Sportsound® 2000HD Audio System

Installation & Maintenance Manual

DD1798478 ***Rev 4 – 12 March 2014***

DAKTRONICS

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DAKTRONICS, INC.

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Section 1: Introduction

This manual explains the installation, maintenance, and troubleshooting of the Sportsound® 2000HD Sound Cabinet. For additional information regarding the safety, installation, operation, or service of this system, refer to the telephone numbers listed in **Section 7**.

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 system; failure to follow this safeguard will make the warranty null and void.
- Disconnect system power when not in use or when servicing.
- Disconnect system power before servicing power supplies to avoid electrical shock. Power supplies run on high voltage and may cause physical injury if touched while powered. Several disconnect switches may be required to de-energize the equipment.
- Do not modify the cabinet structure or attach any panels or coverings without the express written consent of Daktronics, Inc.

This manual is not specific to a particular installation. Project-specific information takes precedence over any other general information found in this manual.

1.1 Resources

Figure 1 illustrates a Daktronics drawing label. The drawing number is located in the lower-right corner of a drawing. This manual refers to drawings by listing the last set of digits and the letter preceding them. In the example, the drawing would be referred to as **Drawing C-984140**.

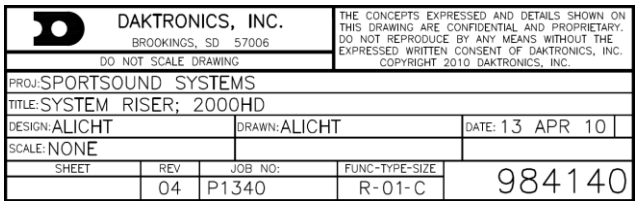


Figure 1: *Daktronics Drawing Label*

Throughout the manual, drawings are referenced as follows:

Reference Drawing:
System Riser; 2000HD ..... **Drawing C-984140**

Reference drawings in this manual are inserted in numeric order in **Appendix A**.

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 **DD1798478**.

1.2 Daktronics Nomenclature

Most components within this system 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 6,** use the label to order a replacement. **Figure 2** illustrates a typical label. The part number is in bold.

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

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

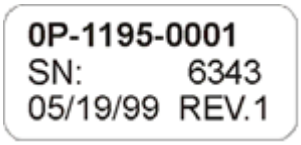


Figure 2: *Typical Label*

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

1.3 Product Safety Approval

Daktronics outdoor displays are ETL listed and tested to CSA standard for outdoor use. Contact Daktronics with any questions regarding testing procedures.

Section 2: Sound System Components

2.1 Equipment Overview

The Sportsound 2000HD audio system consists of the following elements:

- Sound Cabinet
- Fiber Conversion Box
- Source Equipment
- Signal Cables

Note: All products in this system are tested individually for product safety approval.

2.2 Sound Cabinet

The Sportsound 2000HD audio system cabinet (**Figure 3**) is 6'-0" (1829 mm) high, 22'-0" (6706 mm) wide, and 3'-6" (1067 mm) deep. It is composed of a steel skeleton sheeted in custom aluminum paneling with eight rear access doors. The cabinet is powder coat black with a wrinkle finish.

Figure 3: *Sportsound 2000HD Cabinet with Grille*

Grille

The grille of the cabinet consists of a woven flame resistant acoustical mesh. The mesh can be printed in a variety of colors to display advertising, sponsors, or logo designs. The printable area is 5'-4 $^{3}/_{4}$" (1645 mm) high by 21'-9" (6630 mm) wide.

Drivers

Three different types of drivers are used in the sound cabinet:

- 12" (305 mm) low frequency drivers: Daktronics part # **A-2306**: (**Figure 4**)
- 8" (203 mm) mid-range drivers: Daktronics part # **A-2305** (**Figure 5**)
- 1.4" (36 mm) high frequency drivers: Daktronics part # **A-2302** (**Figure 6**)

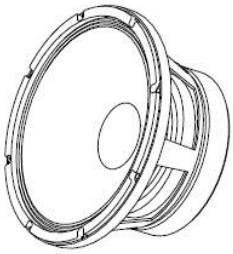


Figure 4: *A-2306*

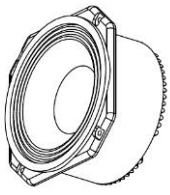


Figure 5: *A-2305*

Figure 6: *A-2302*

Amplifier Components

In sound systems, the amplifier is the last component before the drivers. It receives a signal from the source equipment and amplifies it to power the speakers. The Sportsound 2000HD sound system utilizes ten (10) power amplifiers with built-in Digital Signal Processor (DSP), which manages equalization, limiting, compression, and crossover functions.

Note: The DSP program is set at the factory and is not user adjustable.

2.3 Fiber Conversion Box

The fiber conversion box (**Figure 7**) converts the analog audio signal from the source equipment into fiber optic signal that goes out to the control enclosure. The box is typically permanently wall-mounted near the source equipment location.

The fiber conversion box includes an analog backup signal. This provides a redundant safety, in case the fiber link to the sound cabinet is lost. To go into analog backup mode, simply turn the switch to the **ANALOG** position.

Refer to **Section 4.3** for more information about the fiber conversion box.

Figure 7: *Fiber Conversion Box*

2.4 Source Equipment

The Sportsound 2000HD audio system is compatible with all Daktronics standard control systems. Refer to the manual provided with the control system for proper operation.

2.5 Signal Cables

Cable specifications are as follows:

- 6-core, multimode 50-micron fiber optic cable from fiber conversion box to fiber splice box or control enclosure (part # W-1489)

  If included with a Daktronics scoreboard or display, the sound system may share fiber optic cable (12-core part # W-1490).

- 1 pair, 22 AWG audio cable from fiber conversion box to control enclosure for analog backup (part # W-1615)
- 50' (15.2 m) fiber patch cable from fiber splice box to control enclosure (part # W-1512)

Section 3: Mechanical Installation

A qualified technician must install the Sportsound 2000HD sound system cabinet. It is the customer's responsibility to ensure that a qualified structural engineer approves the mounting structure and any additional hardware needed to secure the cabinet.

The cabinet must be installed no further than 100' (31 m) behind the goal post to provide coverage for seating from goal to goal.

Note: Daktronics assumes no responsibility for the structure's integrity. The engineer responsible for the attached-to base structure shall evaluate the adequacy of their structure to support the gravity loads imparted by the cabinet at each attachment point in combination with other associated loading conditions. Daktronics assumes no responsibility for system damage or injury resulting from installation methods that deviate from attachment details specified on shop drawings. Daktronics also assumes no liability for system damage or injury resulting from incorrect setup, or incorrect lifting methods preformed by non-Daktronics employees.

3.1 Cabinet Installation

Reference Drawings:

Shop Drawing; Sound System; 2000HD..... **Drawing C-330901**

The Sportsound 2000HD sound system installation consists of lifting and mounting the cabinet onto an existing support structure. Refer to **Drawing C-330901** in **Appendix A** for further mounting detail.

Lifting the Cabinet

The Sportsound 2000HD speaker cabinet is shipped with four (4) $^{5}/_{8}$" lift eyes (**Figure 8**) for lifting the cabinet into place.

Note: Three (3) shipping brackets are installed to the top of the cabinet for shipping purposes only. Each bracket is attached to the cabinet with two (2) $^{1}/_{2}$" hardware sets. Remove all shipping brackets prior to lifting and installing the cabinet.

***Figure 8**: Shipping Bracket & Lift Eyes*

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

Figure 9 illustrates the preferred lifting method on the left and an acceptable alternative lifting method on the right. When lifting the cabinet:

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

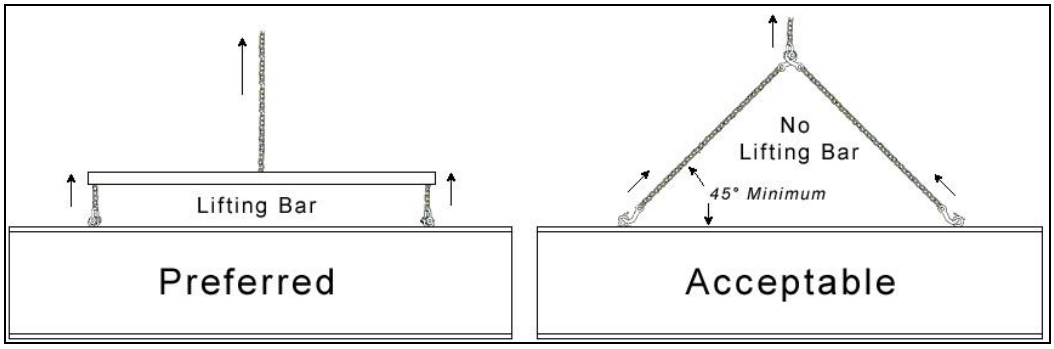


Figure 9: *Lifting Methods*

Cables and chains attached to the eyebolts and directly to a center lifting point, as shown in the right-hand example in **Figure 9**, 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 cabinet, the lighter the sign must be to safely lift it. If this method must be used, ensure a minimum angle between the chain and cabinet of at least 45°.

Do NOT attempt to lift the cabinet if the angle is less than 45 degrees. Exceeding load angles or weight limits could cause the bolts in the cabinet to buckle, resulting in serious damage to the equipment or injury to personnel. Also, loads should be applied directly in the plane of the eyebolt as shown in **Figure 10**.

> **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 cabinet with the eyebolts or eyebolt holes.

If installers remove the eyebolts, use $^{5}/_{8}$" bolts to plug the holes.

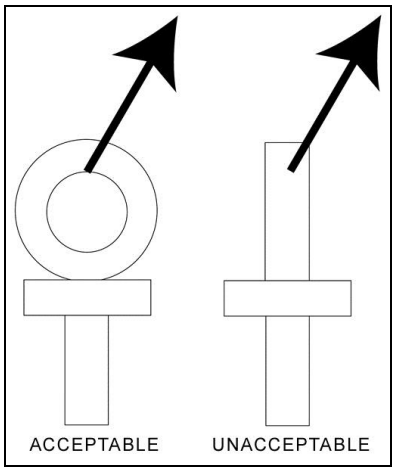


Figure 10: *Eyebolt Plane Load*

Mounting the Cabinet

The sound cabinet will be mounted atop a frame that must be certified by a structural engineer. To mount the system in place, position the cabinet on the structure where it is to be mounted. Weld the cabinet's bottom members to the structure at the locations indicated on the shop drawing. Refer to **Drawing C-330901** in **Appendix A** for mounting requirements.

Aiming the Speakers

Once the cabinet has been mounted in place, it may be necessary to adjust the direction of the speakers based on the specific facility. **Drawing C-1023805** in **Appendix A** provides speaker aiming instructions as well as recommended angles to position the speakers, based on the cabinet's location in relation to the seating area(s).

Section 4: Electrical Installation

CAUTION – RISK OF ELECTRIC SHOCK: Only qualified individuals should perform power routing and termination to the system. It is the responsibility of the electrical contractors to ensure that all electrical work meets or exceeds local and national codes. Failure to follow installation guidelines will result in audible noise on the sound system and possible damage to internal components.

Notes:

- This product is not provided with mains disconnect. Customer shall provide disconnect at base of sound system location that meets or exceeds local and national electrical codes. Several disconnect switches may be required to de-energize the equipment before servicing.
- The control enclosure, located in the sound cabinet, shall not be exposed to dripping or splashing, and no objects filled with liquid shall be placed on the control enclosure.

4.1 Power/Signal Connections

Reference Drawings:

System Riser; 2000HD ..... **Drawing C-984140**
System Riser; Electrical & Audio Notes ..... **Drawing B-985713**
Schematic; Control Enclosure/Sound Cabinet 2000HD ..... **Drawing B-1082599**

Drawing C-984140 details power and signal connections of the Sportsound 2000HD sound system. To gain access to internal power and signal connection points, open the far right rear access door (**Figure 11**). Turn all latches a 1/4 turn using a flathead screwdriver (older latches can be turned with fingers). Tilt the top of the door away from the cabinet. With the door tilted, use the handle to lift it up and out of the doorframe.

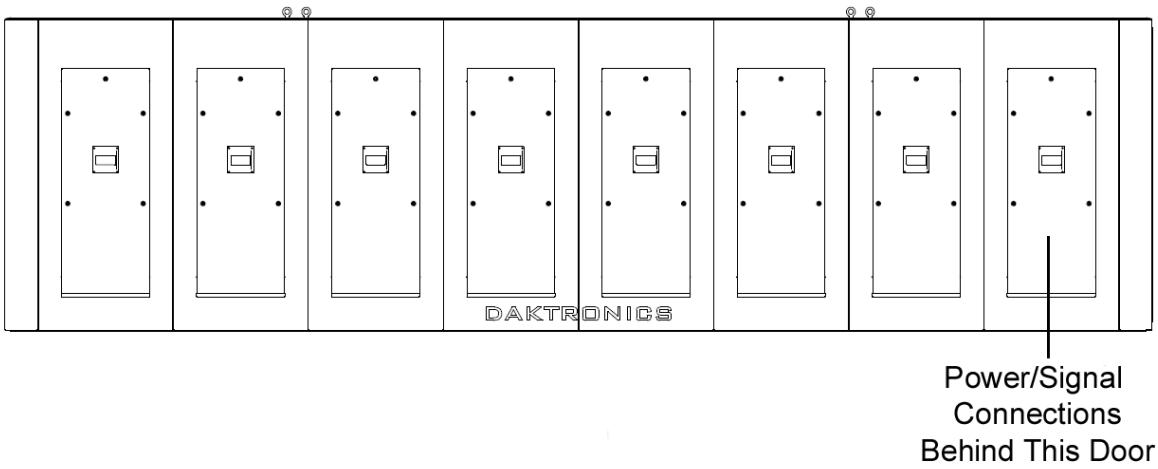


Figure 11: *Sound Cabinet Access Doors, Rear View*

To access the internal components of the control enclosure, first loosen the 6 screws with a Philips head screwdriver, and then use the handle to lift the enclosure cover up and away so the screws pass through the keyholes.

Refer to **Figure 12** for component and connection locations within the sound cabinet and control enclosure and **Drawing B-1082599** in **Appendix A** for a detailed wiring schematic.

