

Single-Court Outdoor LED Tennis Scoreboards

Display Manual

DD2172229

Rev 1 – 15 November 2012

DAKTRONICS

Models			
	TN-2016		TN-2605
	TN-2601		TN-2606
	TN-2603		TN-2607
	TN-2604		

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 single-court outdoor LED tennis 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 7**. 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 Scoreboard Controllers

Daktronics outdoor tennis scoreboards are designed for use with the RC-100 handheld controller. Optional Team Name Message Centers (TNMCs) require an All Sport® 5000 series control console. Both controllers use keyboard overlays (sport inserts) to control numerous sports and scoreboard models. Refer to the following manuals for operating instructions:

- **Remote Control System RC-100 All Sport Operation Manual (ED-15133)**
- **All Sport 5000 Series Control Console Operation Manual (ED-11976)**

These control console manuals are available online at www.daktronics.com/manuals.

1.2 Scoreboard Label

Serial and model numbers of a Daktronics scoreboard can be found on the ID label on the display as shown in **Figure 1**.

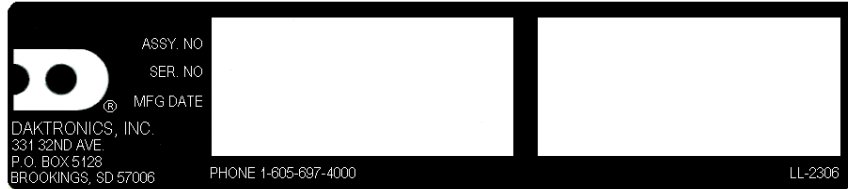


Figure 1: Scoreboard ID Label

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.

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:

TN	Tennis
----	--------

-11	120 V, with red digits
-21	120 V, with amber digits
-12	240 V, with red digits
-22	240 V, with amber digits

1.4 Resources

Figure 2 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**.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN IN THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY, WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2008 DAKTRONICS, INC.			
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 2: 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 **DD2172229**.

1.5 Daktronics Nomenclature

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 5.11**, use the label to order a replacement. **Figure 3** illustrates a typical label. The part number is in bold.

Main Component Labels	
<i>Part Type</i>	<i>Part Number</i>
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	
<i>Component</i>	<i>Label</i>
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>

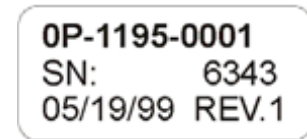


Figure 3: Typical Label

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.

1.6 Product Safety Approval

Daktronics outdoor scoreboards are ETL listed and tested to CSA standard for outdoor use. Contact Daktronics with any questions regarding 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; 240 V AC displays are also available.
- 2) Values in [Brackets] indicate scoreboards with Team Name Message Centers (TNMCs).

Model	Dimensions: Height, Width, Depth	Weight	Watts	Amps 120 / 240 V AC	Driver # & Address*
TN-2016	H 1'-9", W 2'-0", D 7" (533 mm, 610 mm, 178 mm)	30 lb (14 kg)	300 W	2.5 A (120 V AC only)	A1: 11
TN-2601	H 1'-6", W 4'-0", D 6" (457 mm, 1219 mm, 152 mm)	24 lb (11 kg)	300 W	2.5 A / 1.25 A	A1 : 11
TN-2603	H 3'-6", W 8'-0", D 8" (1067 mm, 2438 mm, 203 mm)	112 lb (51 kg) [192 lb (87 kg)]	300 W [600 W]	2.5 A / 1.25 A [5 A / 2.5 A]	A1: 11 [TNMC: 221]
TN-2604	H 3'-6", W 9'-0", D 8" (1067 mm, 2743 mm, 203 mm)	126 lb (57 kg) [206 lb (93 kg)]	300 W [600 W]	2.5 A / 1.25 A [5 A / 2.5 A]	A1: 11 [TNMC: 221]
TN-2605	H 2'-0", W 11'-0", D 8" (610 mm, 3353 mm, 203 mm)	88 lb (40 kg) [168 lb (76 kg)]	300 W [600 W]	2.5 A / 1.25 A [5 A / 2.5 A]	A1: 20 [TNMC: 221]
TN-2606	H 3'-6", W 11'-0", D 8" (1067 mm, 3353 mm, 203 mm)	154 lb (70 kg) [234 lb (106 kg)]	300 W [600 W]	2.5 A / 1.25 A [5 A / 2.5 A]	A1: 11
TN-2607	H 3'-6", W 11'-0", D 8" (1067 mm, 3353 mm, 203 mm)	154 lb (70 kg) [234 lb (106 kg)]	300 W [600 W]	2.5 A / 1.25 A [5 A / 2.5 A]	A1: 11 [TNMC: 221]

* Default driver addresses are shown. When several single-court scoreboards are used together with a multi-court DakTennis™ scoreboard system, the scoreboards on each court must be manually set to specific driver addresses. Refer to **Drawing A-1054089** in **Appendix A**.

Section 3: Mechanical Installation

Mechanical installation consists of installing concrete footing and steel beams and mounting the scoreboard and accompanying ad panels to the beams.

3.1 Footings & Beams

The installation specification drawings listed in **Appendix A** show the recommended number of beams and spacing between them. The drawings also indicate the size of beams required to support the scoreboard at different heights and at various wind speeds. Use the following table to determine the installation specifications for each model:

Model	Drawing Title	Number
TN-2016	Beam and Footing Recommendations; TN-2016-11	A-175784
TN-2601	To Be Determined	TBD
TN-2603	To Be Determined	TBD
TN-2604	Shop DWG: TN-2604 –(11/21) w/ ID Panels	B-297728
TN-2605	To Be Determined	TBD
TN-2606	To Be Determined	TBD
TN-2607	To Be Determined	TBD

Note: If a drawing for a particular scoreboard is not listed, the installation detail has likely been provided as part of project-specific documentation separate from this manual.

The column and footing size dimensions are to assist with estimating installation costs. They are estimates only and are not intended for actual construction purposes. Be sure that the installation complies with local building codes and is suitable for the particular soil and wind conditions. The columns, footings, and all connection details must be designed and certified by a professional engineer licensed to practice in the state of the scoreboard installation.

Note: Daktronics does not assume any liability for any installation derived from the information provided in this manual or installations designed and installed by others.

3.2 Lifting the Scoreboard

Daktronics scoreboards are shipped equipped with eyebolts used to lift them. The eyebolts are located along the top of the cabinet for each scoreboard or scoreboard section. Daktronics scoreboards use $1/2$ " and $5/8$ " shoulder-type eyebolts mounted to a $1/8$ " aluminum plate or steel nut plate.

Daktronics strongly recommends using a spreader bar, or lifting bar, to lift the display. Spreader bars ensure the force on the eyebolts remains straight up, minimizing lifting stress.

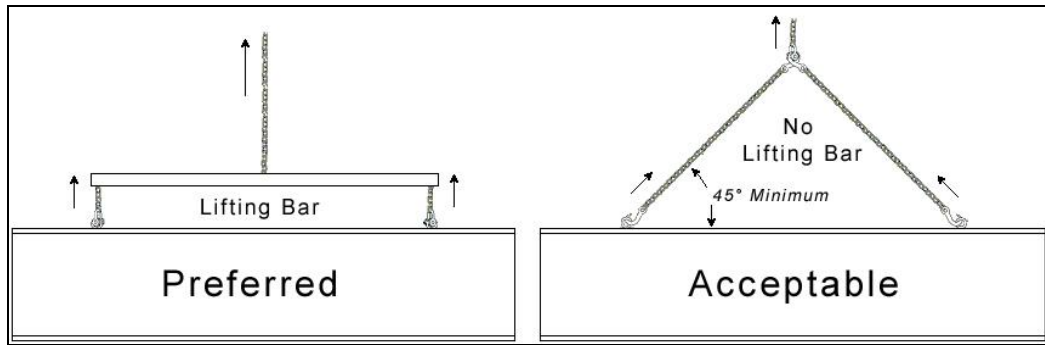


Figure 4: Lifting Methods

Figure 4 illustrates the preferred scoreboard lifting method on the left and an acceptable alternative lifting method on the right. When lifting the display:

- Use a spreader bar if possible.
- Use every lifting point provided.

Cables and chains attached to the eyebolts and directly to a center lifting point, as shown in the right-hand example in **Figure 4**, can create a dangerous lateral force on the eyebolts and may cause the eyebolts to fail. The smaller the angle between the cable and the top of the display, the lighter the display must be to safely lift it. If this method must be used, ensure a minimum angle between the chain and scoreboard of at least 45 degrees.

Do NOT attempt to lift the display if the angle is less than 45 degrees. Exceeding load angles or weight limits could cause the bolts in the scoreboard cabinet to buckle, resulting in serious damage to the scoreboard or injury to personnel. Also, loads should be applied directly in the plane of the eyebolt as shown in **Figure 5**.

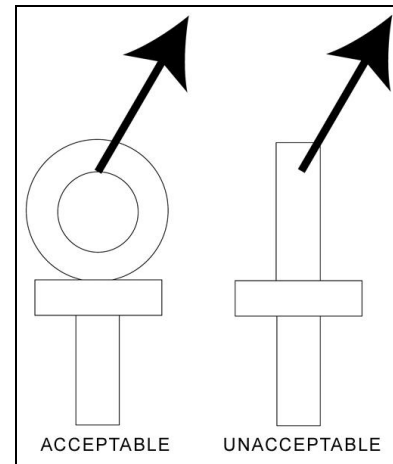


Figure 5: Eyebolt Plane Load

Note: Daktronics assumes no liability for damages resulting from incorrect setup or lifting methods. Eyebolts are intended for lifting only. Do not attempt to permanently support the display by the eyebolts.

If installers remove the eyebolts, plug the holes with bolts and the rubber washers that are used with the eyebolts. Apply silicone or another waterproof sealant to the eyebolt openings. Also inspect the top and sides of the display for any other holes or openings that may allow moisture to enter the display and plug and seal those openings.

3.3 Scoreboard Mounting

An inverted channel mounting installation uses C-channels; clip angles; 1/2-13" threaded rods; and 1/2" square nuts, hex nuts, lock washers, and optional spacers. Refer to **Figure 6** and **Drawing A-55101** in **Appendix A**.

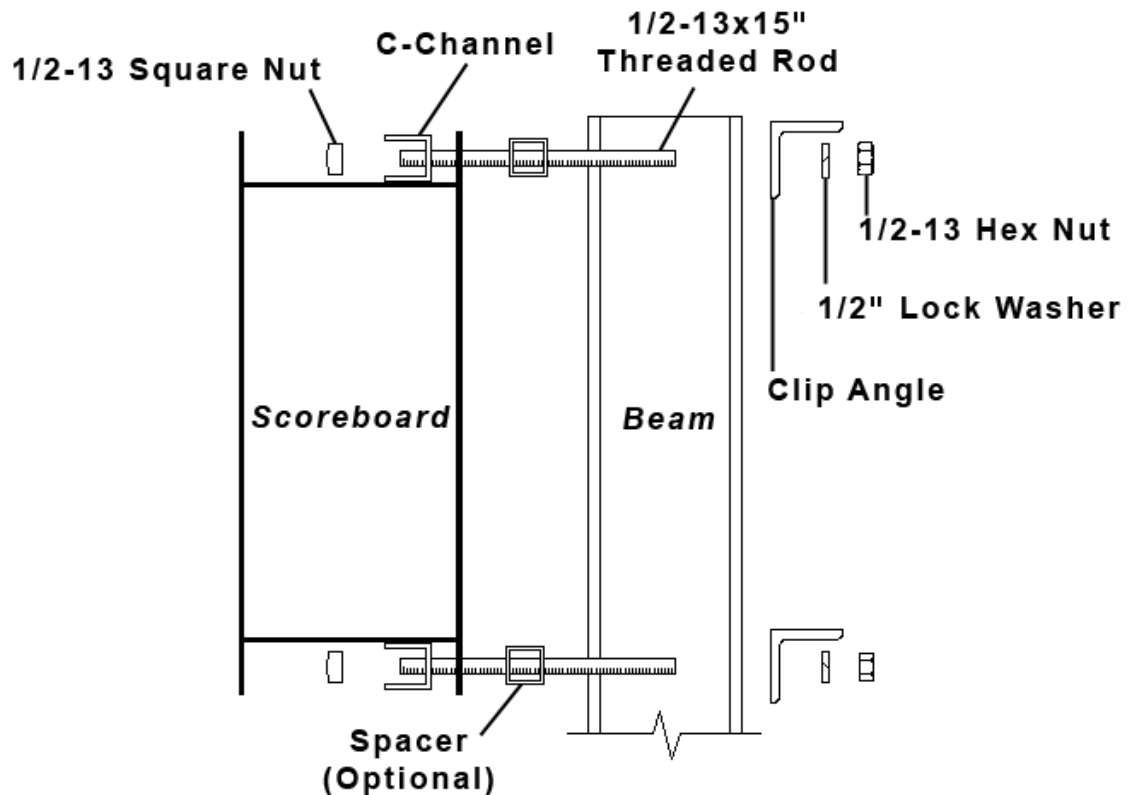


Figure 6: C-channel Mounting Method, Side View

Mount the scoreboard as follows:

1. Place the C-channel against the upper and lower rear flanges of the scoreboard.
2. Use the width of the beam to determine the appropriate hole combination to use for the bolts. The bolts should be kept as close to the beam as possible.
3. With the C-channel as a template, use a $9/16$ " bit to drill holes in the upper and lower rear flanges of the scoreboard cabinet where the bolts will pass through.
4. Place the 1/2" square nuts inside the C-channel and thread the 1/2-13" rods through the C-channel, rear flange of the scoreboard cabinet, and spacer (if used).
5. Lift the scoreboard into position with the bolts still in place. Position the scoreboard at the front of the beams with the threaded rods extending from the rear flanges.
6. With the threaded rod straddling the beams, place mounting angles over each pair of bolts and secure with 1/2" lock washers and hex nuts.
7. Make final adjustments in the positioning of the scoreboard.
8. Make sure that the threaded rods are perpendicular to the scoreboard, and tighten all of the 1/2" hex nuts.

Scoreboard Mounting Using Vertical Spacers

Many customers add message centers or advertising panels to the top or bottom of their scoreboards, and in some cases the depth of the add-on component may not match the depth of the scoreboard. This will typically be scoreboards that are 8" deep.

To create a uniform appearance for the overall display, Daktronics recommends using vertical spacers behind the scoreboard so that the front face of the display lines up evenly with the front face of the added component. The concept is illustrated in **Figure 7** and **Drawing A-182909** in **Appendix A**.

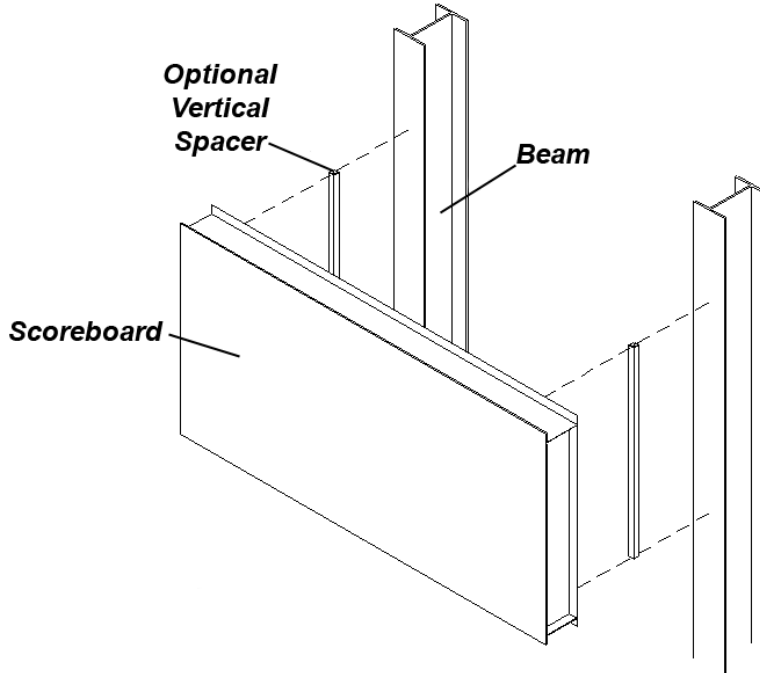


Figure 7: Mounting with Vertical Spacers

During the installation, spacers are placed between the mounting beams and the back of the scoreboard cabinet. Spacer size is determined by the height and the extra depth required for the front surface of the scoreboard to match that of the optional message center or ad panel.

Note: Daktronics does not provide these spacers.

3.4 TN-2016 Mounting

Follow this procedure for mounting the TN-2016:

1. Attach the mounting brackets to the rear of the display using the included $\frac{1}{4}$ " hardware. Holes are provided in the mounting brackets and in the back of the display.
2. Position the display (with attached mounting brackets) against the beams and secure to the beam with the provided $\frac{1}{2}$ " bolts, washers, and nuts. The square nuts go inside the bracket, and the hex nuts and washers are used inside the rear angle at the back of the beam. Use a $\frac{3}{4}$ " socket to tighten.

Refer **Drawings A-175677** and **A-175696** in **Appendix A** for further details.

3.5 Ad Panel Mounting

The installation uses C-channels; clip angles; 1/2-13" threaded rods; and 1/2" square nuts, hex nuts, lock washers, and optional spacers. Refer to **Figure 8** and **Drawing A-52187** in **Appendix A**.

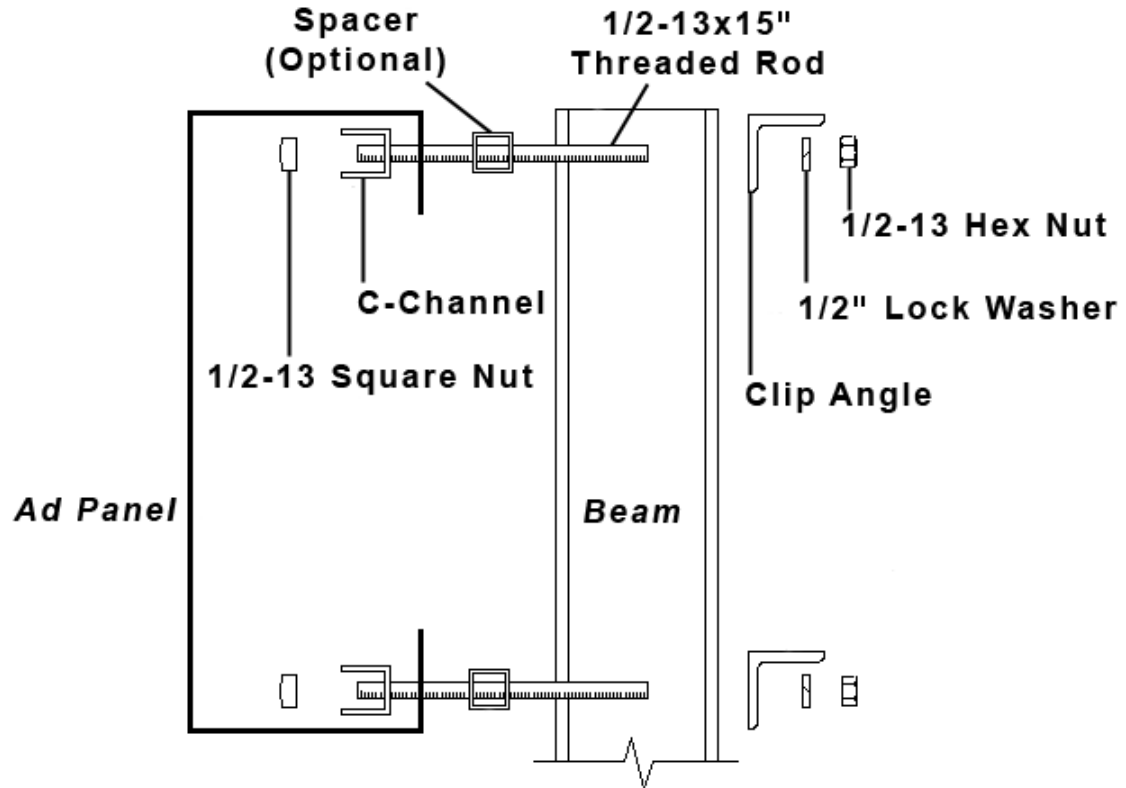


Figure 8: Ad Panel Mounting with C-channel, Side View

Mount the ad panel(s) as follows:

1. Use the width of the beam to determine which hole combination to use for the bolts. Be sure to keep the bolts as close to the beam as possible.
2. Using the clip angle as a template, use a $\frac{9}{16}$ " bit to drill holes in the upper and lower rear flange of the ad panel where the C-channel supports will be placed.
3. Position the C-channel *inside* the ad panel cabinet along the upper and lower rear flanges as shown in **Figure 8**.
4. Place 1/2" square nuts inside the channel and thread the 1/2-13" rods through the C-channel, rear flange of the ad panel, and spacer (if used).
5. Lift the ad panel into position with the rods still in place.
6. With the threaded rod straddling the beams, place mounting angles over the ends of each pair of bolts and secure with 1/2" lock washers and hex nuts.
7. Make final adjustments in the positioning of the ad panel.
8. Make sure that the threaded rods are perpendicular to the ad panel, and tighten all of the 1/2" hex nuts.

Some ad panels have back sheets that must be removed before the display can be installed. After marking and drilling holes in the upper and lower rear flanges of the ad panel, remove the back sheets above and below the hole locations. Position the C-channel inside the cabinet and attach the square nuts to the threaded rods as described above. Be sure to replace the back sheets after placing the square nuts inside the channel and threading the rods through the holes in both the upper and lower rear flanges.

3.6 Scoreboard Protective Devices

Daktronics makes optional protective devices, including screens and netting, to help prevent damage to the scoreboard due to normal ball impacts.

Note: Some users install devices to protect the scoreboard from projectiles. Scoreboard protection devices not provided by Daktronics must be approved by Daktronics prior to installation. Failure to follow this approval procedure will void the scoreboard warranty.

Section 4: Electrical Installation

CAUTION: Only qualified individuals should terminate power and signal cable and access the electrical components of the display and its associated equipment. It is the responsibility of the electrical contractor to ensure that all electrical work meets or exceeds local and national codes.

Daktronics engineering staff must approve all changes or the warranty will be void.

4.1 Installation Overview

The diagram shown in **Figure 9** illustrates a typical wireless setup between a single-court tennis scoreboard and the control system. Daktronics part numbers are shown in parentheses. **Drawings A-177098** and **A-252412** in **Appendix A** also show power and signal layouts.

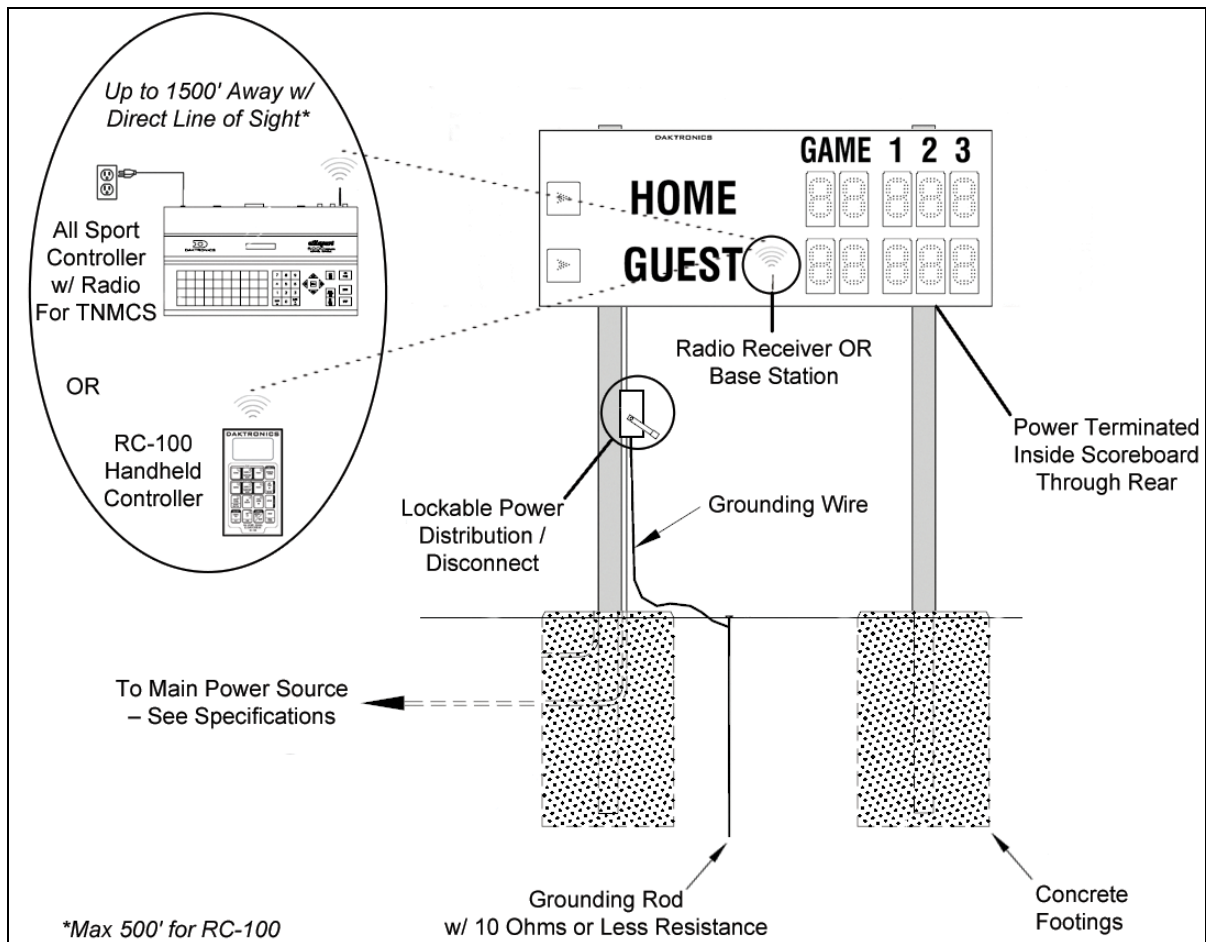


Figure 9: Wireless Installation

The diagram shown in **Figure 10** illustrates a typical wired setup between a single-court tennis scoreboard and the control system. Daktronics part numbers are shown in parentheses.

