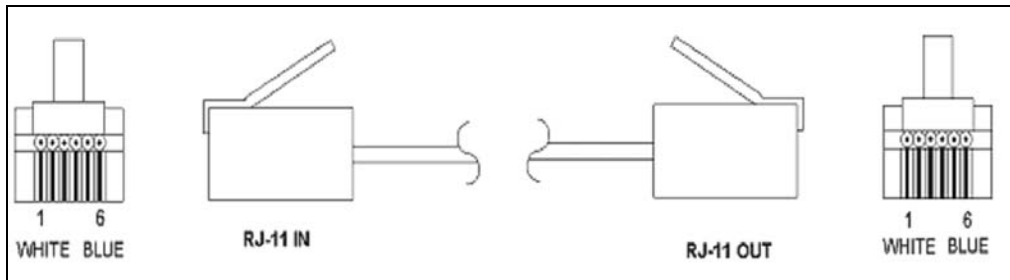


Figure 27: Straight Cable

1. Plug one end of the flipped cable into the output from the computer or signal converter.
2. Plug one end of the flipped cable into J2 (Loopback Connector) on the network cable tester box.
3. When both ends are connected, perform the loop-back test using the Venus 1500 software as described in **Section 1.4**.

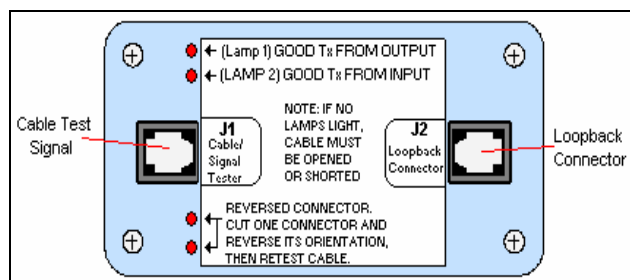


Figure 28: Network Cable Tester

Electrical and Signal Information

WARNINGS:

- Never install telephone wiring during a lightning storm.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
- To reduce the risk of fire, use only 26AWG or larger telecommunication line cord.
- This product is to be used with UL and c-UL listed computers.

Electrical Ratings

The Signal Converter is rated for either 120 or 240 VAC power in and a maximum draw of 5 watts. Refer to the parts descriptions in **Section 2.3**.

Power Disconnect

The power cord serves as the disconnect device and the socket outlet must be installed near the equipment and must be easily accessible.

Parts Listing

The following parts may need replacing during the life of the component.

Servicing should be conducted by qualified personnel only.

Part Description	Part Number
RS-232-422 Signal Converter, 120 V	0A-1127-0255
RS-232-422 Signal Converter, 240 V	0A-1127-0257
Fuse; AGC-1, 1A, Glass Tube 250 V	F-1019
6 Pin Fem, 5 mm, TB Mate, Screw	P-1051

Environmental Rating

The signal converter is made for indoor operations and is rated for indoor use only.

Mounting Instructions

The signal converter can be either wall or table mounted. Do not mount the signal converter from the ceiling or the underside of a table.

To mount the signal converter, refer to drawing **B-200645**. Secure the signal converter using a screw through the mounting holes at the back of the enclosure. Do not fully tighten the screws.

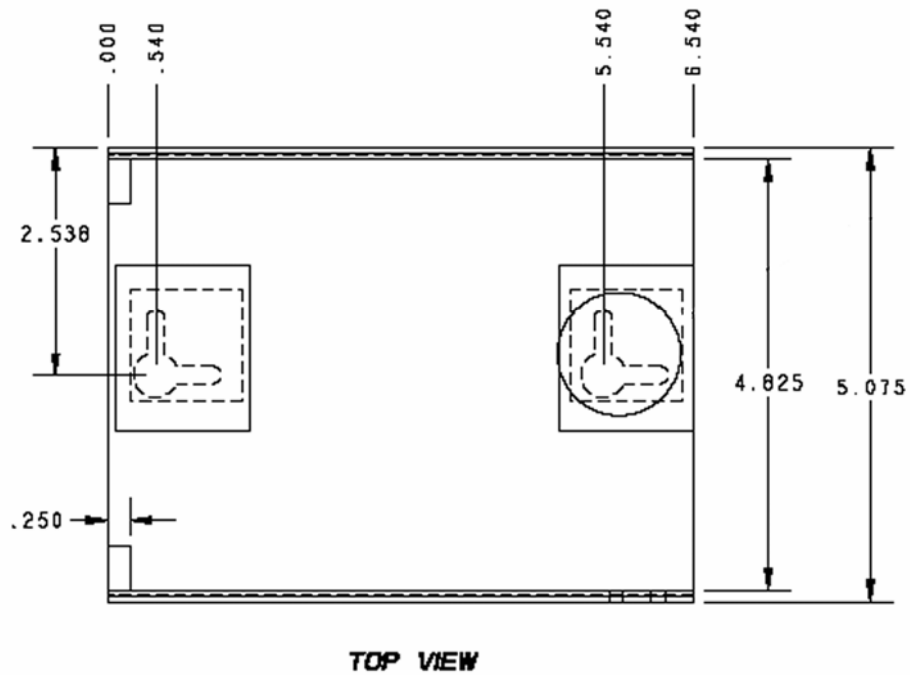


Figure 29: Signal Converter Enclosure