

**SPORTSOUND® RACK
SSR-300 GEN II**

OPERATION MANUAL

P1340

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DAKTRONICS

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1 Introduction


This manual explains the operation of the Sportsound® Rack (SSR) 300 Gen II. For additional information regarding the safety, installation, operation, or service of this system, refer to the telephone numbers listed in **Section 6: Daktronics Exchange and Repair & Return Programs (p.25)**. This manual is not specific to a particular installation. Project-specific information takes precedence over any other general information found in this manual.

Important Safety Instructions

- Read and understand all instructions before beginning the installation process.
- Do not drop the 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.
- Always turn off and/or unplug the control equipment when it is not in use. This keeps equipment protected from power spikes and lightning.
- Never yank the power cord from the outlet. Grasp the plug and pull to disconnect.
- Do not let any power cord touch hot surfaces or hang over the edge of a table that would damage or cut the cord. Arrange the cord with care so that it will not be tripped over.
- Inspect control equipment for shipping damage such as rattles and dents, and verify that all equipment is included as itemized on the packing slip. Immediately report any problems to Daktronics; save all packing materials if exchange is necessary.
- Keep equipment covered when possible to protect from dust and debris.

Resources

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

		DAKTRONICS, INC. BROOKINGS, SD 57006 DO NOT SCALE DRAWING	THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2010 DAKTRONICS, INC.
PROJ: DAKTRONICS			
TITLE: SYSTEM RISER DIAGRAM			
DESIGN:	DRAWN: APAGE		DATE: 11 MAY 10
SCALE: NONE			
SHEET	REV	JOB NO:	FUNC-TYPE-SIZE
200	02	C17581	F-01-D

Drawing Number

Figure 1: Drawing Label

Reference Drawing:

System Riser Diagram **DWG-1007804**

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

Daktronics has a searchable knowledgebase of common questions and troubleshooting tips: www.daktronics.com/en-us/support/systems/Audio%20Systems

Visit the Daktronics Support YouTube channel to learn how to properly operate Sportsound racks. Go to www.youtube.com/DaktronicsSupport, and then click on Playlists to locate the **Daktronics Audio - SSR-300 Control System** videos along with numerous other support videos.



Daktronics Nomenclature

Most display components have a white label that lists the part number in bold as shown in **Figure 2**. Part numbers will also appear on certain drawings. If a component is not found in **Section 5: Replacement Parts (p.23)**, use the label to order a replacement. Refer to **Section 6: Daktronics Exchange and Repair & Return Programs (p.25)** if replacing or repairing any display component.

0P-1127-0024
SN: 2465
02/19/12 Rev. 1

Figure 2: Part Label

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	0M-XXXXXXX
Fabricated metal assembly	0S-XXXXXXX
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

2 SSR-300 Components

Reference Drawing:

Audio; SSR-300; 40RU, TF1/TIO; Shure	DWG-3618761
Audio; SSR-300; 40RU, TF1/TIO, Layout.....	DWG-3618762
Audio; SSR-300; 40RU, TF1/TIO, Layout.....	DWG-5123881
Audio; SSR-300; 40RU, TF1/TIO; EV	DWG-5124210

In **Appendix A**, refer to **DWG-3618762** or **DWG-5123881** for component locations and **DWG-3618761** or **DWG-5124210** for detailed wiring schematics. **Figure 3** displays the various announcer's rack components. The mixer may be located up to 50' (15.2 m) away from the rack.



Figure 3: SSR-300 Components

#	Component	Reference	Supplementary Manual
1	System ON/OFF Key	Powering On (p.10) & Powering Off (p.11)	N/A
2	ADA Hearing Assist System	Hearing Assist System Operation (p.20)	Listen® LT-800, LR-400 & LA-122 Users Manuals
3	Wireless Personal Stereo Monitor System	Shure Personal Monitor System Operation (p.18)	Shure® PSM®900 Personal Wireless Monitor System User Guide
		Sennheiser In-Ear Monitor System Operation (p.19)	Sennheiser EW IEM G4 Instruction Manual
4	CD/Media Player	N/A	TASCAM CD-400U Owner's Manual
5	Wireless Receiver System @2	Shure Wireless Mic System Operation (p.12)	Shure® QLX-D® Wireless System User Guide
		Electro-Voice Wireless Mic System Operation (p.14)	Electro-Voice RE3 UHF Wireless System User Manual

#	Component	Reference	Supplementary Manual
6	Feedback Reducer	N/A	Shure® Model DFR22 Installation Guide
		N/A	DXB AFS2 Owner's Manual
7	Distribution Amplifier	N/A	Kramer VM-1610 User Manual
		N/A	BrightEye 33 User Guide
8	Storage Drawers @2	N/A	N/A
9	Audio Mixer	Mixer Operation (p.10)	Yamaha Digital Mixing Console TF Series Reference Manual

All supplementary manuals are listed in **Appendix B**.

Standard Equipment

Audio Mixer

The Yamaha TF1 Digital Mixer shown in **Figure 4** provides the performance and reliability of digital live sound in a compact design. Main features include:

- 40 input mixing channels (32 mono + 2 stereo + 2 return)
- 20 AUX buses (8 mono + 6 stereo) + stereo + sub
- 16 analog XLR/TRS combo mic/line inputs + 2 analog RCA pin stereo line analog inputs
- 17 motor faders (16 channels + 1 master)
- Intuitive multi-touch screen with a simple touch and turn knob



Figure 4: Audio Mixer

CD/Media Player



Figure 5: CD/Media Player

The TASCAM CD-400U shown in **Figure 5** is a professional rack-mount CD/Media Player with flexible file formats and inputs/outputs. Other features include:

- MP3, WAV, AAC, and WMA file playback
- Support for SD/SDHC cards and USB memory devices
- Wireless playback via Bluetooth™ devices
- AM/FM radio tuner
- Balanced XLR and Unbalanced RCA outputs

Announcer's Interface

The Daktronics Announcer's Interface shown in **Figure 6** includes one (1) balanced MIC output, one (1) balanced AUX input, and headphone jacks; headphone volume control knob; and momentary or continuous microphone activation buttons. Microphone, stand, and headphones are provided.

Single-Muff Headset

The professional single-muff headset shown in **Figure 7** may be used in place of the standard announcer's interface wired microphone and headphones. Other features include:

- Ambient noise attenuation
- Neodymium magnet system for high reproduction precision
- Soft, circumaural ear pad
- Cardioid condenser microphone

Laptop Interface

The LTIBLOX device shown in **Figure 8** is a portable, durable balanced audio converter that allows connection of a laptop or MP3/music player into pro-level mixers. Other features include:

- 1/8" (3.5 mm) male input
- Balanced XLR male output
- Adjustable output volume control
- Black powder-coated aluminum chassis

Wireless Microphone System

The Shure® QLX-D® shown in **Figure 9** is a professional UHF wireless microphone system. Dual receivers in the audio rack allow operation of two wireless transmitters simultaneously. Over 60 compatible channels per frequency band and up to 17 compatible systems per 6 MHz TV channel are available. Automatic Frequency Selection technology detects the clearest frequencies in the area. Other features include:

- Effective Range: 328' (100 m) under optimal conditions
- Audio Frequency Response: 20Hz to 20kHz, ± 2 dB
- Total Harmonic Distortion: $<0.1\%$
- RF Sensitivity: -97 dBm at 10-5 BER

Note: The SSR-300 may have been shipped with the Shure QLX-D or Electro-Voice RE3, which features similar mic, headset, mute switch, and bodypack components.



Figure 6: Announcer's Interface Kit



Figure 7: Single-Muff Headset



Figure 8: Laptop Interface



Figure 9: Wireless Mic & Bodypack Transmitter w/ Mute Switch, Lapel Mic, and Headset

Feedback Reducer

The Shure® DFR22 is a two-input, two-output digital audio processor with feedback reduction. The 2 x 2 matrix mixer allows either or both inputs to be routed to either or both outputs, with additional controls for levels and polarity. The unit stores sixteen presets and provides 24-bit conversion, 48kHz sampling, and a minimum dynamic range of 100 dB.

Note: The SSR-300 may have been shipped with the Shure DFR22 or DBX AFS2.

Distribution Amplifier

The Kramer VM-1610 Distribution Amplifier is a four-input, twenty-output splitter/distribution amplifier capable of providing twenty discrete balanced outputs from two or four balanced line-level inputs. Channel 1 L/R and 2 L/R Level controls affect the overall level of each input.

Note: The SSR-300 may have been shipped with the Kramer VM-1610 or BrightEye 33 @2.

ADA Hearing Assist System

The Listen® LT-800 Stationary Transmitter in the audio rack allows individuals to experience every word at an event. This system is designed to broadcast the audio signal throughout the facility. It is capable of transmitting to multiple receiver types and its adjustable receivers allow each user to have full volume control.



Figure 10: Portable FM Receiver w/ In Ear Speaker

The Listen LT-4200 Portable FM Receiver shown in **Figure 10** provides users with the choice of 57 channels and accessory options ideal for a wide range of applications. The receivers are digitally tuned so transmission will not drift, assurance that when you select a channel it stays on the channel.

If more receivers are required and the transmitter is already installed, additional receiver packs and headphones are available to purchase.

Wireless Personal Stereo Monitor System

An in-ear monitor (IEM) system is used for on-field/on-stage talent. The system includes a transmitter in the audio rack and a receiver worn by the performer that allows for personal adjustment of mix and volume and compensates for delay from the sound system. Refer to **Figure 11**.

Sound travels at 1120' (341 m) per second. This produces a noticeable delay as one moves away from the speaker. Even experienced performers have trouble adjusting to this delay. A wireless in-ear monitor system provides a real-time signal to the talent and blocks the sound delay from their ears.

If more receivers are required and the transmitter is already installed, additional receiver packs and headphones are available to purchase.

Note: The SSR-300 may have been shipped with the Shure PSM 900 or Sennheiser EW IEM G4.