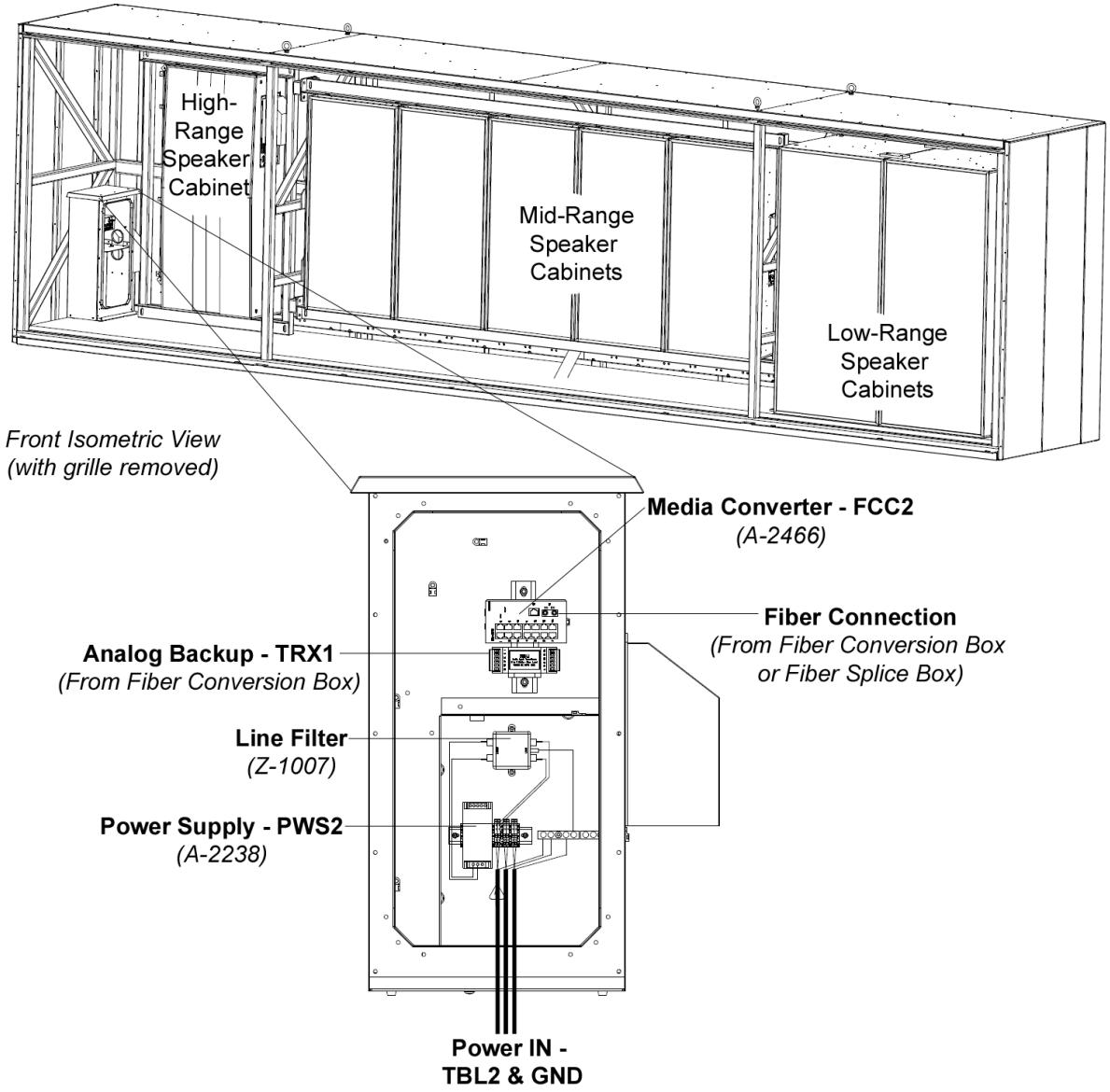


Figure 12: *Control Enclosure Components & Connections (Covers Removed)*

Power

The system requires three (3) 20 amp 208/230/240 circuits (50 or 60 Hz); 2W + GND per circuit. Power wiring must be run in conduit up into the bottom of the sound cabinet and terminated at TBL2. Refer to *Detail "F"* of **Drawing C-984140**.

Signal

Six-core, multimode 50-micron fiber optic cable (Daktronics part # W-1489) must be run in conduit from the fiber conversion box location and terminated in a fiber splice box near the sound cabinet. Fiber patch cables (part # W-1512) will then run in conduit to the control enclosure media converter (FCC2). Refer to *Detail "C"* and *Detail "E"* of **Drawing C-984140**. If there is no fiber splice box, the fiber is terminated directly to the media converter.

Note: The sound system may instead use 12-core (part # W-1490) fiber optic cable.

For the analog backup signal, 1 pair, 22 AWG cable (part # W-1615) must be run in conduit from the fiber conversion box location to the sound cabinet control enclosure (TRX1). Refer to *Detail "E"* of **Drawing C-984140**. The analog backup cable may pass through, but not terminate in, a fiber splice box.

Grounding

The sound cabinet must be grounded according to the provisions outlined in Article 250 and 600 of the National Electrical Code and according to the specifications in this manual 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 sound 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.

4.2 Lightning Protection

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

4.3 Fiber Conversion Box Connections

Important Notes:

- The fiber box shall not be exposed to dripping or splashing, and no objects filled with liquid shall be placed on the fiber box.
- The fiber box consists of Class 1 construction and shall be connected to a mains socket outlet with a protective earth-ground connection.
- The fiber box utilizes a power cord with wiring inlet as a means for disconnection from power. This means of disconnection shall remain readily operable in all cases.

Refer to **Figure 13** for external fiber conversion box connections and **Figure 14** for internal connections and component locations.

Refer to *Detail "A"* in **Drawing C-984140** for analog backup connection and *Detail "B"* for fiber connection. **Drawing A-1095894** provides a detailed wiring schematic.

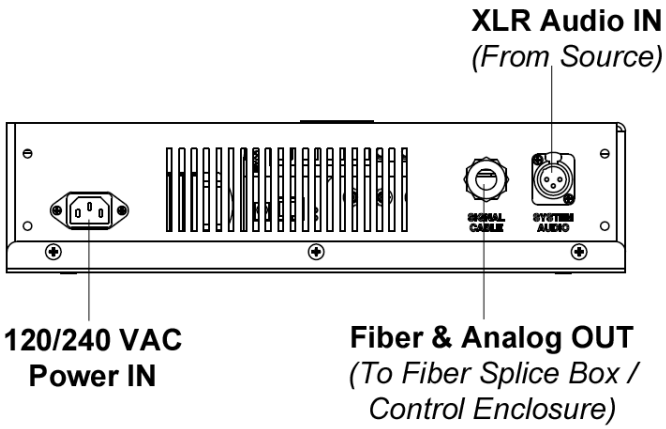


Figure 13: *External Fiber Conversion Box Connections*

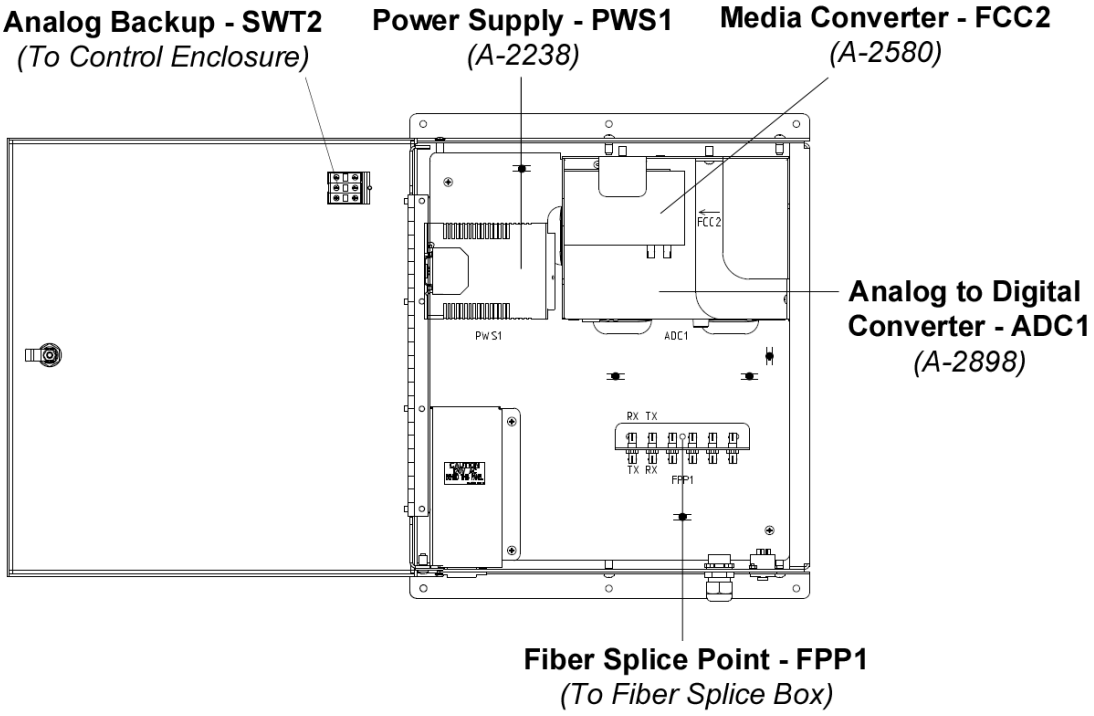


Figure 14: *Internal Fiber Conversion Box Connections & Components (Cover Open)*

Section 5: Maintenance & Troubleshooting

5.1 Maintenance

Grille Maintenance and Cleaning

To allow maximum acoustic transparency, the front of the cabinet contains a PVC mesh grille. Do not apply anything to the surface that may obstruct the holes in the material. To maintain the brightness of the colors and prolong the life of the grille, periodic cleaning is necessary. Failure to clean periodically may result in permanent discoloration or staining. When cleaning, use a mild soapy solution (Dove®, Ivory®, etc.) and a very soft brush, moving in a circular motion. Rinse with clean water using normal faucet pressure.

Note: Do not use a power washer.

Replacing the Grille Mesh

If the speaker mesh fades or tears over time, or if new graphics/logos are desired, it may be replaced. Only qualified sign companies should be used to replace the speaker mesh. Refer to **Drawing B-983337** for speaker mesh layout. Contact Daktronics for mesh reordering.

1. Removing Mesh Frame

   The front of the sound cabinet has a removable aluminum frame that secures the speaker mesh. This frame is attached to the sound cabinet with a total of twenty (20) $^{3}/_{8}$" hardware sets, with ten (10) sets at both the top and bottom of the frame.

   a. Carefully remove all mounting hardware and safely lower mesh frame to the ground. Set the frame on a level surface large enough so that the weight is supported by the aluminum frame and not on the mesh.

   b. Loosen the set screws using a square driver on radius cover and remove.

2. Removing Tension Clips

   Insert the tip of a standard slotted screwdriver into the recess located at the backside of the tension clip (**Figure 15**). Rotate or tilt the screwdriver to separate the tension clip teeth away from the frame. This will allow the tension clip to be removed from the frame by prying or pulling it up and out.

   Slide the mandrel out of the tension clip to release the mesh.

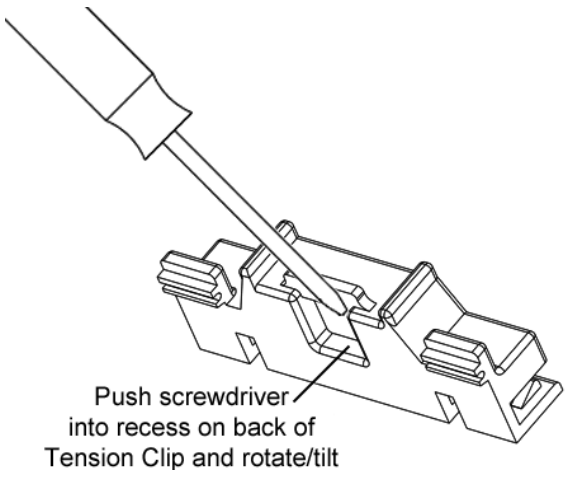


Figure 15: *Removing Tension Clips*

3. Attaching New Speaker Mesh

When ordered through Daktronics, the mesh has a line with a series of tick marks printed on the front (**Figure 16**). These tick marks are used to indicate the location of the tension clips and mandrels.

Figure 16: *Tick Marks on Mesh*

a. Place a mandrel, smooth side up, centered on the tick mark.

b. Fold the mesh around the mandrel. Ensure the groove in the mandrel is towards the inside of the mesh (**Figure 17**).

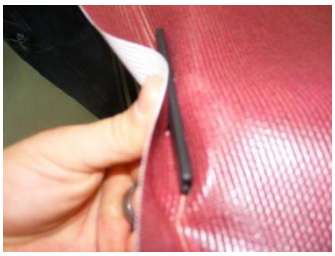


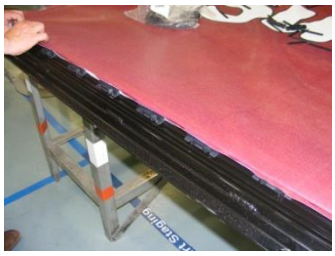
Figure 17: *Folding Mesh*

c. Snap a tension clip over the mandrel and mesh (**Figure 18**). Do not try to drive both ends of the clip down onto the mandrel and fabric at the same time; snap one end down and then the other.

Figure 18: *Attach Tension Clip*

d. Continue to place a mandrel and tension clip on every tick mark.

e. Lay the mesh across the frame and snap each clip into the tension channels (**Figure 19**).



Note: Pull on the corners of the mesh to remove any wrinkles. When pulling on the fabric, do not pull directly on the fabric flap or tension clip, or the clip may pop off. When pulling on the face, grasp the fold and pull the face into place.

Figure 19: *Clips in Channels*

f. Use the tensioning tool provided with the mesh replacement kit (part # 0A-1340-2032) to drive the tension clips into the tension channels (**Figure 20**). Start with one or two clicks.

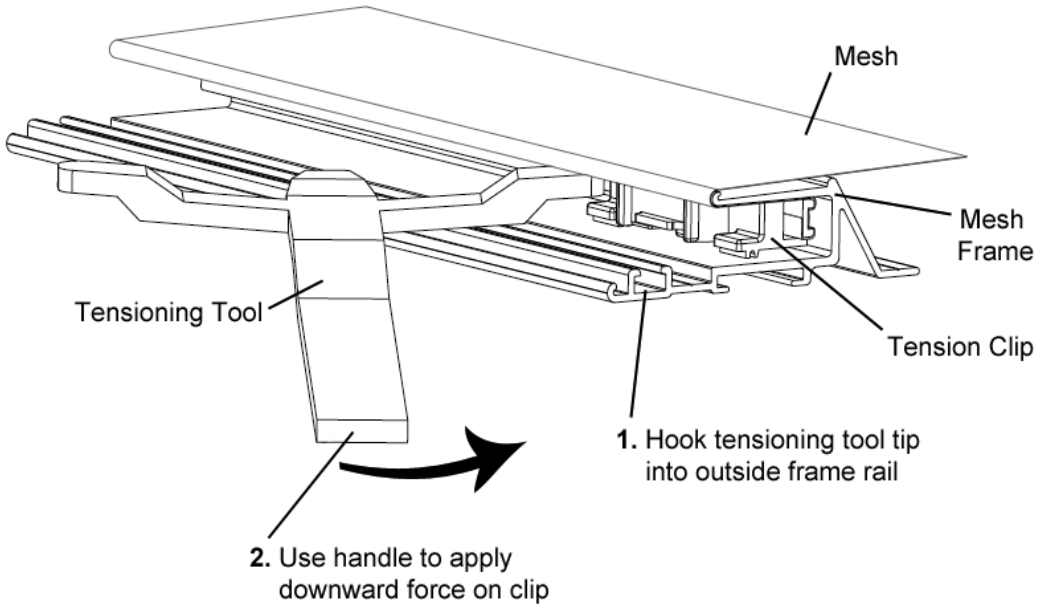


Figure 20: *How to Use Tensioning Tool*

g. Work around the frame, tightening down all the tension clips until all the wrinkles are removed and the mesh is properly taut.

Note: Do not over-tension! This may cause damage to mesh graphics. Apply just enough tension to achieve a smooth, flat surface.

h. Place the radius covers on the end of the mesh frame and tighten the set screws on the radius cover.

4. Reattach Mesh Frame

Safely lift mesh frame back in place on the front of the sound cabinet and attach with the twenty (20) $^{3}/_{8}$" hardware sets. Ensure the frame is snug tight against the cabinet.

5.2 Troubleshooting

This section lists potential problems with the system, indicates possible causes, and suggests corrective action. This list does not include every possible problem, but it does represent some of the more common situations that may occur. If the problem persists, please contact Daktronics for assistance.

Note: Be sure to power on the announcer's rack, fiber conversion box, and cabinet breakers. Make sure all connections from source to the fiber conversion box are complete.

Symptom/Condition	Possible Cause	Potential Solution
No power to cabinet	Breaker is off at sign Bad A-2238 power supply	Turn breaker ON Order new power supply
No audio from cabinet, but source (announcer's rack) shows output	No power at cabinet Fiber conversion box is unplugged from wall outlet or cable to announcer's rack	Turn breaker on Plug in fiber conversion box
No audio from cabinet	Fiber link down/ TX-RX swap Fiber link down/ broken fiber	Swap TX-RX fibers to fix link Replace fiber splice, repair fiber termination/cable
Weak audio from cabinet	Improper gain at Analog to Digital Converter (in fiber conversion box)	Adjust gain according to **Biamp Audia Input & Output Expanders Operation Manual** in **Appendix B**
Poor sound quality from cabinet (distortion)	Poor source material (CD or MP3 with heavy compression or distorted material) Clipping audio at source (announcer's rack) output Blown driver in cabinet	Use high quality audio files (.wav) Bring source level down below clip Contact Daktronics to verify defective equipment and replace
Audio from cabinet is intermittent	Amplifier modules within speaker cabinet are over driven into protect mode Analog to Digital Converter (in fiber conversion box) is failing	Reduce source output level Contact Daktronics to replace Analog to Digital Converter

For more troubleshooting steps, refer to the announcer's rack manuals listed in **Section 2.4**.

