

LED Gymnastics Scoreboards

Display Manual

ED-13243

Rev 4 – 10 June 2010

DAKTRONICS

Models	
	GM-2101
	GM-2102
	GM-2103

Please fill in the information below to use for reference when calling Daktronics for assistance.

Display Serial No. _____

Display Model No. _____

Date Installed _____

DAKTRONICS, INC.

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Section 1: Introduction

This manual explains the installation of Daktronics LED gymnastics scoreboards and provides details for maintenance and troubleshooting. For additional information regarding the safety, installation, operation, or service of this system, refer to the telephone numbers listed in **Section 4.8**. This manual is not specific to a particular installation.

Important Safeguards:

- Please read and understand all instructions before beginning the installation process.
- Do not drop control equipment or allow it to get wet.
- Do not disassemble control equipment or electronic controls of the display; failure to follow this safeguard will make the warranty null and void.
- Disconnect display power when not in use or when servicing.
- Disconnect display power before servicing power supplies to avoid electrical shock. Power supplies run on high voltage and may cause physical injury if touched while powered.
- Do not modify the scoreboard structure or attach any panels or coverings to the scoreboard without the express written consent of Daktronics, Inc.

Project-specific information takes precedence over any other general information found in this manual.

1.1 Resources

Figure 1 illustrates a Daktronics drawing label. The drawing number is located in the lower-right corner of a drawing. This manual refers to drawings by listing the last set of digits and the letter preceding them. In the example, the drawing would be referred to as **Drawing C-325405**.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DAKTRONICS UNIVERSITY			
TITLE: SYSTEM RISER DIAGRAM			
DES. BY: AORMESH		DRAWN BY: AORMESH	DATE: 15 JAN 08
REVISION	APPR BY:	14963-R01	
00	SCALE: NONE	C-325405	

Drawing Number

Figure 1: Daktronics Drawing Label

Reference Drawing:

System Riser Diagram **Drawing C-325405**

Daktronics identifies manuals by the DD or ED number located on the cover page of each manual. For example, this manual would be referred to as **ED-13243**.

1.2 Daktronics Nomenclature

Serial and model numbers can be found on the ID label on the display as shown in **Figure 2**.

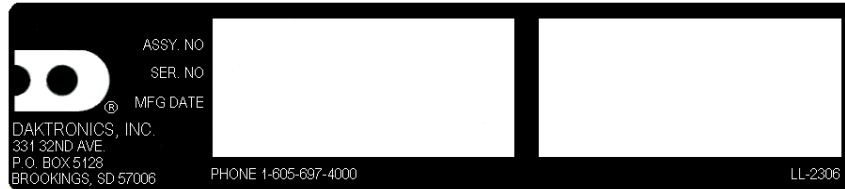


Figure 2: Scoreboard ID Label

Please list the model number, display serial number, and the date this display became operational in the blanks provided on the second page of this manual. When calling Daktronics customer service, please have this information available to ensure the request is serviced as quickly as possible.

Most components within this display carry a white label that lists the part number of the unit. If a component is not found in the Replacement Parts List in **Section 4.7**, use the label to order a replacement. **Figure 3** illustrates a typical label. The part number is in bold.

Main Component Labels	
Part Type	Part Number
Individual circuit board	0P-XXXX-XXXX
Assembly; a collection of circuit boards	0A-XXXX-XXXX
Wire or cable	W-XXXX
Fuse	F-XXXX
Transformer	T-XXXX
Metal part	M-XXX
Fabricated metal assembly	0S-XXXXXX
Specially ordered part	PR-XXXXX-X

Accessory Labels	
Component	Label
Termination block for power or signal cable	<u>TBXX</u>
Grounding point	<u>EXX</u>
Power or signal jack	<u>JXX</u>
Power or signal plug for the opposite jack	<u>PXX</u>

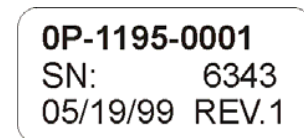


Figure 3: Typical Label

Following the Replacement Parts List is the Daktronics Exchange Policy and the Repair & Return Program. Refer to these instructions if replacing or repairing any display component.

1.3 Model Number

Daktronics scoreboards are differentiated by their model numbers and two-letter prefixes for each sport. Most Daktronics scoreboards also carry a two-number suffix that refers to the type of power supply and digit color. Refer to the following tables:

GM	Gymnastics	-13	indoor scoreboards, 120 V AC, PanaView® digits
		-14	indoor scoreboards, 230 V AC, PanaView® digits

1.4 Scoreboard Controllers

Daktronics gymnastics scoreboards are designed for use with the All Sport® 1600 series control console. This console uses keyboard overlays (sport inserts) to control numerous sports and scoreboard models. Refer to the following manual for operating instructions:

- **All Sport 1600 Series Control Console Operation Manual (ED-12462)**

The control console manual is available online at www.daktronics.com/manuals.

1.5 Product Safety Approval

Daktronics scoreboards are ETL-listed, tested to CSA standards and CE-labeled for indoor use. Contact Daktronics with any questions regarding the testing procedures.

Section 2: Specifications

The chart on the following pages details all of the mechanical specifications, circuit specifications and power requirements for each display in this manual. Models are listed in alphanumeric order.

Notes:

- 1) All displays require a 120 V AC, 15 A circuit. Displays with a 230 V A C power requirement are also available.
- 2) Signal wire must be minimum of 22 AWG with shield. Daktronics recommends W-1614.

Model	Dimensions: Height, Width, Depth	Weight:	Watts	Amps 120 / 230 V AC	Driver # & Address
GM-2101	H 1'-9", W 2'-0", D 7" (533 mm, 610 mm, 178 mm)	25 lb (11 kg)	100 W	0.85 A / 0.4 A	A1 11
GM-2102	H 1'-9", W 2'-0", D 7" (533 mm, 610 mm, 178 mm)	30 lb (14 kg)	100 W	0.85 A / 0.4 A	A1 11
GM-2103	H 1'-10", W 2'-3", D 2'-1" (559 mm, 679 mm, 635 mm)	45 lb (20 kg)	100 W	0.85 A / 0.4 A	A1 11

Section 3: Mechanical & Electrical Installation

3.1 Mechanical Installation

Reference Drawings:

Mechanical Spec, GM-2101-13.....	Drawing A-247202
Mechanical Spec, GM-2102-13.....	Drawing A-247272
Mechanical Spec, GM-2103-13.....	Drawing A-247301

All Daktronics gymnastics scoreboards may be displayed on the floor on a table, or mounted on an optional tripod. Use only the tripod (part number A-1580) and adapter (HS-1306) supplied by Daktronics. **Drawings A-247202, A-247272, and A-247301** in **Appendix A** show how to mount the display on a tripod. Locate the holes on the bottom of the scoreboard and secure the display to the tripod adaptor using the hardware provided.

The single-sided gymnastics display (GM-2101) may also be wall mounted (the two- and three-sided scoreboards in this manual cannot). Refer to **Drawing A-220834** for mounting keyhole locations on the back of the display. Due to the variety of wall materials used in sports facilities, Daktronics cannot anticipate a user's needs or provide mounting hardware suitable for every installation. Mounting hardware may be purchased at a local hardware store. Choose a method of installation that will safely support the weight of the display.

Note: Do not use the carrying handle to permanently suspend the display.

3.2 Electrical Installation

Reference Drawings:

Electrical & Signal Spec, GM-2101-13.....	Drawing A-247207
Electrical & Signal Spec, GM-2102-13.....	Drawing A-247278
Electrical & Signal Spec, GM-2103-13.....	Drawing A-247309

Electrical installation involves the routing of power and control signal wiring to the displays. Control signal cable is not provided as part of this system; it can be purchased locally or from Daktronics. Refer to **Drawings A-247207, A-247278, and A-247309** in **Appendix A** for detailed power and signal connection diagrams for each gymnastics scoreboard model.

Power

Each display comes equipped with a 120V AC, three-prong plug. Install a grounded receptacle near the equipment and make certain that the power cord can easily reach it. The control console requires a 120 V AC receptacle and uses less than 1 A of power.

Displays operating on 230 V AC are also available, and they are shipped equipped with a universal power plug.

Signal

1. Route the signal cable from the display to the control location.
2. Plug the signal cable into the J31 SIGNAL IN jack on the side of the display.
3. Plug the other end of the signal into the J1 or J2 jack on the All Sport 1600 controller.

Section 4: Scoreboard Troubleshooting

IMPORTANT NOTES:

1. Always disconnect power before doing any repair work on the scoreboard.
2. Permit only qualified service personnel to access internal display electronics.
3. Disconnect power when not using the scoreboard.

4.1 Troubleshooting Table

The table below lists potential problems with the scoreboard and indicates possible causes and corrective actions. This list does not include every symptom that may be encountered, but it does present several of the most common situations that may occur.

Many of the solutions offered below provide references to other sections within this manual or to supplemental product manuals with further detail on how to fix the problem.

If a problem occurs that is not listed or that cannot be resolved using the solutions in the following table, contact Daktronics using the information provided in **Section 4.8**.

Problem	Possible Cause	Solution/Items to Check
Scoreboard doesn't light and console doesn't work	No power to the scoreboard	Check that the main circuit breaker for the scoreboard is on.
		Check that the scoreboard is receiving the correct 120 (or 230) V AC power (see Section 2).
	No power to console	Ensure the console is plugged into a 120 (or 230) V AC power supply.
		Swap the console with one known to work correctly, and enter the proper sport code to test. Replace console if necessary.
Scoreboard digits don't light, but console works	No wired signal from console	Check that the scoreboard is receiving the correct 120 (or 230) V AC power (see Section 2).
		Check that the red DS2 LED on the driver lights up when sending commands from the control console (see Section 4.4).
	No signal to driver	Check that the scoreboard is receiving the correct 120 (or 230) V AC power (see Section 2).
		Check that the red DS2 LED on the driver lights up when sending commands from the control console (see Section 4.4).