Figure 11: PSM Receiver

High Gain Antenna Kit

The Lectrosonics ALP620 shown in **Figure 12** is a directional antenna for increased range and reduced interference. The “gain” of this antenna enables it to receive signals from a greater distance than at typical “whip” type antenna. The antenna allows for increased performance of wireless microphones with 7 db of gain. The directional antennas may be located up to 50' (15.2 m) away from the announcer’s rack.

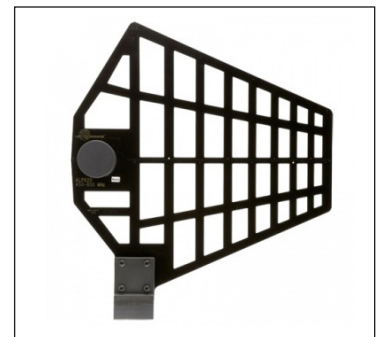


Figure 12: Directional Antenna

USB Audio Interface

The Radial® Engineering USB-Pro™ shown in **Figure 13** provides an interface from laptop computers to balanced outputs. Other features include:

- 24-bit, 96 kHz quality audio
- Two balanced XLR outputs (left and right)
- 3.5mm TRS headphone output
- Ground lift and mono-sum switches



Figure 13: USB Audio Interface

Optional Equipment

Self-Powered Monitor Speaker

The Yamaha MSP3 monitor speaker shown in **Figure 14** features a compact bass reflex cabinet, with a 3.94" (100 mm) two-way cone speaker and a 0.87" (22 mm) dome speaker. Other features include:

- Three inputs: one 1/4" phone, one RCA, one XLR
- Tone control (High/Low)



Figure 14: Self-Powered Speaker

Signal Cables

Cable specifications are as follows:

- 30' (9.1 m) XLR cable from rack to fiber box or wall plate (part # 0A-1340-0301)
- 50' (15.2 m) snake harness from rack to remote mixer (part # W-3627434)
- 5' (1.5 m) XLR cable for auxiliary audio input (part # W-1627)
- 15' (4.6 m) XLR cable from announcer's interface to wall plate (part # W-2074)
- 25' (7.6 m) XLR cable for connecting additional wired microphones (part # W-1560)
- 3' (1 m) USB A to B cable between USB audio interface and a computer (part # W-1635)

Notes:

- Keep unbalanced cable lengths under 6' (1.8 m) to prevent unwanted noise from being picked up. Use appropriate converters, such as the LTIBLOX Laptop Interface, to convert to balanced cables for longer cable runs if necessary. Refer to **Figure 15**.
- Run audio cables away from power cables to prevent noise.
- Audio cables must be kept separate from current loop (scoreboard control) signal cables.



Figure 15: Balanced/Unbalanced Cable Comparisons

3 Setup and Operation

All connections are made upon installation. Some equipment may be connected and disconnected each time it is used. Note that every project is unique, so be sure to follow any site-specific riser drawings and documentation for the facility to determine the exact layout of system components.

Mixer Setup

Open the rear rack door to find a 50' (15.2 m) snake harness coiled in the bottom of the rack. Cut the intact cable tie holding the loose end of the harness, and route the 5 plugs down through the hole in the bottom of the rack and out of the knockout/strain relief. Refer to **Figure 17**.

Route the harness to the desired mixer location and connect the plugs to the rear of the mixer according to **Figure 16** and the table below:

Snake Harness Plug	Mixer Jack
POWER	AC IN
DANTE PRI	Dante PRIMARY
OMNI OUT 16	16(R)
NETWORK	(not currently used in standard systems)
SPARE	



Figure 16: Mixer Connections

Power on the mixer using the rear rocker switch.

Note: Since the cable harness provides power to the mixer, it can be left powered on. Use the key switch shown in **Figure 18** to turn it on and off together with the rack.

Signal Out to Audio System

Route the provided 25' (7.6 m) XLR cable into the rack through the knockout/strain relief. Refer to **Figure 17**. Connect one end of the XLR cable to the **TO FIBER BOX** end of the snake harness still cable tied inside the rack. The other end of the XLR cable will typically be routed and connected to a Fiber Conversion Box.

Announcer Setup

The Announcer's Interface equipment is typically kept in the bottom storage drawers along with other accessories. Follow the steps below to properly reconnect it to the rack. For more information, refer also to the **Announcer's Interface Gen II Quick Guide (DD3083838)** shipped with the device.

1. Connect the 2' (610 mm) XLR cable between the microphone and **MIC 1 INPUT** jack.
2. Connect headphones to the 1/4" or 1/8" jack.
3. Connect the provided 12 VAC wallpack transformer to the power input jack, and then plug the other end into a standard 120 VAC outlet. Use the tab above the power jack as a strain relief for the power cord.
4. Connect the 15' (4.6 m) XLR cable from **MIC 1 & AUX 1** on the announcer's interface to **Mic 1 & Aux 1** on the announcer's plate.

Powering On

Open the rear rack door to find the power cord in the lower-left corner. Refer to **Figure 17**. Route the plug down through the hole in the bottom of the rack and out of the knockout/strain relief. Connect the power cord into a standard 120V grounded outlet.



Figure 17: Power Cord & Strain Relief

Turn the **SOUND SYSTEM** key switch to the **ON** (vertical) position. Refer to **Figure 18**.

Note: Keep keys in a safe location to prevent theft/tampering of rack equipment!



Figure 18: Power Key Switch

Before continuing, be sure to also power on the speaker cabinet(s).

Mixer Operation

Basic startup instructions are described below. For more information about audio mixer operation, refer to the **Yamaha Digital Mixing Console TF Series Reference Manual**.

1. Under **USER DEFINED KEYS**, press the button labeled "B". Refer to **Figure 19**.



Figure 19: User Defined Keys

Note: Custom keys (presets) may have been set up during training. Press the desired key as needed for a specific application. The creation of additional presets is recommended for advanced users only.

2. Ensure all source equipment is turned on and operational (refer to the appropriate sections of this manual and/or manufacturers' manuals).

3. Ensure the **ON** buttons for the channels in use and for the **STEREO** output are illuminated; also verify no **CUE** buttons are illuminated. Refer to **Figure 20**.
4. Bring faders up slowly and listen for the signal. Refer to **Figure 21**.
5. The signal should be visible on the output meter. Refer to **Figure 22**.
 - The amber LEDs indicate that the level is near clip.
 - The red LEDs indicate that the signal has reached the digital limit.



Figure 20: Channel Buttons



Figure 21: Channel Faders



Figure 22: Output Meter

REMEMBER: Bad input = bad output. No adjustment on the mixer can make a poor source sound better. For best results, be sure to use high-quality audio files from your MP3 player or laptop, and set the device to near full volume.

Whenever red LEDs are illuminated on the mixer, this is generally a sign that input settings need to be lowered. For example, if red LEDs are lit in the output meter or PEAK LEDs are lit, the channel gain and/or fader needs to be lowered. If lowering the fader does not stop the PEAK LED from illuminating, the gain must be lowered. **PROLONGED OVERLOAD SIGNALS WILL DAMAGE THE AUDIO SYSTEM!**

Powering Off

1. Under **USER DEFINED KEYS**, press the button labeled "A". Refer to **Figure 19**.
2. Turn the **SOUND SYSTEM** key switch to the **OFF** (horizontal) position.
3. If the system will not be used for some time, unplug the power cord.
4. Place all accessories back in the appropriate slots of the storage drawers to keep them safe and organized.
5. Power off the speaker cabinet(s).

Shure Wireless Mic System Operation

Basic instructions are described below. For more information about wireless mic system operation, refer to the **Shure QLX-D Wireless System User Guide**.

Wireless Receiver



Figure 23: Wireless Receiver LCD & Controls

The wireless receiver unit shown in **Figure 23** displays the following information:

- a. Transmitter Battery Life
- b. TV Channel
- c. Frequency
- d. Group Number
- e. Channel Number
- f. RF Signal Strength
- g. Transmitted Audio Level
- h. Gain Level

Single Receiver

1. **Ensure all transmitters are powered off.** Press the power button to turn on the receiver if it is not already on.
2. Press **menu** until “scan” displays on the LCD.
3. Press **enter** to start frequency scan. When scan is complete, Group and Channel will display on the LCD.

Network Receivers

1. **Ensure all transmitters are powered off.** Turn on all receivers and wait one minute to allow time to connect to the network.
2. Press **menu** on one receiver until group number flashes.
3. Use the arrow buttons to select a group to scan.
4. Press **enter**, wait for channel, and then press enter again
5. Press **menu** until “network scan” displays on the LCD.
6. Press **enter** twice to deploy channels to other receivers.

Note: Perform a scan on all of the wireless units just minutes before the game! If a scan is performed too far ahead of time, frequencies set up by the media later on may interfere with previously configured wireless microphone settings.

Wireless Mic and Bodypack Setup

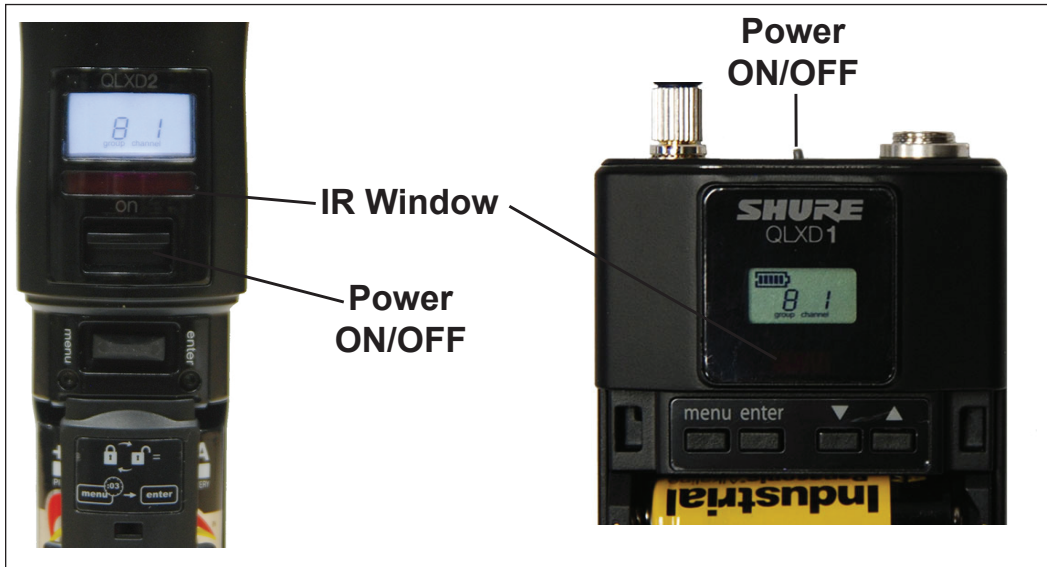


Figure 24: Wireless Mic & Bodypack Controls

1. Open the battery cover. Insert new or fully-charged AA batteries prior to each use, and always have spares on hand.
2. Power on the transmitter device. Refer to **Figure 24**.
3. Hold the transmitter device up close to one receiver in the rack, ensuring the infrared (IR) windows are aligned.
4. Press **sync** on the receiver; “good” will display if sync was successful.
5. Repeat steps **1–4** to pair another transmitter device with an additional receiver (if present).

