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FCC Statement

Supplier Declaration of Conformity (SDoC)

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Warning: The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Industry Canada Regulatory Information

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Inquiries

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1 Introduction

This manual explains the installation, maintenance, and troubleshooting of a Daktronics scorer's table system. For additional information regarding the safety, installation, operation, or service of this system, refer to the telephone numbers listed in **Section 5: Daktronics Exchange and Repair & Return Programs (p.24)**. This manual is not specific to a particular installation. Contract-specific information takes precedence over any other general information found in this manual.

Important Safeguards

- Read and understand all instructions before beginning the installation process.
- Disconnect the display power when not in use or when servicing.
- Disconnect the 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 structure or attach any panels or coverings to the display without the express written consent of Daktronics.
- Do not disassemble control equipment or electronic controls of the display; failure to follow this safeguard will make the warranty null and void.
- Do not drop the control equipment or allow it to get wet.

Resources

Figure 1 illustrates a Daktronics drawing label. This manual refers to drawings by listing the last set of digits. In the example, the drawing would be referred to as **DWG-1007804**. All references to drawing numbers, appendices, figures, or other manuals are presented in bold typeface. Any drawings referenced in a particular section are listed at the beginning of it as shown below:

DA B DO NO	THE CONCEPTS EXP THIS DRAWING ARE DO NOT REPRODUCE EXPRESSED WRITTEN COPYRIGHT 2	BY AN CONSE	NTIAL /	ND PROF	PRIETARY.				
PROJ: DAKTRONICS									
TITLE:SYSTEM RI	SER D	IAGF	RAM						
DESIGN:			DRAWN:AP	AGE		DAT	:11	MAY	10
SCALE: NONE							_		/
SHEET	REV		JOB NO:		FUNC-TYPE-SIZE	1	\cap	770	
200	02	C1	7581		F-01-D	(00)/C	504,
							~		

Drawing Number /

Figure 1: Drawing Label

Reference Drawing:

System Riser Diagram......DWG-1007804

Daktronics identifies manuals by the DD or ED number located on the cover page.

Listed below are drawing types commonly used by Daktronics, along with the information each is likely to provide. All drawings referenced in this manual are found in **Appendix A**.

- Schematic Drawings: describe internal power and signal wiring as well as interconnections between display sections
- Shop Drawings: describe mounting methods to structural elements, access method (front or rear), and power and signal entrance points
- **System Riser Diagrams:** describe power/signal connections between components and the control location; may also include control room layout and schematic
- **Final Assembly Drawings:** describe internal display component locations and detailed product appearance with part numbers and quantities

Ensure all applicable materials have been gathered before beginning the installation. Contact a Daktronics sales coordinator or project manager.

Introduction

Numbering Conventions

Module Number

Figure 2 illustrates how Daktronics numbers modules on a digital display, and Figure 3 explains the module labeling method in more detail.

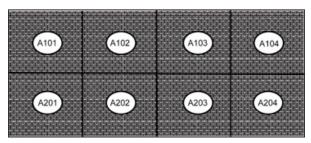
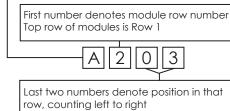


Figure 2: Module Numbering

more than one viewing face; "A" denotes first face, "B" the second, etc.



Used to differentiate display face if system has

Figure 3: Module Numbering Breakdown

Part Number

Most display components have a white label that lists the part number (**Figure 4**). Part numbers will also appear on certain drawings. If a display component is not found in the **Replacement Parts (p.23)**, use the label to order a replacement. Refer to **Section 5: Daktronics Exchange and Repair & Return Programs (p.24)** if replacing or repairing any display component.

ÓP-112	7-0024
SN:	2465
02/19/12	2 Rev. 1

Figure 4: Part Label

Part Type	Part Example	Part Number
Assembly	Display interface board and the mounting plate or bracket	0A-XXXX-XXXX
Individual display interface board	ProLink Router (PLR)	OP-XXXX-XXXX
Wire or cable	SATA cable	W-XXXX

Model Number

Each display system has a model number that explains the display specifications.

Please have the assembly number, model number, and the date manufactured on hand when calling Daktronics customer service to ensure the request is serviced as quickly as possible. Knowing the facility name and/or job number will also be helpful.

ST-23XY-6/10MN-HxW					
ST	=	Product series			
23XY	=	Product generation			
6/10MN	=	Pixel pitch & layout			
Н	=	Display height (pixels)			
W	=	Display width (pixels)			

Light Strip Controllers

Daktronics scorer's tables equipped with optional End-of-Period (EOP) and/or Clock Stop light strips require an All Sport® 5000 series console to control them. Refer to the All Sport 5000 Series Control Console Operation Manual (ED-11976), available online at www. daktronics.com/manuals, for operating instructions. Refer to End-of-Period & Clock Stop Light Strip Kits (p.13) for more information about installing optional light strips.

Note: Light strips on tables used in NBA facilities may be controlled by the Tissot Timing Interface. Refer to the manufacturer's documentation for operating instructions.

2 Mechanical Installation

All decisions regarding display setup must conform to the specifications and guidelines in this section. Read both the mechanical and electrical installation sections before beginning any installation procedures.

Table Setup

Reference Drawings:

ST-23XY/ST-29XY, 64x288-10 / 96x432-6 DWG-3412	2819
ST-23XY/ST-29XY, 64x576-10 / 96x864-6 DWG-3413	3038
ST-23XY/ST-29XY, 64X864-10 / 96X1296-6 DWG-3421	834
ST-23XY/ST-29XY, 64X1152-10 / 96X1728-6 DWG-3421	854

Move the table(s) to the desired location. Depending on the power cord length, the table(s) should be within 25' (7.6 m), 50' (15.2 m), or 75' (22.9 m) of a power outlet.

- If there is only one table, skip ahead to Tabletop Setup (p.6).
- If there is more than one table, first refer to Multiple Table Connection (p.3).

Multiple Table Connection

If more than one scorer's table is to be used as part of a single display face, they must be lined up in the appropriate arrangement and attached to each other. One table attaches to another using three latches on the right-hand side of the table (as viewed from the rear). There is one latch in the cable tray (1), one latch on the rear of the caster base (2), and one latch on the lower-front corner of the caster base (3). Refer to **Figure 5** for the location and detail of these latches.

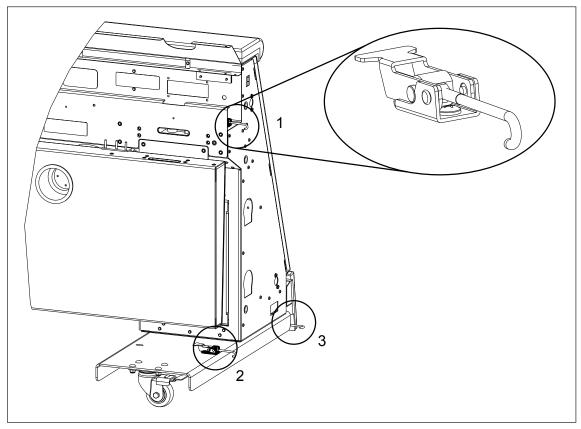


Figure 5: Latch Locations & Detail

Mechanical Installation

To attach the tables together, follow the steps below:

 Look at the back side of the tables to determine the section numbering. Section numbers are applied to the back of each table at the locations shown in Figure 6. The farthest right table (when viewed from the rear) will typically be labeled "101", then the next table to its left will be "102", and so on.

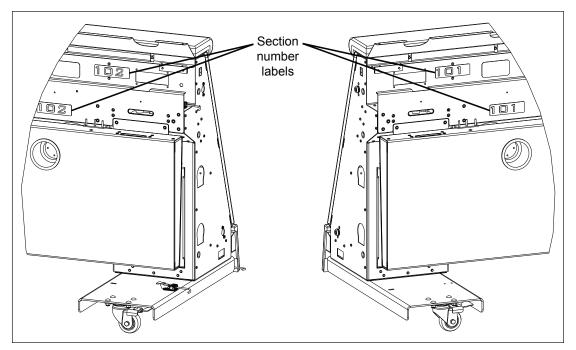


Figure 6: Section Number Label Locations

2. Position the two sections close together as shown in Figure 7.

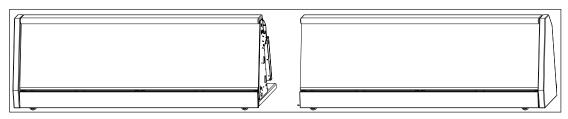
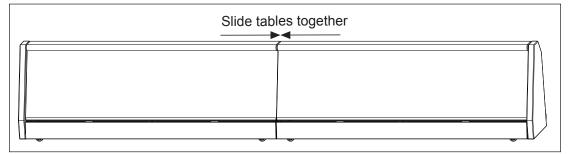
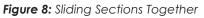


Figure 7: Positioning Sections Together

Note: At this point, ensure the flip latches are not sticking out the side of the tables prior to sliding the tables together, as this may damage the latches.

3. Slide the sections together as shown in Figure 8.





4. Latch all three latches on the left table to the right table (as viewed from the rear). Refer to **Figure 9** for illustrations of each latch properly connected.

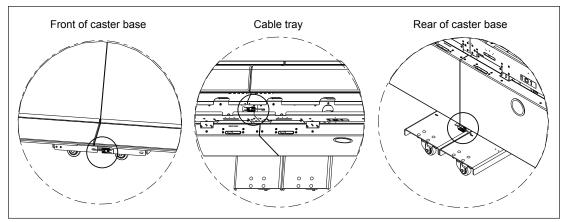


Figure 9: Latching Sections Together

Flip the hook end of the latch into the receiving slot on the adjacent table. Ensure the tables are seated completely together to avoid over-pulling the latch and flip the latch down into the locked position.

5. Repeat Steps 1-4 for all remaining tables.

Adjusting Latch Tension

The tension of the latches is pre-set at the factory. When engaged, the latches should create a snug fit. If there is a noticeable gap between the tables or if it is difficult to clasp the latches shut, adjust the tension by following the steps below and referring to **Figure 10**.

- 1. Use a 5/16" wrench to loosen the nut holding the metal hook in place.
- 2. Turn the metal hook clockwise to tighten the latch or counterclockwise to loosen the latch.
- 3. Ensure the metal hook is pointing straight downward and then tighten the nut.

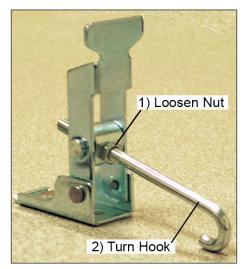


Figure 10: Adjusting Latch Tension

Tabletop Setup

The tabletop should be upright only during games and events, and it should be in the dropped position when moving and storing the table. The following steps can be performed with one person but are easiest with two people. The tabletop capacity is rated at a maximum of **150 lb (68 kg)**.

To set up the tabletop:

1. With the table(s) in their desired location (and latched together), move to the rear and depress both rear caster locking brakes for each table.

Note: Before moving the table(s), always ensure the rear caster brakes are in the unlocked position.

2. Starting with the tabletop in the dropped position as shown in Figure 11, stand in the middle of one table and lift the tabletop upward as shown in Figure 12.



Figure 11: Tabletop Dropped

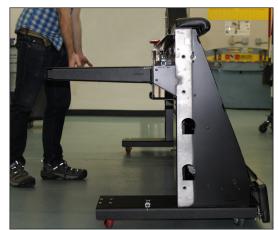


Figure 12: Lifting Up & Holding Tabletop

- While holding the tabletop in the upright position, insert a 5/16" T-handle wrench (Daktronics part # TH-1088) into the nearest of the four tabletop latch holes located in the bottom of the cable tray as shown in Figure 13.
- Rotate the wrench clockwise to engage the latch. Refer to Figure 13. Move on to the next latch location until all four latches are engaged.

Note: The wrench must be rotated 285° or a little over a 3/4 turn to fully engage the latch. All four latches must be used and fully engaged to support the rated load listed.



Figure 13: Rotating Wrench

5. Repeat Steps 2-4 for all remaining tables.

End Pad Attachment

End pads protect the ends of the table displays and also provide a finished look. To keep the players safe, these pads **must be attached** any time the table is in use during games and events.

The left- and right-side end pads are identical in shape and attach in the same manner but mirror each other. The example shown in **Figure 14** is specific to left-side pads (as viewed from the front), but right-side pads will attach the same way. Note that the table face panel is removed for clarity.

To attach the end pads:

- 1. Position the end pad at the end of the section. Four hook mounts attached to each end pad align with cutouts in the table frame.
- 2. Lift the pad up so all four hook mounts may be inserted into the cutouts. It is critical that all four hook mounts are positioned properly so they hold the pad securely onto the end of the table.
- **3.** Slide the pad downward in the angle of the frame after all four hook mounts are properly positioned in the cutouts. This hooks the end pad onto the table.
- 4. Verify all four brackets are hooked securely into the end of the table to prevent damage to the end pad or possible injury to a player.
- 5. Repeat steps 1-4 for the end pad at the opposite end of the table(s).

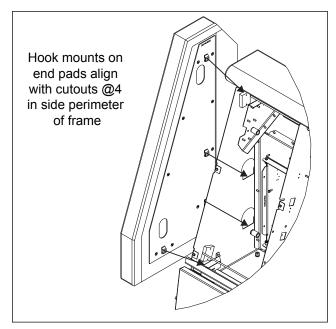


Figure 14: Aligning Brackets with Cutouts

3 Electrical Installation

This scorer's table system is intended to be installed in accordance with the requirements of Article 600 of the National Electrical Code and/or other applicable local codes. This includes proper grounding and bonding of the sign. This display is suitable for dry locations only. Only qualified individuals should terminate power and signal cable and access the electrical components of this display and its associated equipment.

Power Summary

The power from the sectional termination panel routes to the Power In jack on the power supplies. From there, power routes to the individual modules. ProLink Routers (PLRs) are powered by the closest available module. Refer to the appropriate Riser Diagram for detailed power information. Refer to the tables below for power specifications. Note that powers include 10 A for convenience outlets.

	02-6MN-WM 02-10MN-WM	ı		Bus: 120V~ -1P 60 Hz 2W + GND	Branch: 120V~ -1P 60 Hz 2W + GND
	Section			11 Among	Total Amos
Mods	Pixels (6MN)	Pixels (10MN)	Watts	L1 Amps	Total Amps
2x7	96x336	64x224	1728	14.4	14.4
2x8	96x384	64x256	1800	15.0	15.0
2x9	96x432	64x288	2064	17.2	17.2

	02-6MN-WN 02-10MN-WN			Bus: 120V~ -1P 60 Hz 2W + GND	Branch: 120V~ -1P 60 Hz 2W + GND
	Section		Watts	L1 Amps	Total Among
Mods	Pixels (6MN)	Pixels (10MN)	wans		Total Amps
2x7	96x336	64x224	1644	13.7	13.7
2x8	96x384	64x256	1704	14.2	14.2
2x9	96x432	64x288	1956	16.3	16.3

	04-6MN-WM 04-10MN-WM	ı		Bus: 120V~ -1P 60 Hz 2W + GND	Branch: 120V~ -1P 60 Hz 2W + GND
	Section		\A/ 11 -	11 Among	Total Amos
Mods	Pixels (6MN)	Pixels (10MN)	Watts	L1 Amps	Total Amps
2x7	96x336	64x224	1980	16.5	16.5
2x8	96x384	64x256	2064	17.2	17.2
2x9	96x432	64x288	2148	17.9	17.9

	04-6MN-WM 04-10MN-WM			Bus: 230V~ -1P 50 Hz 2W + GND	Branch: 230V~ -1P 50 Hz 2W + GND
	Section		Watts		Total Amos
Mods	Pixels (6MN)	Pixels (10MN)	waiis	L1 Amps	Total Amps
2x7	96x336	64x224	3048	13.3	13.3
2x8	96x384	64x256	3140	13.7	13.7
2x9	96x432	64x288	3209	14.0	14.0

Electrical Installation

Signal Summary

Depending on display application and control room design, display data may route from the control room to the display by a number of different pieces of equipment. The most common are the ProLink6 control system, the A/B transmitter interface, and the Video Image Processor (VIP) video interface itself.

The Layout; Component Placement Drawings and Block Diagrams in **Appendix A** illustrate the signal layout of each section of the display. The Config Drawing and Riser Diagram illustrate the signal connections from the control room to ProLink Routers (PLRs) in the display or from section to section of the display.

Data from the control system routes via fiber-optic cable from Fiber Port A on the VIP to a PLR in the display. Refer to the **VIP-5X6X Operator's Manual (DD2773152)** for details. The VIP may be located inside the display or in the control room or other remote location. Refer to the appropriate Config Drawing and Riser Diagram for more routing information.

The Riser Diagram illustrates the fiber layout from section to section of the display.

The Layout; Component Placement Drawings and Block Diagrams in **Appendix A** illustrate how data passes from one PLR to the modules and depict power harnessing and component placement.

Each PLR sends data to the modules within the display. Refer to the Layout; Component Drawings and Block Diagrams in **Appendix A** for routing information. Signal exits via fiber-optic cable from Fiber Port B on the PLR and routes to Fiber Port A on the next PLR. **Figure 15** illustrates a typical signal routing layout. Refer to the appropriate Config Drawing and Riser Diagram for further information.

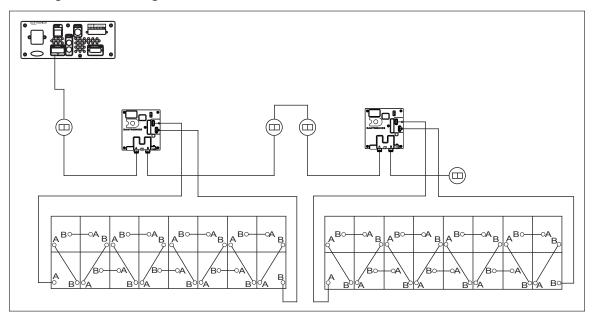


Figure 15: Signal Routing (Front View)

Common Connectors

When pulling a connector from a plug, pull the jack itself, not the wire or cable. Pulling the wires may damage the connector. Not all of these connectors are found in every display.

Water-Tight SATA Cable Connector

Daktronics uses a variety of SATA cables and SATA cable connectors. **Figure 16** illustrates one of the most commonly used SATA cable connectors. To disconnect the SATA cable connector, squeeze the side locking clips inward and pull the plug out of the jack.



Figure 16: SATA Cable Connector

Fiber-Optic Connector

LC connectors are square. To remove an LC connector, depress the small clip on the jack and gently remove. Refer to **Figure 17** and **Figure 18**.



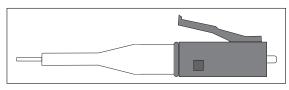


Figure 18: LC Fiber-Optic Connector

Figure 17: LC Industrial Fiber-Optic Connector

Control Cable

Refer to the appropriate Riser Diagram for specifications on signal and power cable runs. Refer to the **VIP-5X6X Operator's Manual (DD2773152)** for more information on the Video Image Processor (VIP).

The minimum bend radius for this fiber-optic cable is 15 times the outside diameter of the cable or 7" (178 mm). Refer to the appropriate Riser Diagram for the outside diameter of the cable in this system. All fiber-optic runs must be continuous except where noted on the Riser Diagram.

Display Power

All display grounding, power routing, and termination must meet or exceed local codes and standards.

Correct power installation is imperative for display operation. These subsections give details on display power installation. Only qualified individuals should attempt the electrical installation; untrained personnel should not attempt to install displays or any of the electrical components. Improper installation could result in serious equipment damage and could be hazardous to personnel.

The socket outlet must be installed near the equipment in an easy-to-access location.

Ensure all external overcurrent protection meets all local and national electrical codes and is appropriately sized to the load of the sections it is terminating.

Refer to the contract-specific documentation to determine who is responsible for providing conduit and pulling cable through the conduit.

Electrical Installation 10

Grounding

All components of a display system – including but not limited to displays, control equipment, and connected peripheral equipment – must be electrically grounded. Only qualified individuals may perform electrical work, including verification of ground resistance. Daktronics is not responsible for improper grounding or damage incurred as a result of improper grounding.