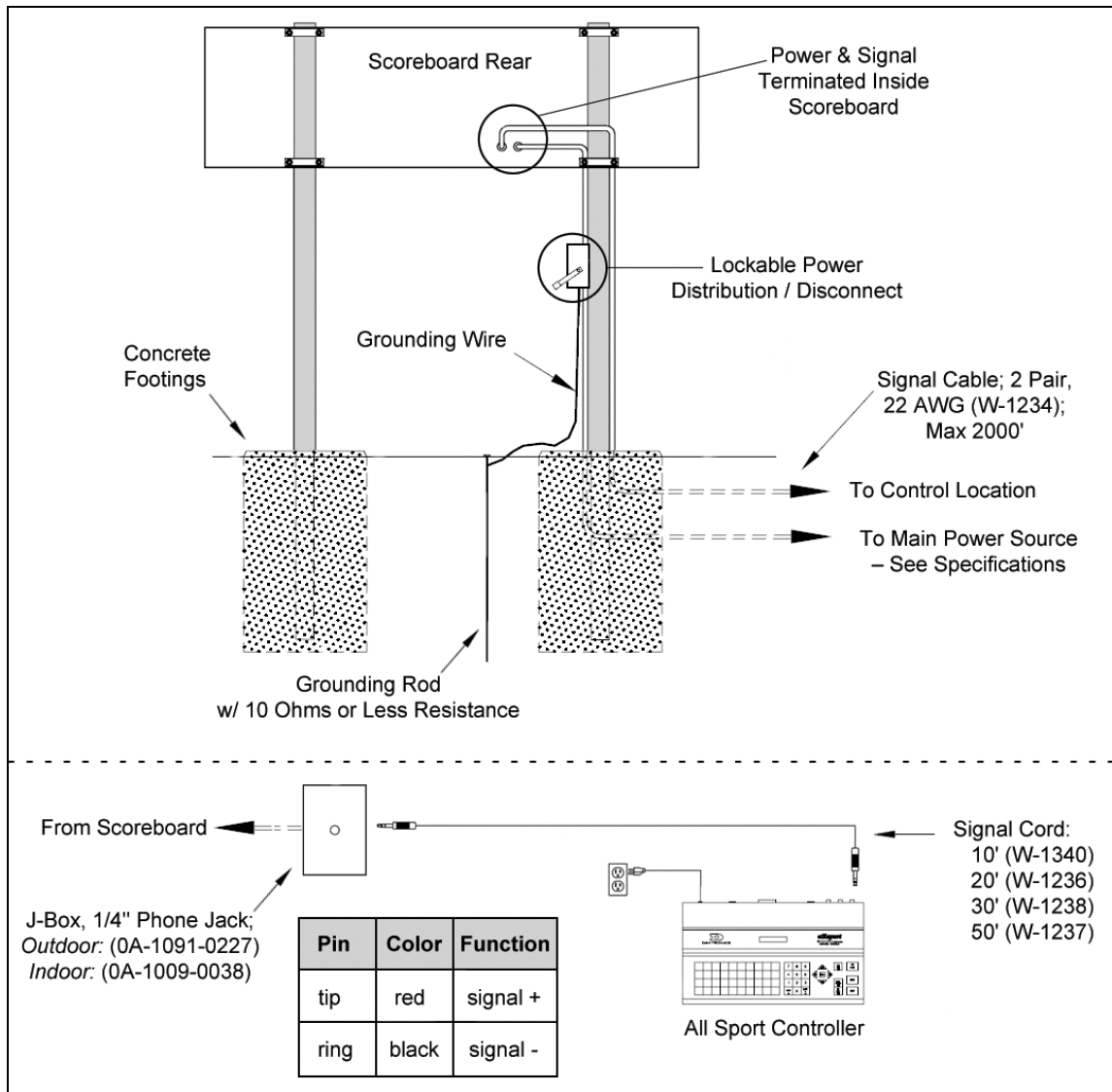


Figure 10: Wired Installation

4.2 Power

Correct power installation is imperative for proper display operation. The subsections that follow give details of display power installation. Only qualified individuals should attempt to complete the electrical installation; untrained personnel should not attempt to install these displays or any of the electrical components. Improper installation could result in serious damage to the equipment or injury to personnel.

Single-court outdoor tennis scoreboards require a dedicated 120 V or 240 V circuit for incoming power (refer to the Specifications in **Section 2**). The display itself has no breakers or fuses.

WARNING: It is critical that 120 V scoreboard circuits be fused at 15 A and that all conductors used must be designed to pass a 15 A current in normal operation. For 240 V scoreboards, consult local electrical codes. Failure to meet wiring and overcurrent protection device requirements will void the scoreboard warranty.

Grounding

The display must be properly grounded according to local and national codes or the warranty will be void. Proper grounding is necessary for reliable equipment operation and protects the equipment from damaging destructive disturbances and lightning.

Daktronics recommends a resistance-to-ground of 10 ohms or less. The electrical contractor performing the electrical installation can verify ground resistance. Daktronics Sales and Service personnel can also provide this service.

The display system must be earth-ground. The material for an earth-ground electrode differs from region to region and may vary according to conditions present at the site. Consult local and national electrical codes.

Daktronics does not recommend using the support structure as an earth-ground electrode; concrete, primer, corrosion, and other factors make the support structure a poor ground.

Note: The support structure may be used as an earth-ground electrode only if designed to do so. A qualified inspector must approve the support structure and grounding methods.

There are two types of power installation: installation with ground and neutral conductors provided, and installation with only a neutral conductor provided. These two power installations differ slightly, as described in the following paragraphs:

Installation with Ground and Neutral Conductors Provided

For this type of installation, the power circuit must contain an isolated earth-ground conductor. In this circumstance, do not connect neutral to ground at the disconnect or at the display as this would violate electrical codes and void the warranty.

Use a disconnect so that all ungrounded lines can be disconnected. The National Electrical Code requires the use of a lockable power disconnect within sight of or at the display.

Installation with Only a Neutral Conductor Provided

Installations where no grounding conductor is provided must comply with Article 250-32 of the National Electrical Code. If the installation in question meets all of the requirements of Article 250-32, the following guidelines must be observed:

- Connect the grounding electrode cable at the local disconnect, never at the display driver/power enclosure.
- Use a disconnect that opens all of the ungrounded phase conductors.

Power Connection

Both power and signal cables are routed into the scoreboard from the rear through two plastic plugs for conduit connection. All power and signal wiring terminates at the master driver enclosure. Note that systems with radio control do not require external signal wiring.

Look for a warning label similar to **Figure 11** to locate the front access panel to the driver enclosure. Remove the screws or loosen the latches to open the access door panel. Remove the metal cover of the driver enclosure to expose the driver components (**Figure 12**).



Figure 11: Power Warning Label

Refer to the component location drawings in **Appendix A** for precise power/signal termination location for each model.

Connect the appropriate wires coming through the rear of the scoreboard to the power terminal block, as shown in **Figure 12**.

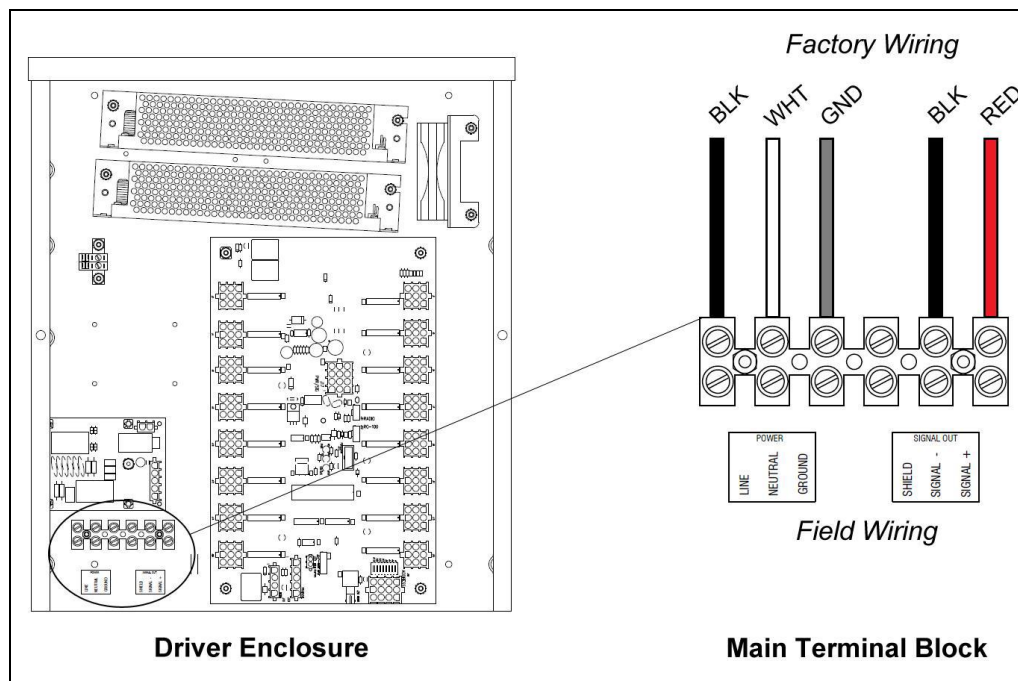


Figure 12: Driver Enclosure & Power Terminal Block

Note: If a power receptacle is needed to operate the control console at the scoreboard for troubleshooting, Daktronics recommends that an installation electrician provides a 120 V outlet close to the disconnect box specifically for this purpose.

4.3 Power-On Self-Test (POST)

The scoreboard performs a self-test each time that power is turned on and the control console is powered off or not attached to the scoreboard. If the control console is attached and powered on, the self-test does not run, and data from the control console is displayed on the scoreboard after a brief period of time. Each scoreboard self-test pattern will vary depending on the scoreboard model, the number of drivers and types of digits. **Figure 13** shows an example of the LED bar test pattern that each digit performs.

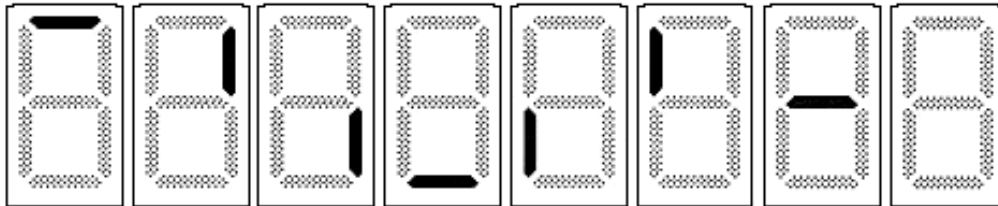


Figure 13: Digit Segment POST

Radio Settings

During the POST, the radio channel settings will be displayed in the game/set score digits. Refer to **Section 5.8** for more information about viewing and changing radio settings.

4.4 Signal Connection

For scoreboards using a wired setup, route signal cable through the conduit knockout on the rear of the scoreboard to the signal surge arrestor card (**Figure 14**), located just above the power termination block in the driver enclosure.

At the SIGNAL IN terminal block, connect red signal wire to positive (+) and black wire to negative (-).

Note: Be sure to properly connect the shield (silver) wire to the SHIELD terminal.

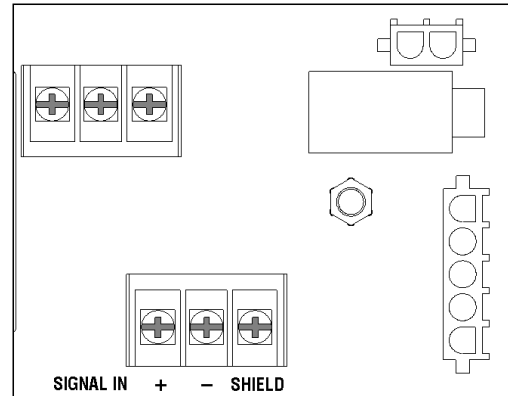


Figure 14: Signal Surge Arrestor Card

For signal cable, Daktronics recommends, as a minimum, single-pair, shielded cable, 22 AWG (part # W-1077). Two-pair shielded cable (part # W-1234) is preferred.

When several single-court scoreboards are used together with a multi-court DakTennis™ scoreboard system, it is possible that signal cable will need to be “daisy-chained” from the SIGNAL OUT terminal block of the first scoreboard to the SIGNAL IN terminal block of the next, and so on until every scoreboard has signal.

Fiber Optic

Another common signal communication method is fiber optic cabling. A minimum cabling of multi-mode, 62.5/125 μm , and 2-core fiber cable is recommended (part # W-1242). See **Figure 15** for the location of the fiber connector on a 16-column driver. This method requires a signal converter between the All Sport console's scoreboard output and the fiber optic cable (not provided by Daktronics).

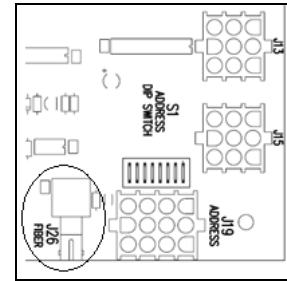


Figure 15: Driver Fiber Connection Location

4.5 Lightning Protection

The use of a disconnect near the scoreboard to completely cut all current-carrying lines significantly protects the circuits against lightning damage. In order for this system to provide protection, the power must be disconnected when the scoreboard is not in use.

The control console should also be disconnected from power and from the signal junction box when the system is not in use. The same surges that may damage the scoreboard's driver can also damage the console's circuitry.

Section 5: 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.

Note: For assistance in the maintenance of team name message centers (TNMCs) or other optional scoreboard message centers, refer to **Section 6** or the service manual that accompanies those units.

5.1 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 7**.

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 240) V AC power (see Section 2).
	No power to console	Ensure the console is plugged into a 120 (or 240) V AC power supply.
		Swap the console with one known to work correctly, and enter the proper sport code and/or radio settings 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 240) 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 5.6).
	No radio signal from console	Cycle power to the scoreboard and watch for radio receiver broadcast/channel settings (see Section 5.8).

Problem	Possible Cause	Solution/Items to Check
		Check that the green POWER and amber RADIO IN RANGE indicators on the radio receiver in the scoreboard light up when the control console is powered on (see Section 5.8). Keep the console between 20 to 1500 feet from the scoreboard.
		Move the console 20-30 feet from the scoreboard and test again. Verify that both the console and scoreboard antennae are securely tightened and in a vertical position.
		Replace the radio receiver.
	No signal to driver	Check that the scoreboard is receiving the correct 120 (or 240) 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 5.6).
		Swap the driver with one known to work correctly and with the same part number to verify the problem. Replace if necessary (Section 5.6).
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 5.6).	
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 1.1).
	Incorrect driver address	Check that the scoreboard driver(s) are set to the correct address(es) (see Section 5.6).
Scoreboard digits light, console works, but no display on scoreboard	No wired signal from console	(See solution on previous page)
	No radio 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 5.6).
Scoreboard works, but some LEDs always stay on	Short in digit, segment, or indicator circuit	Swap the digit/indicator with one known to work correctly to verify the problem. Replace if necessary (see Sections 5.4-5.5).

Problem	Possible Cause	Solution/Items to Check
Scoreboard works, but some LEDs do not light or they blink	Bad connection	Verify the power/signal connector on the back of the digit circuit board is secure (see Section 5.3). Verify power/signal interconnect(s) between scoreboard sections properly connected (see Section 4.4)
	Bad digit or driver	Swap the digit/driver with one known to work correctly to verify the problem. Replace if necessary (see Sections 5.4-5.5 for digits or Section 5.6 for drivers).
Scoreboard works, but some digits do not light	Bad digit or driver	(see solution above)
	Incorrect sport code	(see solution on previous page)
	Incorrect driver address	(see solution on previous page)
	Wrong console controlling scoreboard	Another console's radio signal could be transmitting to the scoreboard. An example would be football and baseball scoreboards that are within 1500 feet of each other (see Section 5.8).
	Radio interference	There may be other radio transmissions in the area that overpower the console. If it is not possible to disable the interfering device, It may be necessary to run a wired signal connection instead.
Scoreboard works, but a certain section of digits do not light	Bad power supply	Swap the power supply with one known to work correctly to verify the problem. Replace if necessary (see Section 5.7).

5.2 Component Locations

Component location varies with each scoreboard model. Refer to the component location drawings in **Appendix A**. Drivers and power and signal components are typically mounted inside the scoreboard behind a digit or access panel. There are several ways to locate the access panels:

Power Warning Label

Look for a power warning label toward the bottom of the access panel (**Figure 11**). This is the location of the master driver. Refer to the component locations drawings to determine the number of drivers for a particular scoreboard model.

Panel Hinges

Access panels typically have raised hinges to allow them to easily swing open.

Conduit Knockouts

Most scoreboards have knockouts for the electrical and signal conduits on the rear that will match up with an access panel on the front. Conduits will only run to the master driver.

5.3 Component Access

For front-access scoreboards, all internal electronic components and digits are reached by opening an access door or a digit panel on the front of the display.

Digit panels are held in place on the scoreboard face by an offset flange across the top and by screws at the bottom, as shown in **Figure 16**.

To open a digit panel:

1. Hold the digit panel in place by putting hand pressure on it and remove the holding screws.
2. Carefully lift the panel away from the scoreboard, sliding it out and down.

Note: If the panel is not held in place when the screws are removed, it could drop and possibly damage LEDs or the digit harness.

With a non-digit access panel, simply remove the top, side and bottom screws holding it in place. Some panels are hinged and swing open when the screws are removed or loosened.

Note: When closing the access panel, make sure all latches/screws are holding the door firmly in place to prevent moisture and debris from entering the scoreboard.

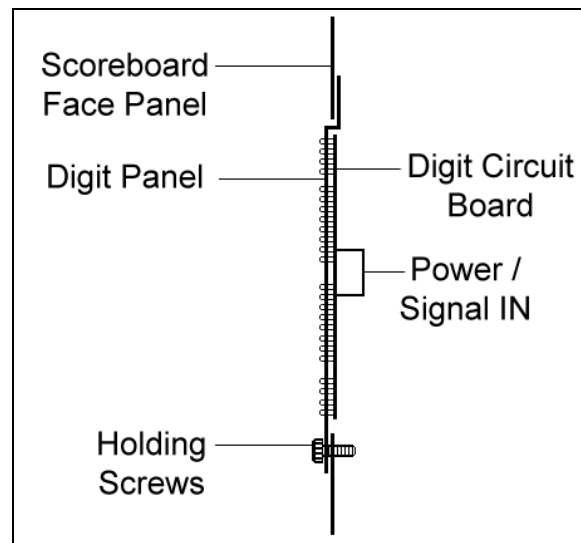


Figure 16: LED Digit Panel

5.4 Replacing Digits

LEDs are embedded in a circuit board that is mounted to the back of the digit panel, as shown in **Figure 17**. Do not attempt to remove individual LEDs. In the case of a malfunctioning LED or digit segment, replace the entire digit circuit board.

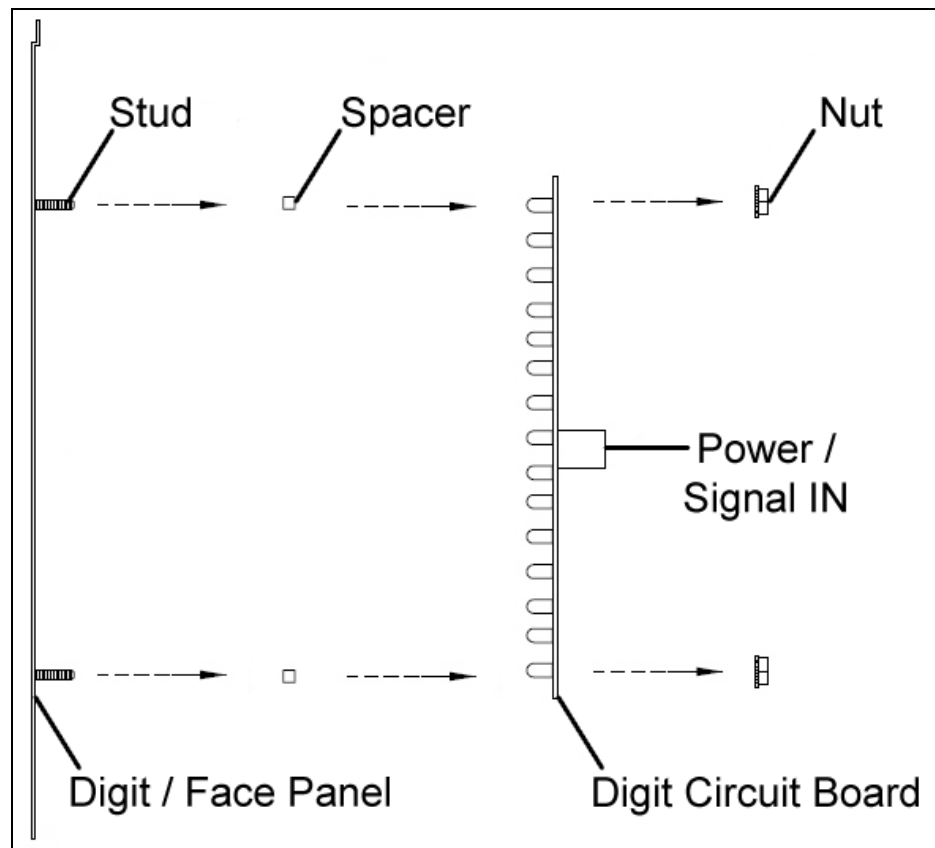


Figure 17: Digit Assembly

To replace a digit circuit board:

1. Open the digit panel as described in **Section 5.3**.
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 standoff studs.
4. Position a new digit over the studs, making sure the rubber side of the rubber-backed spacer is facing the digit circuit board.
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 digit panel, then power up and test the scoreboard to see if changing the digit has resolved the problem.

5.5 Replacing Indicators

As with smaller digits, indicator circuit boards are mounted to the back of the digit panel. Do not attempt to remove individual LEDs.

To replace an indicator:

1. Open the digit panel as described in **Section 5.3**.
2. Disconnect the power/signal connectors from the back of the indicator by squeezing together the locking tabs and pulling the connector free.
3. Indicators are secured to the inside of the panel with fixed machine screws, spacers, and push nuts. The push nuts can be removed in several ways, but a $\frac{9}{32}$ " nut driver is recommended. Remove the nuts and lift the circuit board off the standoff studs.
4. Position a new indicator over the screws and tighten the nuts.
5. 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.

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

5.6 LED Drivers

The LED drivers perform the task of switching digits on and off within the scoreboard. LED drivers are located inside of a driver enclosure. Refer to **Figure 18** to view the location and components of a driver enclosure. Driver component arrangement may vary by scoreboard model.

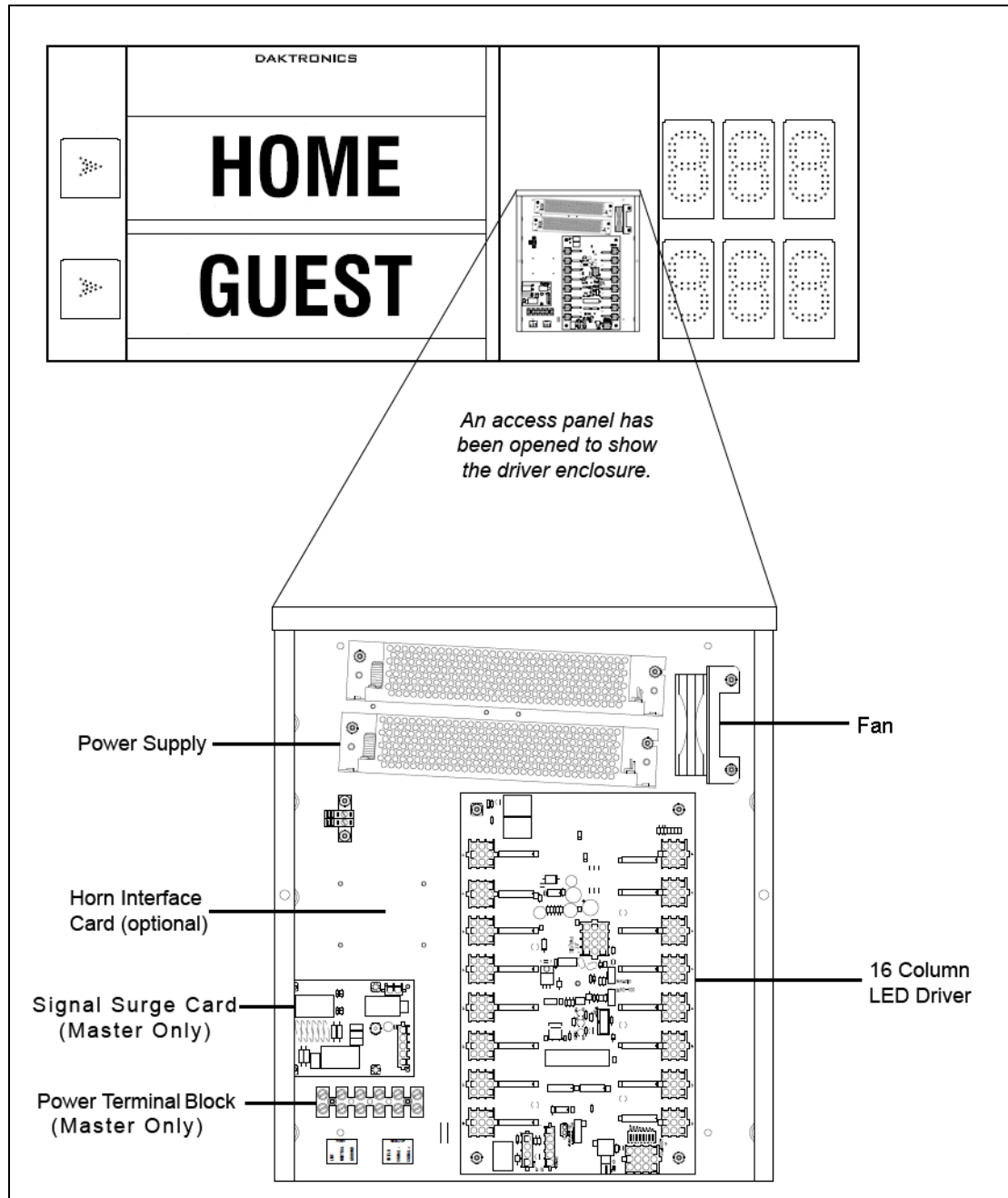


Figure 18: Driver Enclosure Location & Components

Refer to the component location drawings in **Appendix A** to determine the number and location of all drivers in a particular scoreboard model. Also refer to **Section 5.10** to locate the appropriate schematic drawings for the number of drivers in the model.

When troubleshooting driver problems, three LEDs labeled **DS1**, **DS2**, and **DS3** in **Figure 19**, 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	DS3 will be blinking at one second intervals to indicate the driver is running.

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

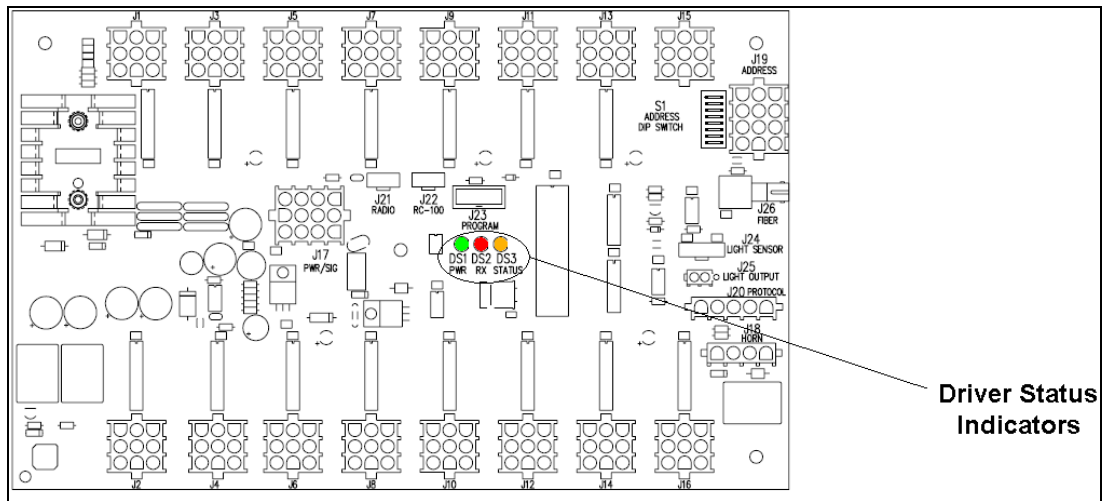


Figure 19: Driver Status Indicators

Replacing a Driver

Drivers are typically mounted inside the scoreboard and immediately behind a digit, but location and mounting varies with the model of the scoreboard. Refer to **Section 5.2** to locate the driver enclosure.

To replace a driver:

1. Open the digit panel as described in **Section 5.3**.
2. Loosen the wing nuts to remove metal cover from the driver enclosure.
3. 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.

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

7. Reconnect all power/signal connectors.

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

8. Ensure the driver is set to the correct address (refer to **Setting the Driver Address**).
9. Close and secure the digit 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. Addresses are set through the S1 dip switch on the driver (**Figure 20**) using a pen or small, pointed object.