Note: Plug the referee mute switch into the jack on top of the bodypack unit and plug headphones/lapel mic into the referee mute switch.

Verify Reception: With a transmitter and the receiver both turned on and having matching GROUP and Channel numbers, the RF meter on the receiver should be indicating signal. Speak into the microphone and the TX AUDIO meter should indicate signal presence.

Additional Tips:

- Program one microphone per receiver; multiple microphones on the same channel will cause interference and microphones will drop out.
- Check that battery levels are adequate to prevent wireless equipment from powering off during use.
- Always use quality batteries to prevent battery leaks that can corrode and shorten the life of the equipment.
- Remove batteries from all transmitter devices when the system will not be used for an extended period of time.

Electro-Voice Wireless Mic System Operation

Basic instructions are described below. For more information about wireless mic system operation, refer to the **Electro-Voice RE3 UHF Wireless System User Manual**.

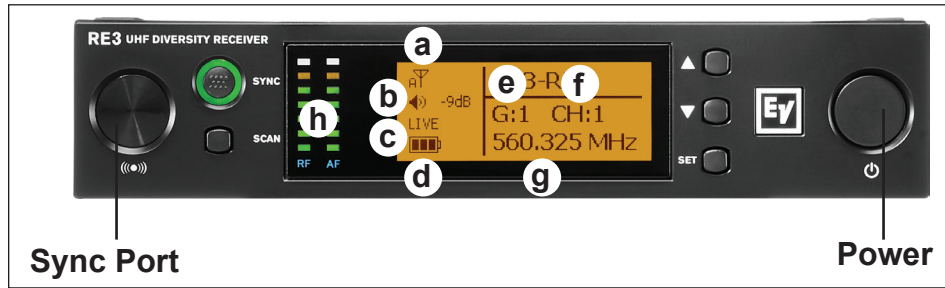


Figure 25: RE3 Wireless Receiver LCD & Controls

The wireless receiver unit shown in **Figure 25** displays the following information:

- a. Antenna Status
- b. Audio Output Volume Level
- c. Transmitter Activity Status
- d. Transmitter Battery Life
- e. Group Number
- f. Channel Number
- g. Frequency
- h. RF/AF Signal Strength

Group/Channel Scan

1. **Ensure all transmitters are powered off.** Press the power button to turn on the receiver if it is not already on.
2. Press and hold **SCAN** for three seconds.
3. Press **SET** to start frequency scan. When scan is complete, view the results list.
4. Use the up/down arrows to select the group with the most open channels, and then press **SET**.
5. Use the up/down arrows to select a channel, and then press **SET**.
6. Briefly press **SYNC** to return to the home screen where the selected group and channel will now appear.
7. Repeat **Steps 2–6** for all additional receivers. **Ensure that all receivers are on the same group number.**

Note: Perform a scan on all of the wireless units just minutes before the game! If a scan is performed too far ahead of time, frequencies set up by the media later on may interfere with previously configured wireless microphone settings.

Wireless Mic and Bodypack Sync



Figure 26: RE3 Wireless Mic & Bodypack Controls

1. Open the battery cover. Insert new or fully-charged AA batteries prior to each use, and always have spares on hand.
2. Power on the transmitter device. Refer to **Figure 26**.
3. Hold the transmitter device steady up close to one receiver in the rack, ensuring the sync ports are aligned. A direct line of sight is required. Maintain a distance between 2-12" (5-30cm) for best sync performance.
4. Press **SYNC** on the receiver. The LED indicator on the transmitter flashes blue during the sync operation and glows solid blue for three seconds when sync operation is successful.
5. Repeat steps **1–4** to pair another transmitter device with an additional receiver (if present).

Note: Plug the referee mute switch into the jack on top of the bodypack unit and plug headphones/lapel mic into the referee mute switch.

Verify Reception: With a transmitter and the receiver both turned on and having matching Group and Channel numbers, the RF meter on the receiver should be indicating signal. Speak into the microphone and the AF meter should indicate signal presence. Ideal level should show all green LEDs and the yellow LED lit on emphasis peaks. An occasional red LED is OK, but a constant, solid red LED should be avoided.

Additional Tips:

- Program one microphone per receiver; multiple microphones on the same channel will cause interference and microphones will drop out.
- Check that battery levels are adequate to prevent wireless equipment from powering off during use.
- Always use quality batteries to prevent battery leaks that can corrode and shorten the life of the equipment.
- Remove batteries from all transmitter devices when the system will not be used for an extended period of time.

Microphone Best Practices

- Keep handheld microphones 4-6" (102-152 mm) from the mouth (about the width of a hand). "P-pops" are loud sounds created by the release of breath when saying letters like "p" or "b". To avoid P-pops, keep handheld microphones below the mouth, angled toward the nose at a 45° angle. Do not point the front of the microphone straight at the mouth.
- Position headset microphones as close to the mouth as comfortable.
- The softer or louder the speaker's voice, move the microphone closer or further away, respectively.
- Never hit or intentionally blow into a microphone as it could quite easily be damaged.
- The referee bodypack kit includes both head-worn and lapel microphones. In general it is recommended to use the headset mic for best results. If the lapel mic is desired, clip it onto a lapel, as close to the center of the chest as possible.
 - Head-worn: Best choice for feedback rejection; capable of more gain before feedback since microphone can be positioned close to the mouth. Placement on head should be taken into consideration; mic boom should be on same side of point source sound system for proper cancellation. More susceptible to wind noise than omnidirectional microphones.
 - Omnidirectional Lapel: Susceptible to feedback from sound system; least affected by wind noise
 - Cardioid Lapel: Better feedback rejection versus omnidirectional lapel, but more wind noise. For maximum wind noise reduction, use both the snap-on windscreen AND the furry windjammer on the lapel mic as shown in **Figure 27**.



Figure 27: Proper Ref Mic Setup

Feedback

Feedback is a high-pitched noise caused when the sound through a speaker is picked up again by the microphone. The SSR-300 rack is equipped with a Feedback Reducer, but if there is still feedback in the system, it can be removed/reduced with the tips below:

- Practice proper microphone placement. The mic should be as close as possible to the mouth. Use a headset whenever possible; lapel mics are more prone to feedback.
- Practice proper setup of the gain structure throughout the system. Start from the source (wireless mic system) and ensure all levels are good.
- Make sure to use the windscreens on the microphones.
- Try a different mic. Cardioid mics will have a higher gain before feedback than omnidirectional mics. However, Cardioid mics will have more wind noise versus omnidirectional. When it comes to choosing between wind noise or feedback, it's the lesser of two evils to listen to wind noise.
- Be aware of areas prone to feedback, such as from the 20 yard line and in. Communicate to the referee that they shouldn't be making announced calls past a certain point on the field.

For additional recommendations for reducing wireless microphone dropouts and feedback, refer to the **Wireless Mic Best Practices – Shure QLX-D (DD3871886)**, available online at www.daktronics.com/manuals.

Shure Personal Monitor System Operation

Basic instructions are described below and shown in **Figure 28**. For more information, refer to the **Shure PSM900 Personal Wireless Monitor System User Guide**.

1. Flip the transmitter **POWER** switch to **ON** if it is not already on; ensure the RF switch to the left of it is **OFF** at this time.
2. Power on the handheld receiver using the volume knob.
3. Attach the antenna and earphones to the top of the handheld receiver.
4. Flip open the battery cover to expose the control buttons. Press **SCAN** and the display will show "SYNC NOW".

Note: Insert new or fully-charged batteries prior to each use, and always have spares on hand.

5. Hold the bodypack up to the transmitter with the sync IR windows facing each other, and press the **SYNC** button on the transmitter. The display will show "SYNC SUCCESS" when finished.
6. Flip the transmitter RF switch to **ON**. The blue LED on the receiver should illuminate to indicate that it is detecting the transmitter.