Indicator Lights

Announcer's Rack

Refer to the troubleshooting section of a specific announcer's rack manual for more information about the indicator lights.

Fiber Conversion Box

Within the fiber conversion box, indicator lights on the equipment help verify proper connection with sound cabinet.

The media converter (part # A-2580) has two LED indicators of importance, as shown in **Figure 21**.

1) P1 LED will illuminate amber to indicate fiber conversion box has power.

2) Port 10/100 LED will blink green to indicate functional connection between speaker cabinet control enclosure and fiber conversion box. This is an indication that the speaker cabinet has power.

Refer to the specific equipment manuals in **Appendix B** for additional troubleshooting help.

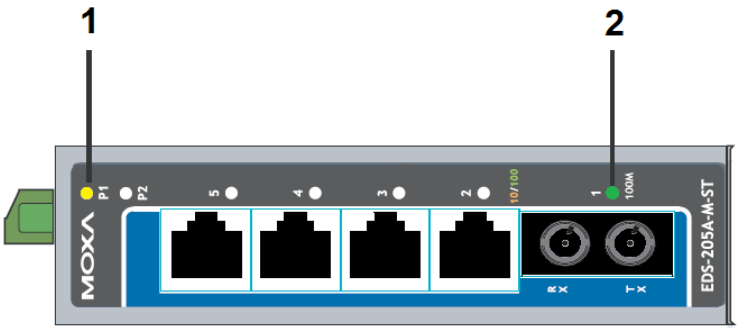


Figure 21: *Media Converter LED Indicators*

Note: For proper diagnostic functionality, the two BSP DIP switches on top of the media converter must be set to ON (**Figure 22**).

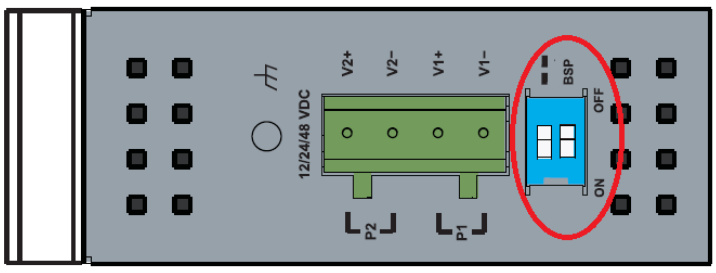


Figure 22: *Media Converter BSP DIP Switches*

Section 6: Replacement Parts

6.1 Sound Cabinet

Part Description	Part Number
Voltage Surge Protector	A-1129
24 VDC Power Supply	A-2238
1.4" Compression Driver	A-2302
8" Midrange Driver	A-2305
12" Woofer	A-2306
Industrial Media Converter / Ethernet Switch, 16 Port	A-2466
Power Amplifier SP1 1000	A-2469
Power amplifier SP2 1000-1000	A-2470
Power Amplifier SP2 500-500	A-2538
Transformer; Audio Input, 1 Channel	T-1130
RFI Line Filter, 20 Amp	Z-1007
2000HD Mesh Replacement Kit	0A-1340-2032
Tension Clip w/ Mandrel	HS-1613
Tensioning Tool	TH-1175

6.2 Fiber Conversion Box

Part Description	Part Number
24 VDC Power Supply	A-2238
Industrial Media Converter / Ethernet Switch, 5 Port	A-2580
Converter; Analog to Digital with CobraNet	A-2898

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:

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

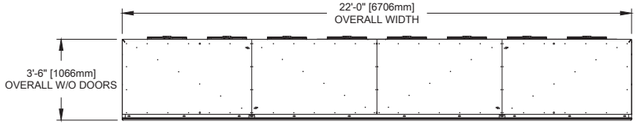
The Daktronics Warranty and Limitation of Liability is located in **Appendix C**. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

Appendix A: Reference Drawings

Drawing Title	*Drawing Number*
Shop Drawing; Sound System; 2000HD	**C-330901**
Mesh Layout; 2000HD Gen II	**B-983337**
System Riser; 2000HD	**C-984140**
System Riser; Electrical & Audio Notes	**B-985713**
Speaker Adjustment Chart; 2000HD	**C-1023805**
Schematic; Control Enclosure/Sound Cabinet 2000HD	**B-1082599**
Audio; Sportsound, Fiber Box Schematic	**A-1095894**

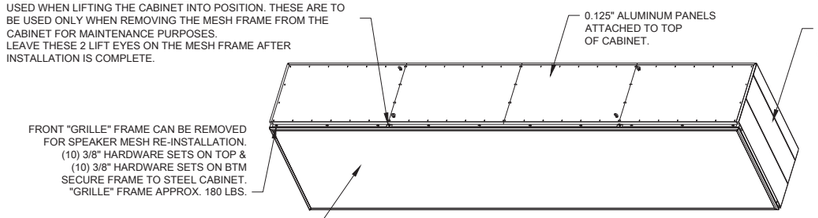
SPORTSOUND 2000HD

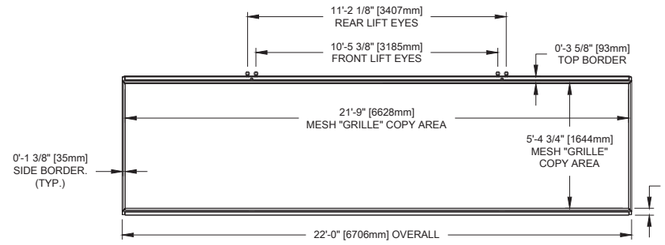
STANDARD SHOP

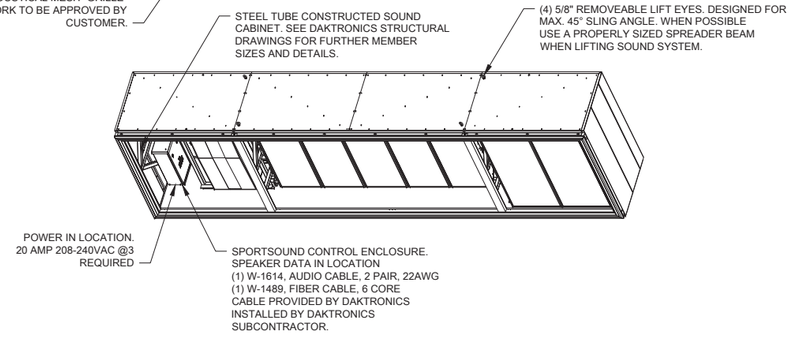


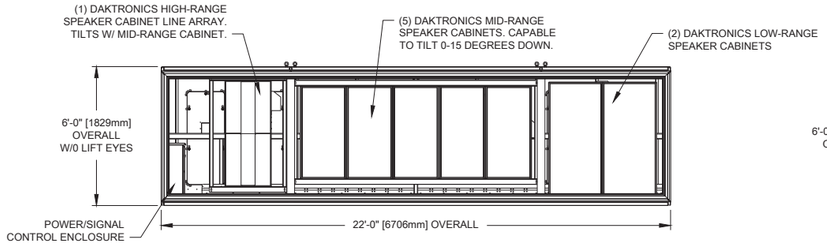
TOP VIEW

NOTE:
THE 2 LIFT EYES ON THE FRONT MESH FRAME SHOULD NOT BE USED WHEN LIFTING THE CABINET INTO POSITION. THESE ARE TO BE USED ONLY WHEN REMOVING THE MESH FRAME FROM THE CABINET FOR MAINTENANCE PURPOSES.
LEAVE THESE 2 LIFT EYES ON THE MESH FRAME AFTER INSTALLATION IS COMPLETE.

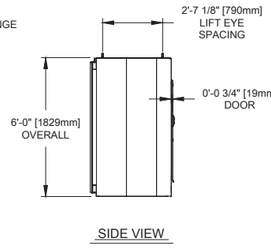








W/O MESH "GRILLE"

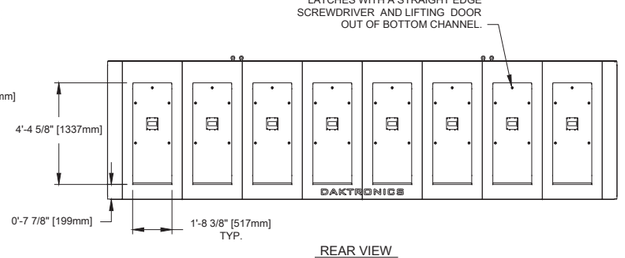


SIDE VIEW

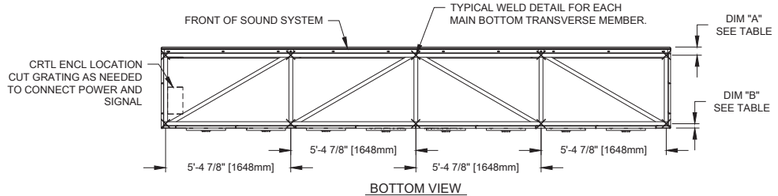
ISOMETRIC VIEW

W/O MESH "GRILLE"

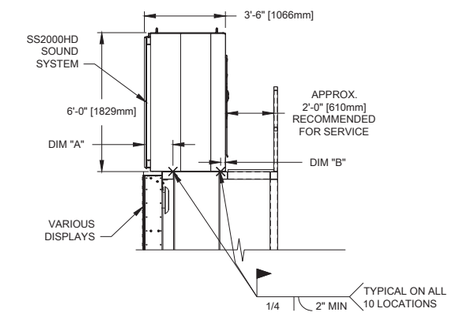
(8) REAR ACCESS DOOR FOR SERVICE OF INTERNAL COMPONENTS IN CABINET. DOORS CAN BE REMOVED BY TURNING LATCHES WITH A STRAIGHT EDGE SCREWDRIVER AND LIFTING DOOR OUT OF BOTTOM CHANNEL.



REAR VIEW



BOTTOM VIEW



SIDE VIEW

WIND SPEED (MPH)	DESIGN WIND PRESSURE (PSF)	DIM "A" (INCHES)	DIM "B" (INCHES)
90	32	19	10
110	47	17	5.5
130	66	14.5	3
150	88	7	3

NOTES:

DIM "A" REPRESENTS THE MAXIMUM DIMENSION FROM THE FRONT OF SOUND SYSTEM TO FRONT WELD LOCATION OF "ATTACH-TO STRUCTURE" PER DESIGN WIND PRESSURE.

DIM "B" REPRESENTS THE MAXIMUM DIMENSION FROM THE BACK OF SOUND SYSTEM TO BACK WELD LOCATION OF "ATTACH-TO STRUCTURE" PER DESIGN WIND PRESSURE.

THE "ATTACH-TO STRUCTURE" SHOWN IS FOR CONCEPTUAL PURPOSES ONLY. THE APPROPRIATE LOADING CONDITIONS AND THE SIZE OF THE "ATTACH-TO STRUCTURE" SHALL BE EVALUATED FOR EACH USE OF THIS SYSTEM AND IS NOT EVALUTED IN THIS DRAWING.

TOTAL SOUND SYSTEM WEIGHT: 4000 LBS

NOTES:

1.0 REFERENCE
1.1 REFER TO DAKTRONICS RISER DIAGRAM 1340-R10B-329134 FOR ALL ELECTRICAL POWER AND DATA SPECIFICATIONS.
1.2 THE SHOWN SYSTEM MUST BE APPROVED BY THE CUSTOMER AND ALL ATTACH-TO STRUCTURE MUST BE CERTIFIED IN THE STATE IN WHICH IT IS INSTALLED BY A QUALIFIED STRUCTURAL ENGINEER BEFORE FABRICATION OR ERECTION.

2.0 GENERAL NOTES
2.1 ALL DIMENSIONS ARE IN FEET AND INCHES.
2.2 REFER TO INSTALLATION AND MAINTENANCE MANUAL FOR COMPLETE INSTALLATION INSTRUCTIONS.

3.0 SOUND CABINET NOTES
3.1 DAKTRONICS SOUND CABINET IS STEEL CONSTRUCTED SKELETON WITH METAL PANELING FASTENED TO ITS EXTERIOR.
3.2 LIFT PLATES ARE PROVIDED BY DAKTRONICS. WHEN LIFTING USE 45° OR GREATER, FROM THE HORIZON, CABLE SYSTEM.

4.0 STRUCTURAL NOTES
4.1 ALL STRUCTURAL STEEL SHALL BE ASTM A36, EXCEPT: TUBING SHALL BE A500-B.
4.2 THE SOUND CABINET HAS BEEN DESIGNED TO WITHSTAND UP TO A *150MPH (3-SEC GUST) DESIGN WIND SPEED WTIH AN OVERALL MAXIMUM DESIGN PRESSURE OF 88 PSF ACCORDING TO ASCE 7-05 (EXPOSURE C).
*REFER TO TABLE FOR MAXIMUM DISTANCE OF FRONT WELD CONNECTION.
4.3 THE DESIGN WIND PRESSURE WERE SHIFTED AND ADJUSTED TO ACCOUNT FOR ASCE 7 PRESCRIBED OFFSET EFFECTS.
4.4 THE SOUND CABINET HAS BEEN DESIGNED TO SUPPORT A FLOOR LIVE LOAD OF 90 PSF TO ACCOUNT FOR THE WEIGHT OF THE SPEAKERS AND ANY SERVICE PERSONNEL.
4.5 THE SOUND CABINET HAS BEEN DESIGNED TO SUPPORT A DESIGN ROOF SNOW LOAD OF 30 PSF.
4.6 THE SOUND CABINET HAS BEEN DESIGNED TO SUPPORT A LATERAL SEISMIC LOADING EQUAL TO 2.0 TIMES GRAVITY.
4.7 FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF AISC SPECIFCATIONS.
4.8 ALL WELDING (SHOP AND FIELD) SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1-LATEST EDITION SPECIFICATIONS BY A CERTIFIED WELDER USING E70XX ELECTRODES.

5.0 PROJECT RESPONSIBILITY
5.1 DAKTRONICS' AND CUSTOMER SUBCONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO INSTALLATION.
5.2 ALL SUBCONTRACTORS SHALL PERFORM WORK IN ACCORDANCE WITH OSHA REQUIREMENTS AND ANY LOCAL CODES THAT APPLY.
5.3 EACH SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE SAFETY.
5.4 ERECTION SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGNING AND PROVIDING TEMPORARY BRACING.
5.5 EACH SUBCONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF WASTE MATERIALS ON THE JOBSITE.