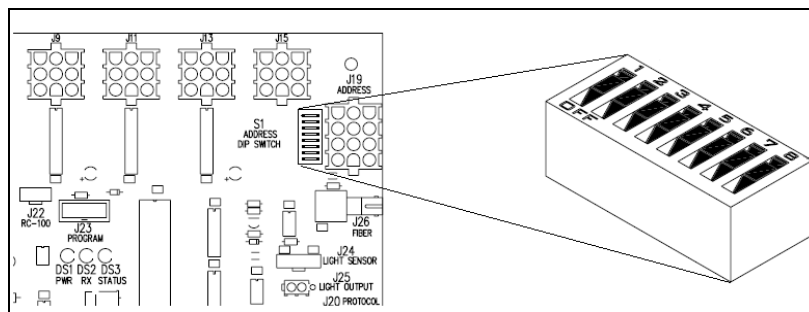


Figure 20: Driver Address Dip Switch

Refer to the specifications table in **Section 2** to determine the correct address setting of the driver(s) in a particular scoreboard model and see **Drawing A-1054089** in **Appendix A** for addressing information for up to 12 courts, including TNMCs.

5.7 Power Supplies

Scoreboards with 16-column driver enclosures require a dual 150 W power supply assembly. If a certain group of digits is not lighting up, the power supply they are all connected to may need to be replaced.

Replacing a Power Supply

1. Use the component location drawings listed in **Appendix A** to locate the enclosure.
2. Open an access panel as described in **Section 5.3**.
3. Loosen the wing nuts to remove metal cover from the enclosure.
4. Locate the power supply (**Figure 18**) and disconnect all wires connected to it.
5. Use a 9/32" nut driver to remove the hardware securing the power supply.
6. Fasten the new power supply in place and reconnect all wires.
7. Close and secure the access panel, then power up and test the scoreboard to see if changing the power supply has resolved the problem.

5.8 Radio Connections

To determine the settings for radio connections between the scoreboard and control console:

1. Power off any radio-equipped consoles in the area.
2. Cycle power to the scoreboard, and watch for the radio settings (**Figure 21**).

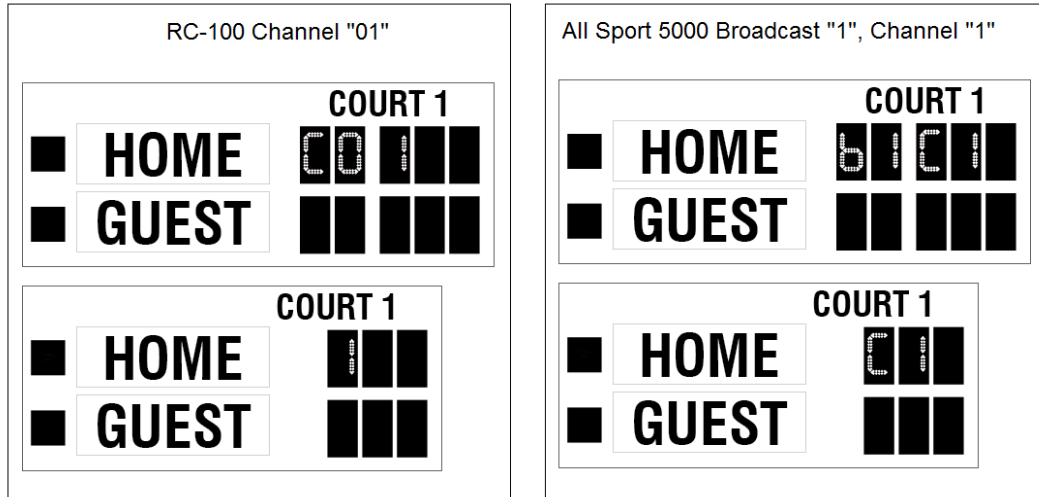


Figure 21: Radio Settings in Game/Set Digits

- When using the RC-100 controller, the scoreboard will display “CXX”, where the XX is a channel from 01-15. Scoreboards that do not have game scores will only display the second digit of the channel number.
- When using the All Sport 5000 controller, the scoreboard will display “bX CY” where X is the Broadcast group number and Y is the Channel number. Scoreboards that do not have game scores will only display the channel number.

Note: If these settings do not appear, the radio receiver(s) may need to be repaired/replaced. The TN-2605 is unable to display radio settings.

These values must match the settings within the console. Refer to the appropriate control console manual listed in **Section 1.1**.

Radio Interference

If it has been determined that a nearby scoreboard's radio signal is interfering, the settings of the wireless base station or radio receiver inside the scoreboard(s) must be changed.

1. To locate the radio receiver or base station, look for the black antenna sticking out the front of the scoreboard (**Figure 22**). Refer to the component location drawings in **Appendix A** for exact location of the radio for a particular scoreboard.

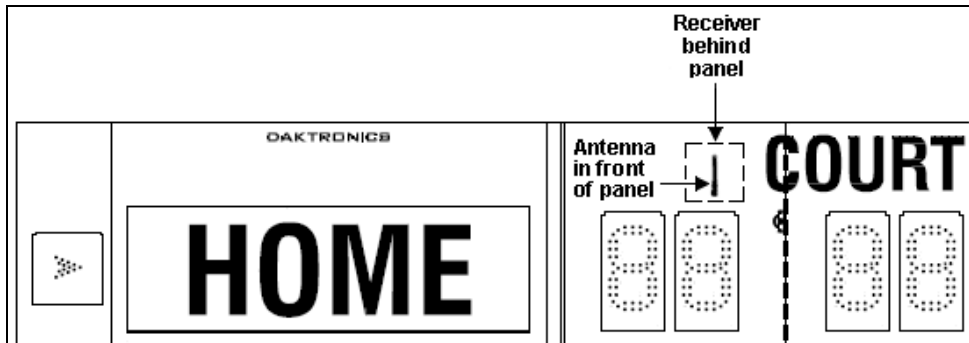


Figure 22: Radio Receiver Location

2. Open the access panel to which the receiver is attached as described in **Section 5.3**.

The channel selection process varies depending on whether the scoreboard is equipped with a base station (RC-100) or a radio receiver (All Sport 5000).

Base Station (RC-100)

1. Use a small flathead screwdriver to set the S1 switch (**Figure 23**) to the desired channel (1-15).
2. Securely close the scoreboard access panel.
3. Enter the correct channel setting and sport code into the RC-100 handheld controller to test the radio connection.

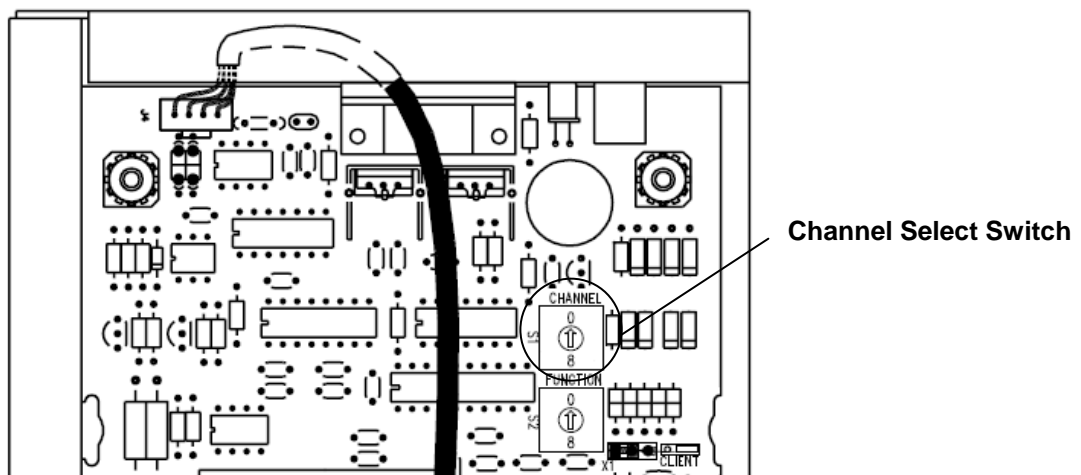


Figure 23: Channel Select Switch (Internal Receiver)

For more information, refer to the **Remote Control System RC-100 All Sport Operation Manual (ED-15133)**, available online at www.daktronics.com/manuals.

Radio Receiver (All Sport 5000)

1. The radio receiver has a plastic cover with a window to view status indicators (**Figure 24**).

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

2. Remove the four screws in each corner using a #2 Philips screwdriver and lift off the cover.
3. The process of changing the radio settings depends on the generation of the radio. Refer to the instructions below and **Figure 25**.

- **Gen V (blue label):** Use a small flathead screwdriver to set the CHAN switch to a new channel (1-8). Move the jumper wire on the J4 or J5 BCAST jacks to a new broadcast group (1-4) as needed.
- **Gen VI (gray label):** Use a small flathead screwdriver to set the CHAN and BCAST switches to a new channel and broadcast group (1-8) as needed. Be sure to always leave FUNC set to "1".

4. Screw the cover back on and securely close the access panel.
5. Enter the correct sport code and new radio settings into the console to test the radio control (refer to the appropriate control console manual listed in **Section 1.1**).

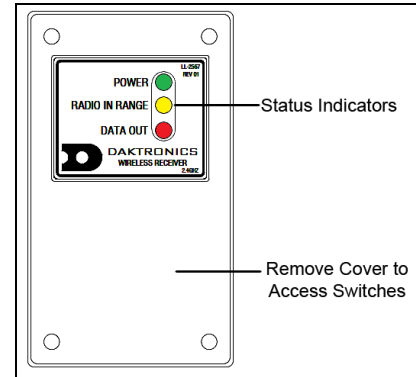


Figure 24: Radio Receiver w/ Cover

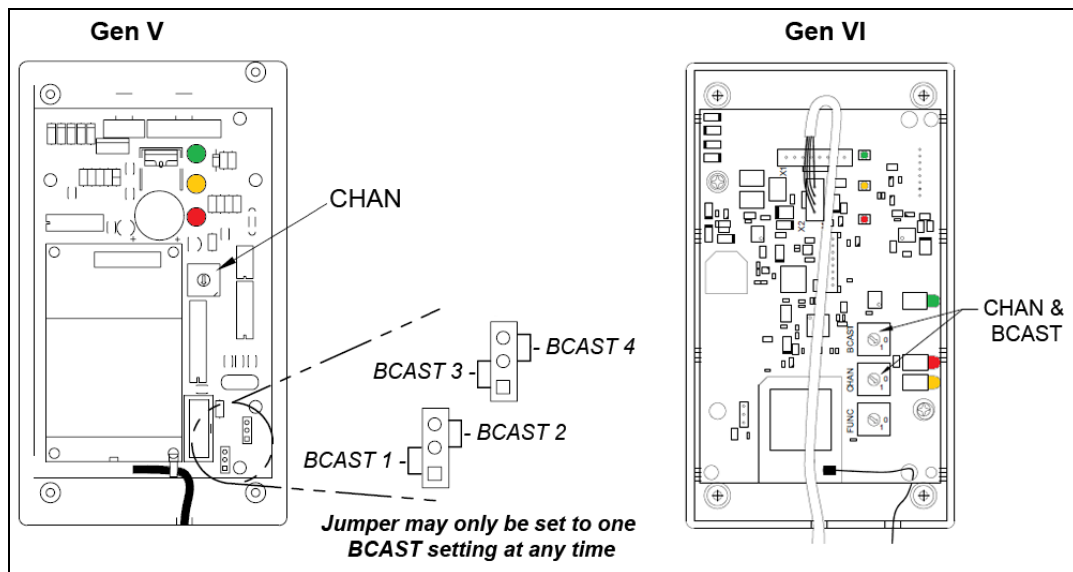


Figure 25: Radio Receiver Switches

For more information, refer to the **Gen V Radio Installation Manual (ED-13831)** or the **Gen VI Radio Installation Manual (DD2362277)**, available online at www.daktronics.com/manuals.

5.9 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 component location 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.

5.10 Schematics

For advanced scoreboard troubleshooting and repair, it may be necessary to consult the schematic drawings. These drawings, located in **Appendix A**, show detailed power and signal wiring diagrams of internal display components such as drivers and transformers as well as optional components like TNMCs and radio receivers. Use the following tables to determine the driver schematics for a particular model:

16 Column Driver (x 1)

Model	Drawing Number
TN-2016 TN-2601	A-285779
TN-2603 TN-2605	A-752372
TN-2604 TN-2607	A-179790
TN-2606	To Be Determined

5.11 Replacement Parts

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

Description	Location	Daktronics Part #
J-Box, 1/4" phone, indoor	Signal	0A-1009-0038
J-Box, 1/4" phone, outdoor	Signal	0A-1091-0227
Signal surge board	Driver enclosure	0P-1110-0011
RC-100 Handheld Controller	Signal	0A-1110-0053
RC-100 Base Station, Scoreboard Receiver	Signal	0A-1110-0035
RC-100 Base Station, Serial COM	Signal	0A-1110-0037
Digit, 15", 7-seg outdoor LED, red	Scoreboard	0P-1192-0200
Digit, 15", 7-seg outdoor LED, amber	Scoreboard	0P-1192-0214
3" arrow, red	Scoreboard	0P-1192-0249
3" arrow, amber	Scoreboard	0P-1192-0250

Description	Location	Daktronics Part #
Digit, 10" 7-seg outdoor LED, red	Scoreboard	0P-1192-0255
Digit, 10" 7-seg outdoor LED, amber	Scoreboard	0P-1192-0256
Digit, 5", 7-seg outdoor LED, red	Scoreboard	0P-1192-0284
Digit, 5", 7-seg outdoor LED, amber	Scoreboard	0P-1192-0285
Driver, 16 col, outdoor, LED	Driver enclosure	0P-1192-0383
Power supply, 24 V, 150W (120 V AC)	Driver enclosure	A-1720
Power Supply; 24 V, 150W (240 V AC)	Driver enclosure	A-1733
Fan, 32 cfm, 24 V DC, 3.15 sq. in	Driver enclosure	B-1030
Plug, 1/4" phone	Signal	P-1003
Signal cord; 1/4" phone 20'	Signal	W-1236
Signal cord; 1/4" phone 50'	Signal	W-1237
Signal cord; 1/4" phone 30'	Signal	W-1238
Signal cord; 1/4" phone 10'	Signal	W-1340

See **Section 7** for information on Daktronics Exchange and Repair and Return program.

Section 6: Team Name Message Center Troubleshooting & Maintenance

IMPORTANT NOTES:

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

6.1 Display Overview

Team name message centers (TNMCs) use amber, red, or white LEDs to display Home and Guest team names or messages of about 15 characters in place of vinyl captions (**Figure 26**). TNMCs are available with three different pixel dimensions: 8x32, 8x48, and 8x64. Characters are shown on one line using single- or double-stroke fonts up to 10" high (254 mm) and 14" (355 mm) for 34 mm and 46 mm TNMC units, respectively.



Figure 26: Tennis Scoreboard with Team Name Message Centers

Matrix Size	# of modules	Pixel Spacing	Active Display Area	Weight*
8x32	4	34 mm (1.3")	10.6" x 42.5" (269 mm x 1080 mm)	40 lb (18 kg)
8x48	6	34 mm (1.3")	10.6" x 63.8" (269 mm x 1621 mm)	60 lb (27 kg)
8x64	8	34 mm (1.3")	10.6" x 85.1" (269 mm x 2162 mm)	80 lb (36 kg)
8x32	4	46 mm (1.8")	14.4" x 57.6" (366 mm x 1463 mm)	50 lb (23 kg)
8x48	6	46 mm (1.8")	14.4" x 86.4" (366 mm x 2195 mm)	70 lb (32 kg)

* TNMCs are typically installed in pairs; double this value to find the total added weight.

6.2 Initialization Information at Startup

Every time the display is powered up and there is no All Sport[®] signal present, the display will run through an initialization process, during which it will test all LEDs and addresses. First, the message center will display the proper address number.

If the entire display fails at startup, power may not be properly connected, or the address setting may not be correct on the display driver. Check both in the event of a failure.

6.3 TNMC Troubleshooting Table

The table below lists potential problems with the display 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 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 7**.

Symptom/Condition	Possible Remedy
One or more LEDs on a single module fails to light	Check/replace the ribbon cables on the module.
	Replace the module (see Section 6.7).
One or more LEDs on a single module fails to turn off	Check/replace the ribbon cables on module.
	Replace the module (see Section 6.7).
A section of the display not working; section extends all the way to the right side of the display	Check/replace the ribbon cables running to the first module that is not working.
	Replace the first module/driver on the left side of the first module that is not working (see Section 6.7).
	Replace the second module that is not working (see Section 6.7).
	Replace the power supply assembly on the first module that is not working (see Section 6.8).
One row of modules does not work or is garbled	Replace the first module (see Section 6.7).
	Replace the display driver (see Section 6.6).
A group of modules that share the same power supply assembly fails to work	Replace the power supply assembly (see Section 6.8).
Entire display fails to work	Check for proper line voltage into the power termination panel (see Section 4.2).
	Check/replace the ribbon cable from the display driver to the modules.
	Check the voltage settings on the power supplies.
	Check/replace the signal cable to the driver.
	Repair/replace the driver (see Section 6.6).

6.4 Power & Signal Summary

Reference Drawings:

Schematic, OD, 3500 TNMC, 34mm, Red/Amb	Drawing B-783938
Schematic, OD, 3500 TNMC, 34mm, Wht.....	Drawing B-906385
Schematic, OD, 3500, 46mm TNMC, Red/Amb	Drawing B-923941
Schematic, OD, 3500 TNMC, 46mm, Wht.....	Drawing B-1036125

Refer to **Drawings B-783938, B-906385, B-923941, or B-1036125** for detailed schematics about TNMC power and signal routing.

TNMC signal routing can be summarized as follows:

1. Data from the All Sport[®] controller travels via cable harness into the scoreboard.
2. The signal travels to the driver/power enclosure through the J1 connector on the signal surge arrestor card.
3. Data exits at J42 via current loop harness, and connects with P43 at the TNMC driver assembly. A power/signal interconnect (ribbon cable) carries the signal to the first module, and the signal relays from module to module, in daisy-chain style, until it reaches the last module on the message center.

TNMC power routing can be summarized as follows:

1. Incoming power terminates at the terminal block in the scoreboard driver enclosure. Using the same harness and J42-P43 connections as signal, power is then routed to the TNMC driver where it then travels to the power supply assembly.
2. From the power supply assembly, power is relayed to the first module, and then from module to module.
3. The modules and TNMC driver draw their power directly from the power supply assemblies (3-12.5 VDC). The power supply voltage is set by a resistor loaded on the module (via J4).

6.5 Component Locations & Access

Reference Drawings:

- Component Loc.; 34mm Red/Amb/Wht LED TNMC G4**Drawing B-975100**
- Component Loc.; 46mm Red/Amb/Wht LED TNMC G4**Drawing B-975635**

Figure 27 illustrates the component locations of an 8x48-34mm display with all modules removed. This layout will be similar for 8x32-34mm cabinets as well. The 8x64-34mm cabinets require an additional power supply behind the sixth module. Refer to **Drawing B-975100**.

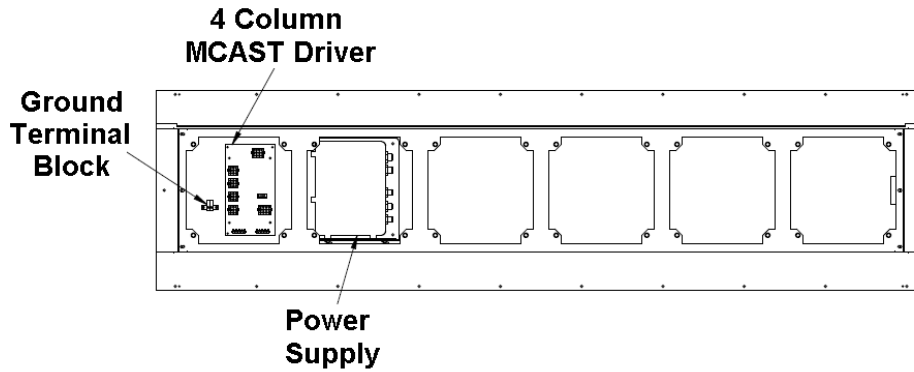


Figure 27: 8x48-34 Display with Modules Removed

Figure 28 illustrates the component locations of an 8x48-46mm display, and this layout will also be similar for 8x32-46mm cabinets. Note that 8x48-46mm displays featuring white LEDs require an additional power supply behind the fourth module. Refer to **Drawing B-975635**.

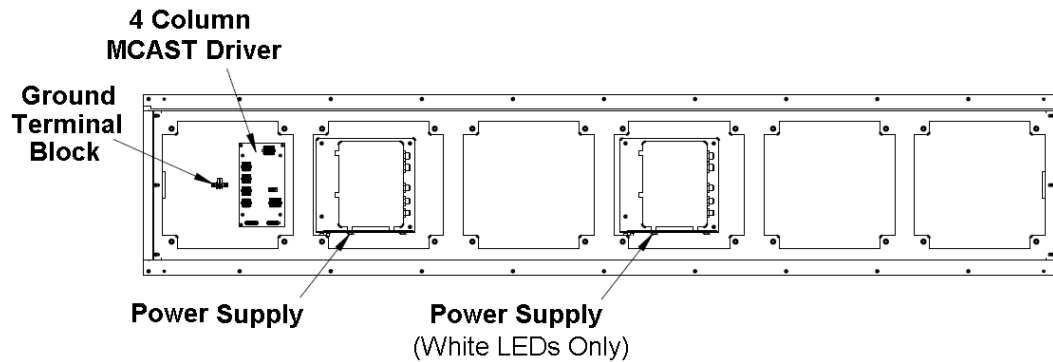


Figure 28: 8x48-46 Display with Modules Removed

Standard Daktronics outdoor LED scoreboards are typically front-accessible, but some models may be ordered with rear service access. For that reason, TNMCs have been designed so that they may be accessed from both the front and rear.

Front Access

1. Loosen the latch fasteners on the front face the LED module using a 1/8" hex wrench. One latch fastener is centered below the top row of pixels and one is centered above the bottom row (Figure 29).
2. Turn each fastener a quarter-turn counter-clockwise.

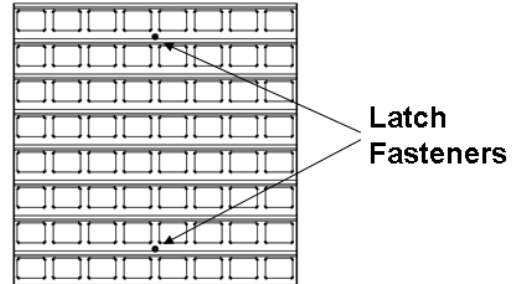


Figure 29: Module, Front View

Note: Do not over turn the fastener!

3. Carefully remove the module from the face of the display.

Rear Access

1. To access the internal components from the rear, remove the appropriate rear-access panel from the display cabinet by loosening all four of the screws.
2. Slide the access panel sideways to the larger part of the keyhole and carefully lift it off the display cabinet.

Note: Be careful when removing and handling the access panels as internal display components may still be attached to them.

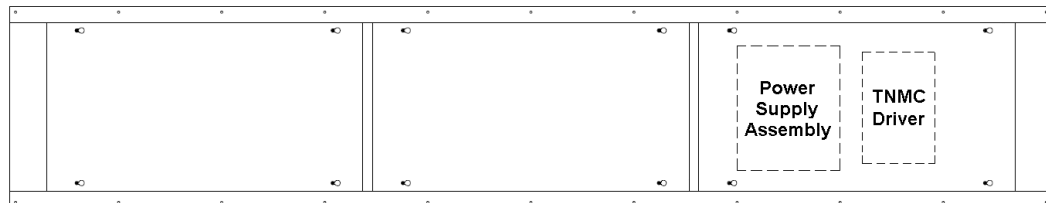


Figure 30: Display Cabinet Rear Access

The display driver and primary power supply will always be located behind the first access panel on the right, when viewing the display from behind. Any additional power supplies are noted in the appropriate component location drawings.

6.6 TNMC Drivers

Reference Drawings:

Specifications; Driver, MCAST, 4 Col.....	Drawing A-793970
Address Details; Outdoor Tennis Scoreboards.....	Drawing A-1054089

The display driver receives signal from the control console via a signal surge arrestor card and sends data to the modules. Refer to **Section 6.4** for more information on signal routing. The driver itself is detailed in **Drawing A-793970** in **Appendix A**. **Figure 31** illustrates some of the primary jacks and switches on the 4 Column MCAST display driver.

The S2 DIP switch is the component for setting the address (switches #1-4). With switches 1-4 off, the address setting for a TNMC is preset at "221". Multi-court scoreboards (and single-court scoreboards controlled by DakTennis) with TNMCs will require different addresses. Refer to **Drawing A-1054089** in **Appendix A**.

Note that the S2 DIP switch also controls Home and Guest display. When the #5 switch is ON, the TNMC sends guest team information to the matrix display. In the opposite message center, the switch would be set to OFF, and home information would be displayed.

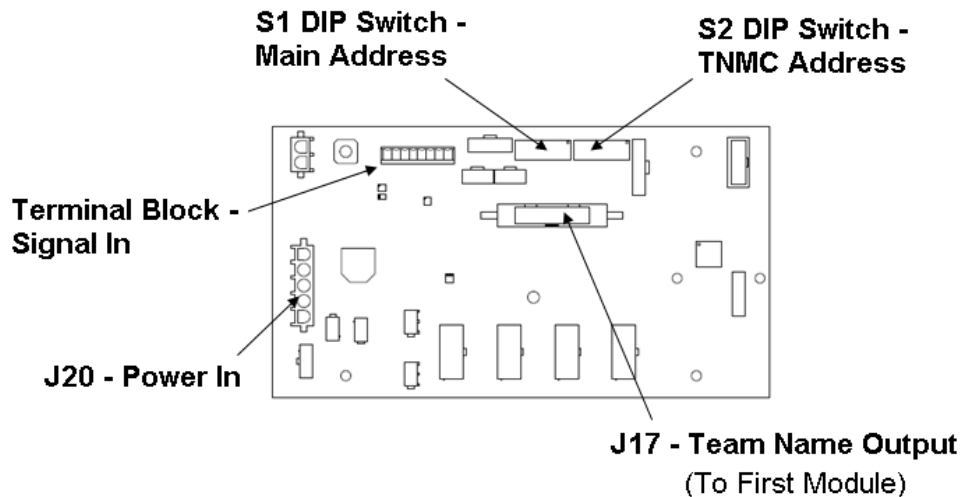


Figure 31: 4 Column MCAST Driver

Diagnostic LEDs

The following table explains the functions of the primary diagnostic LEDs on the 4 Column MCAST drivers:

LED Name	Color	Illumination Summary
(CL) RX	Red	Steady on or blinking when the driver is receiving signal and off when there is no signal
(CL) TX	Green	Steady on or blinking when the driver is transmitting and off when there is no signal
Power	Green	Steady on to indicate the driver has power
Status	Amber	Blinking to indicate driver is running

Replacing a Driver

1. Access the internal components using the appropriate **Front/Rear Access** method described in **Section 6.5**.
2. Disconnect all power and signal 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 a driver.

3. Remove the four nuts holding the driver in place.
4. Position a new driver over the screws and tighten the nuts.
5. Reconnect all power/signal connectors.
6. Ensure the driver is set to the correct address.
7. Power up and test the scoreboard/display to see if the problem has been resolved.

6.7 Modules

Each module assembly is made up of a module housing (containing LEDs and the driver) and a louver assembly. Individual components such as louvers can be removed for service, but Daktronics recommends that the module be kept intact and that the entire assembly be sent in for repair or replacement.