Problem	Possible Cause	Solution/Items to Check
		Swap the driver with one known to work correctly and with the same part number to verify the problem. Replace if necessary (see Section 4.4).
	No power to driver	Check that the green DS1 LED on the driver is always lit up when the scoreboard is powered on (see Section 4.4).
Scoreboard digits light, but not in the correct order	Incorrect sport code	Ensure the correct sport code is being used for the scoreboard model. Refer to the operation manual for the console being used (see Section 1.4).
	Incorrect driver address	Check that the scoreboard driver(s) are set to the correct address(es) (see Section 4.4)
Scoreboard digits light, console works, but no display on scoreboard	No wired signal from console	(See solution on previous page)
	Bad/damaged field wiring	Check that the red DS2 LED on the driver lights up when sending commands from the control console (see Section 4.4)
Scoreboard works, but some LEDs always stay on	Short in digit or indicator circuit	Swap the digit/indicator with one known to work correctly to verify the problem. Replace if necessary (see Section 4.3).
Scoreboard works, but some LEDs do not light or they blink	Bad connection	Verify the Mate-N-Lok connector on the back of the digit circuit board is secure (see Section 4.3).
	Bad digit or driver	Swap the digit/driver with one known to work correctly to verify the problem. Replace if necessary (see Section 4.3 for digits or Section 4.4 for drivers).
Scoreboard works, but some digits do not light	Bad digit or driver	(see solution above)
	Incorrect sport code	(see solution above)
	Incorrect driver address	(see solution above)

4.2 Component Location & Access

To access the driver, digits, or other internal components, remove the screws securing the face panel(s) to the scoreboard. Some panels are hinged at the bottom and will swing downward.

4.3 Replacing Digits

LEDs are embedded in a circuit board that is mounted to the back of the face panel. Do not attempt to remove individual LEDs. In the case of a malfunctioning LED, replace the entire digit circuit board.

To replace a digit circuit board:

1. Open the face panel as described in **Section 4.2**.
2. Disconnect the power/signal plug from the back of the digit by squeezing together the locking tabs and pulling the connector free.
3. Use a $\frac{9}{32}$ " nut driver to remove the nuts securing the digits to the inside of the panel, and then lift the digit off the spacers and standoff studs.
4. Position a new digit over the spacers and studs.
5. Tighten the nuts.
6. Reconnect the power/signal connector.

Note: This is a keyed connector and it will attach in one way only. Do not attempt to force the connection.

7. Close and secure the face panel, then power up and test the scoreboard to see if changing the digit has resolved the problem.

4.4 LED Drivers

Reference Drawings:

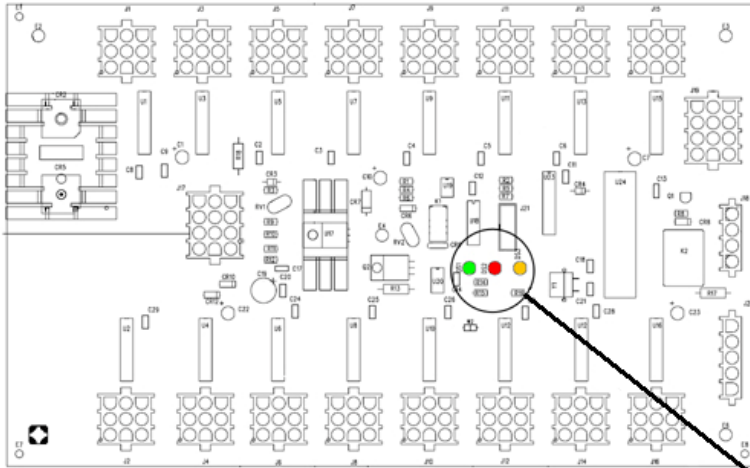
- Address Table, 1 Through 128..... **Drawing A-115078**
 LED Driver, 16 Column **Drawing A-126174**

The LED drivers perform the task of switching digits on and off within the scoreboard.

Refer to the electrical and signal specifications drawings in **Appendix A** to determine the location of the driver in a particular scoreboard model. See also **Drawing A-126174** for detailed driver pin out/switch specifications.

When troubleshooting driver problems, three LEDs labeled **DS1**, **DS2**, and **DS3** in **Figure 4**, provide the following diagnostic information:

LED	Color	Function	Operation	Summary
DS1	Green	Power	Steady on	DS1 will be on and steady to indicate the driver has power.
DS2	Red	Signal RX	Steady on or blinking	DS2 will be on or blinking when the driver is receiving a signal and off when there is no signal.
DS3	Amber	Status	Blinking	DS7 will be blinking at one second intervals to indicate the driver is running.



Driver Status Indicators

Figure 4: Driver Status Indicators

Note: While it is necessary to have the scoreboard powered on to check the LED indicators, always disconnect scoreboard power before servicing.

Replacing a Driver

To replace a driver:

1. Open the digit panel as described in **Section 4.2**.
2. Disconnect all connectors from the driver by squeezing together the locking tabs and pulling the connectors free.

Note: It may be helpful to label the cables to know which cable goes to which connector when reattaching the driver.

3. Remove the screws or nuts securing the driver to the inside of the enclosure.
4. Carefully lift the driver from the display and place it on a clean, flat surface.
5. Position a new driver over the screws and tighten the nuts.
6. Reconnect all power/signal connectors.

Note: The connectors are keyed and will attach in one way only. Do not attempt to force the connections.

7. Ensure the driver is set to the correct address (refer to **Setting the Driver Address**).
8. Close and secure the face panel, then power up and test the scoreboard to see if changing the driver has resolved the problem.

Setting the Driver Address

Since the same LED drivers can be used for many scoreboard models, each driver must be set to receive the correct signal input, or address, for the model being used. This address is set with jumper wires in a 12-pin plug which mates with jack J19 on the driver (**Figure 5**).

When setting the driver address, refer to **Drawing A-115078** in **Appendix A** for a listing of the wire/pin connections for driver addresses 1 - 128.

Note: All scoreboards in this manual should be set to address "11".

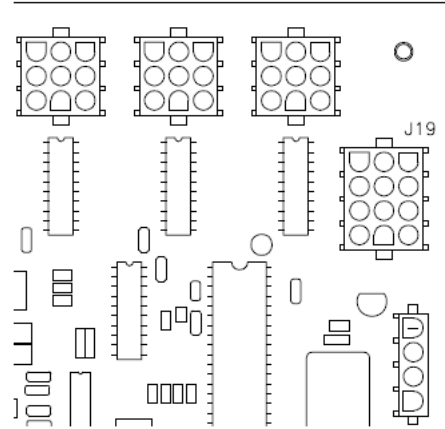


Figure 5: Driver Address Jack J19

4.5 Segmentation and Digit Designation

In each digit, certain LEDs always go on and off together. These groupings of LEDs are called segments. **Drawing A-38532** in **Appendix A** details which connector pin is wired to each digit segment and the wiring color code used throughout the display.

The electrical and signal specification drawings in **Appendix A** also specify the driver connectors controlling the digits. Numbers shown in hexagons in the upper half of each digit indicate which connector is wired to that digit.

4.6 Schematics

For advanced scoreboard troubleshooting and repair, it may be necessary to consult the schematic drawings. **Drawing A-258626** in **Appendix A** shows detailed power and signal wiring diagrams of internal display components.

4.7 Replacement Parts

Refer to the following table for common Daktronics scoreboard replacement parts:

Description	Daktronics Part #
16 Column LED Driver II	OP-1150-0126
Digit, 5" red 7 segment LED	OP-1150-0200
Transformer, 120P/16S, 6.3 A	T-1066
Cable, 20' phone plug	W-1236
Cable, 50' phone plug	W-1237
Cable, 30' phone plug	W-1238
Cable, 10' phone plug	W-1340
Tripod Mount	HS-1306 & A-1580
Replacement T-bolt for Tripod Mount	HS-1315

4.8 Daktronics Exchange and Repair & Return Programs

Exchange Program

The Daktronics Exchange Program is a quick, economical service for replacing key components in need of repair. If a component fails, Daktronics sends a replacement part to the customer who, in turn, returns the failed component to Daktronics. This not only saves money but also decreases equipment downtime. Customers who follow the program guidelines explained below will receive this service.

Before Contacting Daktronics

Identify these important numbers:

Display Serial Number: _____

Display Model Number: _____

Contract Number: _____

Date Installed: _____

Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps.

1. Call Daktronics Customer Service.

Market Description	Customer Service Number
Schools (primary through community/junior colleges), religious organizations, municipal clubs and community centers	877-605-1115
Universities and professional sporting events, live events for auditoriums and arenas	866-343-6018

2. When the new exchange part is received, mail the old part to Daktronics.

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

- a. Package the old part in the same shipping materials in which the replacement part arrived.
- b. Fill out and attach the enclosed UPS shipping document.
- c. Ship the part to Daktronics.

3. A charge will be made for the replacement part immediately, unless a qualifying service agreement is in place. In most circumstances, the replacement part will be invoiced at the time it is shipped.

If the failed part or replacement part is not returned to Daktronics within 3 weeks of the ship date, Daktronics will assume that the customer is purchasing the replacement part and will send an invoice for the value of the new sale part. If the part or parts are returned within 2 weeks of the second invoice date, Daktronics will credit the customer for the second invoice.