SUBMITTAL APPROVAL

☐ APPROVED
☐ APPROVED AS NOTED
☐ APPROVED AS NOTED & RESUBMIT

COMPANY: _____

SIGNED: _____

TITLE: _____ DATE: _____

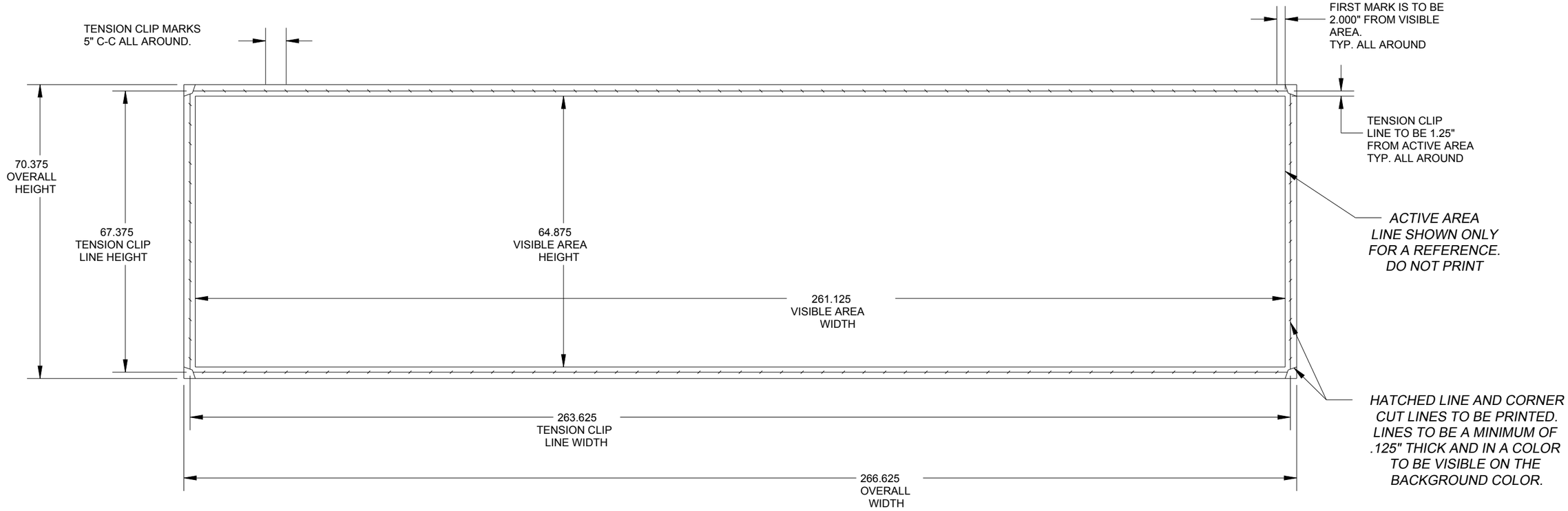
SHEET 502

REV	DATE:	UPADTED REAR ACCESS DOOR VIEWS WITH NEW LATCH AND DOOR HANDLE	BY:
09	18 JUL 13		KCS

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: SPORTSOUND SYSTEMS
TITLE: SHOP DRAWING; SOUND SYSTEM; 2000HD
DESIGN: DTREML | DRAWN: DTREML | DATE: 18 JAN 07
SCALE: 1/4"=1'

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
001	09	P.1340	E - 10 - C	330901



FRONT LAYOUT VIEW

NOTES:

1. OVERALL DIMENSIONS ARE CRITICAL TO +/- 1/8"
2. ALL DIMENSIONS ARE IN INCHES.
3. ACOUSTICAL MESH SHALL BE SEATTLE TEXTILE 5071, ULTRAFLEX ULTRAMESH SUPREME, OR APPROVED.
4. ACOUSTICAL MESH TO BE SEAMLESS
5. PROTECTIVE UV CLEAR COAT TO BE APPLIED TO MESH
6. BACKGROUND COLOR SHALL BE PRINTED ON ENTIRE MESH LENGTH AND HEIGHT.
7. ACOUSTICAL MESH TO BE SHIPPED IN TUBE. (DO NOT FOLD MESH)

REV	DATE:		BY:	
05	18 JUN 13	MOVED HATCH LINES 1.75" CLOSER TO THE CORNERS PER EC-10967	KCS	
04	20 SEP 12	UPDATED NOTES WITH UV COATING AND SEAMLESS REQUIRMENTS.	KCS	
03	4 JUN 12	ADDED MESH PART NUMBER AND REV TO DRAWING CHANGED MESH SPEC TO ULTRAMESH SUPREME	KCS	
02	27 SEP 10	ADDED CORN ER CUT LINES. INCREASED CORNER TICK MARK START DISTANCE FROM 3" TO 5". cHANGED HATCH SPACING TO 5" C-C.	KCS	
01	19 APR 10	CHANGED ACTIVE AREA TO HATCH LINE. DISTANCE FROM 1.5 TO 1.25. DECREASED OVERALL SIZE .5" ALL AROUND.	KCS	

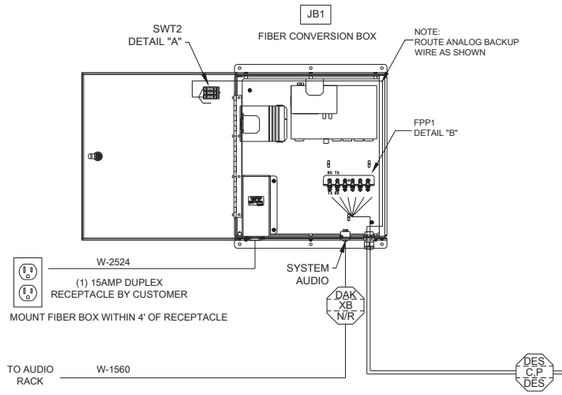
DAK PART NUMBER: EN-2688

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

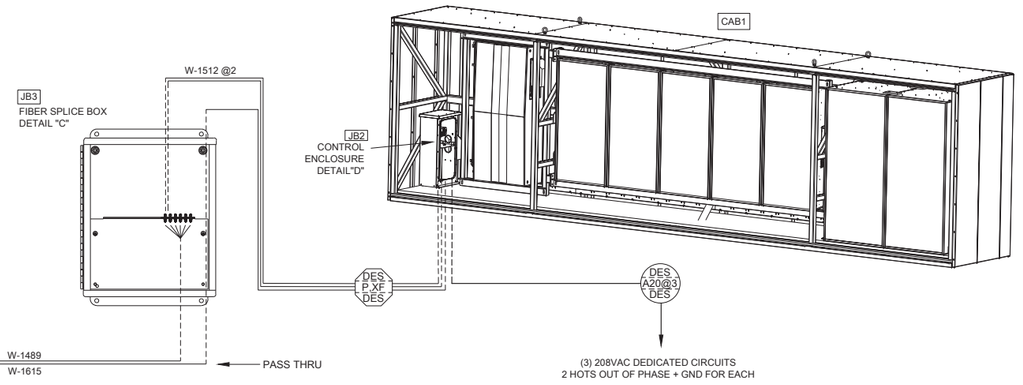
PROJ:	DAKTRONICS AUDIO SYSTEMS		
TITLE:	MESH LAYOUT; 2000HD GEN II		
DESIGN:	KSCHNABEL	DRAWN: KSCHNABEL	DATE: 19-JUN-13
SCALE:	1/25		

SHEET:	REV	JOB NO:	FUNC-TYPE-SIZE	
1 OF 2	05	P 1340	E - 10 - B	983337

ANNOUNCER'S LOCATION DETAILS



SIGN LOCATION DETAILS



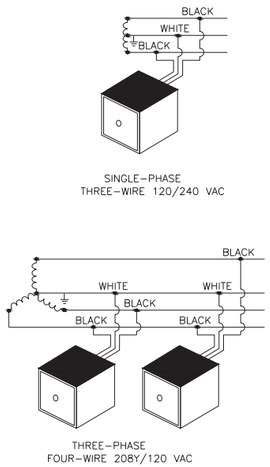
(3) 208VAC DEDICATED CIRCUITS
2 HOTS OUT OF PHASE + GND FOR EACH

A-1129; SURGE SUPPRESSOR IS TO BE ATTACHED AT THE BREAKER PANEL THAT FEEDS THESE CIRCUITS. DAKTRONICS ELECTRICAL SUBCONTRACTOR RESPONSIBLE FOR A-1129 CONNECTION, USE DETAIL "G" FOR PROPER CONNECTION

SEE DWG-00985713
FOR SYSTEM ELECTRICAL & AUDIO NOTES

NOTE:
IF OTHER SURGE SUPPRESSION IS PROTECTING THE NECESSARY CIRCUITS, THE A-1129(S) IS/ARE OPTIONAL

DETAIL "G"
A-1129
SURGE SUPPRESSOR



COMPONENT IDENTIFICATION LEGEND

COMPONENT	DESCRIPTION	MANUFACTURE'S #	PROVIDED BY	INSTALLED BY
JB1	ANALOG BACKUP FIBER BOX	0A-1534-0060	DAKTRONICS	OTHERS
CAB1	2000HD SERIES CABINET	0A-1340-2021	DAKTRONICS	OTHERS
JB2	CONTROL ENCLOSURE	0A-1340-2039	DAKTRONICS	DAKTRONICS
JB3	FIBER SPLICE BOX	0A-1534-0057	DAKTRONICS	DAKTRONICS
WIRE TAGS	DETAILS FOR WIRE TAGS	DWG-985713	DAKTRONICS	-

CIRCUIT 1
TOTAL POWER REQUIREMENTS:

SYSTEM VOLTAGE 208/230/240 2 WIRES + GND	
NUMBER OF POLES	2
MAXIMUM WATTS	1310W
AMPERES PER LINE	6.3A

CIRCUIT 2
TOTAL POWER REQUIREMENTS:

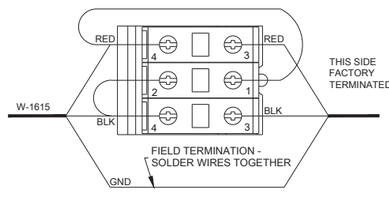
SYSTEM VOLTAGE 208/230/240 2 WIRES + GND	
NUMBER OF POLES	2
MAXIMUM WATTS	3340W
AMPERES PER LINE	16A

CIRCUIT 3
TOTAL POWER REQUIREMENTS:

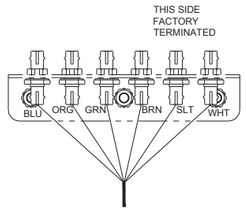
SYSTEM VOLTAGE 208/230/240 2 WIRES + GND	
NUMBER OF POLES	2
MAXIMUM WATTS	2500W
AMPERES PER LINE	12A

DETAIL "A"
ANALOG BACKUP SWITCH TERMINATION

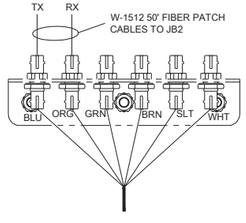
DO NOT REMOVE JUMPER WIRES



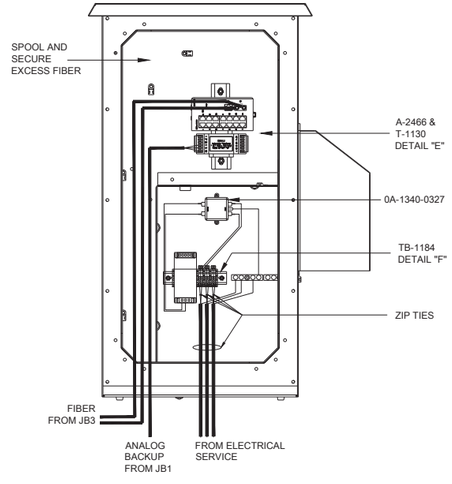
DETAIL "B"
FIBER PATCH
PANEL TERMINATION



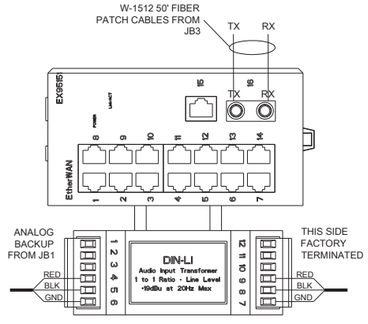
DETAIL "C"
FIBER SPLICE BOX



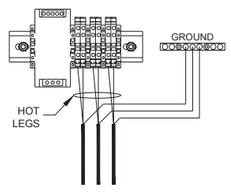
DETAIL "D"
CONTROL ENCLOSURE



DETAIL "E"
A-2466 & T-1130
FIBER & ANALOG BACKUP CONNECTION



DETAIL "F"
TB-1184
POWER TERMINATION



REV	DATE:		BY:
06	5 FEB 13	ADDED NOTE TO DETAIL "G"	CJB
05	29 OCT 12	ADDED 0A-1340-0327	CJB
04	20 JAN 12	CHANGED DWG FROM B TO C ADJUSTED LAYOUT AND UPDATED POWER DETAILS ALSO ADDED FIBER SPLICE BOX	DCS
03	03 JUN 11	ADDED DETAILS "A" - "E"	AMS
02	21 DEC 10	CHANGED 2 STRAND FIBER TO 6 STRAND FIBER	CJB
01	18 MAY 10	ADDED ANANLOG BACKUP CABLE BETWEEN JB1 & JB2	AFL

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: SPORTSOUND SYSTEMS
TITLE: SYSTEM RISER; 2000HD
DESIGN: ALICHT | DRAWN: ALICHT | DATE: 13 APR 10
SCALE: NONE

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	06	P1340	R-01-C	984140

POWER DISTRIBUTION SYSTEM LEGEND

FEEDER TABLE – 2 CONDUCTORS+GND
(SEE SPECIFICATIONS FOR INSULATION TYPE)

OVER CURRENT PROTECTION AMPACITY	2 WIRES			
	FDR REF	COPPER WIRE AWG–KCMIL	COPPER GND WIRE AWG	MIN. CONDUIT SIZE
15	A15	(2)14	14	1/2"
20	A20	(2)12	12	1/2"
25	A25	(2)10	10	1/2"
30	A30	(2)10	10	1/2"
35	A35	(2)8	10	1/2"
40	A40	(2)8	10	1/2"
45	A45	(2)8	10	1/2"
50	A50	(2)8	10	1/2"
60	A60	(2)6	10	3/4"
70	A70	(2)4	8	3/4"
80	A80	(2)4	8	3/4"
90	A90	(2)3	8	1"
100	A100	(2)3	8	1"
110	A110	(2)2	6	1"
125	A125	(2)1	6	1 1/4"
150	A150	(2)1/0	6	1 1/4"
175	A175	(2)2/0	6	1 1/4"
200	A200	(2)3/0	6	1 1/2"

NOTES:

A. CONDUIT SIZES ARE MINIMUM; INCREASE FOR LONG OR DIFFICULT RUNS.

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

C. CONDUIT AND CONDUCTOR SIZES ARE BASED ON 90° TYPE THHN COPPER CURRENT CARRYING CONDUCTORS IN RIGID PVC (SCH. 40) CONDUIT, TERMINATING TO 75°C TERMINALS. CONDUIT AND CONDUCTOR SIZES MAY NEED TO BE INCREASED PER LOCAL AND NATIONAL ELECTRIC CODES IF OTHER CONDUCTOR OR CONDUIT TYPES ARE USED.

D. IF WIRE OR CONDUIT SIZES OTHER THAN THOSE SHOWN IN THESE CHARTS ARE TO BE USED, CONTACT A DAKTRONICS ELECTRICAL ENGINEERING REPRESENTATIVE.