Replacing Modules

To replace a module from the front:

1. Follow the steps in the **Front Access** method described in **Section 6.5**.
2. Carefully disconnect all power and signal cables. It may be helpful to label the cables to know which cable goes to which connector when reattaching.
3. Position a new module on the front of the display frame and reconnect all power and signal cables.
4. Re-latch the fasteners.
5. Power up and test the scoreboard/display to see if the problem has been resolved.

To replace a module from the rear:

1. Follow the steps in the **Rear Access** method described in **Section 6.5**.
2. Use a 1/8" hex wrench to loosen the latch fastener assembly (**Figure 32**). Turn each fastener a quarter-turn clockwise.

Note: Do not over turn the fastener!

3. While holding onto the module, push it out and turn it in such a manner (generally a sideways, diagonal turn) that it can be pulled back through the frame opening.
4. Carefully disconnect all power and signal cables. It may be helpful to label the cables to know which cable goes to which connector when reattaching.
5. Reconnect all power and signal cables to the new module and push it back through and out the front of the display frame.
6. Re-latch the fasteners.
7. Power up and test the scoreboard/display to see if the problem has been resolved.

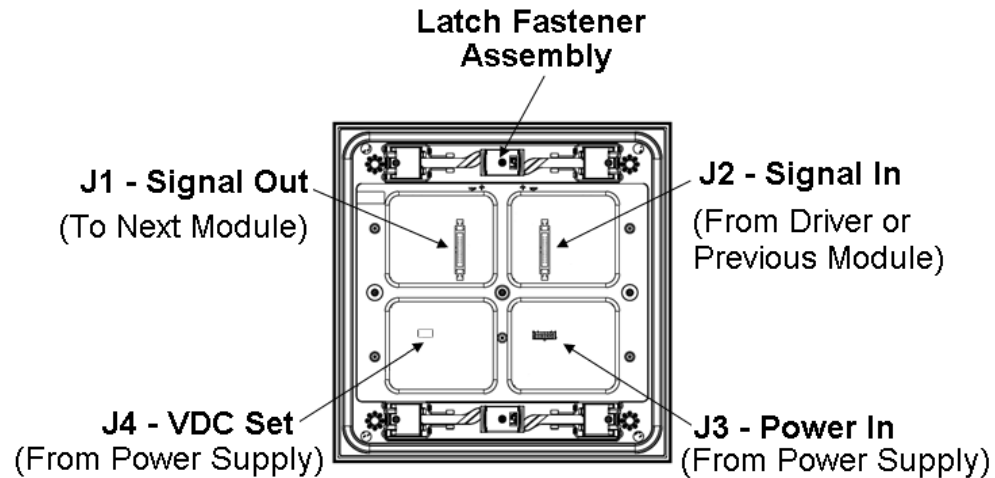


Figure 32: Module, Rear View

Weather-stripping

To ensure that the display is waterproof, weather-stripping has been installed around each module. It is important that the weather-stripping is attached properly at all times, or water may leak into the display and damage the components.

When installing a new module, take note of the following points:

- The weather-stripping on the back edge of the module must be intact and in good condition to prevent water from seeping into the display.
- The module latches must be fully engaged to create a watertight seal around the edge of the module. The module should be firmly seated against the display when the latches are fully engaged.

6.8 Power Supplies

Power supply configurations will vary depending on the number and/or color of modules.

Replacing a Power Supply

To remove a power supply from the display:

1. Access the internal components using the appropriate **Front/Rear Access** method described in **Section 6.5**.
2. Disconnect all the wires connected to the power supply.
3. Loosen the screw securing the power supply and slide it out of the display cabinet.
4. Fasten the new power supply in place and reconnect all wires.
5. Power up and test the scoreboard/display to see if the problem has been resolved.

6.9 TNMC Maintenance

Complete a yearly inspection to maintain safe and dependable display operation. This inspection should address the following issues:

- **Loose Hardware:** Verify that fasteners, such as bolts and rivets, have not come loose. Check and tighten or replace fasteners as required.
- **Excessive Dust Buildup:** It may be necessary to occasionally vacuum the inside of the display cabinet to remove dust/dirt buildup that may interfere with airflow.
- **Water Intrusion – Water stain marks:** Water can enter the display where weather-stripping has come loose or deteriorated; where fasteners have come loose, allowing gaps in the panels; or where moisture may be entering around hardware. Check electronic components for corrosion.
- **Corrosion:** Check the paint, and look for possible corrosion, especially at footings, structural tie points, and ground rods and other types of grounding electrodes.

Note: If any of the preceding conditions are discovered, make the necessary repairs or take corrective action immediately.

6.10 Replacement Parts List

The following table contains TNMC components that may have to be replaced. Many of the components within the display itself have attached part number labels.

Part Description	Part Number
Module; 8X8-34, Red	0A-1208-5005
Module; 8X8-34, Amber	0A-1208-5008
Module; 8X8-34, White	0A-1208-5004
Module; 8X8-46, Red	0A-1541-5008
Module; 8X8-46, Amber	0A-1541-5009
Module; 8X8-46, White	0A-1541-5006
Driver; MCAST, 4 Column	0P-1388-0201
Power Supply; 3-6.5V, 90-264V AC (<i>all 34mm LED colors, amber 46mm & red 46mm</i>)	A-2307
Power Supply; 8.5-12.5V, 90-264V AC (<i>white 46mm</i>)	A-2481
Cable; 20 pos, Ribbon, 36"	W-1495
Cable; 20 pos, Ribbon, 18"	W-1387
Electrical contact lubricant (CaiLube®)	CH-1019

See **Section 7** for information on Daktronics Exchange and Repair and Return program.

Section 7: Daktronics Exchange and Repair & Return Programs

7.1 Exchange Program

The Daktronics Exchange Program is a service for quickly 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 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: _____
Job/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 (including 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 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. The defective or unused parts must be returned to Daktronics within 5 weeks of initial order shipment.

If any part is not returned within five (5) weeks, a non-refundable invoice will be presented to the customer for the costs of replenishing the exchange parts inventory with a new 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.

7.2 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.
Fax: 605-697-4444
2. **Receive a case 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 case number
 - a clear description of symptoms

Shipping Address

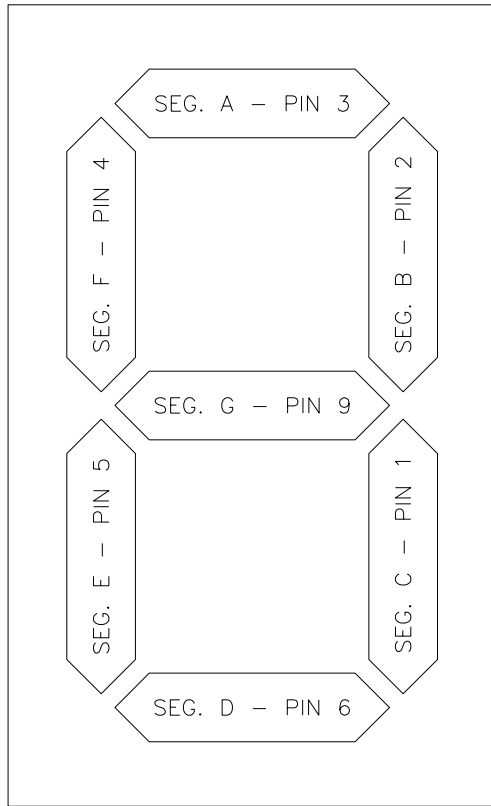
Daktronics Customer Service
[Case #]
201 Daktronics Drive, Dock E
Brookings, SD 57006

7.3 Daktronics Warranty and Limitation of Liability

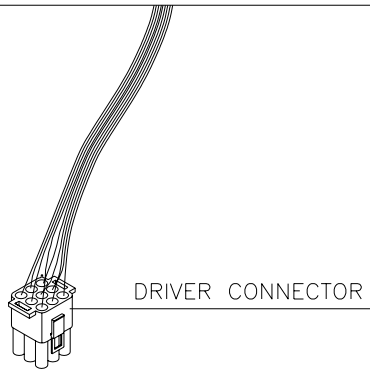
The Daktronics Warranty and Limitation of Liability is located in **Appendix B**. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

Appendix A: Reference Drawings

<i>Drawing Title</i>	<i>Drawing Number</i>
Segmentation, 7 Segment Bar Digit	A-38532
Ad Panel Mounting.....	A-52187
Scoreboard Mounting	A-55101
Beam Mounting Procedure; TN-2016-11.....	A-175677
Beam Mounting; Side View, TN-2016-11	A-175696
Beam and Footing Recommendations; TN-2016-11	A-175784
System Riser; Tennis; Single Court w/ TNMC, AS 5000	A-177098
Schematic; GEN III & IV OD LED, 1 DRV w/TNMC	A-179790
Scoreboard Mtg; Scoreboard with Spacers	A-182909
Component Locations; TN-2016-11, G3.....	A-195593
System Riser: Tennis; Indoor/Outdoor Single Court, RC-100	A-252412
Schematic: GEN IV Outdoor LED- 16 Col Driver.....	A-285779
Specifications; LED Driver IV, 16 Col	A-288137
Shop DWG; TN-2604 -(11/21) W/ ID Panels.....	B-297728
Component Location; TN-2601-11/-21, G4	A-300388
Component Location; TN-2603-11/-21- G4	A-325294
Component Location; TN-2604-11/-21- G4	A-325295
Component Location; TN-2605.....	A-583550
Schematic; 1 DRVR, TNMC, Gen IV	A-752372
Schematic, OD, 3500 TNMC, 34mm, Red/Amb	B-783938
Specifications; Driver, MCAST, 4 Col	A-793970
Component Location; TN-2607-11/-21, G4	A-839312
Schematic, OD, 3500 TMNC, 34mm, Wht	B-906385
Schematic, OD, 3500, 46mm TNMC, Red/Amb.....	B-923941
Component Loc.; 34mm Red/Amb/Wht LED TNMC G4	B-975100
Component Loc.; 46mm Red/Amb/Wht LED TNMC G4	B-975635
Schematic, OD, 3500 TNMC, 46mm, Wht	B-1036125
Address Details; Outdoor Tennis Scoreboards	A-1054089

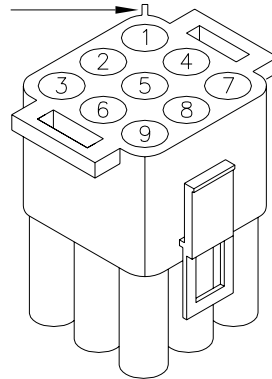


7 SEGMENT BAR DIGIT
FRONT VIEW



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



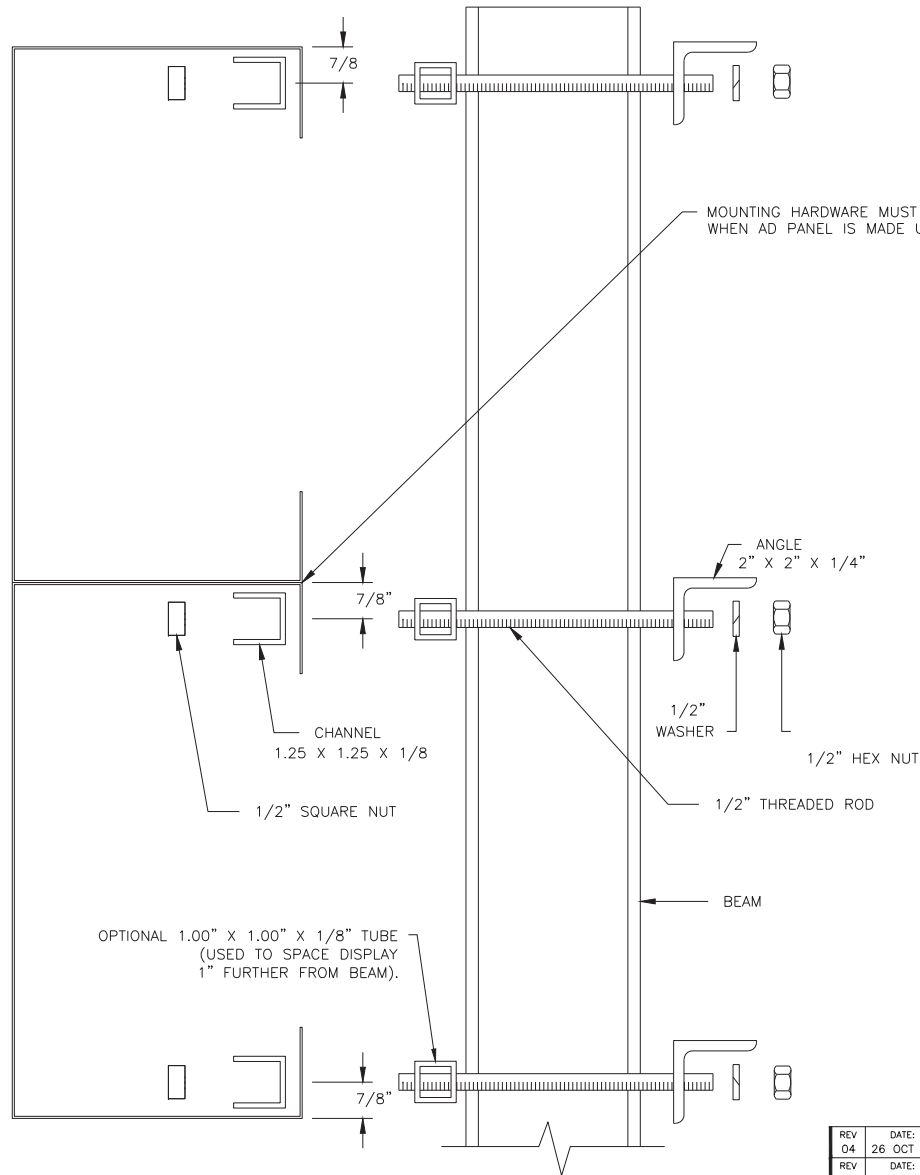
NOTE: "H" SEGMENT, GRAY WIRE IS NOT USED ON 7 SEGMENT BAR DIGIT.

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

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: 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	



MOUNTING HARDWARE MUST BE USED AT ALL AD PANEL SPLICES WHEN AD PANEL IS MADE UP OF MULTIPLE SECTIONS

MOUNTING INSTRUCTIONS:

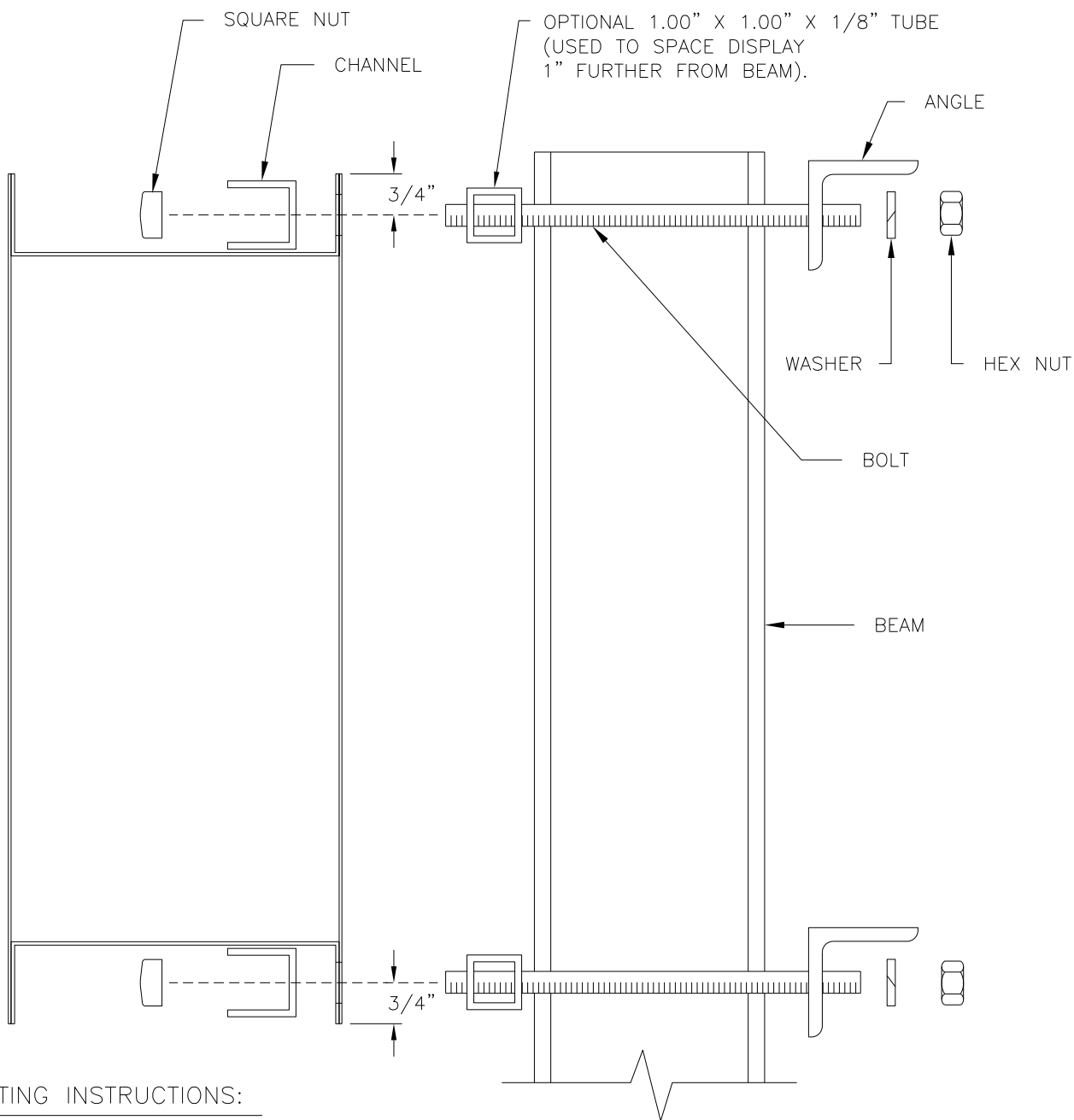
1. USE THE MOUNTING CHANNEL TO DETERMINE WHICH HOLE COMBINATION SHOULD BE USED. BE SURE TO KEEP THE BOLTS AS CLOSE TO THE BEAM AS POSSIBLE.
2. USING THE MOUNTING CHANNEL AS A TEMPLATE, DRILL 9/16" HOLES IN THE UPPER AND LOWER REAR FLANGE OF AD PANEL WHERE THE SUPPORTS WILL GO.
3. PLACE SQUARE NUTS INSIDE CHANNEL AND THREAD BOLTS THROUGH.
4. LIFT AD PANEL INTO POSITION WITH BOLTS STILL IN PLACE.
5. PLACE MOUNTING ANGLES OVER EACH PAIR OF BOLTS AND SECURE WITH LOCK WASHERS AND HEX NUTS.
6. WHEN PANEL IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN HEX NUTS FIRMLY.

MOUNTING INSTRUCTIONS: FOR AD PANELS WITH BACKSHEETS.

1. USE THE MOUNTING CHANNEL TO DETERMINE WHICH HOLE COMBINATION SHOULD BE USED. BE SURE TO KEEP THE BOLTS AS CLOSE TO THE BEAM AS POSSIBLE.
2. USING THE MOUNTING CHANNEL AS A TEMPLATE, DRILL 9/16" HOLES IN THE UPPER AND LOWER REAR FLANGE OF AD PANEL WHERE THE SUPPORTS WILL GO.
3. REMOVE BACKSHEETS IN AREAS ABOVE AND BELOW HOLES DRILLED IN STEP 2.
4. PLACE SQUARE NUTS INSIDE CHANNEL AND THREAD BOLTS THROUGH.
5. REPLACE BACKSHEETS REMOVED IN STEP 3.
6. LIFT AD PANEL INTO POSITION WITH BOLTS STILL IN PLACE.
7. PLACE MOUNTING ANGLES OVER EACH PAIR OF BOLTS AND SECURE WITH LOCK WASHERS AND HEX NUTS.
8. WHEN PANEL IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN HEX NUTS FIRMLY.

REV 04	DATE: 26 OCT 11	ADDED NOTE FOR USING MOUNTING HARDWARE AT AD PANEL SPLICES	BY: MBC
REV 03	DATE: 12 APR 10	ADDED 1" TUBE SPACER	BY: KDD
REV 02	DATE: 13 AUG 97	INCLUDED INSTRUCTIONS FOR AD PANELS WITH BACKSHEETS	BY: JAA
REV 01	DATE: 26 MAY 93	ADDED DESCRIPTION TEXT TO PARTS.	BY: MGG

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PROJ: OUTDOOR INCANDESCENT SCOREBOARDS					
TITLE: AD PANEL MOUNTING					
DESIGN: MGG				DATE: 09 JUL 92	
SCALE: NONE					
SHEET 04		REV 04		JOB NO: P1091	
				FLUNC-TYPE-SIZE R-10-B	
52187					

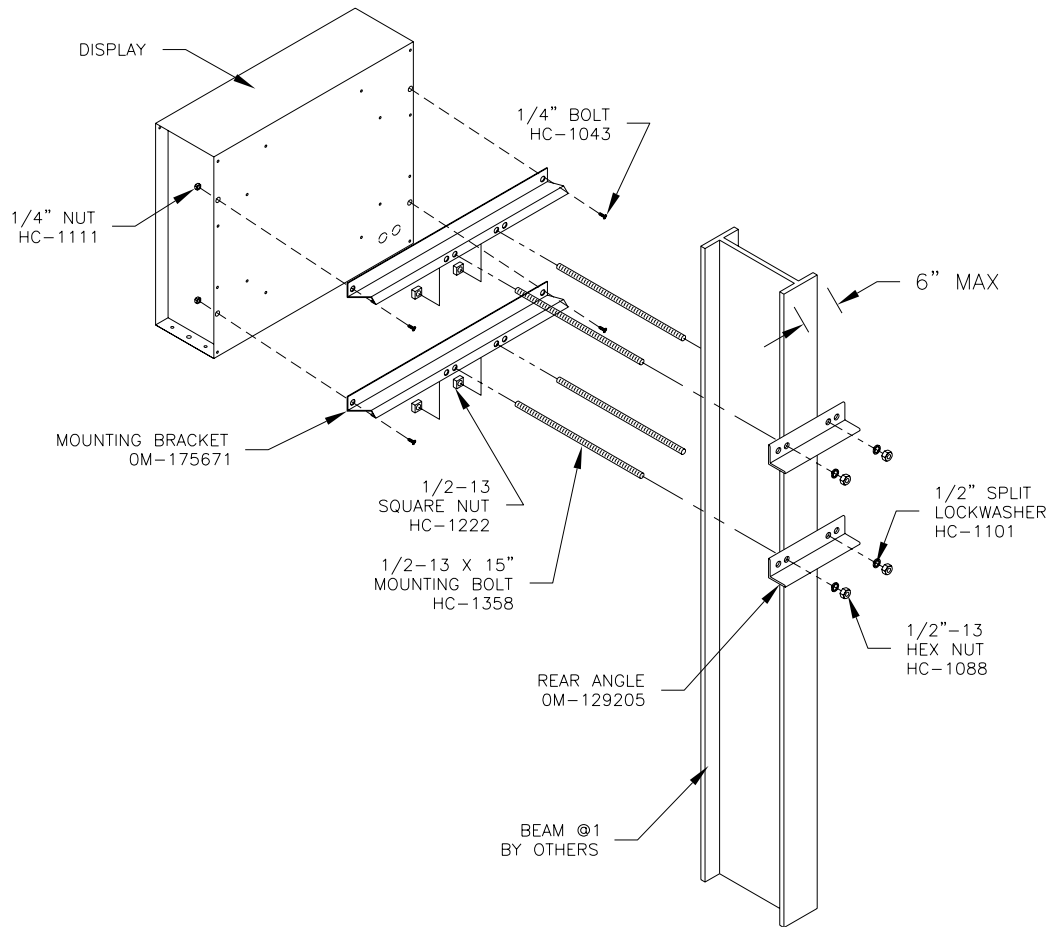


MOUNTING INSTRUCTIONS:

1. USE THE MOUNTING CHANNEL TO DETERMINE WHICH HOLE COMBINATION SHOULD BE USED. BE SURE TO KEEP THE BOLTS AS CLOSE TO THE BEAM AS POSSIBLE.
2. USING THE MOUNTING CHANNEL AS A TEMPLATE, DRILL 9/16\"
3. PLACE SQUARE NUTS INSIDE CHANNEL AND THREAD BOLTS THROUGH.
4. LIFT SCOREBOARD INTO POSITION WITH BOLTS STILL IN PLACE.
5. PLACE MOUNTING ANGLES OVER EACH PAIR OF BOLTS AND SECURE WITH LOCK WASHERS AND HEX NUTS.
6. WHEN SCOREBOARD IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN HEX NUTS FIRMLY.

<small>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 2010 DAKTRONICS, INC.</small>			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR INCANDESCENT SCOREBOARDS			
TITLE: SCOREBOARD MOUNTING			
DES. BY:	DRAWN BY: A VANBEMMEL		DATE: 10FEB93
REVISION	APPR. BY:	1091-R10A-55101	
01	SCALE: NONE		

01	12 APR 10	ADDED 1\"	KDD	
REV.	DATE	DESCRIPTION	BY	APPR.



BEAM MOUNTING PROCEDURE:

1. ATTACH THE MOUNTING BRACKETS @2 TO THE REAR OF THE DISPLAY USING THE INCLUDED 1/4" HARDWARE. HOLES ARE PROVIDED IN THE MOUNTING BRACKETS AND IN THE BACK OF THE DISPLAY.

2. POSITION THE DISPLAY (WITH ATTACH MOUNTING BRACKETS) AGAINST THE BEAMS AND SECURE TO THE BEAM WITH THE 1/2" BOLTS, WASHERS, AND NUTS PROVIDED. THE SQUARE NUTS GO INSIDE THE BRACKET, AND THE HEX NUTS AND WASHERS ARE USED INSIDE THE REAR ANGLE AT THE BACK OF THE BEAM. USE A 3/4" SOCKET TO TIGHTEN.

CAUTION: DO NOT OVERTIGHTEN AND DEFORM THE BRACKET OR ANGLES.

