

Display Manual

DataTrac^ä S-100 and S-200 0.7", 1.2" and 2.1"

ED-10191

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Section 1: Introduction

1.1 How to Use this Manual

This manual explains the installation and maintenance of the Daktronics DataTrac™ displays. For questions regarding the safety, installation, operation or service of this system, please refer to the telephone numbers listed on the cover page of this manual.

⌘ Important Safeguards:

1. Read and understand these instructions before installing.
2. Do not drop the control console or allow it to get wet.
3. Be sure the display is properly grounded with a ground rod at the display location.
4. *Disconnect power to the display when it is not in use.*
5. *Disconnect power when servicing the display.*
6. Do not modify the display structure or attach any panels or coverings to the display without the written consent of Daktronics, Inc.

The manual is divided into five sections: Introduction, Mechanical Installation, Electrical Installation, Maintenance & Troubleshooting and Appendix.

- **Introduction** covers the basic information needed to make the most of the rest of this manual. Take time to read the entire introduction as it defines terms and explains concepts used throughout the manual.
- **Mechanical Installation** provides general guidance on display mounting.
- **Electrical Installation** provides general guidance on terminating power and signal cable at the display.
- **Maintenance & Troubleshooting** addresses such things as removing basic display components, troubleshooting the display, performing general maintenance and exchanging display components.
- **Appendix A: Optional Temperature Sensor** provides instructions on installing the temperature sensor, if it was purchased.
- **Appendix B: Drawings** at the end of this manual contains drawings specific to these types of displays.

Listed below are a number of drawing types commonly used by Daktronics, along with the information that each is likely to provide.

- **System Riser Diagrams:** overall system layout from control room to display, power and phase requirements.
- **Shop Drawings:** fan locations, transformer locations, mounting information, power and signal entrance points and access method (front or rear).
- **Schematics:** power wiring, signal wiring, load center or power termination panel assignments, signal termination panel assignments and transformer assignments.
- **Final Assembly:** component locations, part numbers, display dimensions, and assembly/disassembly instructions.

The following box, **Figure 1**, is an illustration of a Daktronics drawing label. The drawing number is located in the lower-right corner of the drawing. This manual refers to drawings by listing the last set of digits and the letter preceding them. In the following example, the drawing would be referred to as

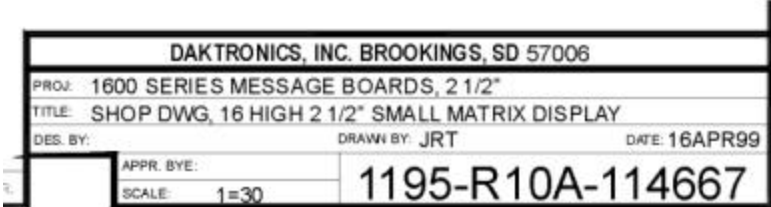


Figure 1: Drawing Label

Drawing A-114667.

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

“Refer to **Drawing A-114667** for the location of the load center.”

In addition, any drawings referenced within a particular sub-section are listed at the beginning of that sub-section in the following manner:

Reference Drawing: Shop Drawing;16 High 2 ½” Small Matrix.....**Drawing A-114667**

Referenced drawings are found in **Appendix B**.

Daktronics identifies manuals by an ED number located on the cover page of each manual. Any manuals referenced in this manual will be identified by its ED number. For example, this manual would be referred to as **ED-10191**.

The serial number and model numbers can be found on the ID label, located on the display. This label will look similar to the one shown in **Figure 2**. When calling Daktronics Customer Service, please have this information available to ensure that your request is serviced as quickly as possible.

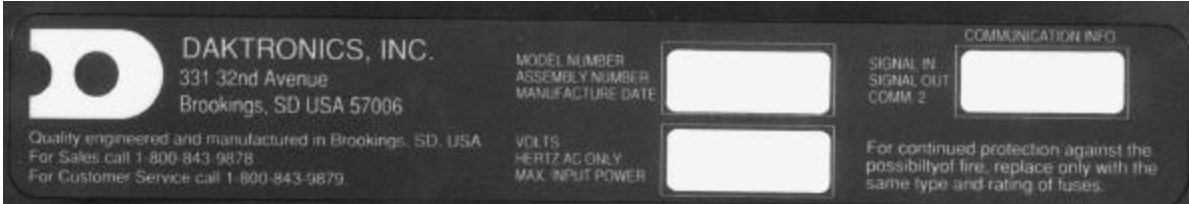


Figure 2: Display ID Label

Daktronics displays are built for long life and require little maintenance. However, from time to time, certain display components will need replacing. The Replacement Parts List in **Section 4.6** provides the names and part numbers of components that may need to be ordered during the life of this display.

Following the Replacement Parts List is the Exchange/Replacement Procedure. Refer to these instructions if any display component needs to be replaced or repaired.

1.2 Safety Precautions

1. Read and understand these instructions before installing.
2. Be sure that the display is properly grounded.
3. Disconnect power before working on the display.
4. Do not modify the displays or attach any panels or coverings to the display without the express written consent of Daktronics, Inc.
5. Most products are equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a qualified electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.

1.3 Network Concepts

Reference Drawings:

System Riser Diagram; RS/232.....	Drawing A-91388
System Riser Diagram; RS/422.....	Drawing A-91387
System Riser Diagram; Modem	Drawing A-91386
V1500 System Riser Diagram	Drawing A-93904

The concept of using LED displays as a cost effective, high impact method of communication is rapidly growing throughout many industries and businesses. The reasons for this growth are many, but the need for additional features and complexity of multiple sign installations has emerged, and the Daktronics display systems have been designed to meet those needs. The common thread to most clients=requests is a means of programming and controlling a group of signs from a central control point. Daktronics responded by developing a powerful system of interconnecting and controlling signs. Great care has been taken to design products that will satisfy a wide variety of installations. Some of the design goals of these systems include the following:

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

All of the programming features would seem insignificant if the installation of the systems could not be accomplished with basic tools and without technical difficulty. Daktronics decided to use the very popular and readily available RJ-11 connector. This connector is also used on modern home and office telephone equipment.

All that is required for signal installation is standard six (6) conductor modular telephone wire. Tools required for mounting the display depend on the location and size of the display. For some installations, it may be possible to buy pre-terminated telephone cables for use with the displays.

There are four (4) network systems available: RS232, RS422, modem and TCP/IP.

RS232 Network

RS232 (EIA/TIA-232-E) is a standard communication interface that employs a single-ended serial transmission scheme that uses a maximum cable length of 7.62 meters (25 feet). This interface

was designed for computer communication at short distances. All computers have an RS232 communications port. Refer to **Drawing A-91388**.

RS422 Network

RS422 (EIA/TIA-422-B) is a standard communication interface that utilizes a differential balanced transmission scheme that uses a typical maximum cable length of 1.2 km (approximately 4000 feet). The main advantage to RS422 over RS232 is the longer cable length that is possible. A signal converter is needed to convert the computer's RS232 to RS422. Refer to **Drawing A-91387**.

Modem Network

The modem is a standard communication interface that utilizes standard phone transmission lines. The phone company assigns each phone line a number that the modem uses to communicate between controller and display. Refer to **Drawing A-91386**.

TCP/IP Network

The TCP/IP protocol is an interface allowing the Ethernet network card (installed in the operator's computer) to communicate with the serial server via a Local Area Network (LAN). Information for the individual displays is distributed from the serial server's RS232 and output. Refer to **Drawing A-93904**.

1.4 Display Overview

The Daktronics Indoor LED displays have been designed and manufactured for performance, reliability, easy maintenance and long life. The displays consist of an array of LED pixels. The configuration of the LED pixels is dependent on the family of LED displays. The standard character is seven pixels high by five pixels wide.

A typical system consists of a Windows[®]-based personal computer (PC) running Venus[®] 1500 software and one or more displays. The PC controls one or more DataTrac displays. The displays are offered as single-face displays, which are single-sided stand-alone units. They can become double-faced by mounting them back-to-back with a second unit.

The Venus 1500 is a software package that runs under Windows 3.1x or Windows 95[®] operating systems on an IBM-compatible computer. Refer to the Venus 1500 controller manual, **ED-12717**, for installation and maintenance of the Venus 1500 editing station.

DataTrac displays are character-based indoor LED displays that are available in monochrome red or tri-color (red, green and amber) characters. This display family is for 5x7 single-stroke fonts and graphic fonts. Daktronics offers the DataTrac displays with a 0.7@, 1.2@ or 2.1@ character in various lengths. The DataTrac model numbers are described as follows: **S-X00-LLL-CCC-DD**

- S** = DataTrac Display
- X00** = 100 = Indoor Monochrome Red
200 = Indoor Tri-Color (Red, Green, Amber)
- LLL** = Number of Lines Tall (4, 8 and 12 are available)
- CC** = Number of Characters per Line (18, 24, 30, 36, 42 or 48)
- C**
- DD** = Character Height (0.7", 1.2" or 2.1")

1.5 Definitions

Com Port: A *Com Port* is a connector on the back of the controller PC. The Com Port is used to control the sign *network* through either a 9- or 25-pin serial connector.

Display Configuration: *Display configuration* refers to a display's model number, address, etc. This information will be automatically displayed when the display is powered up. Display configuration is as follows:

1. Output Test (DDD's)
2. Display Model Number (i.e. S-100-12-24-0.7)
3. Firmware Version
4. COM1 Configuration (typically V1500)
5. COM2 Configuration (either DataView™ or RTD)
6. Power Line Frequency (i.e. 60 Hz)
7. Display Address – displayed in binary code (i.e. 001)
8. Sign Name
9. Modem (if present)

Flipped Cable: The *flipped cable* is a six (6) conductor phone cable. Pin 1 of connector A connects to pin 6 of connector B.

LAN: Local Area Network

Loop Back Test: The *loop back test* is a troubleshooting test that connects the output to the input. Contact Daktronics customer service for this test.

Module: A module is one unit of the display. A module for a 0.7@display consists of 4 lines by 12 characters of LEDs. The 1.2@and 2.1@displays=modules consist of 4 lines by 6 characters.

Network: A *network* consists of multiple signs connected to each other. Up to 240 Venus 1500 controlled displays can exist on one network.

RS232: RS232 is a standard PC communication type with a maximum cable length of 25 feet (7.62 meters).

RS422: RS422 is a standard differential communication type with a maximum cable length of 4000 feet (1.2 kilometers).

RX LED: A *RX LED* is a LED on the signal converter that indicates if the display is sending data back to the *signal converter*.

Serial Server: A *serial server* is a device used to obtain information off of a LAN.

Sign Address: The *sign address* is an identification number assigned to each sign of a *network*. The control software uses the address to locate and communicate with each display. Displays that are on the same network cannot have the same address.

Signal Cable Tester: The *signal cable tester* is used to test the cable connections and data communication.

Signal Converter: The *signal converter* is a Daktronics supplied unit that converts the data from RS232 to RS422. The signal converter is used in RS422 systems.

TCP/IP: The *TCP/IP* (Transmission Control Protocol/Internet Protocol) is a communications protocol used for LANs.

TX LED: A *TX LED* is a LED on the serial converter that indicates the control PC is sending data to the display.

Venus 1500: The *Venus 1500* is a Daktronics designed, Windows-based software used to run the displays.

1.6 Daktronics Nomenclature

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

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

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


- “TB???” denotes a termination block for power or signal cable.
- “F???” denotes a fuse.
- “E???” denotes a grounding point.
- “J???” denotes a power or signal jack.
- “P???” denotes a power or signal plug for the opposite jack.

Finally, Daktronics part numbers are commonly found on drawings. Those part numbers can be used when requesting replacement parts from Daktronics Customer Service. Take note of the following part number formats. (Not all possible formats are listed here.)

- “0P-????-????” denotes an individual circuit board.
- “0A-????-????” denotes 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-????” denotes a wire or cable. Cables may also carry the assembly numbering format in certain circumstances. This is especially true of ribbon cables.
- “F-????” denotes a fuse.
- “T-????” denotes a transformer
- “PR-????-?” denotes a specially ordered part.

RG Indoor Character-Based—S-100 and S-200 Series

DataTrac™ S-100 displays show text in red and S-200 displays show text in a combination of red, green and amber characters. Both displays are programmed with Venus® 1500 display control software.

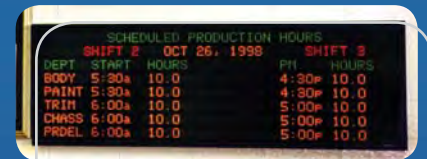
 Model Specifications (All Specifications are Approximate)						
Matrix Size	Single Face Cabinet Feet -Inches (H x W x D)	Single Face Cabinet Meters (H x W x D)	Single Face Weight Pounds (kg)	Characters per Line	Character Height	Max. Watts per Face
S-100 – 0.7" high characters						
4x24	10" x 1'7" x 5"	.25 x .48 x .13	15 (7)	24	0.7"	100
4x36	10" x 2'3" x 5"	.25 x .69 x .13	20 (9)	36	0.7"	150
4x48	10" x 2'10" x 5"	.25 x .86 x .13	25 (11)	48	0.7"	190
8x24	1'4" x 1'7" x 5"	.41 x .48 x .13	25 (11)	24	0.7"	190
8x36	1'4" x 2'3" x 5"	.41 x .69 x .13	30 (14)	36	0.7"	280
8x48	1'4" x 2'10" x 5"	.41 x .86 x .13	35 (16)	48	0.7"	370
12x24	1'10" x 1'7" x 5"	.56 x .48 x .13	30 (14)	24	0.7"	280
12x36	1'10" x 2'3" x 5"	.56 x .69 x .13	40 (18)	36	0.7"	420
12x48	1'10" x 2'10" x 5"	.56 x .86 x .13	50 (23)	48	0.7"	550
S-100 and S-200 – 1.2" high characters						
4x18	11" x 2'4" x 5"	.28 x .71 x .13	20 (9)	18	1.2"	140
4x24	11" x 2'11" x 5"	.28 x .89 x .13	25 (11)	24	1.2"	180
4x30	11" x 3'6" x 5"	.28 x 1.07 x .13	30 (14)	30	1.2"	220
4x36	11" x 4'2" x 5"	.28 x 1.27 x .13	35 (16)	36	1.2"	260
4x42	11" x 4'9" x 5"	.28 x 1.45 x .13	40 (18)	42	1.2"	300
4x48	11" x 5'4" x 5"	.28 x 1.63 x .13	45 (20)	48	1.2"	350
8x18	1'6" x 2'4" x 5"	.46 x .71 x .13	30 (14)	18	1.2"	260
8x24	1'6" x 2'11" x 5"	.46 x .89 x .13	40 (18)	24	1.2"	350
8x30	1'6" x 3'6" x 5"	.46 x 1.07 x .13	45 (20)	30	1.2"	430
8x36	1'6" x 4'2" x 5"	.46 x 1.27 x .13	50 (23)	36	1.2"	510
8x42	1'6" x 4'9" x 5"	.46 x 1.45 x .13	60 (27)	42	1.2"	590
8x48	1'6" x 5'4" x 5"	.46 x 1.63 x .13	65 (29)	48	1.2"	680
12x18	2'1" x 2'4" x 5"	.64 x .71 x .13	40 (18)	18	1.2"	390
12x24	2'1" x 2'11" x 5"	.64 x .89 x .13	50 (23)	24	1.2"	510
12x30	2'1" x 3'6" x 5"	.64 x 1.07 x .13	60 (27)	30	1.2"	630
12x36	2'1" x 4'2" x 5"	.64 x 1.27 x .13	70 (32)	36	1.2"	760
12x42	2'1" x 4'9" x 5"	.64 x 1.45 x .13	80 (36)	42	1.2"	880
12x48	2'1" x 5'4" x 5"	.64 x 1.63 x .13	90 (41)	48	1.2"	1,000
S-100 and S-200 – 2.1" high characters						
4x18	1'4" x 3'2" x 5"	.41 x .97 x .13	35 (16)	18	2.1"	140
4x24	1'4" x 4'1" x 5"	.41 x 1.24 x .13	40 (18)	24	2.1"	180
4x30	1'4" x 5'0" x 5"	.41 x 1.52 x .13	50 (23)	30	2.1"	220
4x36	1'4" x 5'11" x 5"	.41 x 1.8 x .13	55 (25)	36	2.1"	260
4x42	1'4" x 6'10" x 5"	.41 x 2.08 x .13	65 (29)	42	2.1"	300
4x48	1'4" x 7'8" x 5"	.41 x 2.34 x .13	75 (34)	48	2.1"	350
8x18	2'4" x 3'2" x 5"	.71 x .97 x .13	55 (25)	18	2.1"	260
8x24	2'4" x 4'1" x 5"	.71 x 1.24 x .13	65 (29)	24	2.1"	350
8x30	2'4" x 5'0" x 5"	.71 x 1.52 x .13	80 (36)	30	2.1"	430
8x36	2'4" x 5'11" x 5"	.71 x 1.8 x .13	95 (43)	36	2.1"	510
8x42	2'4" x 6'10" x 5"	.71 x 2.08 x .13	105 (48)	42	2.1"	590
8x48	2'4" x 7'8" x 5"	.71 x 2.34 x .13	120 (54)	48	2.1"	680
12x18	3'4" x 3'2" x 5"	1.02 x .97 x .13	75 (34)	18	2.1"	390
12x24	3'4" x 4'1" x 5"	1.02 x 1.24 x .13	90 (41)	24	2.1"	510
12x30	3'4" x 5'0" x 5"	1.02 x 1.52 x .13	110 (50)	30	2.1"	630
12x36	3'4" x 5'11" x 5"	1.02 x 1.8 x .13	130 (59)	36	2.1"	760
12x42	3'4" x 6'10" x 5"	1.02 x 2.08 x .13	150 (68)	42	2.1"	880
12x48	3'4" x 7'8" x 5"	1.02 x 2.34 x .13	170 (77)	48	2.1"	1,000

Additional matrix sizes are available

Measurements are approximate. For precise measurements, request a Daktronics shop drawing.

S-100 & S-200 Technical Specifications

- Character Heights:
 - S-100 – 0.7", 1.2" and 2.1"
 - S-200 – 1.2" and 2.1"
- Color Capability:
 - S-100 – red
 - S-200 – RG: red, green and amber
- LEDs per Pixel: Monolithic block
- Estimated LED Lifetime: 100,000+ hours
- Viewing Angle:
 - 140 degrees horizontal x
 - 140 degrees vertical
- Contrast Enhancement: Polycarbonate face
- Service Access: Front access
- Control Software: Venus® 1500
- Power: 120 VAC single phase
- Communication Options: RS232, RS422, Modem and TCP/IP
- Compliance Information: ETL Listed



Ford Motor Company
Edison, New Jersey
8x42 matrix RG



Sysco Food Services
Fremont, California
12x42 matrix RG

Model Number Guide

Model Series Letter	S-200-12x24-1.2	Character Height
	100 Red 200 RG	Number of Character Blocks per Line of Display
	Number of Lines	

Section 2: Mechanical Installation

LNote: Daktronics engineering staff must approve *any* changes made to the display. If any modifications are made, detailed drawings of the changes *must* be submitted to Daktronics for evaluation and approval, or the warranty may be void.

Refer to the appropriate shop drawing for your type of display during installation.

Reference Drawings:

Shop Drawing; S-***-4-24-0.7"	Drawing A-89791
Shop Drawing; S-***-4-36-0.7"	Drawing A-92153
Shop Drawing; S-***-4-48-0.7"	Drawing A-92154
Shop Drawing; S-***-8-24-0.7"	Drawing A-92155
Shop Drawing; S-***-8-36-0.7"	Drawing A-92156
Shop Drawing; S-***-8-48-0.7"	Drawing A-92157
Shop Drawing; S-***-12-24-0.7"	Drawing A-89360
Shop Drawing; S-***-12-36-0.7"	Drawing A-92158
Shop Drawing; S-***-12-48-0.7"	Drawing A-92159
Shop Drawing; S-***-4-*-1.2"	Drawing A-96635
Shop Drawing; S-***-8-*-1.2"	Drawing A-96637
Shop Drawing; S-***-12-*-1.2"	Drawing A-96639
Shop Drawing; S-***-4-*-2.1"	Drawing A-77323
Shop Drawing; S-***-8-*-2.1"	Drawing A-77321
Shop Drawing; S-***-12-*-2.1"	Drawing A-77322

2.1 Support Structure Design

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

2.2 Display Ventilation Requirements

Fresh air inlets and exhaust vents should not be obstructed in any way. Using the Daktronics suggested mounting methods will ensure proper ventilation. If you are using a different mounting method, consult a Daktronics sales representative for clearance requirements regarding your particular display. If ventilation requirements are not met, the display warranty will be void.

2.3 Display Mounting

Reference Drawings:

Mtg. Detail; Top Hanging Mount, All Displays	Drawing A-92315
Mtg. Detail; Rear Hanging Mount, 0.7" Displays	Drawing A-92292
Mtg. Detail; Rear Hanging Mount, 1.2" and 2.1" Displays	Drawing A-76158

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 is not responsible for the installations or the structural integrity of support structures done by others.*

Daktronics recommends either a wall mount or a hanging mount method. A removable wall mounting bracket and eyebolts for hanging are included with each display. Have *all* mounted displays inspected by a qualified structural engineer.

Hanging Mount

The DataTrac has two pre-drilled holes in the top of the display for use in the hanging mounting method. To hang a display refer to **Drawing A-92315** and the following instructions:

1. Remove the two retaining screws from the top of the display using a 5/32" Allen wrench (refer to **Figure 3**).
2. Slide a washer over the threads of each eyebolt.
3. Insert the eyebolts into the pre-drilled holes on the display (refer to **Figure 4**).
4. Hand-tighten the eyebolts.

Note: Hanging the display without using the supplied eyebolts will negate the warranty. Attaching or hanging anything from the display will render the warranty null and void.

Wall Mount

The DataTrac has eight (8) or twelve (12) holes on the back of the display for the attachment of the wall mounting clips. Refer to **Drawing A-92292** or **Drawing A-76158** and the following instructions:

1. Using the #8-32 screws or 1/4-20 bolts provided with the display, attach the mounting clips to the rear of the display as shown (refer to **Figure 5** and **Figure 6**). *Use all clips*

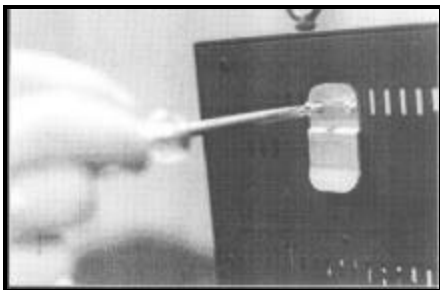


Figure 5: Attaching the Wall Mounting Clip

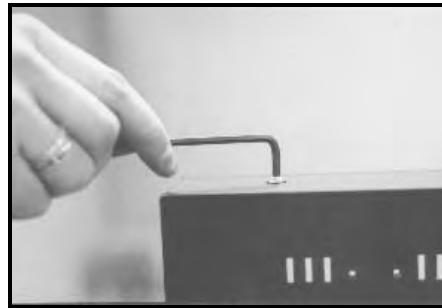


Figure 3: Removing Retaining Screws



Figure 4: Eyebolt Insertion

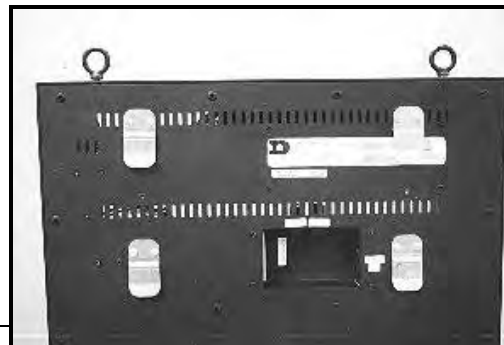


Figure 6: Mounting Clip Placement; Rear View

supplied.

2. Mount the wall bracket or brackets to the wall where the display is to be located. Refer to **Drawing A-92292** or **Drawing A-76158** to determine the location of the bracket or brackets with respect to the display. Be sure the bracket is mounted to sufficiently support the weight of the display. Have all mountings inspected by a qualified structural engineer.
3. Set the display on the wall-mounted bracket. The bracket fits onto the wall mounting clips as shown in **Figure 7**. Open the display as described in **Section 4.1**. Using two (2) #8 screws, fasten the mounting bracket to the rear of the display (refer to **Figure 8**). The display should now be attached to the wall-mounted bracket.

Note: Mounting the display to the wall without using the supplied mounting clips and bracket will negate the display warranty. Attaching or hanging anything from the display will render the warranty null and void.

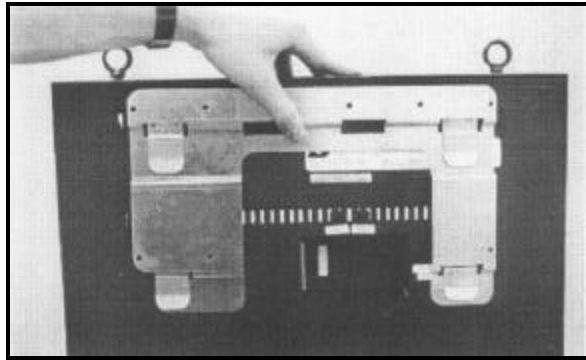


Figure 7: Mounting Bracket Placement; Rear View

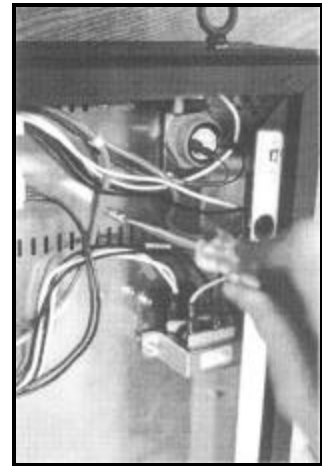


Figure 8: Securing the Mounting Bracket

Section 3: Electrical Installation

3.1 Common Connectors

This display uses many different types of connectors for power and signal termination. Take special care when disengaging any connector so as not to damage the connector, the cable or the circuit board.

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

The following information presents some common connectors that may be encountered during display maintenance. Not all of these connectors are found in every display.

1. Phone Jacks (RJ11/RJ45 Connectors):

RJ connectors, as seen in **Figure 9**, are similar to the telephone connectors found in homes and are used on the ends of RJ45 cable. In order to remove this plug from the jack, depress the small clip on the underside of the plug.

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

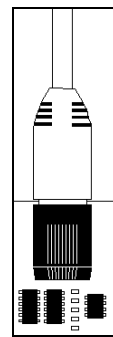


Figure 9: RJ11/RJ45 Connector

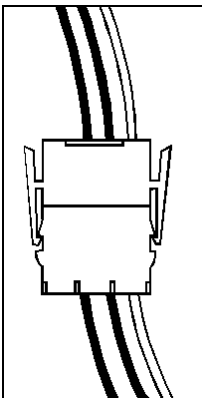


Figure 10: Mate-n-Lok Connector

2. Mate-n-Lok J Connectors:

The Mate-n-Lok connectors found in this display are white and come in a variety of sizes. Circuit boards often used 9-pin Mate-n-Lok connectors while four-pin connectors and two-pin connectors are often used for power connection. **Figure 10** shows a four-pin Mate-n-Lok connector. To remove the plug from the jack, squeeze the plastic locking clasps of the side of the plug and pull it from the jack.