If after 2 weeks Daktronics has still not received the parts back, the customer must pay the second invoice and will not be credited for the return of the failed part.

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

Repair & Return Program

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

- 1. Call or fax Daktronics Customer Service:**
Refer to the appropriate market number in the chart listed on the previous page.
- 2. Receive a Return Materials Authorization (RMA) number before shipping.**
This expedites repair of the part.
- 3. Package and pad the item carefully to prevent damage during shipment.**
Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing. Daktronics does not recommend using packing 'peanuts' when shipping.
- 4. Enclose:**
 - name
 - address
 - phone number
 - the RMA number
 - a clear description of symptoms

Shipping Address

Daktronics Customer Service
RMA #
201 Daktronics Drive, Dock E
Brookings, SD 57006

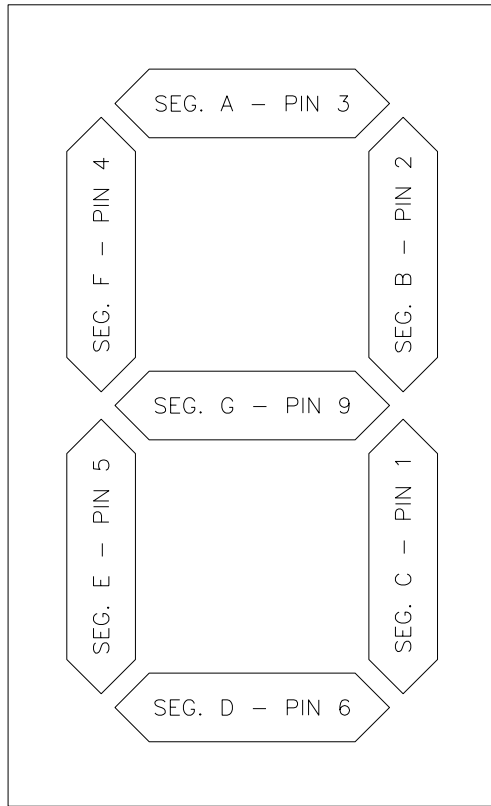
Fax: 605-697-4444

Daktronics Warranty and Limitation of Liability

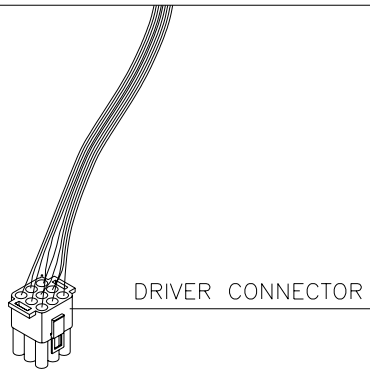
The Daktronics Warranty and Limitation of Liability is located in **Appendix B**. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

Appendix A: Reference Drawings

Segmentation, 7 Segment Bar Digit	Drawing A-038532
Address Table, 1 Through 128	Drawing A-115078
16 Column LED Driver II Specifications.....	Drawing A-126174
Mechanical Spec, GM-2101-13	Drawing A-247202
Electrical & Signal Spec, GM-2101-13	Drawing A-247207
Mechanical Spec, GM-2102-13	Drawing A-247272
Electrical & Signal Spec, GM-2102-13	Drawing A-247278
Mechanical Spec, GM-2103-13	Drawing A-247301
Electrical & Signal Spec, GM-2103-13	Drawing A-247309
Schematic: GM XXXX 120V or 240 V AC	Drawing A-258626

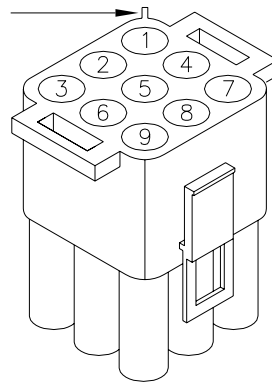


7 SEGMENT BAR DIGIT
FRONT VIEW



COLOR CODE		
PIN NO.	WIRE COLOR	DRIVER SEGMENT
1	ORN	C
2	RED	B
3	BRN	A
4	BLU	F
5	PNK	E
6	TAN	D
7	BLK	COM.
8	GRY	H
9	VIO	G

CONNECTOR PIN NUMBERING
NOTE SPLINE NEAR NO. 1



NOTE: "H" SEGMENT, GRAY WIRE IS NOT USED ON 7 SEGMENT BAR DIGIT.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: BASKETBALL
TITLE: SEGMENTATION, 7 SEGMENT BAR DIGIT
DES. BY: _____ DRAWN BY: HEIDERSCHIEDT DATE: 5 JUN 89
REVISION 02 APPR. BY: AVB SCALE: 1=4
1009-R04A-38532

REV.	DATE	DESCRIPTION	BY	APPR.
2	30 APR 97	ADDED SEGMENT DESIGNATIONS TO DIGIT FIGURE.	AVB	AVB
1	2 JAN 92	CHANGED FROM B-SIZE TO A-SIZE DWG.	C FICK	

KEY: 0 = WIRE NOT CONNECTED 1 = WIRE IS CONNECTED

DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
1	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	0	1
4	0	0	0	0	0	0	1	0
5	0	0	0	0	0	0	1	0
6	0	0	0	0	0	0	1	0
7	0	0	0	0	0	0	1	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0

DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
33	0	0	1	0	0	0	0	1
34	0	0	1	0	0	0	0	1
35	0	0	1	0	0	0	0	1
36	0	0	1	0	0	0	0	1
37	0	0	1	0	0	0	0	1
38	0	0	1	0	0	0	0	1
39	0	0	1	0	0	0	0	1
40	0	0	1	0	0	0	0	1
41	0	0	1	0	0	0	0	1
42	0	0	1	0	0	0	0	1
43	0	0	1	0	0	0	0	1
44	0	0	1	0	0	0	0	1
45	0	0	1	0	0	0	0	1
46	0	0	1	0	0	0	0	1
47	0	0	1	0	0	0	0	1
48	0	0	1	0	0	0	0	1

DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
65	0	1	0	0	0	0	0	1
66	0	1	0	0	0	0	0	1
67	0	1	0	0	0	0	0	1
68	0	1	0	0	0	0	0	1
69	0	1	0	0	0	0	0	1
70	0	1	0	0	0	0	0	1
71	0	1	0	0	0	0	0	1
72	0	1	0	0	0	0	0	1
73	0	1	0	0	0	0	0	1
74	0	1	0	0	0	0	0	1
75	0	1	0	0	0	0	0	1
76	0	1	0	0	0	0	0	1
77	0	1	0	0	0	0	0	1
78	0	1	0	0	0	0	0	1
79	0	1	0	0	0	0	0	1
80	0	1	0	0	0	0	0	1

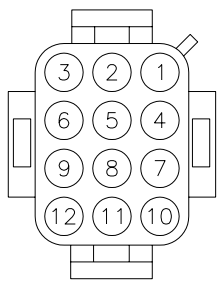
DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
97	0	1	1	0	0	0	0	1
98	0	1	1	0	0	0	0	1
99	0	1	1	0	0	0	0	1
100	0	1	1	0	0	0	0	1
101	0	1	1	0	0	0	0	1
102	0	1	1	0	0	0	0	1
103	0	1	1	0	0	0	0	1
104	0	1	1	0	0	0	0	1
105	0	1	1	0	0	0	0	1
106	0	1	1	0	0	0	0	1
107	0	1	1	0	0	0	0	1
108	0	1	1	0	0	0	0	1
109	0	1	1	0	0	0	0	1
110	0	1	1	0	0	0	0	1
111	0	1	1	0	0	0	0	1
112	0	1	1	0	0	0	0	1

DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
17	0	0	0	1	0	0	0	1
18	0	0	0	1	0	0	0	1
19	0	0	0	1	0	0	0	1
20	0	0	0	1	0	0	0	1
21	0	0	0	1	0	0	0	1
22	0	0	0	1	0	0	0	1
23	0	0	0	1	0	0	0	1
24	0	0	0	1	0	0	0	1
25	0	0	0	1	0	0	0	1
26	0	0	0	1	0	0	0	1
27	0	0	0	1	0	0	0	1
28	0	0	0	1	0	0	0	1
29	0	0	0	1	0	0	0	1
30	0	0	0	1	0	0	0	1
31	0	0	0	1	0	0	0	1
32	0	0	0	1	0	0	0	1

DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
49	0	0	1	1	0	0	0	1
50	0	0	1	1	0	0	0	1
51	0	0	1	1	0	0	0	1
52	0	0	1	1	0	0	0	1
53	0	0	1	1	0	0	0	1
54	0	0	1	1	0	0	0	1
55	0	0	1	1	0	0	0	1
56	0	0	1	1	0	0	0	1
57	0	0	1	1	0	0	0	1
58	0	0	1	1	0	0	0	1
59	0	0	1	1	0	0	0	1
60	0	0	1	1	0	0	0	1
61	0	0	1	1	0	0	0	1
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64	0	0	1	1	0	0	0	1

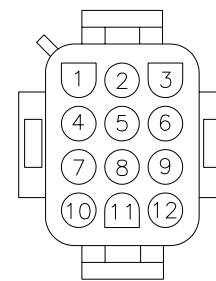
DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
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82	0	1	0	1	0	0	0	1
83	0	1	0	1	0	0	0	1
84	0	1	0	1	0	0	0	1
85	0	1	0	1	0	0	0	1
86	0	1	0	1	0	0	0	1
87	0	1	0	1	0	0	0	1
88	0	1	0	1	0	0	0	1
89	0	1	0	1	0	0	0	1
90	0	1	0	1	0	0	0	1
91	0	1	0	1	0	0	0	1
92	0	1	0	1	0	0	0	1
93	0	1	0	1	0	0	0	1
94	0	1	0	1	0	0	0	1
95	0	1	0	1	0	0	0	1
96	0	1	0	1	0	0	0	1