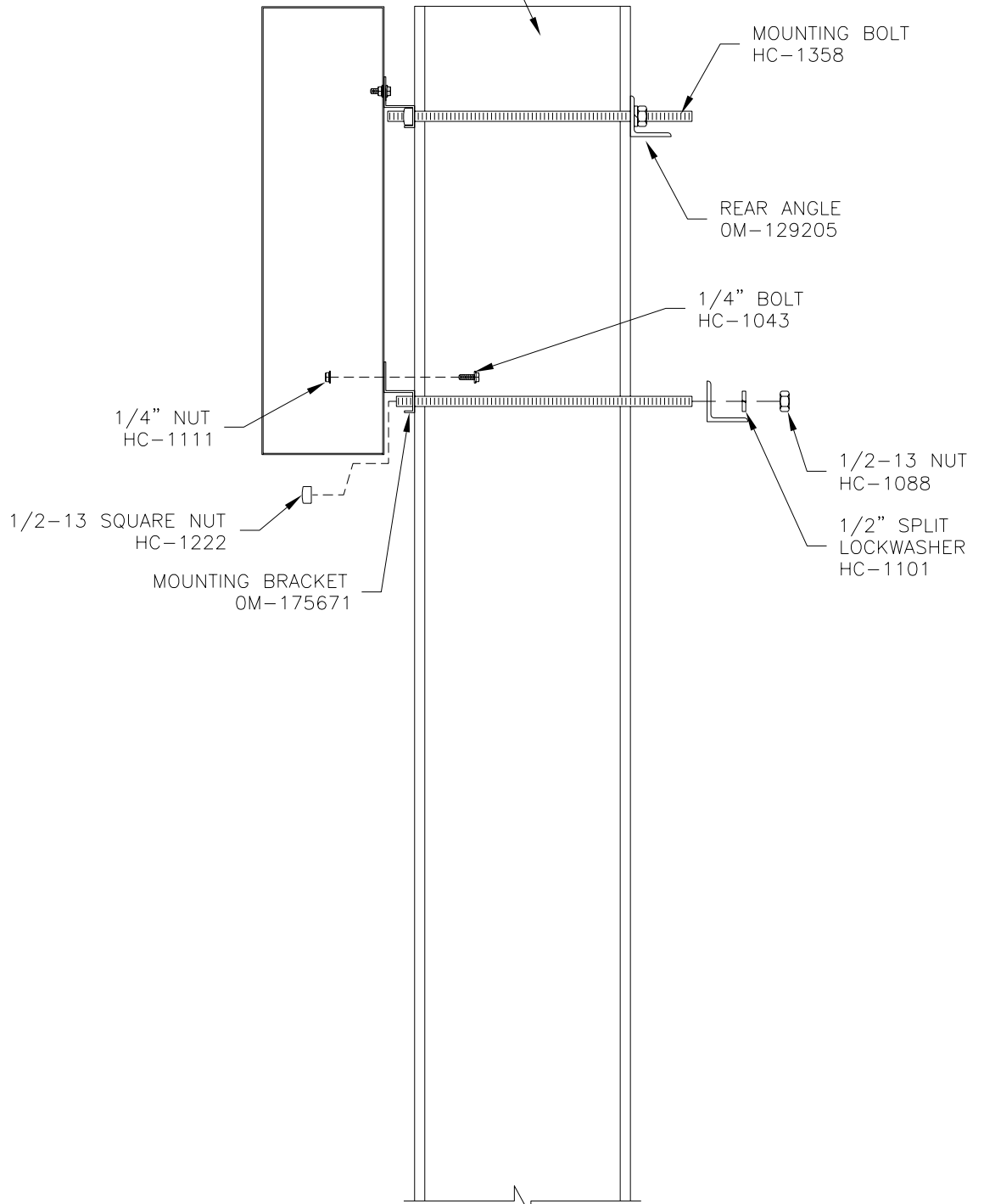
SEE DRAWING 1192-R10A-175696 FOR A SIDE VIEW AND DETAILS.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: BEAM MOUNTING PROCEDURE; TN-2016-11			
DES. BY: MCOPLAN		DRAWN BY: MCOPLAN	
		DATE: 24SEP02	
REVISION	APPR. BY:	1164-R10A-175677	
	SCALE: 1=20		

REV.	DATE	DESCRIPTION	BY	APPR.

SUPPORT BEAM
BY OTHERS
MAX. 6" WIDE
MAX. 13" DEEP

MOUNTING BOLTS DO NOT GO
THROUGH THE BEAM, BUT
PASS ALONG EITHER SIDE.
NO DRILLING REQUIRED.



SIDE VIEW

SEE DRAWING 1192-R10A-175677 FOR A VIEW
FROM THE REAR OF THE DISPLAY, AND STEP BY
STEP PROCEDURE.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: BEAM MOUNTING; SIDE VIEW, TN-2016-11

DES. BY: MCOPLAN

DRAWN BY: MCOPLAN

DATE: 24SEP02

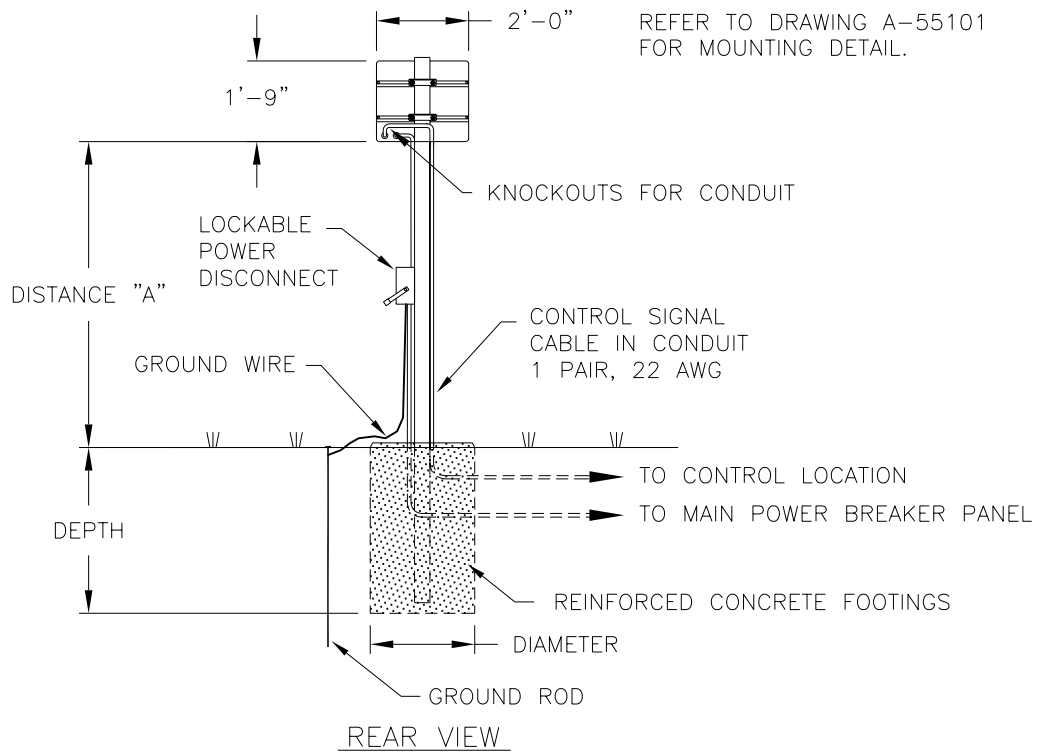
REVISION

APPR. BY:

SCALE: 1=8

1164-R10A-175696

REV.	DATE	DESCRIPTION	BY	APPR.



MODEL TN-2016-11					
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE		DESIGN WIND VELOCITY		
			70 MPH	80 MPH	100 MPH
10'-0"	2'-0" x 1'-9"	BEAM FOOTING	HSS4X4X3/16 2.0X4.0	HSS4X4X3/16 2.0X4.0	HSS4X4X3/16 2.0X4.0
12'-0"	2'-0" x 1'-9"	BEAM FOOTING	HSS4X4X3/16 2.0X4.0	HSS4X4X3/16 2.0X4.0	HSS4X4X3/16 2.0X4.0
14'-0"	2'-0" x 1'-9"	BEAM FOOTING	HSS4X4X3/16 2.0X4.0	HSS4X4X3/16 2.0X4.0	HSS4X4X1/4 2.0X4.0

FOOTING = DIAMETER X DEPTH

FOOTING DIMENSIONS ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES.

FOOTING DIMENSIONS ARE BASED ON ASSUMED SOIL BEARING PRESSURE OF 2000 LB/FT²

ACTUAL FOOTING DEPTH AND DIAMETER FOR A PARTICULAR INSTALLATION MUST BE DETERMINED BY A QUALIFIED STRUCTURAL ENGINEER, USING DATA FROM A SOIL SAMPLE TEST AT THE SITE.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: BEAM AND FOOTING RECOMMENDATIONS; TN-2016-11

DES. BY: MCOPL/RNEYEN DRAWN BY: MCOPLAN DATE: 25SEP02

REVISION

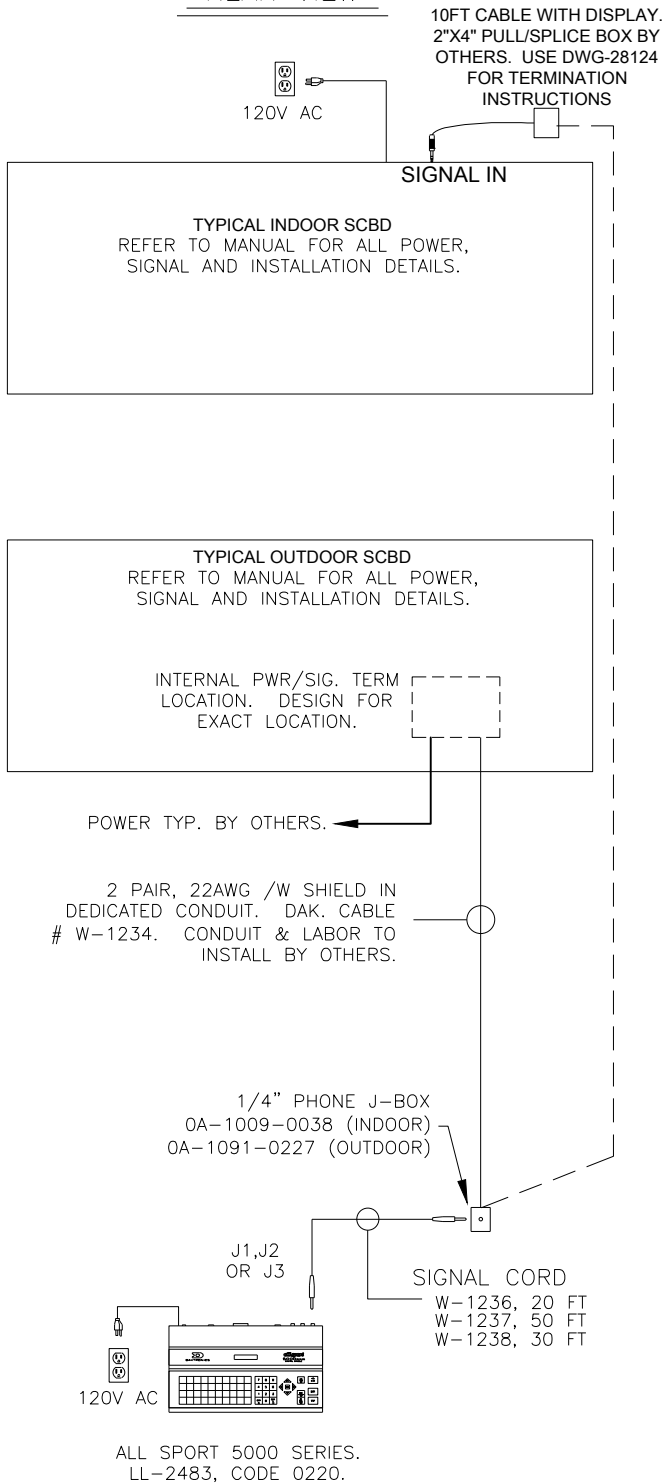
APPR. BY:

SCALE: 1=50

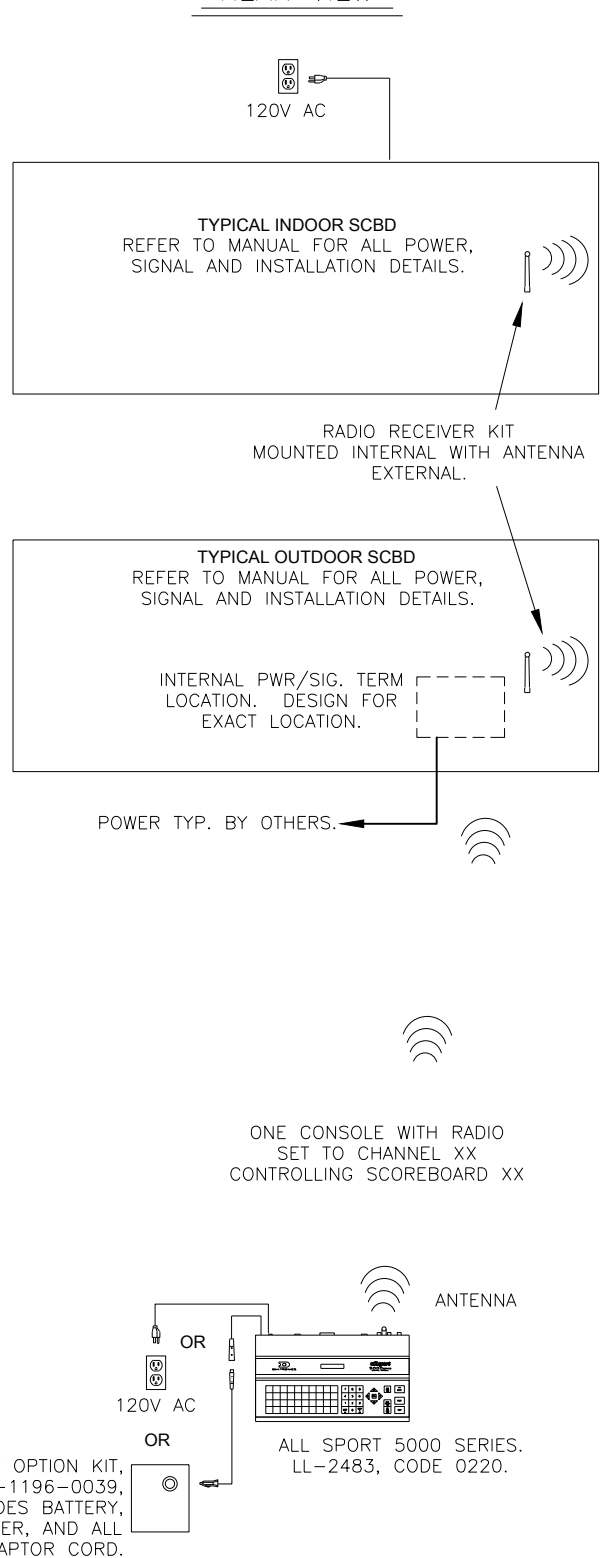
1192-R10A-175784

REV.	DATE	DESCRIPTION	BY	APPR.

WIRE COMMUNICATION
REAR VIEW



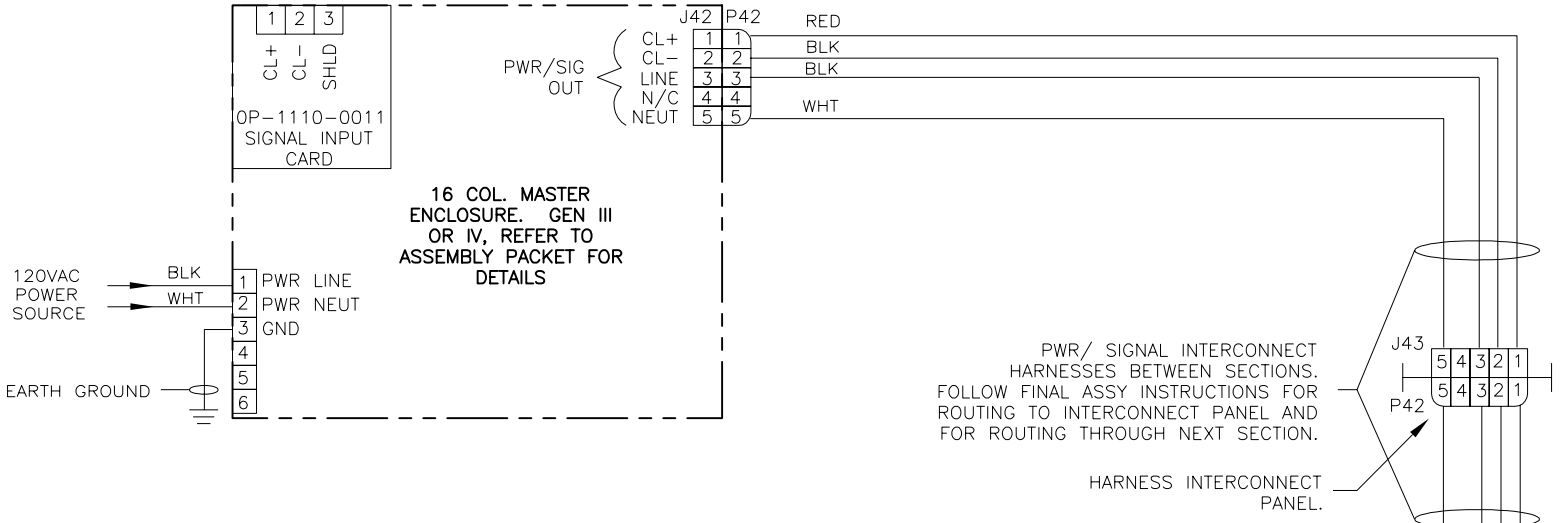
RADIO COMMUNICATION
REAR VIEW



	DAKTRONICS, INC. BROOKINGS, SD 57006		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC.	
	DO NOT SCALE DRAWING		COPYRIGHT 2012 DAKTRONICS, INC.	
PROJ: TENNIS SCOREBOARDS				
TITLE: SYSTEM RISER; TENNIS; SINGLE COURT W/ TNMC, AS 5000				
DESIGN: MMILLER		DRAWN: MMILLER		DATE: 27 MAY 03
SCALE: NONE				
SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	177098
03	P 1164	R - 01 - A	03	

REV 03	DATE: 26 SEP 12	UPDATED BOARD AND TITLE BLOCK REMOVED PART NUMBER FROM THE RADIO RECIEVER TAG SO WE CAN USE MORE GENERATIONS	BY: MWM
REV 02	DATE: 23AUG05	REMOVED ALL SPORT 1600 SERIES CONTOLLER CHANGED NAME OF DRAWING	BY: TAJ
REV 01	DATE: 28 MAY 03	SEPERATED THE WIRE AND THE RADIO ILLUSTRATIONS.	BY: MWM

REV.	DATE	DESCRIPTION	BY	APPR.
02	08 MAY-03	CHANGED TNMC TEXT TO NEW GEN 3 AND ADDED NOTE	TAS	MMM
01	20 FEB 03	ADDED 16 COL. WIDE PART NUMBER AND CORRECTED SPELLING ON NEUT	MMM	



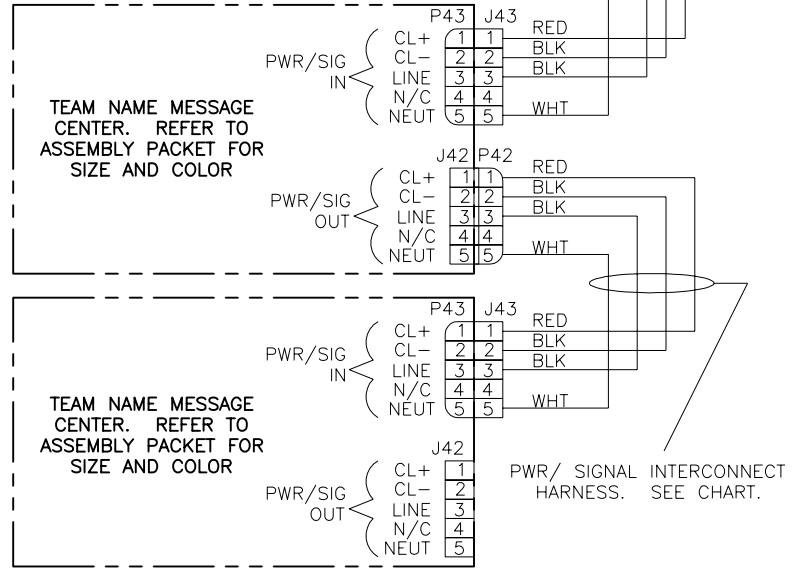
PWR/ SIGNAL INTERCONNECT HARNESES BETWEEN SECTIONS. FOLLOW FINAL ASSY INSTRUCTIONS FOR ROUTING TO INTERCONNECT PANEL AND FOR ROUTING THROUGH NEXT SECTION.

HARNESS INTERCONNECT PANEL.

THIS SCHEMATIC REPRESENTS THE INTERCONNECT OF THE MASTER DRIVER TO OTHER DRIVERS/TNMC'S IN A MULTI DRIVER SCOREBOARD CONFIGURATION. SEE THE PRE-PAINT ASSEMBLY DRAWING AND/OR THE FINAL ASSEMBLY DRAWING FOR THE PART NUMBERS OF THE INTERCONNECT HARNESES NEEDED AND INSTALLATION INSTRUCTIONS.

PWR/SIG INTERCONNECT HARNESS

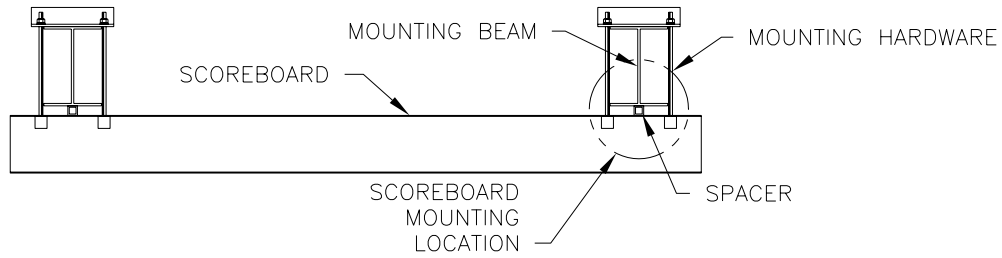
PART NUMBER	LENGTH
0A-1192-1028	4'
0A-1192-1029	8'
0A-1192-1030	10'
0A-1192-1031	12'
0A-1192-1032	16'
0A-1192-1033	22'
0A-1192-1034	26'
0A-1192-1083	30'
0A-1192-1084	35'



NOTE:
CONNECT THE RIBBON CABLE TO THE TNMC DRIVER TO EITHER
J25 = HOME OR
J26 = GUEST.

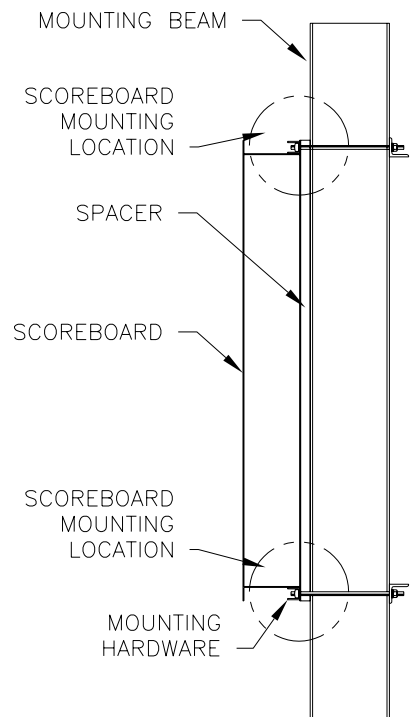
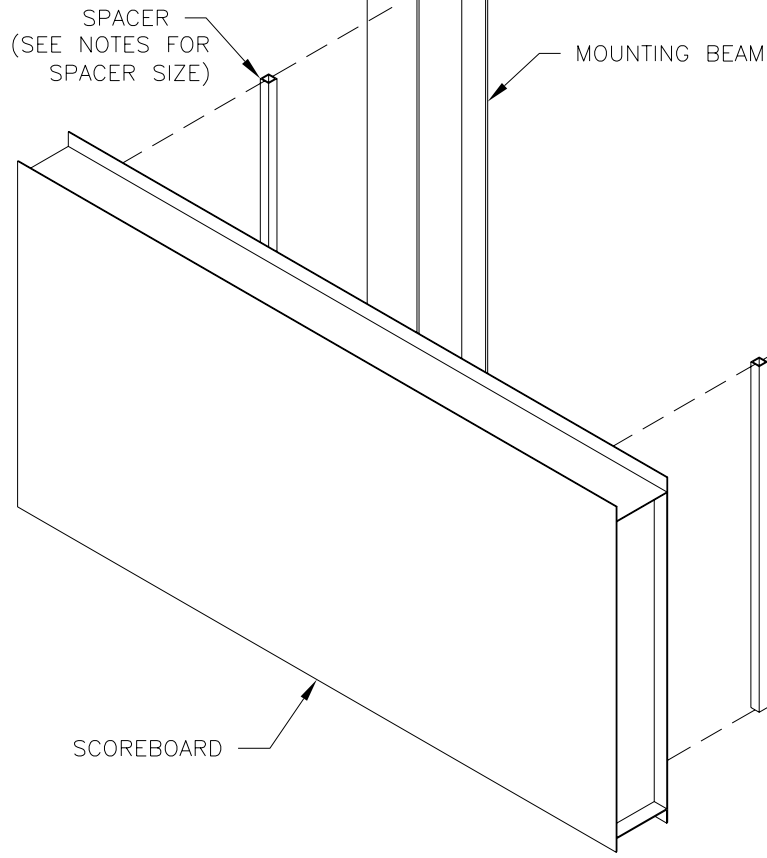
PROJ: OUTDOOR LED DIGIT SCOREBOARDS
 TITLE: SCHEMATIC; GEN III & IV OD LED, 1 DRV W/ TNMC
 DES. BY: ALINDHO DATE: 17 DEC 02
 DRAWN BY: ALINDHO
 DAKTRONICS, INC. BROOKINGS, SD 57006
 THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.

REVISION 02
 APPR. BY: NONE
 SCALE: NONE
 1192-R01A-179790



TOP VIEW

SPACERS TO BE PROVIDED BY THE CUSTOMER



SIDE VIEW

NOTES:

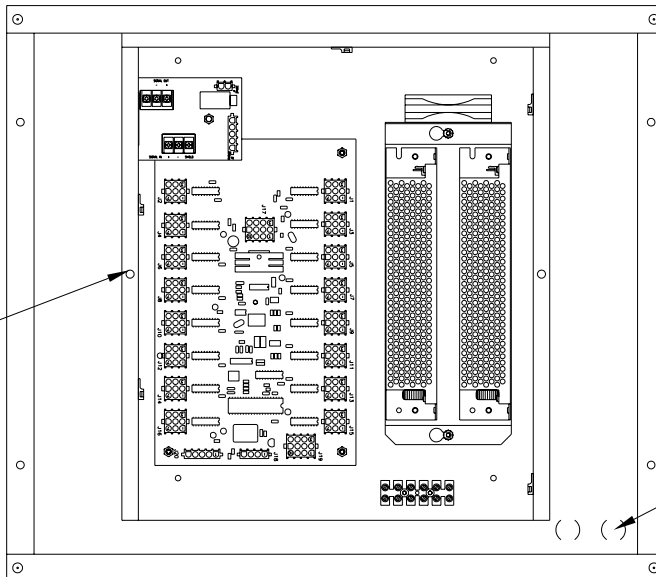
- SPACER SIZE CANNOT EXCEED THE HEIGHT OF THE SCOREBOARD BUT DOES NOT HAVE TO BE THE SAME HEIGHT AS THE SCOREBOARD. SMALLER LENGTHS OF SPACER MATERIAL MAY BE USED AS LONG AS THEY ARE USED AT THE TOP AND BOTTOM SCOREBOARD MOUNTING LOCATIONS. SPACERS SHOWN ABOVE ARE 1"x1". TYPICALLY, THE SPACER DEPTH WILL BE DETERMINED BY THE DIFFERENCE IN DEPTH OF THE SCOREBOARD AND THE AD PANEL (AD PANEL DEPTH - SCOREBOARD DEPTH = SPACER DEPTH).
- THE SPACERS ARE TO BE PROVIDED BY THE CUSTOMER.
- THE SPACERS ARE TO BE PLACED BETWEEN THE SCOREBOARD AND THE MOUNTING POLE.
- THE SPACERS DO NOT NEED TO BE MECHANICALLY ATTACHED TO THE SCOREBOARD OR THE MOUNTING BEAM. THEY WILL BE COMPRESSED BETWEEN THE SCOREBOARD AND THE MOUNTING BEAM WHEN THE SCOREBOARD IS MOUNTED.
- REFER TO THE SCOREBOARD MANUAL FOR THE SCOREBOARD MOUNTING HARDWARE AND OTHER SCOREBOARD MOUNTING DETAILS.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.	
DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: OUTDOOR SCOREBOARDS	
TITLE: SCOREBOARD MTG; SCOREBOARD WITH SPACERS	
DES. BY: MCOPLAN	DRAWN BY: MCOPLAN
	DATE: 07FEB03
REVISION	APPR. BY:
	SCALE: 1=20
1192-R08A-182909	

REV.	DATE	DESCRIPTION	BY	APPR.