3. Ribbon Cable Connectors:

Daktronics uses a variety of ribbon cables and ribbon cable connectors. **Figure 12** and **Figure 11** illustrate two of the most commonly used ribbon cable connectors. To disconnect ribbon cable connector #1, squeeze the metal locking clips inward and pull the plug out of the jack. To disconnect ribbon cable connector #2, pull each of the plastic locking arms outward and remove the plug.

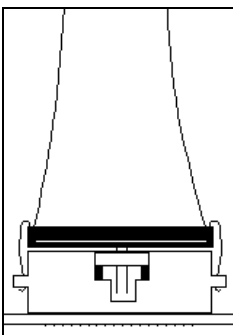


Figure 12: Ribbon Cable Connector #1

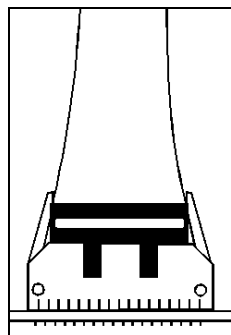


Figure 11: Ribbon Cable Connector #2

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

3.2 Signal

Cables

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

The cable used in the network is a standard flat six-conductor telephone cable (**standard flipped cable**). Refer to **Figure 13**. This cable has one end that is the mirror image of the other end (i.e. the cable is flipped). Refer to **Figure 14** for a standard flipped cable.

Notice in **Figure 14** that the color code on one connector must be made the opposite on the other connector. When installing a network, it is not easy to remember in which direction the previous end was oriented. One simple way to avoid confusion is to standardize the color code, having one color for the connector going into the output of a sign and the opposite color for a connector going into the input of a sign. This will help ensure correct cabling since cables are always installed from the output jack of one sign to the input jack of the next sign.

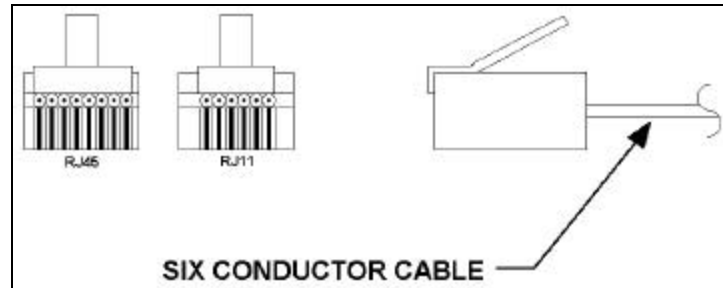


Figure 13: 6-Conductor RJ-11 Connector, 8-Conductor RJ-45 Connector and Cable

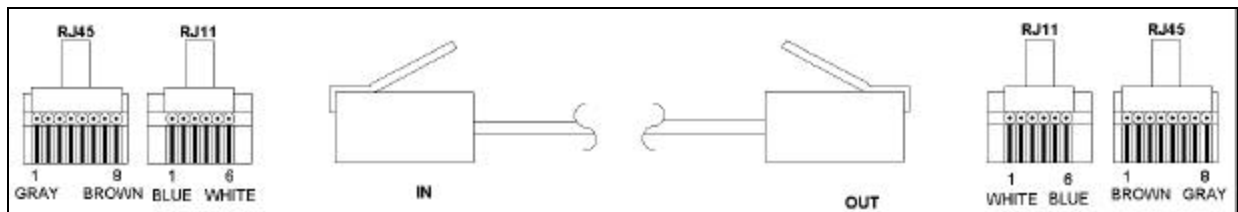


Figure 14: Flipped Cable with RJ Connectors

Installing an RJ Connector

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

First, use the crimping tool to strip the outer insulation from the inner wires. This does not result in bare wires since only the gray outer jacket is removed. After correct stripping, the wire will appear as shown in **Figure 15**.

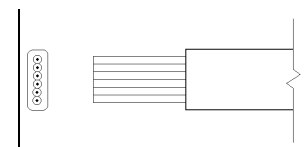


Figure 15: Wire with Outer Jacket Stripped

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

Pin-Outs

The RS422 jack's pin out is as follows:

RJ11	RJ45	Function
	1	N.C.
1	2	GROUND
2	3	D1OUT-P
3	4	D1OUT-N
4	5	D1IN-P
5	6	D1IN-N
6	7	GROUND
	8	N.C.

3.3 Power

Power Requirements

Refer to the specifications sheet (SL-3025) for voltage and current requirements. The displays are sufficiently powered by a 120VAC single-phase outlet.

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

Grounding

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

Power Connection B Pluggable Cord Connected Displays

The DataTrac displays are supplied with a eight (8) foot power cord. The socket-outlet should be installed near the equipment and be easily accessible. Plug the power cord into the socket as shown in **Figure 16**.

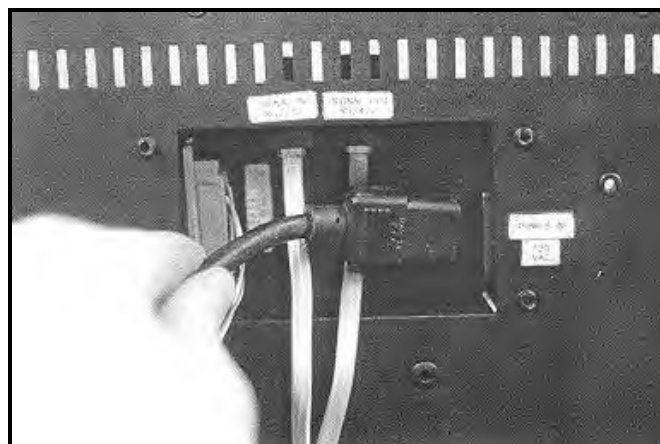


Figure 16: Power Cord Connection

3.4 Computer to Sign

Reference Drawings:

System Riser Diagram; RS/232.....	Drawing A-91388
System Riser Diagram; RS/422.....	Drawing A-91387
System Riser Diagram; Modem	Drawing A-91386
V1500 System Riser Diagram	Drawing A-93904

RS232 System

A RS232 system connects the first sign directly to the computer with an adapter cable. The adapter cable comes with both a 9 pin and a 25 pin connector. Refer to **Drawing A-91388** and the following steps.

1. Plug the 9-pin or 25-pin connector (depending on your PC) to the PC's RS232 serial COM port.
2. Plug one end of the phone cable into the adapter and the opposite end into the "RS232 IN" jack on the rear of the display (refer to **Figure 17**).

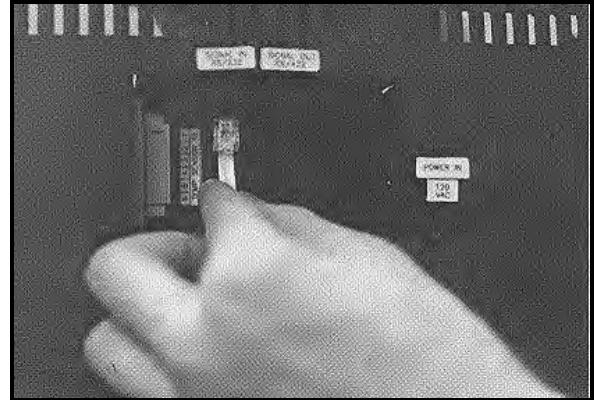


Figure 17: Input Signal Cable Connection

Note: The input connection is applicable for a RS232, RS422, modem or TCP/IP system. The "SIGNAL IN" label will reflect the correct system.

The "RS232 IN" jack's pin out is as follows:

Pin	Function
1	RTS_OUT-P
2	RESET_OUT-P
3	TX_OUT-N
4	GND-N
5	RS_IN-N
6	DCD_IN-P

RS422 System

A RS422 system requires a signal converter to connect the first sign to the computer. Refer to **Drawing A-91387** and the following steps.

1. Plug the serial cable's 25-pin connector into the signal converter as shown in **Figure 17**.
2. Plug either the 9-pin or the 25-pin connector (depending on your PC) into the RS232 COM port to be used.
3. Plug the signal converter's power cord into a 120 VAC grounded outlet.
4. Plug a flipped phone cable into the "RS422 OUT" of the signal converter and the opposite end into the "RS422 IN" of the first display.

The “RS422 IN” jack’s pin out is as follows:

Pin	Function
1	N.C.
2	D1OUT-P
3	D1OUT-N
4	D1IN-P
5	D1IN-N
6	N.C.

Modem System

A modem system uses a standard phone line to connect the computer to the sign. At the display, simply plug into a phone cable from the J-box into the jack labeled “PHONE IN” (the plug location is at the same point as shown in **Figure 17**). Hook up the modem per the manufacturer’s instructions, and then follow the Venus 1500 manual (**ED-12717**) to determine the modem’s configuration. Refer to **Drawing A-91386**.

TCP/IP or LAN System

A LAN system requires a computer running on a LAN. Connect the serial server to the LAN. The server has an RS232 output just as a PC would. Follow the steps for the setup of a RS232 system. Refer to **Drawing A-93904**.

3.5 Sign to Sign Connections

Reference Drawings:

System Riser Diagram; RS/232.....	Drawing A-91388
System Riser Diagram; RS/422.....	Drawing A-91387
System Riser Diagram; Modem	Drawing A-91386
V1500 System Riser Diagram.....	Drawing A-93904

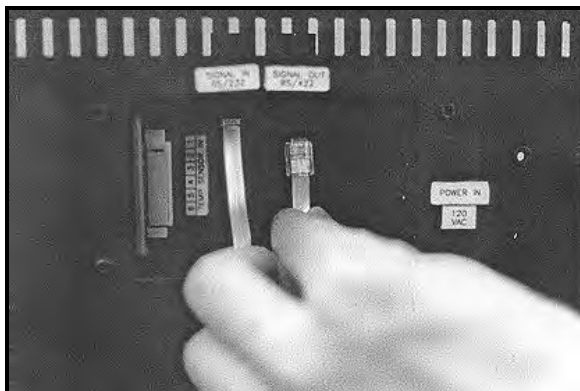


Figure 18: Output Signal Cable Connection

The sign-to-sign connections are the same for the RS232 system, RS422 system, modem system and TCP/IP. Refer to the riser diagrams listed above.

When wiring a sign to sign network, the cable and connectors discussed earlier in this section are used. Pay special attention to the information regarding flipped cables to help ensure a successful installation. The best method of wiring the signs together is to start at the first sign, as it is designated to begin the network.

1. Plug the cable into the “SIGNAL OUT” output jack of the first sign (refer to **Figure 18**) and the other end of the cable into the input jack of the next sign.
2. Continue this procedure throughout the network. When the wiring is complete, the last sign will have nothing in the output jack.

Section 4: Maintenance & Troubleshooting



IMPORTANT NOTES:

1. Disconnect power before any repair or maintenance work is done on the display!
2. Any access to internal display electronics must be made by qualified service personnel.

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

Reference Drawings:

Schematic; S-***-4**-0.7	Drawing B-89763
Schematic; S-***-8**-0.7	Drawing B-89764
Schematic; S-***-12**-0.7	Drawing B-89765
Schematic; S-***-4**-1.2/2.1	Drawing B-91350
Schematic; S-***-8**-1.2/2.1	Drawing B-91585
Schematic; S-***-12**-1.2/2.1	Drawing B-91586

4.1 Opening the Display

To open the DataTrac display:

1. Remove the socket head screws from the face panel using a 9/64" Allen wrench (refer to **Figure 19**). There are two screws on each side of the display.
2. Gently pull the face panel from the body of the sign. The display opens as shown in **Figure 20**. The LED module panels can now be seen.



Figure 19: Removing the Face Panel Screws



Figure 20: Face Panel Partially Removed

4.2 Accessing the Interior of the Display

1. Using a #2 Philips screwdriver, turn the screws securing the LED module panel to the cabinet of the display one-quarter turn counter-clockwise (refer to **Figure 21** and **Figure 22**). The screws are designed to remain in the LED module flanges, but release from the cabinet.

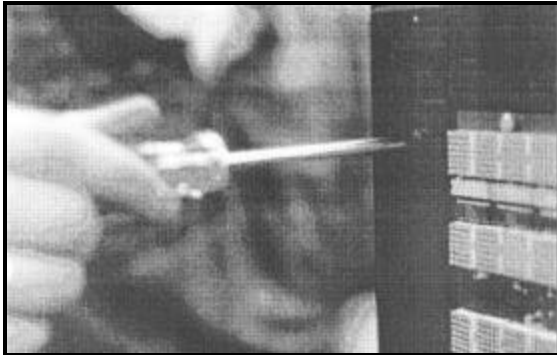


Figure 21: Loosening of 1/4-Turn Fasteners (0.7")

2. Gently pull the LED module panel from the body of the display. It will come forward as a complete unit. **Note:** Use caution when removing the LED module panel. The ribbon cable connecting the LEDs to the inside of the display will still be connected. Refer to **Figure 23** and **Figure 24**.



Figure 22: Loosening of 1/4-Turn Fasteners (1.2" & 2.1")

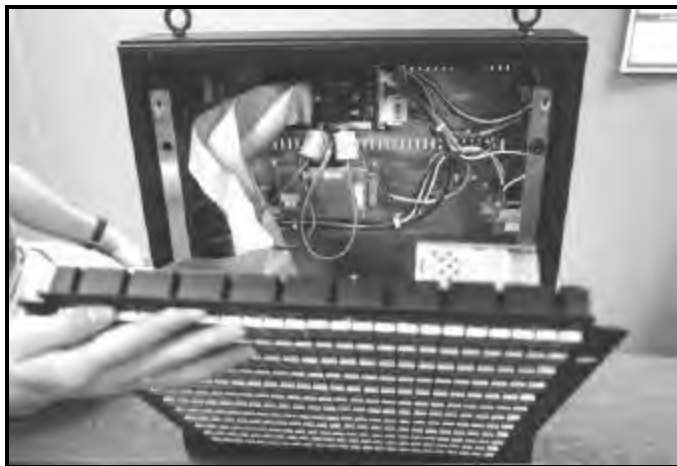


Figure 23: Removing LED Module Panel (0.7")



Figure 24: Removing LED Module Panel (1.2" & 2.1")

3. To completely remove the LED module panel from the cabinet of the display, spread the clasps of the 25-pin connector on the rear side of the panel. Gently pull the cable to disconnect it. Next, disconnect the four-pin power connector. The power cable is released by squeezing the tabs on each side of the connector (refer to **Figure 25**).



Figure 25: Disconnecting LED Module Panel Power Cable

4.3 Display Interior

Once the LED module panel is removed, the display interior is visible. Various internal components, including the display controller, the modem (when applicable), the light detector, the fan (when applicable), LED modules, the power supplies and the buzzer are now accessible for repair or replacement.

LED Module Replacement

If any LED modules fail, the recommended procedure is to replace the failed module or send it to Daktronics or a certified dealer for repair. Refer to **Section 4.7** for information on packaging components for shipment.

To remove an individual LED module:

1. Disconnect the signal connection from the failed module. Gently pull the 25-pin ribbon cable from the failed module (refer to **Figure 26**).
2. Disconnect the power supply (refer to **Figure 27**). Press the tabs on each side of the four-pin connector to release it.

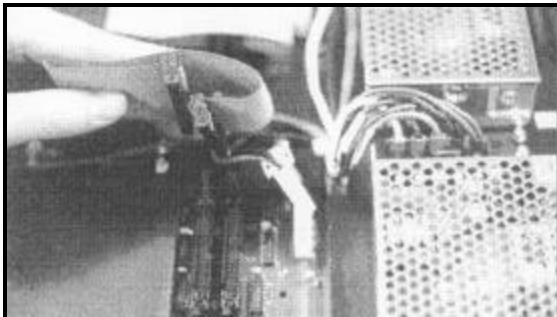


Figure 26: Disconnecting Signal from a Module (0.7" Display Shown)

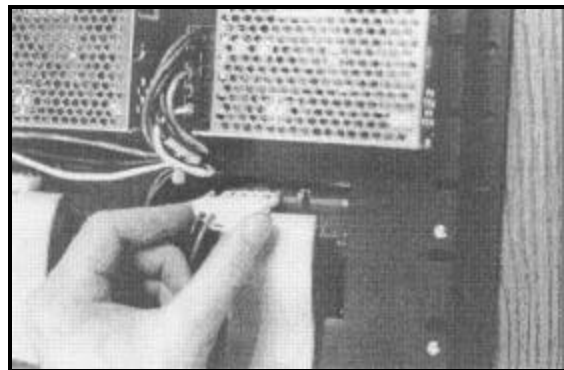


Figure 27: Disconnecting a Power Supply from a Module (0.7" Display Shown)

- Each module is held in place by #6 screws. Using a nut-driver, remove the module screws from the panel (refer to **Figure 28** and **Figure 29**).

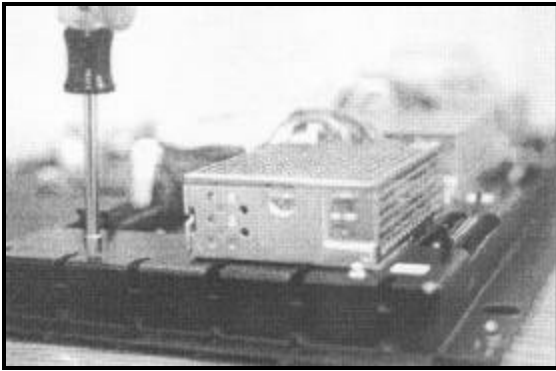


Figure 28: Loosening LED Module Attachment Screws (0.7")

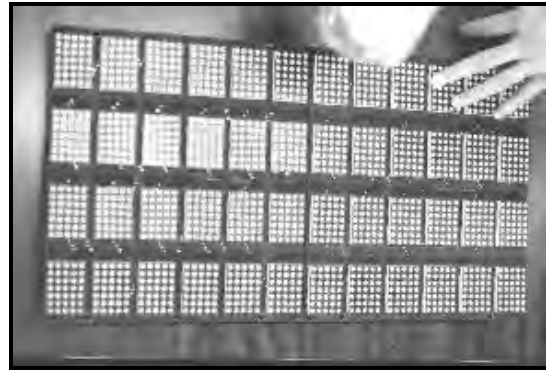


Figure 29: Loosening LED Module Attachment Screws (1.2" & 2.1")

- Gently pull the failed module to remove it from the panel (**Figure 30** and **Figure 31**). Reverse the previous steps to attach a new module.

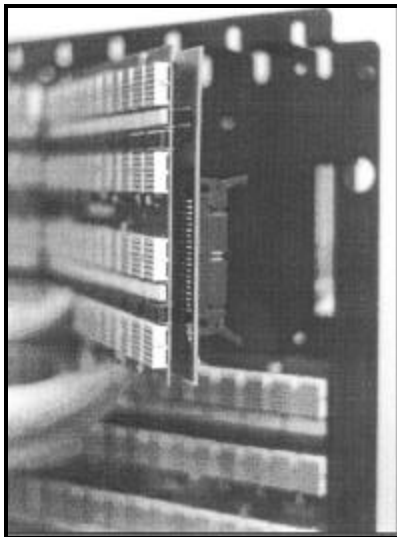


Figure 30: LED Module Removal (0.7")

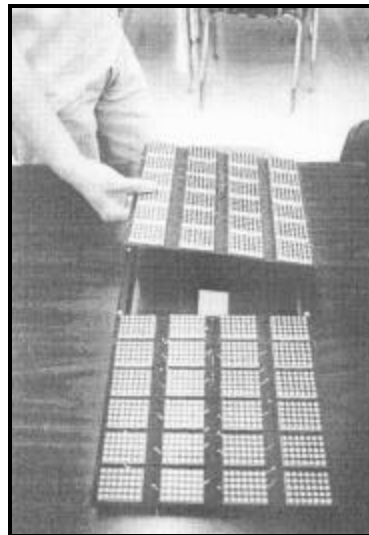


Figure 31: LED Module Removal (1.2" & 2.1")

Power Supply Replacement

Power to the LED modules and fans (8 and 12 line models only) is provided by small 5-volt power supplies. Each power supply can support two modules. In 0.7" displays, they are located on the rear side of the LED module panel. The 1.2" and 2.1" displays have the power supplies mounted to the back sheet within the display cabinet.

0.7" Displays

To remove a power supply that has failed, first take off the LED module opposite of the failed power supply as described in **LED Module Replacement**, above.

Each power supply is secured to the module panel with two (2) 3x10 metric screws as shown in **Figure 32**. Use a #1 Philips head screwdriver to remove the screws.



Figure 32: Loosening Power Supply Screws (0.7")

1.2" & 2.1" Displays

To remove a power supply that has failed, first remove the LED module in front of the failed power supply as described in **LED Module Replacement**.

Each power supply is attached to a power supply plate by two (2) 3x10 metric screws. The plate is secured to the back sheet by two (2) #6 screws and nuts as shown in **Figure 33**. Use a 5/16" wrench to remove the #6 nuts (the screws do not need to be removed).



Figure 33: Power Supply & Plate (1.2" & 2.1" Displays)

Lift the power supply and plate off the #6 screws. The metric screws securing the power supply to the plate are now accessible. Use a #1 Philips head screwdriver to remove the screws and free the power supply.

Both 0.7" and 1.2/2.1" Displays

Disconnect the power cables as shown in **Figure 34**. The power supply is now fully released and ready for replacement. Follow the previous steps in reverse order to reattach the new power supply. Refer to your display's schematic for the proper wiring configuration.

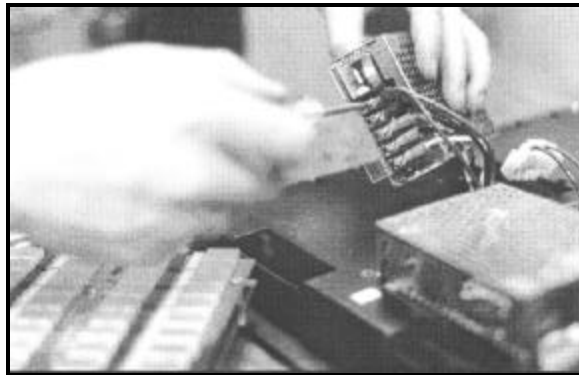


Figure 34: Power Supply Cable Connections

Display Controller

The display controller is mounted to the rear of the display cabinet, near the top left corner as viewed from the front for 0.7" displays (refer to **Figure 35**) and in the bottom left corner for 1.2" and 2.1" displays. The controller receives information from the computer, interprets it and activates the appropriate LEDs on the display.

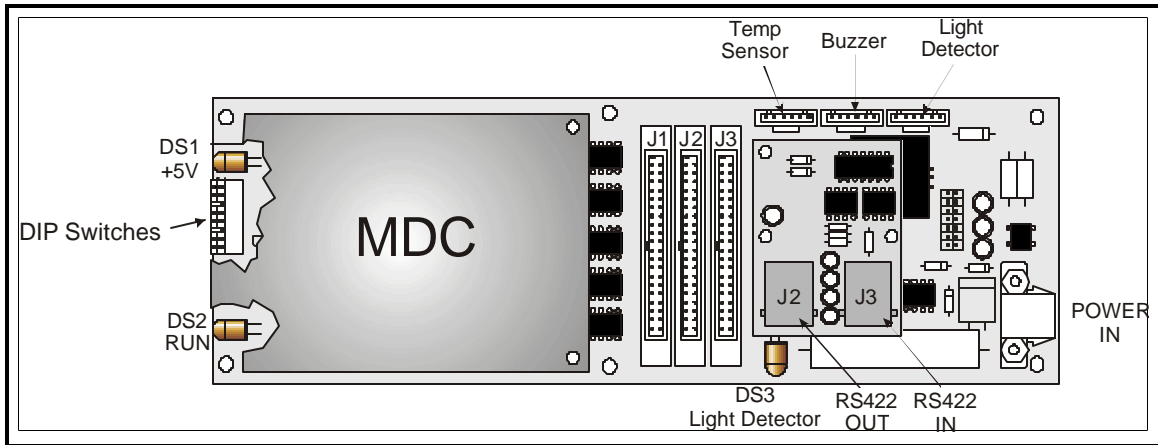


Figure 35: Display Controller

The display controller also has a set of eight (8) switches by which an address can be set using standard binary code (refer to **Section 4.4**).

To replace a failed controller, first disconnect all attached cables. Take note of their orientation. Remove all #6 connecting screws. *If the address switches are used, take note of the switch configuration and set the same address on the new controller.* Attach the new controller using #6-32 Screws.

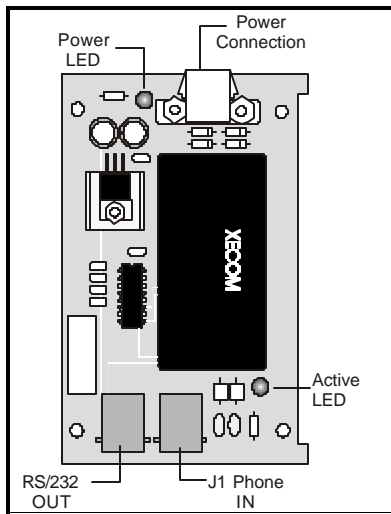


Figure 36: Modem

Modem

If the display was ordered with a modem, its location depends upon the display model: in 0.7" displays, it will be located in the top frame of the display cabinet, near the display controller (refer to **Figure 36**); or in 1.2" and 2.1" displays, it will be mounted below the display controller. The modem is used in lieu of a direct communication line with the computer.

The modem is held in place with the use of plastic rails known as a "snap track." To replace a failed modem, disconnect all attached cables and carefully "snap" it out of the rails. Insert the new modem by first laying one end into the rails of the "snap track," then pivot it up and snap into place (refer to

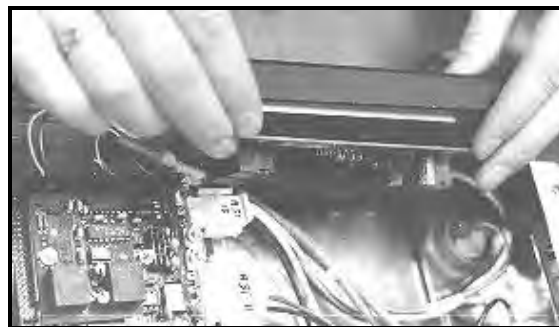


Figure 37: Installation of Modem

Figure 37).

Fans (0.7" Display, 8 & 12 Lines Only)

In the 0.7" models, cooling fans are located near the bottom of the cabinet of the 8 and 12 line displays (the 4 line displays do not contain fans). The fan filters should be removed and rinsed with water periodically to clean any dust or debris that may accumulate during use. If a fan fails, it must be removed and replaced with a new fan.

To remove a filter for cleaning, first disconnect the fan's power supply. The filter lies between the fan and the finger guard.

Gently remove the finger guard (refer to **Figure 38**). The filter will now be easily accessible. Rinse the filter with warm water and allow it to dry before replacing it on the fan.

It is not recommended to operate the fan without the filter or finger guard in place.

The fan can be removed by first taking off the finger guard and filter. Each fan is held in place with four (4) #6-32 by 1-1/2" long screws. Use a flat-head screwdriver to remove the screws and release the fan from the back sheet. Use the same screws to attach the new fan. Replace the filter and finger guard.