Grounding methods must meet the provisions of all applicable local and national codes. Inspect and verify all grounding methods meet the provisions of all applicable local and national codes.

Proper grounding is necessary for reliable equipment operation and general electrical safety. Failure to properly ground the display system may void the warranty, disrupt operation, damage equipment, and cause bodily harm or death.

Power Installation

- 1. Connect the grounding electrode cable at the local disconnect, never at the display termination panel.
- 2. Use a disconnect that opens all ungrounded phase conductors.

Main Disconnect

Refer to the appropriate Riser Diagram to determine who must supply a fused main distribution/disconnect and the necessary wiring for power distribution to multiple display termination panels.

The disconnect mechanism must be located in direct line of sight from the display it controls. This allows workers to keep the disconnect mechanism in view while performing display maintenance. Power disconnects capable of locking in the open position may be located in an out-of-sight location.

The customer or contractor is responsible for conduit and wire unless otherwise stated on contract-specific documentation.

Convenience & USB Outlets

Scorer's tables are equipped with 6, 8, or 10 convenience outlets, depending on the table's width, for plugging in control equipment and other small electronic devices. A 10 Amp resettable breaker limits the total convenience outlet power draw. Tables also feature 8 USB outlets (2 outlets with 4 ports each) to power cellphones, tablets, and other equipment with USB chargers.

Refer to the Layout; Component Placement Drawings and Block Diagrams in **Appendix A** for outlet and resettable breaker locations.

Note: USB outlets are not available on international 240 V models.

Power Termination at Termination Panel(s)

All power routing and termination must comply with local and national codes and standards. Display grounding must agree with local and national codes and standards.

When terminating power at the termination panel, the individual power phases must balance as evenly as possible. Current draw per line, as noted on the Riser Diagram, is stated as the high leg current draw.

Display Wiring

Power Cables

Each scorer's table is equipped with a NEMA® L5-20P flanged inlet (Hubbell® HBL2315).

The power cable (provided by Daktronics) is a 12 AWG SO cable (25', 50', or 75') with a NEMA® L5-20R connector (Hubbell® HBL2313) connected to the table and a NEMA® L5-20P plug (Hubbell® HBL2311) connected to a wall/floor box. Refer to the appropriate Riser Diagram for details on who is supplying the plug.

Signal Cables

Route the fiber and SATA cables based on the appropriate Block Diagram, Config Drawing, and Riser Diagram in **Appendix A**.

Interconnect Cables with Embedded Controller

Refer to the appropriate Riser Diagram, Figure 19, and Figure 20 for connection details.



Figure 19: Left Connections (Rear View)



Figure 20: Right Connections (Rear View)

Fiber Connections

- VIP FIBER OUT to FIBER IN on the same table using fiber jumper (part # W-1767) only used on the first table in a row of tables
- FIBER OUT to FIBER IN between tables (if required)

Network Connections

- NETWORK IN from control location; may also connect via DAK NETWORK convenience outlets
- **INTERNET IN** from modem; provides Internet access to the **DAK NETWORK** convenience outlets
- **NETWORK OUT** to **NETWORK IN** between tables (if required) only used when multiple tables with embedded controllers are connected together

Interconnect Cables with External Controller

Refer to the appropriate Riser Diagram, Figure 19, and Figure 20 for connection details.

Fiber Connections

- FIBER IN from VIP at control location or local fiber J-box
- FIBER OUT to FIBER IN between tables (if required)

Network Connections

• **INTERNET IN** from modem; provides Internet access to the **DAK NETWORK** convenience outlets

End-of-Period & Clock Stop Light Strip Kits

Reference Drawings:

Rear Clock Stop Assy, Manual DWG, ST A3..... DWG-4630118

Daktronics scorer's tables may have optional End-of-Period (EOP) light strips running along the bottom front of the table that illuminate at the end of the period. Tables may also feature Clock Stop light strips along the rear cable tray. EOP light strips are typically factory installed, while rear Clock Stop light strips must be installed on site per **DWG-4630118**. Ensure the All Sport controller is connected and powered on as described below.

- 1. Set the All Sport control console on the tabletop and plug the power cord into one of the convenience outlets.
- Connect the 10' (3 m) 1/4" phone signal cable (part # W-1340) from J1, J2, or J3 on the control console to the SIGNAL IN jack located behind the lower-right rear access door of the primary table.

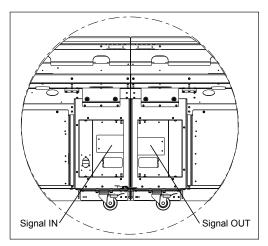


Figure 21: Light Strip Input/Output Jacks

3. Power on the control console and enter the appropriate sport code found on the keyboard overlay and in the All Sport manual listed in Light Strip Controllers (p.2) to test the light strips.

For multiple tables with light strips, connect 5' (1.5 m) 3-pin XLR cables (part # 0A-1313-0114) between the tables. The XLR input and output jacks are located behind the left and right rear access doors. Refer to **Figure 21**.

NBA Light Strip Kits

The light strip kits for use in NBA facilities may be controlled via Tissot Timing Interface rather than an All Sport control console. Instead of a 1/4" phone cable input on the primary table, there will be two XLR inputs. All connections between tables will remain the same as described above.

Possession Indicator

Reference Drawings:

Poss Ind Attachment, Manual DWG; ST A3 DWG-3547653

Daktronics scorer's tables may have an optional possession indicator that sits atop the table padding (**Figure 22**). These are designed so they can be positioned approximately every 6.25" (159 mm) to best align with the center of the table(s). **DWG-3547653** illustrates mounting and connection. Possession indicators mount to the rear of the top of the table using included #10-24 x 0.625" machine screws. Plug the power cord into the dedicated convenience outlet labeled **POSS. INDICATOR OUTLET ONLY**. To operate, simply flip the switch on the back of the unit toward the side of the court that has possession, and the LED indicators will illuminate on both the front and back of the unit.

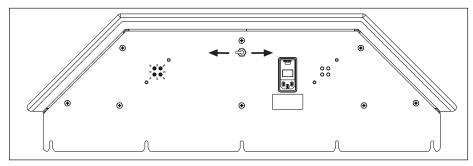


Figure 22: Possession Indicator, Rear View

Display Continuity Check

Before turning on power to the display, perform a continuity check to ensure no short circuits occurred due to shipping vibration.

Caution: Before performing these steps, ensure all breakers are off.

- 1. Remove the cover from the termination panel.
- 2. Use an ohmmeter and place one probe on the neutral terminal and one probe to each of the taps on the breaker wire terminal. Repeat the same test for each breaker.
- **3.** Place one probe to earth ground and one to each of the breaker wire terminals and repeat for each breaker.

All tests should result in a reading of infinity or indicate an open circuit.

Display Power Up

- 1. Turn on the main disconnect/plug in the power cord to power up the display.
- 2. Power up the control system to ensure it is fully operational before proceeding.
- 3. Run an initialization/power-up script or animation/logo on the display.

Signal Redundancy

Each scorer's table is set up for module redundancy.

Module Redundancy

Module redundancy provides a primary and redundant SATA connection throughout the entire display to protect the system from signal failure. If a module in the middle of a signal chain fails, the redundant signal path takes over and limits the signal failure to that single module.

Module Redundancy Testing

To test the module redundancy wiring after the display has power and signal connected, locate the appropriate Block Diagram in **Appendix A** to verify where the ProLink routers (PLRs) are located. The display needs to be powered and running content. Disconnect the SATA cable from SATA Port A on each PLR individually and verify all modules still display content correctly; reconnect the SATA cable. Disconnect the SATA cable from SATA Port B on each PLR individually and verify all modules still display content correctly; reconnect the SATA cable. Disconnect the SATA cable from SATA Port B on each PLR individually and verify all modules still display content correctly; reconnect the SATA cable. Refer to **Figure 23** for details on PLR ports.

If available, Intelligent Device Management (IDM) can also verify the system is working as intended. Refer to the **IDM User Manual (DD2097912)**.

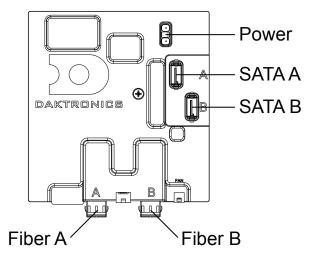


Figure 23: PLR Connectors

4 Maintenance & Troubleshooting

Turn off power before performing any repair or maintenance work. Only qualified service personnel may access internal electronics.

Daktronics product managers' engineering staff must approve any changes that may affect the display's structural integrity. If any changes are made to the display, submit detailed drawings to Daktronics engineering staff for evaluation and approval, or the warranty will be null and void.

Recommended Tools

When performing maintenance work on the display, Daktronics recommends using the following tools and placing them in a convenient, easy-to-use location.

ТооІ	Part Number	Use
#2 Phillips screwdriver	TH-1061	Opens rear access panels and removes front plex
5/16" T-handle wrench	TH-1088	Engages tabletop latches
5/16" nutdriver	TH-1156	Removes components
Ball detent T-handle	TH-1190	Removes modules
11/32" nutdriver	TH-1201	Removes power supplies

These tools are found in the toolkit (0A-1778-0001). The toolkit includes items in addition to those on the list above, and additional replacement tools may be ordered directly from Daktronics. Refer to **Daktronics Exchange and Repair & Return Programs (p.24)**.

Display Access & Component Removal

Scorer's tables are designed for either front or rear access, depending on site requirements and customer preference.

While components in front-access displays are simply removed from the front, access doors in rear-access displays must be removed to reach the internal display components.

Front Access

- 1. Locate the component to remove on the Layout; Component Placement Drawing in **Appendix A**.
- 2. Disconnect the power to the display.
- 3. To access the modules, lift up the top pad, remove the Phillips head screws along the top of the protective plex face panel, and tilt the face panel outward. Refer to **Figure 24**.

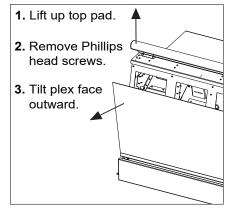


Figure 24: Front Access

Note: If a possession indicator is attached, it must be removed before the top pad can be lifted up. Alternately, an end pad may be removed to allow the front face panel to slide out sideways.

4. Locate the module or corresponding component behind it to be removed, and use a ball detent T-handle (Daktronics part # TH-1190) to pull the magnets away from the module mounting sheet.

Maintenance & Troubleshooting

- To use a ball detent T-handle, depress the plunger, insert the T-handle into the hole, then release the plunger. Carefully pull the module away from the display.
- 5. Disconnect all power and signal cables from the module.
- **6.** Remove the component:
 - **Module:** If the module was the component that needed to be replaced, simply connect the power and signal cables to a new module, and then insert it into the display, noting the rear markings for correct orientation. Skip ahead to **Step 10**.
 - **Power Supply:** Use an 11/32" nutdriver (part # TH-1201) to loosen the screws holding the power supply to the display. Remove the power supply from the mounting bracket.
 - **ProLink Router (PLR):** Use a #2 Phillips screwdriver (part # TH-1061) to loosen the screws holding the PLR to the display.
 - **Other components:** Use a 5/16" nutdriver (TH-1156) to loosen the nuts holding the component to the display and lift the keyhole cutouts over the nuts.
- 7. Disconnect all cables from the component, and gently remove it from the display.
- 8. Re-connect all cables to the new component, and then mount it inside the display using the hardware and tools described in **Step 6**.
- **9.** Re-connect the power and signal cables to the module that was removed to access the component, and then insert it into the display, noting the rear markings for correct orientation.
- 10. Put the protective plex face panel back in place in front of the modules.
- 11. Power on and test the display to verify the issue has been resolved.

Rear Access

- 1. Locate the component to remove on the Layout; Component Placement Drawing in Appendix A.
- 2. Disconnect the power to the display.
- 3. Lift the tabletop upward and secure in place as described in Table Setup (p.3).
- 4. Use a #2 Phillips screwdriver (part # TH-1061) to remove the two screws securing the access door.
- 5. Carefully allow the access door to rotate downward into the open position.
- **6.** Remove the component:
 - **Power Supply:** Use an 11/32" nutdriver (part # TH-1201) to loosen the screws holding the power supply to the display. Remove the power supply from the mounting bracket.
 - **ProLink Router (PLR):** Use a #2 Phillips screwdriver (part # TH-1061) to loosen the screws holding the PLR to the display.
 - **Other components:** Use a 5/16" nutdriver (TH-1156) to loosen the nuts holding the component to the display and lift the keyhole cutouts over the nuts.
- 7. Disconnect all cables from the component, and gently remove it from the display.
- 8. Re-connect all cables to the new component, and then mount it inside the display using the hardware and tools described in step 5.
- 9. Power on and test the display to verify the issue has been resolved.

Maintenance & Troubleshooting

Components

Line Filter

Figure 25 illustrates a line filter. The line filter removes the electromagnetic noise that might otherwise interfere with local communication channels from the power system. The line filter mounts to the sectional termination panel.

Power Supply

Figure 26 illustrates a typical power supply, also referred to as a power module. The power supply mounts to the display on a mounting plate. The power harnesses connected to the unit vary depending on power supply type and overall display application.

Caution! Disconnect display power before servicing the power supplies to avoid electrical shock. The power supplies run on high voltage and may cause physical injury if touched.

ProLink Router

Figure 27 illustrates a ProLink Router (PLR). The PLR is a display interface board that passes display data from the ProLink6 control system modules and other PLRs.

Refer to the **PLR 6X5X Installation & Maintenance Manual** (DD1735784) for further information.

Digital Media Player

Figure 28 illustrates a Digital Media Player (DMP). The DMP is a device primarily intended to store or deliver content files to a display directly through an intermediate device, such as a processor or a signal converter. The DMP may be located inside the scorer's table or in a separate control location.

Refer to the **DMP-8000 Operator's Manual** (**DD2874530**) for further information.

Video Image Processor

Figure 29 illustrates a Video Image Processor (VIP). The VIP is an interface that drives content to the display while also dimming, providing gamma and color controls, and displaying test patterns. The VIP may be located inside the scorer's table or in a separate control location.

Refer to the VIP-5X6X Operator's Manual (DD2773152) for further information.

Figure 25: Line Filter

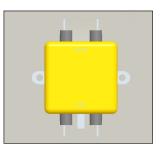
Maintenance & Troubleshooting 18



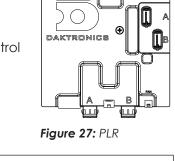
D. DMP-800



Figure 28: DMP



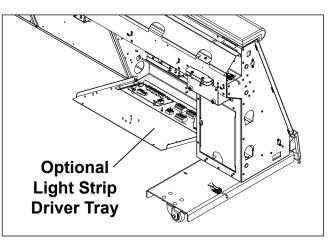




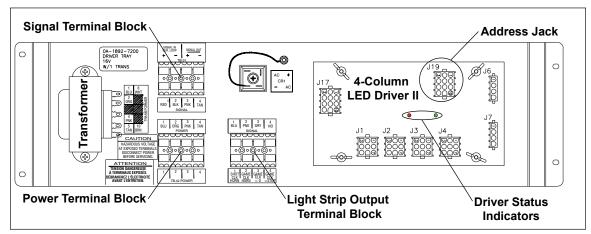
LED Drivers

Scorer's tables with optional light strips will include an LED driver to control when the light strips turn on and off. Refer to **Figure 30** to view the location of light strip driver tray(s) in the scorer's table.

- Note: Light strips on tables used in NBA facilities controlled by the Tissot interface will have no internal LED drivers.
- Note: Scorer's tables built prior to September 2017 may have 2 LED drivers that control each light strip separately.







Refer to **Figure 31** for the components of an optional light strip driver tray.

Figure 31: Light Strip Driver Tray Components

The light strip output terminal block determines when the light strips will illuminate. By default, end-of-period light strips are triggered when the game clock equals 0, and clock stopped light strips are triggered when the clock equals stopped. Either type of light strip may instead be set to illuminate when the shot clock horn or the game clock horn sounds. Move the gray wire to the appropriate terminal for the desired function.

When troubleshooting 4-column driver problems, two diagnostic LED indicators labeled **DS1** and **DS2** provide the following driver status information:

LED	Color	Function	Operation	Summary
DS1	Red	Signal RX	Steady on or blinking	On or blinking when driver is receiving signalOff when there is no signal
DS2	Green	Power	Steady on	On and steady when driver is receiving power

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

Maintenance & Troubleshooting

Replacing a Driver

If the driver status indicators do not appear to be working correctly, it may be necessary to replace the driver.

- 1. Open the table from the rear as described in **Display Access & Component Removal** (p.16).
- 2. Disconnect all plugs from the driver by squeezing together the locking tabs and pulling the connectors free. It may be helpful to label the cables to know which cable goes to which connector when attaching the new driver.
- 3. Remove the wing nuts securing the driver to the driver tray.
- 4. Carefully lift the driver from the display and place it on a clean, flat surface.
- 5. Position a new driver over the screws and tighten the nuts.
- 6. Reconnect all plugs to the driver. These are keyed connectors and will attach in one way only. Do not force the connections.
- 7. Ensure the new driver is set to the correct address. This will be the same address of the old driver being replaced. Refer to **Setting the Driver Address (p.20)**.
- 8. Close and secure the access panel, then power up and test the display to verify the issue has been resolved.

Setting the Driver Address

For the light strip driver to receive signal and function properly, the driver must be set to the correct address.

Optional light strip drivers use Address 1.

This address is set with jumper wires in a 12-pin plug which mates with jack **J19**, located in the upper-right corner of the driver (**Figure 31**). It may be possible to reuse the same address plug from the driver that was replaced. If not, order an **Address 1** plug (Daktronics part # 0A-1150-0122).

Tabletop Possession Indicators

To replace an optional tabletop possession indicator arrow/colon:

- 1. Unplug the possession indicator from the designated convenience outlet.
- 2. Remove the screws securing the possession indicator cover.
- 3. Disconnect the power/signal cable from the malfunctioning indicator.
- 4. Use a 11/32" nut driver to remove the nuts securing the indicator, and then lift it off the stud inserts.
- 5. Position a new indicator over the studs (making sure the small plastic spacers are still in place), and then tighten the nuts.
- 6. Reconnect the power/signal cable, and replace all screws for the indicator cover.
- 7. Plug the possession indicator back into the designated convenience outlet, then power up and test the display to verify the issue has been resolved.

Troubleshooting

The tables below list potential problems with the display and indicates possible corrective actions. The lists do not include every symptom that may be encountered, but they do present several of the most common situations that can occur.

Display

Display Problem	Troubleshooting Steps	
	Check the power status LEDs on all power supplies and modules connected to the module.	
Module is blank or garbled	• Check the SATA cable input into the module and the output from the previous module or PLR.	
	Perform a module self-test. Refer to the MOD.PL51.55PAV0K Module Manual (DD2095218) for instructions.	
	Ensure the section is receiving power and all breakers are turned on.	
	• Ensure the power status LEDs on the modules, power supplies, and ProLink Routers (PLRs) in the blank section are on.	
Section of display is blank	• Ensure the connections to the PLR are secure. Change the connections with one another to test.	
	• Ensure the fiber-optic signal is connected to the PLR or patch panel.	
	 Perform a PLR loopback test to test the PLRs in the section. Refer to the PLR 6X5X Installation & Maintenance Manual (DD1735784) for instructions. 	
	Ensure the display is receiving power and all breakers are turned on. When power is applied to the display, power supply LEDs should turn on.	
Entire display is blank	• Ensure the Video Image Processor (VIP) is not blank.	
	• Ensure the fiber-optic signal cable is connected to the VIP. The input signal should be locked. If the input signal is not locked, check the fiber connections.	
	• Use the test patterns to check the VIP status LEDs and ensure the board is receiving power. Refer to the VIP-5X6X Operator's Manual (DD2773152) for instructions.	
Entire display is garbled or uncontrollable	• Verify the controller/content player configuration and restart the display service.	
	• Ensure the fiber-optic signal cable is connected to the VIP. The input signal should be locked. If the input signal is not locked, check the fiber connections.	