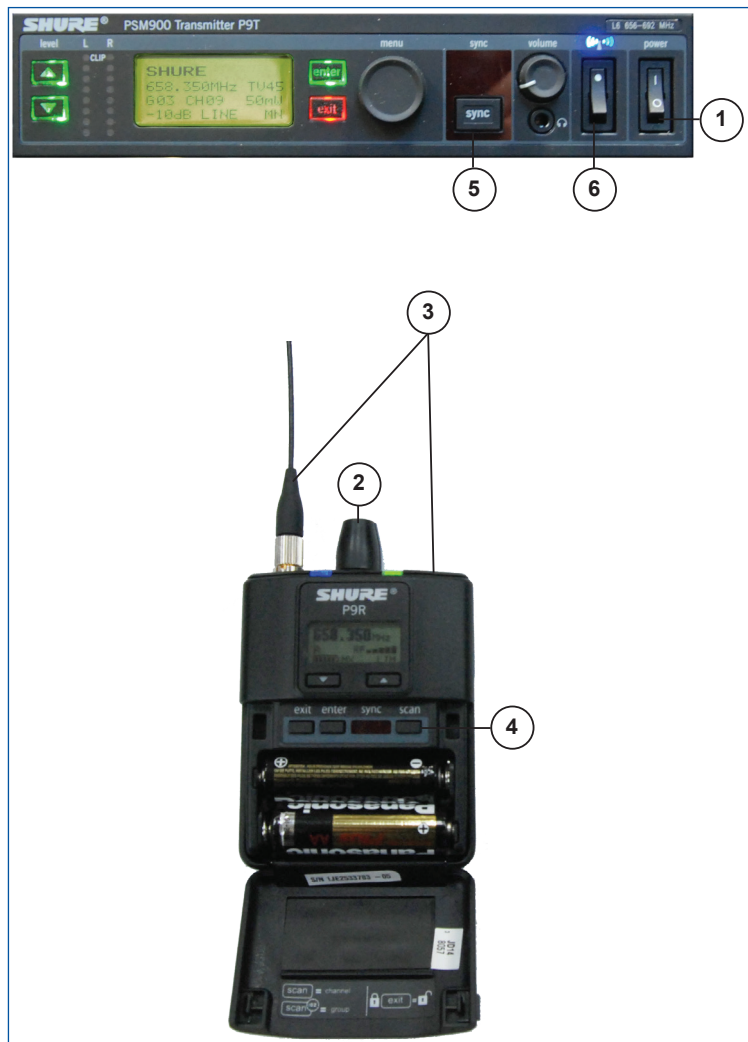


Figure 28: Optional Personal Stereo Monitor System

Sennheiser In-Ear Monitor System Operation

Basic instructions are described below, and common buttons/controls are shown in **Figure 29**. For more information, refer to the **Sennheiser EW IEM G4 Instruction Manual**.

1. Press the transmitter **POWER** button if it is not already on.
2. Turn the volume knob clockwise until it clicks to power on the handheld receiver.
3. Attach the antenna and earphones to the top of the handheld receiver.
4. Open the battery cover to expose more control buttons and the infrared interface.

Note: Insert new or fully-charged batteries prior to each use, and always have spares on hand. Remove batteries before extended periods of inactivity.

5. On the transmitter, press the jog dial (**SET**) to open the operating menu. Turn the jog dial to select the **Easy Setup** menu, and then press the jog dial (**SET**) to enter it.
6. The **Mute RF For Connected Devices?** message appears. Press the jog dial (**SET**) to confirm the message and deactivate the radio signal. SYNC appears in the transmitter display panel and the blue LED on the infrared interface lights up.
7. Press the **SET** button on the handheld receiver to open the operating menu.
8. Use the up/down buttons to highlight the **Easy Setup** menu item, and then press the **SET** button to enter it.
9. With **Scan New List** highlighted, press the **SET** button to start the frequency scan.
10. Use the up/down buttons to select a frequency bank with the most free channels, and then press the **SET** button.
11. Use the up/down buttons to select a frequency from the selected bank, and then press the **SET** button.
12. Hold the handheld receiver up to the transmitter with the infrared interfaces facing each other to transfer the scan results from the receiver to the transmitter. Once the transfer is complete, the selected frequency bank and channel appear in the transmitter display panel.
13. Press the jog dial on the transmitter (**SET**) to save the synchronized frequency.

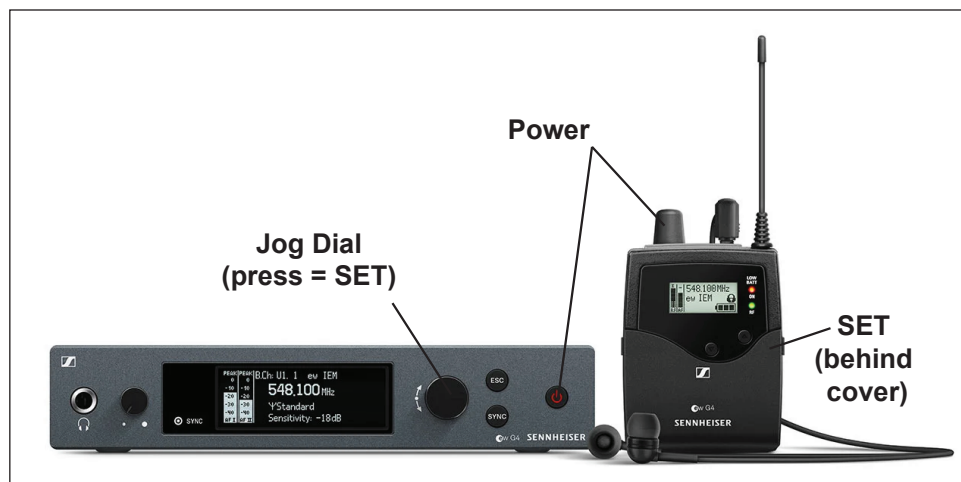


Figure 29: Sennheiser In-Ear Monitor System

Hearing Assist System Operation

Basic instructions are described below and shown in **Figure 30**. For more information, refer to the **Listen LT-800 Stationary Transmitter**, **Listen LR-4200 iDSP Receiver**, and **Listen LA-122 Universal Antenna Kit Users Manuals**.

1. Press **POWER** to turn on the transmitter if it is not already on.
2. Use the **CHANNEL SELECT** buttons to select a channel.
3. Plug the Ear Phone/Neck Loop lanyard into the 2 jacks on top of the receiver, and then connect the Ear Speaker into the jack on the lanyard.
4. Press and hold the power button for 1 second to turn on the receiver. (To turn off the receiver, press and hold the power button for 3 seconds.)
5. Verify the channel number matches on both the receiver and the transmitter. To change the channel, press and hold the up and down buttons at the same time for 5 seconds, and then use the up and down buttons to select the channel. Press the power button to save.

Note: Receivers use rechargeable Lithium-ion batteries. Always charge receivers at least 2.5 hours before the event.

6. Repeat steps 3–5 for any additional receivers.



Figure 30: Optional Hearing Assist System

4 Maintenance and Troubleshooting

Maintenance

- Unplug rack (and fiber box, if included) from power during periods of non-use.
- Store equipment in a clean dry place free from moisture, debris, and extreme temperatures.
- Keep announcers rack and equipment covered from dust/debris when not in use.
- Clean equipment annually or as needed using electronic equipment duster and a dry cloth.

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 individual components fail to work, refer to troubleshooting sections in the manufacturers' manuals. If the problem persists, please contact Daktronics for assistance.

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

Symptom/Condition	Possible Cause	Potential Solution
Announcer's interface microphone signal does not appear at mixer	Announcer's interface does not have power.	Verify the interface is plugged into live wall outlet.
	Announcer's interface is not plugged into appropriate inputs on the announcer's interface plate.	Plug announcer's interface into Aux 1 and Mic 1 on the announcer's interface plate (part # EN-2416).
	Improper mixer fader settings for MIC 1 .	Adjust mixer fader settings.
	The announcer's interface "push-to-talk" button is not being pressed.	Hold the MOMENTARY button while speaking into the microphone.
Announcer only hears self through headphones	Switch on the announcer's interface is set to MIC ONLY .	Switch to AUX IN .
Announcer hears nothing through headphones	Announcer's interface is not plugged into appropriate inputs on the announcer's interface plate.	Plug announcer's interface into Aux 1 and Mic 1 on the announcer's interface plate (part # EN-2416).
	AUX1 settings are improperly set on mixer.	Check MIC1 and AUX1 mixer settings.
	Announcer's interface HEADPHONE VOLUME is turned down.	Turn HEADPHONE VOLUME knob to an appropriate level.

Symptom/Condition	Possible Cause	Potential Solution
For Wireless		
No signal present at mixer from wireless microphones	The battery is not installed properly in the transmitter.	Reinstall the battery properly.
	The battery is not providing full power.	Charge or replace battery.
	The transmitter is not switched to the ON position.	Switch the transmitter to the ON position.
	The transmitter and receiver are set to different channels.	Set to same channel.
Interference on wireless equipment	Competing RF equipment within frequency band	<ol style="list-style-type: none"> 1. Scan for clearest group/channel on microphone receiver. 2. Switch wireless receiver and transmitter to an available clear channel. Refer to Shure Wireless Mic System Operation (p.12) or Electro-Voice Wireless Mic System Operation (p.14).
Low audio signal from wireless device	Improper gain adjustment on mixer input	Set proper mixer input gain levels.
	Improper gain adjustment on transmitter output	Set proper transmitter output gain levels. Refer to Shure QLX-D Wireless System User Guide or Electro-Voice RE3 UHF Wireless System User Manual .
Wireless microphone is cutting out	Battery not providing full power.	Charge or replace battery.
	Transmitter and receiver antenna are not in line of sight.	Relocate receiver antenna to be in clear line of sight to field.
		<p>Note: If signal goes through tinted glass, antennas may need to be relocated outside. Refer to the High Gain Antenna Kit Install Guide (DD2497934).</p> <p>Ensure referee is placing transmitter on belt properly. Refer to the Referee Microphone System Setup (DD2945863).</p>
	Proper wireless frequency is not selected for the area. <i>(Shure equipment only)</i>	<ol style="list-style-type: none"> 1. Go to http://www.shure.com/americas/support/tools/wireless-frequency-finder 2. Enter the LOCATION of the facility, select QLX-D as the WIRELESS SERIES, and then click SEARCH. 3. Ensure the wireless receiver is set to the proper Group & (Reserved) Channel for the Band in use, and then sync the transmitter(s) to the receiver.
Low wireless signal strength	If all of the above solutions have been performed, order a High Gain Antenna kit to increase signal strength.	