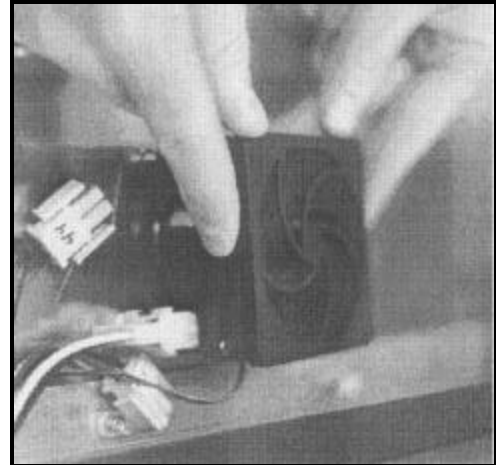


Figure 38: Removing Fan Finger Guard



Figure 39: Fan, Filter & Fan Cover

Light Detector

A light detector is located near the top of the display in the right support flange for 0.7" displays, and in the bottom left flange for 1.2" and 2.1" displays. The light detector is used to measure light levels outside the display and, when enabled through the Venus 1500 software, adjusts the brightness level of the LEDs appropriately.

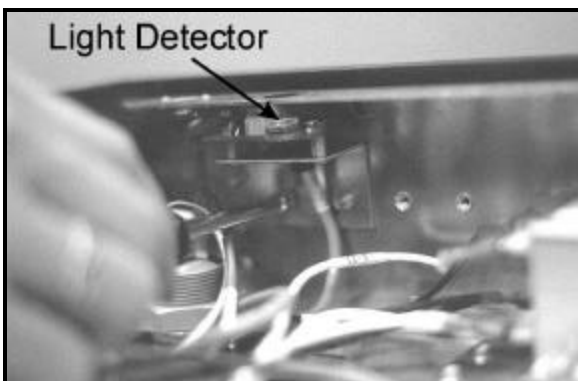


Figure 40: Removing the Light Detector

The light detector is mounted on a support flange. To replace the light detector, first remove the #6 screws from the support flange (refer to **Figure 40**).

Disconnect the light detector's wire to the display controller. The light detector is attached to the support flange with #4 screws, standoffs and nuts. Remove the failed light detector from the support flange.



Figure 41: Fuse

Fuse

The MDL-7 fuse is located in the left end of the cabinet, near the display controller (refer to **Figure 41**).

To replace the fuse, push and turn the fuse cap, insert the new fuse into the cap and reattach.

4.4 Controller Address and Test Mode

The controller has a set of “DIP” switches on the side of the controller as shown in **Figure 35**. These switches set the hardware address. When replacing a controller board, be sure to set the DIP switches in the same address configuration as the defective controller.

Note: A test mode can be activated by setting the DIP switches to address 0 (turn all the switches to OFF by flipping them toward the printed switch numbers). The display’s power must be downed, and then reconnected to run the test mode.

Switch 8	Switch 7	Switch 6	Switch 5	Switch 4	Switch 3	Switch 2	Switch 1	Address
Off	Off	Off	Off	Off	Off	Off	On	1
Off	Off	Off	Off	Off	Off	On	Off	2
Off	Off	Off	Off	Off	Off	On	On	3
Off	Off	Off	Off	Off	On	Off	Off	4
Off	Off	Off	Off	Off	On	Off	On	5
Off	Off	Off	Off	Off	On	On	Off	6
Off	Off	Off	Off	Off	On	On	On	7
Off	Off	Off	Off	On	Off	Off	Off	8
Off	Off	Off	Off	On	Off	Off	On	9
Off	Off	Off	Off	On	Off	On	Off	10
Off	Off	Off	Off	On	Off	On	On	11
...
On	On	On	On	Off	Off	Off	Off	240

4.5 Troubleshooting

This section contains some symptoms that may be encountered with the LED displays. Possible remedies are provided. This list does not include every possible problem, but does represent some of the more common situations that may occur.

Symptoms/Conditions	Possible Cause/Remedy
Cannot communicate with the display.	<ul style="list-style-type: none">• Check flipped phone cable connections.• Check display configuration.• Check Venus 1500 configuration.• Check signal converter TX & RX LEDs• Contact Daktronics Customer Service
Display will not run.	<ul style="list-style-type: none">• Check power cord.• Power down, then power up the display.• Contact Daktronics Customer Service.
Entire display is garbled or a section of the display is bad.	<ul style="list-style-type: none">• Power down and then power up the display.• Contact Daktronics Customer Service.
Section of the display network is not working.	<ul style="list-style-type: none">• Bad input on first bad display.• Bad output on last good display.• Switch the suspect display with a known good display.• Contact Daktronics Customer Service.

Note: The display configuration will be shown on power up and will contain the following information:

1. Output Test (DDD-s)
2. Display Model Number (i.e. S-100-12-24-0.7)
3. Firmware Version
4. COM1 Configuration (typically V1500)
5. COM2 Configuration (either DataView or RTD)
6. Power Line Frequency (i.e. 60 Hz)
7. Display Address--displayed in binary code (i.e. 001)
8. Sign Name
9. Modem (if present)

4.6 Replacement Parts

Common Parts (All Models)

Part Description	Daktronics Part No.
Power Supplies, 5V	A-1499
Cable; PC DB9-RJ11	0A-1115-0042
Cable; PC EB25-RJ11	0A-1115-0044
Controller (RS232)	0A-1120-0477
Controller (RS422)	0A-1120-0478
Signal Converter	0A-1127-0237
25' RJ11 Cable	W-1265
100' RJ11 Cable	0A-1146-0002
500' RJ11 Cable	0A-1146-0003
1000' RJ11 Cable	0A-1146-0004
Internal Modem	0P-1146-0003
Light Detector	0P-1151-0002
Buzzer	DS-1357
Fuse, MDL-7	F-1031
Venus 1500 Manual	ED-12717
DataTrac Manual	ED-10191
RJ11 Connector	P-1071
120V Transformer	T-1072
Crimp Tool	TH-1033
Power Cord	W-1181
Signal Converter Serial Cable	W-1363
Six-Conductor Wire	W-1368
Serial Server	A-1557
10' Patch Cable	W-1383

0.7" Display

The list below only gives parts used on the 0.7" displays.

Part Description	Daktronics Part No.
Module; 0.7" Mono Red	0A-1120-0024
Module; 0.7" Mono. Green	0A-1120-0127
Fan	B-1014
Fan Filter	EN-1705

1.2" Display

The list below only gives parts used on the 1.2" displays.

Part Description	Daktronics Part No.
Module; 1.2" Mono Red	0A-1120-0002
Module; 1.2" Tri-Color	0A-1120-0022

Fuse; MDL-3	F-1042
-------------	--------

2.1" Display

The list below only gives parts used on the 2.1" displays.

Part Description	Daktronics Part No.
Module; 2.1" Mono Red	0A-1120-0003
Module; 2.1" Tri-Color	0A-1120-0023
Fuse; MDL-3, 250V	F-1042

4.7 Daktronics Exchange/Repair & Return Programs

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

When you call the Daktronics Help Desk, a trained service technician will work with you to solve the equipment problem. You will work together to diagnose the problem and determine which exchange replacement part to ship. If, after you make the exchange, the equipment still causes problems, please contact our Help Desk immediately.

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

Daktronics reserves the right to refuse equipment that has been damaged due to acts of nature or causes other than normal wear and tear.

If the defective equipment is not shipped to Daktronics within 30 working days from the invoice date, it is assumed you are purchasing the replacement part and you will be invoiced for it. This second invoice represents the difference between the exchange price and the purchase price of the equipment. This amount is due when you receive the second invoice. If you return the exchange equipment after 30 working days from invoice date, you will be credited for the amount on the second invoice minus a restocking fee.

@To avoid a restocking charge, please return the defective equipment within 30 days from the invoice date.

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

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

Daktronics Help Desk for the RMA#. This will expedite the receiving process.

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

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

Phone: Daktronics Help Desk: 1-877 / 605-1113 (toll free)
or 1-605 / 697-4034

Customer Service Fax: 1-605 / 697-4444

e-mail: helpdesk@daktronics.com

Appendix A: Optional Temperature Sensor

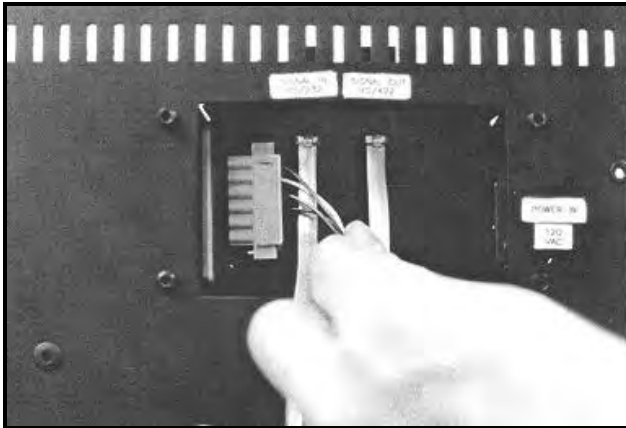


Figure 42: Temperature Sensor Cable Connection

The DataTrac displays may be ordered with an optional temperature sensor. Follow the supplied mounting instructions to attach the temperature sensor and housing.

The temperature sensor cable connects to the back of the display using the removable green jack (refer to **Figure 42**).

The pin orientation of the jack is shown in **Figure 43**.

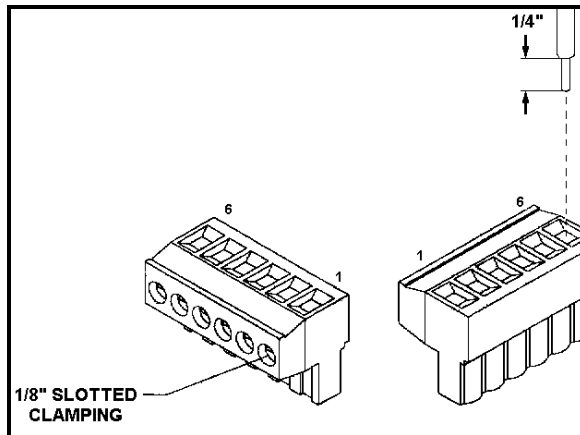


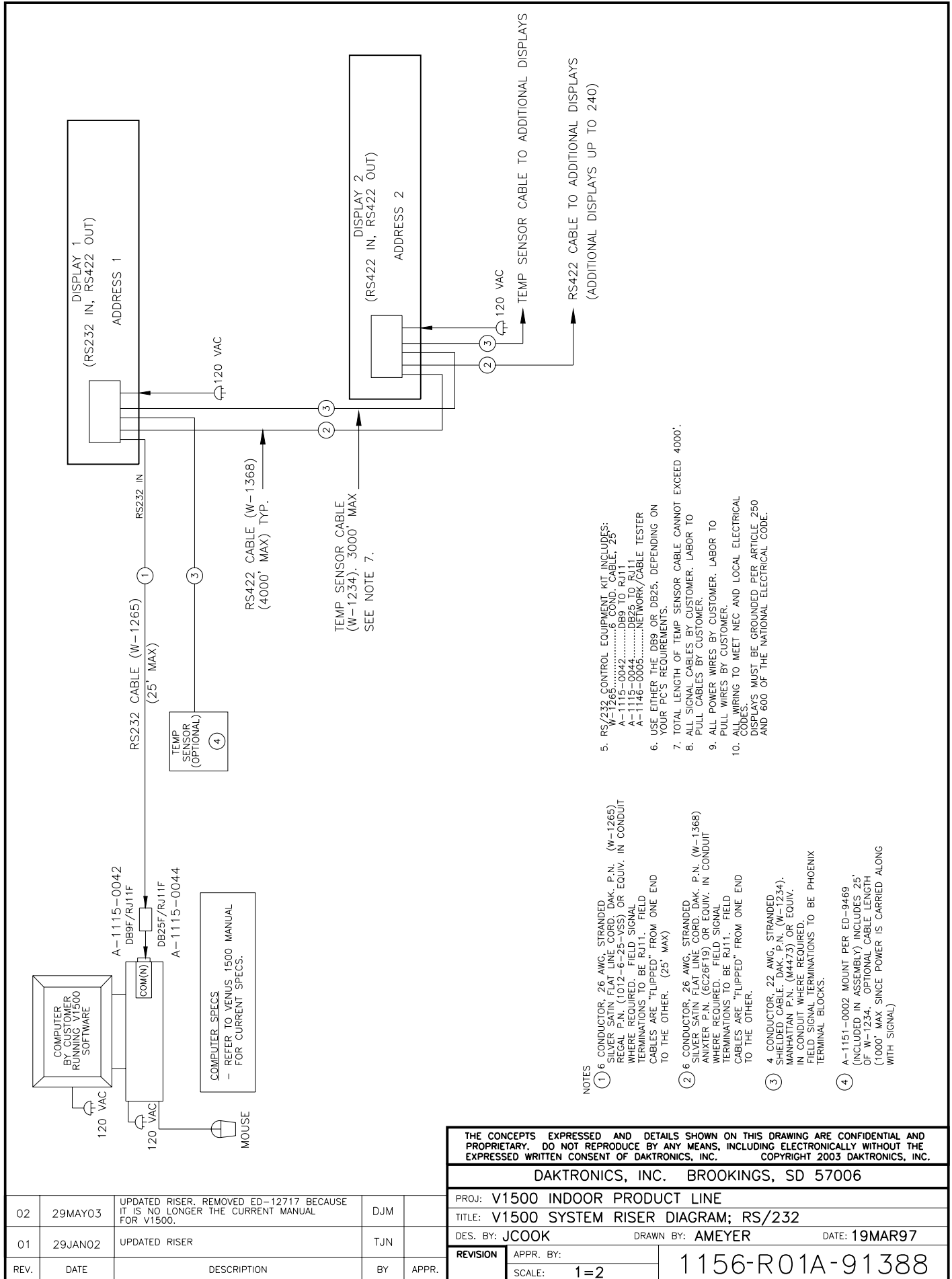
Figure 43: Pin Orientation

Connect the temperature sensor cable to the jack as follows:

Display	Cable Wires	Temperature Sensor
Pin 1	Green	P
Pin 2	White	N
Pin 3	Red	+V
Pin 4	Black	GND
Pin 5	Bare	N/A

Appendix B: Reference Drawings

System Riser Diagram; RS/232.....	Drawing A-91388
System Riser Diagram; RS/422.....	Drawing A-91387
System Riser Diagram; Modem	Drawing A-91386
V1500 System Riser Diagram	Drawing A-93904
Mtg. Detail; Top Hanging Mount.....	Drawing A-92315
Mtg. Detail; Rear Hanging Mount, .7"	Drawing A-92292
Mtg. Detail; Rear Hanging Mount, 1.2" and 2.1"	Drawing A-76158
Shop Drawing; S-***-4-24-0.7"	Drawing A-89791
Shop Drawing; S-***-4-36-0.7"	Drawing A-92153
Shop Drawing; S-***-4-48-0.7"	Drawing A-92154
Shop Drawing; S-***-8-24-0.7"	Drawing A-92155
Shop Drawing; S-***-8-36-0.7"	Drawing A-92156
Shop Drawing; S-***-8-48-0.7"	Drawing A-92157
Shop Drawing; S-***-12-24-0.7"	Drawing A-89360
Shop Drawing; S-***-12-36-0.7"	Drawing A-92158
Shop Drawing; S-***-12-48-0.7"	Drawing A-92159
Shop Drawing; S-***-4*-1.2".....	Drawing A-96635
Shop Drawing; S-***-8*-1.2".....	Drawing A-96637
Shop Drawing; S-***-12*-1.2".....	Drawing A-96639
Shop Drawing; S-***-4*-2.1".....	Drawing A-77323
Shop Drawing; S-***-8*-2.1".....	Drawing A-77321
Shop Drawing; S-***-12*-2.1".....	Drawing A-77322
Schematic; S-***-4**-0.7	Drawing B-89763
Schematic; S-***-8**-0.7	Drawing B-89764
Schematic; S-***-12**-0.7	Drawing B-89765
Schematic; S-***-4**-1.2/2.1	Drawing B-91350
Schematic; S-***-8**-1.2/2.1	Drawing B-91585
Schematic; S-***-12**-1.2/2.1	Drawing B-91586

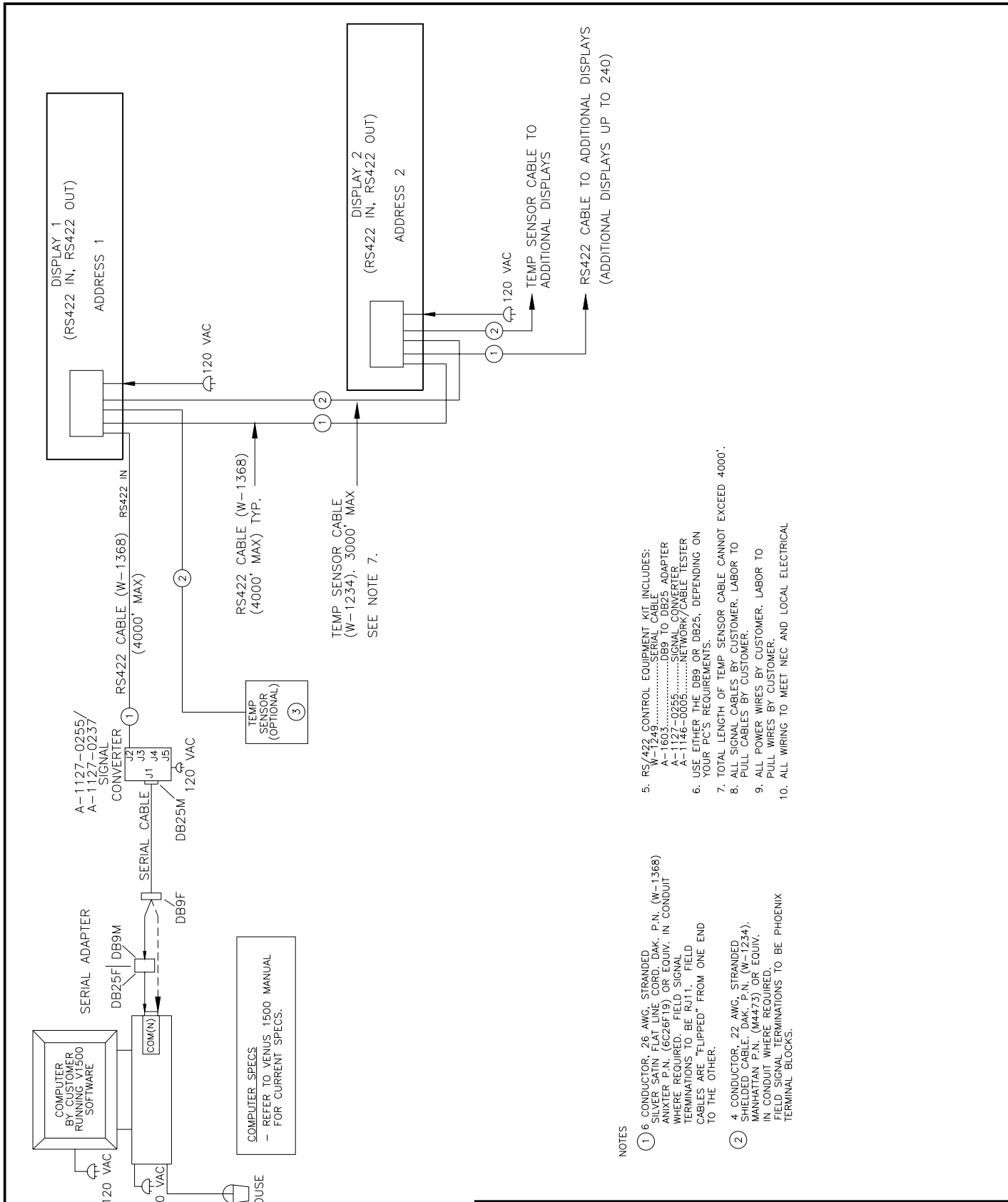


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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:	V1500 INDOOR PRODUCT LINE		
TITLE:	V1500 SYSTEM RISER DIAGRAM; RS/232		
DES. BY:	JCOOK	DRAWN BY:	AMEYER
DATE:	19MAR97		
REVISION	APPR. BY:	1156-R01A-91388	
SCALE:	1=2		

REV.	DATE	DESCRIPTION	BY	APPR.
02	29MAY03	UPDATED RISER. REMOVED ED-12717 BECAUSE IT IS NO LONGER THE CURRENT MANUAL FOR V1500.	DJM	
01	29JAN02	UPDATED RISER	TJN	



03	25 MAR 04	REPLACED A-1127-0237 WITH A-1127-0255 (INCLUDES SURGE PROTECTION)	SAI	DJM
02	30MAY03	UPDATED RISER. REMOVED ED-12717 BECAUSE IT IS NO LONGER THE CURRENT MANUAL FOR V1500.		DJM
01	01FEB02	UPDATED RISER	TJN	
REV.	DATE	DESCRIPTION	BY	APPR.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: V1500 INDOOR PRODUCT LINE
 TITLE: V1500 SYSTEM RISER DIAGRAM; RS/422
 DES. BY: JCOOK DRAWN BY: AMEYER DATE: 20MAR97

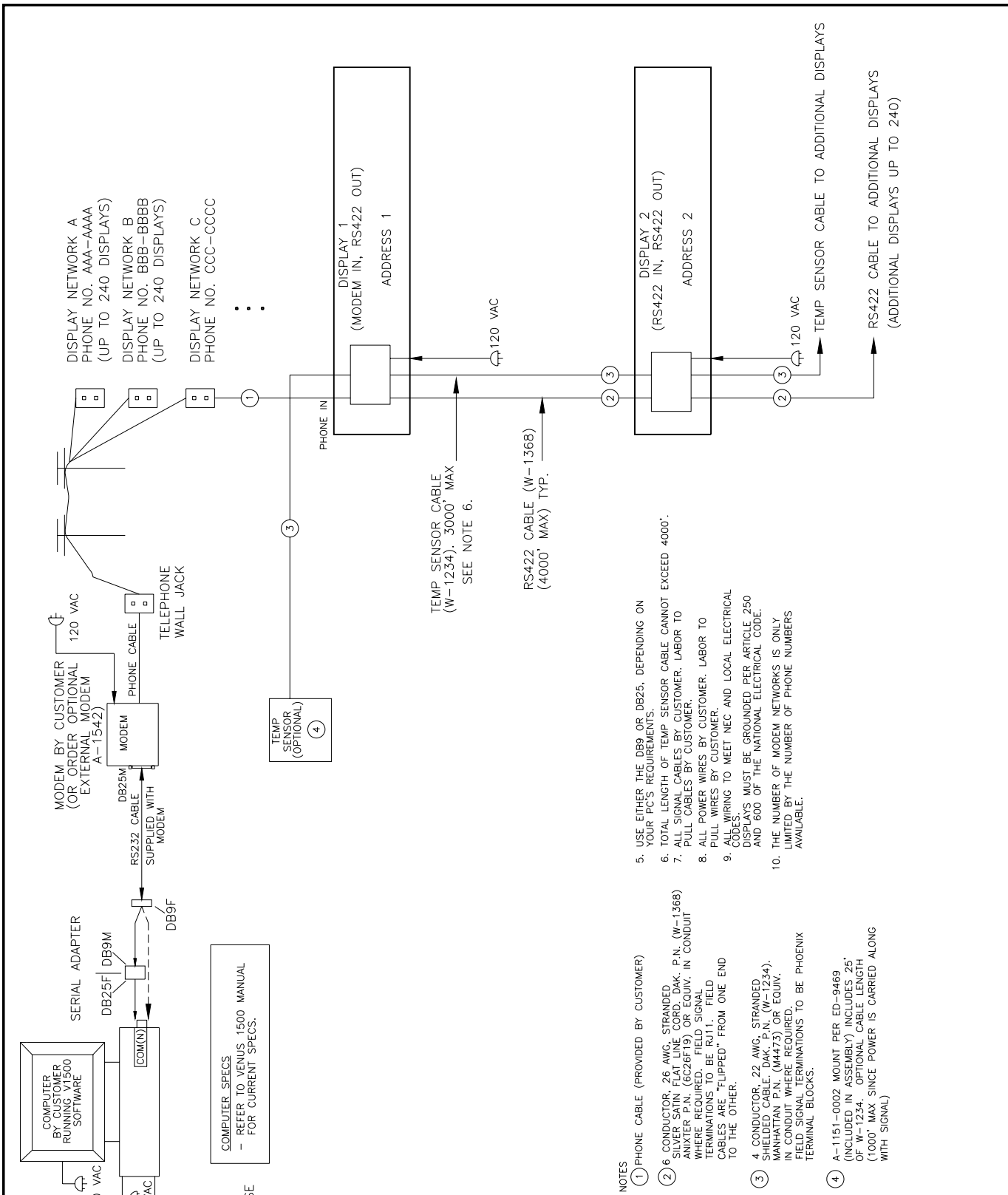
REVISION 03 APPR. BY: SCALE: 1=2

1156-R01A-91387

NOTES

- ① 6 CONDUCTOR, 26 AWG, STRANDED SILVER SATIN FLAT LINE CORD, DAK. P.N. (W-1368) ANIXTER P.N. (6C26F19) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE RJ11. FIELD CABLES ARE "FLIPPED" FROM ONE END TO THE OTHER.
- ② 4 CONDUCTOR, 22 AWG, STRANDED SHIELDED CABLE, DAK. P.N. (W-1234). MANHATTAN P.N. (M4473) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE PHOENIX TERMINAL BLOCKS.

- 5. RS/422 CONTROL EQUIPMENT KIT INCLUDES:
 W-1249.....SERIAL CABLE
 A-1603.....DB9 TO DB25 ADAPTER
 A-1127-0255.....SIGNAL CONVERTER
 A-1127-0237.....SIGNAL CONVERTER
 6. USE EITHER THE DB9 OR DB25, DEPENDING ON YOUR PC'S REQUIREMENTS.
- 7. TOTAL LENGTH OF TEMP SENSOR CABLE CANNOT EXCEED 4000'.
- 8. ALL SIGNAL CABLES BY CUSTOMER. LABOR TO PULL CABLES BY CUSTOMER.
- 9. ALL POWER WIRES BY CUSTOMER. LABOR TO PULL WIRES BY CUSTOMER.
- 10. ALL WIRING TO MEET NEC AND LOCAL ELECTRICAL



5. USE EITHER THE DB9 OR DB25, DEPENDING ON YOUR PC'S REQUIREMENTS.
6. TOTAL LENGTH OF TEMP SENSOR CABLE CANNOT EXCEED 4000'.
7. ALL SIGNAL CABLES BY CUSTOMER. LABOR TO PULL CABLES BY CUSTOMER.
8. ALL POWER WIRES BY CUSTOMER. LABOR TO PULL WIRES BY CUSTOMER.
9. ALL WIRING TO MEET NEC AND LOCAL ELECTRICAL CODES.
10. DISPLAYS MUST BE GROUNDED PER ARTICLE 250 AND 600 OF THE NATIONAL ELECTRICAL CODE.
11. THE NUMBER OF MODEM NETWORKS IS ONLY LIMITED BY THE NUMBER OF PHONE NUMBERS AVAILABLE.