Light Strips

Problem	Possible Cause	Solution/Items to Check
	No power to the control	Ensure the console is plugged into a convenience outlet or 120 VAC power supply.
	console	Exchange the console with a working console and enter the correct sport code to test. Replace console if necessary.
	No wired signal from the console	Ensure a 1/4" phone signal cable is connected between J1 , J2 , or J3 on the control console and the signal jack located behind the right rear access door.
Light strips do not light	Improper connection between tables	Ensure 3-pin XLR cables are connected between all tables with light strips. The XLR input and output jacks are located behind the right and left rear access doors, respectively.
	Incorrect sport code	Ensure the correct sport code is being used. Refer to the console operation manual in Light Strip Controllers (p.2) .
	No signal to driver	Check that the red DS1 LED on the light strip driver lights up when sending commands from the control console. See LED Drivers (p.19).
	No power to driver	Check that the green DS2 LED on the light strip driver remains lit up when the display is powered on. See LED Drivers (p.19) .
	Incorrect driver address or function	Check that the light strip driver is set to the correct address or function. See LED Drivers (p.19).

Replacement Parts

Part Description	Daktronics Part #
XLR Cable, M to F; 3' [Light Strips]	0A-1313-0114
ProLink Router (PLR)	0A-1487-6000
Video Image Processor (VIP)	0A-1603-5104
Power Cable, 25' (7.62 m)	0A-1697-7102
Power Cable, 50' (15.24 m)	0A-1697-7103
Power Cable, 75' (22.86 m)	0A-1697-7104
Power Cable, 25' (7.62 m), 250V	0A-1697-7105
Power Cable, 50' (15.24 m), 250V	0A-1697-7106
Power Cable, 75' (22.86 m), 250V	0A-1697-7107
Configured Router, 8-Port	0A-1778-7202
Digital Media Player (DMP)	0A-1778-7204
Toolkit	0A-1892-0001
LED Driver II, 4-Column [Light Strips]	0P-1150-0130
Red Arrow, 3" [Possession Indicator]	0P-1150-0185
Red Colon, 1" [Possession Indicator]	0P-1230-0070
Power Supply; 12V, 85-264VAC, 150W	A-2855
Network Switch, 10-Port	A-3488
Table Latch	HS-1669
Duplex LC Fiber Jack, with dust cap	J-1434
Duplex LC Fiber Jack, without dust cap	J-1512
Transformer, 115/230V; 6.25A [Light Strips, Possession Indicator]	T-1066
1/4" Phone Cable, 10' (3 m)	W-1340
Cat5e Cable, 3' (1 m)	W-1546
Fiber Optic Cable, 10' (3 m)	W-1658
Fiber Optic Cable, 3' (1 m)	W-1767
Fiber Optic Cable, 82' (25 m)	W-1768
Cat5e Cable, 30' (9 m)	W-1999
Fiber Optic Cable, 42' (13 m)	W-2003
Fiber Optic Cable, 26' (8 m)	W-2030
Fiber Optic Cable, 124.6' (38 m)	W-3221881
Fiber Optic Cable, 164' (50 m)	W-3221882
Fiber Optic Cable, 200' (61 m)	W-3221885
Fiber Optic Cable, 249.3' (76 m)	W-3221888
LED Module	Order-specific

5 Daktronics Exchange and Repair & Return Programs

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 Manufactured/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 Fax: 605-697-4444
Universities and professional sporting events, live events for auditoriums, and arenas	866-343-6018 Fax: 605-697-4444

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.

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 number in the chart on the previous page.

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

5. Ship to:

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

Daktronics Warranty & Limitation of Liability

The Daktronics Warranty & Limitation of Liability is located at the end of this manual. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

Glossary

Digital Media Player (DMP): a device primarily intended to store or deliver content files to a display directly through an intermediate device, such as a processor or a signal converter.

Lanyard Attachment Ring: a ring found on the back of each module. The lanyard attaches to the ring to keep the module from falling to the ground.

Latch Release: a device that holds the module firmly to the display frame. There are two per module, one on the top and one on the bottom.

Light Emitting Diode (LED): a low energy, high intensity lighting unit.

Line Filter: a device that removes electromagnetic noise from the power system to avoid interference with local communications channels. Line filters sometimes mount on brackets with power supplies. Other times they may mount alone on a bracket.

Louver: a plastic shade positioned horizontally above each pixel row. Louvers increase the contrast level on the display face and direct LED light for easier viewing.

Module: a display board with LEDs, a driver board or logic card, a black plastic housing, and a module latch assembly. Each module is individually removable from either the front or the rear of the display.

Module Latch: an assembly using a rotating retainer bar to hold the module firmly to the display frame. There are two per module, one near the top and one near the bottom.

Pixel: the smallest single point of light on a display that can be turned on and off. For LED displays, a pixel is the smallest block of light-emitting devices that can generate all available colors.

Power Supply: a device that converts AC line voltage from the termination panel to low DC voltage from one or more module driver boards. One power supply may power multiple modules.

ProLink Router (PLR): a display interface board that passes display data from the ProLink6 control system modules and other PLRs. The ratio of PLRs to modules varies with display application.

Termination Block: an electrical point usually used to connect internal power and signal wires to wires of the same type coming into the display from an external source.

Video Image Processor (VIP): an interface that drives video to the display while also dimming, providing gamma and color controls, and displaying test patterns.

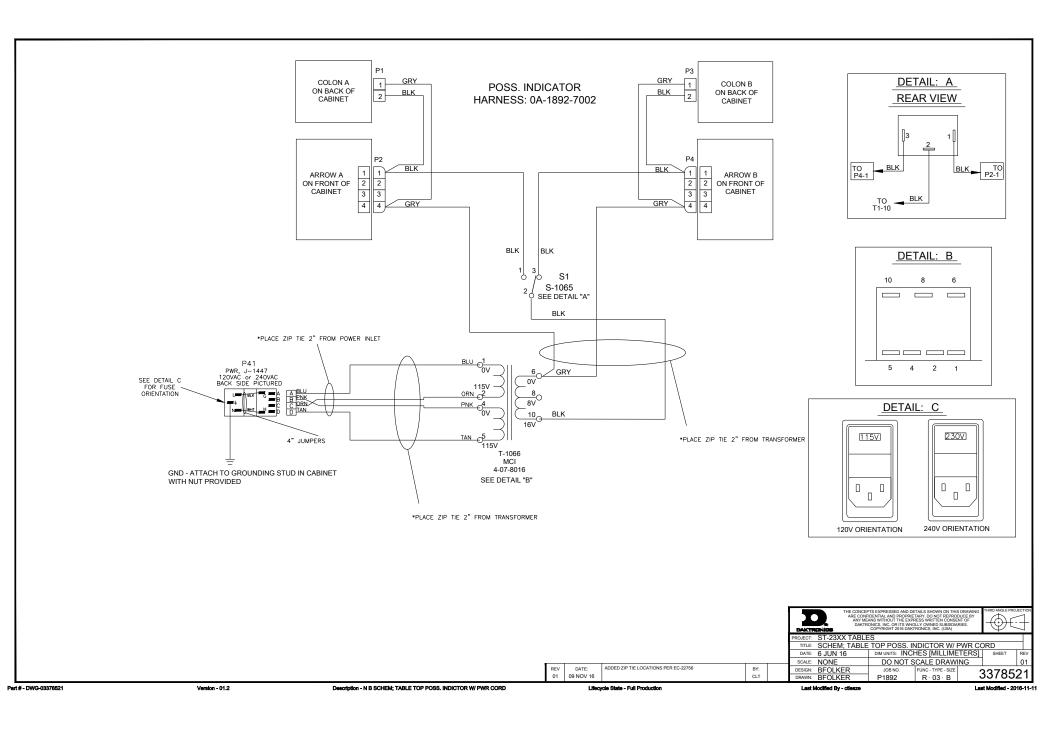
A Reference Drawings

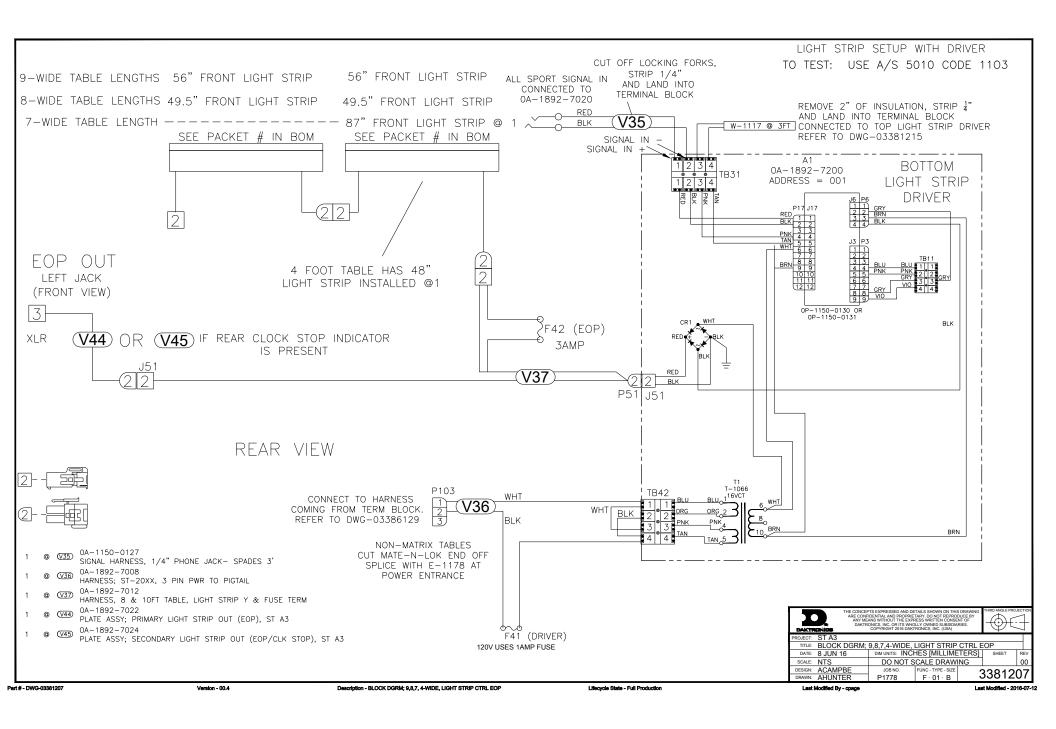
Refer to **Resources (p.1)** for information regarding how to read the drawing number. Any contract-specific drawings take precedence over the general drawings.

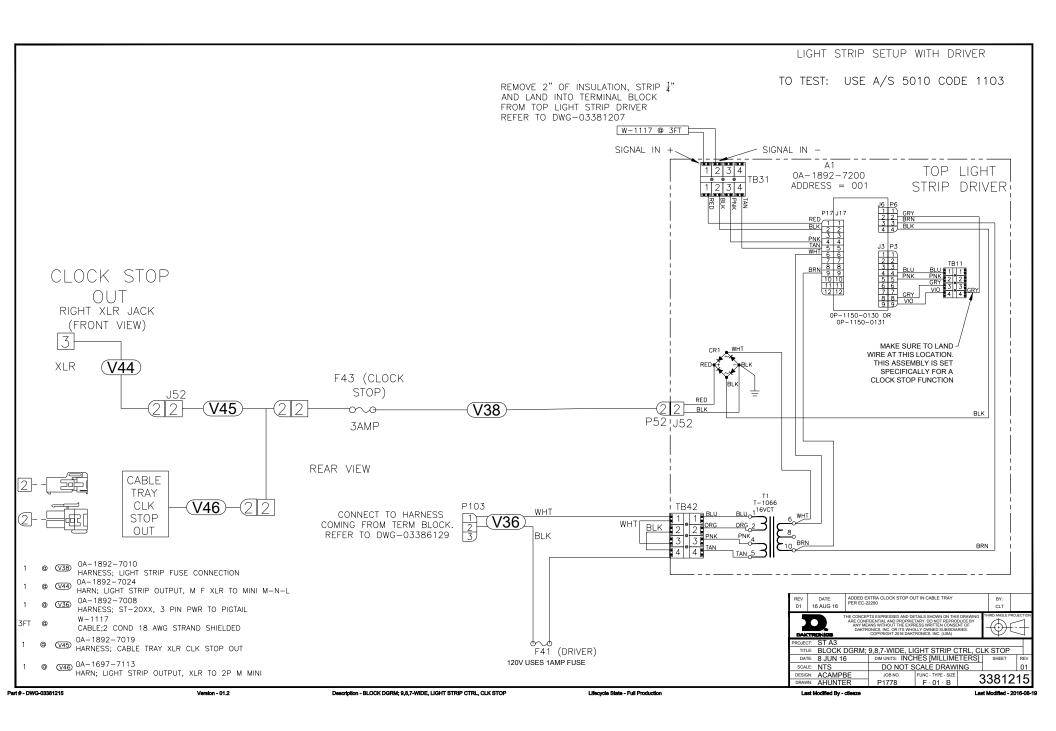
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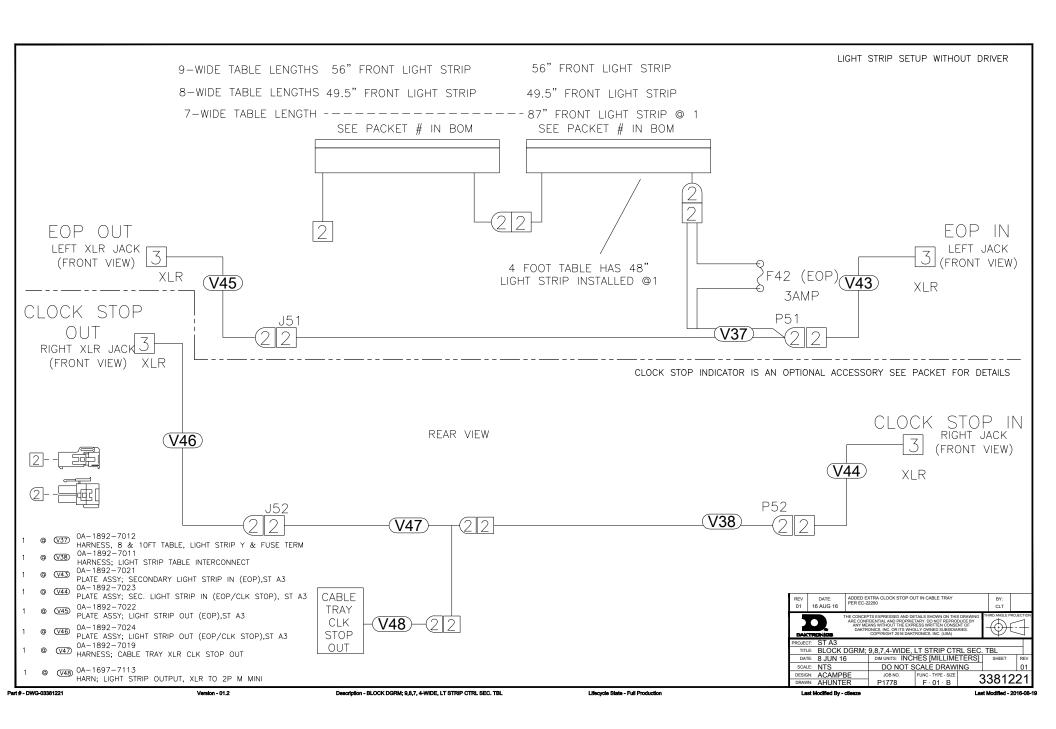
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Schem; Table Top Poss. Indicator w/ Pwr Cord	
Block Dgrm; 9,8,7,4-Wide, Light Strip Ctrl EOP	
Block Dgrm; 9,8,7-Wide, Light Strip Ctrl, Clk Stop	
Block Dgrm; 9,8,7,4-Wide, Lt Strip Ctrl Sec. Tbl	
N B Block Diagram; Signal, ST A3, 2x9	
N B Block Diagram; Power, ST A3, 2x9	
Schematic; 4Col Drvr-16V Light Strip Control	
Block Diagram; Control, ST A3	
Layout; Component Placement, ST-23XY, 2x9	
N B Block Diagram; Signal, ST A3, 2x8	
N B Block Diagram; Signal, ST A3, 2x7	
N B Block Diagram; Power, ST A3, 2x8	
N B Block Diagram; Power, ST A3, 2x7	
Layout; Component Placement, ST-23XY, 2x8	
Layout; Component Placement, ST-23XY, 2x7	
Mechanical Specs; ST-23XY/ST-29XY	
Block Dgrm; 9,8,7,4-Wide,Light Strip Ctrl EOP Intl	
Block Dgrm; 9,8,7-Wide,Lt Strip Ctrl, Clk Stop Intl	
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N B Block Diagram; Power, ST A3, 2x8 Intl.	
N B Block Diagram; Power, ST A3, 2x9 Intl.	
Shop; ST-23XY/ST-29XY, 64x288-10 / 96x432-6	
Shop; ST-23XY/ST-29XY, 64x576-10 / 96x864-6	
Component Placement, ST-23XY, 2X9 Intl	
Component Placement, ST-23XY, 2X8 Intl	
Component Placement, ST-23XY, 2X7 Intl	
Block Diagram; Control, ST A3, Intl	
Shop; ST-23XY/ST-29XY, 64X864-10 / 96X1296-6	
Shop; ST-23XY/ST-29XY, 64X1152-10 / 96X1728-6	
Block Diagram; Network Kit, Domestic	
Block Diagram; Network Kit, International	
Riser; ST-23XY-64X1152 / 96X1728-6	
Riser; ST-23XY-64X864 / 96X1296-6	
Riser; ST-23XY-64X576 / 96X864-6	
Riser; ST-23XY-64X288 / 96X432-6	
Block Diagram; NBA Prim, 9,8 & 7 Wide Light Strips	
Poss Ind Attachment, Manual DWG; ST A3	
Schematic; 4Col Drvr-16V Clk Stop/EOP Control	
Block Diagram; Clk Stop/EOP Light Strip Cntrl Block Dgrm; Clk Stop/EOP Light Strip Cntrl Intl	
ST A3 Light Strip Assembly	
Rear Clock Stop Assy, Manual DWG, ST A3	
1001 Clock 310p A339, Marida Divo, 31 A3	

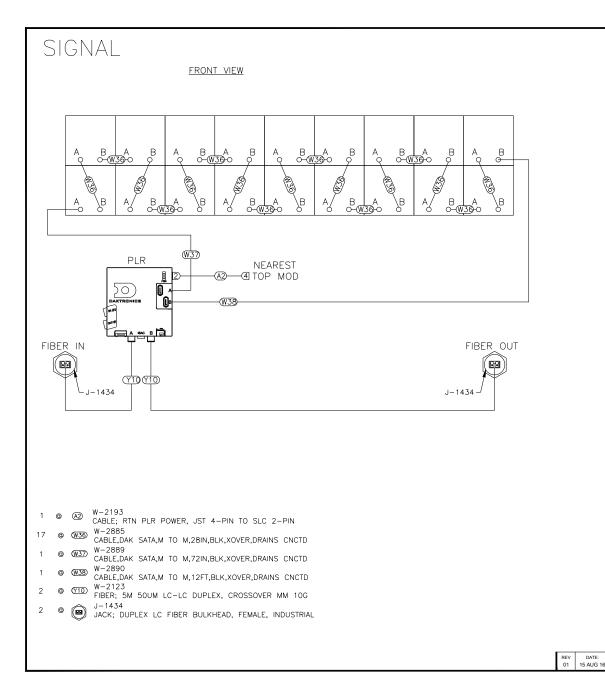
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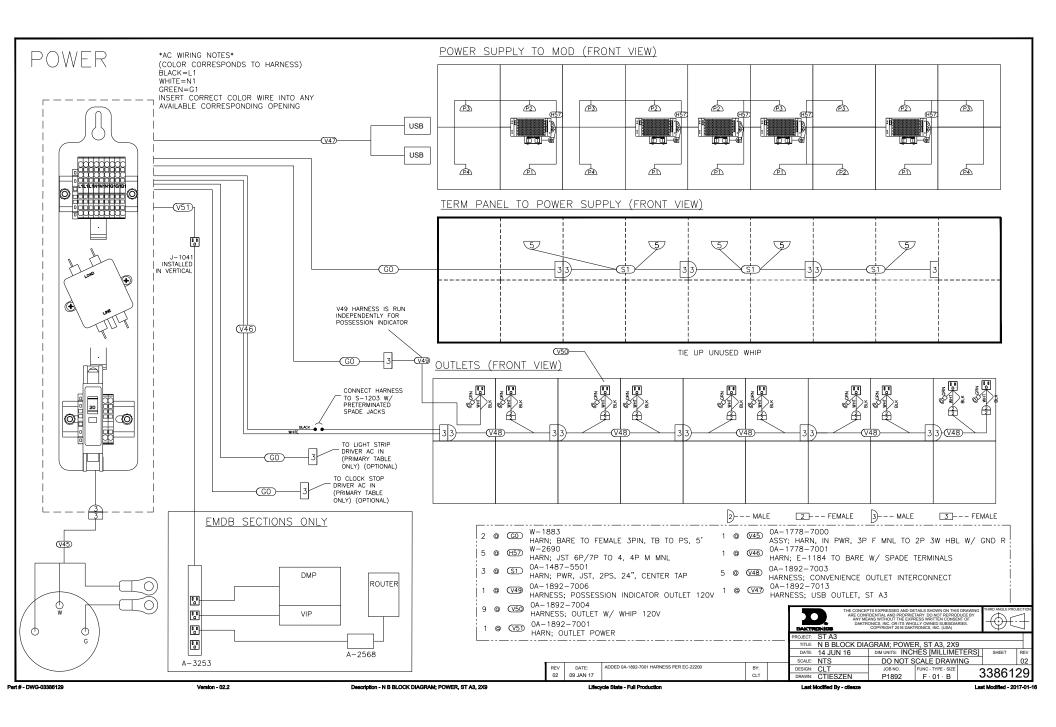