TN-2016-11

ENCLOSED 16 COLUMN LED DRIVER AND POWER/SIGNAL ENCLOSURE. (THE DISPLAY FACE PANEL AND THE ENCLOSURE COVER HAVE BEEN REMOVED TO SHOW THE COMPONENT DETAIL.)

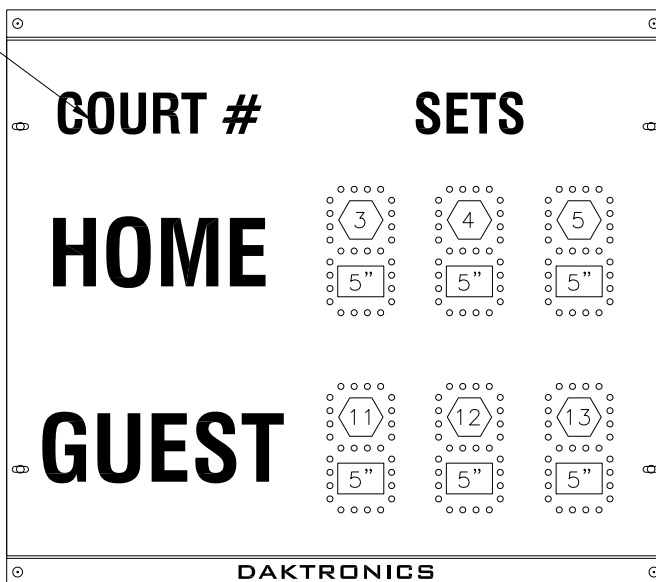


KNOCKOUTS FOR CONDUIT

FRONT VIEW

DISPLAY FACE PANEL HAS BEEN REMOVED

OPTIONAL COURT NUMBER CAPTION (SEE ORDER BOM FOR DETAILS)



FRONT VIEW

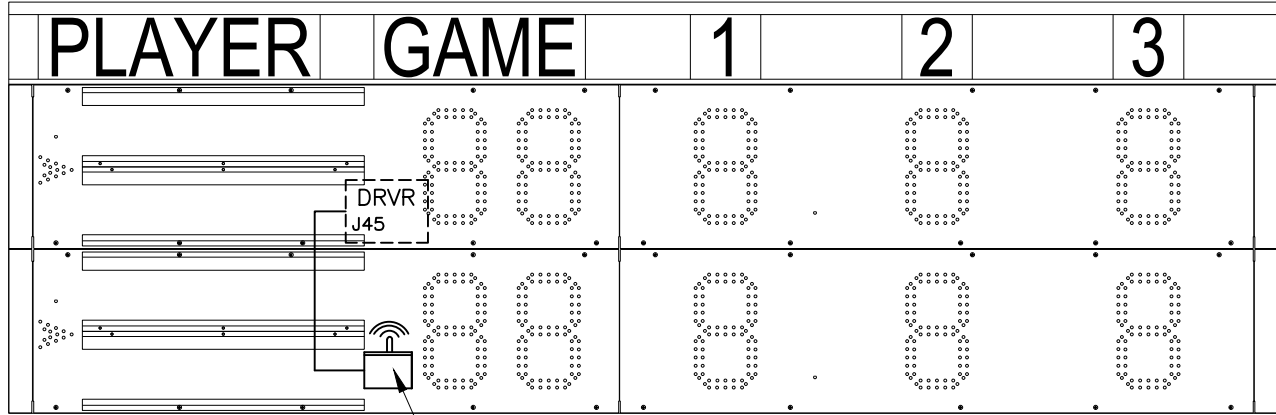
1 = LED DRIVER CONNECTOR WIRED TO THAT DIGIT.

5" = DIGIT SIZE

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR TENNIS SCOREBOARDS			
TITLE: COMPONENT LOCATIONS; TN-2016-11, G3			
DES. BY: MCOPLAN		DRAWN BY: MCOPLAN	
		DATE: 25AUG03	
REVISION	APPR. BY:	1164-R08A-195593	
00	SCALE: 1=7		

REV.	DATE	DESCRIPTION	BY	APPR.

NOTE:
 SAMPLE SCOREBOARD MODEL SHOWN. SEE
 SPECIFICATION MATERIAL ON MODEL PURCHASED.



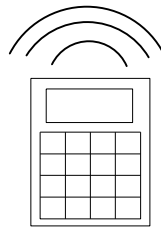
0A-1110-0035
 FUNCTION SETTING = 5

NOTE: RC-100 SCOREBOARD RECEIVER
 BASE STATION IS LOCATED BEHIND THE
 FRONT ACCESS PANEL OF DISPLAY.


NOTE:
 THE WIRELESS BASE STATION COMES PRE-SET TO
 CHANNEL 1. HOWEVER, CHANNELS 1-15 CAN BE
 USED.

FUNCTION TABLE

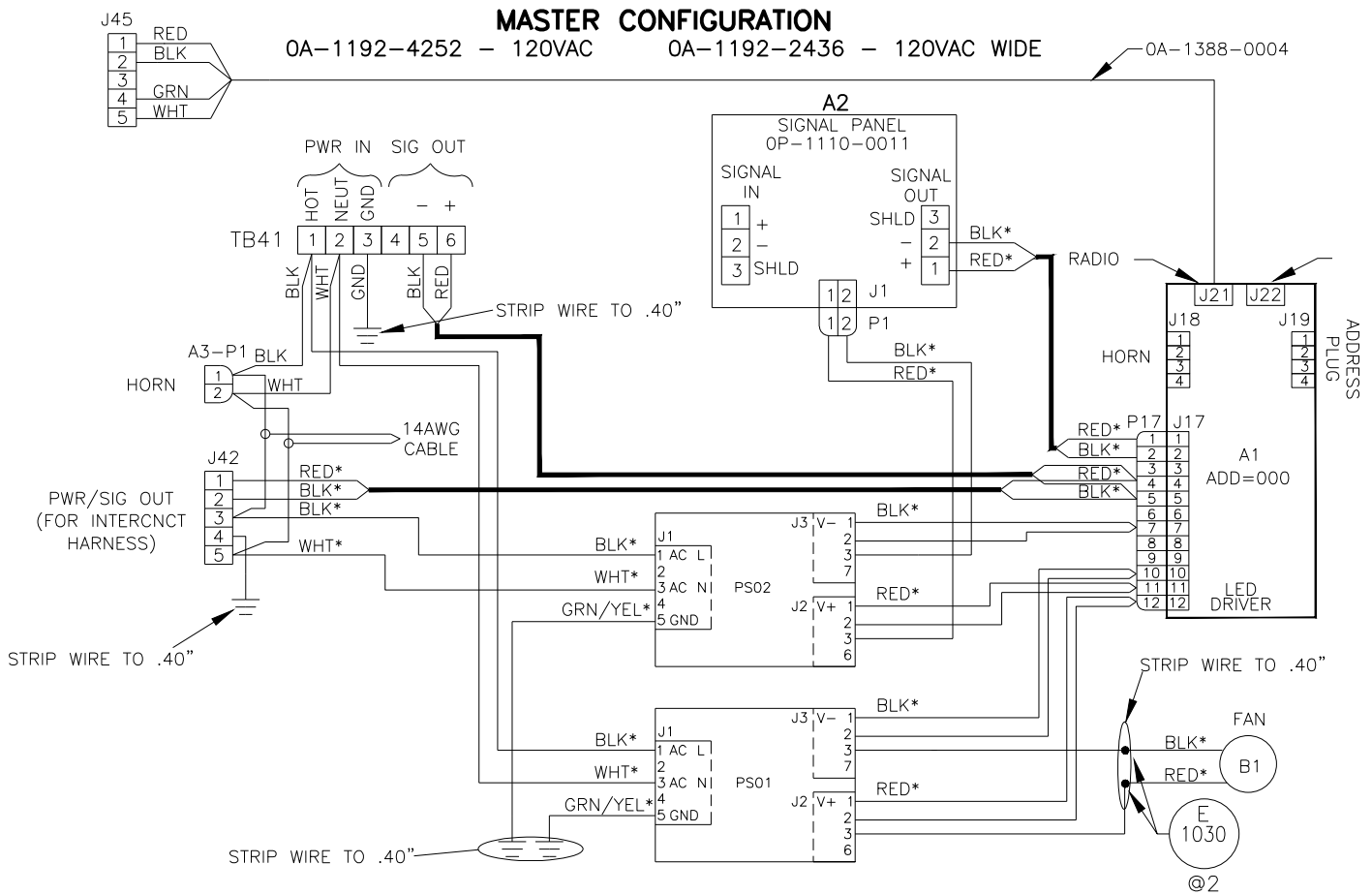
FUNCTION NUMBER	DESCRIPTION
0	DEFAULT FUNCTION (LAST POWER UP FUNCTION)
1	CAN HAND HELD (JUDGES) CONSOLE
2	BASEBALL/TENNIS SCOREBOARD CONTROLLER GEN I (ALLSPORT)
3	DATETIME/DATAMASTER DISPLAY CONTROL
5	BASEBALL/TENNIS SCOREBOARD CONTROLLER GEN II (ALLSPORT)



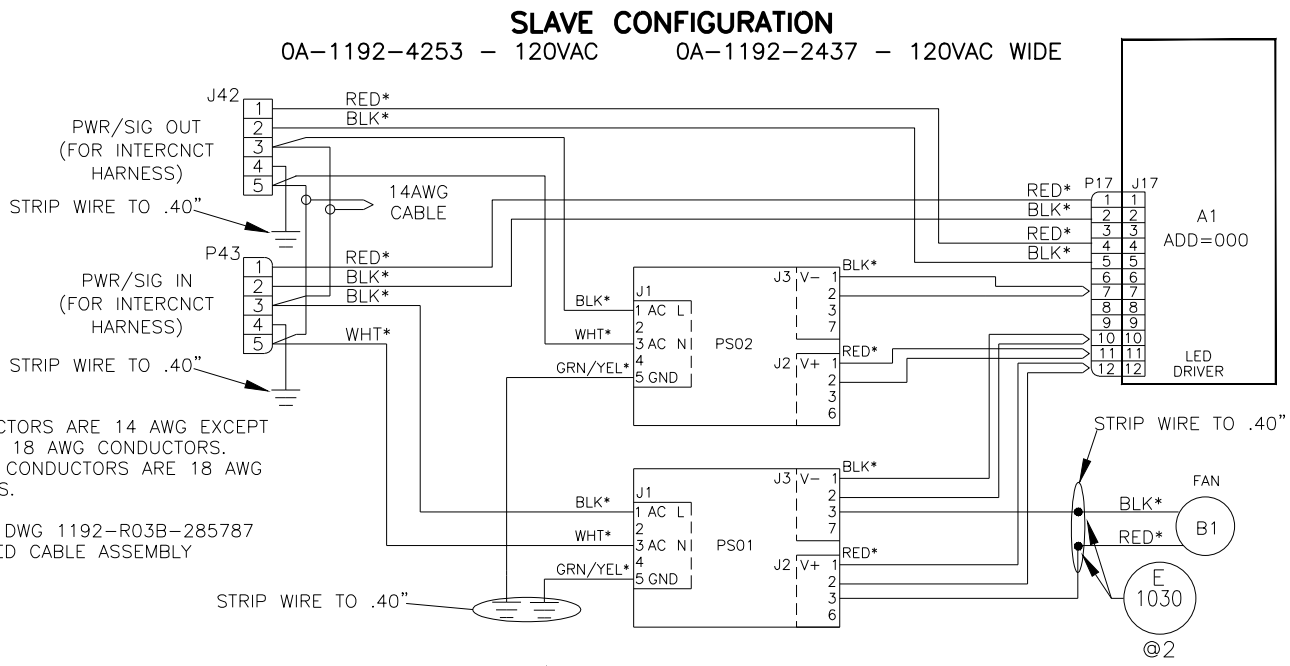
0A-1110-0053
 INSERT: LL-2607 (TENNIS) CODE 08

 DAKTRONICS, INC. BROOKINGS, SD 57006	THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2012 DAKTRONICS, INC.	
	DO NOT SCALE DRAWING	
PROJ: TENNIS SCOREBOARDS TITLE: SYSTEM RISER; TENNIS; INDOOR/OUTDOOR SINGLE COURT, RC-100		
DESIGN: SCALE: NONE	DRAWN: TJOHNSON	DATE: 29AUG05
SHEET 02	REV P 1164	JOB NO: R - 01 - A
		252412

REV 02	DATE: 27 APR 12	UPDATED RC-100 HANDHELD PART NUMBER UPDATED BOARDER AND TITLE BLOCK	BY: JFL
01	22 OCT 09	UPDATED FUNCTION SETTING AND TABLE. ALSO ADDED NOTE ABOUT SCOREBOARD.	EJS



ALL CONDUCTORS ARE 14 AWG EXCEPT * INDICATES 18AWG CONDUCTORS.
 ALL SIGNAL CONDUCTORS ARE ALSO 18 AWG CONDUCTORS.
 REFERENCE DWG 1192-R03C-285776 FOR DETAILED CABLE ASSEMBLY DIAGRAM.



ALL CONDUCTORS ARE 14 AWG EXCEPT * INDICATES 18 AWG CONDUCTORS.
 ALL SIGNAL CONDUCTORS ARE 18 AWG CONDUCTORS.
 REFERENCE DWG 1192-R03B-285787 FOR DETAILED CABLE ASSEMBLY DIAGRAM.

REV 06	DATE: 17 OCT 10	STRIP LENGTH OF LOOSE-END WIRES ADJUSTED TO .40 INCHES, PER ECO 65629.	BY: SMB
REV 05	DATE: 05 NOV 07	REMOVED 240V FROM THIS DWG AND MADE NEW 324504 DWG FOR 240V SETUP.	BY: AMG
REV 04	DATE: 9 APR 07	ADDED GND WIRES TO P43, & J42	BY: DMD
REV 03	DATE: 11 MAR 07	ADDED TB41 FOR SIGNAL RE-DRIVE	BY: DMD
REV 02	DATE: 11 JAN 07	UPDATED 240V OA PACKET INFORMATION	BY: JDD

DAKTRONICS, INC. BROOKINGS, SD 57006		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2010 DAKTRONICS, INC.	
DO NOT SCALE DRAWING			
PROJ.: OUTDOOR LED SCOREBOARDS			
TITLE: SCHEMATIC: GEN IV OUTDOOR LED- 16 COL DRIVER			
DESIGN:	DRAWN: DDINING	DATE: 25 SEP 06	
SCALE: NONE			
SHEET	REV	JOB NO:	FUNC-TYPE-SIZE
	06	1192	R-03-A
			285779

LED DRIVER IV
 OP-1192-0383, 16 COL
 OP-1192-0384, 16 COL, AC

REFER TO DWGS
 A-115078 & A-115079
 FOR ADDRESS SETTINGS

REFER TO DWGS
 A-290261 & A-290689

S1 ADDRESS
 DIP SWITCH PACKAGE

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

SW #	FUNCTION
1	ADD0
2	ADD1
3	ADD2
4	ADD3
5	ADD4
6	ADD5
7	ADD6
8	ADD7

J17 PWR/SIG

PIN	FUNCTION
1	SIG-P
2	SIG-N (232-IN)
3	SIG 2-P(232-GND)
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

J22 RC-100 RADIO

PIN	FUNCTION
1	+UNREG-P
2	GND-N
3	GND-N
4	RX_INPUT-P

J23 PROGRAM

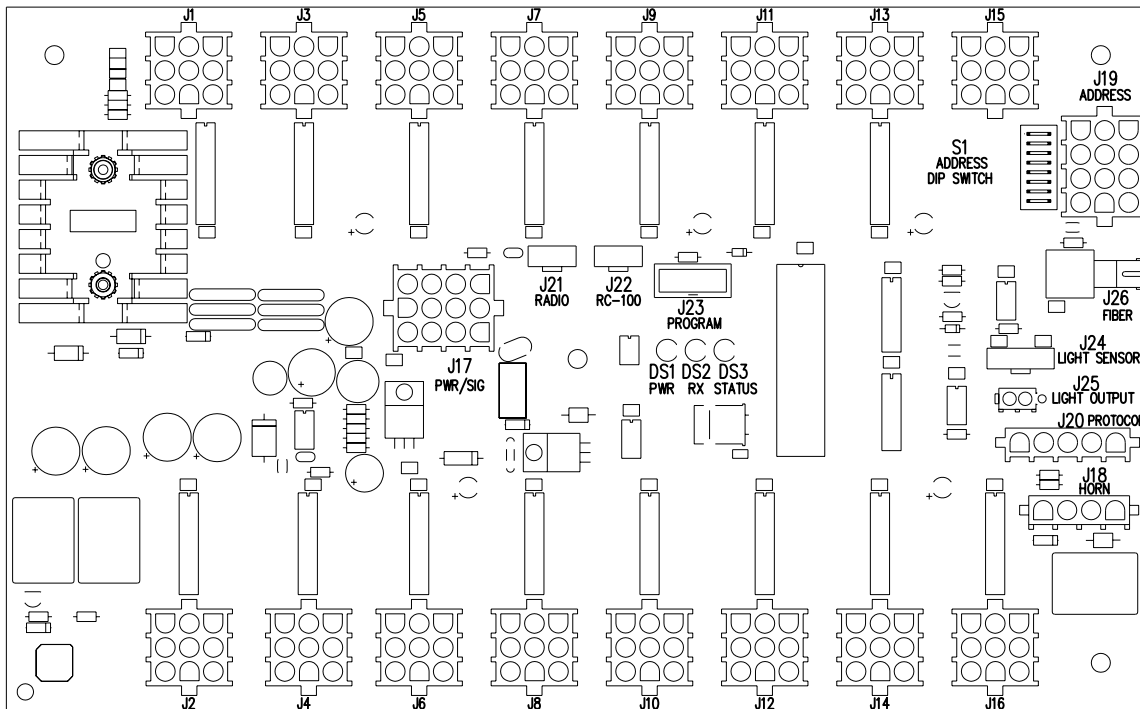
PIN	FUNCTION
1	DATA
2	/RESET
3	N/C
4	GND-N
5	CLK
6	GND-N
7	N/C
8	+5V-P
9	N/C
10	+5V-P

J21 2.4GHz RADIO

PIN	FUNCTION
1	+UNREG-P
2	GND-N
3	GND-N
4	RX_INPUT-P

J1-16 DIGIT JACKS

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



J26 FIBER RX

PIN	FUNCTION
1	N/C
2	+5V-P
3	GND-N
4	N/C
5	N/C
6	RX_INPUT-P
7	GND-N
8	N/C

J24 LIGHT SENSOR

PIN	FUNCTION
1	LIGHT_IN-P
2	LIGHT_IN-N
3	+5V-P
4	GND-N
5	GND-N
6	N/C

J25 LIGHT OUT- NEXT DRIVER

PIN	FUNCTION
1	LIGHT_OUT-P
2	LIGHT_OUT-N

REFER TO DWG A-115081
 FOR PROTOCOL SETTINGS

J20 PROTOCOL

PIN	FUNCTION
1	GND-N
2	PRO-N
3	PR1-N
4	PR2-N
5	PR3-N (TOD)

J18 HORN

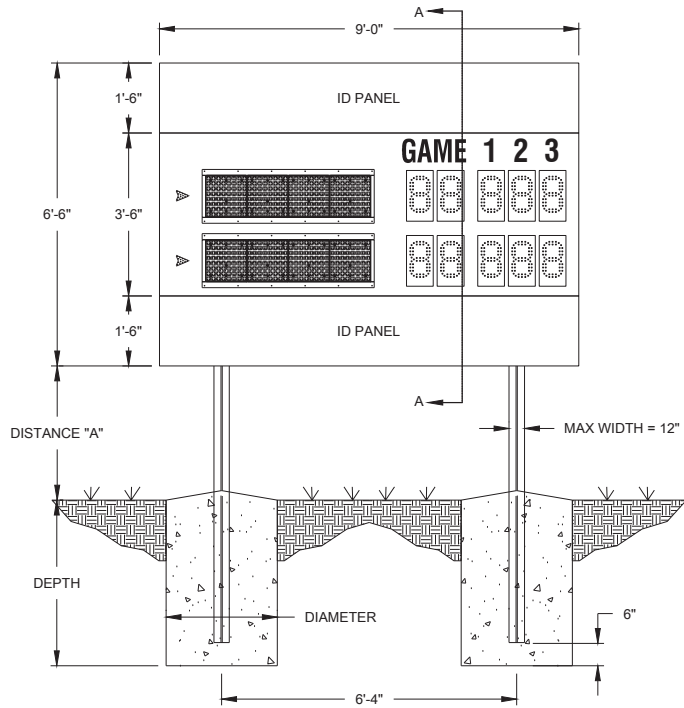
PIN	FUNCTION
1	HORNOUT-N
2	AUXOUT-N
3	120SW-P
4	120SW-N

NOTES:

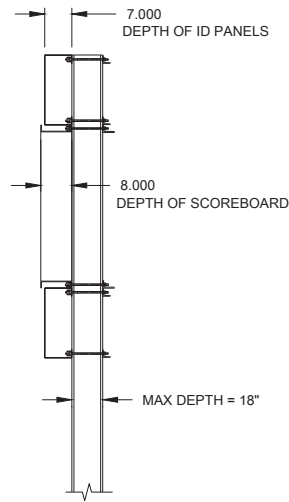
- WITH NO ADDRESS SELECTED, DRIVER WILL DEFAULT TO A/S 4000 PROTOCOL.
- GREEN LED DS1 INDICATES THAT THE DRIVER HAS POWER.
- RED LED DS2 WILL FLICKER WHEN THE DRIVER RECEIVES SIGNAL.
- AMBER LED DS3 WILL BLINK WHEN THE DRIVER IS RUNNING.
- IF DS3 IS ON OR OFF CONTINUOUSLY THE MICROCONTROLLER IS NOT WORKING.
- REFER TO DRAWING A-128429 FOR CURRENT LOOP REDRIVE SPECIFICATIONS.
- REFER TO DRAWING A-115081 FOR J20 PROTOCOL SETTINGS.
- REFER TO DRAWINGS A-115078,115079 FOR J19 ADDRESS SETTINGS.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	SPECIFICATIONS; LED DRIVER IV, 16 COL		
DES. BY:	DRAWN BY:	DATE:	
DES. BY:	DRAWN BY: DULSCHM	DATE: 09 OCT 06	
REVISION	APPR. BY:	1192-R04A-288137	
02	SCALE: 1 = 2		

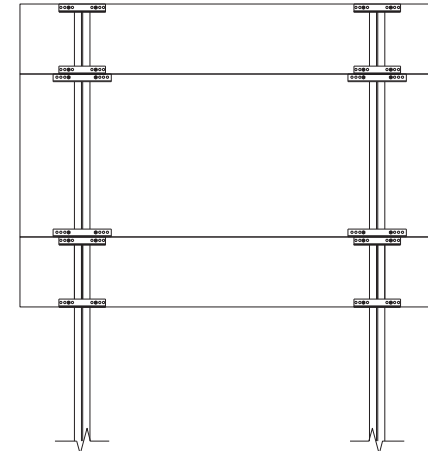
REV.	DATE	DESCRIPTION	BY	APPR.
02	30 NOV 06	ADDED ADDRESS SWITCH S1 TO DRAWING	DJU	
01	26 OCT 06	RESIZED TEXT SO THAT IT WAS EASIER TO READ, AND CLARIFIED FUNCTIONS OF EACH JACK.	AFL	



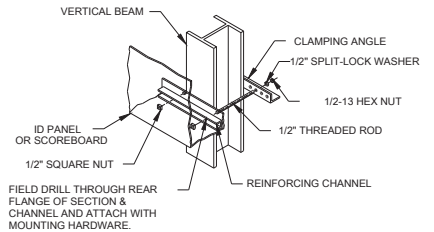
FRONT VIEW



SECTION: A-A



REAR VIEW



MOUNTING HARDWARE
SUPPLIED BY DAKTRONICS

NOTE: INSTALL THREADED ROD AS CLOSE TO COLUMN AS POSSIBLE.

NOTES:

- REFER TO DAKTRONICS PROPOSAL DRAWING FOR ADDITIONAL DISPLAY SECTIONS.
- DISPLAY SECTIONS ARE ALL ALUMINUM CONSTRUCTION.
- SCOREBOARD IS FRONT SERVICE ACCESSIBLE FOR DIGITS AND ELECTRONICS.
- LIFT EYES PROVIDED IN TOP OF EACH SECTION BY DAKTRONICS.
- ALL SIGNAL CABLE SUPPLIED BY DAKTRONICS. ALL POWER CABLE SUPPLIED BY CUSTOMER'S INSTALLATION CONTRACTOR. ALL CONDUIT AND LABOR TO PULL POWER AND SIGNAL CABLE SUPPLIED BY CUSTOMER'S INSTALLATION CONTRACTOR.
- INSTALLATION CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY BRACING USED IN THE INSTALLATION OF SYSTEM.
- ALL WORK TO BE DONE IN ACCORDANCE WITH OSHA AND ALL LOCAL CODES THAT APPLY.
- FOOTING DESIGN, STRUCTURAL DESIGN, FABRICATION AND CERTIFICATION RESPONSIBILITY OF THE CUSTOMER.
- TNMC'S AND TIME OF DAY ARE OPTIONAL FEATURES.
- OPTIONAL RADIO CONTROLLERS ARE ALSO AVAILABLE.
- DISPLAY WILL BE SHIPPED IN FIVE (5) SECTIONS.
- APPROXIMATE DISPLAY WEIGHTS ARE AS FOLLOWS:

TOP ID PANEL	23 LBS
SCBD SECTION	130 LBS
BTM ID PANEL	23 LBS
176 LBS	

TN-2604 TENNIS SCOREBOARD* ASCE7						
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE	DESIGN WIND VELOCITY				
		90 MPH	100 MPH	120 MPH	150 MPH	
10'-0"	6'-6" x 9'-0"	BEAM W8x13	W8x15	W10x17	W8x18	
	FOOTING	3.0' x 4.5'	3.0' x 5.0'	3.0' x 6.0'	3.0' x 7.0'	
12'-0"	6'-6" x 9'-0"	BEAM W8x15	W10x17	W8x18	W8x21	
	FOOTING	3.0' x 5.0'	3.0' x 5.5'	3.0' x 6.0'	3.0' x 7.5'	
14'-0"	6'-6" x 9'-0"	BEAM W8x18	W8x18	W8x21	W8x24	
	FOOTING	3.0' x 5.5'	3.0' x 6.0'	3.0' x 6.5'	3.0' x 8.0'	

FOOTING = DIAMETER X DEPTH

TN-2604 W/ OPTIONAL 3' ID PANEL* ASCE7						
DISTANCE "A" (SEE FIGURE)	TOTAL DISPLAY SIZE	DESIGN WIND VELOCITY				
		90 MPH	100 MPH	120 MPH	150 MPH	
10'-0"	9'-6" x 9'-0"	BEAM W8x18	W8x21	W8x24	W12x26	
	FOOTING	3.0' x 6.0'	3.0' x 6.5'	3.0' x 7.5'	3.0' x 9.0'	
12'-0"	9'-6" x 9'-0"	BEAM W8x21	W10x22	W8x24	W8x31	
	FOOTING	3.0' x 6.5'	3.0' x 7.0'	3.0' x 8.0'	3.0' x 9.5'	
14'-0"	9'-6" x 9'-0"	BEAM W8x24	W8x24	W8x31	W10x39	
	FOOTING	3.0' x 6.5'	3.0' x 7.5'	3.0' x 8.5'	3.0' x 10.0'	

FOOTING = DIAMETER X DEPTH

* FOOTING DIMENSIONS & COLUMN SIZES ARE SUGGESTIONS ONLY. PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES.