FEEDER TABLE – 3 CONDUCTORS+GND
(SEE SPECIFICATIONS FOR INSULATION TYPE)

OVER CURRENT PROTECTION AMPACITY	3 WIRES			
	FDR REF	COPPER WIRE AWG–KCMIL	COPPER GND WIRE AWG	MIN. CONDUIT SIZE
15	B15	(3)14	14	1/2"
20	B20	(3)12	12	1/2"
25	B25	(3)10	10	1/2"
30	B30	(3)10	10	1/2"
35	B35	(3)8	10	3/4"
40	B40	(3)8	10	3/4"
45	B45	(3)8	10	3/4"
50	B50	(3)8	10	3/4"
60	B60	(3)6	10	3/4"
70	B70	(3)4	8	1"
80	B80	(3)4	8	1"
90	B90	(3)3	8	1"
100	B100	(3)3	8	1"
110	B110	(3)2	6	1 1/4"
125	B125	(3)1	6	1 1/4"
150	B150	(3)1/0	6	1 1/2"
175	B175	(3)2/0	6	1 1/2"
200	B200	(3)3/0	6	2"
225	B225	(3)4/0	4	2"
250	B250	(3)250	4	2"
300	B300	(3)350	4	2 1/2"
350	B350	(3)400	3	2 1/2"
400	B400	(3)600	3	3"

FEEDER TABLE – 4 CONDUCTORS+GND
(SEE SPECIFICATIONS FOR INSULATION TYPE)

OVER CURRENT PROTECTION AMPACITY	4 WIRES			
	FDR REF	COPPER WIRE AWG–KCMIL	COPPER GND WIRE AWG	MIN. CONDUIT SIZE
15	C15	(4)14	14	1/2"
20	C20	(4)12	12	1/2"
25	C25	(4)10	10	1/2"
30	C30	(4)10	10	1/2"
35	C35	(4)8	10	3/4"
40	C40	(4)8	10	3/4"
45	C45	(4)8	10	3/4"
50	C50	(4)8	10	3/4"
60	C60	(4)6	10	1"
70	C70	(4)4	8	1 1/4"
80	C80	(4)4	8	1 1/4"
90	C90	(4)3	8	1 1/4"
100	C100	(4)3	8	1 1/4"
110	C110	(4)2	6	1 1/4"
125	C125	(4)1	6	1 1/2"
150	C150	(4)1/0	6	1 1/2"
175	C175	(4)2/0	6	2"
200	C200	(4)3/0	6	2"
225	C225	(4)4/0	4	2 1/2"
250	C250	(4)250	4	2 1/2"
300	C300	(4)350	4	3"
350	C350	(4)400	3	3"
400	C400	(4)600	3	3 1/2"
450	C450	(8)4/0	(2)2	(2) 2 1/2"
500	C500	(8)250	(2)2	(2) 2 1/2"
600	C600	(8)350	(2)1	(2) 3"
800	C800	(8)600	(2)1/0	(2) 3 1/2"
1000	C1000	(16)250	(4)2/0	(4) 2 1/2"
1200	C1200	(12)600	(3)3/0	(3) 3 1/2"
1600	C1600	(16)600	(4)4/0	(4) 3 1/2"
2000	C2000	(20)600	(5)250	(5) 3 1/2"
2500	C2500	(40)250	(10)350	(10)3"
3000	C3000	(48)250	(12)400	(12)3"
4000	C4000	(40)600	(10)500	(10) 4"

SIGNAL DISTRIBUTION SYSTEM LEGEND

ID TAG	CABLE TYPE	SIZE (O.D.)	DAKTRONICS PART NUMBER	CONDUIT PROVIDED & INSTALLED BY	CABLE			USED ON
					PROVIDED BY	INSTALLED BY	TERMINATED BY	
A	12 STRAND, 50µm DX FIBER	0.26"	W–1490	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
B	12 STRAND, 50µm DX PLEN FBR	0.29"	W–2033	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
C	6 STRAND, 50µm DX FIBER	0.22"	W–1489	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
D	6 STRAND, 50µm PLEN DX FBR	0.24"	W–2032	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
E	4 STRAND, 50µm DX FIBER	0.20"	W–2121	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
F	4 STRAND, 50µm BX FIBER	0.31"	W–1494	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
G	2 STRAND, 50µm DX FIBER	0.18"	W–2120	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
H	6 STRAND, 62.5µm DX FIBER	0.22"	W–1456	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
J	6 PAIR, 22 AWG W/SHIELD	0.362"	W–1245	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
K	6 PAIR, 22 AWG PLENUM	0.30"	W–2035	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
L	2 PAIR, 22 AWG W/SHIELD	0.168"	W–1234	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
M	2 PAIR, 22 AWG PLENUM	0.14"	W–2034	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
N	AUDIO; 2 PAIR, 22 AWG	0.22"	W–1614	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
P	AUDIO; 1 PAIR, 22 AWG	0.17"	W–1615	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
R	2 PAIR, 18 AWG W/SHIELD	0.38"	W–1852	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
S	4 PAIR, 24 AWG CAT5E	0.21"	W–1384	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
T	4 PAIR, 24 AWG CAT5	0.26"	W–1467	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
U	1 PAIR 22 AWG W/SHIELD	0.138"	W–1077	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
XA	RG59 LOW LOSS ANT CABLE	–	W–2476	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	NOT USED
XB	25' MICROPHONE CABLE	–	W–1560	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	
XC	500HD SPEAKER HARNESS	–	W–2317	SEE TAG	DAKTRONICS	SEE TAG	DES	
XD	25' MIXER HARNESS	–	W–1950	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	
XE	50' MIXER HARNESS	–	W–1951	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	
XF	50' FIBER PATCH CORD	–	W–1512	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	
XG	6' 1/4" TRS TO MALE XLR	–	W–2296	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	
XA–Z	OTHER W OR PR CABLES	–	W OR PR	SEE TAG	DAKTRONICS	SEE TAG	DAKTRONICS	

NOTES:

THE FOLLOWING 200 SERIES ARE NOT SCALED DRAWINGS AND SHOULD BE USED FOR POWER AND SIGNAL REQUIREMENTS ONLY.

IT IS THE RESPONSIBILITY OF DAKTRONICS ELECTRICAL INSTALLATION CONTRACTOR TO ENSURE THAT ALL ELECTRICAL WORK PERFORMED ON SITE MEETS OR EXCEEDS ALL LOCAL AND NATIONAL ELECTRICAL CODES.

ALL SIGNAL CABLE RUNS SHOULD BE LABELED WITH THEIR ORIGIN AND DESTINATION ON EACH END.

FIBER OPTIC CABLE RUNS MUST BE CONTINUOUS WITH A MINIMUM BEND RADIUS OF 15XO.D. OF THE FIBER CABLE.

IF A SHIELDED SIGNAL CABLE IS UTILIZED IN YOUR SYSTEM, ENSURE THAT THE CABLES SHIELD IS GROUNDED ON THE DISPLAY END ONLY, AND TO THE SHIELD TERMINAL AT THE SIGNAL CABLE SURGE ARRESTER CARD WHEN AVAILABLE.

ALL DISPLAYS MUST BE GROUNDED PER ARTICLE 250 AND 600 OF THE NATIONAL ELECTRICAL CODE WITH NO MORE THAN 10 OHMS GROUND RESISTANCE.

POWER CONTROL FOR DAKTRONICS SUPPLIED EQUIPMENT IS NOT PROVIDED BY DAKTRONICS UNLESS IT IS SPECIFICALLY NOTED IN THE CONTRACTUAL AGREEMENT.

THE OVER CURRENT PROTECTION DEVICE MUST BE MATCHED TO THE FAULT CURRENT THAT IS AVAILABLE IN THE POWER DELIVERY CIRCUIT. TO DETERMINE THE AVAILABLE FAULT CURRENT OF A SITE, AN ONSITE FAULT CURRENT SURVEY MAY NEED TO BE PERFORMED BY QUALIFIED PERSONNEL. IF THE AVAILABLE FAULT CURRENT IN THE ELECTRICAL SYSTEM EXCEEDS 10,000 AMPS, A DAKTRONICS REPRESENTATIVE SHOULD BE CONTACTED.

DUE TO THE INRUSH CURRENT (MOMENTARY SURGE) CREATED BY THE DISPLAY EQUIPMENT ON STARTUP, THE OVER CURRENT PROTECTION DEVICE(S) MAY HAVE TO BE OVERSIZED.

DAKTRONICS UTILIZES BOTH STANDARD AND SUPPLEMENTARY CIRCUIT BREAKERS IN THE DISPLAY ASSEMBLY PROCESS. IT IS DAKTRONICS ELECTRICAL INSTALLATION CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL PRIMARY FEEDER CIRCUIT BREAKERS TO EACH DISPLAY/DISPLAY SECTION ARE UL 489 LISTED.

DAKTRONICS IS NOT RESPONSIBLE FOR THE QUALITY OF THE POWER DELIVERY SYSTEM TO THE DISPLAY SYSTEM.

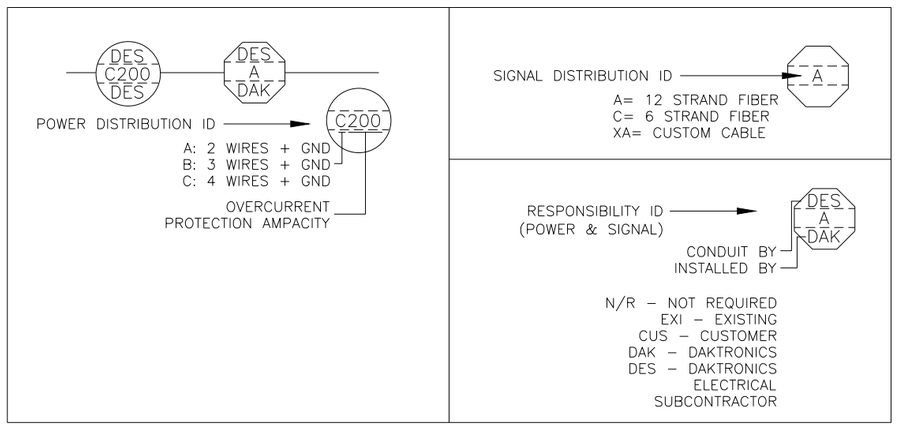
BECAUSE EACH INSTALLATION IS UNIQUE, DAKTRONICS OFFERS THESE INSTRUCTIONS AS GUIDELINES ONLY. DAKTRONICS, INC. ASSUMES NO LIABILITY IF INSTALLATION STEPS HAVE BEEN OMITTED OR OTHER NECESSARY PROCEDURES ARE NOT INCLUDED IN THIS SYSTEM RISER DIAGRAM.

POWER AND SIGNAL REQUIREMENTS ARE SPECIFIED TO THE EQUIPMENT AND SETUP SHOWN. ANY CHANGES MADE TO EQUIPMENT OR THEIR SETUP SHOULD BE DISCUSSED WITH DAKTRONICS DESIGN PERSONNEL AND WILL REQUIRE AN UPDATED RISER DIAGRAM DRAWING.

THE CONTRACTUAL AGREEMENT WILL DETERMINE THE PARTY OR PARTIES RESPONSIBLE FOR ITEMS LISTED AS FIELD INSTALLED. THIS DRAWING IS NOT INTENDED TO DETERMINE RESPONSIBILITIES AND SHOULD BE USED FOR REFERENCES ONLY.

ACTUAL PLACEMENT OF ELECTRICAL COMPONENTS, SUCH AS PANEL BOARDS, A/C'S, AND SPLICE PANELS, MAY VARY. PLEASE REFERENCE THE SYSTEM SHOP DRAWING FOR THIS DETAIL. THIS DRAWING REPRESENTS A GENERAL MOUNTING LOCATION ONLY.

EXTERNALLY MOUNTED HARDWARE
INTERNALLY MOUNTED HARDWARE

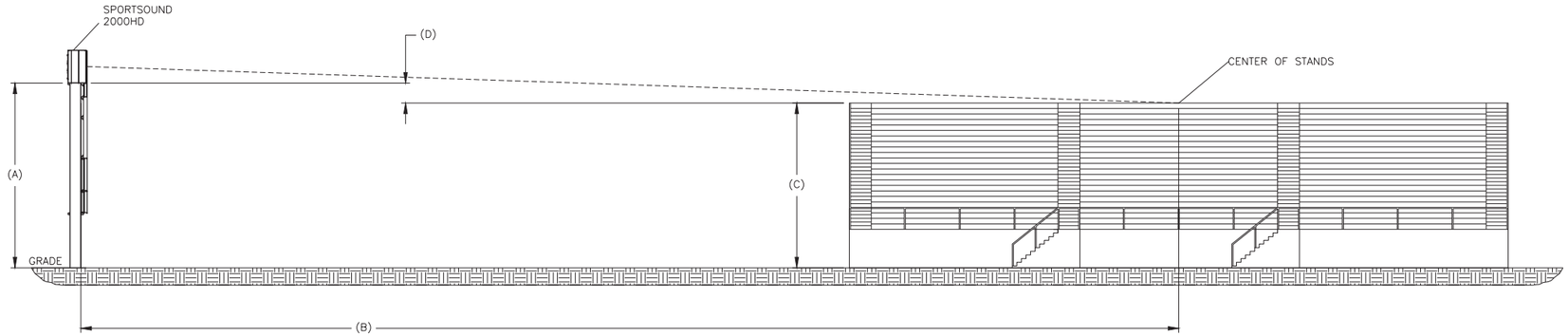


REV	DATE:		BY:
03	06 JUN 12	ADDED ID TAG XF–XG	JWC
02	28 JAN 11	UPDATE DWG TO NEW TITLE BLOCK	AMS
01	24 JAN 11	UPDATE PART NUMBER FOR 500HD HARNESS	AMS

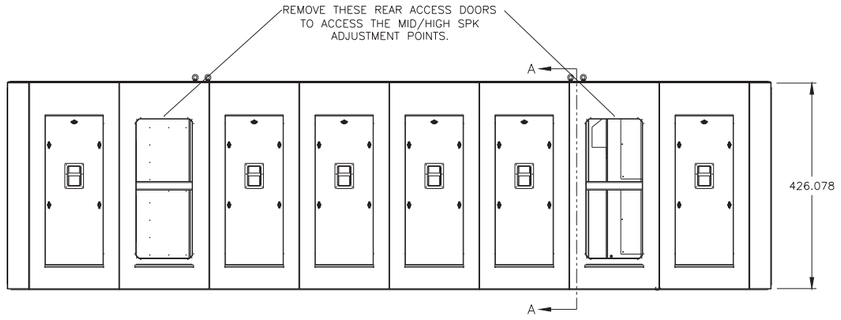
DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: SPORTSOUND SYSTEMS;
TITLE: SYSTEM RISER; ELECTRICAL & AUDIO NOTES
DESIGN: ALICHT | DRAWN: ALICHT | DATE: 10 MAR 10
SCALE: NONE

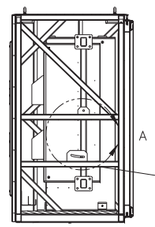
SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	03	P1561	F-01-B	985713



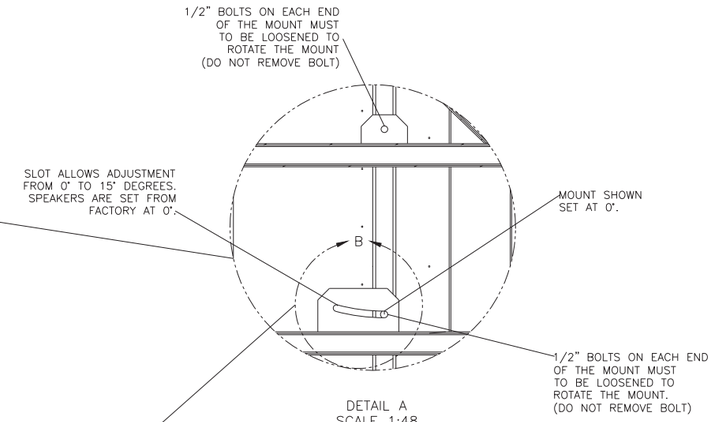
ELEVATION VIEW



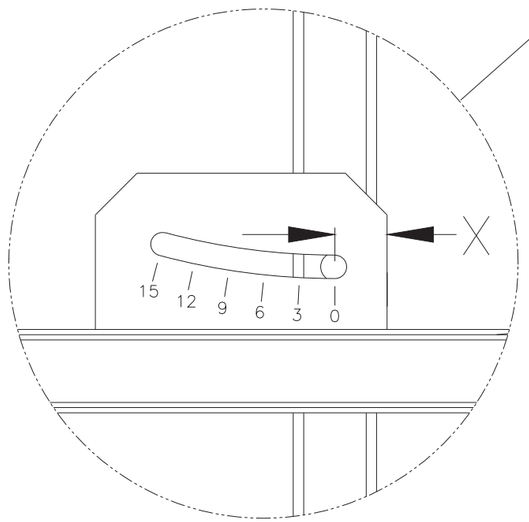
REAR VIEW
6 X SCALE



SECTION A–A



DETAIL A
SCALE 1:48



DETAIL B
SCALE 1:20

DIFFERENCE BETWEEN TOP OF STANDS AND BOTTOM OF CABINET (VALUE D) (D=A-C)	MID/HIGH SPEAKER AIMING CHART																	
25'	9	9	8	8	7	7	7	7	6	6	6	6	5	5	5	5	5	5
24'	9	8	8	7	7	7	7	6	6	6	6	5	5	5	5	5	5	4
23'	8	8	8	7	7	7	6	6	6	6	5	5	5	5	5	5	4	4
22'	8	8	7	7	7	6	6	6	6	5	5	5	5	5	5	4	4	4
21'	8	7	7	7	6	6	6	6	5	5	5	5	5	5	4	4	4	4
20'	7	7	7	6	6	6	6	5	5	5	5	5	4	4	4	4	4	4
19'	7	7	6	6	6	6	5	5	5	5	5	4	4	4	4	4	4	4
18'	7	6	6	6	6	5	5	5	5	5	4	4	4	4	4	4	4	4
17'	6	6	6	6	5	5	5	5	5	4	4	4	4	4	4	4	3	3
16'	6	6	6	5	5	5	5	4	4	4	4	4	4	4	3	3	3	3
15'	6	6	5	5	5	5	4	4	4	4	4	4	4	3	3	3	3	3
14'	6	5	5	5	5	4	4	4	4	4	4	3	3	3	3	3	3	3
13'	5	5	5	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3
12'	5	5	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3
11'	5	4	4	4	4	4	3	3	3	3	3	3	3	3	3	2	2	2
10'	4	4	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2	2
9'	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2
8'	4	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2
7'	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2
6'	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5'	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
4'	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
3'	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
2'	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-1'	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
-2'	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-3'	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-4' AND BELOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350
	DISTANCE TO CENTER OF STANDS (VALUE B)																	

DEGREE NEEDED	X DIMENSION (IN.)
0	1.250
1	1.529
2	1.808
3	2.087
4	2.366
5	2.644
6	2.944
7	3.200
8	3.477
9	3.753

NOTE:

THE DEGREE TICK MARKS ARE NOT ON THE PART, IT IS SHOWN IN THE DETAIL FOR REFERENCE ONLY.