- NOTES
- ① PHONE CABLE (PROVIDED BY CUSTOMER)
- ② 6 CONDUCTOR, 26 AWG, STRANDED SILVER SATIN FLAT LINE CORD, DAK. P.N. (W-1368) ANXITER P.N. (6C26F19) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE RJ11. FIELD CABLES ARE "FLIPPED" FROM ONE END TO THE OTHER.
- ③ 4 CONDUCTOR, 22 AWG, STRANDED SHIELDED CABLE, DAK P.N. (W-1234), MANHATTAN P.N. (M4473) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE PHOENIX TERMINAL BLOCKS.
- ④ A-1151-0002 MOUNT PER ED-9469 (INCLUDED IN ASSEMBLY) INCLUDES 25' OF W-1234. OPTIONAL CABLE LENGTH (1000' MAX SINCE POWER IS CARRIED ALONG WITH SIGNAL)

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: V1500 INDOOR PRODUCT LINE

TITLE: V1500 SYSTEM RISER DIAGRAM; MODEM

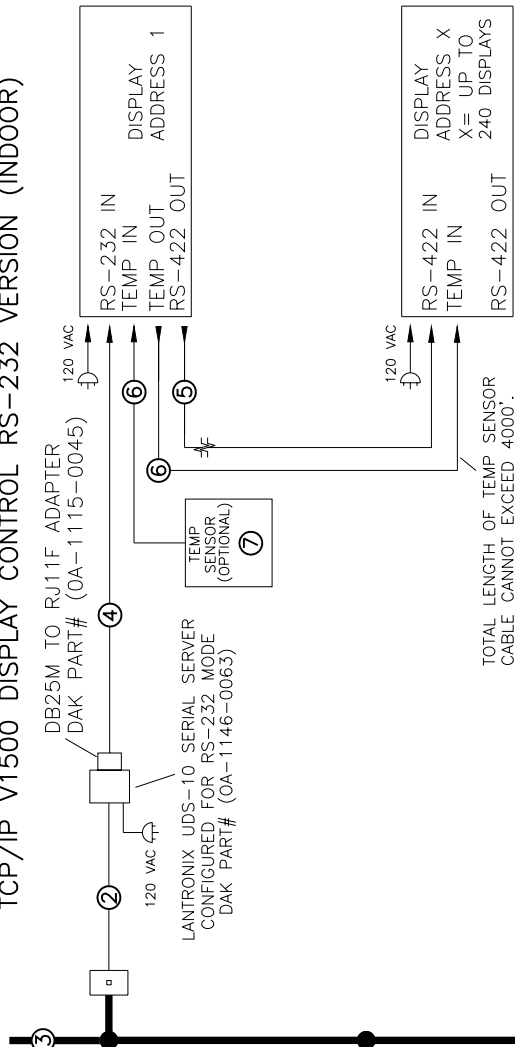
DES. BY: JCOOK DRAWN BY: AMEYER DATE: 20MAR97

REVISION APPR. BY: 1156-R01A-91386

SCALE: 1=2

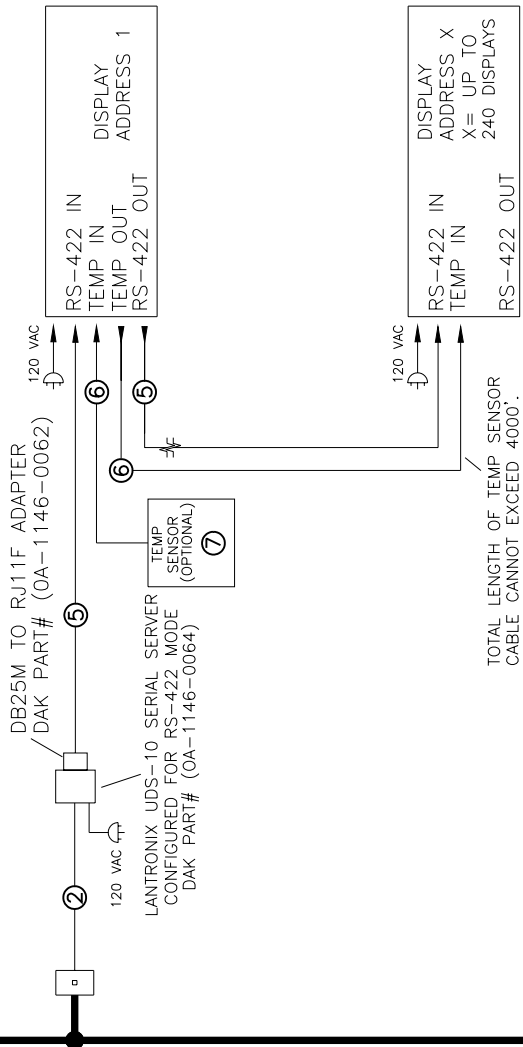
02	30MAY03	UPDATED RISER. REMOVED ED-12717 BECAUSE IT IS NO LONGER THE CURRENT MANUAL FOR V1500.	DJM	
01	01FEB02	UPDATED RISER	TJN	
REV.	DATE	DESCRIPTION	BY	APPR.

TCP/IP V1500 DISPLAY CONTROL RS-232 VERSION (INDOOR)



TOTAL LENGTH OF TEMP SENSOR CABLE CANNOT EXCEED 4000'.

TCP/IP V1500 DISPLAY CONTROL RS-422 VERSION (INDOOR)



TOTAL LENGTH OF TEMP SENSOR CABLE CANNOT EXCEED 4000'.

REV.	DATE	DESCRIPTION	BY	APPR.
7	29MAY03	UPDATED RISER. REMOVED ED-12717 BECAUSE IT IS NO LONGER THE CURRENT MANUAL FOR V1500.	DJM	
6	07FEB02	UPDATED RISER	TJN	
5	15AUG00	CHANGED SERIAL INTERFACE FROM MS1 TO MS100. UPDATED COMPUTER SPECS.	LLK	
4	3 SEP 97	30FT CABLE TO 25FT.	MER	
3	8 AUG 97	ADDED TCP/IP TO DRAWING TITLE	CI	
2	15 JULY 97	REPLACED W-1265 WITH OA-1146-0016. UPDATED NOTES.	CI	
1	8 JUL 97	UPDATED NOTES, 232 CABLE FROM 30' TO 25'.	MER	

COMPUTER SPECS
-REFER TO VENUS 1500 MANUAL FOR MOST CURRENT SPEC.

NOTES:

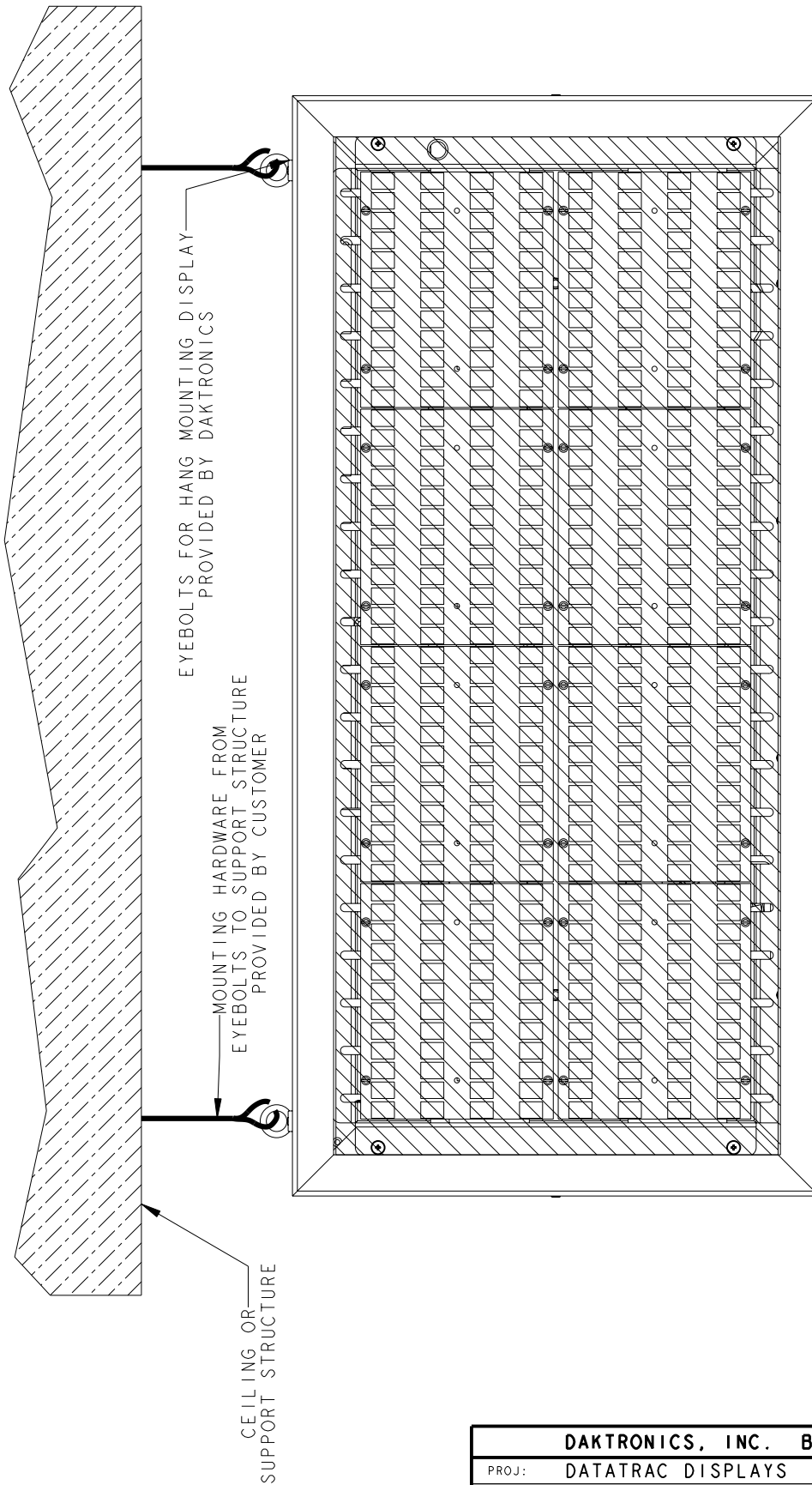
1. ETHERNET CARD (BY CUSTOMER)
2. ETHERNET CABLE (BY CUSTOMER)
3. ETHERNET NETWORK (BY CUSTOMER)
4. 6 CONDUCTOR, 26 AWG, STRANDED SILVER SATIN FLAT LINE CORD. DAK. P.N. (W-1265) REGAL P.N. (1012-6-25-VSS) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE RJ11. FIELD CABLES ARE "FLIPPED" FROM ONE END TO THE OTHER. (25' MAX)
5. 6 CONDUCTOR, 26 AWG, STRANDED SILVER SATIN FLAT LINE CORD. DAK. P.N. (W-1368) ANIXTER P.N. (6C26F19) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE RJ11. FIELD CABLES ARE "FLIPPED" FROM ONE END TO THE OTHER. (4000' MAX)
6. 4 CONDUCTOR, 22 AWG, STRANDED SHIELDED CABLE. DAK PART# (W-1234). MANHATTAN P.N. (M4473) OR EQUIV. IN CONDUIT WHERE REQUIRED. FIELD SIGNAL TERMINATIONS TO BE PHOENIX TERMINAL BLOCKS.
7. A-1151-0002 MOUNT PER ED-9469 (INCLUDED IN ASSEMBLY) INCLUDES .25" OF W-1234. OPTIONAL CABLE LENGTH (1000' MAX SINCE POWER IS CARRIED ALONG WITH SIGNAL)
8. REFER TO LANTRONIX MANUAL (ED-12850) FOR UDS-10 SETTINGS.

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PROJ: V1500 INDOOR PRODUCT LINE
 TITLE: V1500 SYSTEM RISER DIAGRAM; TCP/IP NETWORK
 DES. BY: D ROGNE DRAWN BY: JOSBAHR DATE: 18JUNE97

REVISION APPR. BY: SCALE: 1=2 1146-R01A-93904



FRONT VIEW

IF DISPLAY IS TO BE MOUNTED IN FRONT OF A WALL, THERE MUST BE AT LEAST 5/8" CLEARANCE BETWEEN WALL AND REAR OF DISPLAY FOR ADEQUATE VENTILATION

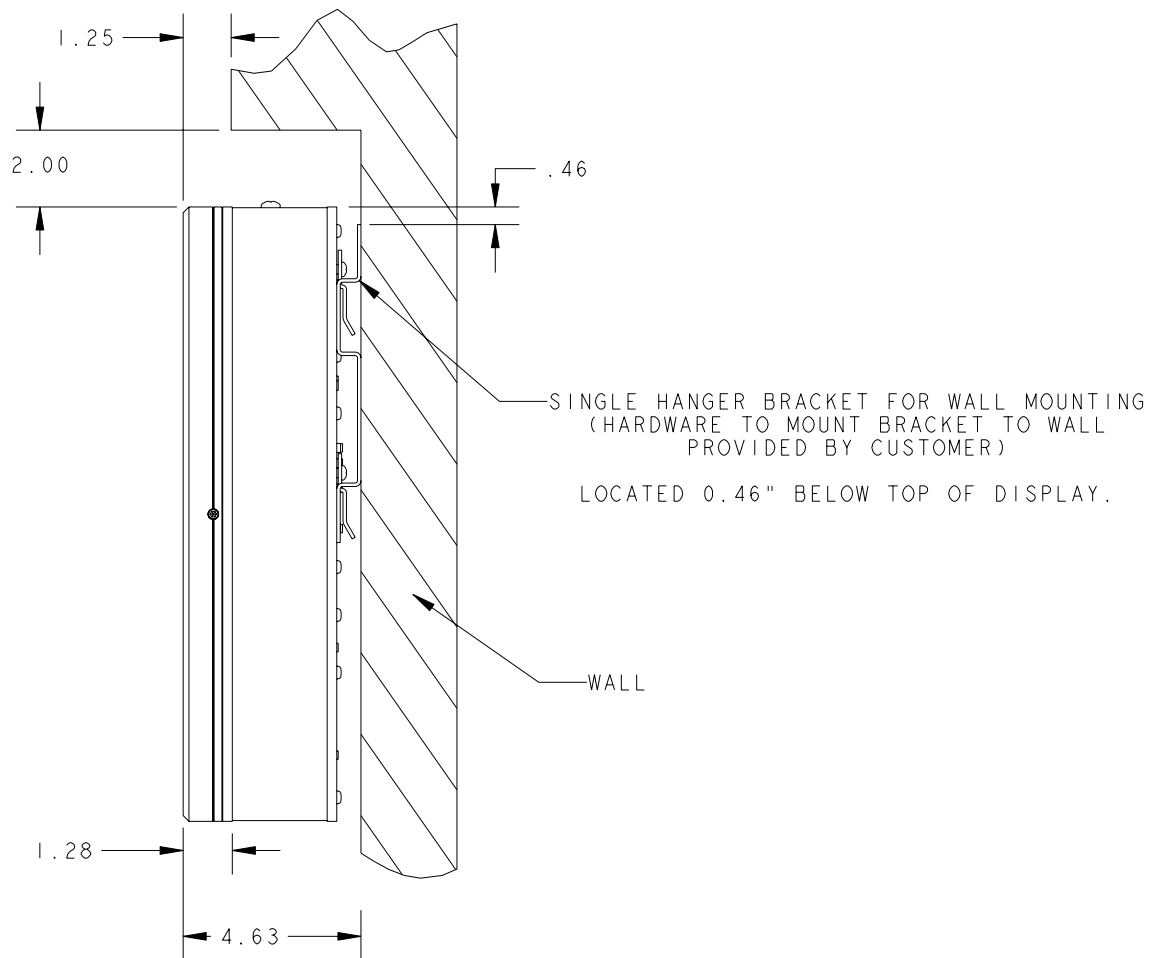
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:	DATATRAC DISPLAYS		
TITLE:	MTG DETAIL; TOP HANGING MOUNT W/EYEBOLTS		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
		DATE:	24APR97

REVISION	SHEET 1 OF DWG 92315
SCALE:	1=5

1120 - E10A - 92315

REV.	DATE	DESCRIPTION	BY	APPR.



SIDE VIEW
SECTION A-A

DISPLAY NEEDS TO HAVE APPROXIMATELY 1/2" CLEARANCE FROM WALL ON TOP AND SIDES FOR VENTILATION.

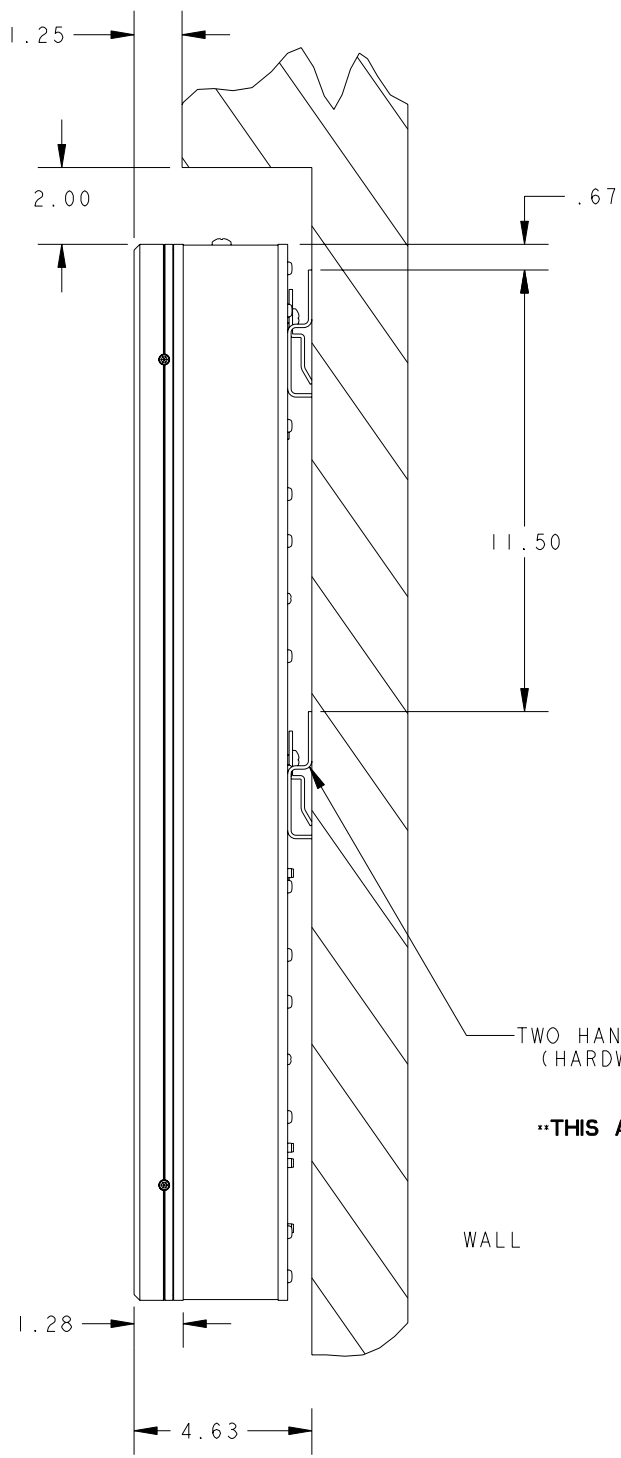
IF DISPLAY IS MOUNTED NEAR CEILING OR IS INSET INTO WALL, THERE MUST BE A MINIMUM OF 2" BETWEEN THE TOP OF THE DISPLAY AND THE CEILING IF THE HANGER CLIPS AND BRACKETS ARE TO BE USED.

IF THE DISPLAY IS INSET INTO WALL, THE FRONT OF THE DISPLAY SHOULD STICK OUT 1 1/4" FOR ACCESS TO SOCKET HEAD CAP SCREWS FOR SERVICING. IF FRONT OF DISPLAY IS TO BE FLUSH WITH WALL, A MINIMUM OF A 3" GAP SHOULD BE BETWEEN THE SIDES OF THE DISPLAY AND THE SIDES OF THE CUTOUT IN THE WALL.

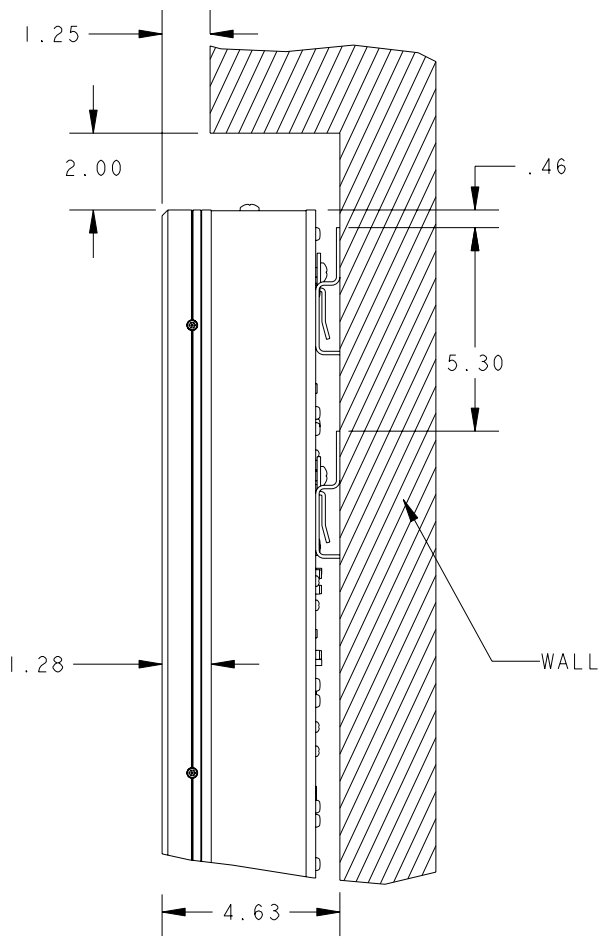
DAKTRONICS, INC. BROOKINGS, SD 57006

02	05 FEB 02	UPDATING DATATRAC INSTALLATION MANUAL	GDK	
01	14 AUG 97	EDITED NOTES.	STS	
REV.	DATE	DESCRIPTION	BY	APPR.

PROJ:	DATATRAC DISPLAYS		
TITLE:	MTG DETAIL; REAR HANGING MOUNT, 0.7"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
		DATE:	24APR97
REVISION	SHEET 1 OF DWG 92292	1120 - E10 - 92292	
	SCALE: 1=5		



**SIDE VIEW
DATATrac 2.1"
SECTION A-A**



**SIDE VIEW
DATATrac 1.2"
SECTION A-A**

TWO HANGER BRACKETS FOR WALL MOUNTING
(HARDWARE TO MOUNT BRACKET TO WALL
PROVIDED BY CUSTOMER)

“THIS APPLIES TO BOTH THE 1.2” AND 2.1”

NOTES:

DISPLAY NEEDS TO HAVE APPROXIMATELY 1/2" CLEARANCE FROM WALL ON TOP AND SIDES FOR VENTILATION.

IF DISPLAY IS MOUNTED NEAR CEILING OR IS INSET INTO WALL, THERE MUST BE A MINIMUM OF 2" BETWEEN THE TOP OF THE DISPLAY AND THE CEILING IF THE HANGER CLIPS AND BRACKETS ARE TO BE USED.

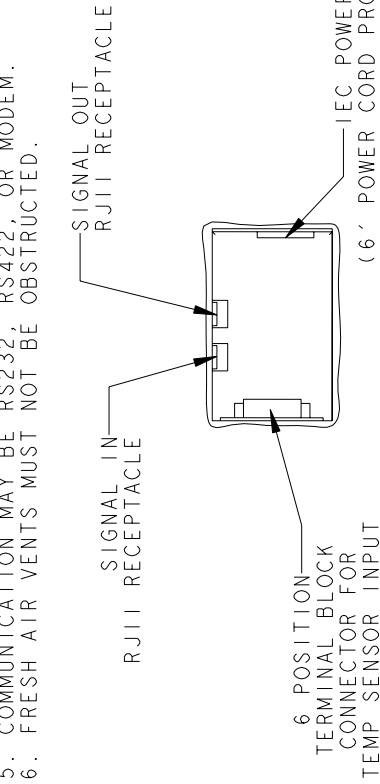
IF THE DISPLAY IS INSET INTO THE WALL, THE FRONT OF THE DISPLAY SHOULD STICK OUT 1-1/4" FOR ACCESS TO SOCKET HEAD CAP SCREWS FOR SERVICING. IF FRONT OF DISPLAY IS TO BE FLUSH WITH WALL, A MINIMUM OF A 3" GAP SHOULD BE BETWEEN THE SIDES OF THE DISPLAY AND THE SIDES OF THE CUTOUT IN THE WALL.

DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ:	DATATRC DISPLAYS
TITLE:	MTG DETAIL; REAR HANGING MOUNT, 1.2" & 2.1"
DES. BY:	WTUCKER
DRAWN BY:	NANDAL
DATE:	10 JUL 98
REVISION	SHEET 1 OF DWG 76158
SCALE:	1=5
1120-E10A-76158	

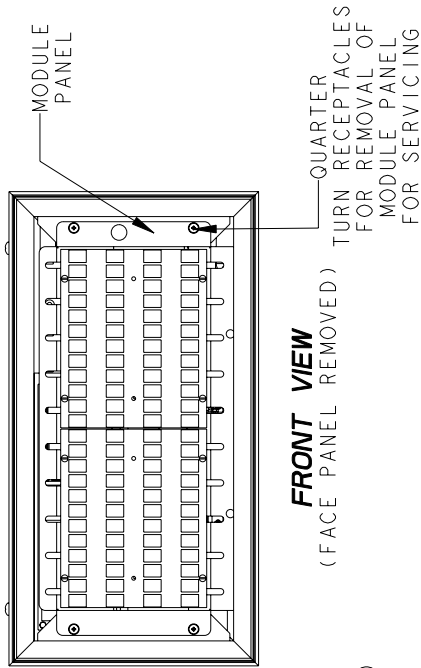
01	05 FEB 02	UPDATING DATATrac INSTALLATION MANUAL	GDK	
REV.	DATE	DESCRIPTION	BY	APPR.