DECIMAL ADDRESS	PIN 12	PIN 11	PIN 9	PIN 8	PIN 6	PIN 5	PIN 3	PIN 2
113	0	1	1	1	0	0	0	1
114	0	1	1	1	0	0	0	1
115	0	1	1	1	0	0	0	1
116	0	1	1	1	0	0	0	1
117	0	1	1	1	0	0	0	1
118	0	1	1	1	0	0	0	1
119	0	1	1	1	0	0	0	1
120	0	1	1	1	0	0	0	1
121	0	1	1	1	0	0	0	1
122	0	1	1	1	0	0	0	1
123	0	1	1	1	0	0	0	1
124	0	1	1	1	0	0	0	1
125	0	1	1	1	0	0	0	1
126	0	1	1	1	0	0	0	1
127	0	1	1	1	0	0	0	1
128	1	0	0	0	0	0	0	0



ADDRESS PLUG
WIRE SIDE

WIRING DIAGRAM
ADDRESS PLUG
WITH ALL WIRES
CONNECTED



BOTTOM VIEW

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: ADDRESS TABLE, 1 THROUGH 128

DES. BY: AVB

DRAWN BY: A VANBEMMEL

DATE: 28 APR 99

REVISION

APPR. BY:

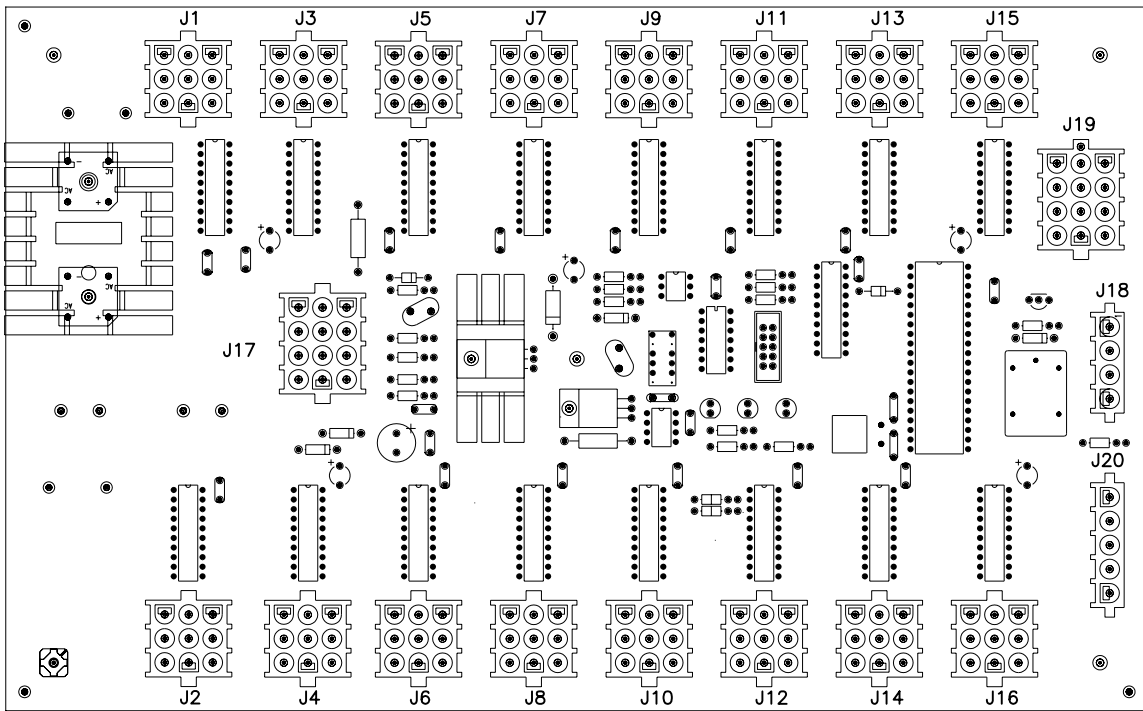
SCALE: NONE

01

1150-R04A-115078

REV.	DATE	DESCRIPTION	BY	APPR.
01	08 MAR 05	ADDED BOTTOM VIEW	KQB	

OP-1150-0126 UNCOATED OR OP-1150-0127 COATED
16 COLUMN LED DRIVER II



J17 MAIN	
PIN	FUNCTION
1	SIG-P
2	SIG-N
3	SIG2-P
4	CLOUT-P
5	CLOUT-N
6	16VAC-N
7	GND-N
8	EARTH-N
9	16VAC-P
10	GND-N
11	+VDD-P
12	+VBB-P

J1-16 DIGIT	
PIN	FUNCTION
1	SEGC-N
2	SEGB-N
3	SEGA-N
4	SEGF-N
5	SEGE-N
6	SEGD-N
7	+VCC-P
8	SEGH-N
9	SEGG-N

J19 ADDRESS	
PIN	FUNCTION
1	GND-N
2	ADD0-N
3	ADD1-N
4	GND-N
5	ADD2-N
6	ADD3-N
7	GND-N
8	ADD4-N
9	ADD5-N
10	GND-N
11	ADD6-N
12	ADD7-N

J18 RELAY	
PIN	FUNCTION
1	HORNOUT-N
2	AUXOUT-N
3	120SW-P
4	120SW-N

J20 PROTOCOL	
PIN	FUNCTION
1	GND-N
2	PRO-N
3	PR1-N
4	PR2-N
5	TOD-N

NOTE

-WITH NO ADDRESS PINS SELECTED THE DRIVER WILL DEFAULT TO A/S 4000 PROTOCOL

-GREEN LED INDICATES THE DRIVER HAS POWER

-RED LED WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL

-AMBER LED INDICATES LED DRIVER STATUS, LED WILL BE BLINKING TO INDICATE THAT THE DRIVER IS RUNNING, IF THE LED IS OFF OR ON SOLID ALL OF THE TIME, THEN THE DRIVERS CPU IS NOT FUNCTIONING AND MAY NEED TO BE RESET OR REPLACED.

-REFER TO DRAWINGS A-115078 & A-115079 FOR J19 ADDRESS SETTINGS FOR THIS DRIVER.

-REFER TO DRAWING A-115081 FOR J20 PROTOCOL SETTINGS FOR THIS DRIVER.

-REDRIVE CIRCUIT IS PROCESSOR REFRESHED (REFER TO DWG A-128429 FOR FURTHER INFORMATION ON THE CURRENT LOOP REDRIVE CIRCUIT SPECIFICATIONS)

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: 16 COLUMN LED DRIVER II SPECIFICATIONS

DES. BY: EB

DRAWN BY: EBRAVEK

DATE: 11 JAN 00

REVISION

APPR. BY:

01

SCALE: 1=2

1150-R07A-126174

REV.	DATE	DESCRIPTION	BY	APPR.
01	2 OCT 00	UPDATED NOTES SECTION	NSW	

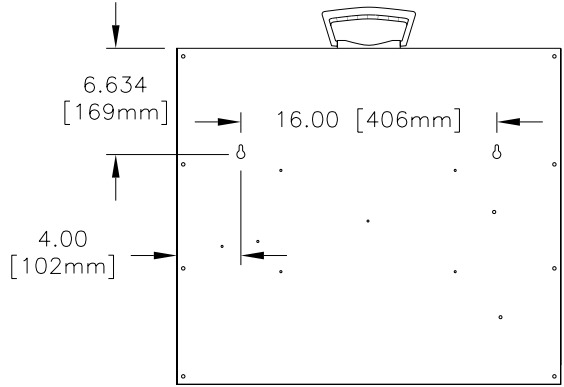
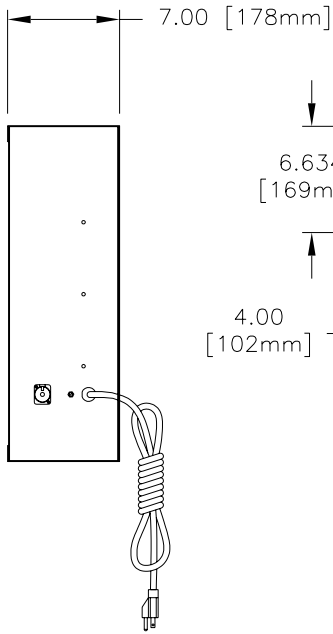
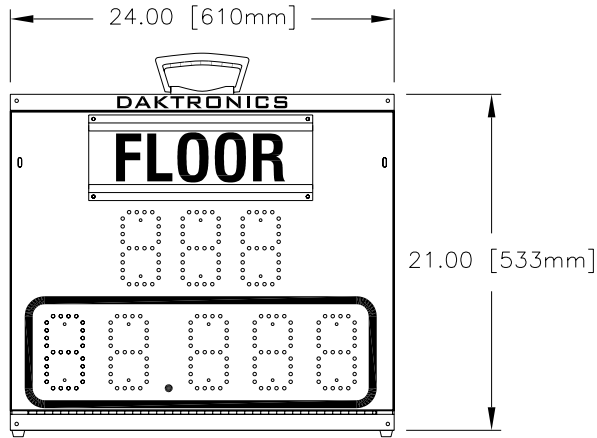
BARS