5 Replacement Parts

SSR-300 Components

Description	Part Number
Announcer's Interface	OA-1534-0093
Desk Microphone Stand	A-1954
Headphones, 1/4" Phone	A-1962
Dynamic Vocal Microphone	A-2790
Announcer's Interface; Push-to-Talk	A-3698
Wallpack Transformer, 12VAC; 6' Cord	A-3838825
2' XLR Cable	W-1917
15' Cable, Announcer Box to Mixer	W-2074
High Gain Antenna Kit	OA-1340-0325 (2) OA-1340-0326 (1)
Desk Microphone Stand	A-1954
Microphone Stand, Flange Mount	A-2888
13" Gooseneck	A-2889
Adapter; 1/4"-20 F to 5/8"-27 M	A-5092213
Passive Directional Antenna, Wind Resistant, 450-850 MHz	A-5357635
Locking Mic Stand Clutch; 4"; Black	A-5357642
50' Coaxial Antenna Cable w/ BNC	W-2476
Middle Atlantic PD-2415SC; 24 Outlet Power Strip	A-1937
Listen ADA Hearing Assist Transmitter/Receiver Kit	A-2016
In Ear Speaker (4 included in kit)	A-1908
FM Receiver (4 included in kit)	A-2050
Additional ADA In Ear Speaker and FM Receiver	OA-1340-2038
Media Player AM/FM Antenna	OA-1340-0359
Telex Wall Plate Microphone (WP300)	A-2082
Yamaha Self-Powered Monitor Speaker	A-2206
Cable, 10' 1/4" TRS	W-1340
Cable, 12' XLR M to F	W-1750
Single Muff Microphone Headset	A-2382
USB Audio Interface	A-2493
LTIBLOX Laptop Interface	A-2755
Shure Wireless Equipment	
Referee Mute Switch	A-3678
Cloth Pouch for Bodypack	A-3123
Wireless Receiver For Band G50	A-3590
Wireless Receiver For Band H50	A-3591
Wireless Handheld For Band G50	A-3593
Wireless Handheld For Band H50	A-3594
Wireless Bodypack For Band G50	A-3596
Wireless Bodypack For Band H50	A-3597
Referee Lapel Microphone (Omnidirectional)	A-3589
Referee Lapel Microphone (Cardioid)	A-3772
Referee Headset Microphone	A-3777613
Electro-Voice Wireless Equipment	
Wireless Bodypack; 5L (488-524 MHz)	A-5106407
Wireless Bodypack; 5H (560-596 MHz)	A-5106409

Description	Part Number
Wireless Handheld; 5L (488-524 MHZ)	A-5106412
Wireless Handheld; 5H (560-596 MHZ)	A-5106413
Wireless Receiver; 5L (488-524 MHZ)	A-5106414
Wireless Receiver; 5H (560-596 MHZ)	A-5106415
Referee Lapel Microphone (Omnidirectional)	A-5106417
Referee Lapel Microphone (Cardioid)	A-5106418
Cloth Pouch for Bodypack	A-5106427
Referee Mute Switch	A-5106428
Referee Headset Microphone	A-5106429
Passive Antenna Combiner	A-3121
Furry Windscreen	A-3662
Shure PSM900 Personal Monitor System; Band G6 – 470-506 MHz (Configured)	0A-1340-0358 (A-2307)
In Ear Monitor; EW-IEM-G4 (Configured)	0A-1340-1358
Feedback Reducer (Configured)	0A-1340-0353
Yamaha Digital Mixing Console (TF1)	A-3588787
Dante Expansion Card (NY64-D)	A-3588820
Yamaha Tio1608-D	A-3588853
Dust Cover for TF1 Mixer	A-3589421
Distribution Amplifier (BE 33)	A-5260709
@2 with mounting hardware	0A-2392-0010
Media Player; TASCAM CD-400U	A-4056173
Media Panel Jack Plate	EN-2156
Announcer's Interface Plate	EN-2416
Cable, 25' XLR M to F	W-1560
Cable, 5' XLR M to F	W-1627
Harness, Mixer Snake, 50'	W-3627434

Refer to **Section 6: Daktronics Exchange and Repair & Return Programs (p.25)** for information on exchanging or returning parts.

6 Daktronics Exchange and Repair & Return Programs

Exchange Program

The Daktronics Exchange Program is a service for quickly replacing key components in need of repair. If a component fails, Daktronics sends a replacement part to the customer who, in turn, returns the failed component to Daktronics. This decreases equipment downtime. Customers who follow the program guidelines explained below will receive this service.

Before contacting Daktronics, identify these important numbers:

Serial Number: _____

Model Number: _____

Job/Contract Number: _____

Date Manufactured/Installed: _____

Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps:

1. Call Daktronics Customer Service.

United States & Canada: 1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada: +1-605-275-1040

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

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

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

3. The defective or unused parts must be returned to Daktronics within 5 weeks of initial order shipment.

If any part is not returned within five (5) weeks, a non-refundable invoice will be presented to the customer for the costs of replenishing the exchange parts inventory with a new part. Daktronics reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair & Return Program

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

1. Call Daktronics Customer Service.

United States & Canada: 1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada: +1-605-275-1040

2. Receive a case number before shipping.

This expedites repair of the part.

3. Package and pad the item carefully to prevent damage during shipment.

Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing. Daktronics does not recommend using packing peanuts when shipping.

4. Enclose:

- name
- address
- phone number
- the case number
- a clear description of symptoms

5. Ship to:

Daktronics Customer Service

[Case #]

201 Daktronics Drive, Dock E

Brookings, SD 57006

Daktronics Warranty & Limitation of Liability

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

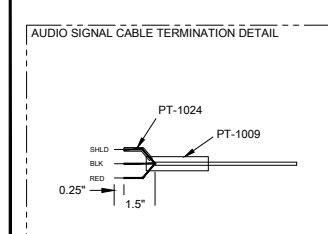
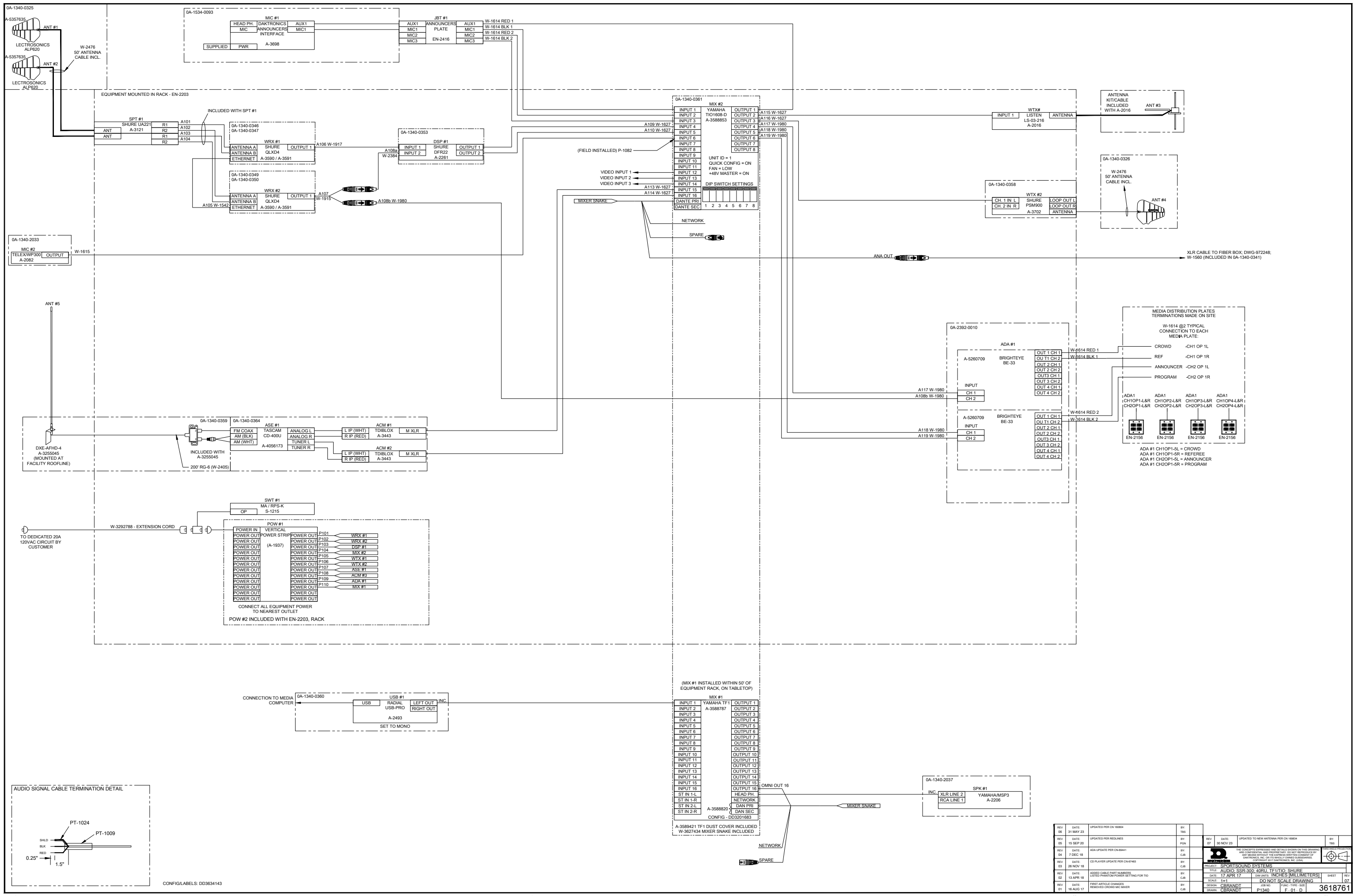
A Reference Drawings

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

Reference Drawings:

Audio; SSR-300; 40RU, TF1/TIO; Shure	DWG-3618761
Audio; SSR-300; 40RU, TF1/TIO, Layout.....	DWG-3618762
Audio; SSR-300; 40RU, TF1/TIO, Layout.....	DWG-5123881
Audio; SSR-300; 40RU, TF1/TIO; EV	DWG-5124210

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CONFIG LABELS: DD3634143

REV	DATE	UPDATED PER	BY	REV	DATE	UPDATED PER	BY
06	31 MAY 23	UPDATED PER CN 18884	TSB	07	30 NOV 23	UPDATED TO NEW ANTENNA PER CN 18884	TSB
05	15 SEP 20	UPDATED PER REVISIONS	PCN				
04	7 DEC 15	ADA UPDATE PER CN48411	CB				
03	26 NOV 18	CD-PLAYER UPDATE PER CN48403	CB				
02	13 APR 18	ADDED CABLE PART NUMBERS LISTED PREVIOUS POWER SETTING FOR TD	CB				
01	16 AUG 17	FIRST ARTICLE CHANGES REMOVED CROWN MIC MIXER	CB				

3618761

NOTES:

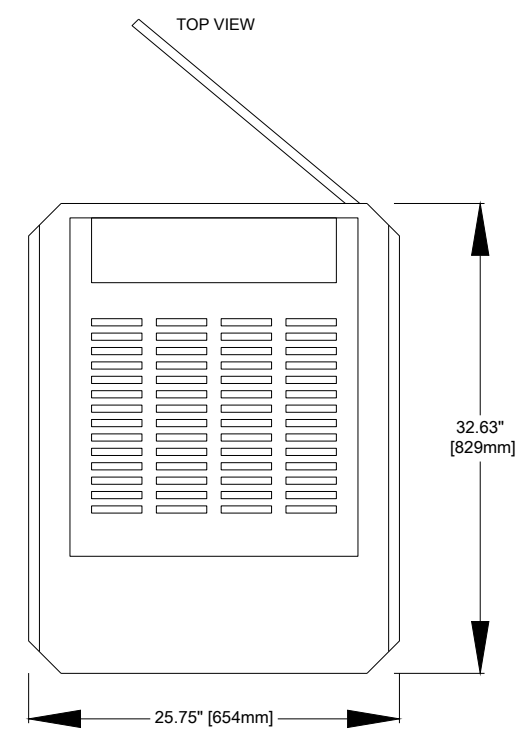
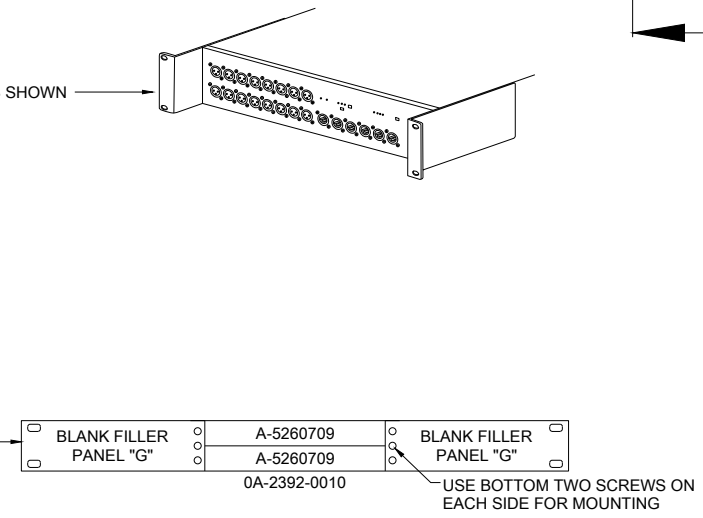
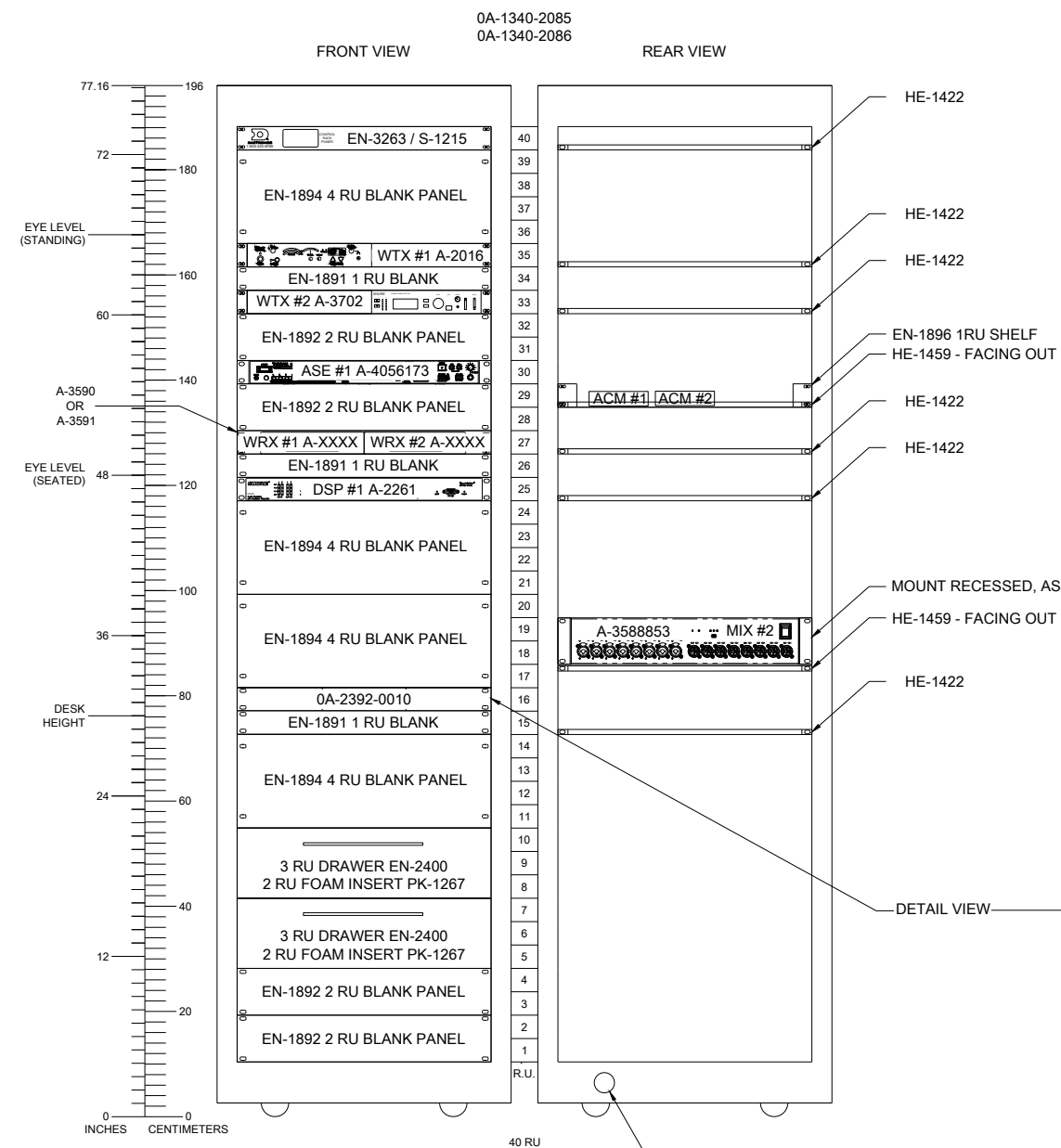
ALL SHELF MOUNTED EQUIPMENT ATTACHES USING AT-1059

ROUTE ALL POWER CABLES ON LEFT SIDE LOOKING FROM REAR.

ROUTE ALL NETWORK/SIGNAL CABLES ON RIGHT SIDE LOOKING FROM REAR MUST BE SECURED USING AT-1093 ONLY.

SEE DWG-03017093 FOR EN-2400 DRAWER LAYOUT

GATHER ALL MANUALS AND EXTRA PARTS PLACE THEM IN A LABELED BOX PER RACK BUILD AND SHIP TO SITE

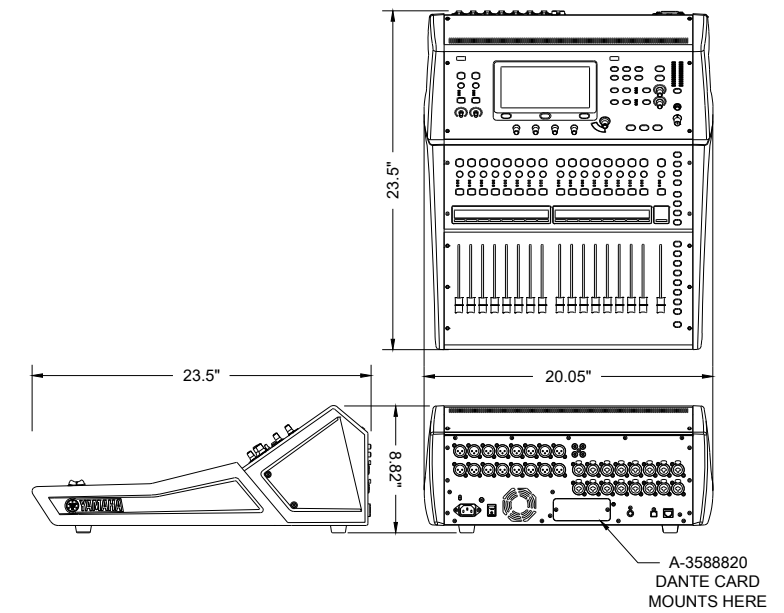


RACK - EN-2203
RACK SIDES - EN-2029

	HEAT LOAD (BTU/HR)	POWER LOAD (WATTS)	WEIGHT (LBS)	WEIGHT (KGS)
RACK TOTAL	836	245	250	114

1 - 20 AMP 120 VAC CIRCUIT

YAMAHA TF1 / A-3588787
TABLE TOP MIXING CONSOLE



REV	DATE	PER CHANGES	BY
05	31 MAY 23	PER CH-18990, REPLACED A-478097 WITH 0A-2392-0010	DHB
04	15 SEP 20	UPDATED PER REELINES	PCB
03	DATE	ADA UPDATE PER CH-6841	BY
02	28 NOV 18	CD PLAYER CHANGE PER CH-6743	BY
01	16 AUG 17	FIRST ARTICLE CHANGES, REMOVED ACMs, UPDATED ACME PER NOTES	BY

PROJECT	SPORTSOUND SYSTEMS		
TITLE	AUDIO, SSR-300, 40RU, TITITIO LAYOUT		
DATE	19 APR 17	SCALE	1=8" INCHES (MILLIMETERS)
SCALE	1=8"	DO NOT SCALE DRAWING	SHEET 06
DRAWN	GBRANDT	CHECKED	GBRANDT
DATE	P1340	FILE TYPE	3618762

NOTES:

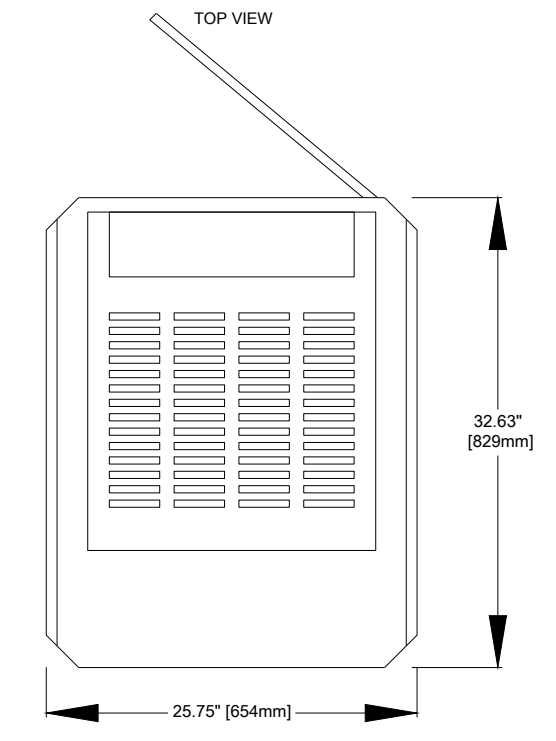
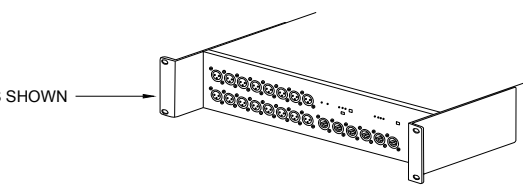
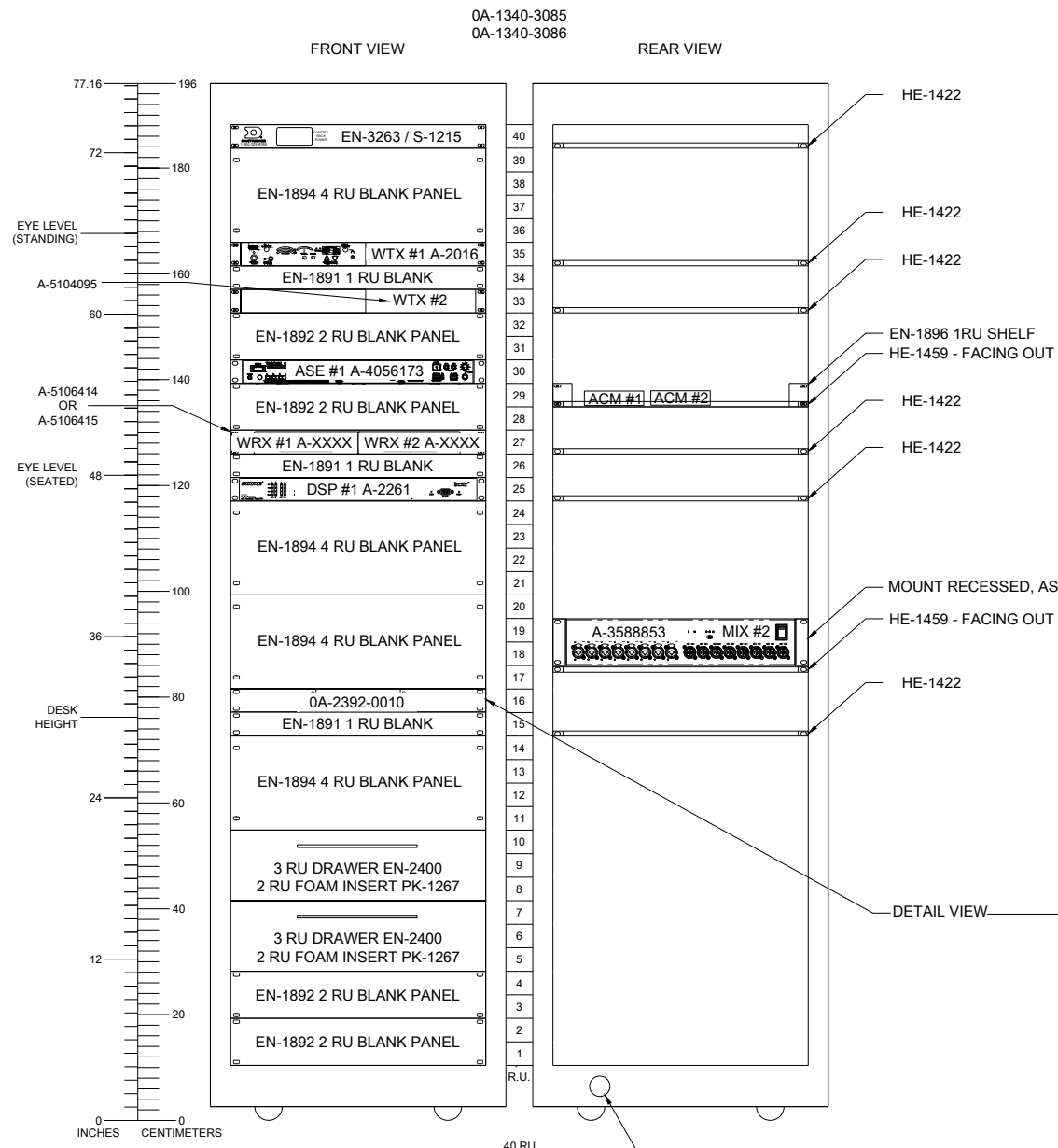
ALL SHELF MOUNTED EQUIPMENT ATTACHES USING AT-1059

ROUTE ALL POWER CABLES ON LEFT SIDE LOOKING FROM REAR.

ROUTE ALL NETWORK/SIGNAL CABLES ON RIGHT SIDE LOOKING FROM REAR MUST BE SECURED USING AT-1093 ONLY.

SEE DWG-05124110 FOR EN-2400 DRAWER LAYOUT

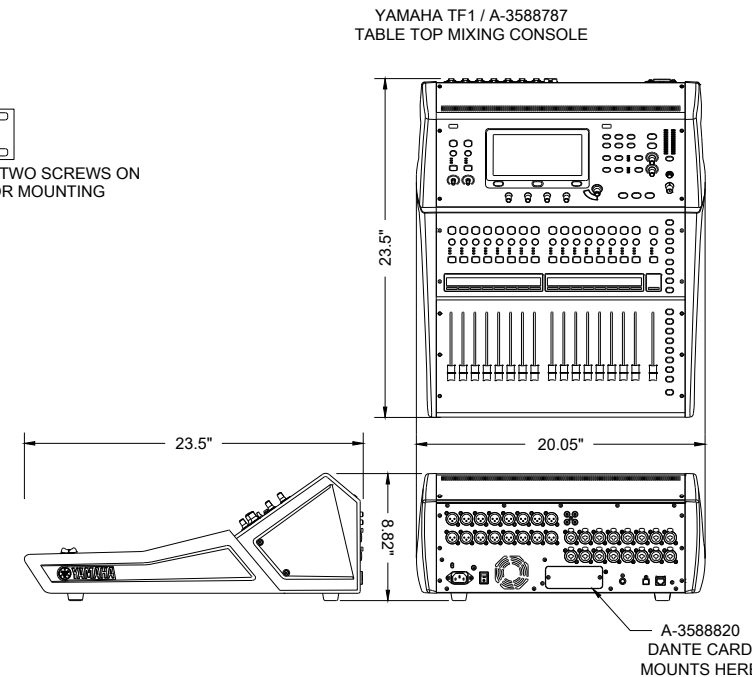
GATHER ALL MANUALS AND EXTRA PARTS PLACE THEM IN A LABELED BOX PER RACK BUILD AND SHIP TO SITE



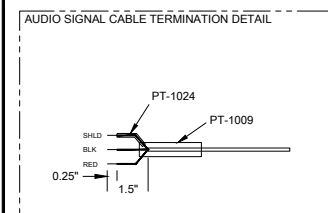
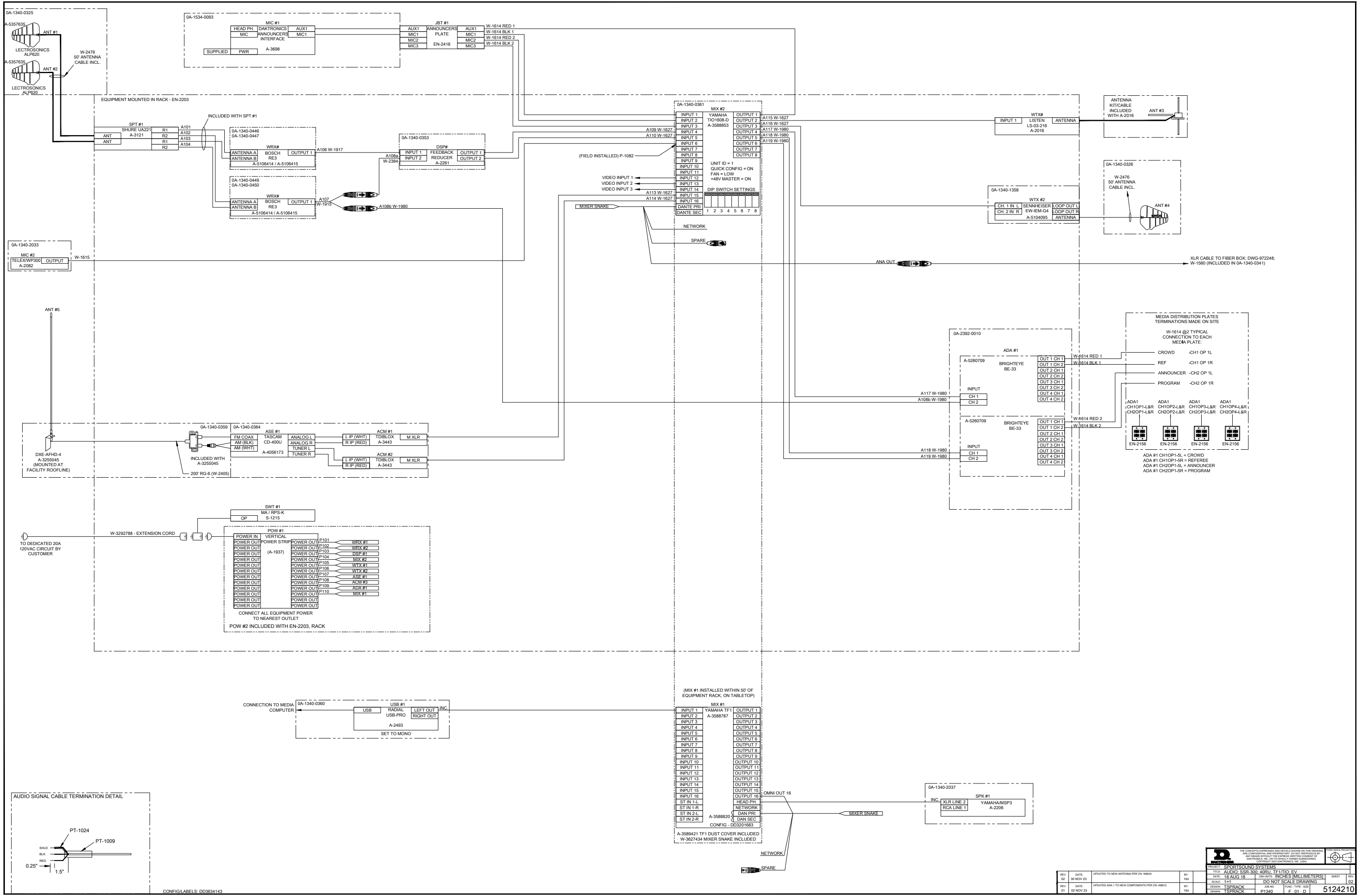
RACK - EN-2203
RACK SIDES - EN-2029