NOTES:

1. CHARACTERS ARE MONOCHROME RED.
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 15 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 92292 FOR WALL HANGING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

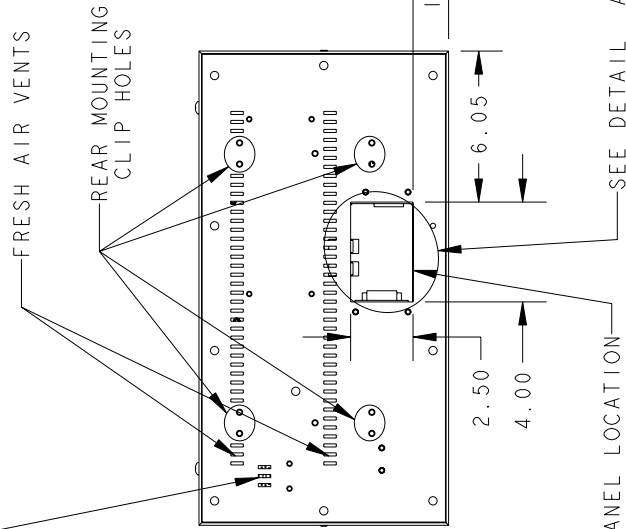
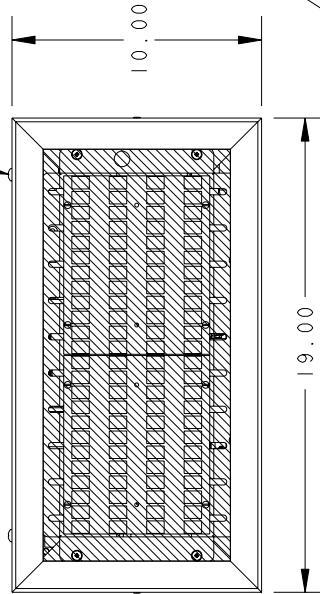
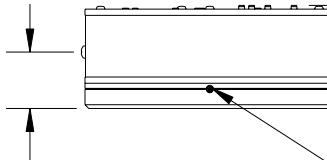


DETAIL A
SCALE 1/4



INTERNAL BUZZER LOCATION

REMOVEABLE SCREWS
FOR WALL HANGING

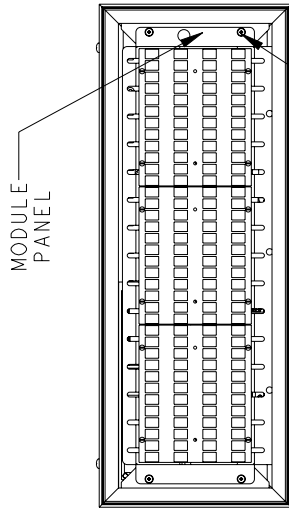


DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATrac DISPLAYS		
TITLE:	SHOP DWG, S-***-4-24-0.7"		
DES. BY:	WTUCKER	DRAWN BY:	NANDAL
			DATE: 04 MAY 97
REVISION	SHEET 1 OF DWG 89791		1120 - E10A - 89791
SCALE:	1=8		

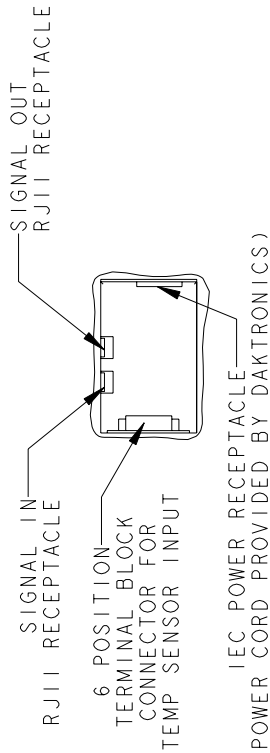
01	18 FEB 03	ADDED LEADERS TO NOTES FOR CLARITY	BDS	
REV.	DATE	DESCRIPTION	BY	APPR.

NOTES:

1. CHARACTERS ARE MONOCHROME RED.
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 20 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DWG 92292 FOR WALL MOUNTING DETAIL, DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



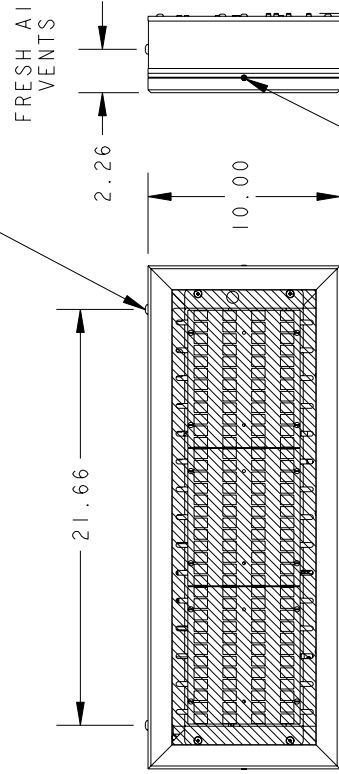
FRONT VIEW
(FACE PANEL REMOVED)



DETAIL A
SCALE 1/5

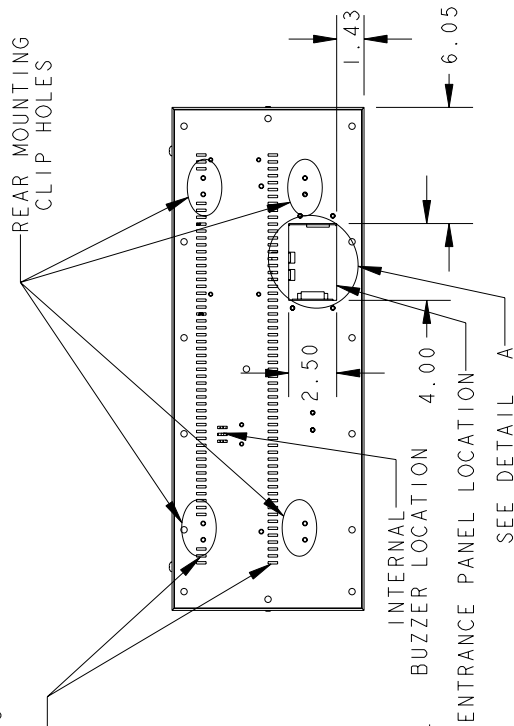
(6' POWER CORD PROVIDED BY DAKTRONICS)

REMOVABLE SCREWS FOR HANGING



FRONT VIEW
(FACE PANEL SHOWN)

SOCKET HEAD CAP SCREW TYPICAL ON EACH SIDE OF DISPLAY FOR REMOVAL OF FACEPANEL



REAR VIEW

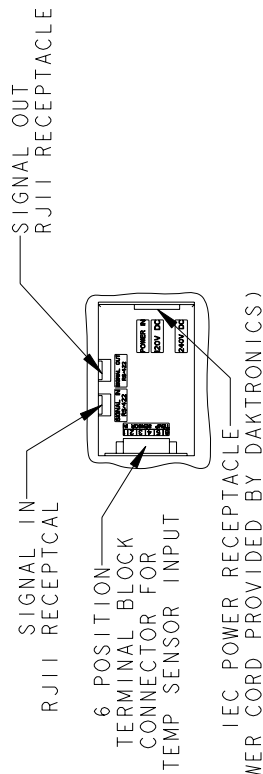
SIDE VIEW

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO NEW CALCULATION	BDS	

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DWG; S-***-4-36-0.7"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
DATE:	29APR97		
REVISION	SHEET 1 OF DWG 92153	1120 - E10A - 92153	
SCALE:	1 = 10		

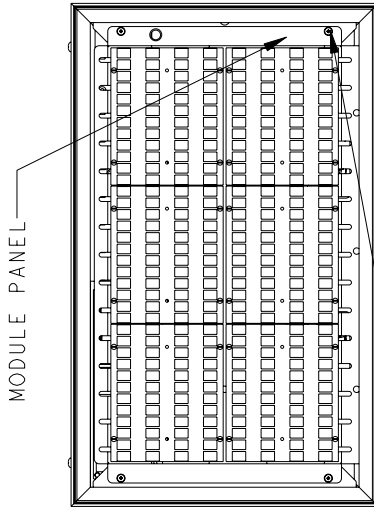
NOTES:

1. CHARACTERS ARE MONOCHROME RED.
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 30 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 92292 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



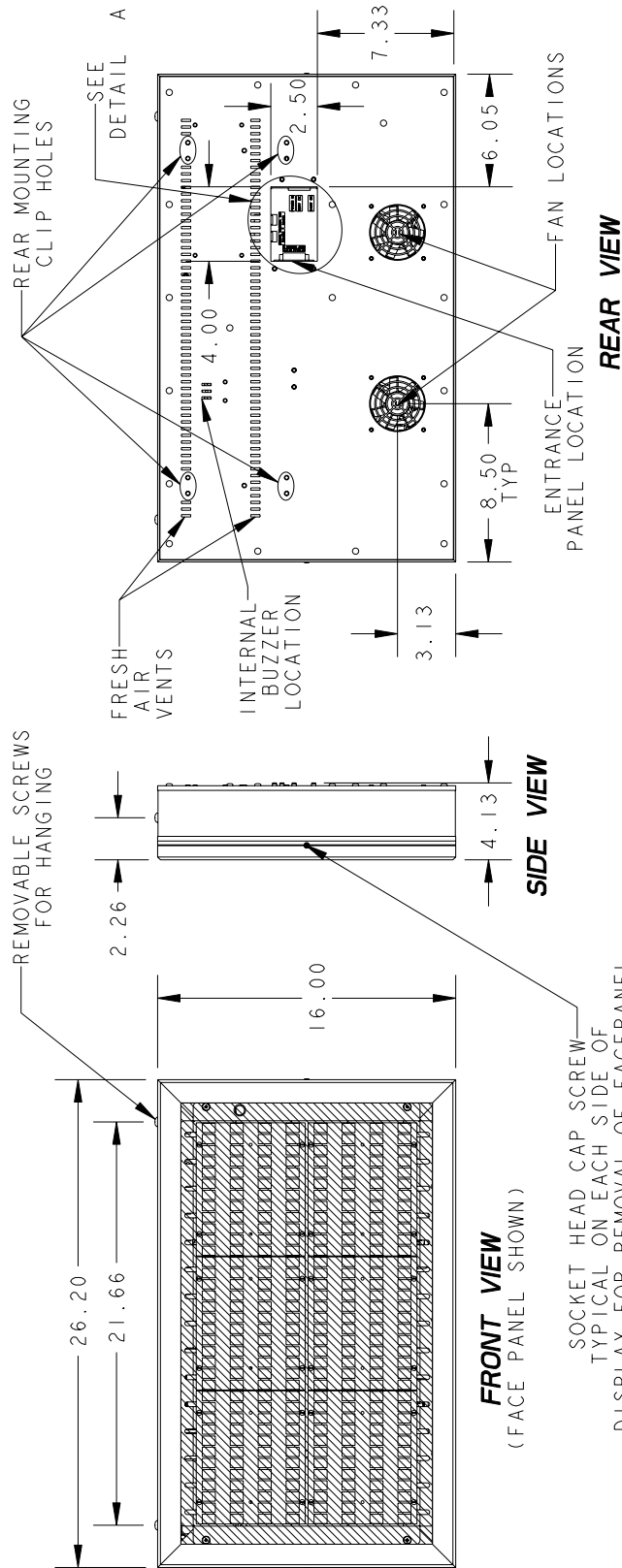
(6' POWER CORD PROVIDED BY DAKTRONICS)

DETAIL A
SCALE 1/5



FRONT VIEW
(FACE PANEL REMOVED)

QUARTER TURN RECEPTACLES FOR REMOVAL OF MODULE PANEL FOR SERVICING

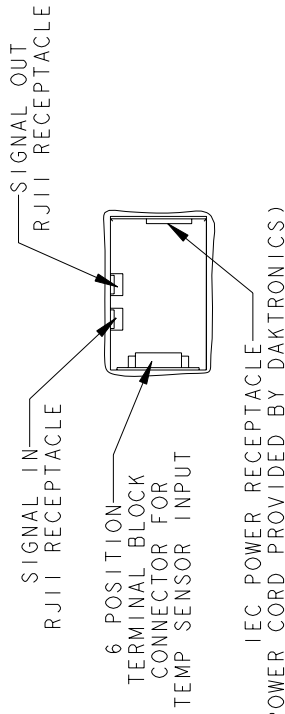
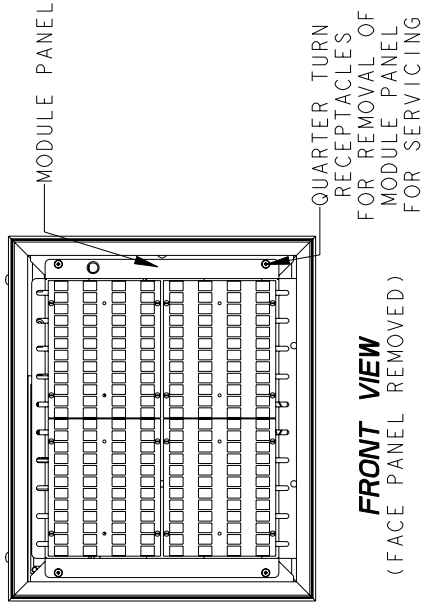


DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATrac DISPLAYS		
TITLE:	SHOP DWG, S-***-8-36-0.7"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
DATE:	29APR97		
REVISION	SHEET 1 OF DWG 92156		1120 - E10A - 92156
SCALE:	1 = 10		

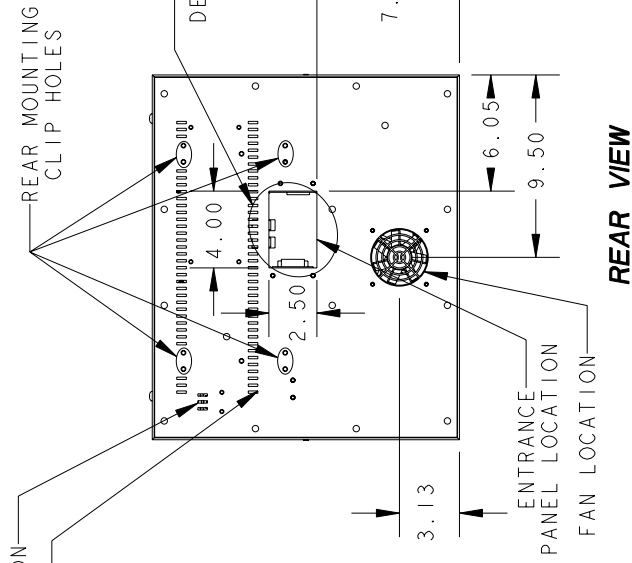
REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	WJT

NOTES:

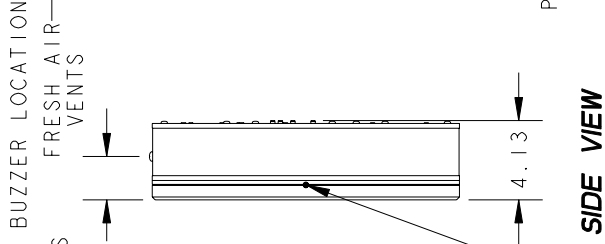
1. CHARACTERS ARE MONOCHROME (RED).
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 25 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 92292 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



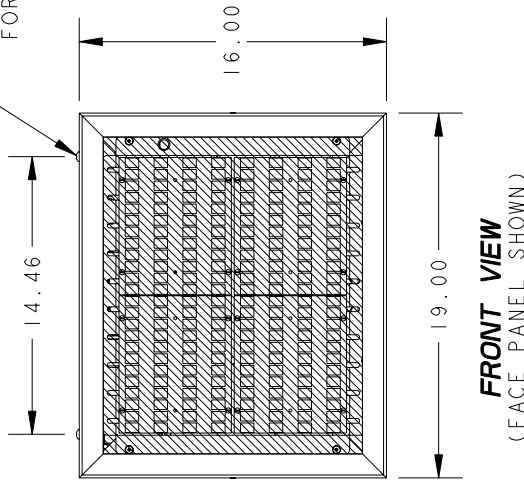
DETAIL A
SCALE 1/5



REAR VIEW



SIDE VIEW



FRONT VIEW
(FACE PANEL SHOWN)

SOCKET HEAD CAP SCREW
TYPICAL ON EACH SIDE OF
DISPLAY FOR REMOVAL OF FACEPANEL

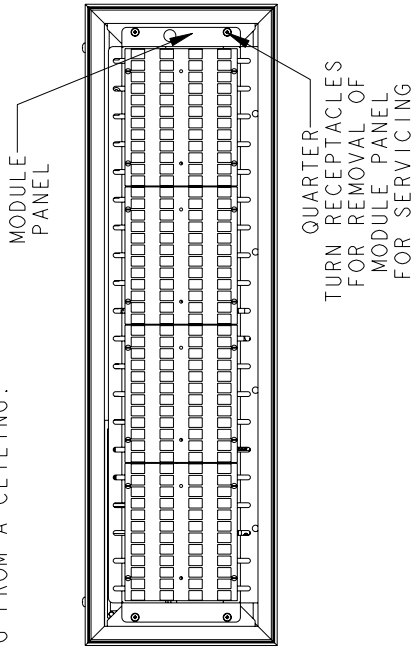
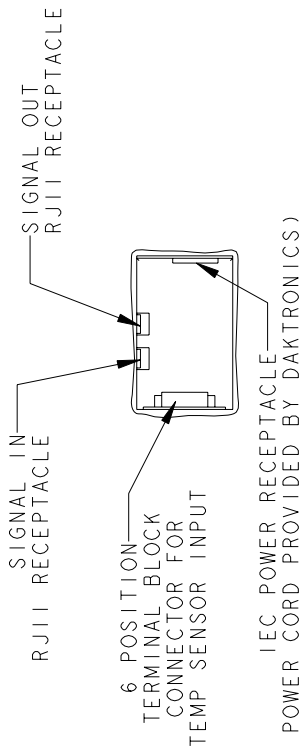
REV.	DATE	DESCRIPTION	BY	APPR.
02	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	
01	30 JAN 02	CHANGED REAR MOUNTING CLIP NOTES TO INDICATE THE FOUR CORRECT MOUNTING LOCATIONS.	GDK	

DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ:	DATATRAC DISPLAYS
TITLE:	SHOP DWG; S-***-8-24-0.7"
DES. BY:	WTUCKER
DRAWN BY:	SSIVERT
DATE:	29 APR 97
REVISION	SHEET 1 OF DWG 92155
SCALE:	1=10

1120 - E10A - 92155

NOTES:

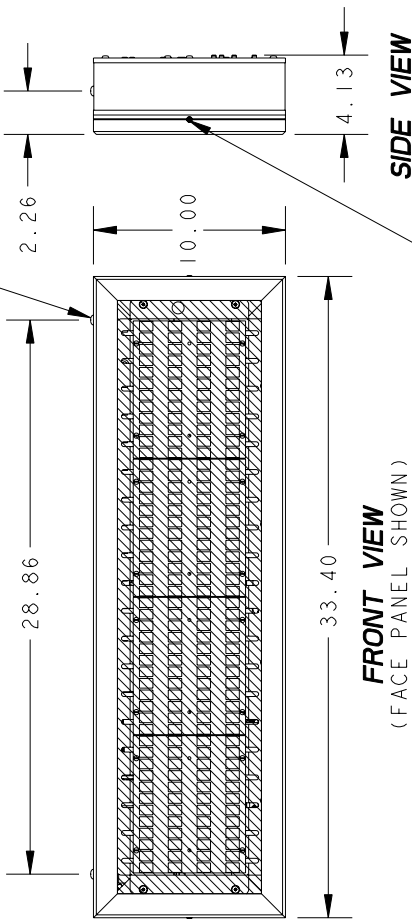
1. CHARACTERS ARE MONOCHROME RED.
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 25 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DWG 92292 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



FRONT VIEW
(FACE PANEL REMOVED)

REMOVABLE SCREWS FOR HANGING

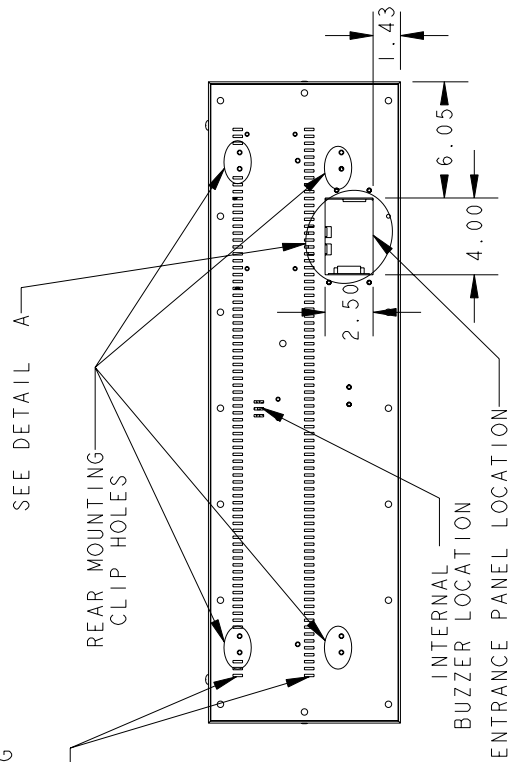
FRESH AIR VENTS



FRONT VIEW
(FACE PANEL SHOWN)

SIDE VIEW

SOCKET HEAD CAP SCREW TYPICAL ON EACH SIDE OF DISPLAY FOR REMOVAL OF FACEPANEL



REAR VIEW

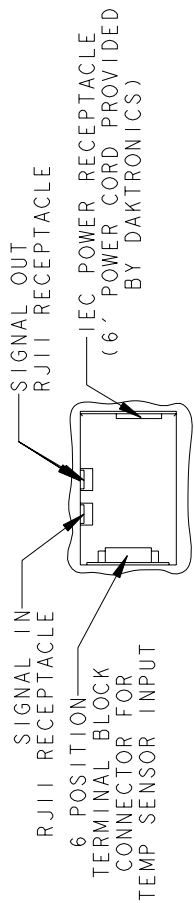
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DWG; S-***-4-48-0.7"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
DATE:	29APR97		
REVISION	SHEET 1 OF DWG 92154	1120 - E10A - 92154	
SCALE:	1 = 10		

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WIEGHT DUE TO RECALCULATION	BDS	

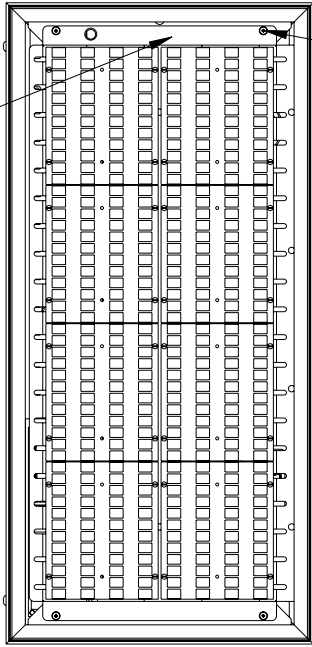
NOTES:

1. CHARACTERS ARE MONOCHROME (RED).
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 35 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 92292 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING HANGING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



DETAIL A
SCALE 1/5

MODULE PANEL

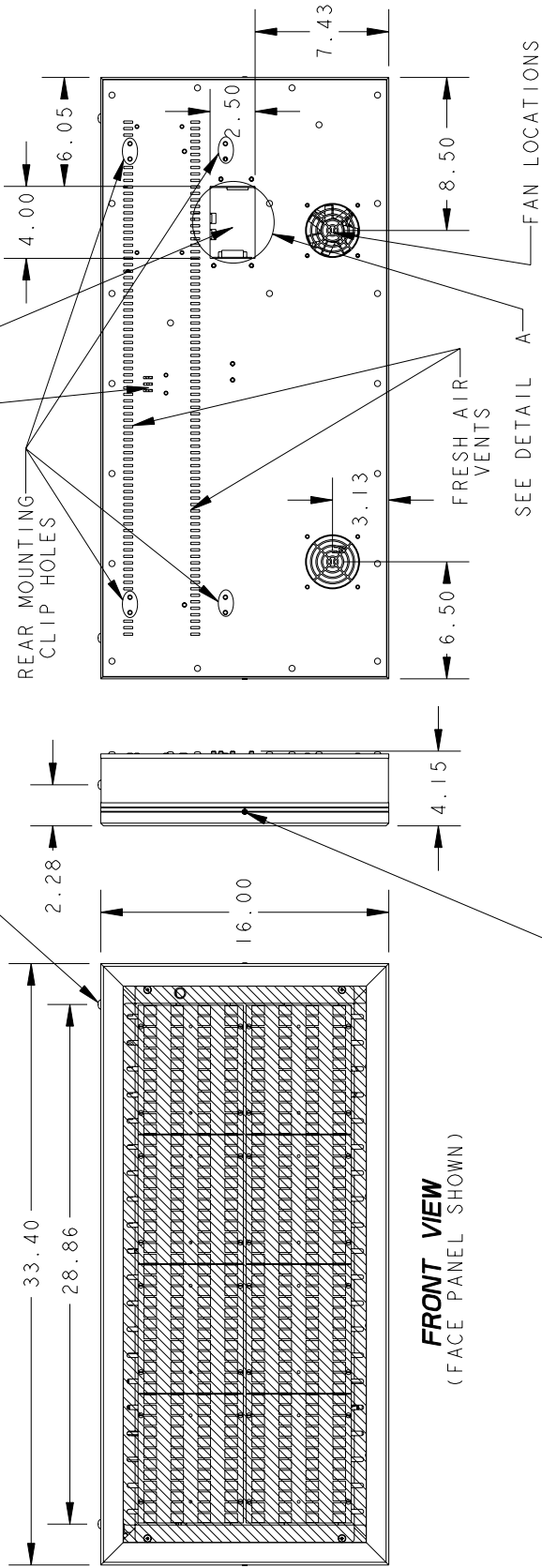


FRONT VIEW
(FACE PANEL REMOVED)

QUARTER TURN
RECEPTACLES FOR
REMOVAL OF
MODULE PANEL
FOR SERVICING

ENTRANCE PANEL LOCATION
INTERNAL BUZZER LOCATION

REMOVABLE SCREWS
FOR HANGING



FRONT VIEW
(FACE PANEL SHOWN)