THE X DIMENSION IS ALWAYS MEASURED PERPENDICULAR TO THE EDGE OF THE PART.

NOTES:

- THE MID AND HIGH FREQUENCY SPEAKERS ARE ADJUSTABLE FROM 0° TO 15°. AN INCLINOMETER CAN BE USED TO DETERMINE THE ANGLE.
- A RATCHET STRAP CAN BE CONNECTED TO THE BOTTOM OF THE MID FREQUENCY MOUNT AND MIDDLE BACK VERTICAL MEMBER OF THE CABINET TO ASSIST IN ADJUSTING THE SPEAKER MOUNT.
- IF PROBLEMS WITH REFLECTION OCCUR DUE TO STRUCTURES LOCATED ON THE OPPOSITE END OF THE FIELD ADJUST THE SPEAKER MOUNT DOWN SO THE CENTER OF SPEAKERS POINT TOWARD THE END OF THE FIELD.
- THE SUBWOOFER REQUIRES NO ADJUSTMENT.

REV	DATE:	UPDATED REAR VIEW	BY:
01	9 JUN 11		MBJ

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: SPORTSOUND SYSTEMS
TITLE: MID/HIGH SPEAKER AIMING CHART; 2000HD
DESIGN: KSCHNAB | DRAWN: KSCHNAB | DATE: 9 JUL 10
SCALE: 1/16" = 1'

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	01	P1340	E-10-C	1023805

FIELD INSTALLED

COMPONENTS INTERNAL TO CONTROL ENCLOSURE

COMPONENTS EXTERNAL TO CONTROL ENCLOSURE

ANALOG FROM FIBER CONVERSION BOX SEE DWG-984140

POWER CONNECTIONS SEE DWG-984140

FIBER FROM FIBER SPLICE BOX SEE DWG-984140

TRX1 JENSEN/DIN-LI T-1130

RED	4	+	S	7	SHLD
BLK	5	- IN	OUT -	8	BLU
SHLD	6	S	+	9	RED

W-2439

RED
BLK
L1=BLK TYP.
L2=WHT TYP.

TBL2

TERM_BLK TB-1184

W-2437

GND

TB-1097 @2

A202

0A-1340-0327
ASSEMBLY INCLUDES ALL CABLES CONNECTED TO Z-1007

LINE Z-1007 LOAD

FCC2 MOXA/EDS-316-M-ST-T A-2466

W-1512		TX	PORT1 AMP1
W-1512		RX	PORT2 AMP2
			PORT3 AMP3
W-1094	A200	V1 +	PORT4 AMP4
W-1092	A201	V1 -	PORT5 AMP5
			PORT6 AMP6
			PORT7 AMP7
			PORT8 AMP8
			PORT9 AMP9
			PORT10 AMP10
			PORT11
			PORT12
			PORT13
			PORT14
			PORT15

W-2438

PWS2 24VDC PWR SPLY A-2238

RED	A200	V1+	L	BLK
BLK	A201	V1-	N	RED
		V2+	GND	W-1080 GRN/YEL
		V2-		A202

W-2438

AMP1	SP2-500-500-V-CN A-2538	SPK 1	A-2501	
	COBRA	OP1	HF1-4	
	XLR IN	OP2	HF5-8	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP2	SP2-1000-1000-V-CN A-2470	SPK 2 -3dB	A-2500	
	COBRA	OP1	MF1-2	
	XLR IN	OP2	MF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP3	SP2-1000-1000-V-CN A-2470	SPK 3	A-2500	
	COBRA	OP1	MF1-2	
	XLR IN	OP2	MF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP4	SP2-1000-1000-V-CN A-2470	SPK 4	A-2500	
	COBRA	OP1	MF1-2	
	XLR IN	OP2	MF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP5	SP2-1000-1000-V-CN A-2470	SPK 5 -POL	A-2500	
	COBRA	OP1	MF1-2	
	XLR IN	OP2	MF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP6	SP2-1000-1000-V-CN A-2470	SPK 6 -3dB	A-2500	
	COBRA	OP1	MF1-2	
	XLR IN	OP2	MF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP7	SP2-1000-1000-V-CN A-2470	SPK 7	A-2499	
	COBRA	OP1	LF1-2	
	XLR IN	OP2	LF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP8	SP1-1000-V-CN A-2469			
	COBRA	OP1	LF5-6	
	XLR IN			
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP9	SP2-1000-1000-V-CN A-2470	SPK 8	A-2499	
	COBRA	OP1	LF1-2	
	XLR IN	OP2	LF3-4	
	XLR OUT			
	POWER IN			
	POWER OUT			
AMP10	SP1-1000-V-CN A-2469			
	COBRA	OP1	LF5-6	
	XLR IN			
	XLR OUT			
	POWER IN			
	POWER OUT			

ALL AMPLIFIERS VOLTAGE SELECT SET TO 230V

DSP/LOOPING BUTTON SET TO LOOPING ON ALL AMPLIFIERS

USE GREEN LABELS INSIDE CABINET AND CONTROL ENCLOSURE

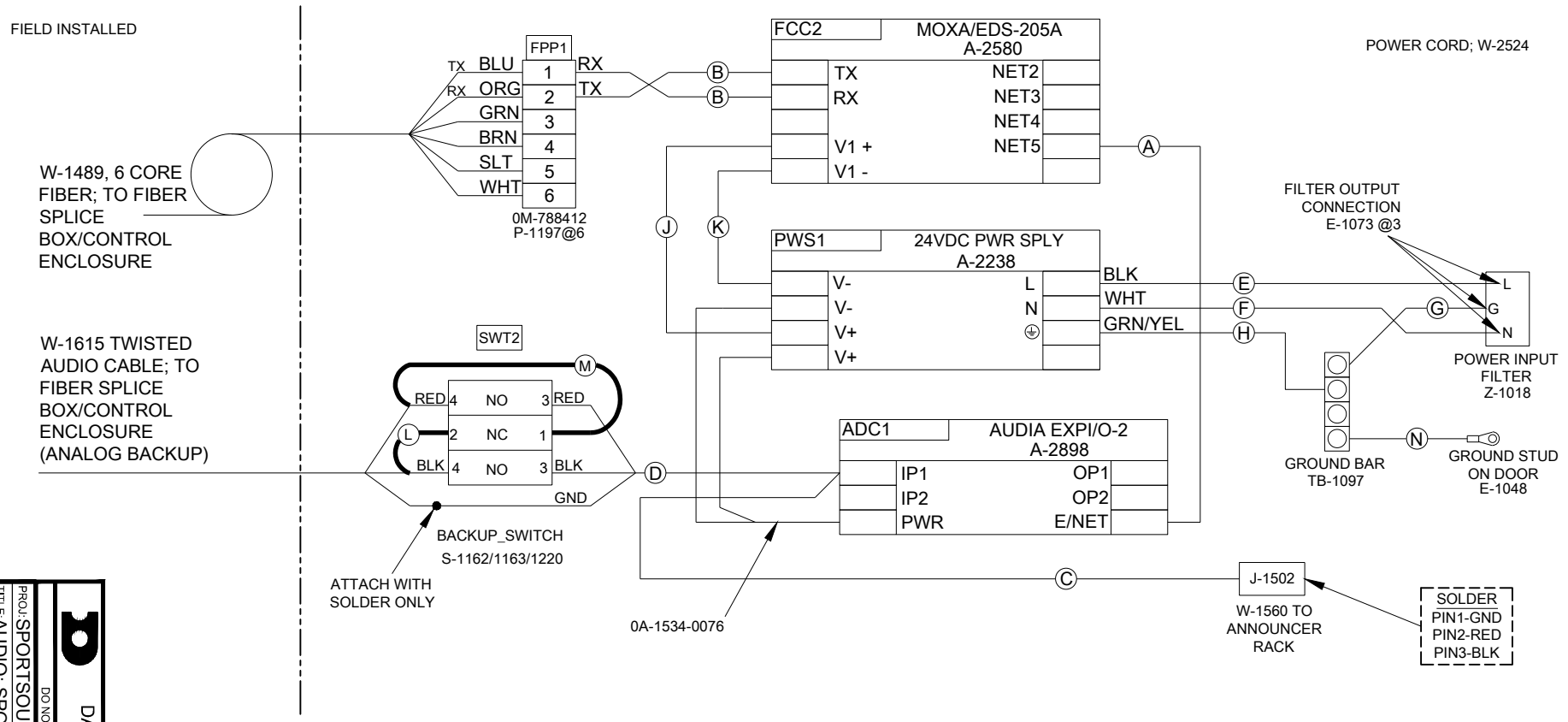
W-2437, W-2438, W-2439 CONSIST OF ALL NECESSARY POWER, NETWORK, AND ANALOG CABLING FOR AMPLIFIERS; SEE DWG-01083215

REF PACKET 0A-1340-2039
LABELS PACKET 0A-1340-2040
ADD-004556

REV	DATE:		BY:
03	09 OCT13	FIXED WIRE COLOR LABEL ON PIN 8 OF TRX1	DCS
02	26 OCT 12	FIXED WRONG PART NUMBERS	CJB
01	31 MAY 12	ADDED 0A-1340-0327 UPDATED DRAWING STYLE	CJB

PROJ: SPORTSOUND SYSTEMS
TITLE: SCHEMATIC; CONTROL ENCLOSURE/SOUND CABINET 2000HD
DESIGN: DSAND | DRAWN: DSAND | DATE: 26 JAN 12
SCALE: NONE

SHEET	REV	JOB NO:	FUNC - TYPE - SIZE	
	03	P1340	F - 03 - B	1082599



WIRE C-N INCLUDED IN 0A-1534-0077

- (A) W-1542; 1' RJ45 CAT5E PATCH CABLE
- (B) W-1509; 1' ST-ST 50UM FIBER PATCH
- (C) W-1615; 22AWG AUDIO, 1 PAIR
- (D) W-1615; 22AWG AUDIO, 1 PAIR
- (E) W-1078; 14AWG BLACK
- (F) W-1079; 14AWG WHITE
- (G) W-1080; 14AWG GREEN/YELLOW
- (H) W-1080; 14AWG GREEN/YELLOW
- (J) W-1094; 18AWG RED
- (K) W-1092; 18AWG BLACK
- (L) W-1054; 22AWG BLACK; JUMPER WIRES
- (M) W-1054; 22AWG BLACK; JUMPER WIRES
- (N) W-1080; 14AWG GREEN/YELLOW

0A-1534-0060 F ASSY; ANALOG BACKUP FIBER BOX

REV	DATE:	UPDATED WIRING	BY:
02	24 JUN 13		CJB
01	2 NOV 12	ADDED TX AND RX TO FPP1	CJB

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: SPORTSOUND SYSTEMS
TITLE: AUDIO; SPORTSOUND, FIBER BOX SCHEMATIC
DESIGN: CBRANDT
DRAWN: CBRANDT
DATE: 1 MAY 12
SCALE: NONE
SHEET
REV: 02
JOB NO: P1340
FUNC - TYPE - SIZE: R - 01 - A

1095894

Appendix B: Supplementary Manuals

Fiber Conversion Box / Sound Cabinet Component Manuals
Biamp Audia Input & Output Expanders Operation Manual
Moxa EtherDevice Switch Installation Guide

BIAMP®

AudiaEXPI/O-2

Input & Output Expanders

Operation Manual

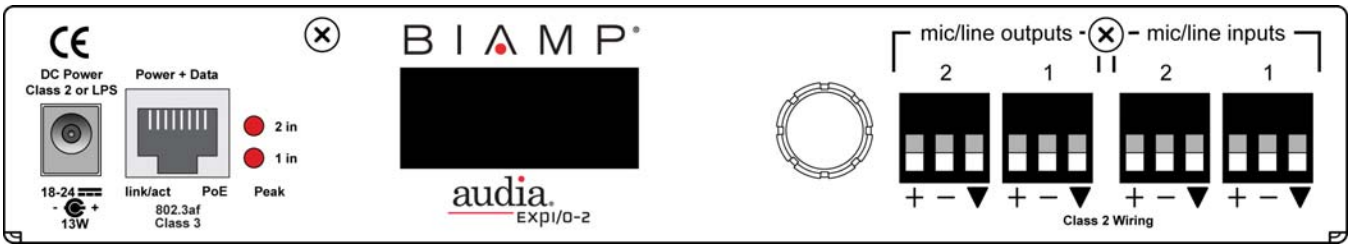
INTRODUCTION

AudiaEXPI/O-2 is an input/output expander that accepts two mic/line analog audio inputs, provides two channels of digital audio output via CobraNet, accepts two channels of digital audio input via CobraNet, and provides two mic/line-level analog audio outputs. Expander is in a convenient half-rack-width format. It can simply add inputs and outputs to a centralized Audia system or extend system boundaries by providing inputs and outputs in remote locations. AudiaEXPI/O-2 is represented as explicit CobraNet Input or Output blocks in Audia software for easy inclusion into any system design. Expander may also be used to provide additional inputs and outputs to other CobraNet-compliant systems or devices and are Power-over Ethernet (PoE) capable.

AudiaEXPI/O-2 features:

- 2 mic/line analog inputs on plug-in barrier strips
- 2 channels of digital audio output via CobraNet
- 2 channels of digital audio input via CobraNet
- 2 mic/line-level analog outputs on plug-in barrier strips
- 24-bit A/D and D/A converters with 48kHz sample rate
- Power-over Ethernet (PoE) capable
- Convenient half-rack-width format
- Front panel adjustable input and analog output level controls and peak indicators
- Rotary encoder with LCD for programming/setup
- Supported using explicit CobraNet I/O blocks in Audia software
- May be used with any CobraNet-compliant system
- RoHS compliance and AES grounding practices
- CE marked
- Covered by Biamp Systems' five-year warranty

AudiaEXPI/O-2 - Front Panel



Peak Indicators (Inputs 1–2): These red LEDs will light whenever input channel signal levels exceed 6dB below clipping. Use this feature to aid in the adjustment of the Trim controls (see below).

Rotary Encoder & LCD Display: This control and display are used for initial setup of the AudiaEXPI/O-2 unit. When power is first applied to the unit, the display will cycle through a product description, followed by a title screen. Press the control to enter setup. Rotate the control to make a selection, then press the control again to edit that selection. Additional levels of selection may be available using this same routine. Some edits will require a choice of OK or CANCEL. Some selections are only informational and cannot be edited. Select BACK to return to a previous level, and select → to advance. Primary selections are as follows: BUNDLE NUMBER (CobraNet bundle number to logic input assignments); COBRANET LATENCY; INPUT GAIN (0 – +66db in 6db steps); OUTPUT GAIN (0, -6, -12, -18, -24, -55 db); PASSWORD PROTECT (prohibits unauthorized tampering); TITLE DISPLAY (personalized: 2 lines with 8 characters each); ABOUT (Serial#, FW Version, Boot Ver, Board Revisio, CobraNet FW, Mac Address and Up Time).