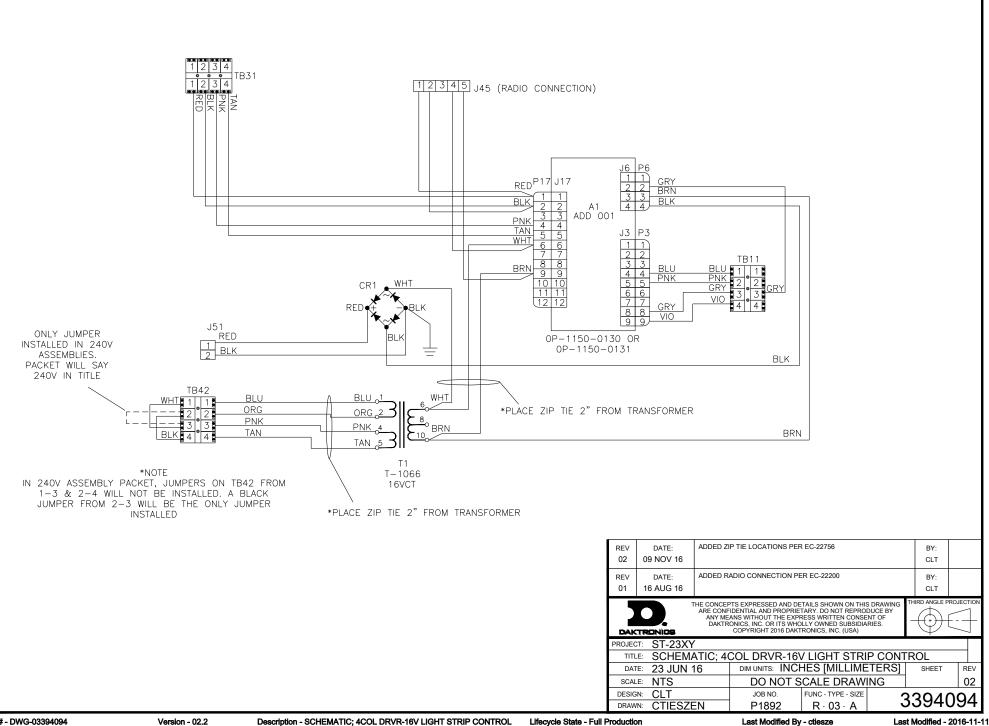


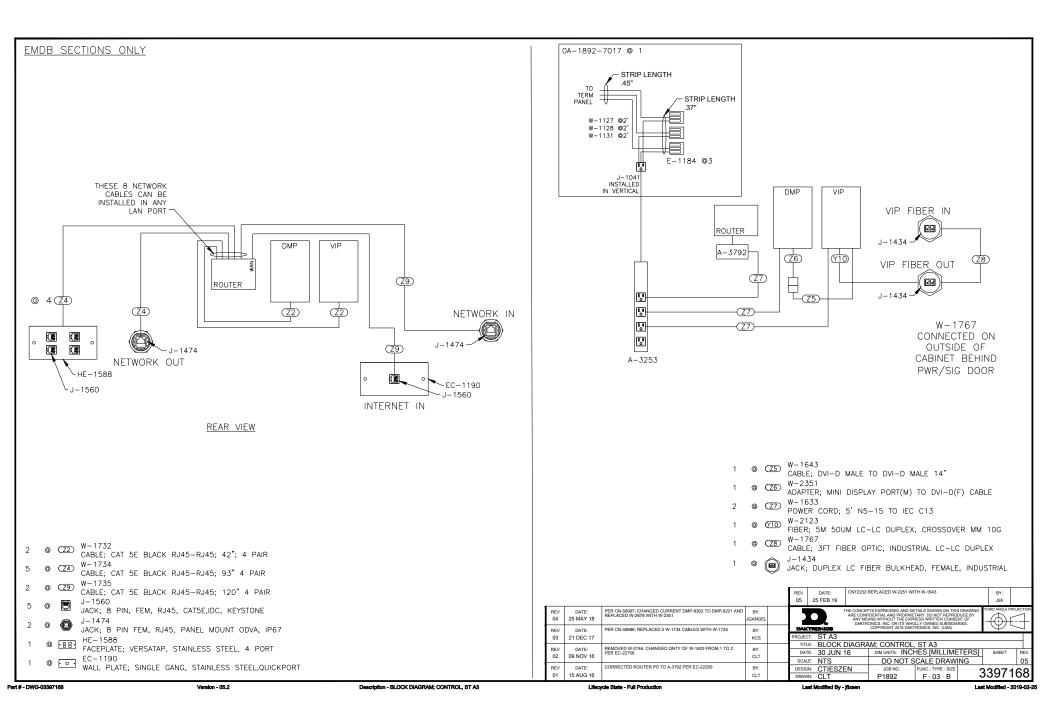
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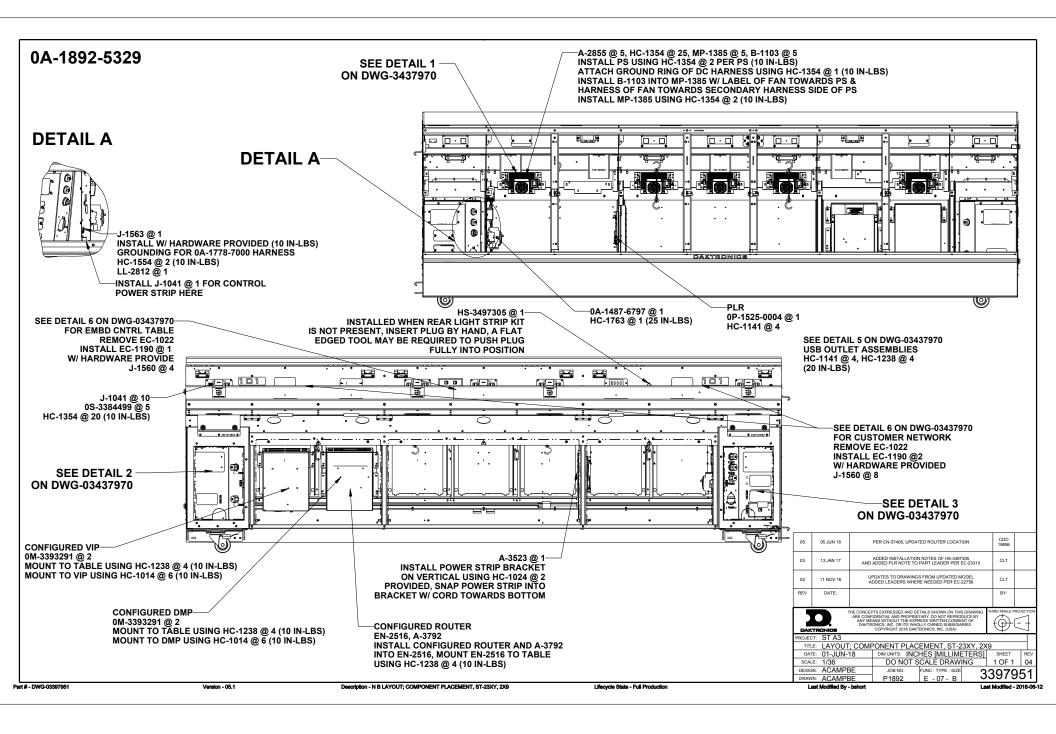
REFER TO CONTROL PACKET 0A-1892-7302 OR DWG-03397168 INTERNATIONAL 0A-1892-8302 OR DWG-03417617

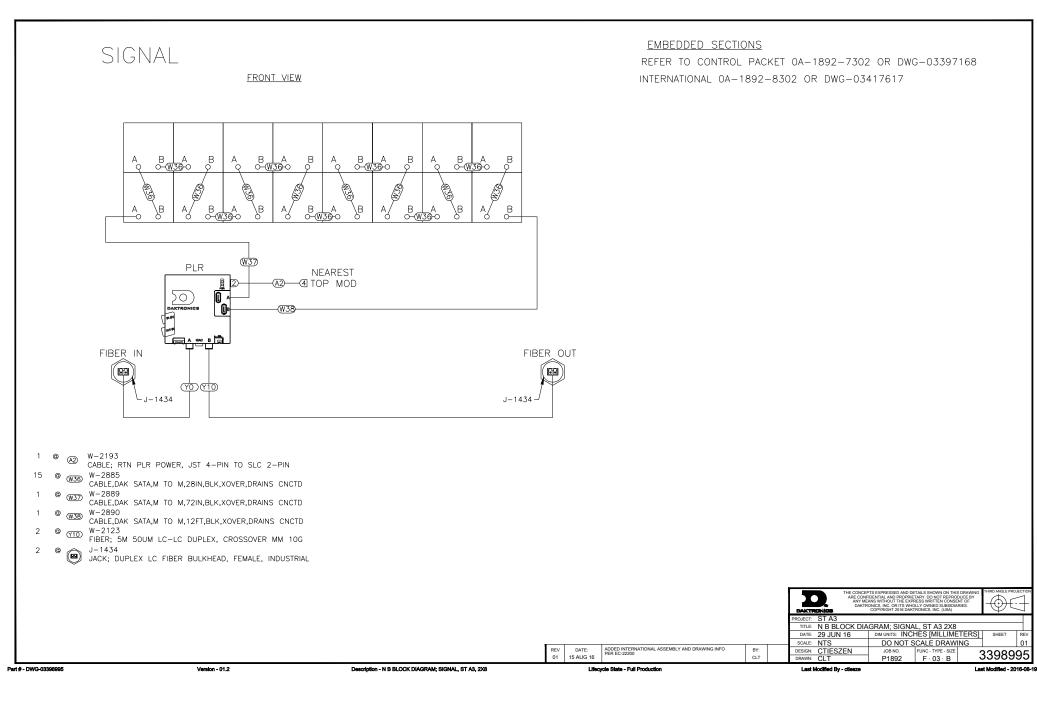
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				PROJECT:							
TITLE: N B BL				N B BLOCK D	LOCK DIAGRAM; SIGNAL, ST A3, 2X9						
				DATE:	14 JUN 16	DIM UNITS: INC	HES [MILLIME	TERS]	SHEET	REV	
				SCALE:	NTS	DO NOT S	SCALE DRAW	ING		01	
	ADDED INTERNATIONAL ASSEMBLY AND DRAWING INFO PER FC-22200	BY:		DESIGN:	CLT	JOB NO.	FUNC - TYPE - SIZE		33860	00	
16		CLT		DRAWN:	CTIESZEN	P1892	F · 03 · B	•	22900	0Z	





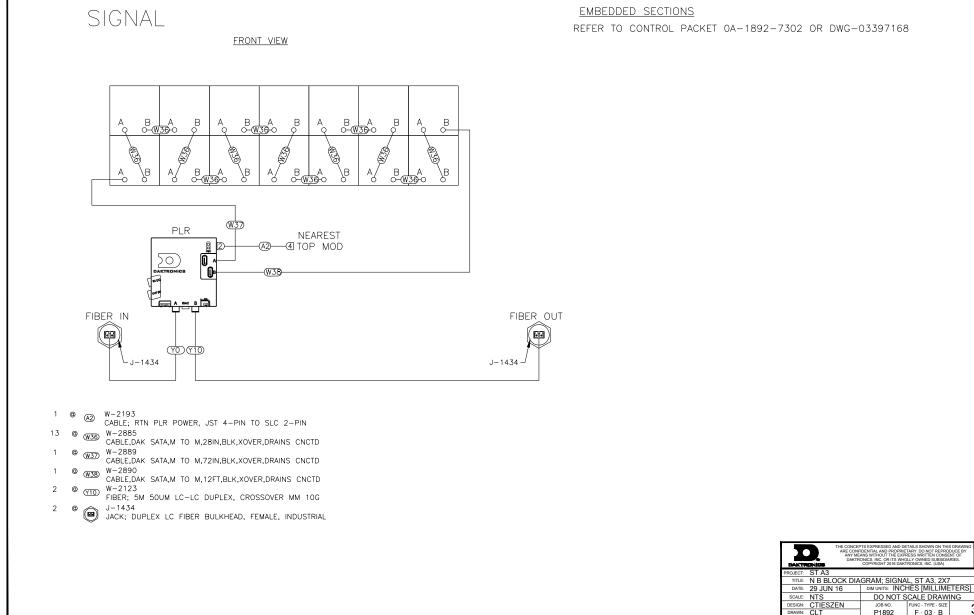






RE

01



Description - N B BLOCK DIAGRAM; SIGNAL, ST A3, 2X7

Lifecycle State - Full Production

Part # - DWG-03398996

Version - 01.1

JOB NO. P1892 FUNC - TYPE - SIZE F - 03 - B Last Modified By - ctiesze

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWI ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF

DO NOT SCALE DRAWING

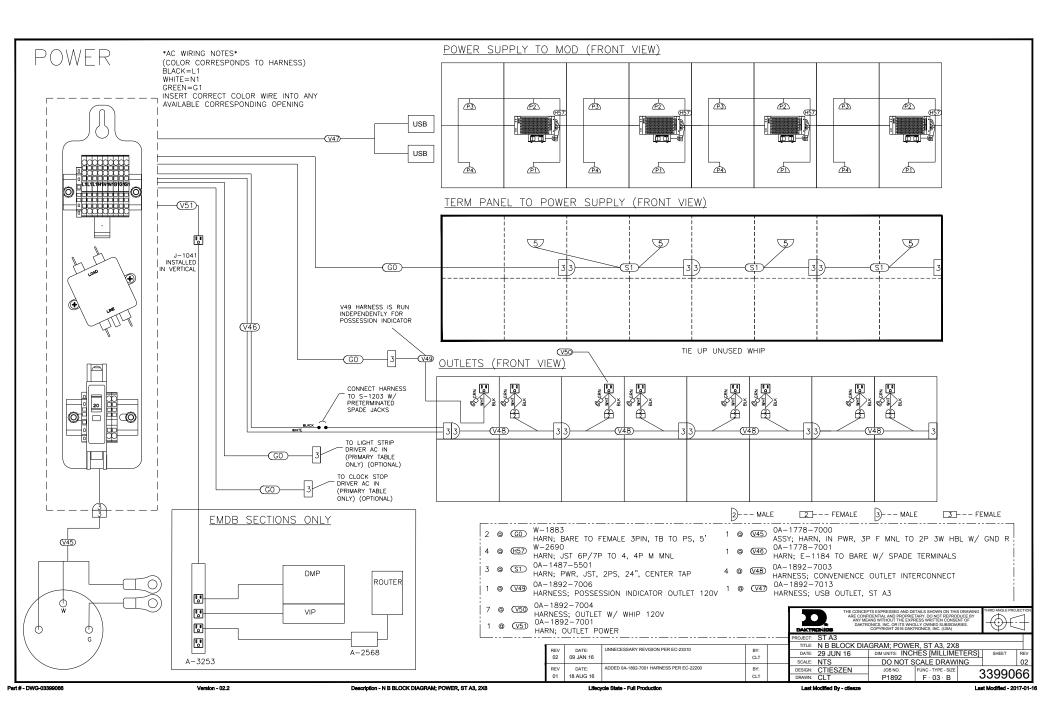
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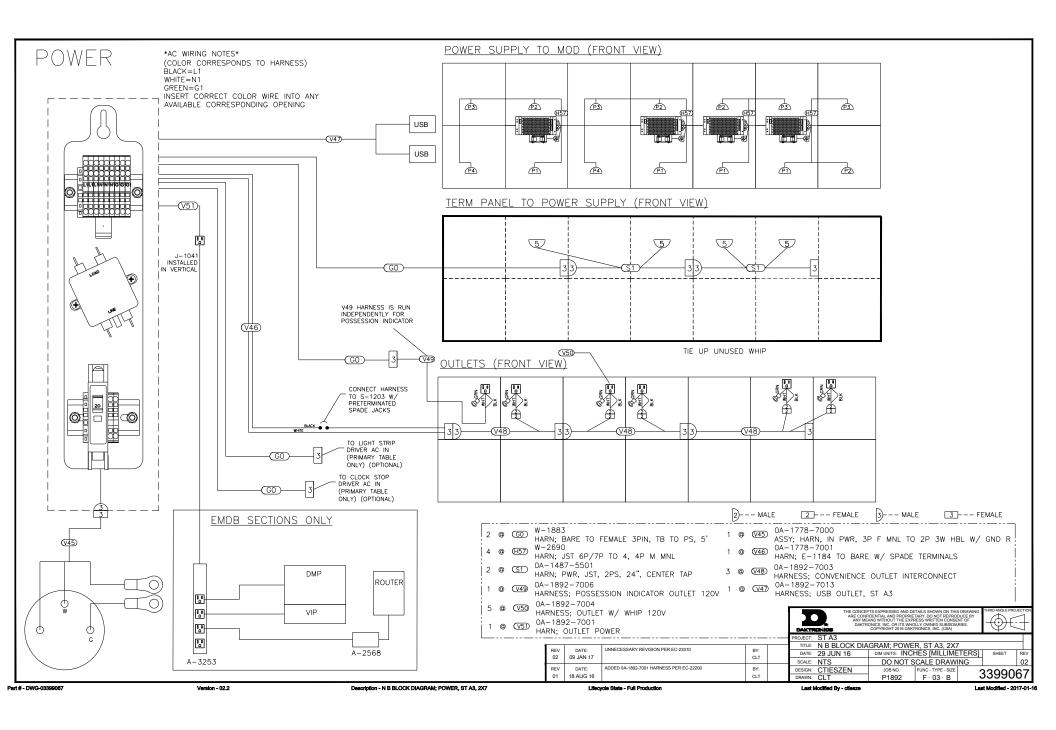
3398996 Last Modified - 2016-08-12