SOCKET HEAD CAP SCREW
TYPICAL ON EACH SIDE OF
DISPLAY FOR REMOVAL OF FACEPANEL

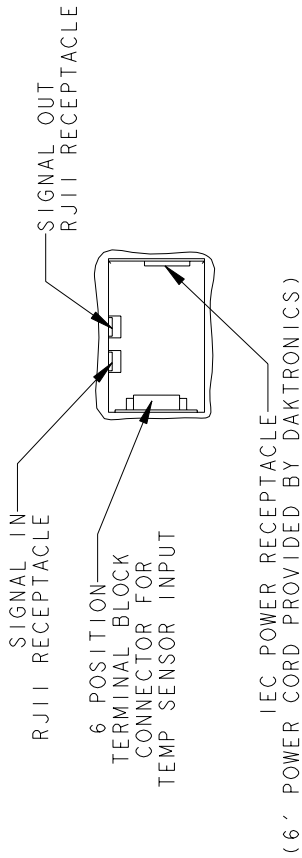
REAR VIEW

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

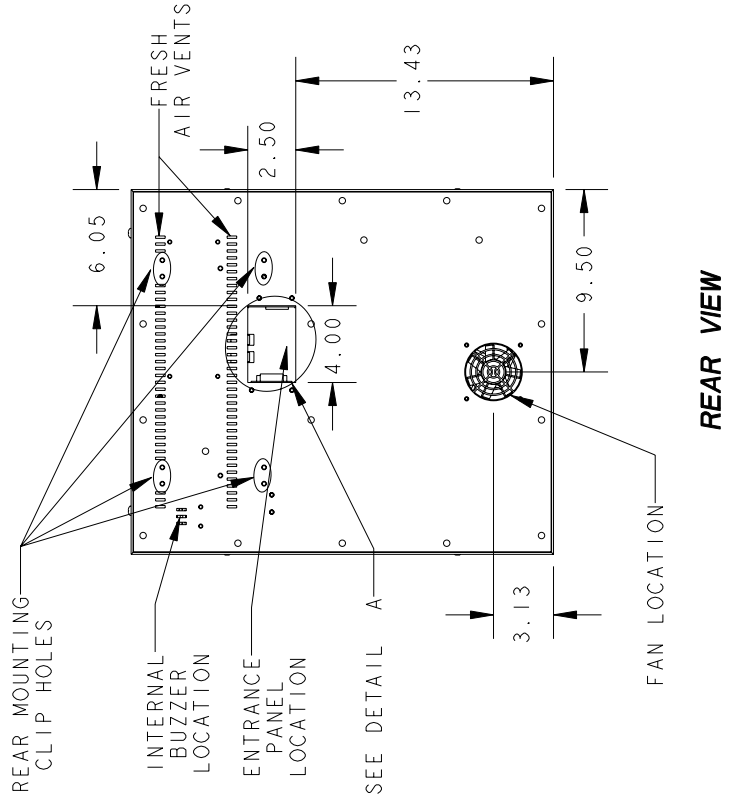
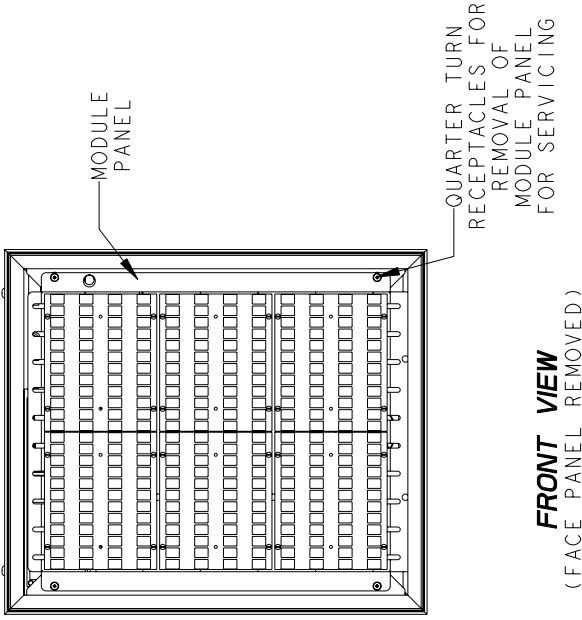
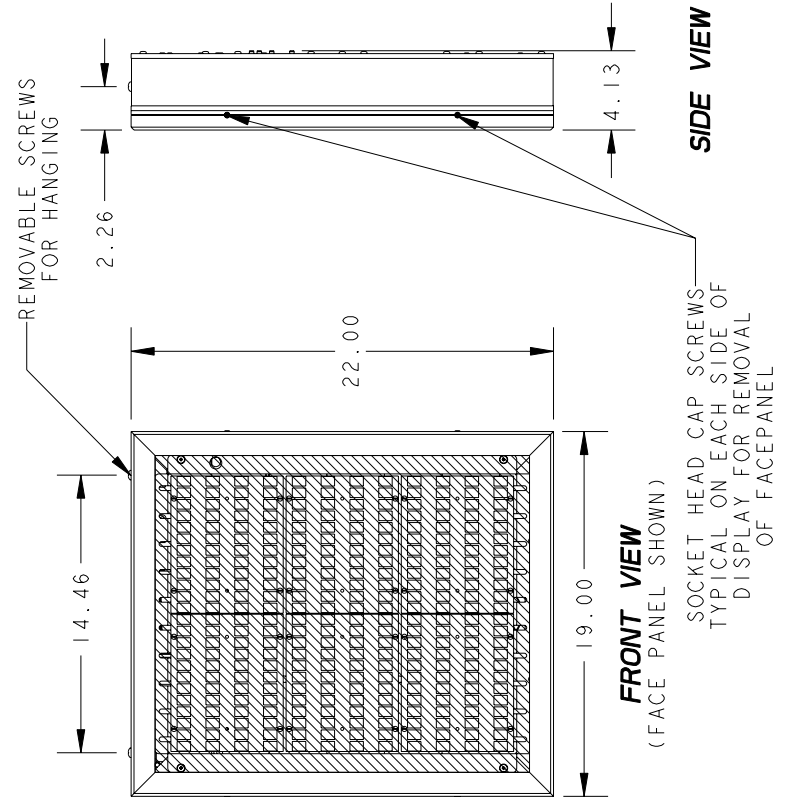
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DWG; 2-***-8-48-0.7"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
		DATE:	04MAY97
REVISION	SHEET 1 OF DWG 92157	1120 - E10A - 92157	
	SCALE: 1=10		

NOTES:

1. CHARACTERS ARE MONOCHROME (RED).
2. ACRYLIC FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 30 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



DETAIL A
SCALE 1/5



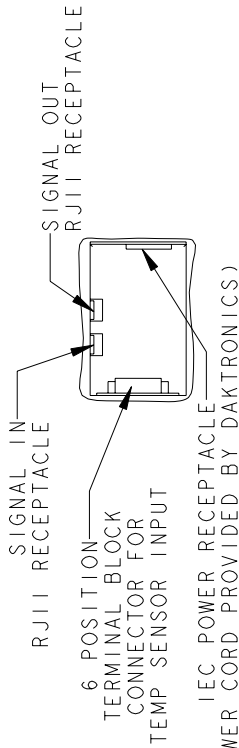
REAR VIEW

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

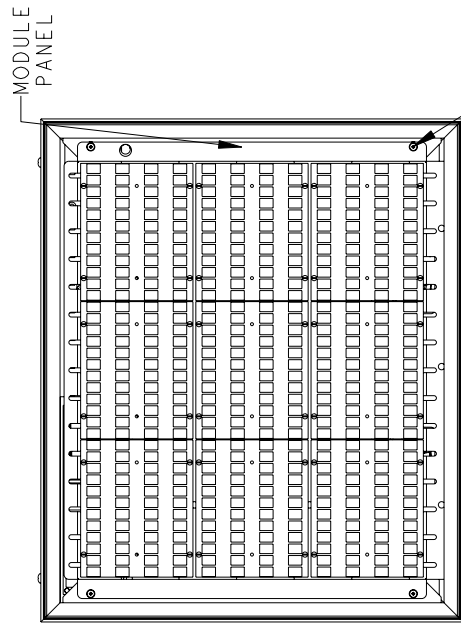
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATRAC DISPALYS		
TITLE:	SHOP DWG, S-***-12-24-0.7"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
DATE:	29 APR 97		
REVISION	SHEET 1 OF DWG 89360	1120 - E10A - 89360	
SCALE:	1 = 10		

NOTES:

1. CHARACTERS ARE MONOCHROME (RED).
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 40 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 92292 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.



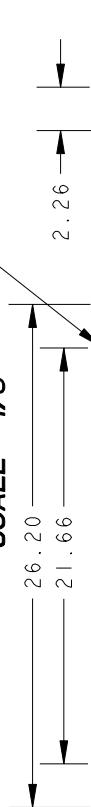
DETAIL A
SCALE 1/5



FRONT VIEW
(FACE PANEL REMOVED)

QUARTER TURN RECEPTACLES FOR REMOVAL OF MODULE PANEL FOR SERVICING

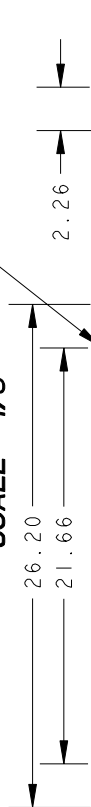
REMOVABLE SCREWS FOR HANGING



FRONT VIEW
FACE PANEL SHOWN

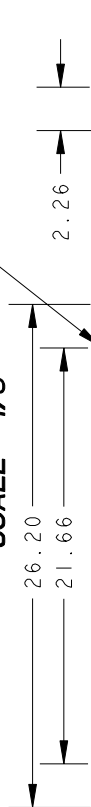
SOCKET HEAD CAP SCREWS TYPICAL ON EACH SIDE OF DISPLAY FOR REMOVAL OF FACEPANEL

REAR MOUNTING CLIP HOLES



SIDE VIEW

FRESH AIR VENTS

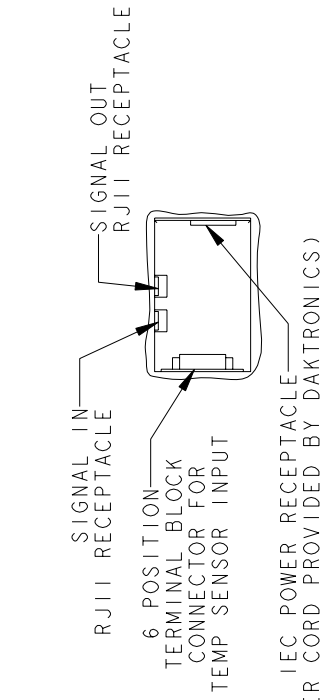


REAR VIEW

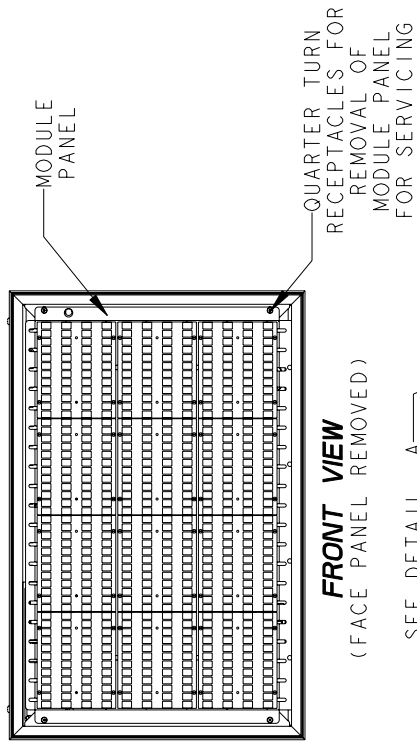
01		18 FEB 03	WEIGHT CHANGED DUE TO RECALCULATION	BDS	
REV.	DATE		DESCRIPTION	BY	APPR.
DAKTRONICS, INC. BROOKINGS, SD 57006					
PROJ:		DATATRAC DISPLAYS			
TITLE:		SHOP DWG; S-***-12-36-0.7"			
DES. BY:		WTUCKER	DRAWN BY: SSIVERT		DATE: 04MAY97
REVISION	SHEET 1 OF DWG 92158		1120 - E10A - 92158		
SCALE:		1 = 10			

NOTES:

1. CHARACTERS ARE MONOCHROME (RED).
2. ACRYLIC IN FACE PANEL IS RED.
3. DISPLAY WEIGHT IS APPROXIMATELY 50 POUNDS.
4. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 92292 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

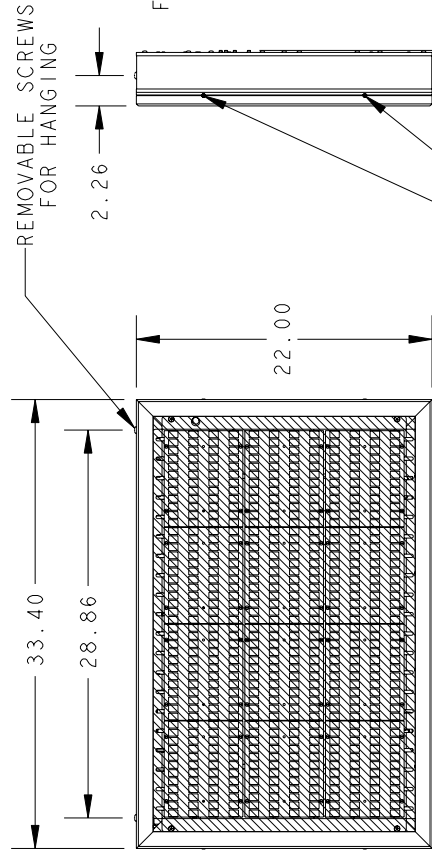


DETAIL A
SCALE 1/5

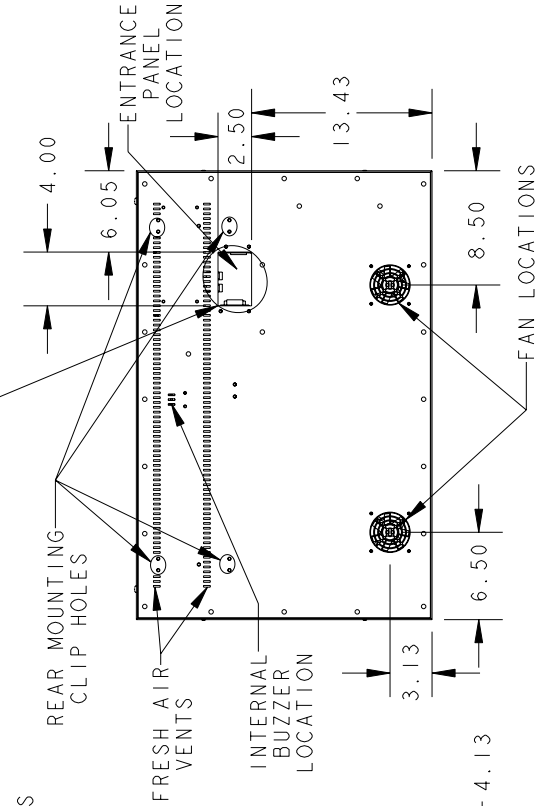


FRONT VIEW
(FACE PANEL REMOVED)

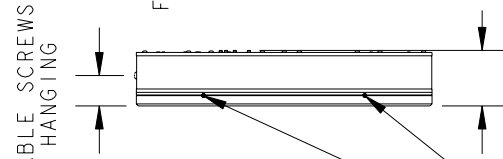
SEE DETAIL A



FRONT VIEW
(FACE PANEL SHOWN)



REAR VIEW



SIDE VIEW

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATRAC DISPLAYS

TITLE: SHOP DWG; S-***-12-48-0.7"

DES. BY: WTUCKER

DRAWN BY: SSIVERT

DATE: 24APR97

REVISION

SHEET 1 OF DWG 92159

SCALE: 1=10

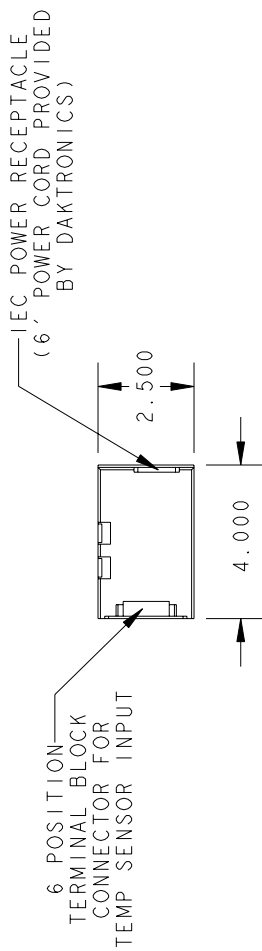
1120 - E10A - 92159

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

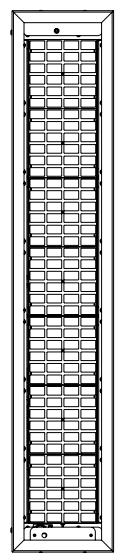
NOTES:

1. CHARACTERS ARE MONOCHROME (RED) OR TRI-COLOR (RED, GREEN, AMBER).
2. ACRYLIC IN FACE PANEL IS RED (MONOCHROME) OR BRONZE (TRI-COLOR).
3. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 76158 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
4. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
5. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

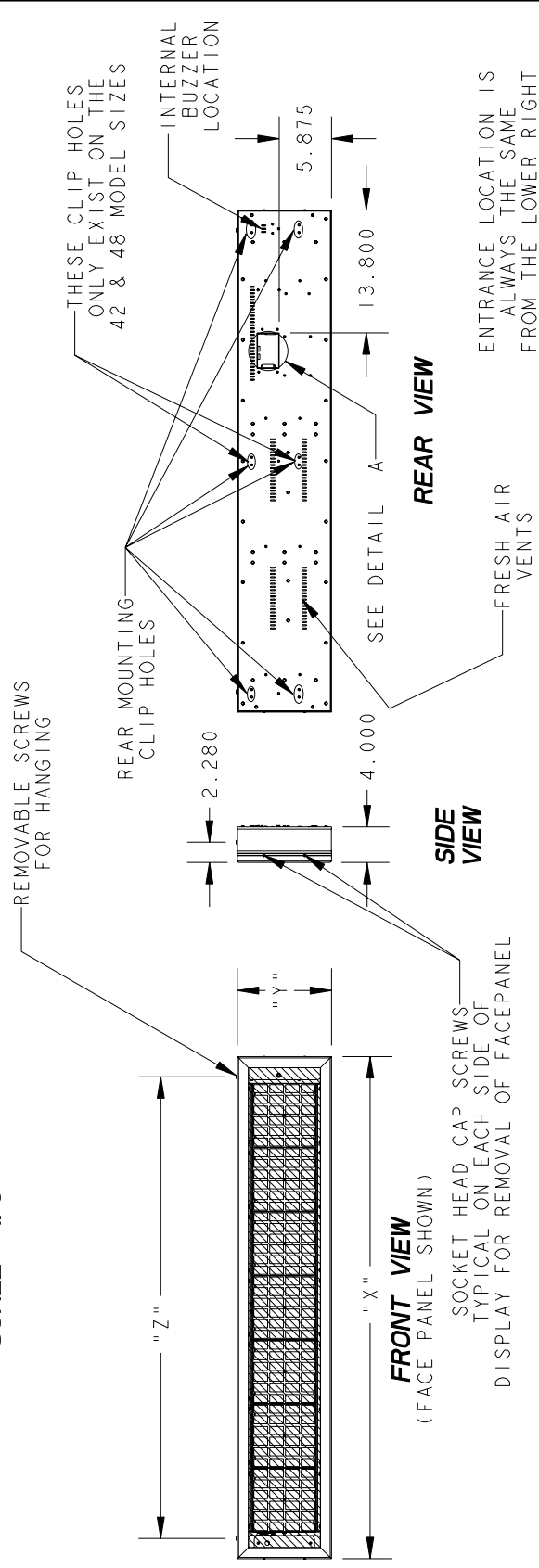
MODEL	"X"	"Y"	"Z"	WEIGHT
S-***-4-18-1.2"	27.60	10.58	23.06	20 lb
S-***-4-24-1.2"	34.80	10.58	30.26	25 lb
S-***-4-30-1.2"	42.00	10.58	37.46	30 lb
S-***-4-36-1.2"	49.20	10.58	44.66	35 lb
S-***-4-42-1.2"	56.40	10.58	51.86	40 lb
S-***-4-48-1.2"	63.60	10.58	59.06	45 lb



DETAIL A
SCALE 1/5



FRONT VIEW
(FACE PANEL REMOVED)



ENTRANCE LOCATION IS ALWAYS THE SAME FROM THE LOWER RIGHT CORNER OF THE DISPLAY WHEN VIEWED FROM REAR

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

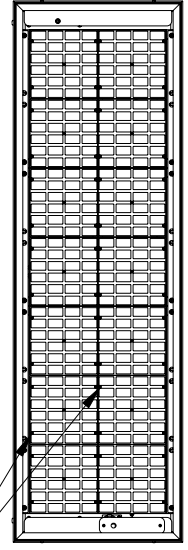
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DRAWING, S-***-4-**-1.2"		
DES. BY:	NANDAL	DRAWN BY:	NANDAL
		DATE:	19SEP97
REVISION	SHEET 1 OF DWG 96635	1120 - E10A - 96635	
	SCALE: 1=20		

NOTES:

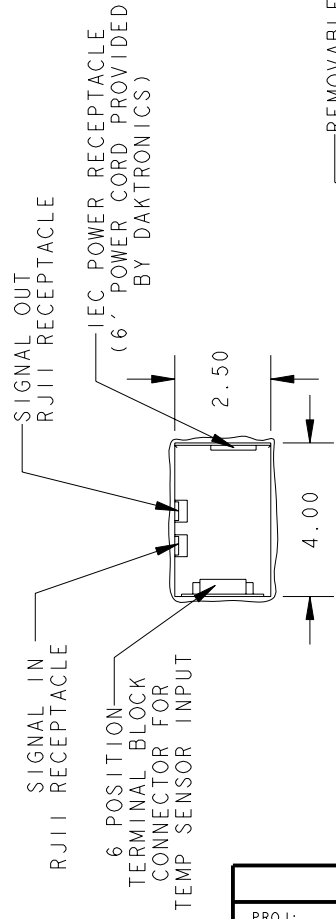
1. CHARACTERS ARE MONOCHROME (RED) OR TRI-COLOR (RED, GREEN, AMBER).
2. ACRYLIC IN FACE PANEL IS RED (MONOCHROME) OR BRONZE (TRI-COLOR).
3. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 76158 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
4. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
5. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

MODEL	"X"	"Y"	"Z"	WEIGHT
S-***-8-18-1.2"	27.60	17.66	23.06	30 lb
S-***-8-24-1.2"	34.80	17.66	30.26	40 lb
S-***-8-30-1.2"	42.00	17.66	37.46	45 lb
S-***-8-36-1.2"	49.20	17.66	44.66	50 lb
S-***-8-42-1.2"	56.40	17.66	51.86	60 lb
S-***-8-48-1.2"	63.60	17.66	59.06	65 lb

CROSS-RECESSED SCREWS FOR REMOVAL OF MODULES FOR SERVICING



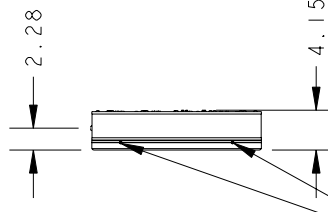
FRONT VIEW
(FACE PANEL REMOVED)



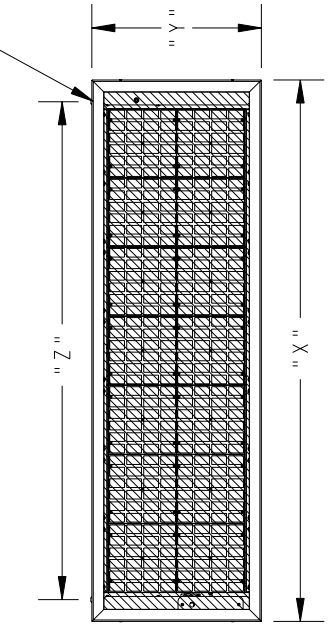
DETAIL A
SCALE 1/5

REMOVABLE SCREWS FOR HANGING

REAR MOUNTING CLIP HOLES



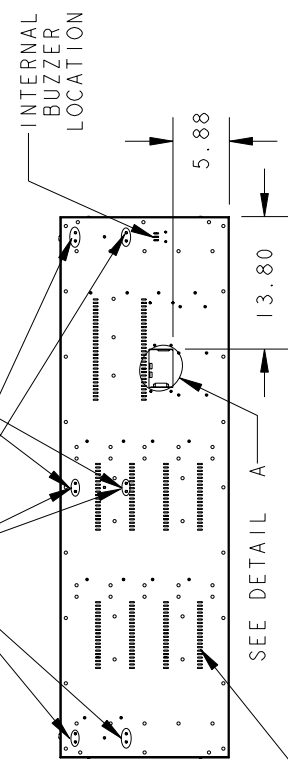
SIDE VIEW



FRONT VIEW
(FACE PANEL SHOWN)

SOCKET HEAD CAP SCREWS TYPICAL ON EACH SIDE OF DISPLAY FOR REMOVAL OF FACEPANEL

THESE CLIP HOLES ONLY EXIST ON THE 42 & 48 MODEL SIZES



REAR VIEW

ENTRANCE LOCATION IS ALWAYS THE SAME FROM THE LOWER RIGHT CORNER OF THE DISPLAY WHEN VIEWED FROM REAR

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

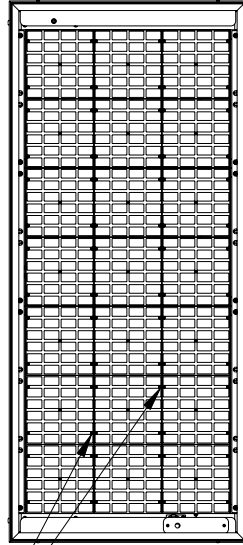
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DRAWING, S-***-8-**-1.2"		
DES. BY:	NANDAL	DRAWN BY:	NANDAL
			DATE: 19 SEP 97
REVISION	SHEET 1 OF DWG 96637		1120 - E10A - 96637
	SCALE: 1=20		

NOTES:

1. CHARACTERS ARE MONOCHROME (RED) OR TRI-COLOR (RED, GREEN, AMBER).
2. ACRYLIC IN FACE PANEL IS RED (MONOCHROME) OR BRONZE (TRI-COLOR).
3. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 76158 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
4. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
5. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

MODEL	"X"	"Y"	"Z"	WEIGHT
S-***-12-18-1.2"	27.60	24.74	23.06	40 lb
S-***-12-24-1.2"	34.80	24.74	30.26	50 lb
S-***-12-30-1.2"	42.00	24.74	37.46	60 lb
S-***-12-36-1.2"	49.20	24.74	44.66	70 lb
S-***-12-42-1.2"	56.40	24.74	51.86	80 lb
S-***-12-48-1.2"	63.60	24.74	59.06	90 lb

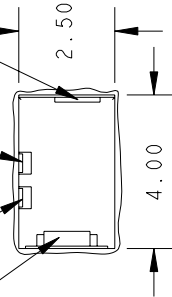
CROSS-RECESSED SCREWS FOR REMOVAL OF MODULES FOR SERVICING



FRONT VIEW
(FACE PANEL REMOVED)

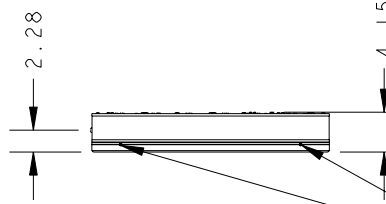
SIGNAL IN RJ11 RECEPTACLE
SIGNAL OUT RJ11 RECEPTACLE

6 POSITION TERMINAL BLOCK CONNECTOR FOR TEMP SENSOR INPUT
IEC POWER RECEPTACLE (6' POWER CORD PROVIDED BY DAKTRONICS)

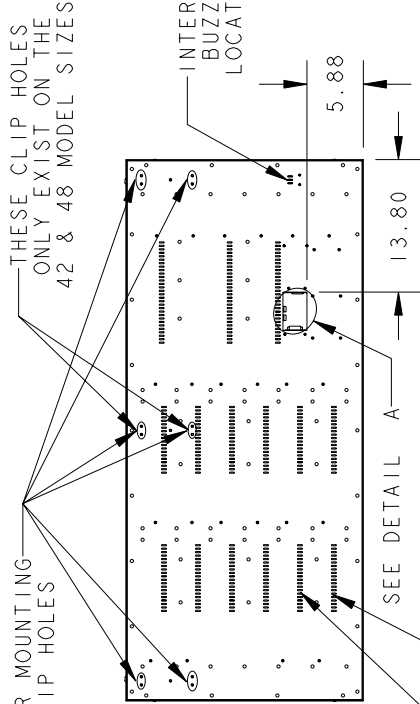


DETAIL A
SCALE 1/5

REMOVABLE SCREWS FOR HANGING

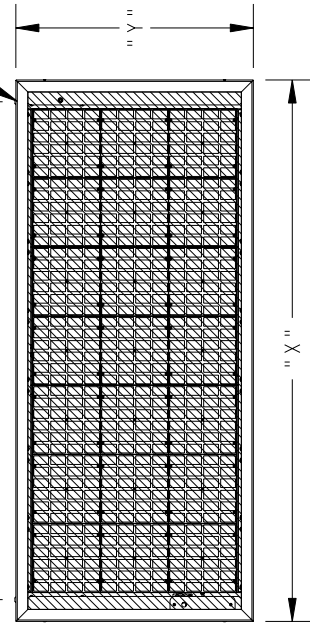


SIDE VIEW



REAR VIEW

ENTRANCE LOCATION IS ALWAYS THE SAME FROM THE LOWER RIGHT CORNER OF THE DISPLAY WHEN VIEWED FROM REAR



FRONT VIEW
(FACE PANEL SHOWN)