VAULT

GM-2101

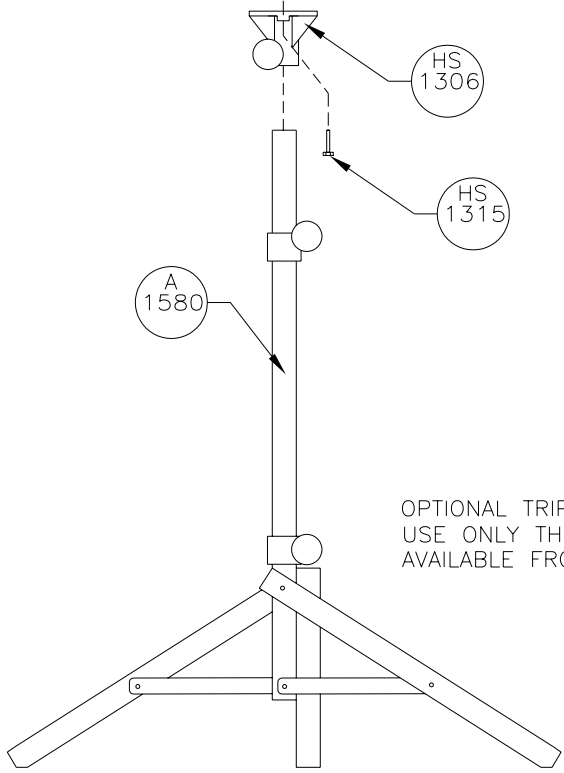
FLOOR

BEAM



RIGHT SIDE

REAR VIEW



FRONT VIEW

OPTIONAL TRIPOD MOUNT AVAILABLE.
USE ONLY THE TRIPOD AND ADAPTOR
AVAILABLE FROM DAKTRONICS.

KEYHOLES IN THE BACK OF THE CABINET
ARE USED FOR MOUNTING THE CABINET TO
THE WALL.
KEY HOLES ARE SPACED THE SAME
FROM BOTH SIDES AND 16 INCHES APART.

WEIGHTS	
SHIPPING WEIGHT	MOUNTING WEIGHT
40 LBS (18 KG)	25 LBS (11 KG)

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2005 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: TUFF SPORT SCOREBOARDS
 TITLE: MECHANICAL SPEC; GM-2101-13
 DES. BY: EREBHANN DRAWN BY: ETERPST DATE: 11 JUL 05

REVISION	APPR. BY:	1237-E10A-247202
00	SCALE: 1=12	

REV.	DATE	DESCRIPTION	BY	APPR.

GM-2101

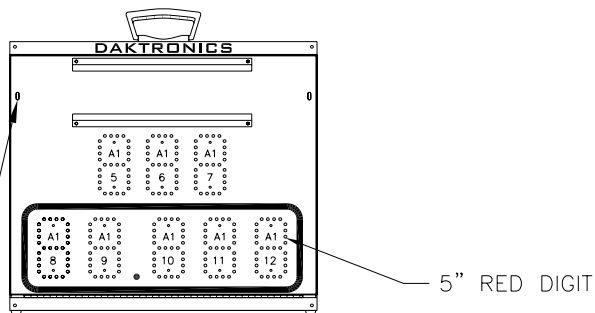
DIGIT, SIGNAL AND POWER SPECIFICATIONS:

NOTES:

1. USE MINIMUM OF 24AWG, SHIELDED, TWO CONDUCTOR CABLE FOR SIGNAL TERMINATION.

2. THE NUMBER LISTED BY EACH DIGIT INDICATES THE DIGIT DESIGNATION IN RELATION TO THE LED DRIVER.

3. **DO NOT WORK ON ENERGIZED DISPLAY UNLESS YOU ARE A CERTIFIED ELECTRICIAN OR DIRECTED BY DAKTRONICS.**



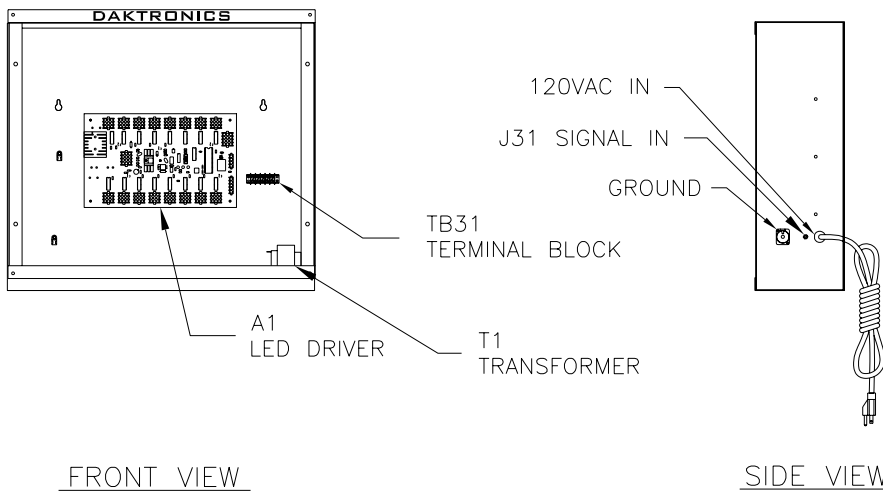
FRONT VIEW

TO GAIN ACCESS TO THE INTERIOR COMPONENTS, REMOVE THE TWO SCREWS SECURING THE FACE PANEL.

ADDRESS INFORMATION	
DRIVER:	A1
ADDRESS:	11

POWER SPECIFICATION	
- 120V AC, 15 AMP CIRCUIT REQUIRED.	
- 100 WATTS MAXIMUM.	
- PRODUCT SAFETY APPROVAL:	
1. ETL LISTED	
2. TESTED TO CSA STANDARDS	
3. CE LABELED FOR INDOOR USE	

COMPONENT LOCATIONS:



FRONT VIEW

SIDE VIEW

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: TUFF SPORT SCOREBOARDS			
TITLE: ELECTRICAL & SIGNAL SPEC, GM-2101			
DES. BY: EREBHANN		DRAWN BY: ETERPST	DATE: 11 JUL 05
REVISION	APPR. BY:	1237-E10A-247207	
00	SCALE: 1=15		

REV.	DATE	DESCRIPTION	BY	APPR.

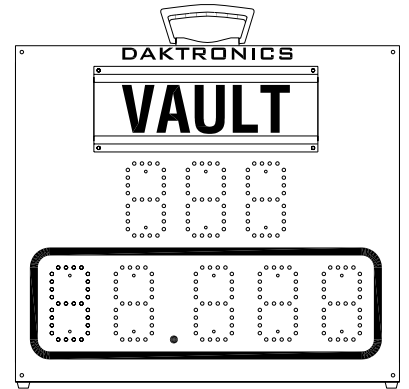
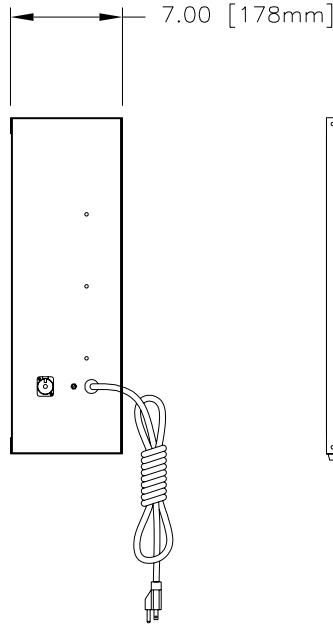
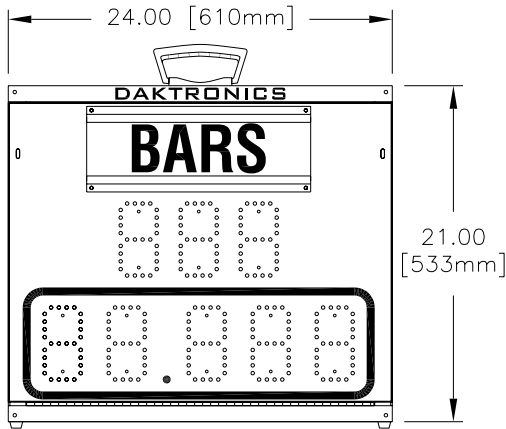
GM-2102

BARS

VAULT

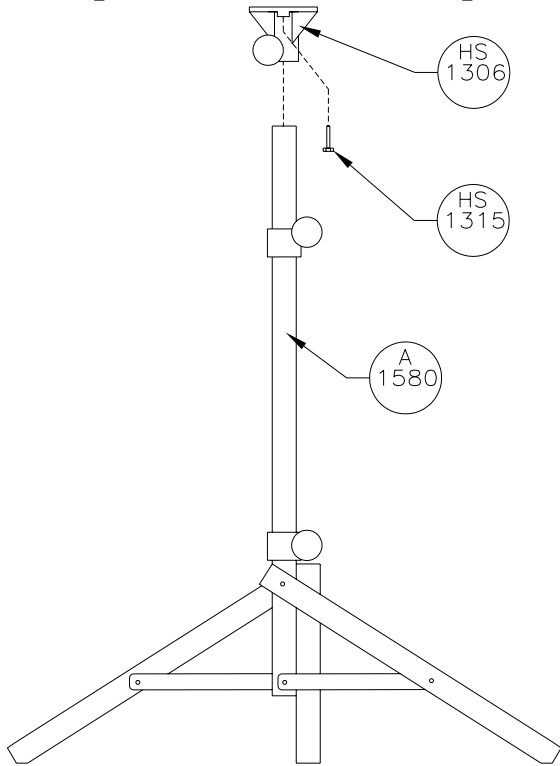
FLOOR

BEAM



REAR VIEW

RIGHT SIDE



FRONT VIEW

NOTES:

OPTIONAL TRIPOD MOUNT AVAILABLE.
USE ONLY THE TRIPOD AND ADAPTOR
AVAILABLE FROM DAKTRONICS.