Mic/Line Outputs: These two mic/line-level analog audio outputs are provided on balanced plug-in barrier-strip connectors. For unbalanced output, wire high to (+) and ground to (▼), leaving (-) un-connected.

Mic/Line Inputs: These two mic/line analog audio inputs are provided on balanced plug-in barrier-strip connectors. For unbalanced input, wire high to (+) and ground to both (-) & (▼). For use with condenser microphones, +48 volt phantom power is available at these inputs (see Rotary Encoder above).

Power + Data: This RJ45 connector provides the CobraNet digital audio interface. CobraNet allows multiple CobraNet-equipped devices to share digital audio on a system network. A 10/100Base-T Ethernet switch (not hub) is required when networking multiple units. The maximum distance between any unit and an Ethernet switch is 100 meters. Additional Ethernet switches, or even fiber-optics, can be used to further extend distances between units on a system network. A CobraNet-enabled device can support up to 64 channels (depending on manufacturer implementation) of digital audio over Fast Ethernet, using CAT-5 cable. CobraNet transmits digital audio on "bundles" of up to (8) channels each. The same is true for receiving digital audio over CobraNet. Bundle numbers are used to determine where digital audio is transmitted and received. Typically, "unicast" bundle numbers (256 –65,279) are used to exchange digital audio between two specific devices. With unicast bundles, each CobraNet device can transmit to as many as 16 other devices within a network (2 bundles per channel x 16 bundles max = 32 channels). With "multicast" bundle numbers (1–255), digital audio can be exchanged with multiple devices. Due to network delay, CobraNet has a limitation of seven (7) "hops" (one-way transmissions) within a network.

In order to integrate AudiaEXPI/O-2 into an Audia system, a CobraNet input/output block must first be placed into the design layout. Audia units intended to transmit digital audio to the AudiaEXPI/O-2 must have their CobraNet jacks connected to the same network. Both the AudiaEXPI/O-2 unit (hardware) and the CobraNet input/output block (software) must be assigned matching bundle numbers, before digital audio can be successfully exchanged. CobraNet Latency settings must be identical in all devices, system-wide. Also, unicast and multicast bundle numbers can be used to access digital audio from individual or multiple CobraNet input/output blocks. Similar considerations may apply when using AudiaEXPI/O-2 with other CobraNet compliant systems or devices. AudiaEXPI-4, AudiaEXPO-4, and AudiaEXPI/O-2 can exchange digital audio directly (outside of a system network) using either a simple "cross-over" CAT5 cable or an Ethernet switch.

AudiaEXPI/O-2 SPECIFICATIONS

Frequency Response (20Hz~20kHz @ -20dBFS):	+0/-0.4dB
THD+N (20Hz~20kHz @ -20dBFS):	
Line Level	<0.0065%
Mic Level	<0.045%
Equivalent Input Noise:	-125dBu
Dynamic Range:	
Input	>107dB
Output	>110dB
Crosstalk (channel-to-channel @ 1kHz):	
Line Level	<-90dB
Mic Level	<-80dB
Output Impedance (balanced):	200 Ohms
Input Impedance (balanced):	6.6K Ohms
Maximum Output (balanced):	+23dBu
Max Input (mic/line):	+23dBu
Phantom Power:	+48V @ 10mA per input

Input Gain Range (variable in 6dB steps):	0 - 66dB
Output Gain Range (variable in 6dB steps):	-24 - 0dB, -55dB Mic Pad
D/A Converters:	24-bit (48kHz sampling)
A/D Converters:	24-bit (48KHz sampling)
Dimensions:	
height	1.5 inches (38mm)
width	8.5 inches (216mm)
depth	6 inches (152mm)
Weight:	3 lbs. (1.36kg)
Compliance:	AES48-2005 Grounding & EMC practices
	IEC 1398 Phantom Power
	IEEE 803.3af PoE
	EU Directive 2002/95/EC, RoHS directive
	CE marked
Power Consumption:	<13W
Power Supply:	IEEE 802.3af Power over Ethernet (Class 3 device)
	+18-24VDC @ 13W Class-III External Power Supply

WARRANTY

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS MANUAL

1. BIAMP Systems warrants to the original purchaser of new products that the product will be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase from an authorized BIAMP Systems dealer, subject to the terms and conditions set forth below.

2. If you notify BIAMP during the warranty period that a BIAMP Systems product fails to comply with the warranty, BIAMP Systems will repair or replace, at BIAMP Systems' option, the nonconforming product. As a condition to receiving the benefits of this warranty, you must provide BIAMP Systems with documentation that establishes that you were the original purchaser of the products. Such evidence may consist of your sales receipt from an authorized BIAMP Systems dealer. Transportation and insurance charges to and from the BIAMP Systems factory for warranty service shall be your responsibility.

3. This warranty will be VOID if the serial number has been removed or defaced; or if the product has been altered, subjected to damage, abuse or rental usage, repaired by any person not authorized by BIAMP Systems to make repairs; or installed in any manner that does not comply with BIAMP Systems' recommendations.

4. Electro-mechanical fans, electrolytic capacitors, and normal wear and tear of items such as paint, knobs, handles, and covers are not covered under this warranty.

5. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. BIAMP SYSTEMS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

6. The remedies set forth herein shall be the purchaser's sole and exclusive remedies with respect to any defective product.

7. No agent, employee, distributor or dealer of Biamp Systems is authorized to modify this warranty or to make additional warranties on behalf of Biamp Systems. statements, representations or warranties made by any dealer do not constitute warranties by Biamp Systems. Biamp Systems shall not be responsible or liable for any statement, representation or warranty made by any dealer or other person.

8. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

9. BIAMP SYSTEMS SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS OR LOSS OF USE ARISING OUT OF THE PURCHASE, SALE, OR USE OF THE PRODUCTS, EVEN IF BIAMP SYSTEMS WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Biamp Systems
9300 S.W. Gemini Drive
Beaverton, Oregon 97008
(503) 641-7287

585.0185.90B

EC Declaration of Conformity

Biamp Systems Corporation, as manufacturer having sole responsibility, hereby declares that the following described product complies with the applicable provisions of the DIRECTIVES below except as noted herein. Any alterations to the product not agreed upon and directed by Biamp Systems Corporation will invalidate this declaration.

Product Models:	EXPI-4, EXPI/O-2, EXPO-4
Product Description:	Input and Output Expanders for networking with audio DSPs.

Applicable EC Directives:	Applicable Harmonized Standards:	
LVD Directive (2006/95/EC)	Safety	EN 60065:2002
EMC Directive (2004/108/EC)	Emissions	EN 55103-1:1996, Environment E2
	Immunity	EN 55103-2:1996

Special Considerations for Product Environment or Compliance:

Use only CE marked Power over Ethernet (PoE) device.

Use only CE and “LPS” marked 24 VDC External Power Adaptor.

Shielded cabling must be used for system connections.

Technical Construction File, Location and Contact:

Biamp Systems, Inc.	phone:	(503) 641.7287
9300 S.W. Gemini Drive	fax:	(503) 626.0281
Beaverton, OR USA 97008	e-mail:	biamp@biamp.com

Authorized Representative: Larry Copley, Compliance Engineer

Authorized Signature: 

Issued: March, 2010

Moxa EtherDevice Switch

EDS-205A/208A Series
Hardware Installation Guide

Fourth Edition, October 2009

P/N: 1802002050023

Overview

The EDS-205A/208A series of industrial Ethernet switches are entry-level industrial 5 and 8-port Ethernet switches that support IEEE 802.3, IEEE 802.3u, and IEEE 802.3x with 10/100M, full/half-duplex, and MDI/MDIX auto-sensing.

The EDS-205A/208A series provides 12/24/48 VDC (9.6 to 60VDC)/18 to 30 VAC redundant power inputs that can be connected simultaneously to a live AC/DC power source. The switches are available with a standard operating temperature range from -10 to 60°C, or with a wide operating temperature range from -40 to 75°C, and IP30 metal housing makes them rugged enough for any harsh industrial environment.

To provide greater versatility for use with applications from different industries, the EDS-205A/208A also allow users to enable or disable broadcast storm protection with DIP switches on the outer panel.

The EDS-205A/208A switches can be easily installed with DIN-Rail mounting as well as distribution boxes. The DIN-rail mounting capability and IP30 metal housing with LED indicators make the plug-and-play EDS-205A/208A switches reliable and easy to use.

NOTE Throughout this Hardware Installation Guide, we use **EDS** as an abbreviation for Moxa EtherDevice Switch:

EDS = Moxa EtherDevice Switch

Package Checklist

Your EDS is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

- Moxa EtherDevice™ Switch
- Hardware Installation Guide
- Moxa Product Warranty booklet

Features

High Performance Network Switching Technology

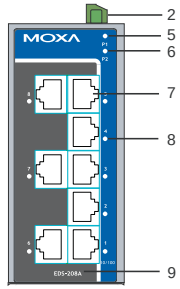
- EDS-205A: 10/100BaseT(X) (RJ45), 100 BaseFX (SC/ST connector, multi/single-mode)
- EDS-208A series: 10/100BaseT(X) (RJ45), 100 BaseFX (SC/ST connector, multi/single-mode)
- 10/100M, Full/Half-Duplex, MDI/MDIX auto-sensing
- IEEE 802.3/802.3u/802.3x
- Store and Forward switching process type, 1024 address entries

Rugged Design

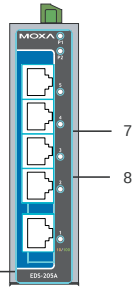
- Redundant dual 12/24/48 VDC (9.6 to 60VDC) or 18 to 30 VAC at 47 to 63 Hz power input
- Operating temperature range from -10 to 60°C ,or extended operating temperature of -40 to 75°C for (-T) models.
- IP30 metal housing
- DIN-rail or panel mounting ability

Panel Layout of EDS-205A/208A (Standard)

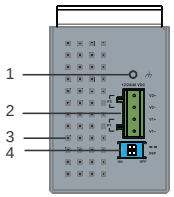
EDS-208A
Front Panel View



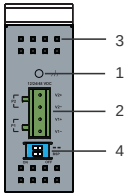
EDS-205A
Front Panel View



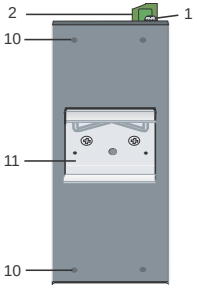
Top Panel View



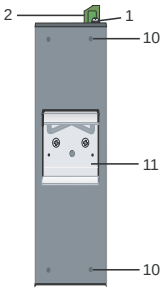
Top Panel View



Rear Panel View



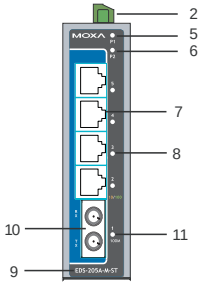
Rear Panel View



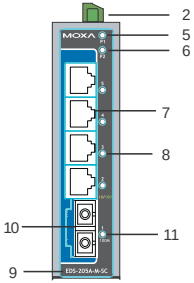
1. Grounding screw
2. Terminal block for power input P1/P2
3. Heat dissipation orifices
4. DIP Switches
5. Power input P1 LED
6. Power input P2 LED
7. 10/100BaseT(X) Port
8. TP port's 10/100 Mbps LED
9. Model Name
10. Screw hole for wall mounting kit
11. DIN-Rail Kit

Panel Layout of EDS-205A-M-SC/ST

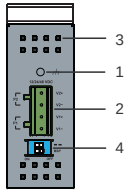
EDS-205A-M-ST
Front Panel View



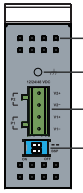
EDS-205A-M-SC
Front Panel View



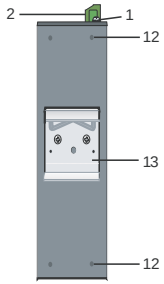
Top Panel View



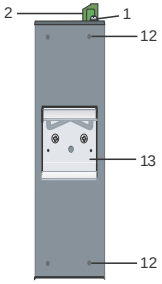
Top Panel View



Rear Panel View



Rear Panel View

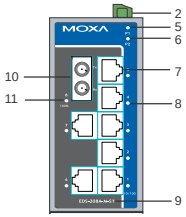


NOTE:
The appearance of EDS-205A-S-SC is identical to EDS-205A-M-SC.

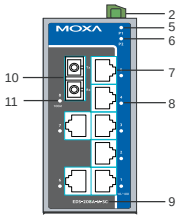
1. Grounding screw
2. Terminal block for power input P1/P2
3. Heat dissipation orifices
4. DIP Switches
5. Power input P1 LED
6. Power input P2 LED
7. 10/100BaseT(X) Port
8. TP port's 10/100 Mbps LED
9. Model Name
10. 100BaseFX Port
11. FX port's 100 Mbps LED
12. Screw hole for wall mounting kit
13. DIN-Rail Kit

Panel Layout of EDS-208A-M-SC/ST

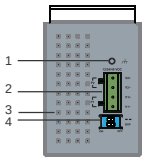
EDS-208A-M-ST
Front Panel View



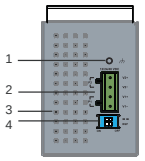
EDS-208A-M-SC
Front Panel View



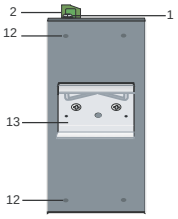
Top Panel View



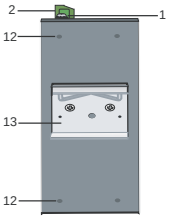
Top Panel View



Rear Panel View



Rear Panel View

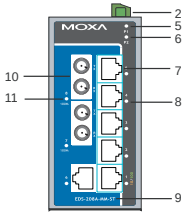


NOTE:
The appearance of EDS-208A-S-SC is identical to EDS-208A-M-SC.

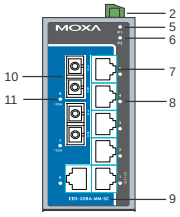
1. Grounding screw
2. Terminal block for power input P1/P2
3. Heat dissipation orifices
4. DIP Switches
5. Power input P1 LED
6. Power input P2 LED
7. 10/100BaseT(X) Port
8. TP port's 10/100 Mbps LED
9. Model Name
10. 100BaseFX Port
11. FX port's 100 Mbps LED
12. Screw hole for wall mounting kit
13. DIN-Rail Kit

Panel Layout of EDS-208A-MM-SC/ST

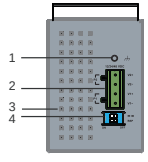
EDS-208A-MM-ST
Front Panel View



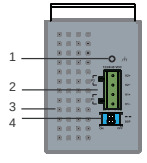
EDS-208A-MM-SC
Front Panel View



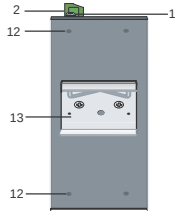
Top Panel View



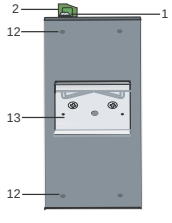
Top Panel View



Rear Panel View



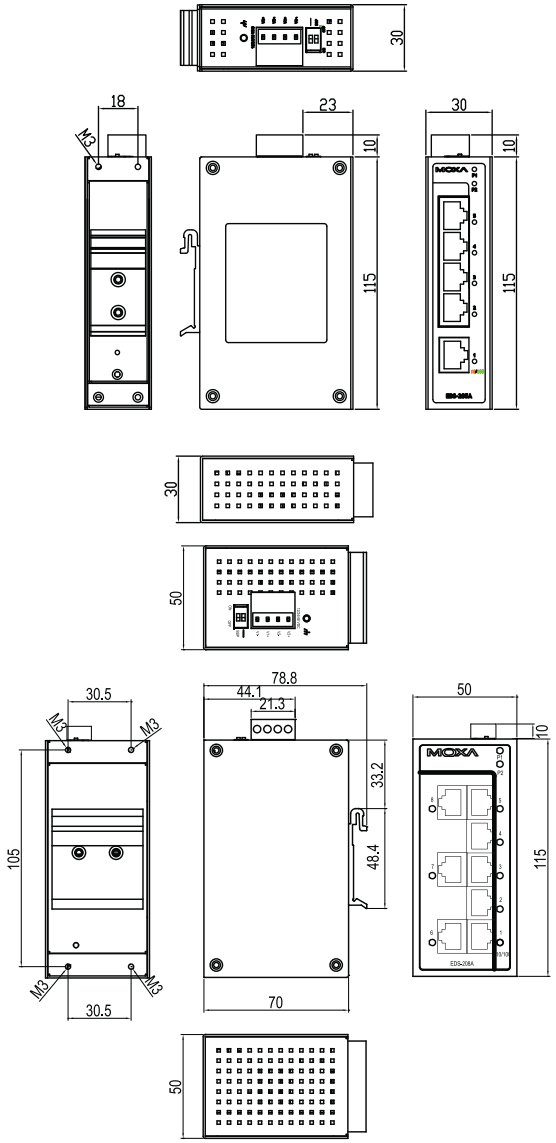
Rear Panel View



NOTE:
The appearance of EDS-208A-SS-SC is identical to EDS-208A-MM-SC.