COLUMN AND FOOTING ESTIMATES ARE DESIGNED WITH THE FOLLOWING ASSUMPTIONS:
IBC 2006, EXPOSURE C, IMPORTANCE FACTOR = 1, SOIL CLASS 4, TERRAIN IS FLAT.

ACTUAL FOOTING DEPTH AND DIAMETER & COLUMN SIZES MUST BE DETERMINED BY A QUALIFIED, STATE LICENSED, STRUCTURAL ENGINEER.

OWNER (CUSTOMER) IS RESPONSIBLE FOR PROVIDING, INSTALLING & ENGINEERING OF STRUCTURE AND FOOTINGS.

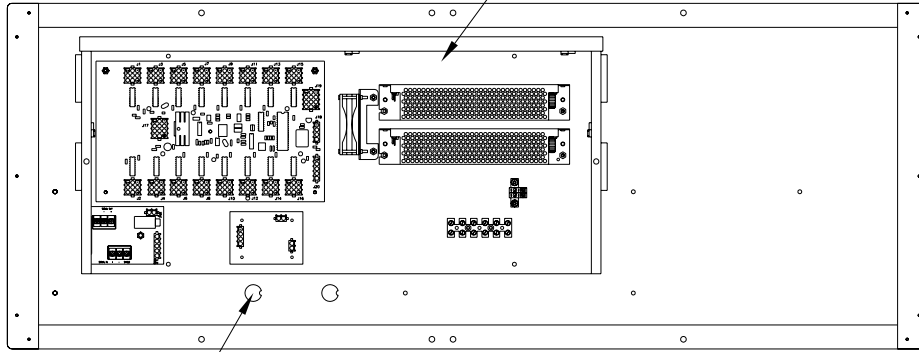
DAKTRONICS, INC. IS NOT RESPONSIBLE FOR STRUCTURES DESIGNED AND INSTALLED BY OTHERS.

REV 02	DATE 12 DEC 12	UPDATED TOTAL DISPLAY SIZE	BY: KDD
REV 01	DATE 04 JUN 09	CHANGED TN-2651 TO TN-2604	BY: CJH

		BROOKINGS, SD 57006 DO NOT SCALE DRAWING	
PROJECT: OUTDOOR TENNIS DISPLAYS TITLE: SHOP DWG: TN-2604 -(11/21) W/ID PANELS DESIGN: BCURTIS DRAWN: BCURTIS DATE: 23 FEB 07			
SCALE: 1"=3/8"		SHEET 02 REV 02 JOB NO. P1164 FLUNC-TYPE-SIZE E-10-B	
			297728

TN-2601-11/-21

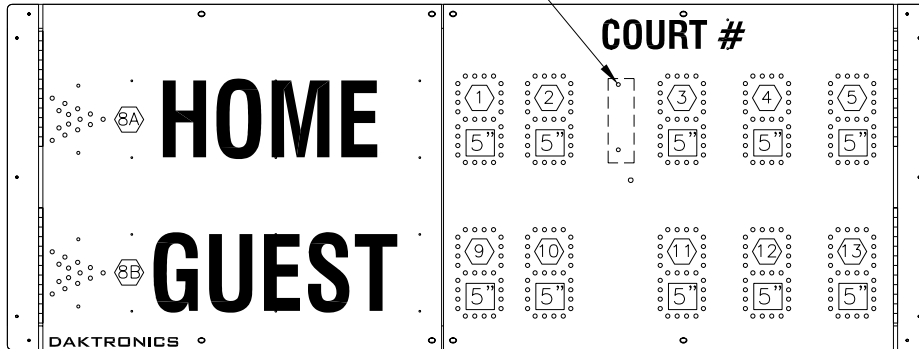
ENCLOSED 16 COLUMN LED DRIVER AND POWER/SIGNAL ENCLOSURE.



KNOCKOUTS FOR CONDUIT

FRONT VIEW
SHOWN WITH ACCESS
PANELS OPEN.

OPTIONAL RADIO CONTROL



FRONT VIEW

① = DRIVER COLUMN NUMBER
WIRED TO THAT DIGIT.

5" = DIGIT SIZE

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR TENNIS SCOREBOARDS

TITLE: COMPONENT LOCATION; TN-2601-11/-21, G4

DES. BY: BCURTIS

DRAWN BY: BCURTIS

DATE: 27 MAR 07

REV.	DATE	DESCRIPTION	BY	APPR.
00				

REVISION

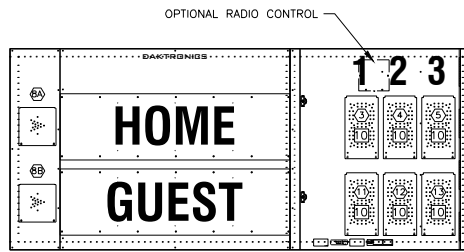
APPR. BY:

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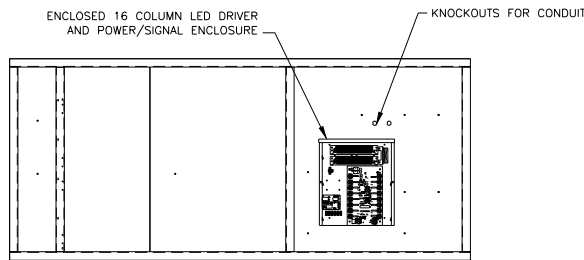
SCALE: 1=10

1164-E08A-300388

TN-2603-11/-21

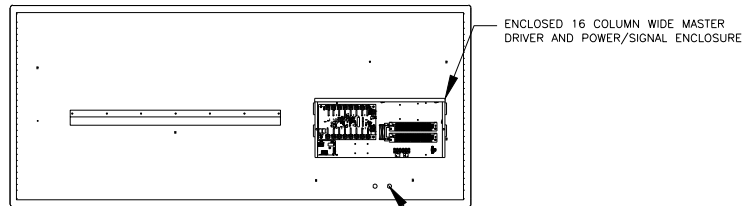


FRONT VIEW



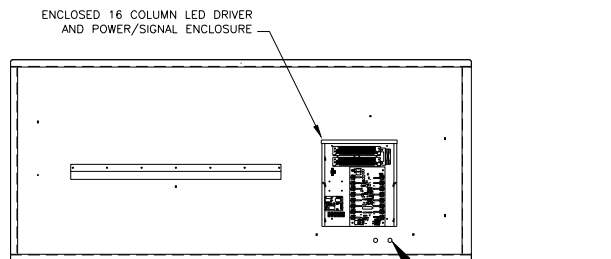
FRONT VIEW

SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER.
PRIOR TO MAY 2011



FRONT VIEW

SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER.
MAY 2011 - AUG 2011




FRONT VIEW

SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER.
AFTER AUG 2011

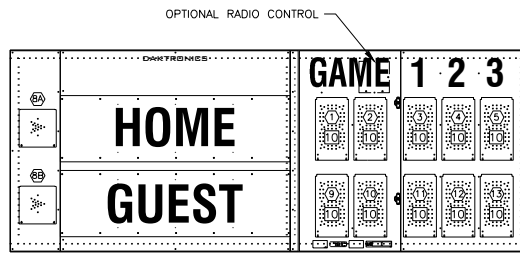
① = DRIVER COLUMN NUMBER WIRED TO THAT DIGIT.

Ⓜ = DIGIT SIZE ALL DIGITS ARE 10" HIGH

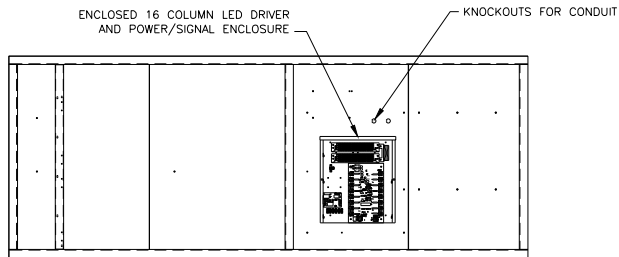
 DAKTRONICS, INC. BROOKINGS, SD 57006	THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2011 DAKTRONICS, INC.	
	DO NOT SCALE DRAWING	
PROJ.: OUTDOOR TENNIS SCOREBOARDS TITLE: COMPONENT LOCATION: TN-2603-11/-21 - G4		
DESIGN: KDRAGT SCALE: 1 = 40	DRAWN: KDRAGT	DATE: 13 NOV 07
SHEET 1 OF 1	REV 02	JOB NO: P1164
FUNC-TYPE-SIZE E-08-A		325294

REV 02	DATE: 11 JAN 12	ADDED UPDATED FRONT VIEW	BY: JDP
REV 01	DATE: 19 JUL 11	ADDED FRONT VIEW WITH NEW DRIVER	BY: MBJ

TN-2604-11/-21

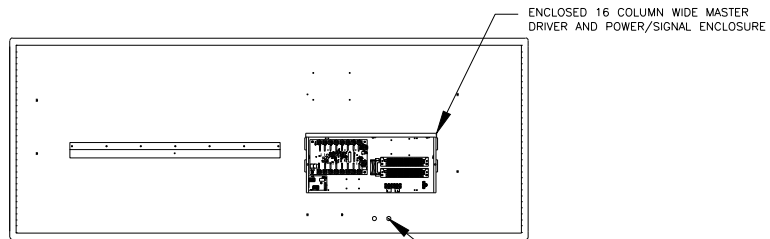


FRONT VIEW



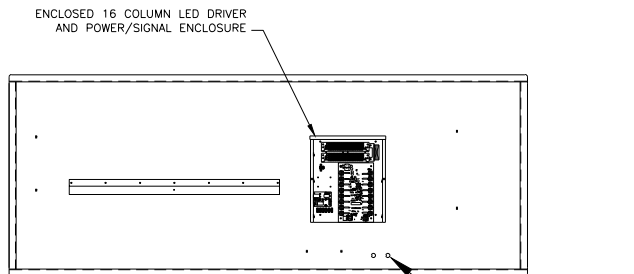
FRONT VIEW

SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER.
PRIOR TO MAY 2011



FRONT VIEW

SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER.
MAY 2011 TO AUG 2011



FRONT VIEW

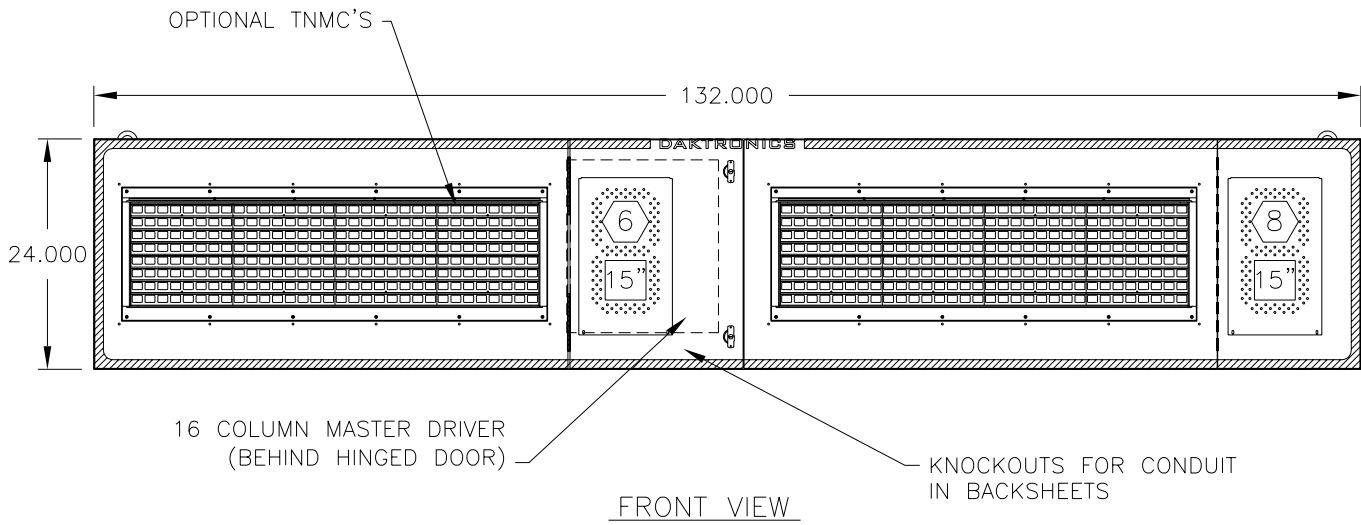
SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER.
AFTER AUG 2011

① = DRIVER COLUMN NUMBER WIRED TO THAT DIGIT.
Ⓜ = DIGIT SIZE ALL DIGITS ARE 10" HIGH

	DAKTRONICS, INC. BROOKINGS, SD 57006		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2011 DAKTRONICS, INC.	
	DO NOT SCALE DRAWING			
PROJ.: OUTDOOR TENNIS SCOREBOARDS TITLE: COMPONENT LOCATION: TN-2604-11/-21- G4				
DESIGN: KDRAGT SCALE: 1 = 40		DRAWN: KDRAGT		DATE: 13 NOV 07
SHEET 1 OF 1	REV 02	JOB NO: P1164	FUNC-TYPE-SIZE E-08-A	325295

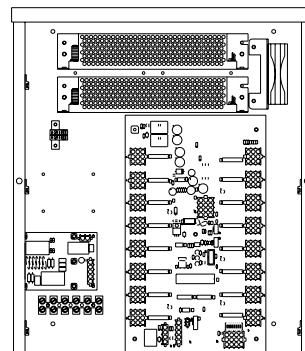
REV 02	DATE: 11 JAN 12	ADDED UPDATED FRONT VIEW	BY: JDP
REV 01	DATE: 19 JUL 11	ADDED FRONT VIEW WITH NEW DRIVER	BY: MBJ

TN-2605-11/-21



⬡ = DRIVER COLUMN NUMBER WIRED TO THAT DIGIT.

15" = DIGIT SIZE



DRIVER DETAIL

SCALE X 2

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED TENNIS SCOERBOARDS

TITLE: COMPONENT LOCATION; TN-2605

DES. BY: KDRAGT

DRAWN BY: KDRAGT

DATE: 28 DEC 08

REV.	DATE	DESCRIPTION	BY	APPR.
00				

REVISION
00

APPR. BY:

SCALE: 1=20

1164-E10A-583550

01	24 FEB 09	ADDED BACKLIT CAPTION
02	29 JUL 09	UPDATED BLOCKS
03	10 OCT 09	UPDATED TNMCS
04	20 NOV 09	UPDATED TNMCS TO NEWER STYLE
05	25 AUG 11	UPDATES NOTES SECTION

DAKTRONICS, INC.
BROOKINGS, SD 57006

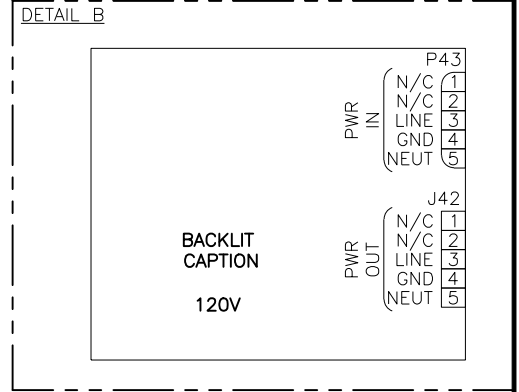
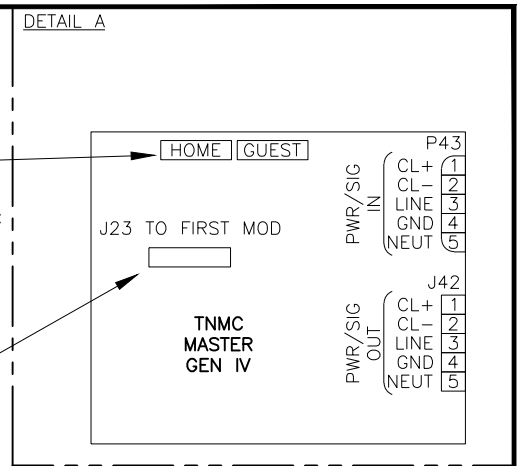
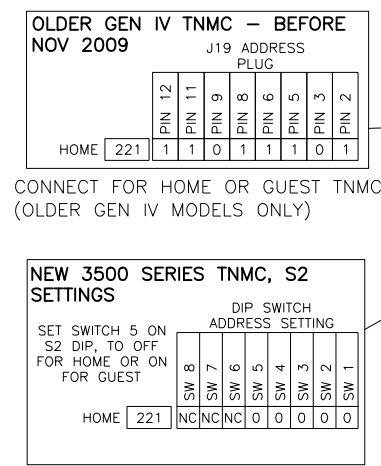
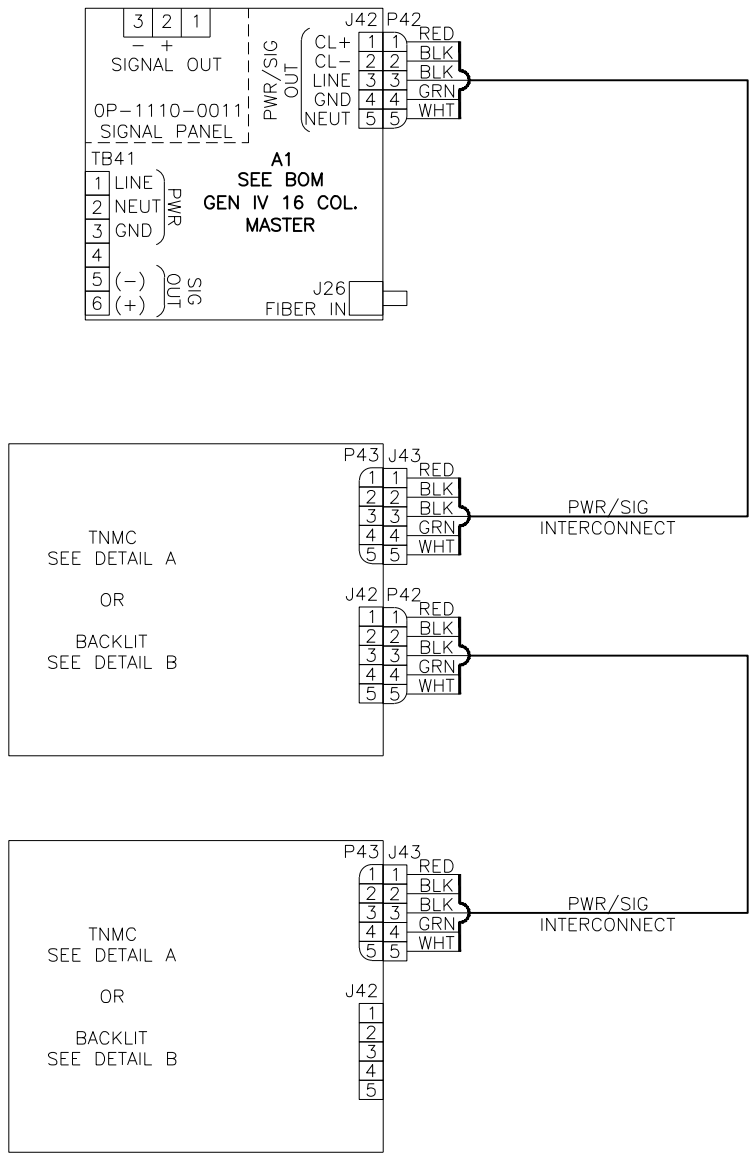
DO NOT SCALE DRAWING

PROJ: OUTDOOR LED SCOREBOARDS
TITLE: SCHEMATIC; 1 DRYR, TNMG, GEN IV
DESIGN: KBIERBA
SCALE: _____
DRAWN: KBIERBA

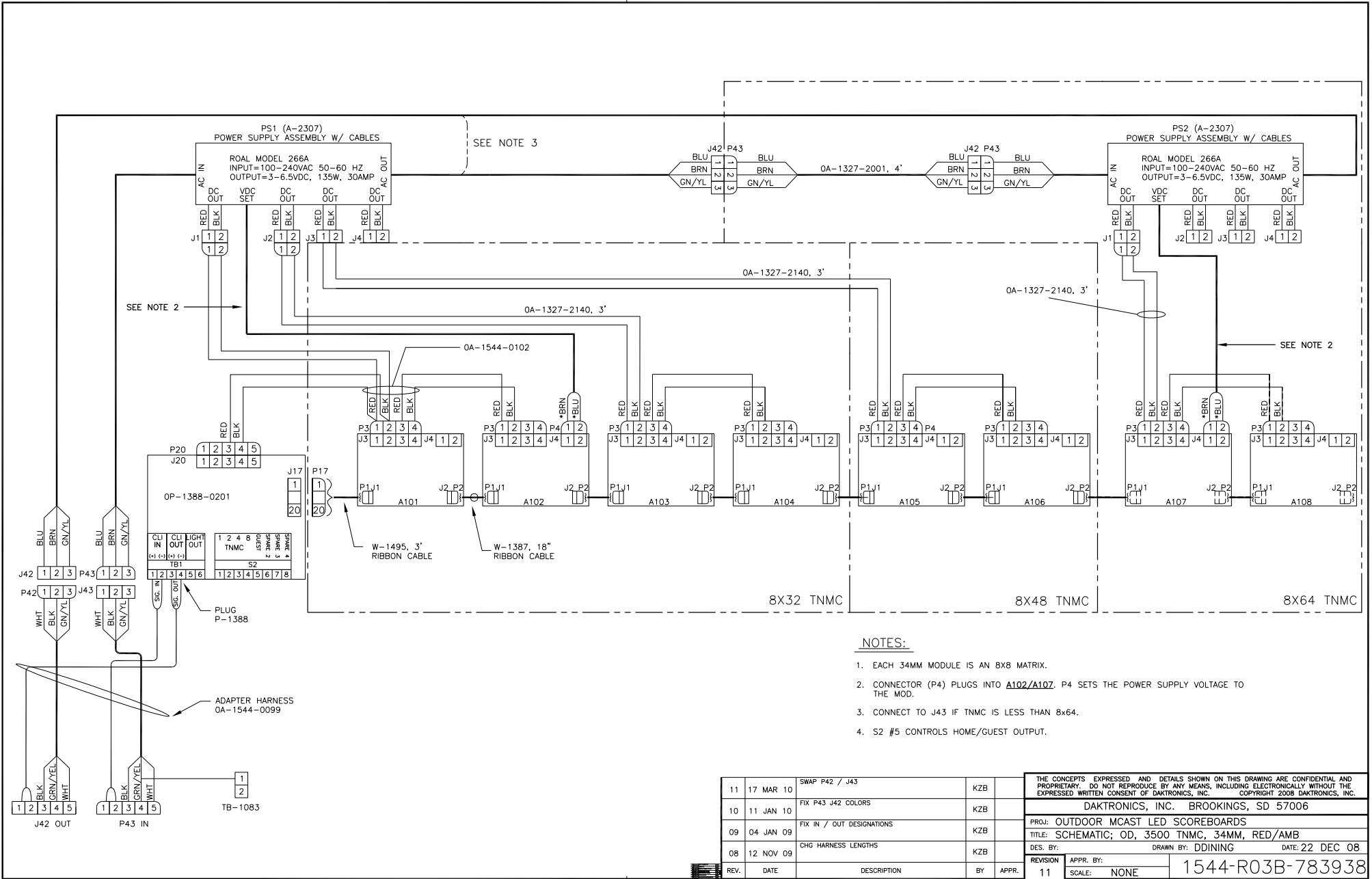
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SHEET _____ REV 05
JOB NO: P1407
DATE: 11 NOV 08
FUNC-TYPE-SIZE: E-03-A

752372



-FOR ADDRESS/PWR SPECS SEE DWG IN PACKET
-SEE HARNESS STAGE DWG FOR PWR/SIG HARNESS LENGTH & PART NUMBERS



NOTES:

1. EACH 34MM MODULE IS AN 8X8 MATRIX.
2. CONNECTOR (P4) PLUGS INTO A102/A107. P4 SETS THE POWER SUPPLY VOLTAGE TO THE MOD.
3. CONNECT TO J43 IF TNMC IS LESS THAN 8x64.
4. S2 #5 CONTROLS HOME/GUEST OUTPUT.