WEIGHTS	
SHIPPING WEIGHT	MOUNTING WEIGHT
45 LBS (20.4KG)	30 LBS (13.6KG)

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: TUFF SPORT SCOREBOARDS			
TITLE: MECHANICAL SPEC, GM-2102-13			
DES. BY: EREBHAWN		DRAWN BY: ETERPST	DATE: 12 JUL 05
REVISION	APPR. BY:	1237-E10A-247272	
00	SCALE: 1=12		

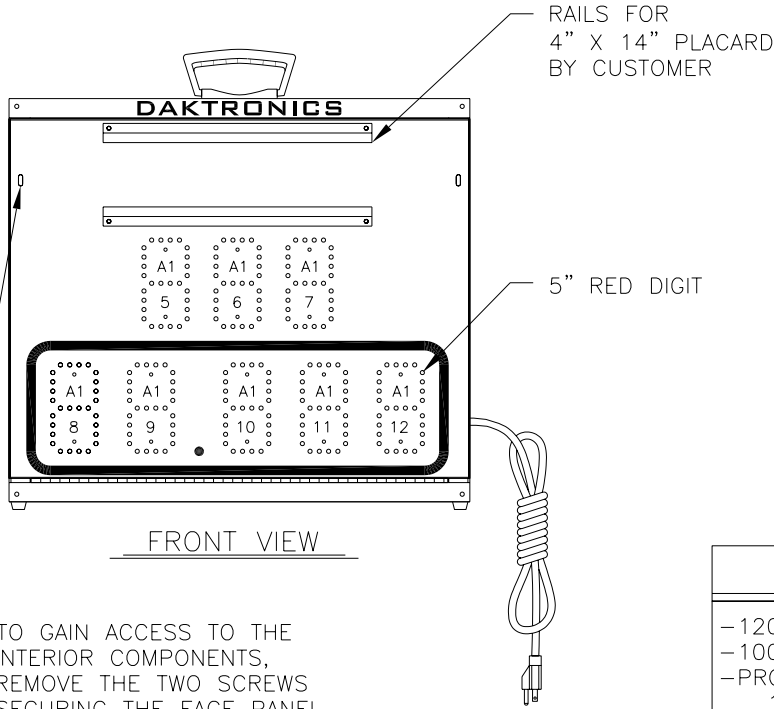
REV.	DATE	DESCRIPTION	BY	APPR.

GM-2102

DIGIT, SIGNAL AND POWER SPECIFICATIONS:

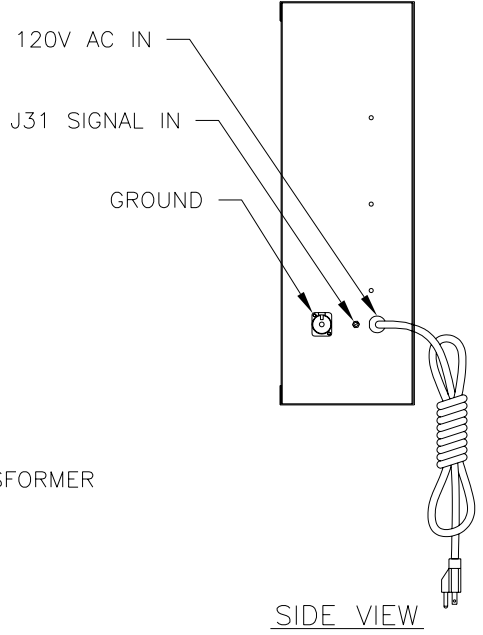
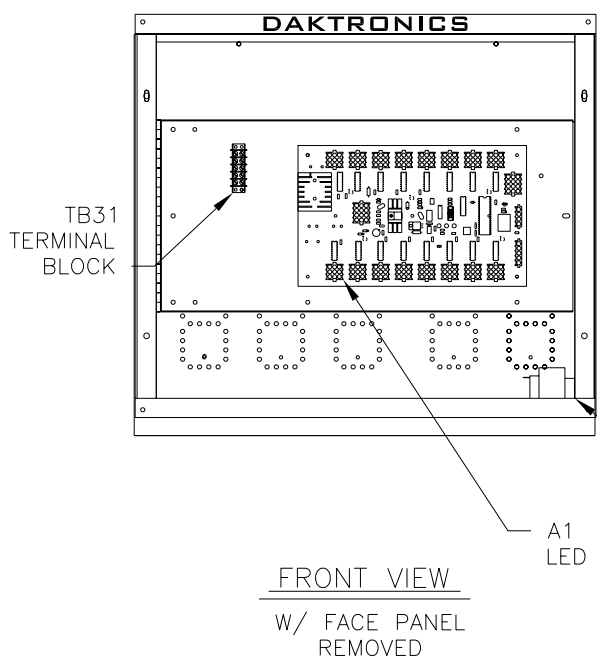
NOTES:

1. USE MINIMUM OF 24AWG, SHIELDED, TWO CONDUCTOR CABLE FOR SIGNAL TERMINATION.
2. THE NUMBER LISTED BY EACH DIGIT INDICATES THE DIGIT DESIGNATION IN RELATION TO THE LED DRIVER
3. **DO NOT WORK ON ENERGIZED DISPLAY UNLESS YOU ARE A CERTIFIED ELECTRICIAN OR DIRECTED BY DAKTRONICS.**



ADDRESS INFORMATION	
DRIVER:	A1
ADDRESS:	11

POWER SPECIFICATIONS	
-120V AC, 15 AMP CIRCUIT REQUIRED.	
-100 WATTS MAXIMUM.	
-PRODUCT SAFETY APPROVAL:	
1. ETL LISTED	
2. TESTED TO CSA STANDARDS	
3. CE LABELED FOR INDOOR USE	



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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: TUFF SPORT SCOREBOARDS			
TITLE: ELECTRICAL & SIGNAL SPEC, GM-2102-13			
DES. BY: EREBAHN		DRAWN BY: ETERPST	DATE: 12 JUL 05
REVISION	APPR. BY:	1237-E10A-247278	
00	SCALE: 1=10		

REV.	DATE	DESCRIPTION	BY	APPR.

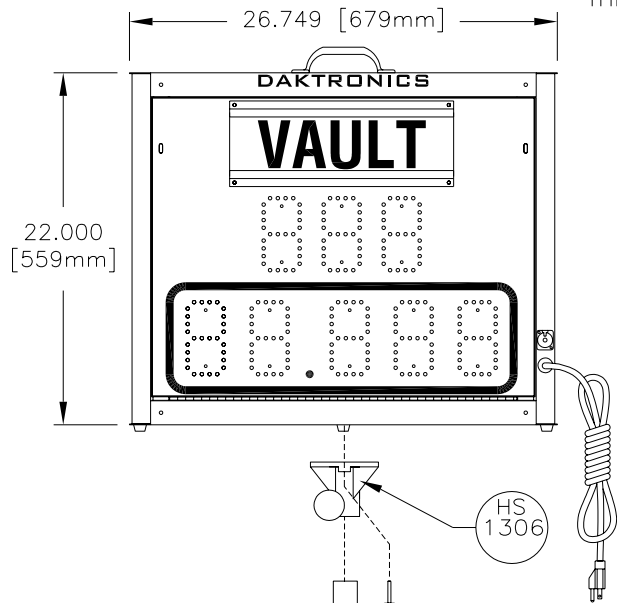
GM-2103

BARS

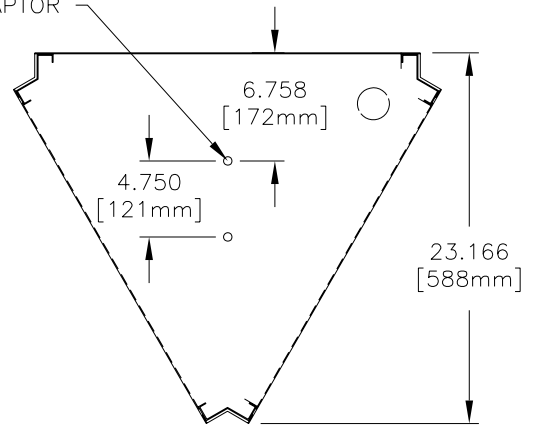
VAULT

FLOOR

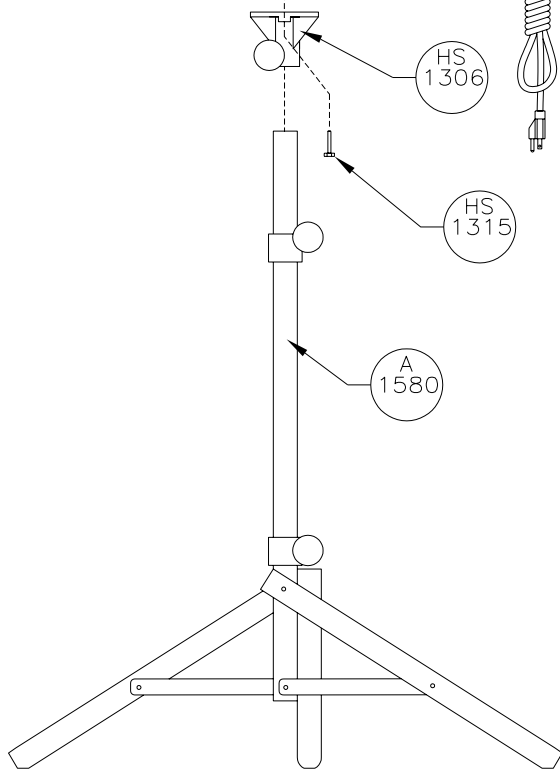
BEAM



THREADED HOLES FOR
TRIPOD ADAPTOR



BOTTOM VIEW



FRONT VIEW

NOTES:

OPTIONAL TRIPOD MOUNT AVAILABLE.
USE ONLY THE TRIPOD AND ADAPTOR
AVAILABLE FROM DAKTRONICS.