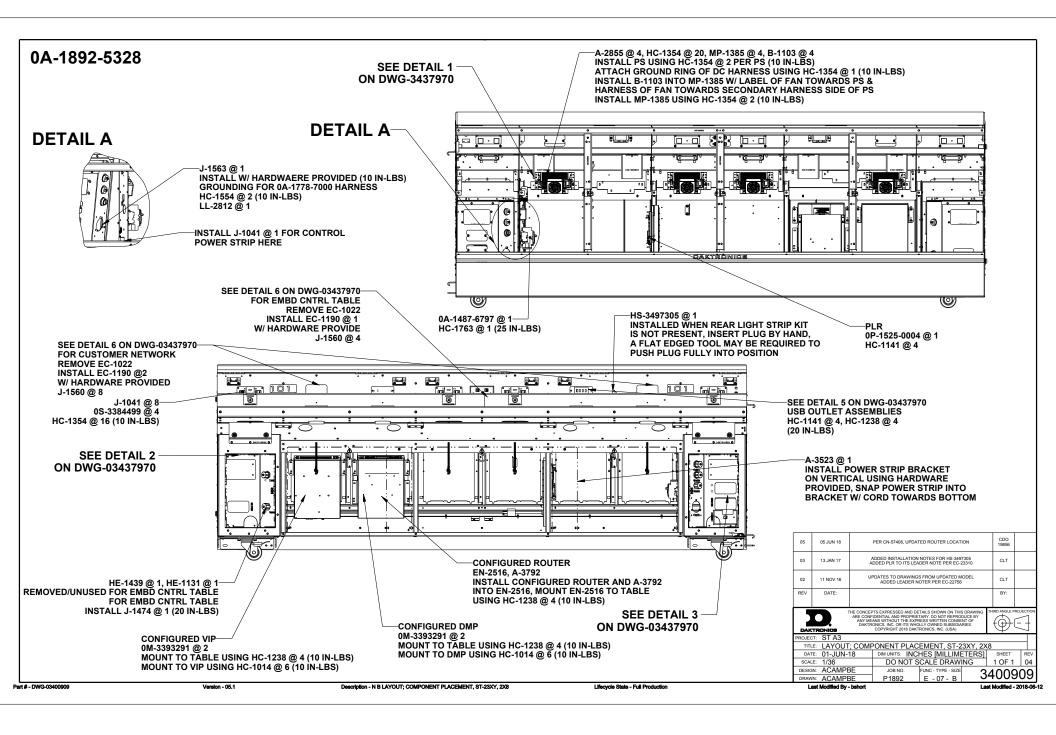
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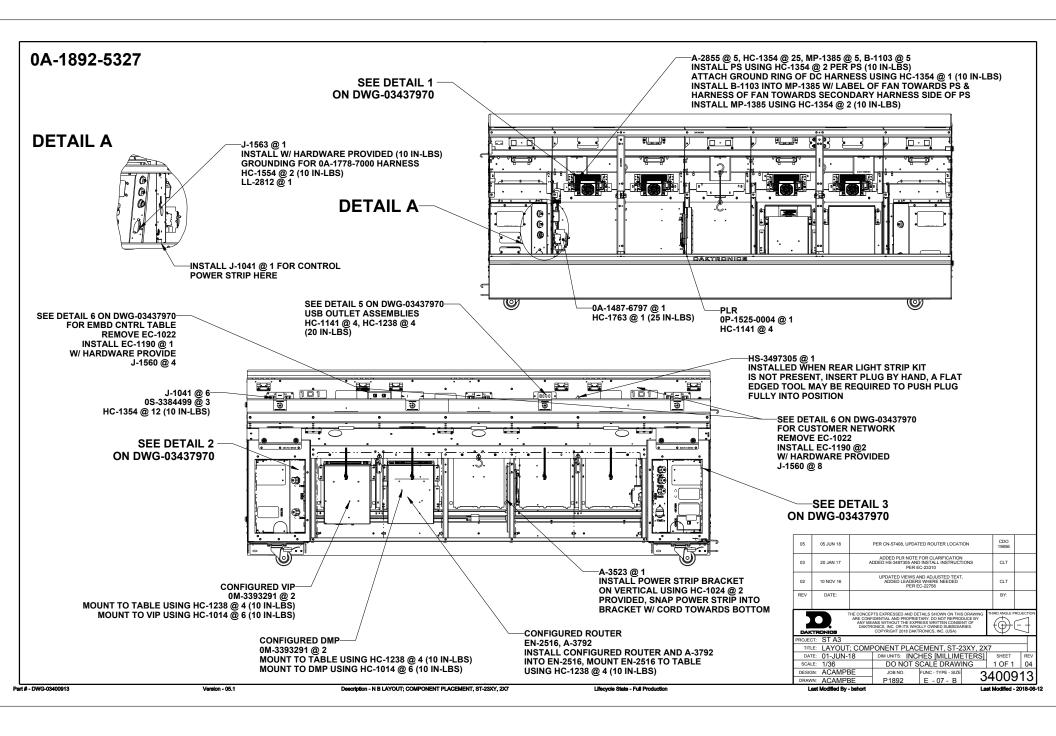
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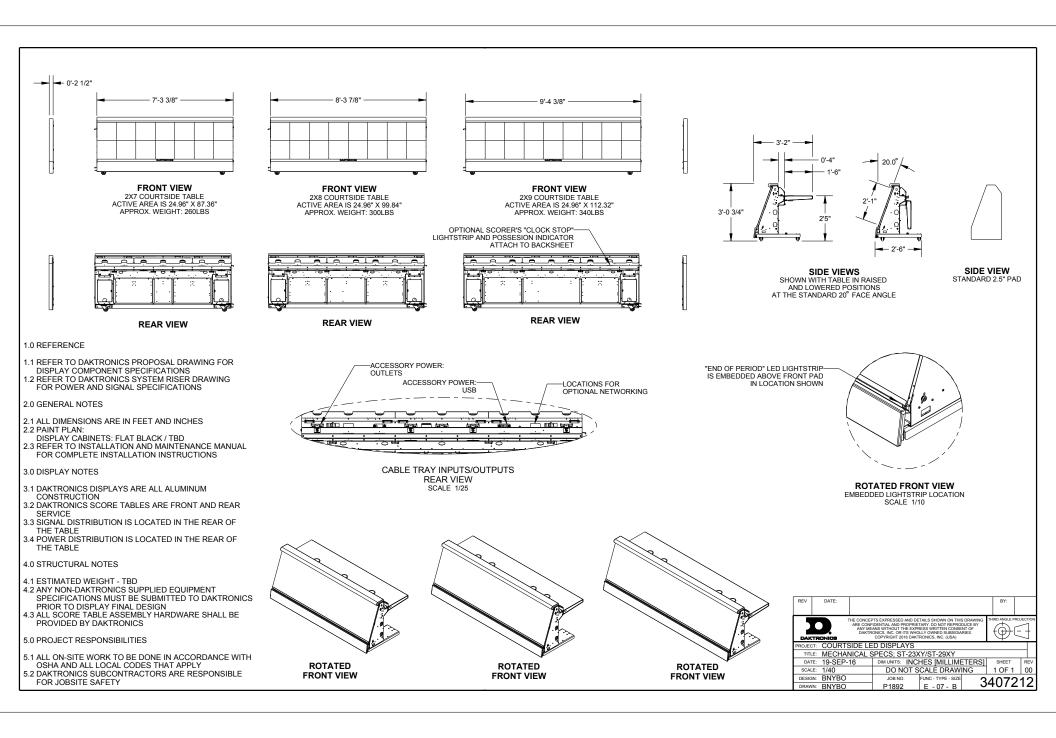
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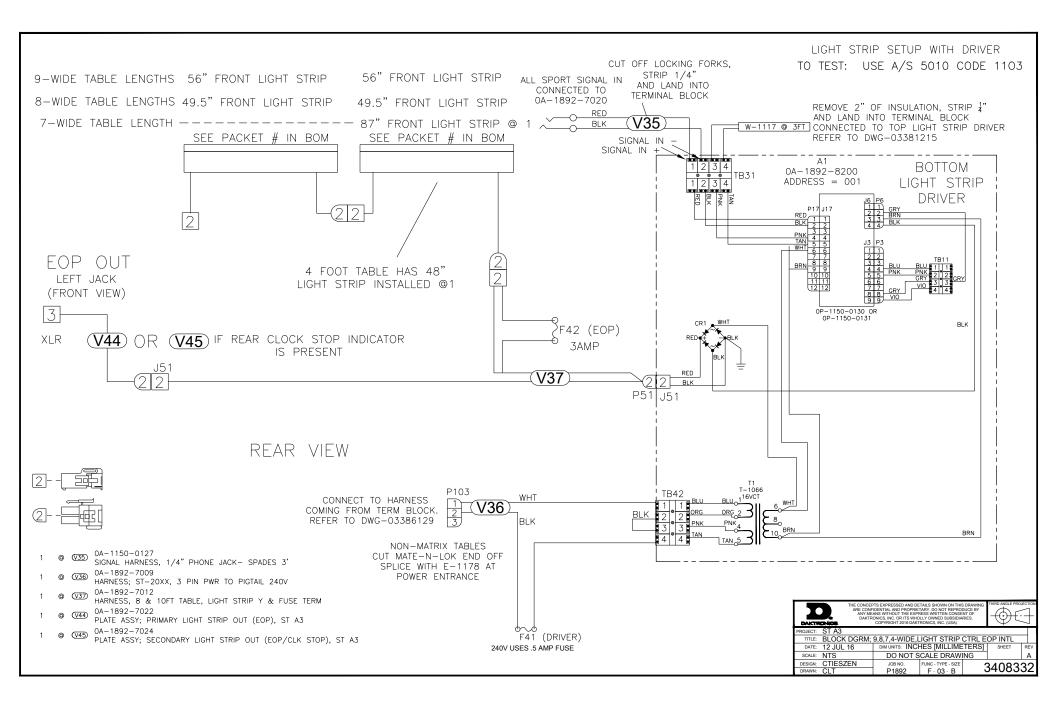