1. Grounding screw
2. Terminal block for power input P1/P2
3. Heat dissipation orifices
4. DIP Switches
5. Power input P1 LED
6. Power input P2 LED
7. 10/100BaseT(X) Port
8. TP port's 10/100 Mbps LED
9. Model Name
10. 100BaseFX Port
11. FX port's 100 Mbps LED
12. Screw hole for wall mounting kit
13. DIN-Rail Kit

Mounting Dimensions (unit = mm)

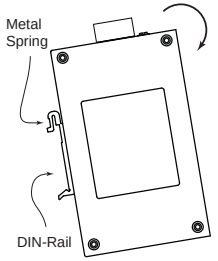


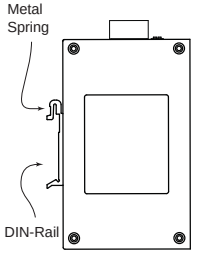
DIN-Rail Mounting

The aluminum DIN-rail attachment plate should already be fixed to the back panel of the EDS when you take it out of the box. If you need to reattach the DIN-rail attachment plate, make sure the stiff metal spring is situated towards the top, as shown in the figures below.

STEP 1:
Insert the top of the DIN-Rail into the slot just below the stiff metal spring.

STEP 2:
The DIN-Rail attachment unit will snap into place as shown below.



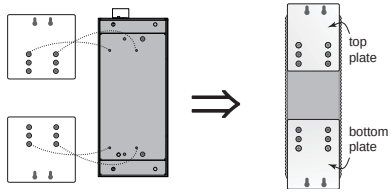


To remove the EDS from the DIN-Rail, simply reverse Steps 1 and 2 above.

Wall Mounting (optional)

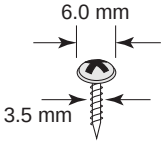
For some applications, you will find it convenient to mount the EDS-205A/208A on the wall, as shown in the following figures.

STEP 1: Remove the aluminum DIN-Rail attachment plate from the EDS-205A/208A's rear panel, and then attach the wall mount plates as shown in the diagram at the right.



STEP 2:

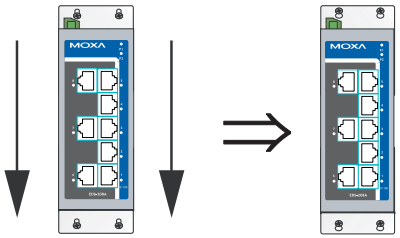
Mounting the EDS-205A/208A on the wall requires 4 screws. Use the switch, with wall mount plates attached, as a guide to mark the correct locations of the 4 screws. The heads of the screws should be less than 6.0 mm in diameter, and the shafts should be less than 3.5 mm in diameter, as shown in the figure at the right.



NOTE Before tightening the screws into the wall, make sure the screw head and shank size are suitable by inserting the screw into one of the keyhole-shaped apertures of the wall mounting plates.

Do not screw the screws in completely—leave about 2 mm to allow room for sliding the wall mount panel between the wall and the screws.

STEP 3:
Once the screws are fixed on the wall, insert the four screw heads through the large parts of the keyhole-shaped apertures, and then slide the EDS-205A/208A downwards, as indicated. Tighten the four screws for added stability.



Wiring Requirements

WARNING

Safety First!

Turn the power off before disconnecting modules or wires. The correct power supply voltage is listed on the product label. Check the voltage of your power source to make sure that you are using the correct voltage. Do **NOT** use a voltage greater than what is specified on the product label.

These devices must be supplied by a SELV source as defined in the Low Voltage Directive 2006/95/EC and 2004/108/EC.

WARNING

Safety First!

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

You should also pay attention to the following points:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
  NOTE: Do not run signal or communications wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separated.
- It is strongly advised that you label wiring to all devices in the system when necessary.

Grounding the EtherDevice Switch

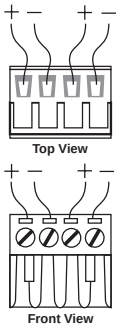
Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

Wiring the Redundant Power Inputs

The top two contacts and the bottom two contacts of the 4-contact terminal block connector on the EDS's top panel are used for the EDS's two AC/DC inputs. Top and front views of one of the terminal block connectors are shown here.



STEP 1: Insert the negative/positive AC/DC wires into the V-/V+ terminals.

STEP 2: To keep the AC/DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

STEP 3: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on EDS's top panel.

ATTENTION

Before connecting the EtherDevice Switch to the AC/DC power inputs, make sure the AC/DC power source voltage is stable.

Communication Connections

The EDS-205A models have 4 or 5 10/100BaseT(X) Ethernet ports, and 1 or 0 (zero) 100 BaseFX multi/single-mode (SC/ST-type connector) fiber ports. The EDS-208A models have 6, 7 or 8 10/100BaseT(X) Ethernet ports, and 2, 1 or 0 (zero) 100 BaseFX multi/single-mode (SC/ST-type connector) fiber ports.

10/100BaseT(X) Ethernet Port Connection

The 10/100BaseT(X) ports located on the EDS's front panel are used to connect to Ethernet-enabled devices. Below we show pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports, and also show cable wiring diagrams for straight-through and cross-over Ethernet cables.

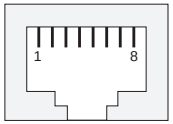
MDI Port Pinouts

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-

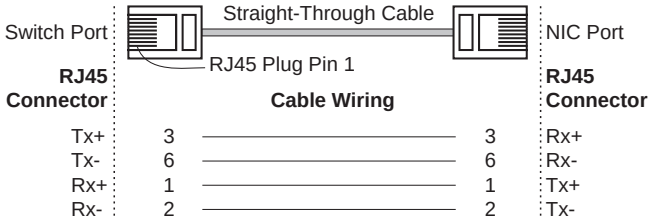
MDI-X Port Pinouts

Pin	Signal
1	Rx+
2	Rx-
3	Tx+
6	Tx-

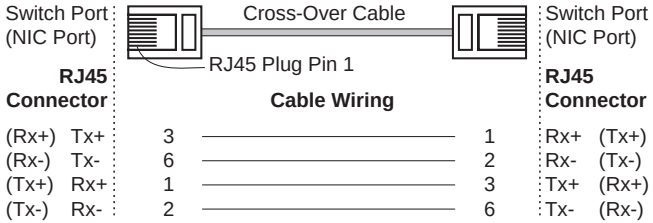
8-pin RJ45



RJ45 (8-pin) to RJ45 (8-pin) Straight-Through Cable Wiring



RJ45 (8-pin) to RJ45 (8-pin) Cross-Over Cable Wiring

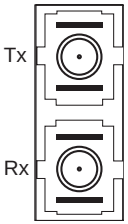


100BaseFX Ethernet Port Connection

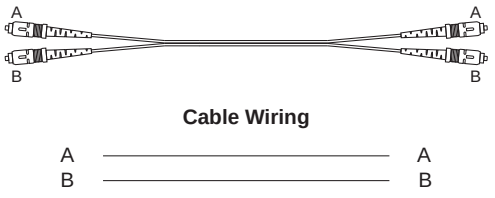
The concept behind the SC/ST port and cable is quite straightforward. Suppose you are connecting devices I and II; contrary to electrical signals, optical signals do not require a circuit in order to transmit data. Consequently, one of the optical lines is used to transmit data from device I to device II, and the other optical line is used transmit data from device II to device I, for full-duplex transmission.

Remember to connect the Tx (transmit) port of device I to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device II. If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, as shown below, or A1-to-A2 and B1-to-B2).

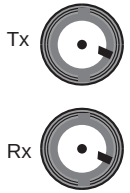
SC-Port Pinouts



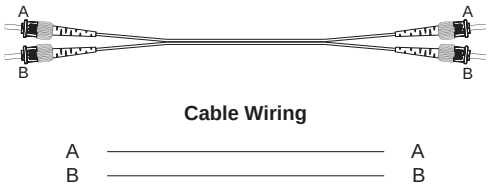
SC-Port to SC-Port Cable Wiring



ST-Port Pinouts



ST-Port to ST-Port Cable Wiring



ATTENTION

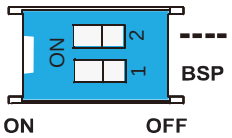
This is a Class 1 Laser/LED product. To avoid causing serious damage to your eyes, do not stare directly into the Laser Beam.

Redundant Power Inputs

Both power inputs can be connected simultaneously to live AC/DC power sources. If one power source fails, the other live source acts as a backup, and automatically supplies all of the EDS's power needs.

DIP Switch Settings

EDS-205A/208A DIP Switches



The default setting for each DIP Switch is OFF. The following table explains the effect of setting the DIP Switches to the ON positions.

DIP Switch	Setting	Description
------		Serves no function (reserved for future use).
BSP	ON	Enables broadcast storm protection
	OFF	Disables broadcast storm protection

ATTENTION

To actively updated DIP switch settings, power off and then power on the EDS.

LED Indicators

The front panel of the Moxa EtherDevice Switch contains several LED indicators. The function of each LED is described in the table below.

LED	Color	State	Description
P1	AMBER	On	Power is being supplied to power input P1.
		Off	Power is not being supplied to power input P1.
P2	AMBER	On	Power is being supplied to power input P2.
		Off	Power is not being supplied to power input P2.
10M	Yellow	On	TP port's 10 Mbps link is active.
		Blinking	Data is being transmitted at 10 Mbps.
		Off	TP Port's 10 Mbps link is inactive
100M	GREEN	On	TP port's 100 Mbps link is active.
		Blinking	Data is being transmitted at 100 Mbps.
		Off	100Base TP Port's link is inactive.

Auto MDI/MDI-X Connection

The Auto MDI/MDI-X function allows users to connect the EDS's 10/100BaseTX ports to any kind of Ethernet device, without needing to pay attention to the type of Ethernet cable being used for the connection. This means that you can use either a straight-through cable or cross-over cable to connect the EDS to Ethernet devices.

Dual Speed Functionality and Switching

The Moxa EtherDevice Switch's 10/100 Mbps switched RJ45 port auto negotiates with the connected device for the fastest data transmission rate supported by both devices. All models of Moxa EtherDevice Switch are plug-and-play devices, so that software configuration is not required at installation, or during maintenance. The half/full duplex mode for the switched RJ45 ports is user dependent and changes (by auto-negotiation) to full or half duplex, depending on which transmission speed is supported by the attached device.

Switching, Filtering, and Forwarding

Each time a packet arrives at one of the switched ports, a decision is made to either filter or forward the packet. Packets with source and destination addresses belonging to the same port segment will be filtered, constraining those packets to one port, and relieving the rest of the network from the need to process them. A packet with destination address on another port segment will be forwarded to the appropriate port, and will not be sent to ports where it is not needed. Packets that are used in maintaining the operation of the network (such as the occasional multi-cast packet) are forwarded to all ports. The EDS operates in the store-and-forward switching mode, which eliminates bad packets and enables peak performance to be achieved when there is heavy traffic on the network.

Switching and Address Learning

The EDS has an address table that can hold up to 1024 addresses, which makes it suitable for use with large networks. The address tables are self-learning, so that as nodes are added or removed, or moved from one segment to another, the EDS automatically keeps up with new node locations. An address-aging algorithm causes the least-used addresses to be deleted in favor of newer, more frequently used addresses. To reset the address buffer, power down the unit and then power it back up.

Auto-Negotiation and Speed Sensing

All of the EDS's RJ45 Ethernet ports independently support auto-negotiation for speeds in the 10BaseT and 100BaseTX modes, with operation according to the IEEE 802.3u standard. This means that some nodes could be operating at 10 Mbps, while at the same time, other nodes are operating at 100 Mbps. Auto-negotiation takes place when an RJ45 cable connection is made, and then each time a LINK is enabled. The EDS advertises its capability for using either 10 Mbps or 100 Mbps transmission speeds, with the device at the other end of the cable expected to advertise in a similar manner. Depending on what type of device is connected, this will result in agreement to operate at a speed of either 10 Mbps or 100 Mbps. If an EDS RJ45 Ethernet port is connected to a non-negotiating device, it will default to 10 Mbps speed and half-duplex mode, as required by the IEEE 802.3u standard.

Specifications

Technology

Standards	IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X) and 100BaseFX, IEEE 802.3x for Flow Control
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control

Interface

RJ45 Ports	10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Fiber Ports	100BaseFX ports (SC/ST connector, multi/single-mode)
LED Indicators	P1, P2 (Power), 10/100M (TP port), and 100M (Fiber port)
DIP Switch	enable/disable broadcast storm protection

Optical Fiber

	100BaseFX	
	Multi-mode	Single-mode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km[a]	40 km[c]
	4 km[b]	
Saturation	-6 dBm	-3 dBm

a. using [50/125μm, 800 MHz*km] cable
b. using [62.5/125μm, 500 MHz*km] cable
c. using [9/125 μm, 3.5 PS/(nm*km)] cable

Power	
Input Voltage	12/24/48 VDC (9.6 to 60 VDC), 18 to 30VAC (47 to 63 Hz)
Input Current @ 24VDC	0.1 A (EDS-205A) 0.11 A (EDS-205A-M/S) 0.13 A (EDS-208A) 0.17 A (EDS-208A-M/S) 0.22 A (EDS-208A-MM/SS)
Connection	Removable 4-contact terminal block
Overload Current Protection	1.1 A
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	IP30 protection, metal case
Dimensions	EDS-208A Series: 50 x 115 x 70 mm EDS-205A: 30 x 115 x 70 mm
Weight	EDS-208A Series: 275 g EDS-205A: 175 g
Installation	DIN-Rail Mounting, Wall Mounting (with optional kit)
Environmental Limits	
Operating Temperature	-10 to 60°C (14 to 140°F) -40 to 75°C (-40 to 167°F) for -T models
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Regulatory Approvals	
Safety	UL508 (pending)
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C, and D; ATEX Class I, Zone 2, Ex nC nL IIC T4 (Pending)
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-3 (RS), Level 3 EN61000-4-4 (EFT), Level 3 EN61000-4-5 (Surge), Level 3 EN61000-4-6 (CS), Level 3 EN61000-4-8 EN61000-4-11
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
WARRANTY	5 years

Technical Support Contact Information
www.moxa.com/support

Moxa Americas:
Toll-free: 1-888-669-2872
Tel: +1-714-528-6777
Fax: +1-714-528-6778

Moxa Europe:
Tel: +49-89-3 70 03 99-0
Fax: +49-89-3 70 03 99-99

Moxa Asia-Pacific:
Tel: +886-2-8919-1230
Fax: +886-2-8919-1231

Moxa China (Beijing office):
Tel: +86-10-6872-3959/60/61
Fax: +86-10-6872-3958

Appendix C: 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).