WEIGHTS	
SHIPPING WEIGHT	MOUNTING WEIGHT
60 LBS (27.22KG)	45 LBS (20.41KG)

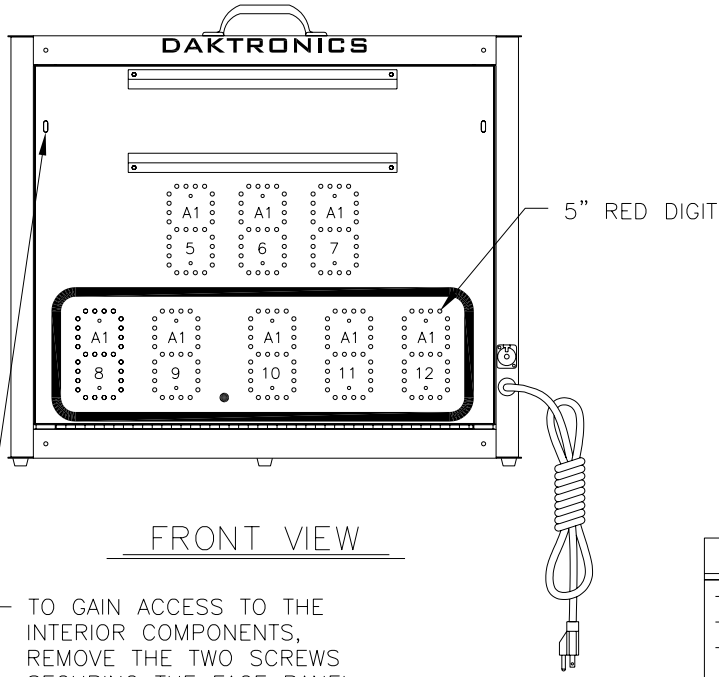
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2005 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: TUFF SPORT SCOREBOARDS			
TITLE: MECHANICAL SPEC, GM-2103-13			
DES. BY: EREBHAWN		DRAWN BY: ETERPST	DATE: 12 JUL 05
REVISION	APPR. BY:	1237-E10A-247301	
00	SCALE: 1=12		

REV.	DATE	DESCRIPTION	BY	APPR.

GM-2103

DIGIT, SIGNAL AND POWER SPECIFICATIONS:

NOTES:



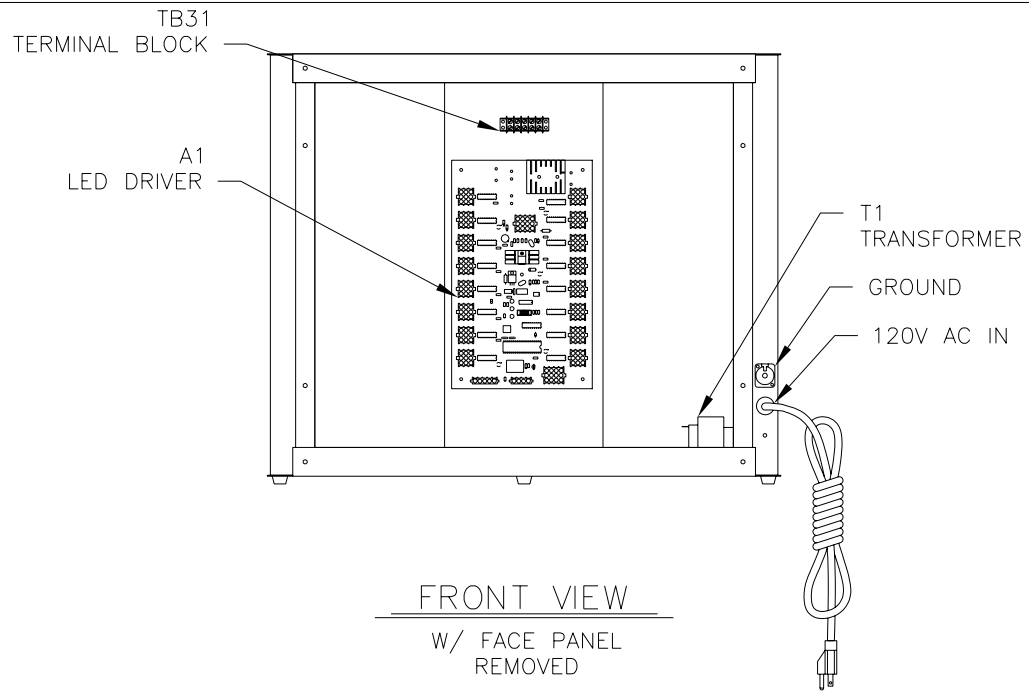
1. USE MINIMUM OF 24AWG, SHIELDED, TWO CONDUCTOR CABLE FOR SIGNAL TERMINATION.
2. THE NUMBER LISTED BY EACH DIGIT INDICATES THE DIGIT DESIGNATION IN RELATION TO THE LED DRIVER
3. **DO NOT WORK ON ENERGIZED DISPLAY UNLESS YOU ARE A CERTIFIED ELECTRICIAN OR DIRECTED BY DAKTRONICS.**

ADDRESS INFORMATION	
DRIVER:	A1
ADDRESS:	11

FRONT VIEW

TO GAIN ACCESS TO THE INTERIOR COMPONENTS, REMOVE THE TWO SCREWS SECURING THE FACE PANEL.

POWER SPECIFICATIONS	
-120V AC, 15 AMP CIRCUIT REQUIRED.	
-100 WATTS MAXIMUM.	
-PRODUCT SAFETY APPROVAL:	
1. ETL LISTED	
2. TESTED TO CSA STANDARDS	
3. CE LABELED FOR INDOOR USE	



FRONT VIEW
W/ FACE PANEL REMOVED

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: TUFF SPORT SCOREBOARDS			
TITLE: ELECTRICAL & SIGNAL SPEC, GM-2103-13			
DES. BY: EREBHANN		DRAWN BY: ETERPST	DATE: 12 JUL 05
REVISION	APPR. BY:	1237-E10A-247309	
00	SCALE: 1=10		

REV.	DATE	DESCRIPTION	BY	APPR.

REV.	DATE	DESCRIPTION	BY	APPR.
01	12 NOV 08	UPDATED SIGNAL HARNESS FROM 0A-1150-0127 TO 0A-120-0128. CHANGED QUANTITY FROM 2 TO 1	MMM	
02	17 FEB 10	REPLACED 0A-1152-0653 WITH W-1111 PER ECO-060212	CHH	

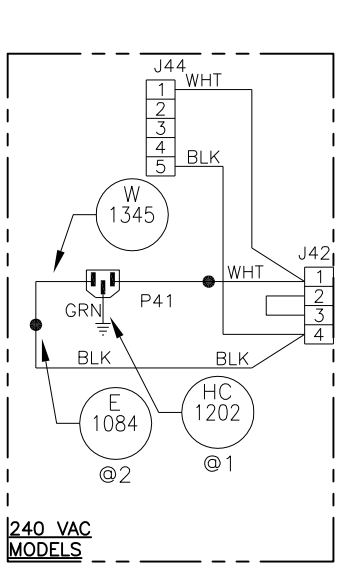
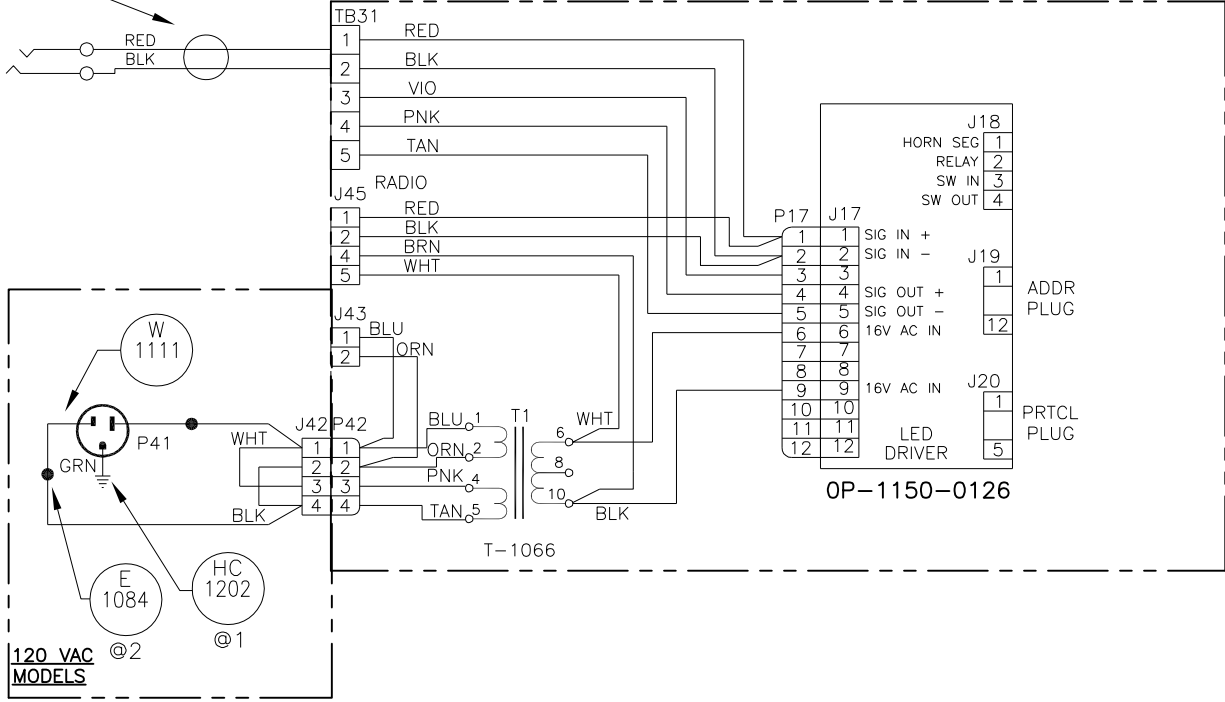
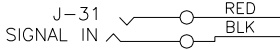
REVISON	APPR. BY: MILLER	SCALE: NONE	DATE: 13 DEC 05
02			