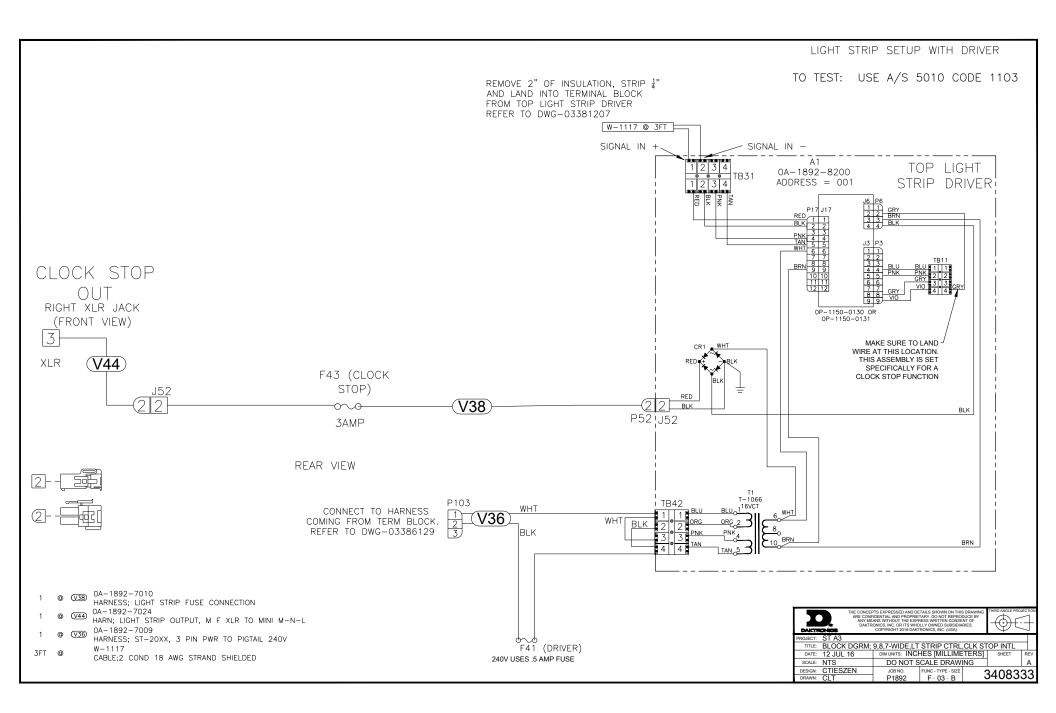


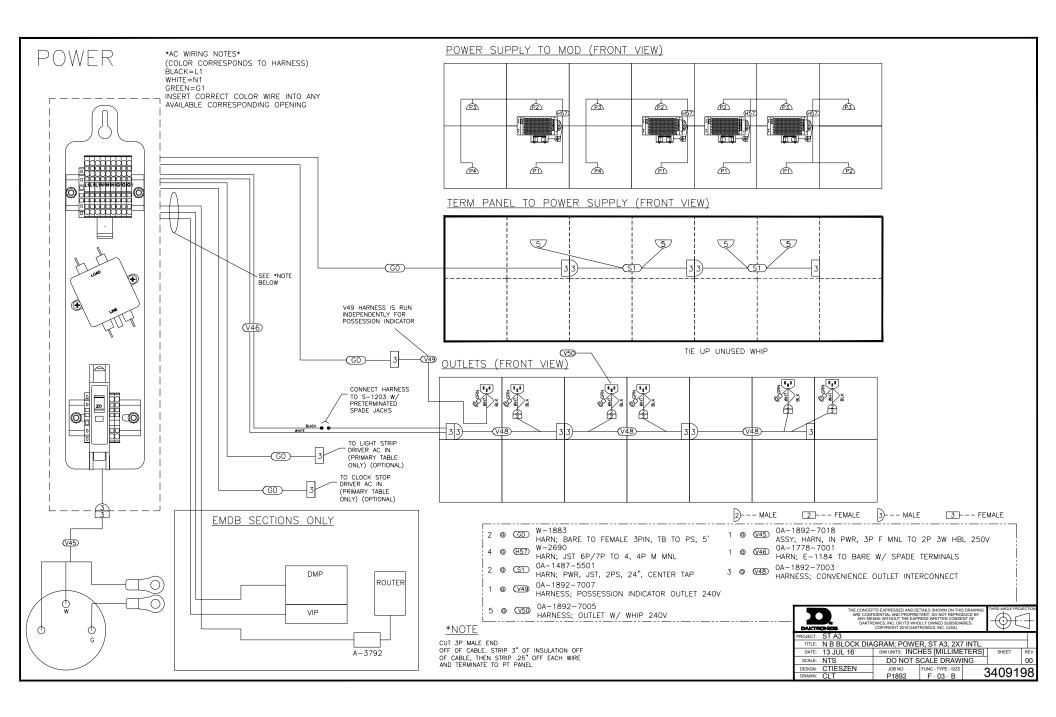


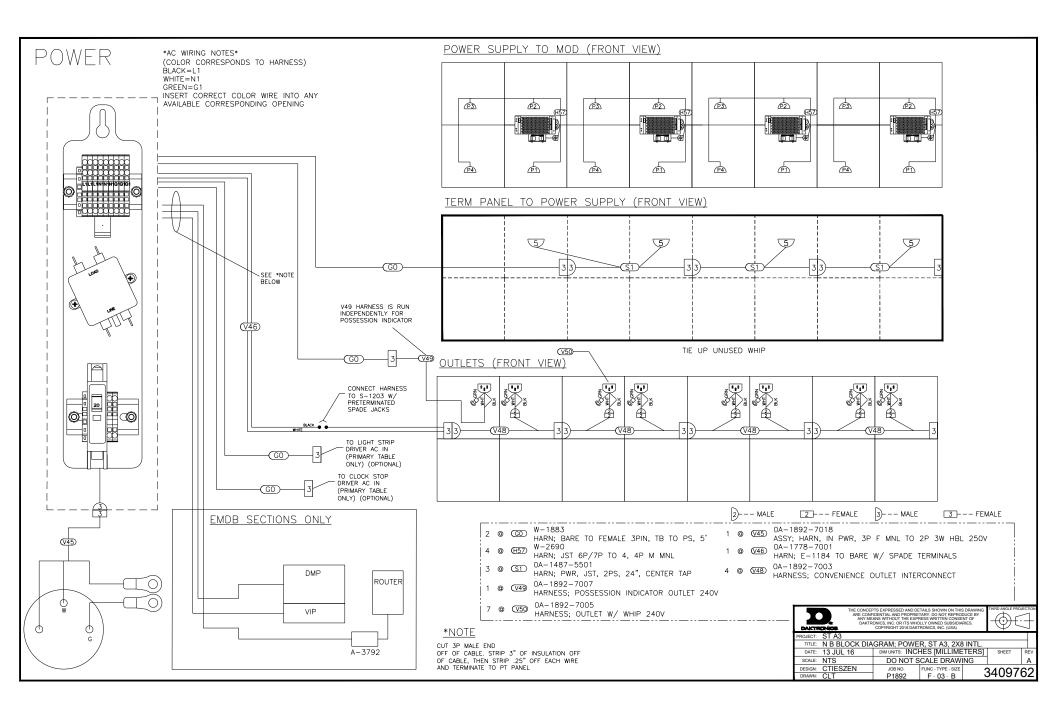


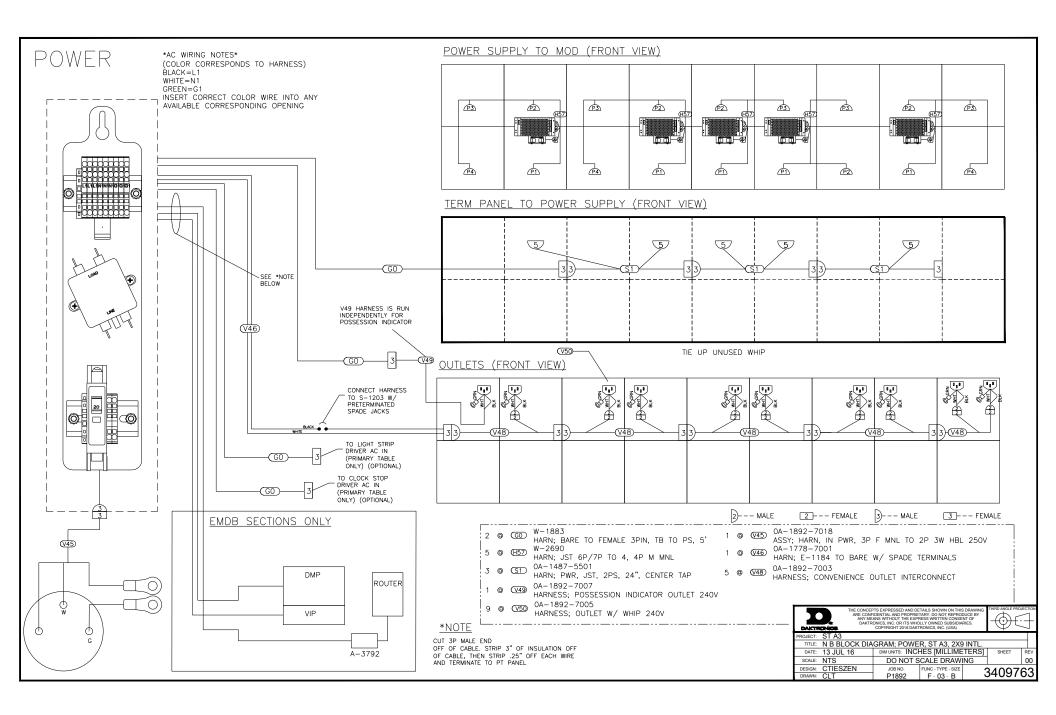


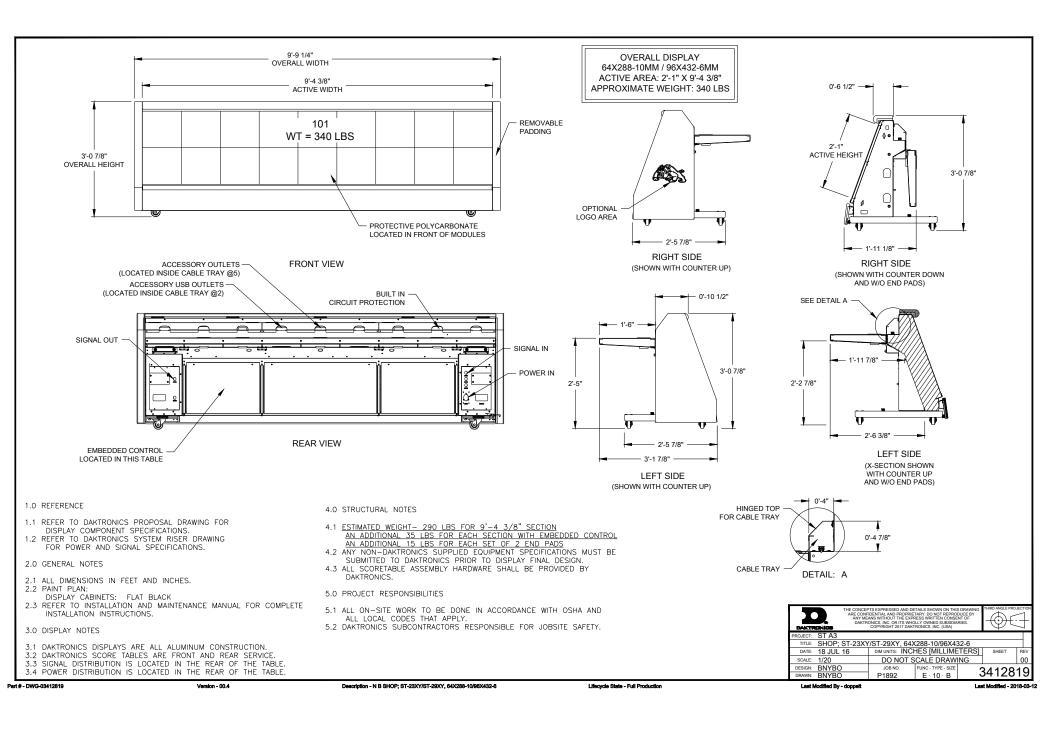


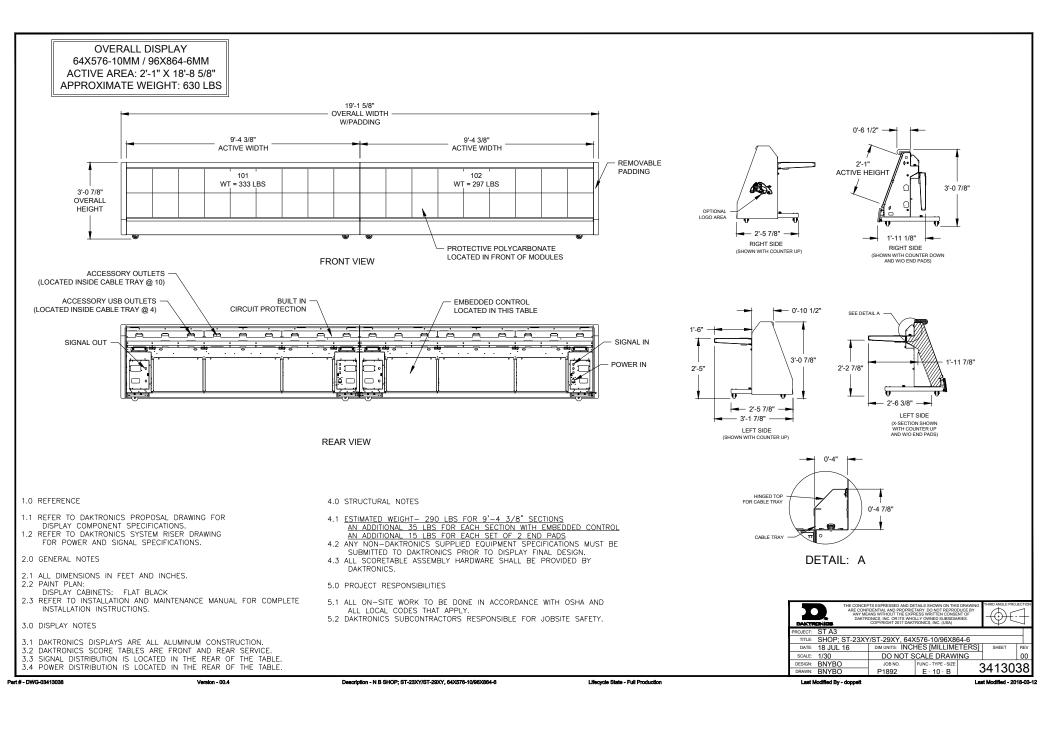


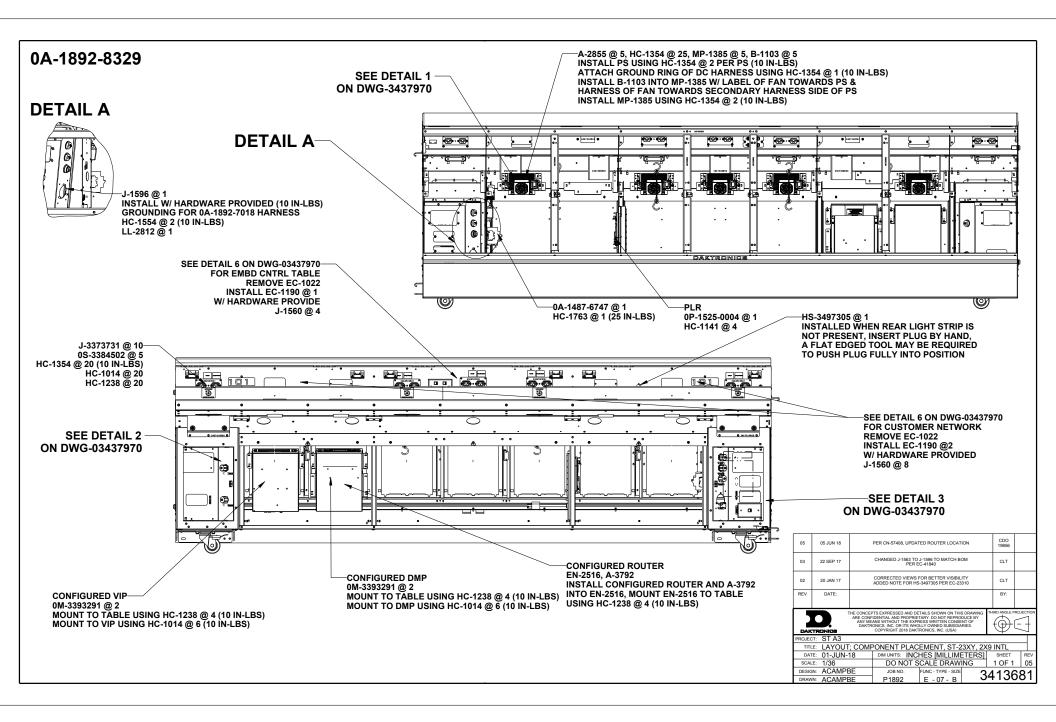


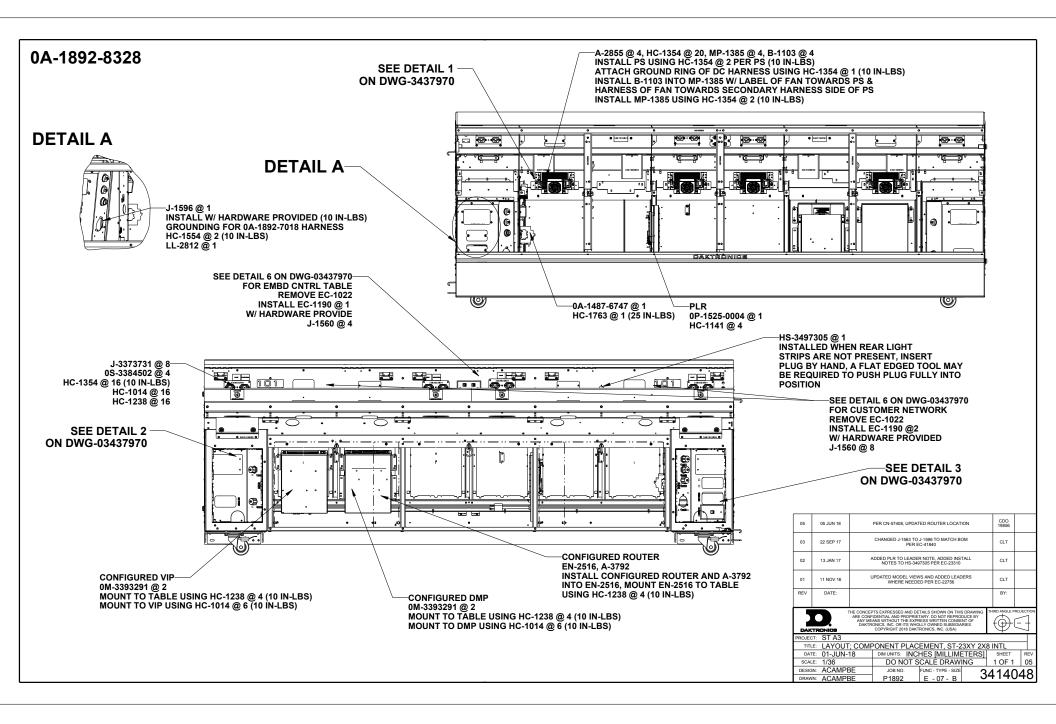


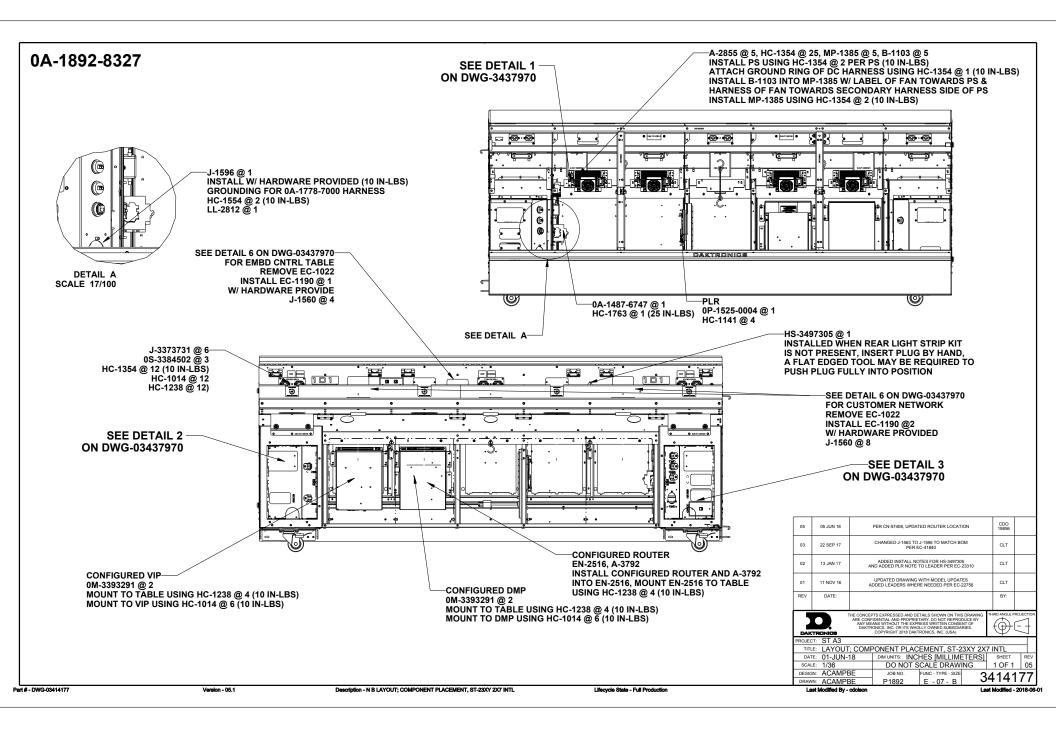


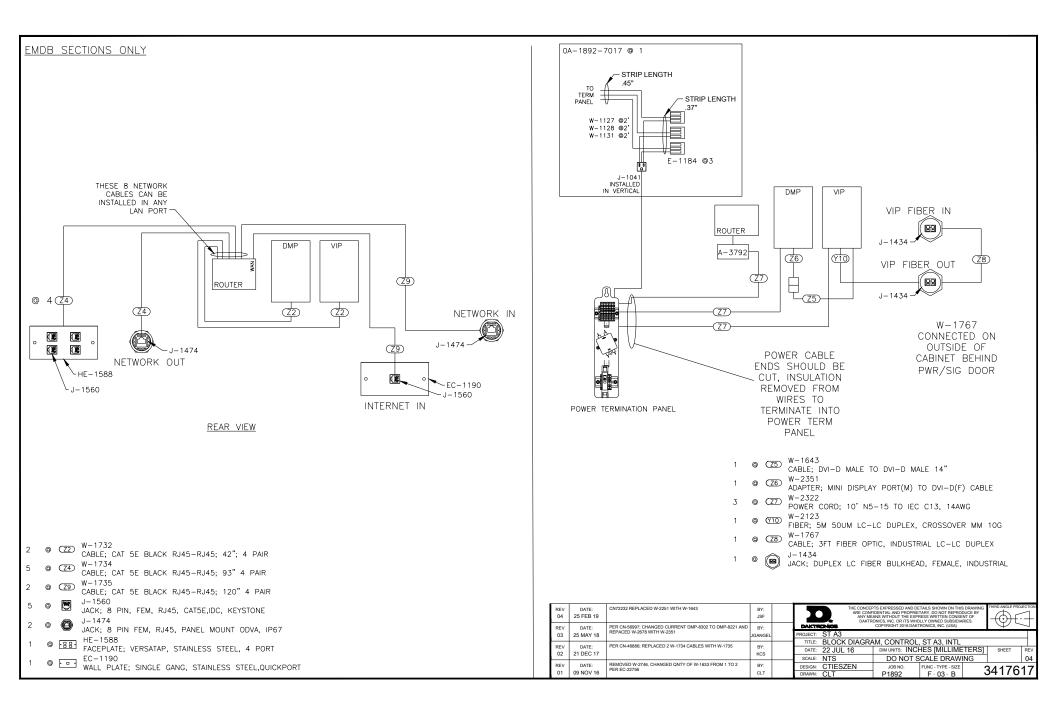


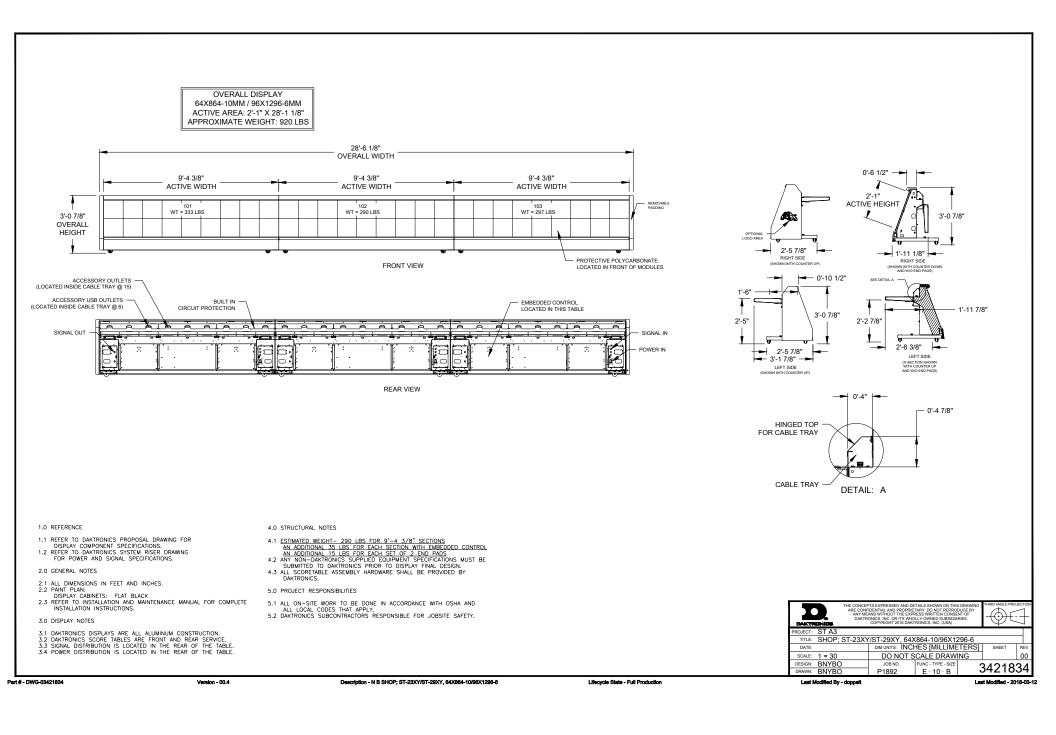


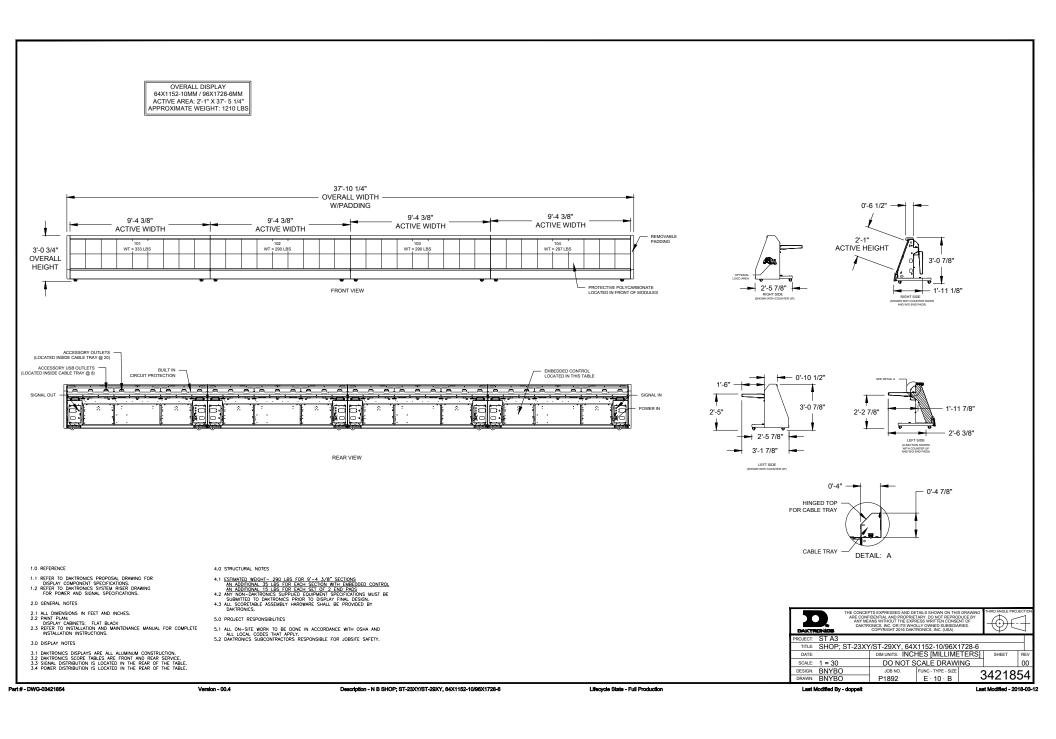


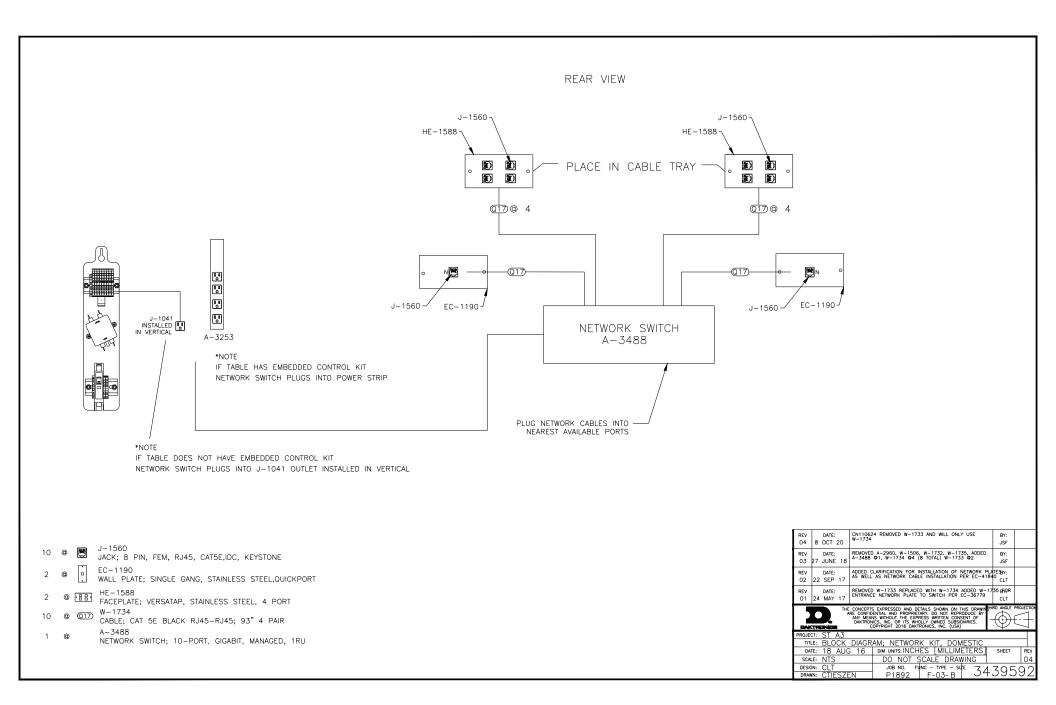


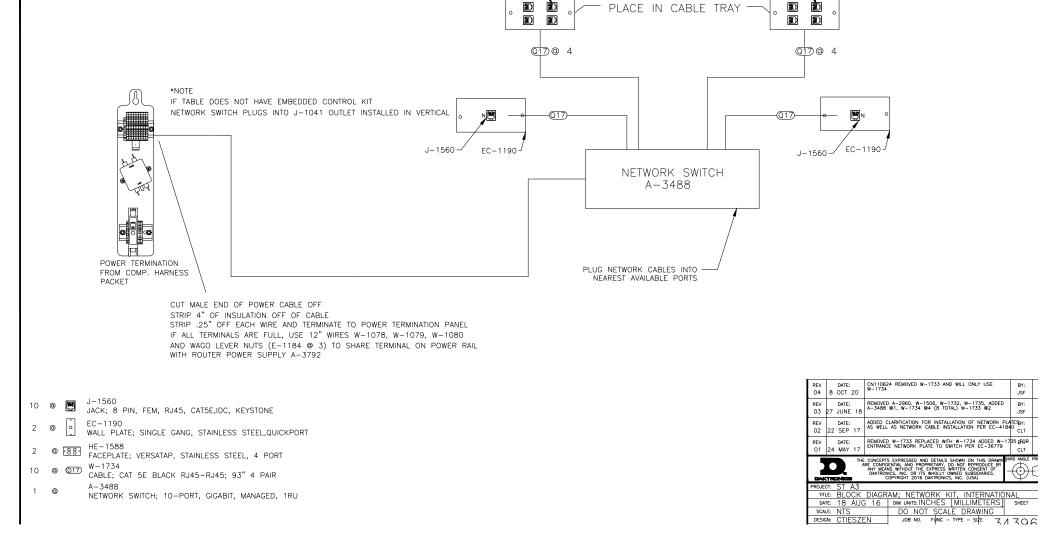












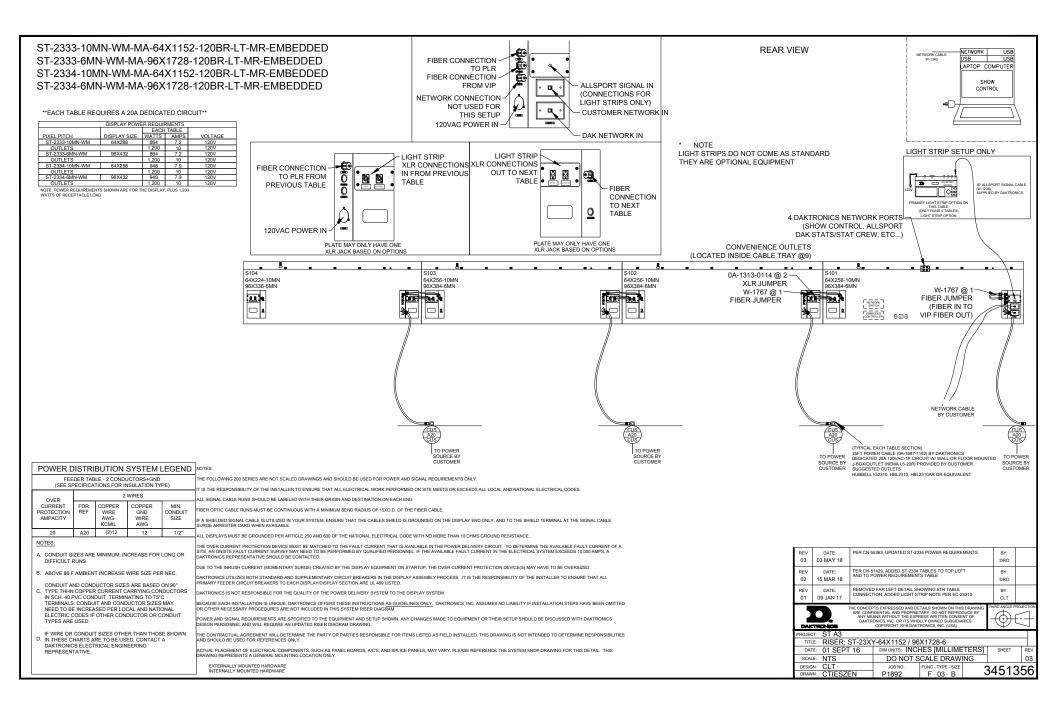
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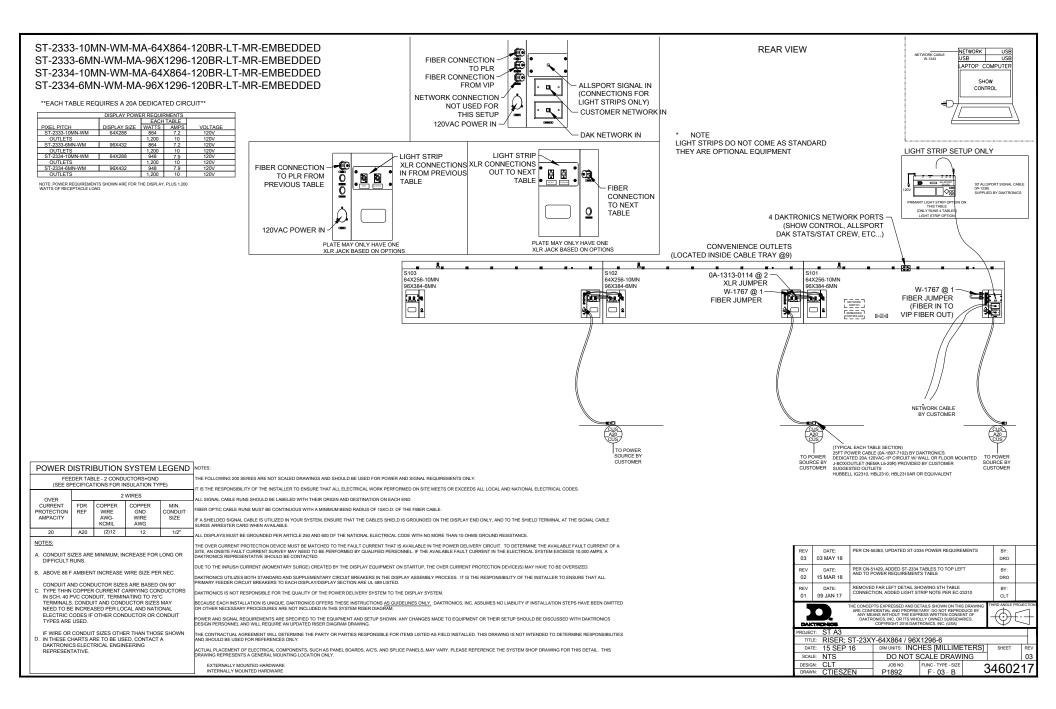
HE-1588~

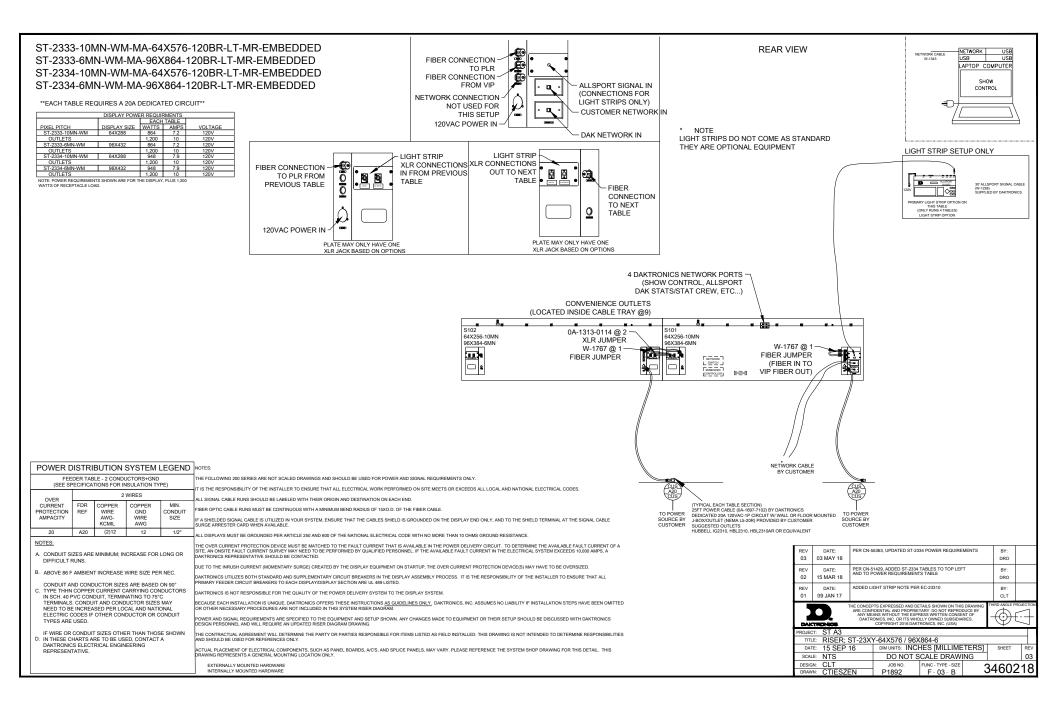
REAR VIEW

J-1560

HE-1588 -







ST-2333-10MN-WM-MA-64X288-120BR-LT-MR-EMBEDDED ST-2333-6MN-WM-MA-96X432-120BR-LT-MR-EMBEDDED ST-2334-10MN-WM-MA-64X288-120BR-LT-MR-EMBEDDED ST-2334-6MN-WM-MA-96X432-120BR-LT-MR-EMBEDDED

EACH TABLE REQUIRES A 20A DEDICATED CIRCUIT

	DISPLAY POWER REQUIRMENTS						
		EACH	TABLE				
PIXEL PITCH	DISPLAY SIZE	WATTS	AMPS	VOLTAGE			
ST-2333-10MN-WM	64X288	864	7.2	120V			
OUTLETS		1,200	10	120V			
ST-2333-6MN-WM	96X432	864	7.2	120V			