REV.	DATE	DESCRIPTION	BY	APPR.
11	17 MAR 10	SWAP P42 / J43	KZB	
10	11 JAN 10	FIX P43 J42 COLORS	KZB	
09	04 JAN 09	FIX IN / OUT DESIGNATIONS	KZB	
08	12 NOV 09	CHG HARNESS LENGTHS	KZB	

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DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: OUTDOOR MCAST LED SCOREBOARDS	DES. BY: DDINING
TITLE: SCHEMATIC; OD, 3500 TNMC, 34MM, RED/AMB	DATE: 22 DEC 08
REVISION: 11	APPR. BY: SCALE: NONE

1544-R03B-783938

DRIVER_MCAST_4_COL
OP-1388-0201



SW8 - T.O.D. ON ENABLED
SW5 - HOME OR GUEST SELECT
OFF = HOME
ON = GUEST

J24 LIGHT SENSOR

PIN	FUNCTION
1	LIGHT_IN-P
2	LIGHT_IN-N
3	+5V-P
4	GND-N
5	GND-N
6	232_IN-P

TB1 SIGNAL

PIN	FUNCTION
1	SIG-P
2	SIG-N
3	CLOUT-P
4	CLOUT-N
5	LIGHT_0-P
6	LIGHT_0-N
7	232_IN-P
8	GND-N

J30 RADIO (MAIN)

PIN	FUNCTION
1	+UNREG-P
2	GND-N
3	GND-N
4	INPUT-P

J31 RADIO (AUX)

PIN	FUNCTION
1	+UNREG-P
2	GND-N
3	GND-N
4	INPUT-P

J29 SW INPUTS

PIN	FUNCTION
1	SW_IN0-P
2	GND-N
3	SW_IN1-P
4	GND-N
5	SW_IN2-P
6	GND-N
7	SW_IN3-P
8	GND-N

J19 PROGRAM JACK

PIN	FUNCTION
1	PGC
2	/MCLR
3	N/C
4	GND-N
5	PGD
6	GND-N
7	PGM
8	+5V-P
9	N/C
10	N/C

J25 (AUX 5)

PIN	FUNCTION
1	120VAC SW P
2	120VAC SW N

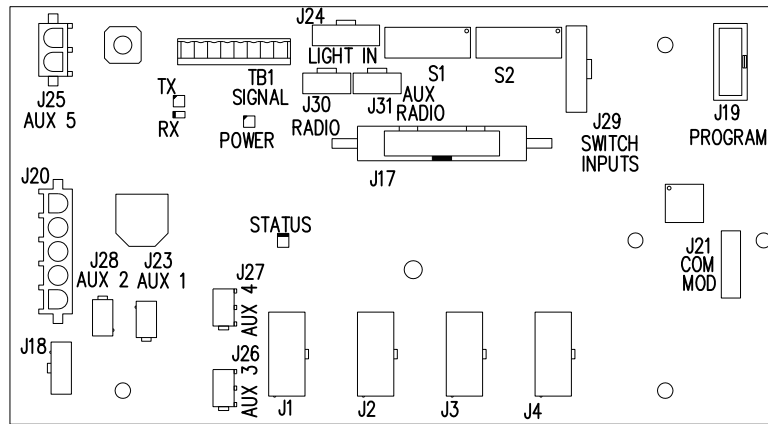
120VAC SWITCHED
AUX OUT
(1.25A MAX)

J20 POWER IN

PIN	FUNCTION
5	+VDD-P
4	GND-N
3	XFMR-CT
2	GND-N
1	+VBB-P

J18 PWR OUT

PIN	FUNCTION
1	20VDC
2	10VDC
3	GND-N



J21 COM MOD HEADER

FUNCTION	PIN	PIN	FUNCTION
N/C	A	1	N/C
N/C	B	2	MOD_TX
N/C	C	3	MOD_RX
GND-N	D	4	GND-N
GND-N	E	5	GND-N
+5V	F	6	N/C
N/C	H	7	+5V

J23,28 (AUX 1 - 2)

PIN	FUNCTION
1	SWITCHED AC V
2	GND-N

SECONDARY VOLTAGE
SWITCHED GND
200ma MAX

J26-27 (AUX 3 - 4)

PIN	FUNCTION
1	SWITCHED DC V
2	GND-N

AUX 3&4 MAX OUTPUT
INDOOR=2A
OUTDOOR 1.5A

J1-4 DIGITS

PIN	FUNCTION
1	SEGA-N
2	SEGB-N
3	SEGC-N
4	SEGD-N
5	SEGE-N
6	SEGF-N
7	SEGG-N
8	SEGH-N
9	+V1
10	+V2

200mA MAX / SEGMENT
12.8A MAX LOAD FOR
EVEN OR ODD COLUMNS

J17 TEAM NAME OUTPUT

FUNCTION	PIN	PIN	FUNCTION
GND4-P	11	10	ID3
RED4-P	12	9	ID2
GND3-P	13	8	GND-N
MTRX_CLK	14	7	GND-N
RED3-P	15	6	GRN2-P
RED2-P	16	5	GND-N
MTRX_DIM	17	4	GND-N
MTRX_LT	18	3	GND-N
GND1-P	19	2	ID1
RED1-P	20	1	ID0

NOTES:

- GREEN POWER LED INDICATES THAT THE DRIVER HAS POWER.
- RED RX LED IS ON WHEN INPUT SIGNAL IS CONNECTED BUT IDLE AND BLINKS WHEN DATA IS RECEIVED. IF RED RX LED IS OFF, THERE IS NO CONNECTION.
- TX LED IS ON WHEN SIGNAL IS DISCONNECTED AND OFF WHEN INPUT IS IDLE. THE TX LED BLINKS WHEN DATA IS TRANSMITTED.
- AMBER STATUS LED WILL BLINK WHEN THE DRIVER IS RUNNING.
- IF STATUS LED IS ON OR OFF CONTINUOUSLY THE MICROCONTROLLER IS NOT WORKING.
- REFER TO THE FOLLOWING DRAWINGS FOR ADDRESS AND SWITCH SETTINGS:

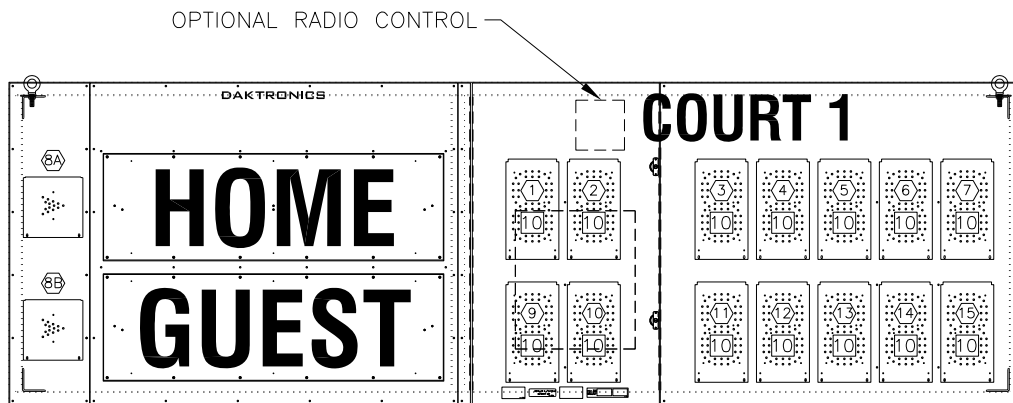
ADDRESS SWITCH (S1) A-328273

TNMC ADD SWITCH (S2) A-328274

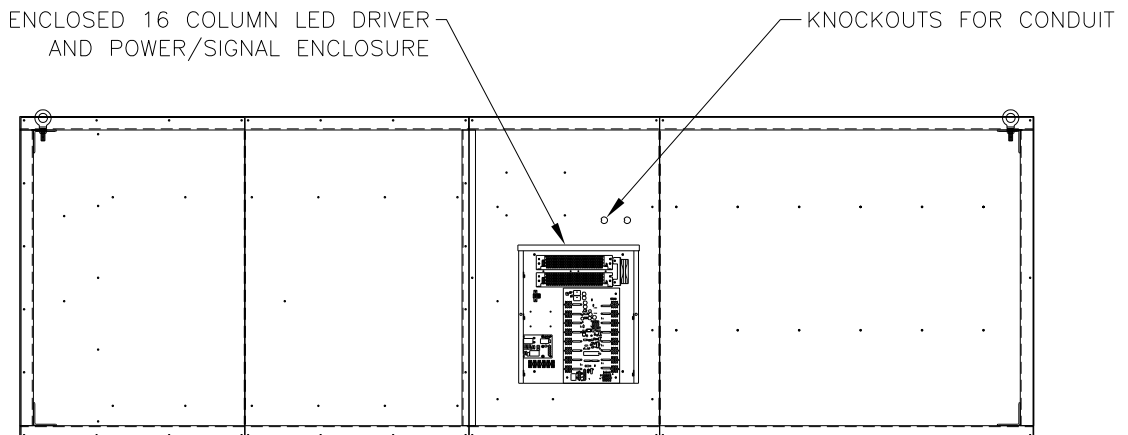
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2009 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:			
TITLE: SPECIFICATIONS; DRIVER, MCAST, 4 COL			
DES. BY: KKASKI		DRAWN BY: DULSCHM	
		DATE: 23 JAN 09	
REVISION	APPR. BY:	1388-E07A-793970	
01	SCALE: 1 = 2		

REV.	DATE	DESCRIPTION	BY	APPR.
01	21 SEP 09	UPDATED SWITCH DRAWING NUMBERS	DJU	

TN-2607-11/-21



FRONT VIEW



FRONT VIEW

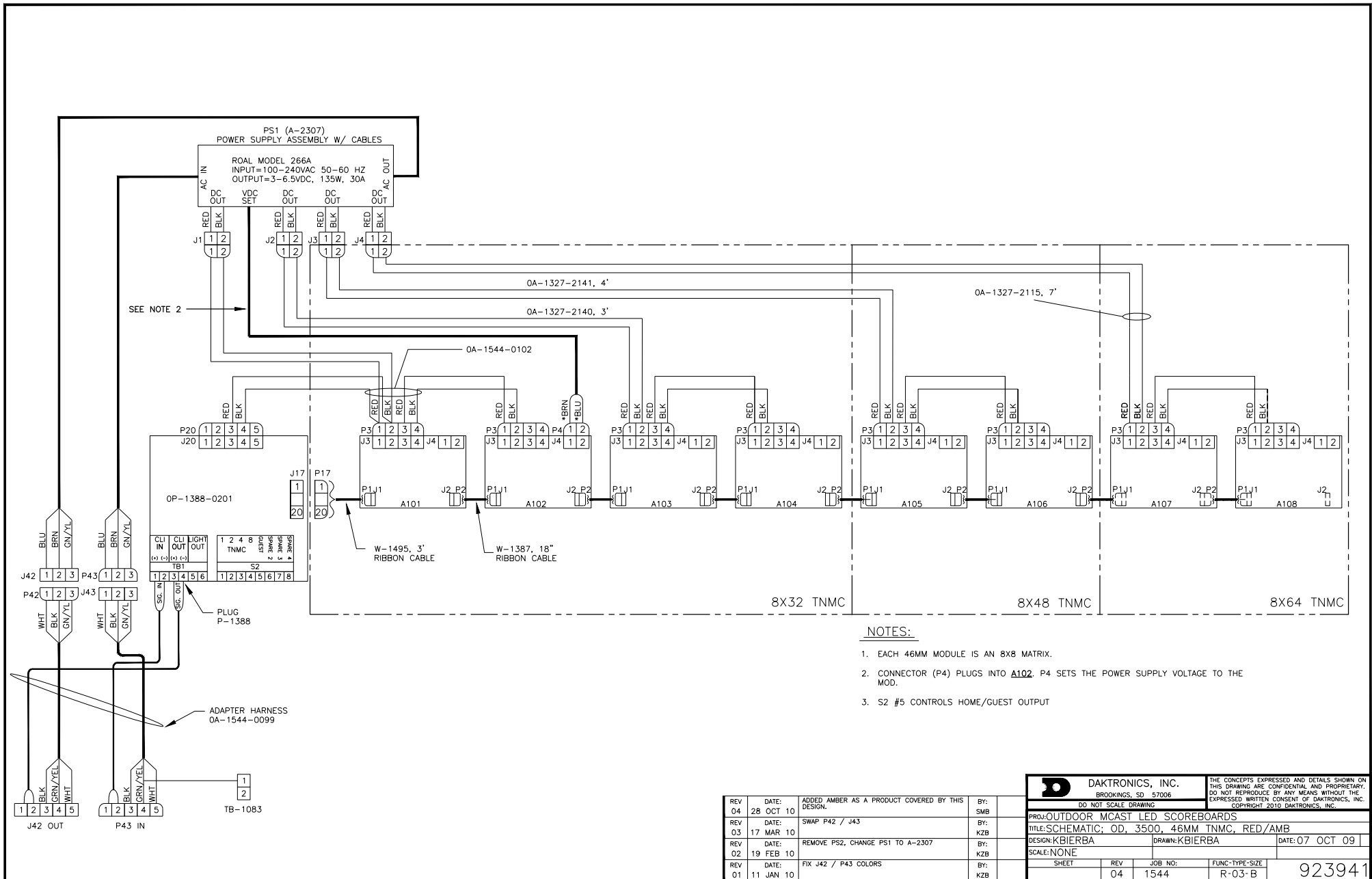
SHOWN WITH FRONTSHEETS OFF TO SHOW DRIVER

① = DRIVER COLUMN NUMBER WIRED TO THAT DIGIT.

⑩ = DIGIT SIZE ALL DIGITS ARE 10" HIGH.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR TENNIS SCOREBOARDS			
TITLE: COMPONENT LOCATION; TN-2607-11/-21, G4			
DES. BY: VSHIRAL		DRAWN BY: VSHIRAL	DATE: 06 MAY 09
REVISION	APPR. BY:	1164-E08A-839312	
00	SCALE: 1=25		

REV.	DATE	DESCRIPTION	BY	APPR.



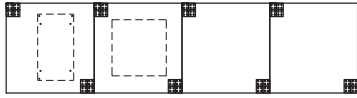
NOTES:

1. EACH 46MM MODULE IS AN 8X8 MATRIX.
2. CONNECTOR (P4) PLUGS INTO A102. P4 SETS THE POWER SUPPLY VOLTAGE TO THE MOD.
3. S2 #5 CONTROLS HOME/GUEST OUTPUT

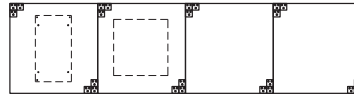
REV 04	DATE: 28 OCT 10	ADDED AMBER AS A PRODUCT COVERED BY THIS DESIGN.	BY: SMB
REV 03	DATE: 17 MAR 10	SWAP P42 / J43	BY: KZB
REV 02	DATE: 19 FEB 10	REMOVE PS2, CHANGE PS1 TO A-2307	BY: KZB
REV 01	DATE: 11 JAN 10	FIX J42 / P43 COLORS	BY: KZB

<p>DAKTRONICS, INC. BROOKINGS, SD 57006</p>	<p>THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2010 DAKTRONICS, INC.</p>	
	<p>DO NOT SCALE DRAWING</p>	
<p>PROJ: OUTDOOR MCAST LED SCOREBOARDS</p>		
<p>TITLE: SCHEMATIC; OD, 3500, 46MM TNMC, RED/AMB</p>		
<p>DESIGN: KBIERBA</p>		<p>DATE: 07 OCT 09</p>
<p>SCALE: NONE</p>		
SHEET	REV	JOB NO.
04	04	1544
<p>FLUNC-TYPE-SIZE</p>		<p>R-03-B</p>
		<p>923941</p>

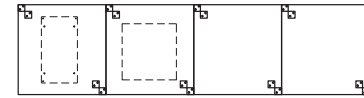
8x32- 34MM AMBER LED TNMC



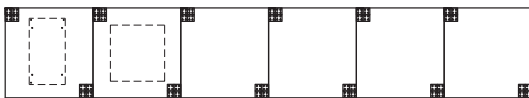
8x32- 34MM RED LED TNMC



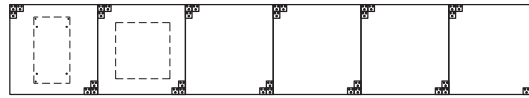
8x32- 34MM WHITE LED TNMC



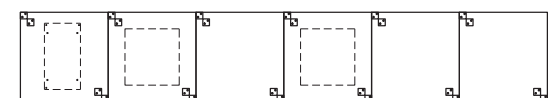
8x48- 34MM AMBER LED TNMC



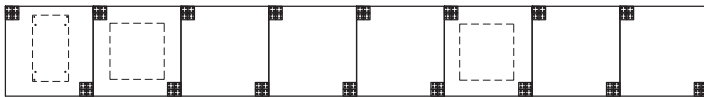
8x48- 34MM RED LED TNMC



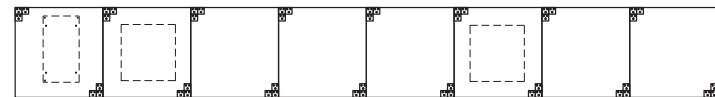
8x48- 34MM WHITE LED TNMC



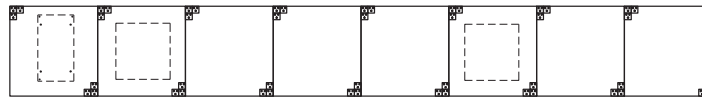
8x64- 34MM AMBER LED TNMC



8x64- 34MM RED LED TNMC



8x64- 34MM WHITE LED TNMC



AMBER LED TNMC MODULE



RED LED TNMC MODULE



WHITE LED TNMC MODULE



DRIVER

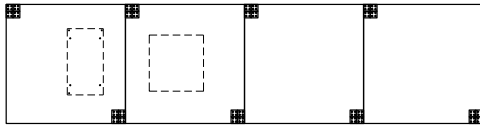


POWER SUPPLY

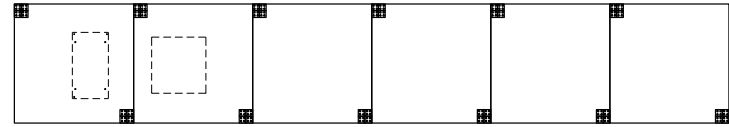
		DAKTRONICS, INC.		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2010 DAKTRONICS, INC.	
BROOKINGS, SD 57006		DO NOT SCALE DRAWING			
PROJ: OUTDOOR LED SCOREBOARDS					
TITLE: COMPONENT LOC.: 34MM RED/AMB/WHT LED TNMC G4					
DESIGN: KDRAGT		DRAWN: KOLSON		DATE: 18 FEB 10	
SCALE: 1=15					
SHEET	REV	JOB NO.	FLUNC-TYPE-SIZE		
	02	P1544	R-08-B	975100	

REV 02	DATE: 11 SEP 12	ADDED 1 P.S. TO 8X48-34MM WHITE (TWO REQUIRED). ADDED 8X64-34MM WHITE LAYOUT.	BY: SMB
REV 01	DATE: 04 NOV 10	MADE DRAWING GENERIC	BY: SAG

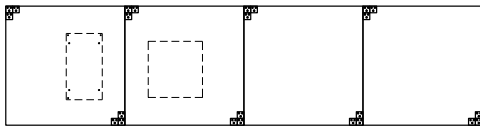
8X32- 46MM AMBER LED TNMC



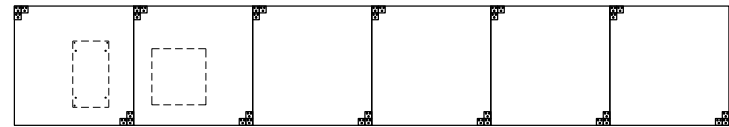
8X48- 46MM AMBER LED TNMC



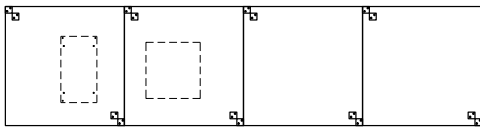
8X32- 46MM RED LED TNMC



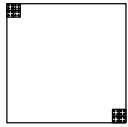
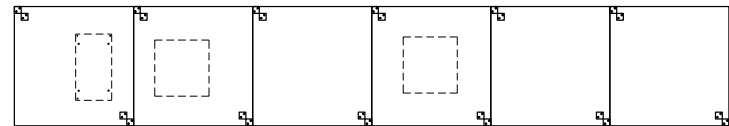
8X48- 46MM RED LED TNMC



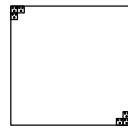
8X32- 46MM WHITE LED TNMC



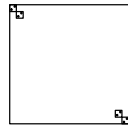
8X48- 46MM WHITE LED TNMC



AMBER LED TNMC MODULE



RED LED TNMC MODULE




WHITE LED TNMC MODULE



DRIVER

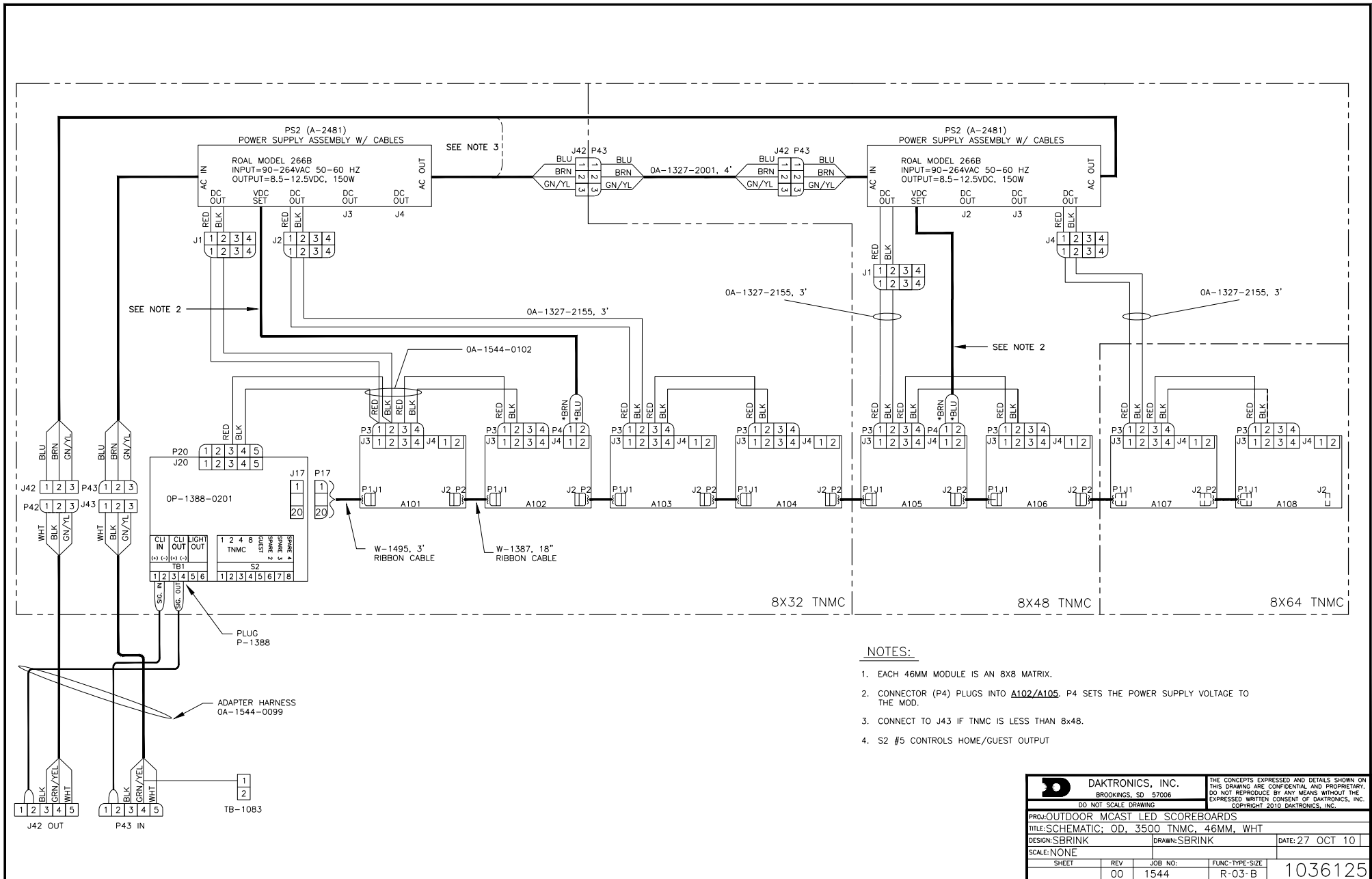


POWER SUPPLY

		DAKTRONICS, INC.		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2010 DAKTRONICS, INC.	
BROOKINGS, SD 57006		DO NOT SCALE DRAWING			
PROJ: OUTDOOR LED SCOREBOARDS					
TITLE: COMPONENT LOC.: 46MM RED/AMB/WHT LED TNMC G4					
DESIGN: KDRAGT			DRAWN: KOLSON		DATE: 19 FEB 10
SCALE: 1=15					
SHEET	REV	JOB NO.	FLWC-TYPE-SIZE		
	01	P1544	R-08-B		
					975635

REV	DATE	MADE DRAWING GENERIC
01	04 NOV 10	

BY:	SAG
-----	-----



PS2 (A-2481)
POWER SUPPLY ASSEMBLY W/ CABLES
ROAL MODEL 266B
INPUT=90-264VAC 50-60 HZ
OUTPUT=8.5-12.5VDC, 150W

SEE NOTE 3

SEE NOTE 2

OA-1327-2155, 3'

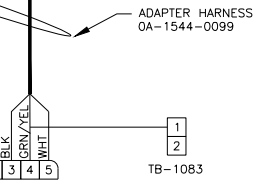
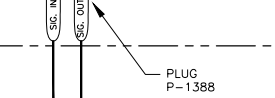
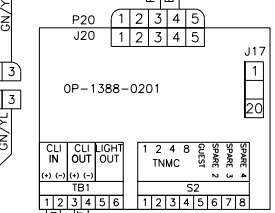
OA-1544-0102

PS2 (A-2481)
POWER SUPPLY ASSEMBLY W/ CABLES
ROAL MODEL 266B
INPUT=90-264VAC 50-60 HZ
OUTPUT=8.5-12.5VDC, 150W

OA-1327-2155, 3'

SEE NOTE 2

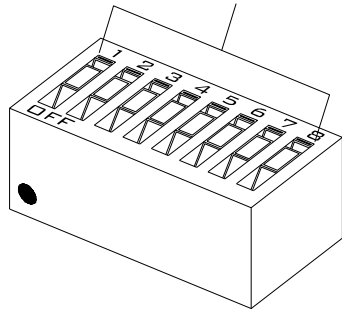
OA-1327-2155, 3'



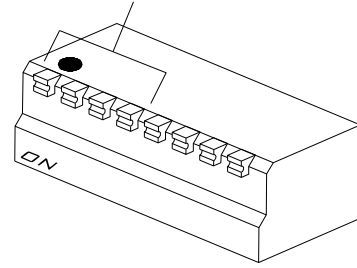
- NOTES:**
1. EACH 46MM MODULE IS AN 8X8 MATRIX.
 2. CONNECTOR (P4) PLUGS INTO A102/A105. P4 SETS THE POWER SUPPLY VOLTAGE TO THE MOD.
 3. CONNECT TO J43 IF TNMC IS LESS THAN 8x48.
 4. S2 #5 CONTROLS HOME/GUEST OUTPUT

DAKTRONICS, INC. BROOKINGS, SD 57006 DO NOT SCALE DRAWING		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2010 DAKTRONICS, INC.	
		PROJ: OUTDOOR MCAST LED SCOREBOARDS TITLE: SCHEMATIC; OD, 3500 TNMC, 46MM, WHT DESIGN: SBRINK DRAWN: SBRINK DATE: 27 OCT 10	
SCALE: NONE			
SHEET	REV	JOB NO.	FLUNC-TYPE-SIZE
	00	1544	R-03-B
			1036125

S1: 16 COL DRIVER ADDRESS SWITCHES



S2: TMNC ADDRESS SWITCHES



		SWITCH 8	SWITCH 7	SWITCH 6	SWITCH 5	SWITCH 4	SWITCH 3	SWITCH 2	SWITCH 1
(DRIVER) COURT 1	11	0	0	0	0	1	0	1	1
COURT 2	12	0	0	0	0	1	1	0	0
COURT 3	13	0	0	0	0	1	1	0	1
COURT 4	14	0	0	0	0	1	1	1	0
COURT 5	15	0	0	0	0	1	1	1	1
COURT 6	16	0	0	0	1	0	0	0	0
COURT 7	17	0	0	0	1	0	0	0	1
COURT 8	18	0	0	0	1	0	0	1	0
COURT 9	29	0	0	0	1	1	1	0	1
COURT 10	30	0	0	0	1	1	1	1	0
COURT 11	31	0	0	0	1	1	1	1	1
COURT 12	32	0	0	1	0	0	0	0	0
TOD/TEAM SCORE	20	0	0	0	1	0	1	0	0

		SWITCH SP4	SWITCH SP3	SWITCH SP2	SWITCH GST	SWITCH 8	SWITCH 4	SWITCH 2	SWITCH 1
(TNMC) COURT 1	221					0	0	0	0
COURT 2	222					0	0	0	1
COURT 3	223					0	0	1	0
COURT 4	224					0	0	1	1
COURT 5	225					0	1	0	0
COURT 6	226					0	1	0	1
COURT 7	227					0	1	1	0
COURT 8	228					0	1	1	1
COURT 9	229					1	0	0	0
TOD/TEAM SCORE	230					1	0	0	1
COURT 10	231					1	0	1	0
COURT 11	232					1	0	1	1
COURT 12	233					1	1	0	0

KEY: 0 = SWITCH OFF
1 = SWITCH ON


↑ SELECTS HOME (0)
OR GUEST (1)

NOTES

ALL SINGLE COURT SCOREBOARDS ARE PRESET WITH ADDRESS 11 (DRIVER) AND 221 (TNMC).

SINGLE COURT SCOREBOARDS MUST HAVE ADDRESS RESASSIGNED WHEN USED IN DAKTENNIS SYSTEM WITH MULTIPLE COURTS.

SET ADDRESS OF DRIVER AND TNMC WITH CHARTS ABOVE, CORRESPONDING TO THE COURT # ON THE SCOREBOARD.

 DAKTRONICS, INC. BROOKINGS, SD 57006		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2011 DAKTRONICS, INC.	
PROJ:			
TITLE: ADDRESS DETAILS; OUTDOOR TENNIS SCOREBOARDS			
DESIGN: KBIERBA		DRAWN: KBIERBA	
SCALE: NONE		DATE: 20 MAY 11	
SHEET	REV	JOB NO:	FUNC-TYPE-SIZE
	00	P1164	F-03-A
			1054089

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 1-800-DAKTRONics (1-800-325-8766).