SOCKET HEAD CAP SCREWS TYPICAL ON EACH SIDE OF DISPLAY FOR REMOVAL OF FACEPANEL

DAKTRONICS, INC. BROOKINGS, SD 57006

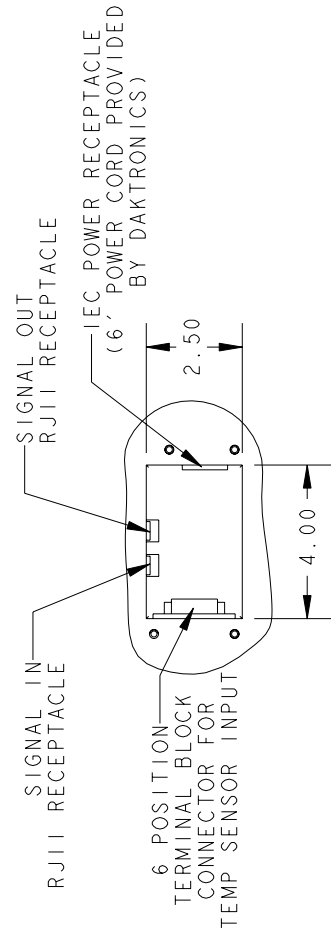
PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DRAWING, S-***-12-**-1.2"		
DES. BY:	NANDAL	DRAWN BY:	NANDAL
		DATE:	19SEP97
REVISION	SHEET 1 OF DWG 96639	1120 - E10A - 96639	
	SCALE: 1=20		

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

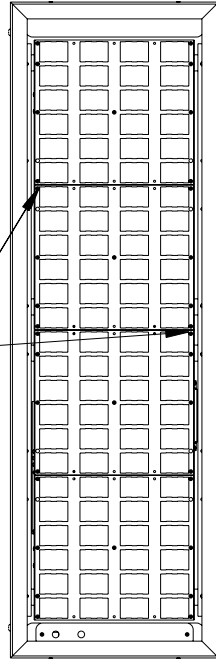
NOTES:

1. CHARACTERS ARE MONOCHROME (RED) OR TRI-COLOR (RED, GREEN, AMBER).
2. ACRYLIC IN FACE PANEL IS RED (MONOCHROME) OR BRONZE (TRI-COLOR).
3. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 76158 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
4. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
5. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

MODEL	"X"	"Y"	"Z"	WEIGHT
S-***-4-18-2.1"	38.00	15.50	33.50	35 lb
S-***-4-24-2.1"	48.80	15.50	44.30	40 lb
S-***-4-30-2.1"	59.60	15.50	55.10	50 lb
S-***-4-36-2.1"	70.40	15.50	65.90	55 lb
S-***-4-42-2.1"	81.20	15.50	76.70	65 lb
S-***-4-48-2.1"	92.00	15.50	87.50	75 lb

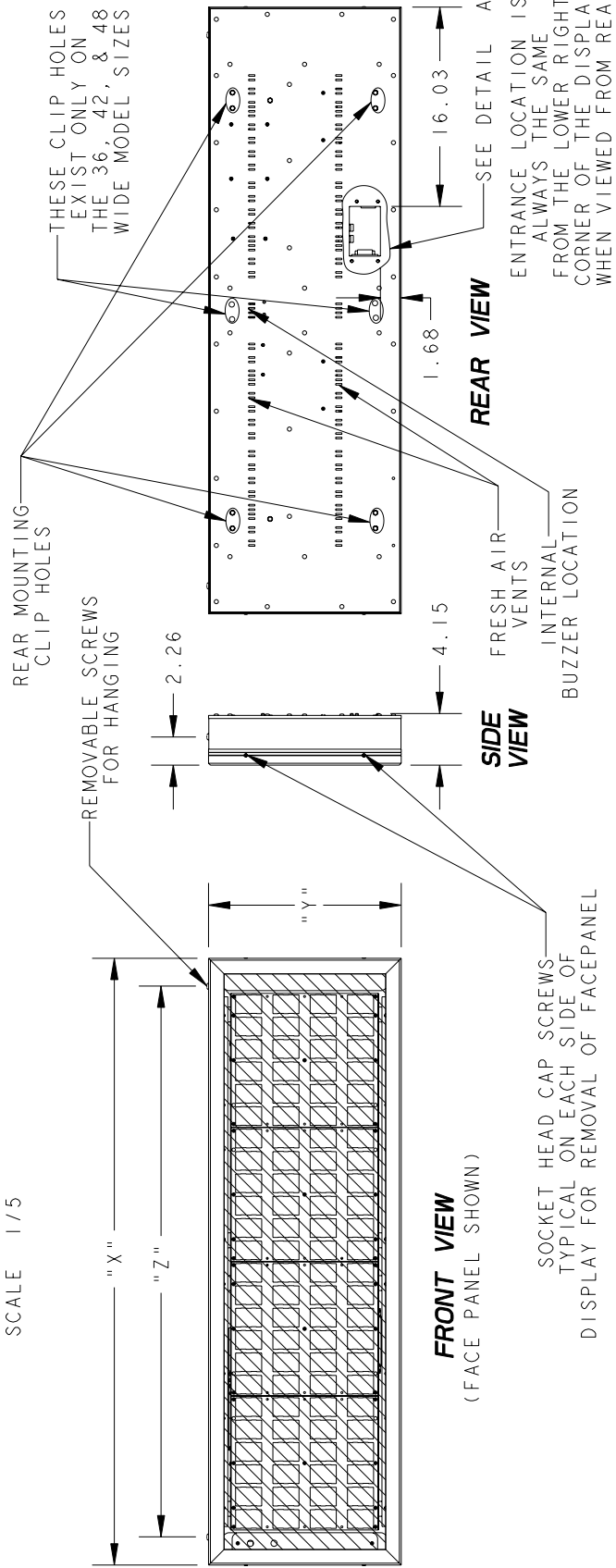


QUARTER TURN RECEPTACLES FOR REMOVAL OF MODULES FOR SERVICING



FRONT VIEW
(FACE PANEL REMOVED)

DETAIL A
SCALE 1/5



DAKTRONICS, INC. BROOKINGS, SD 57006

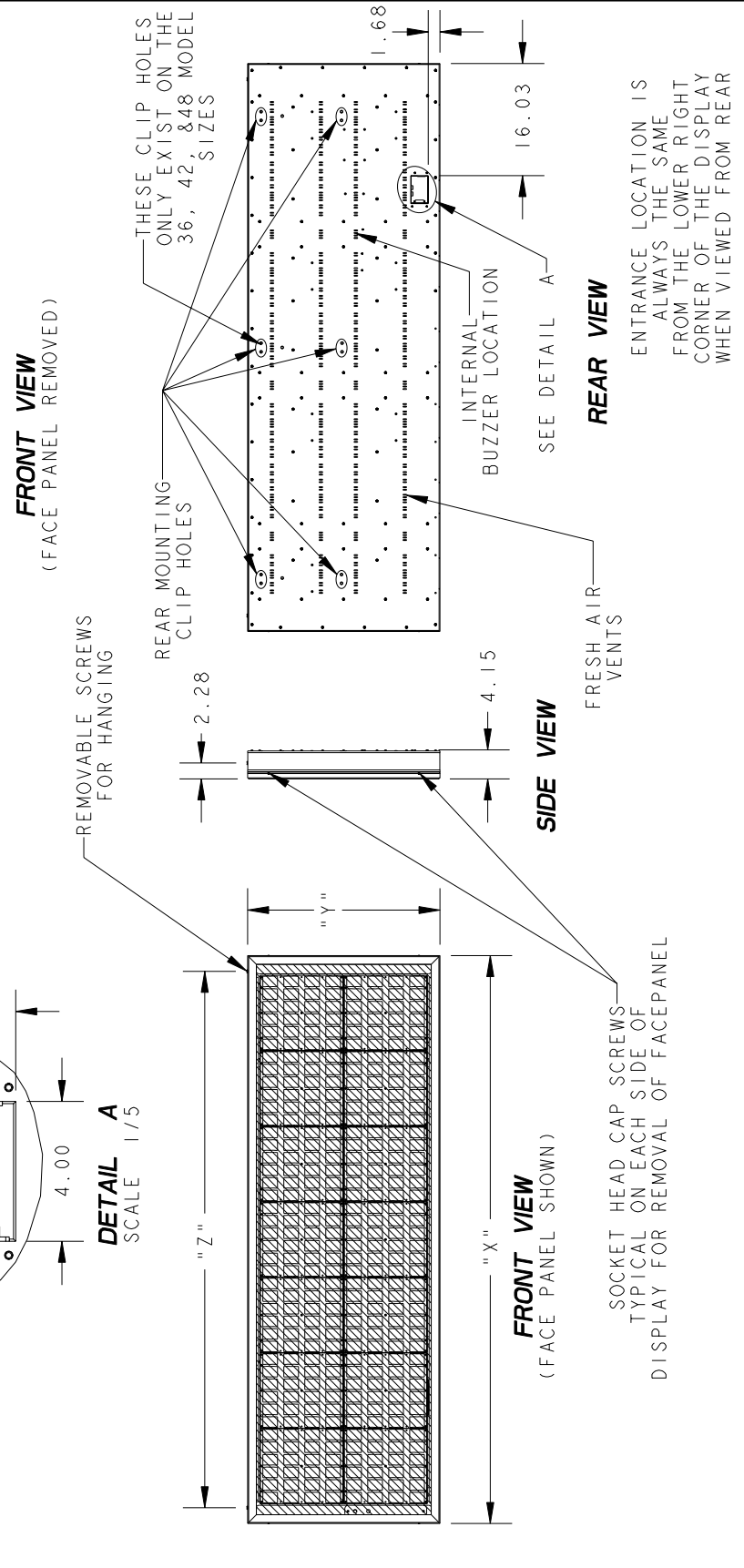
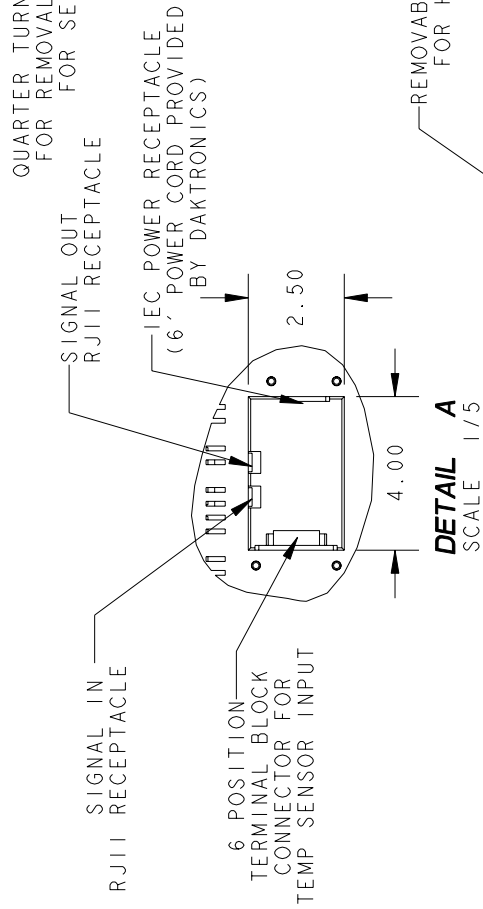
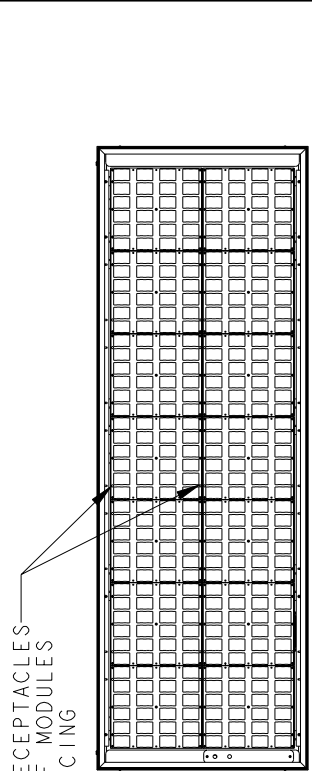
PROJ:	DATATrac DISPLAYS		
TITLE:	SHOP DWG; S-***-4-**-2.1"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
DATE:	15AUG97		
REVISION	SHEET 1 OF DWG 77323		1120 - E10A - 77323
SCALE:	1 = 15		

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

NOTES:

1. CHARACTERS ARE MONOCHROME (RED) OR TRI-COLOR (RED, GREEN, AMBER).
2. ACRYLIC IN FACE PANEL IS RED (MONOCHROME) OR BRONZE (TRI-COLOR).
3. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING.
4. REFER TO DRAWING 76158 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
5. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
6. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

MODEL	"X"	"Y"	"Z"	WEIGHT
S-***-8-18-2.1"	38.00	27.50	33.50	55 lb
S-***-8-24-2.1"	48.80	27.50	44.30	65 lb
S-***-8-30-2.1"	59.60	27.50	55.10	80 lb
S-***-8-36-2.1"	70.40	27.50	65.90	95 lb
S-***-8-42-2.1"	81.20	27.50	76.70	105 lb
S-***-8-48-2.1"	92.00	27.50	87.50	120 lb



REAR VIEW

ENTRANCE LOCATION IS ALWAYS THE SAME FROM THE LOWER RIGHT CORNER OF THE DISPLAY WHEN VIEWED FROM REAR

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	DATATRAC DISPLAYS		
TITLE:	SHOP DWG; S-***-8-**-2.1"		
DES. BY:	WTUCKER	DRAWN BY:	SSIVERT
		DATE:	14MAY97
REVISION	SHEET 1 OF DWG 77321	1120 - E10A - 77321	
	SCALE: 1=25		

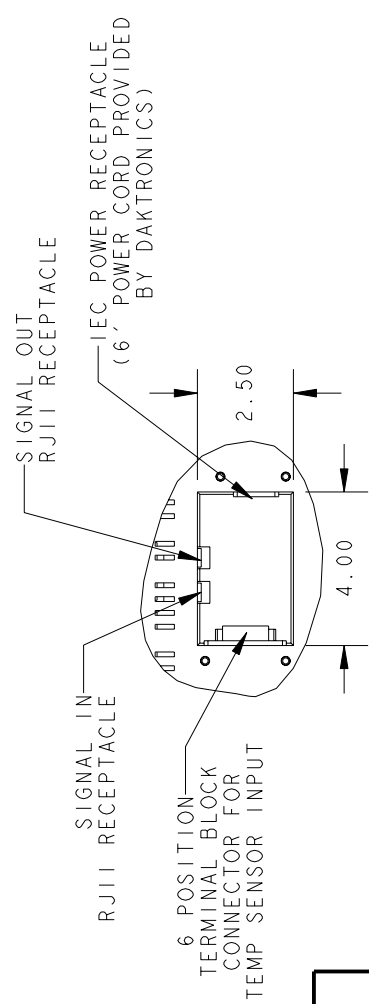
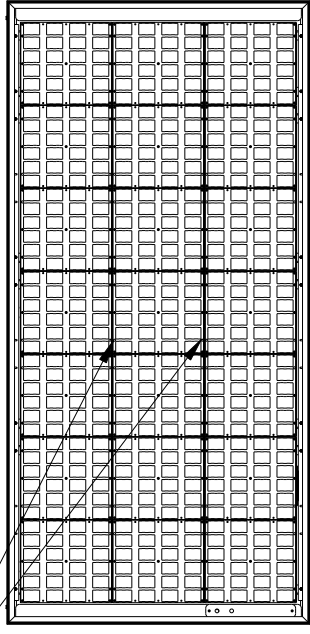
REV.	DATE	DESCRIPTION	BY	APPR.
02	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	
01	15AUG97	ADDED ALL OTHER EIGHT HIGH MODEL DATA.	NJA	

NOTES:

1. CHARACTERS ARE MONOCHROME (RED) OR TRI-COLOR (RED, GREEN, AMBER).
2. ACRYLIC IN FACE PANEL IS RED (MONOCHROME) OR BRONZE (TRI-COLOR).
3. DISPLAY MAY SIT ON A TABLE, MOUNT TO A WALL, OR HANG FROM A CEILING. REFER TO DRAWING 76158 FOR WALL MOUNTING DETAIL AND DRAWING 92315 FOR CEILING MOUNTING DETAIL.
4. COMMUNICATION MAY BE RS232, RS422, OR MODEM.
5. FRESH AIR VENTS MUST NOT BE OBSTRUCTED.

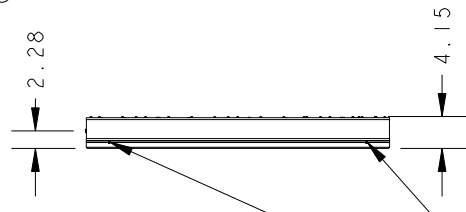
MODEL	"X"	"Y"	"Z"	WEIGHT
S-***-12-18-2.1"	38.00	39.50	33.50	75 lb
S-***-12-24-2.1"	48.80	39.50	44.30	90 lb
S-***-12-30-2.1"	59.60	39.50	55.10	110 lb
S-***-12-36-2.1"	70.40	39.50	65.90	130 lb
S-***-12-42-2.1"	81.20	39.50	76.70	150 lb
S-***-12-48-2.1"	92.00	39.50	87.50	170 lb

QUARTER TURN RECEPTACLES FOR REMOVAL OF MODULES FOR SERVICING



FRONT VIEW (FACE PANEL REMOVED)

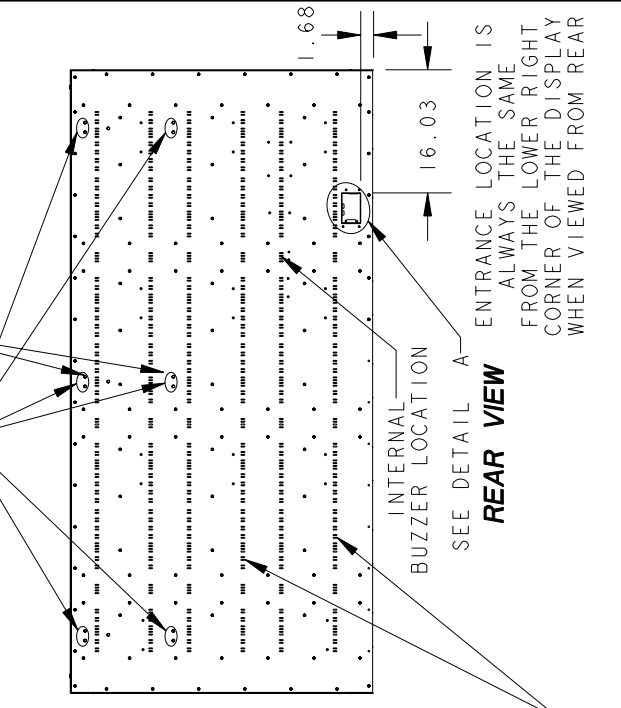
REMOVABLE SCREWS FOR HANGING



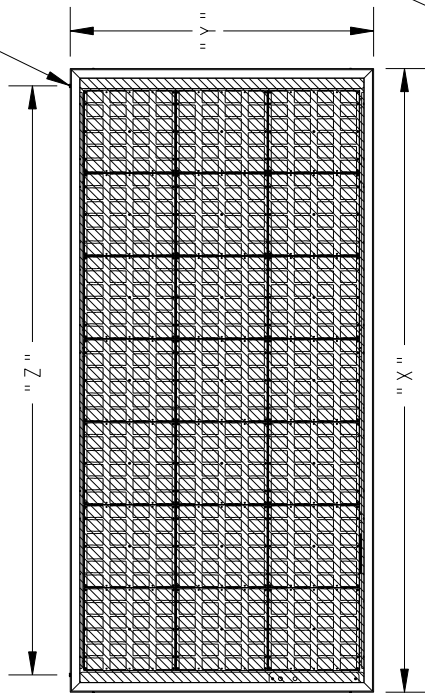
SIDE VIEW

REAR MOUNTING CLIP HOLES

THESE CLIP HOLES ONLY EXIST ON THE 36, 42, & 48 MODEL SIZES



REAR VIEW

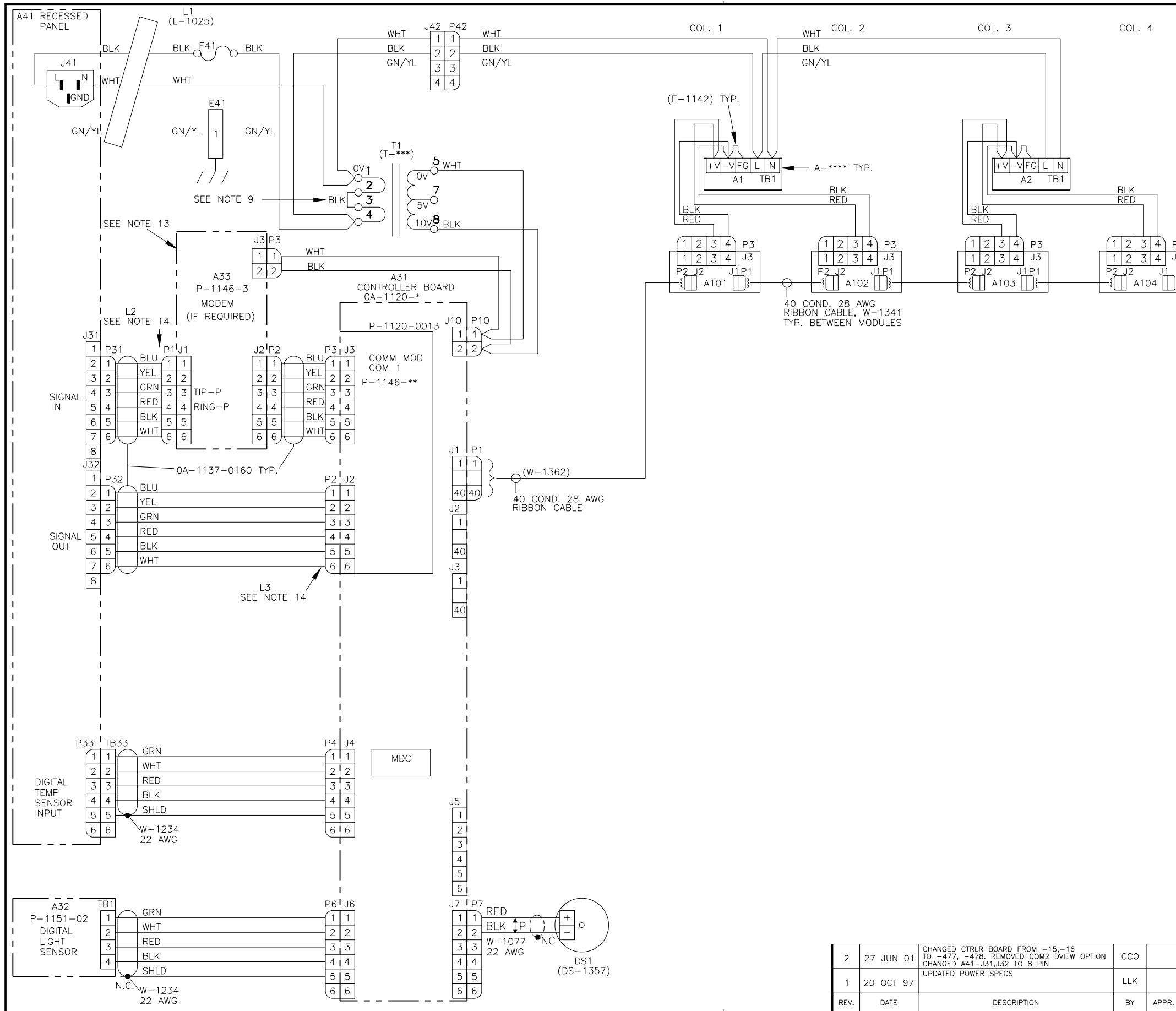


FRONT VIEW (FACE PANEL SHOWN)

SOCKET HEAD CAP SCREWS TYPICAL ON EACH SIDE OF DISPLAY FOR REMOVAL OF FACEPANEL

REV.	DATE	DESCRIPTION	BY	APPR.
01	18 FEB 03	CHANGED WEIGHT DUE TO RECALCULATION	BDS	

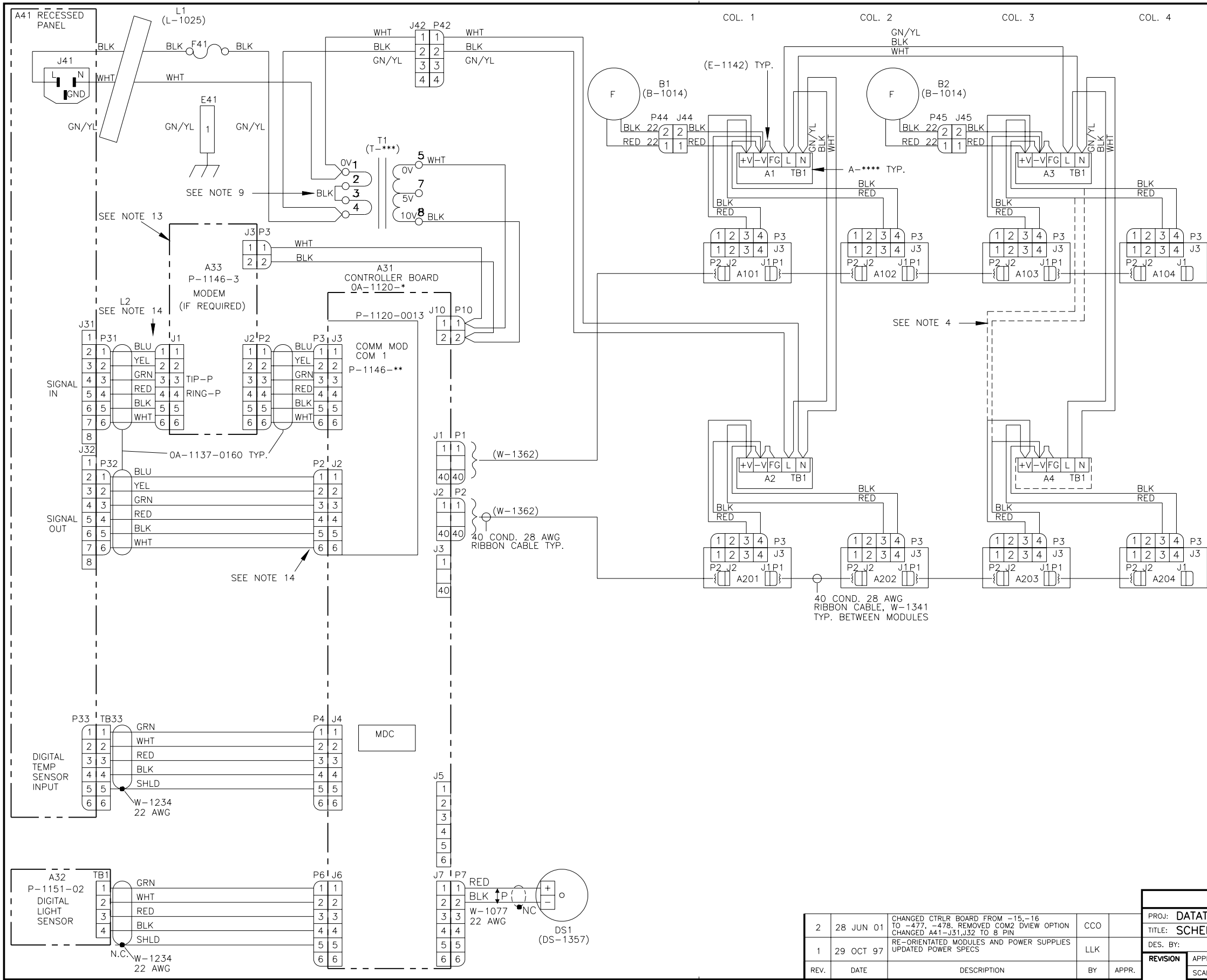
DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ:	DATATRAC DISPLAYS
TITLE:	SHOP DWG; S-***-12-*-2.1"
DES. BY:	WTUCKER
DRAWN BY:	NANDAL
DATE:	9 JUN 97
REVISION	SHEET 1 OF DWG 77322
SCALE:	1=25
1120 - E10A - 77322	



- NOTES
- 1) ALL WIRE IS 18 AWG UNLESS OTHERWISE NOTED.
 - 2) FOR 120VAC INPUT F41 IS A MDL-7 FUSE (DAK.# F-1031). FOR 240VAC INPUT F41 IS A MDL-3 FUSE (DAK.# F-1042).
 - 3) FOR TERMINAL BLOCK STYLE OF INPUT FOR A41 REFER TO DWG. A-88673.
 - 4) FOR SIGN SIZE 436 THE LAST POWER SUPPLY CONTROLS A SINGLE MODULE.
 - 5) FOR RS232 IN RS422 OUT * IS 0A-1120-0477 FOR RS422 IN RS422 OUT * IS 0A-1120-0478
 - 6) FOR RS232 IN RS422 OUT ** IS 0P-1146-0005. FOR RS422 IN RS422 OUT ** IS 0P-1146-0002.
 - 7) FOR 120VAC INPUT *** IS T-1072. FOR 240VAC INPUT *** IS T-1106.
 - 8) FOR 120VAC INPUT **** IS A-1499. FOR 240VAC INPUT **** IS A-1449.
 - 9) WHEN T-1072 IS USED PINS 2 & 3 AND THE JUMPER SHOWN DO NOT EXIST.
 - 10) LED MODULE VOLTAGE IS 5VDC.
 - 11) EACH LED MODULE IS 4 LINES TALL X 12 CHARACTERS LONG.
 - 12) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
 - 13) MODEM REQUIRES COMM MODULE 0P-1146-0005 WITH JUMPER W1 "IN". WHEN MODEM IS NOT USED THE CABLE PLUGGED INTO J1 ON A33 PLUGS INTO J3 ON THE COMM MODULE.
 - 14) L2 AND L3 ARE NOT SHOWN BUT ARE FERRITE BEADS (DAK.# L-1025) CLAMPED ONTO THE CABLE WITH ONE LOOP, NEAR THE END SHOWN.
 - 15) N/A
 - 16) SCHEMATIC SHOWN DEPICTS THE LARGEST SIZE 4 LINE DISPLAY (448). REFER TO THE CHART BELOW FOR OTHER LENGTH DISPLAYS.