OUTLETS		1,200	10	120V			
ST-2334-10MN-WM	64X288	948	7.9	120V			
OUTLETS		1,200	10	120V			
ST-2334-6MN-WM	96X432	948	7.9	120V			
OUTLETS		1,200	10	120V			

E: POWER REQUIREMENTS SHOWN ARE FOR THE DISPLAY, PLUS 1,200 TS OF RECEPTACLE LOAD

FEEDER TABLE - 2 CONDUCTORS+GND

(SEE SPECIFICATIONS FOR INSULATION TYPE)

AWG.

ксмі

(2)12

A. CONDUIT SIZES ARE MINIMUM; INCREASE FOR LONG OR

B. ABOVE 86 F AMBIENT INCREASE WIRE SIZE PER NEC.

CONDUIT AND CONDUCTOR SIZES ARE BASED ON 90°

CONDUIT AND CONDUCTOR SIZES ARE BASED ON 90° C. TYPE THIN COPPER CURRENT CARRYING CONDUCTORS IN SCH. 40 PVC CONDUIT, TERMINATING TO 75°C TERMINALS, CONDUIT AND CONDUCTOR SIZES MAY

ELECTRIC CODES IF OTHER CONDUCTOR OR CONDUIT

IF WIRE OR CONDUIT SIZES OTHER THAN THOSE SHOWN

NEED TO BE INCREASED PER LOCAL AND NATIONAL

IN THESE CHARTS ARE TO BE USED, CONTACT A

DAKTRONICS ELECTRICAL ENGINEERING

OVER

CURRENT

PROTECTION

AMPACITY

20

DIFFICULT RUNS.

TYPES ARE USED.

REPRESENTATIVE.

NOTES:

FDR COPPER

REF WIRE

A20

2 WIRES

COPPER

GND WIRE

AWG

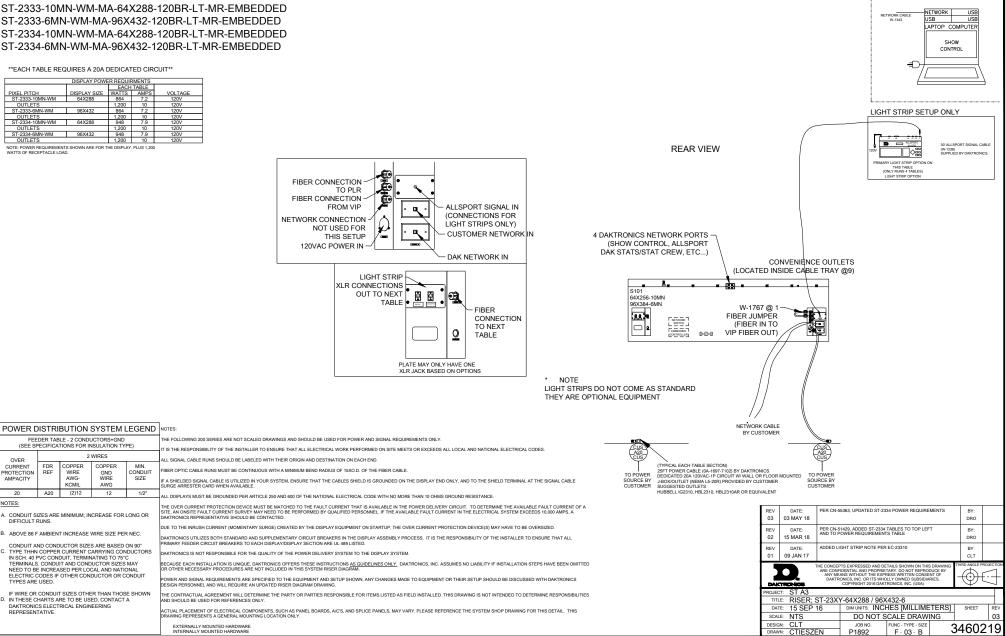
12

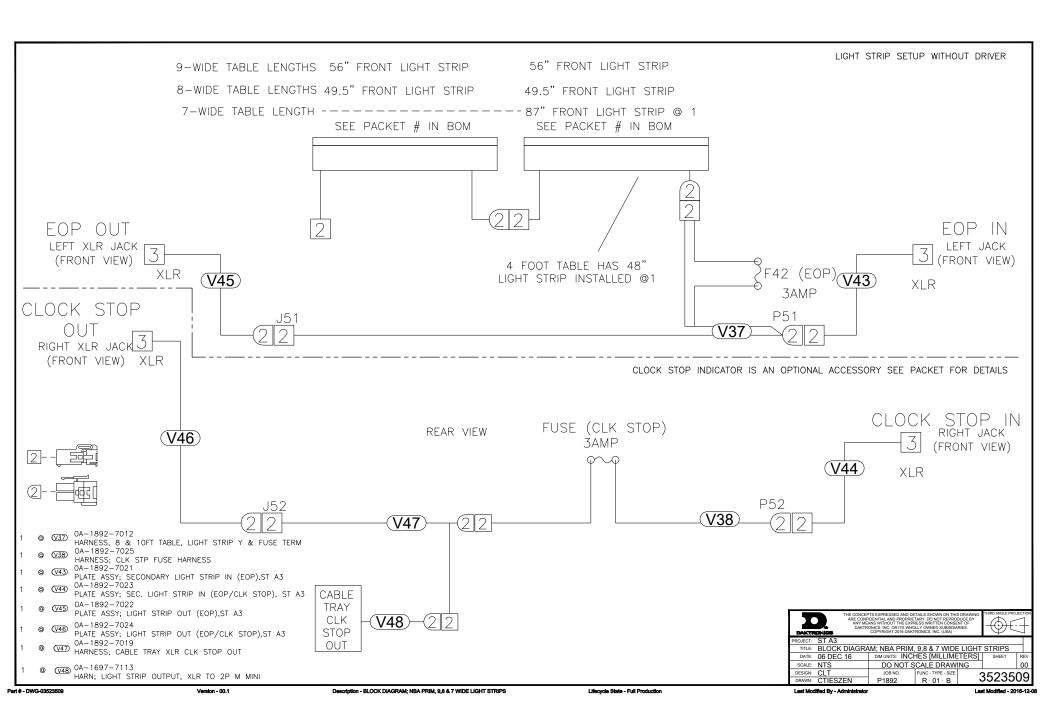
MIN

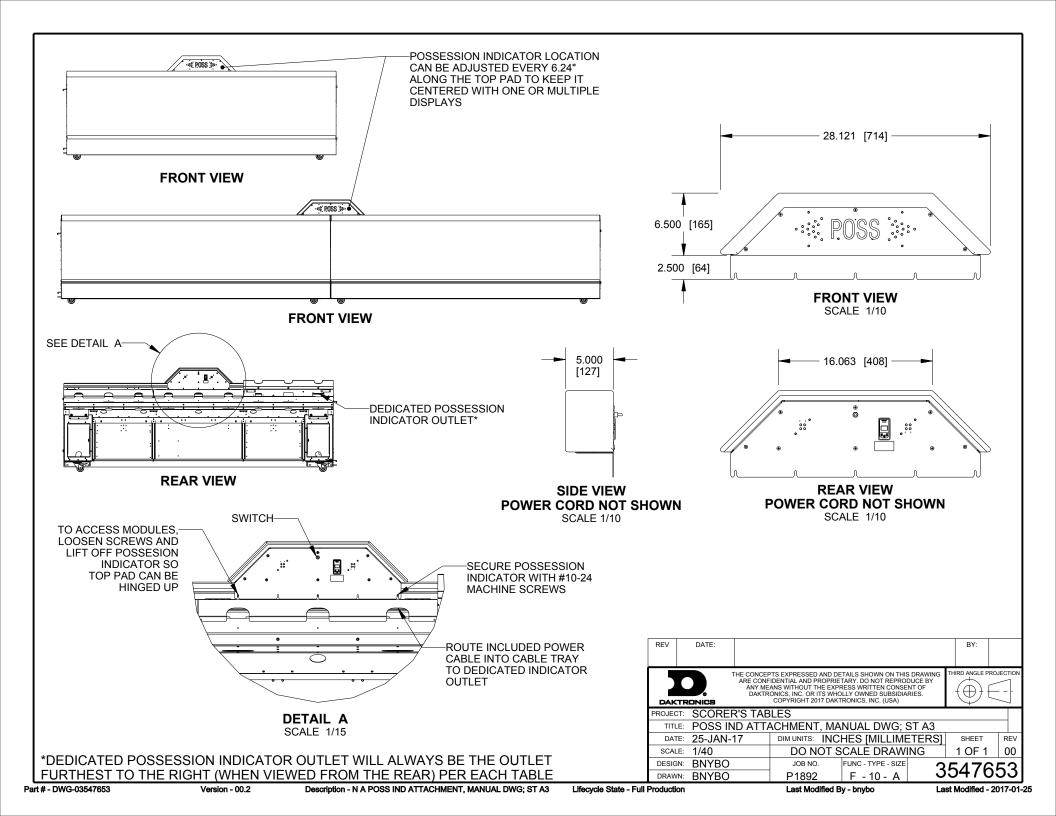
CONDUIT

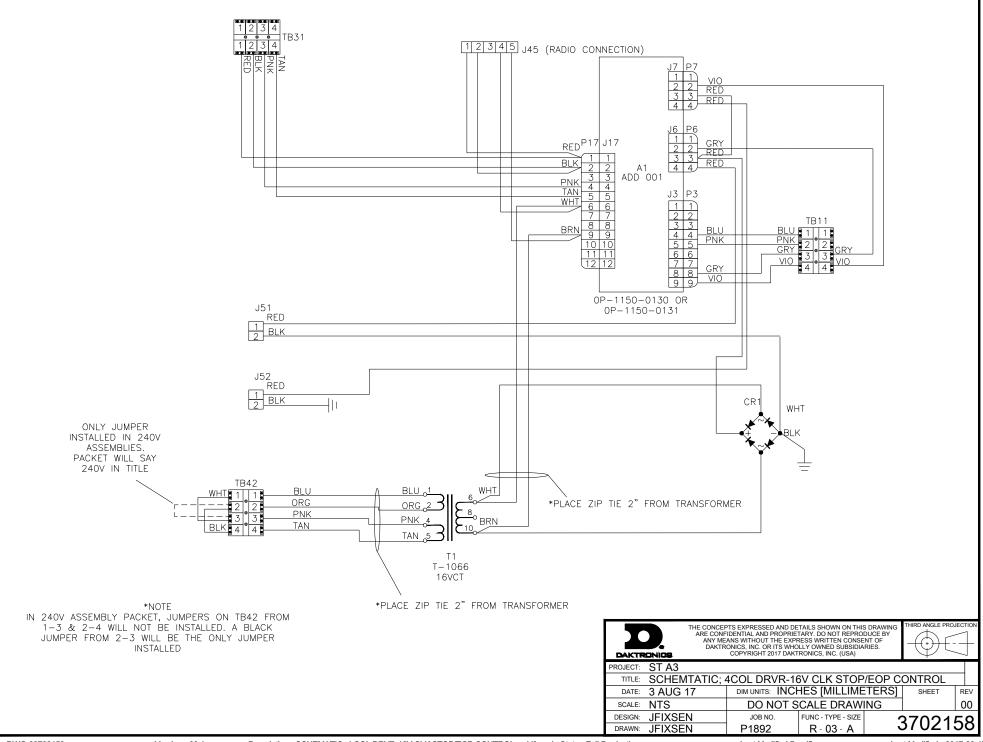
SIZE

1/2"