PROJ: TUFF SPORT SCOREBOARDS
 TITLE: SCHEMATIC: GM-XXXX 120V OR 240 VAC
 DES. BY: DDINING
 DRAWN BY: DDINING
 DATE: 13 DEC 05

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2005 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

3' SIGNAL HARNESS



NOTE:

THIS DESIGN IS NOT ON A DRIVER TRAY.
 REFER TO MECHANICAL DRAWINGS FOR
 PLACEMENT OF PARTS.

0P-1150-0126

Appendix B: Daktronics Warranty and Limitation of Liability

DAKTRONICS WARRANTY AND LIMITATION OF LIABILITY

This Warranty and Limitation of Liability (the "Warranty") sets forth the warranty provided by Daktronics with respect to the Equipment. By accepting delivery of the Equipment, Purchaser agrees to be bound by and accept these terms and conditions. All defined terms within the Warranty shall have the same meaning and definition as provided elsewhere in the Agreement.

DAKTRONICS WILL ONLY BE OBLIGATED TO HONOR THE WARRANTY SET FORTH IN THESE TERMS AND CONDITIONS UPON RECEIPT OF FULL PAYMENT FOR THE EQUIPMENT.

1. **Warranty Coverage**

A. Daktronics warrants to the original end-user that the Equipment will be free from Defects (as defined below) in materials and workmanship for a period of one (1) year (the "Warranty Period"). The warranty period shall commence on the earlier of: (i) four weeks from the date that the equipment leaves Daktronics' facility; or (ii) Substantial Completion as defined herein. The warranty period shall expire on the first anniversary of the commencement date.

"Substantial Completion" means the operational availability of the Equipment to the Purchaser in accordance with the Equipment's specifications, without regard to punch-list items, or other non-substantial items which do not affect the operation of the Equipment.

B. Daktronics' obligation under this Warranty is limited to, at Daktronics' option, replacing or repairing, any Equipment or part thereof that is found by Daktronics not to conform to the Equipment's specifications. Unless otherwise directed by Daktronics, any defective part or component shall be returned to Daktronics for repair or replacement. Daktronics may, at its option, provide on-site warranty service. Daktronics shall have a reasonable period of time to make such replacements or repairs and all labor associated therewith shall be performed during regular working hours. Regular working hours are Monday through Friday between 8:00 a.m. and 5:00 p.m. at the location where labor is performed, excluding any holidays observed by either Purchaser or Daktronics.

C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. If returned Equipment is repaired or replaced under the terms of this warranty, Daktronics will prepay ground transportation charges back to Purchaser; otherwise, Purchaser shall pay transportation charges to return the Equipment back to the Purchaser. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. Purchaser shall pay any upgraded or expedited transportation charges.

D. Any replacement parts or Equipment will be new or serviceably used, comparable in function and performance to the original part or Equipment, and warranted for the remainder of the Warranty Period. Purchasing additional parts or Equipment from the Seller does not extend this Warranty Period.

E. Defects shall be defined as follows. With regard to the Equipment (excepting LEDs), a "Defect" shall refer to a material variance from the design specifications that prohibit the Equipment from operating for its intended use. With respect to LEDs, "Defects" are defined as LED pixels that cease to emit light. The limited warranty provided by Daktronics does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Nor does the limited warranty provide for the replacement or installation of communication methods including but not limited to, wire, fiber optic cable, conduit, trenching, or for the purpose of overcoming local site interference radio equipment substitutions.

THIS LIMITED WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE EQUIPMENT AND REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SPECIFICALLY, EXCEPT AS PROVIDED HEREIN, THE SELLER UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE EQUIPMENT OR THAT THE EQUIPMENT WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH PURCHASER MAY BE BUYING THE EQUIPMENT. ANY IMPLIED WARRANTY IS LIMITED IN DURATION TO THE WARRANTY PERIOD. NO ORAL OR WRITTEN INFORMATION, OR ADVICE GIVEN BY THE COMPANY, ITS AGENTS OR EMPLOYEES, SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS LIMITED WARRANTY.

THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

2. **Exclusion from Warranty Coverage**

The limited warranty provided by Daktronics does not impose any duty or liability upon Daktronics for:

A. Any damage occurring, at any time, during shipment of Equipment unless otherwise provided for in the Agreement. When returning Equipment to Daktronics for repair or replacement, Purchaser assumes all risk of loss or damage, and agrees to use any shipping containers that might be provided by Daktronics and to ship the Equipment in the manner prescribed by Daktronics;

B. Any damage caused by the unauthorized adjustment, repair or service of the Equipment by anyone other than personnel of Daktronics or its authorized repair agents;

C. Damage caused by the failure to provide a continuously suitable environment, including, but not limited to: (i) neglect or misuse, (ii) a failure or sudden surge of electrical power, (iii) improper air conditioning or humidity control, or (iv) any other cause other than ordinary use;

D. Damage caused by fire, flood, earthquake, water, wind, lightning or other natural disaster, strike, inability to obtain materials or utilities, war, terrorism, civil disturbance or any other cause beyond Daktronics' reasonable control;

E. Failure to adjust, repair or replace any item of Equipment if it would be impractical for Daktronics personnel to do so because of connection of the Equipment by mechanical or electrical means to another device not supplied by Daktronics, or the existence of general environmental conditions at the site that pose a danger to Daktronics personnel;

F. Any statements made about the product by salesmen, dealers, distributors or agents, unless such statements are in a written document signed by an officer of Daktronics. Such statements as are not included in a signed writing do not constitute warranties, shall not be relied upon by Purchaser and are not part of the contract of sale;

G. Any damage arising from the use of Daktronics products in any application other than the commercial and industrial applications for which they are intended, unless, upon request, such use is specifically approved in writing by Daktronics; or

H. Any performance of preventive maintenance.

3. Limitation of Liability

Daktronics shall be under no obligation to furnish continued service under this Warranty if alterations are made to the Equipment without the prior written approval of Daktronics.

It is specifically agreed that the price of the Equipment is based upon the following limitation of liability. In no event shall Daktronics (including its subsidiaries, affiliates, officers, directors, employees, or agents) be liable for any special, consequential, incidental or exemplary damages arising out of or in any way connected with the Equipment or otherwise, including but not limited to damages for lost profits, cost of substitute or replacement equipment, down time, lost data, injury to property or any damages or sums paid by Purchaser to third parties, even if Daktronics has been advised of the possibility of such damages. The foregoing limitation of liability shall apply whether any claim is based upon principles of contract, tort or statutory duty, principles of indemnity or contribution, or otherwise.

In no event shall Daktronics be liable to Purchaser or any other party for loss, damage, or injury of any kind or nature arising out of or in connection with this Warranty in excess of the purchase price of the Equipment actually delivered to and paid for by the Purchaser. The Purchaser's remedy in any dispute under this Warranty shall be ultimately limited to the Purchase Price of the Equipment to the extent the Purchase Price has been paid.

4. Assignment of Rights

The Warranty contained herein extends only to the original end-user (which may be the Purchaser) of the Equipment and no attempt to extend the Warranty to any subsequent user-transferee of the Equipment shall be valid or enforceable without the express written consent of Daktronics.

5. Dispute Resolution

Any dispute between the parties will be resolved exclusively and finally by arbitration administered by the American Arbitration Association ("AAA") and conducted under its rules, except as otherwise provided below. The arbitration will be conducted before a single arbitrator. The arbitration shall be held in Brookings, South Dakota. Any decision rendered in such arbitration proceedings will be final and binding on each of the parties, and judgment may be entered thereon in any court of competent jurisdiction. This arbitration agreement is made pursuant to a transaction involving interstate commerce, and shall be governed by the Federal Arbitration Act.

6. Governing Law

The rights and obligations of the parties under this warranty shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sales of Goods of 1980. Both parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce all of Purchaser and Daktronics rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Warranty, without regard to conflict of law principles.

7. Availability of Extended Service Agreement

For Purchaser's protection, in addition to that afforded by the warranties set forth herein, Purchaser may purchase extended warranty services to cover the Equipment. The Extended Service Agreement, available from Daktronics, provides for electronic parts repair and/or on-site labor for an extended period from the date of expiration of this warranty. Alternatively, an Extended Service Agreement may be purchased in conjunction with this warranty for extended additional services. For further information, contact Daktronics Customer Service at 1-877-605-1116.