DISPLAY LENGTH (CHARACTERS)	POWER (WATTS)	AMPS (@120VAC)	AMPS (@240VAC)
24	98	0.8	0.4
36	142	1.2	0.6
48	186	1.5	0.8

DAKTRONICS, INC. BROOKINGS, SD 57006				
PROJ: DATATRAC				
TITLE: SCHEMATIC: S-***-4**-0.7				
DES. BY:		DRAWN BY: L KERR		DATE: 2 JAN 97
REVISION	APPR. BY:	1120-R03B-89763		
1	SCALE: 1=1			
2	27 JUN 01	CHANGED CTRLR BOARD FROM -15,-16 TO -477, -478. REMOVED COM2 DVIEW OPTION CHANGED A41-J31,J32 TO 8 PIN	CCO	
1	20 OCT 97	UPDATED POWER SPECS	LLK	
REV.	DATE	DESCRIPTION	BY	APPR.



- NOTES
- 1) ALL WIRE IS 18 AWG UNLESS OTHERWISE NOTED.
 - 2) FOR 120VAC INPUT F41 IS A MDL-7 FUSE (DAK.# F-1031). FOR 240VAC INPUT F41 IS A MDL-3 FUSE (DAK.# F-1042).
 - 3) FOR TERMINAL BLOCK STYLE OF INPUT FOR A41 REFER TO DWG. A-88673.
 - 4) FOR SIGN SIZE 836 REFER TO HIDDEN LINES FOR THE POWER SUPPLY DC WIRING OF THE LAST COLUMN OF MODULES.
 - 5) FOR RS232 IN RS422 OUT * IS 0A-1120-0477 FOR RS422 IN RS422 OUT * IS 0A-1120-0478
 - 6) FOR RS232 IN RS422 OUT ** IS 0P-1146-0005. FOR RS422 IN RS422 OUT ** IS 0P-1146-0002.
 - 7) FOR 120VAC INPUT *** IS T-1072. FOR 240VAC INPUT *** IS T-1106.
 - 8) FOR 120VAC INPUT **** IS A-1499. FOR 240VAC INPUT **** IS A-1449.
 - 9) WHEN T-1072 IS USED PINS 2 & 3 AND THE JUMPER SHOWN DO NOT EXIST.
 - 10) LED MODULE VOLTAGE IS 5VDC.
 - 11) EACH LED MODULE IS 4 LINES TALL X 12 CHARACTERS LONG.
 - 12) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
 - 13) MODEM REQUIRES COMM MODULE 0P-1146-0005 WITH JUMPER W1 "IN". WHEN MODEM IS NOT USED THE CABLE PLUGGED INTO J1 ON A33 PLUGS INTO J3 ON THE COMM MODULE.
 - 14) L2 AND L3 ARE NOT SHOWN BUT ARE FERRITE BEADS (DAK.# L-1025) CLAMPED ONTO THE CABLE WITH ONE LOOP, NEAR THE END SHOWN.
 - 15) N/A
 - 16) SCHEMATIC SHOWN DEPICTS THE LARGEST SIZE 8 LINE DISPLAY (848). REFER TO THE CHART BELOW FOR OTHER LENGTH DISPLAYS.

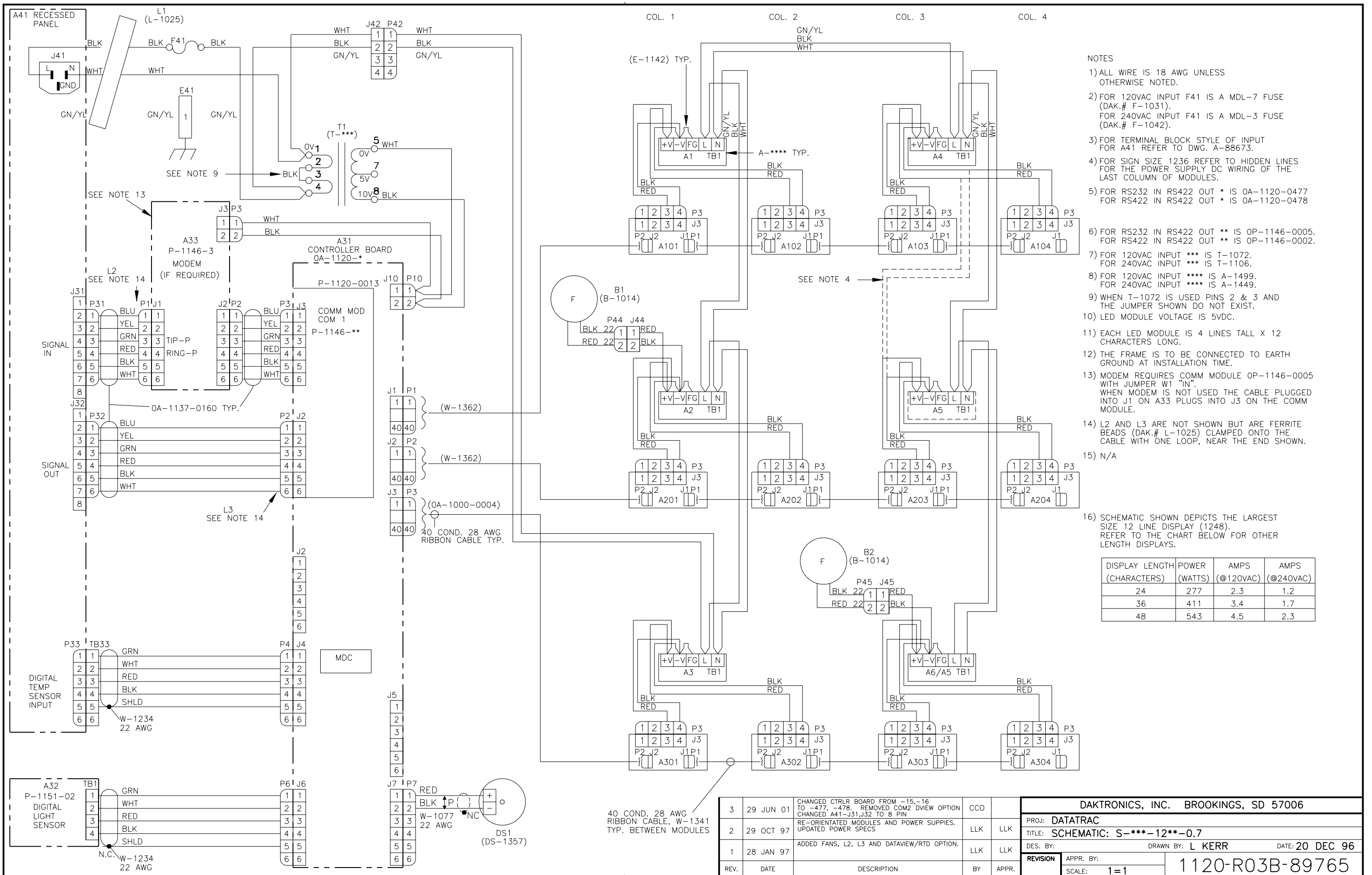
DISPLAY LENGTH (CHARACTERS)	POWER (WATTS)	AMPS (@120VAC)	AMPS (@240VAC)
24	189	1.6	0.8
36	280	2.3	1.2
48	367	3.1	1.5

REV.	DATE	DESCRIPTION	BY	APPR.
2	28 JUN 01	CHANGED CTRLR BOARD FROM -15,-16 TO -477,-478. REMOVED COM2 DVIEW OPTION CHANGED A41-J31,J32 TO 8 PIN RE-ORIENTATED MODULES AND POWER SUPPLIES UPDATED POWER SPECS	CCO	
1	29 OCT 97		LLK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATRAC
 TITLE: SCHEMATIC: S-***-8**-0.7
 DES. BY: L KERR DRAWN BY: L KERR DATE: 2 JAN 97

REVISION APPR. BY: SCALE: 1=1 1120-R03B-89764



- NOTES
- 1) ALL WIRE IS 18 AWG UNLESS OTHERWISE NOTED.
 - 2) FOR 120VAC INPUT F41 IS A MDL-7 FUSE (DAK.# F-1031). FOR 240VAC INPUT F41 IS A MDL-3 FUSE (DAK.# F-1042).
 - 3) FOR TERMINAL BLOCK STYLE OF INPUT FOR A41 REFER TO DWG. A-88673.
 - 4) FOR SIGN SIZE 1236 REFER TO HIDDEN LINES FOR THE POWER SUPPLY DC WIRING OF THE LAST COLUMN OF MODULES.
 - 5) FOR RS232 IN RS422 OUT * IS 0A-1120-0477 FOR RS422 IN RS422 OUT * IS 0A-1120-0478
 - 6) FOR RS232 IN RS422 OUT ** IS 0P-1146-0005. FOR RS422 IN RS422 OUT ** IS 0P-1146-0002.
 - 7) FOR 120VAC INPUT *** IS T-1072. FOR 240VAC INPUT *** IS T-1106.
 - 8) FOR 120VAC INPUT **** IS A-1499. FOR 240VAC INPUT **** IS A-1449.
 - 9) WHEN T-1072 IS USED PINS 2 & 3 AND THE JUMPER SHOWN DO NOT EXIST.
 - 10) LED MODULE VOLTAGE IS 5VDC.
 - 11) EACH LED MODULE IS 4 LINES TALL X 12 CHARACTERS LONG.
 - 12) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
 - 13) MODEM REQUIRES COMM MODULE 0P-1146-0005 WITH JUMPER W1 "IN". WHEN MODEM IS NOT USED THE CABLE PLUGGED INTO J1 ON A33 PLUGS INTO J3 ON THE COMM MODULE.
 - 14) L2 AND L3 ARE NOT SHOWN BUT ARE FERRITE BEADS (DAK.# L-1025) CLAMPED ONTO THE CABLE WITH ONE LOOP, NEAR THE END SHOWN.
 - 15) N/A
 - 16) SCHEMATIC SHOWN DEPICTS THE LARGEST SIZE 12 LINE DISPLAY (1248). REFER TO THE CHART BELOW FOR OTHER LENGTH DISPLAYS.

DISPLAY LENGTH (CHARACTERS)	POWER (WATTS)	AMPS (@120VAC)	AMPS (@240VAC)
24	277	2.3	1.2
36	411	3.4	1.7
48	543	4.5	2.3

REV.	DATE	DESCRIPTION	BY	APPR.
3	29 JUN 01	CHANGED CTRLR BOARD FROM -15,-16 TO -477, -478. REMOVED COM2 DVIEW OPTION CHANGED A41-J31,J32 TO 8 PIN	CCO	
2	29 OCT 97	RE-ORIENTATED MODULES AND POWER SUPPLIES. UPDATED POWER SPECS	LLK	LLK
1	28 JAN 97	ADDED FANS, L2, L3 AND DATAVIEW/RTD OPTION.	LLK	LLK

DAKTRONICS, INC. BROOKINGS, SD 57006

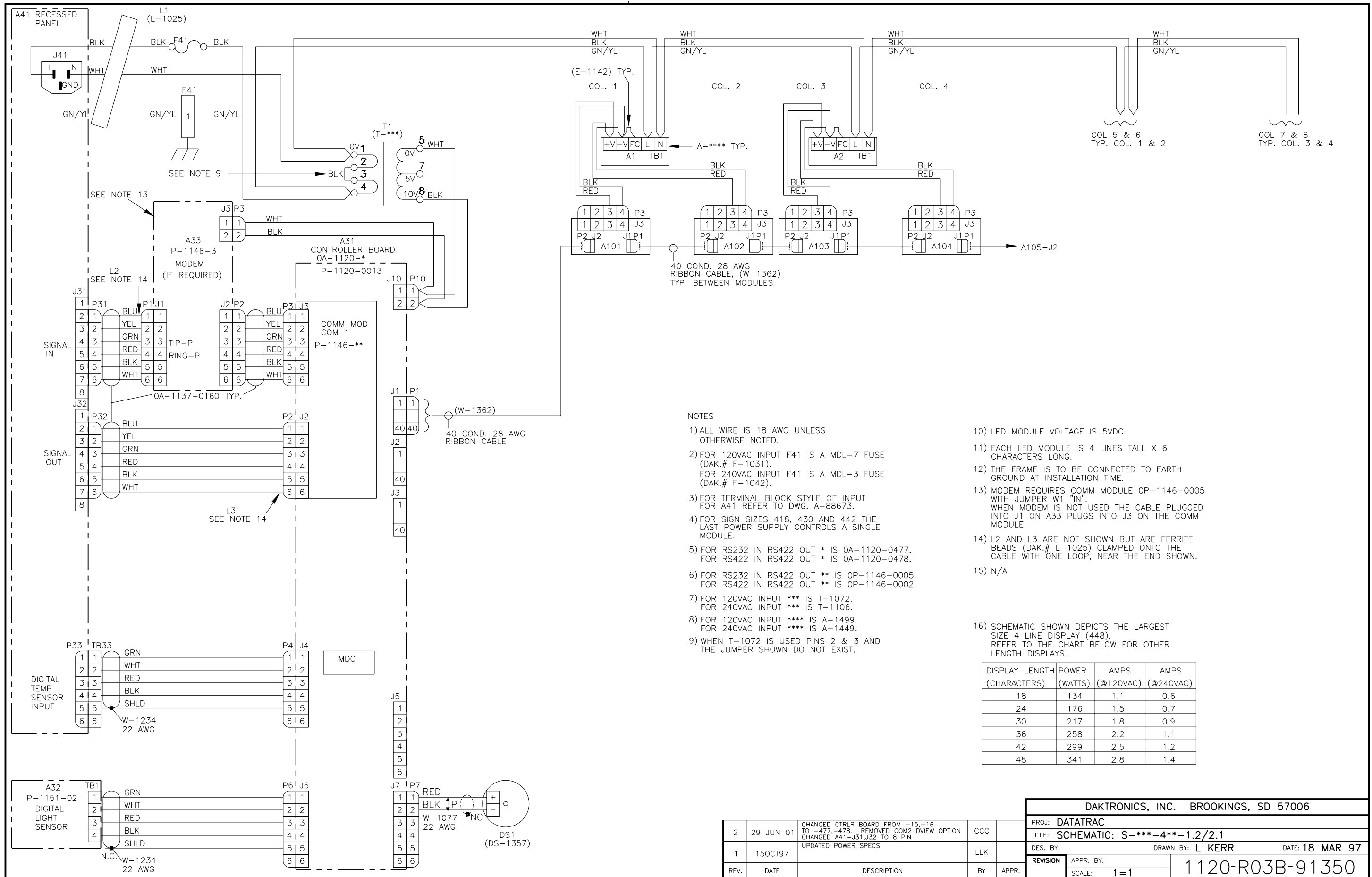
PROJ: DATATRAC

TITLE: SCHEMATIC: S-***-12*-0.7

DES. BY: DRAWN BY: L KERR DATE: 20 DEC 96

REVISION APPR. BY: SCALE: 1=1

1120-R03B-89765



- NOTES**
- 1) ALL WIRE IS 18 AWG UNLESS OTHERWISE NOTED.
 - 2) FOR 120VAC INPUT F41 IS A MDL-7 FUSE (DAK.# F-1031). FOR 240VAC INPUT F41 IS A MDL-3 FUSE (DAK.# F-1042).
 - 3) FOR TERMINAL BLOCK STYLE OF INPUT FOR A41 REFER TO DWG. A-88673.
 - 4) FOR SIGN SIZES 418, 430 AND 442 THE LAST POWER SUPPLY CONTROLS A SINGLE MODULE.
 - 5) FOR RS232 IN RS422 OUT * IS OA-1120-0477. FOR RS422 IN RS422 OUT * IS OA-1120-0478.
 - 6) FOR RS232 IN RS422 OUT ** IS OP-1146-0005. FOR RS422 IN RS422 OUT ** IS OP-1146-0002.
 - 7) FOR 120VAC INPUT *** IS T-1072. FOR 240VAC INPUT *** IS T-1106.
 - 8) FOR 120VAC INPUT **** IS A-1499. FOR 240VAC INPUT **** IS A-1449.
 - 9) WHEN T-1072 IS USED PINS 2 & 3 AND THE JUMPER SHOWN DO NOT EXIST.

- 10) LED MODULE VOLTAGE IS 5VDC.
- 11) EACH LED MODULE IS 4 LINES TALL X 6 CHARACTERS LONG.
- 12) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
- 13) MODEM REQUIRES COMM MODULE OP-1146-0005 WITH JUMPER W1 "IN". WHEN MODEM IS NOT USED THE CABLE PLUGGED INTO J1 ON A33 PLUGS INTO J3 ON THE COMM MODULE.
- 14) L2 AND L3 ARE NOT SHOWN BUT ARE FERRITE BEADS (DAK.# L-1025) CLAMPED ONTO THE CABLE WITH ONE LOOP, NEAR THE END SHOWN.
- 15) N/A
- 16) SCHEMATIC SHOWN DEPICTS THE LARGEST SIZE 4 LINE DISPLAY (448). REFER TO THE CHART BELOW FOR OTHER LENGTH DISPLAYS.

DISPLAY LENGTH (CHARACTERS)	POWER (WATTS)	AMPS (@120VAC)	AMPS (@240VAC)
18	134	1.1	0.6
24	176	1.5	0.7
30	217	1.8	0.9
36	258	2.2	1.1
42	299	2.5	1.2
48	341	2.8	1.4

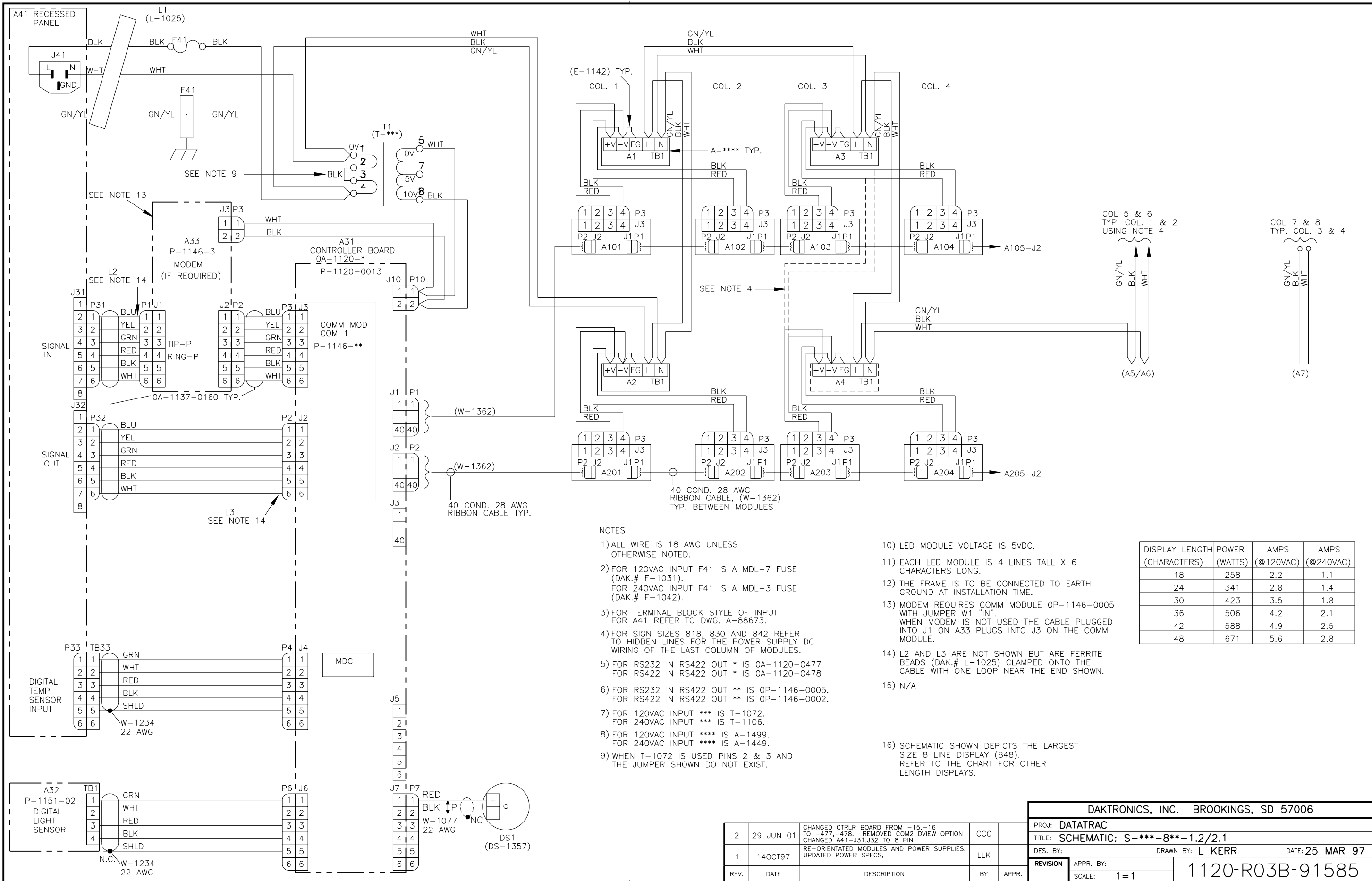
REV.	DATE	DESCRIPTION	BY	APPR.
2	29 JUN 01	CHANGED CTRLR BOARD FROM -15,-16 TO -477,-478. REMOVED COM2 DVIEW OPTION CHANGED A41-J31,J32 TO 8 PIN UPDATED POWER SPECS	CCO	
1	15OCT97		LLK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATRAC
 TITLE: SCHEMATIC: S-***-4**-1.2/2.1
 DES. BY: L KERR DRAWN BY: L KERR DATE: 18 MAR 97

REVISION: 1
 APPR. BY: [Signature]
 SCALE: 1=1

1120-R03B-91350



NOTES

- 1) ALL WIRE IS 18 AWG UNLESS OTHERWISE NOTED.
- 2) FOR 120VAC INPUT F41 IS A MDL-7 FUSE (DAK.# F-1031). FOR 240VAC INPUT F41 IS A MDL-3 FUSE (DAK.# F-1042).
- 3) FOR TERMINAL BLOCK STYLE OF INPUT FOR A41 REFER TO DWG. A-88673.
- 4) FOR SIGN SIZES 818, 830 AND 842 REFER TO HIDDEN LINES FOR THE POWER SUPPLY DC WIRING OF THE LAST COLUMN OF MODULES.
- 5) FOR RS232 IN RS422 OUT * IS 0A-1120-0477 FOR RS422 IN RS422 OUT * IS 0A-1120-0478
- 6) FOR RS232 IN RS422 OUT ** IS 0P-1146-0005. FOR RS422 IN RS422 OUT ** IS 0P-1146-0002.
- 7) FOR 120VAC INPUT *** IS T-1072. FOR 240VAC INPUT *** IS T-1106.
- 8) FOR 120VAC INPUT **** IS A-1499. FOR 240VAC INPUT **** IS A-1449.
- 9) WHEN T-1072 IS USED PINS 2 & 3 AND THE JUMPER SHOWN DO NOT EXIST.
- 10) LED MODULE VOLTAGE IS 5VDC.
- 11) EACH LED MODULE IS 4 LINES TALL X 6 CHARACTERS LONG.
- 12) THE FRAME IS TO BE CONNECTED TO EARTH GROUND AT INSTALLATION TIME.
- 13) MODEM REQUIRES COMM MODULE 0P-1146-0005 WITH JUMPER W1 "IN". WHEN MODEM IS NOT USED THE CABLE PLUGGED INTO J1 ON A33 PLUGS INTO J3 ON THE COMM MODULE.
- 14) L2 AND L3 ARE NOT SHOWN BUT ARE FERRITE BEADS (DAK.# L-1025) CLAMPED ONTO THE CABLE WITH ONE LOOP NEAR THE END SHOWN.
- 15) N/A
- 16) SCHEMATIC SHOWN DEPICTS THE LARGEST SIZE 8 LINE DISPLAY (848). REFER TO THE CHART FOR OTHER LENGTH DISPLAYS.

DISPLAY LENGTH (CHARACTERS)	POWER (WATTS)	AMPS (@120VAC)	AMPS (@240VAC)
18	258	2.2	1.1
24	341	2.8	1.4
30	423	3.5	1.8
36	506	4.2	2.1
42	588	4.9	2.5
48	671	5.6	2.8

REV.	DATE	DESCRIPTION	BY	APPR.
2	29 JUN 01	CHANGED CTRLR BOARD FROM -15,-16 TO -477,-478. REMOVED COM2 DVIEW OPTION CHANGED A41-J31,J32 TO 8 PIN	CCO	
1	14OCT97	RE-ORIENTATED MODULES AND POWER SUPPLIES. UPDATED POWER SPECS.	LLK	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATRAC
 TITLE: SCHEMATIC: S-***-8**-1.2/2.1
 DES. BY: L KERR DRAWN BY: L KERR DATE: 25 MAR 97

REVISION APPR. BY: SCALE: 1=1 1120-R03B-91585