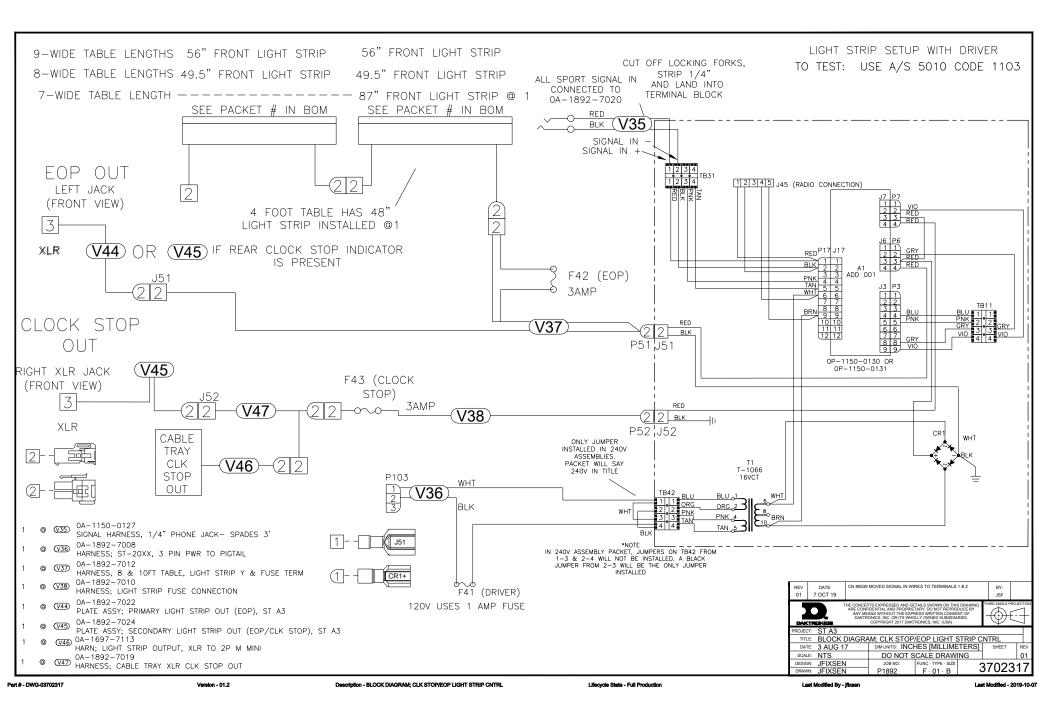


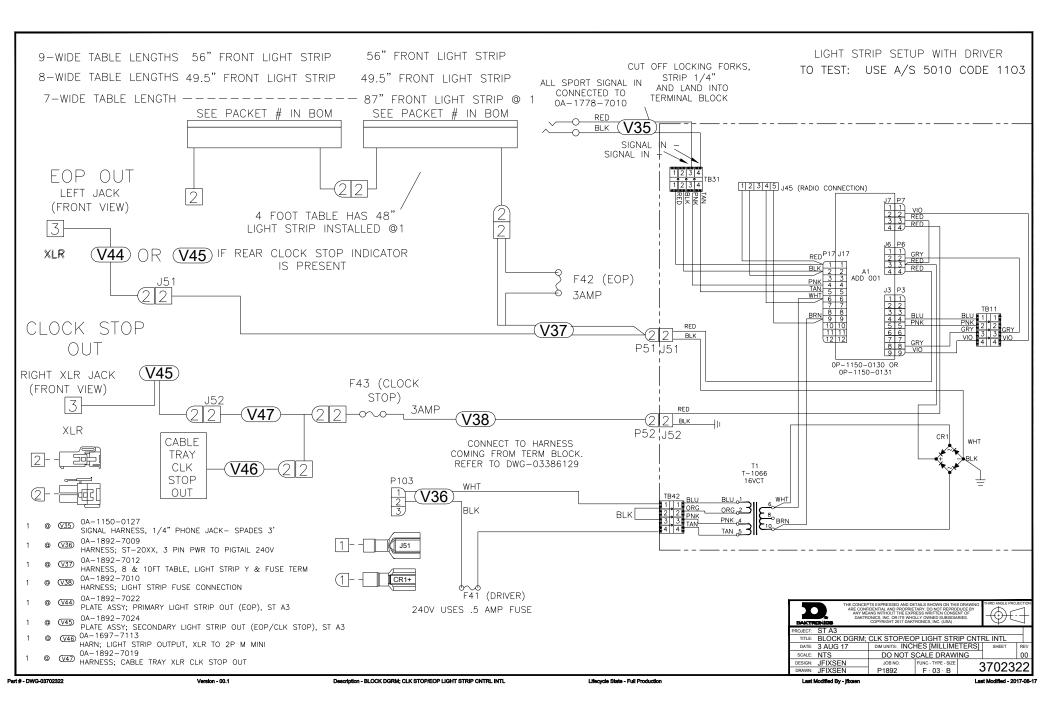


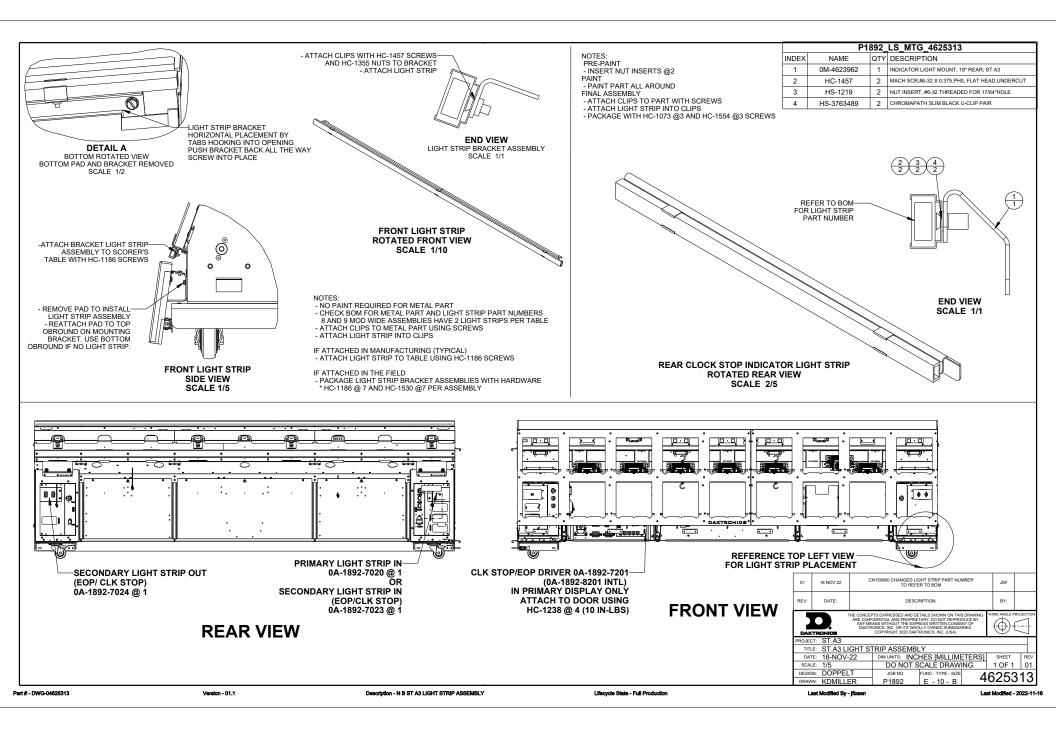
Description - SCHEMATIC; 4 COL DRVR-16V CLK STOP/EOP CONTROL Lifecycle State - Full Production

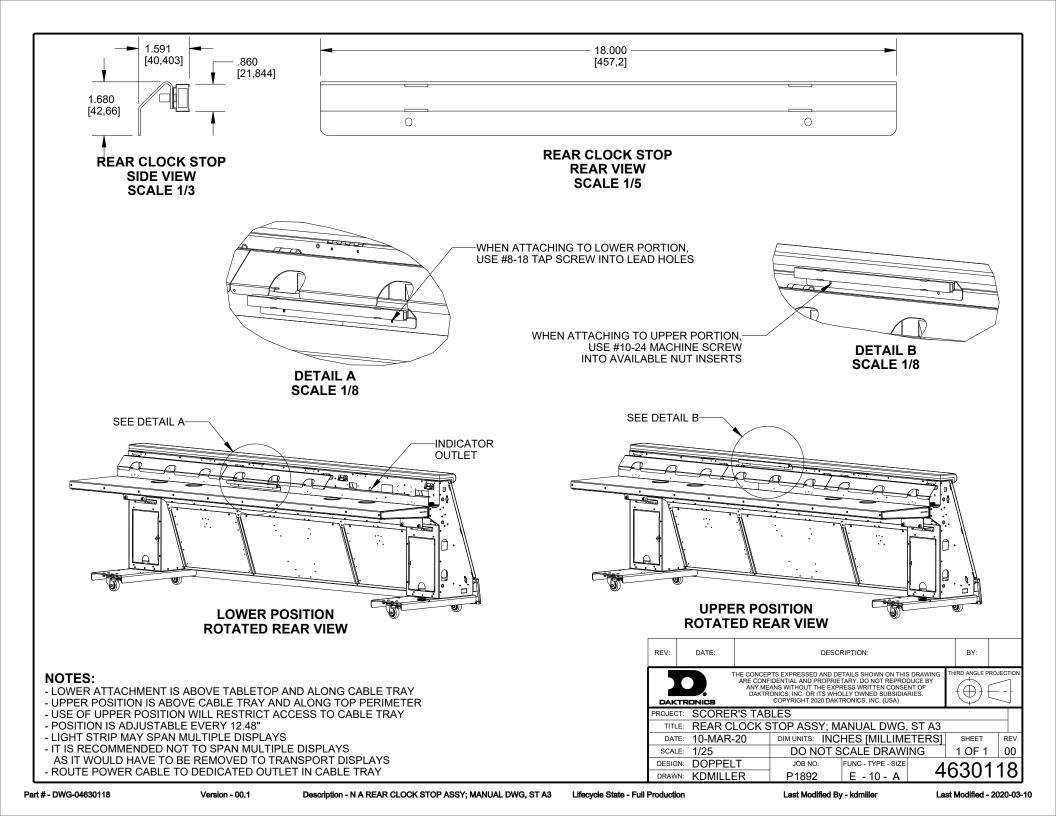
Last Modified By - jfixsen

Last Modified - 2017-08-17









B Daktronics Warranty and Limitation of Liability

This section includes the Daktronics Warranty & Limitation of Liability statement (SL-02374).

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DAKTRONICS WARRANTY & 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 and End User agree to be bound by and accept these terms and conditions. Unless otherwise defined herein, all 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 (the "End User", which may also be the Purchaser) 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 End User 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. This Warranty does not include on-site labor charges to remove or install these components. 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 Daktronics.
- C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. All such items shall be shipped by End User DDP Daktronics designated facility per Incoterms® 2020. If returned Equipment is repaired or replaced under the terms of this Warranty, Daktronics will prepay ground transportation charges back to End User and shall ship such items DDP End User's designated facility per Incoterms® 2020; otherwise, End User shall pay transportation charges to return the Equipment back to the End User and such Equipment shall be shipped Ex Works Daktronics designated facility per Incoterms® 2020. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. End User 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 the 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. Unless otherwise expressly provided, this Warranty does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Notwithstanding the foregoing, in no event does this Warranty include LED pixel degradation caused by UV light. This Warranty does not 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.

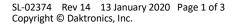
EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS WARRANTY, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, DAKTRONICS DISCLAIMS ANY AND ALL OTHER PROMISES, REPRESENTATIONS AND WARRANTIES APPLICABLE TO THE EQUIPMENT AND REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ACCURACY OR QUALITY OF DATA. OTHER ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY DAKTRONICS, ITS AGENTS OR EMPLOYEES, SHALL NOT 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

This Warranty does not impose any duty or liability upon Daktronics for any:

- A. 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, End User assumes all risk of loss or damage, agrees to use any shipping containers that might be provided by Daktronics, and to ship the Equipment in the manner prescribed by Daktronics;
- **B.** damage caused by: (i)the improper handling, installation, adjustment, use, repair, or service of the Equipment, or (ii) any physical damage which includes, but is not limited to, missing, broken, or cracked components resulting from non-electrical causes;





DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

altered, scratched, or fractured electronic traces; missing or gauged solder pads; cuts or clipped wires; crushed, cracked, punctured, or bent circuit boards; or tampering with any electronic connections, provided that such damage is not caused by 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) improper power including, without limitation, a failure or sudden surge of electrical power; (iii) improper air conditioning, humidity control, or other environmental conditions outside of the Equipment's technical specifications such as extreme temperatures, corrosives and metallic pollutants; 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. statements made about the product by any salesperson, dealer, distributor or agent, 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 End User and are not part of the contract of sale;
- **G.** 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;
- H. replenishment of spare parts. In the event the Equipment was purchased with a spare parts package, the parties acknowledge and agree that the spare parts package is designed to exhaust over the life of the Equipment, and as such, the replenishment of the spare parts package is not included in the scope of this Warranty;
- I. security or functionality of the End User's network or systems, or anti-virus software updates;
- J. performance of preventive maintenance;
- K. third-party systems and other ancillary equipment, including without limitation front-end video control systems, audio systems, video processors and players, HVAC equipment, batteries and LCD screens;
- L. incorporation of accessories, attachments, software or other devices not furnished by Daktronics; or
- M. paint or refinishing the Equipment or furnishing material for this purpose.

3. Limitation of Liability

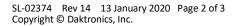
- A. Daktronics shall be under no obligation to furnish continued service under this Warranty if alterations are made to the Equipment without the prior written approval of Daktronics.
- B. It is specifically agreed that the price of the Equipment is based upon the following limitation of liability. In no event shall Daktronics (including its subsidiaries, affiliates, officers, directors, employees, or agents) be liable for any claims asserting or based on (a) loss of use of the facility or equipment; lost business, revenues, or profits; loss of goodwill; failure or increased cost of operations; loss, damage or corruption of data; loss resulting from system or service failure, malfunction, incompatibility, or breaches in system security; or (b) 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, injury to property or any damages or sums paid 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
- C. In no event shall Daktronics be liable 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. The End User'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

A. The Warranty contained herein extends only to the 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. Governing Law; Election of Remedies

- A. 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. The parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce each of the parties' 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.
- B. Any dispute, controversy or claim arising from or related to this Warranty, the parties shall first attempt to settle through negotiations. In the event that no resolution is reached, then such dispute, controversy, or claim shall be resolved by final and binding arbitration under the Rules of Arbitration of the International Chamber of Commerce. The language of the arbitration





DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

shall be English. The place of the arbitration shall be Sioux Falls, SD. A single arbitrator selected by the parties shall preside over the proceeding. If a single arbitrator cannot be agreed upon by the parties, each party shall select an arbitrator, and those arbitrators shall confer and agree on the appointed arbitrator to adjudicate the arbitration. The arbitrator shall have the power to grant any provisional or final remedy or relief that it deems appropriate, including conservatory measures and an award of attorneys' fees. The arbitrator shall make its decisions in accordance with applicable law. By agreeing to arbitration, the Parties do not intend to deprive any court of its jurisdiction to issue a pre-arbitral injunction, pre-arbitral attachment, or other order in aid of arbitration proceedings and the enforcement of any award. Without prejudice to such provisional remedies as may be available under the jurisdiction of a court, the arbitrator shall have full authority to grant provisional remedies and to direct the Parties to request that any court modify or vacate any temporary or preliminary relief issued by such court, and to award damages for the failure of any Party to respect the arbitrator's orders to that effect.

6. Availability of Extended Service Agreement

A. For End User's protection, in addition to that afforded by the warranties set forth herein, End User 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).

Additional Terms applicable to sales outside of the United States

The following additional terms apply only where the installation site of the Equipment is located outside of the United States of America.

1. In the event that the installation site of the Equipment is in a country other than the U.S.A., then, notwithstanding Section 5 of the Warranty, where the selling entity is the entity listed in Column 1, then the governing law of this Warranty is the law of the jurisdiction listed in the corresponding row in Column 2 without regard to its conflict of law principles. Furthermore, if the selling entity is an entity listed in Column 1, then the place of arbitration is listed in the corresponding row in Column 3.

Column 1 (Selling Entity)	Column 2 (Governing Law)	Column 3 (Location of Arbitration)	
Daktronics, Inc.	The state of Illinois	Chicago, IL, U.S.A.	
Daktronics Canada, Inc.	The Province of Ontario, Canada	Toronto, Ontario, Canada	
Daktronics UK Ltd.	England and Wales	Bristol, UK	
Daktronics GmbH	The Federal Republic of Germany	Wiesbaden, Germany	
Daktronics Hong Kong Limited	Hong Kong, Special Administrative Region of the P.R.C.	Hong Kong SAR	
Daktronics Shanghai Co., Ltd.	The Peoples Republic of China	Shanghai, P.R.C.	
Daktronics France, SARL	France	Paris, France	
Daktronics Japan, Inc.	Japan	Tokyo, Japan	
Daktronics International Limited	Macau, Special Administrative Region of the P.R.C.	Macau SAR	
Daktronics Australia Pad Ltd	Australia	Sydney, Australia	
Daktronics Singapore Pte. Ltd	Singapore	Singapore	
Daktronics Brazil LTDA	Brazil	São Paulo, Brazil	
Daktronics Spain S.L.U.	Spain	Madrid, Spain	
Daktronics Belgium N. V	Belgium	Kruibeke, Belgium	
Daktronics Ireland Co. Ltd.	Ireland	Dublin, Ireland	



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