	HEAT LOAD (BTU/HR)	POWER LOAD (WATTS)	WEIGHT (LBS)	WEIGHT (KGS)
RACK TOTAL	836	245	250	114

1 - 20 AMP 120 VAC CIRCUIT



REV	DATE	PER CHANGES	BY
01	31 MAY 23	REPLACED A-2392-0010 WITH 0A-2392-0010	DMH
<p>THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE OUR PROPERTY AND NOT TO BE REPRODUCED OR COPIED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPORTSOUND SYSTEMS, INC. © 2023 SPORTSOUND SYSTEMS, INC. (SSS)</p>			
<p>SPORTSOUND SYSTEMS</p>			
TITLE	AUDIO, SSR-300, 40RU, TF1/TIO, LAYOUT	DATE	18 AUG 22
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DRAWN	TSPRACK	PLANT	F-01-D
SHEET			01
REV			01
5123881			



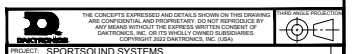
CONFIG LABELS: DD3634143

Version - 02.2

Description - N D AUDIO; 68R-800; 48RU; TP170

Lifecycle Status - Full Production

REV	DATE	DESCRIPTION	BY	APP	SCALE	TITLE	DATE	SCALE	BY	APP
02	30 NOV 23	UPDATED TO NEW ANTENNA PER OH-18894	TSS		1:1	AUDIO, SSR-300, 48RU, TF1/TIO, EV	18 AUG 18	1:1	TSS	
01	02 NOV 23	UPDATED ADA 1 TO NEW COMPONENTS PER OH-18882	TSS		1:1	AUDIO, SSR-300, 48RU, TF1/TIO, EV	18 AUG 18	1:1	TSS	



5124210

B Supplementary Manuals

Manuals for all standard and optional components are shipped with the audio system.

- If any product manuals are missing, lost, or damaged, visit the manufacturer's website or perform a web search for the component model number.
- When viewing a digital copy of this manual from www.daktronics.com/manuals, click on the appropriate manufacturer link below to view a component's manual. If the link is broken, visit the manufacturer's website or perform a web search for the component model number.

Component	Model Number	Manufacturer / Manual
Audio Mixer	TF1	Yamaha www.yamaha.com
CD/Media Player	DN-300Z	Denon www.denon.com
	CD-400U	Tascam www.tascam.com
Wireless Receiver System	QLX-D	Shure www.shure.com
	RE3	Electro-Voice www.electrovoice.com
Directional Antenna	PA805	Shure www.shure.com
	ALP620	Lectrosonics www.lectrosonics.com
Wireless Personal Stereo Monitor System	PSM900	Shure www.shure.com
	EW IEM G4	Sennheiser www.sennheiser.com
Feedback Reducer	DFR22	Shure www.shure.com
	AFS2	DBX www.dbxpro.com
Distribution Amplifier	DA416-PHX	ATI www.atiaudio.com
	DA216S	Rane www.rane.com
	VM-1610	Kramer www.kramerav.com
	BE 33	BrightEye www.ensembledesigns.com
Stationary FM Transmitter	LT-800	Listen www.listentech.com
Portable FM Receiver	LR-4200	Listen www.listentech.com
Universal Antenna Kit	LA-122	Listen www.listentech.com
USB Audio Interface	USB-Pro	Radial Engineering www.radialeng.com

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C Daktronics Warranty & Limitation of Liability

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

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DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

This Warranty and Limitation of Liability (the “Warranty”) sets forth the warranty provided by Daktronics with respect to the Equipment. By accepting delivery of the Equipment, Purchaser and End User agree to be bound by and accept these terms and conditions. Unless otherwise defined herein, all terms within the Warranty shall have the same meaning and definition as provided elsewhere in the Agreement.

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

1. Warranty Coverage.

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

“Substantial Completion” means the operational availability of the Equipment to the End User in accordance with the Equipment’s specifications, without regard to punch-list items, or other non-substantial items which do not affect the operation of the Equipment

- B. Daktronics’ obligation under this Warranty is limited to, at Daktronics’ option, replacing or repairing, any Equipment or part thereof that is found by Daktronics not to conform to the Equipment’s specifications. Unless otherwise directed by Daktronics, any defective part or component shall be returned to Daktronics for repair or replacement. This Warranty does not include on-site labor charges to remove or install these components. Daktronics may, at its option, provide on-site warranty service. Daktronics shall have a reasonable period of time to make such replacements or repairs and all labor associated therewith shall be performed during regular working hours. Regular working hours are Monday through Friday between 8:00 a.m. and 5:00 p.m. at the location where labor is performed, excluding any holidays observed by Daktronics.
- C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. All such items shall be shipped by End User DDP Daktronics designated facility per Incoterms® 2020. If returned Equipment is repaired or replaced under the terms of this Warranty, Daktronics will prepay ground transportation charges back to End User and shall ship such items DDP End User’s designated facility per Incoterms® 2020; otherwise, End User shall pay transportation charges to return the Equipment back to the End User and such Equipment shall be shipped Ex Works Daktronics designated facility per Incoterms® 2020. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. End User shall pay any upgraded or expedited transportation charges
- D. Any replacement parts or Equipment will be new or serviceably used, comparable in function and performance to the original part or Equipment and warranted for the remainder of the Warranty Period. Purchasing additional parts or Equipment from the Seller does not extend the Warranty Period.
- E. Defects shall be defined as follows. With regard to the Equipment (excepting LEDs), a “Defect” shall refer to a material variance from the design specifications that prohibit the Equipment from operating for its intended use. With respect to LEDs, “Defects” are defined as LED pixels that cease to emit light. Unless otherwise expressly provided, this Warranty does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Notwithstanding the foregoing, in no event does this Warranty include LED pixel degradation caused by UV light. This Warranty does not provide for the replacement or installation of communication methods including but not limited to, wire, fiber optic cable, conduit, trenching, or for the purpose of overcoming local site interference radio equipment substitutions.

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

THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

2. Exclusion from Warranty Coverage

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

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

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altered, scratched, or fractured electronic traces; missing or gauged solder pads; cuts or clipped wires; crushed, cracked, punctured, or bent circuit boards; or tampering with any electronic connections, provided that such damage is not caused by personnel of Daktronics or its authorized repair agents;

- C. damage caused by the failure to provide a continuously suitable environment, including, but not limited to: (i) neglect or misuse; (ii) improper power including, without limitation, a failure or sudden surge of electrical power; (iii) improper air conditioning, humidity control, or other environmental conditions outside of the Equipment's technical specifications such as extreme temperatures, corrosives and metallic pollutants; or (iv) any other cause other than ordinary use;
- D. damage caused by fire, flood, earthquake, water, wind, lightning or other natural disaster, strike, inability to obtain materials or utilities, war, terrorism, civil disturbance, or any other cause beyond Daktronics' reasonable control;
- E. failure to adjust, repair or replace any item of Equipment if it would be impractical for Daktronics personnel to do so because of connection of the Equipment by mechanical or electrical means to another device not supplied by Daktronics, or the existence of general environmental conditions at the site that pose a danger to Daktronics personnel;
- F. statements made about the product by any salesperson, dealer, distributor or agent, unless such statements are in a written document signed by an officer of Daktronics. Such statements as are not included in a signed writing do not constitute warranties, shall not be relied upon by End User and are not part of the contract of sale;
- G. damage arising from the use of Daktronics products in any application other than the commercial and industrial applications for which they are intended, unless, upon request, such use is specifically approved in writing by Daktronics;
- H. replenishment of spare parts. In the event the Equipment was purchased with a spare parts package, the parties acknowledge and agree that the spare parts package is designed to exhaust over the life of the Equipment, and as such, the replenishment of the spare parts package is not included in the scope of this Warranty;
- I. security or functionality of the End User's network or systems, or anti-virus software updates;
- J. performance of preventive maintenance;
- K. third-party systems and other ancillary equipment, including without limitation front-end video control systems, audio systems, video processors and players, HVAC equipment, batteries and LCD screens;
- L. incorporation of accessories, attachments, software or other devices not furnished by Daktronics; or
- M. paint or refinishing the Equipment or furnishing material for this purpose.

3. Limitation of Liability

- A. Daktronics shall be under no obligation to furnish continued service under this Warranty if alterations are made to the Equipment without the prior written approval of Daktronics.
- B. It is specifically agreed that the price of the Equipment is based upon the following limitation of liability. In no event shall Daktronics (including its subsidiaries, affiliates, officers, directors, employees, or agents) be liable for any claims asserting or based on (a) loss of use of the facility or equipment; lost business, revenues, or profits; loss of goodwill; failure or increased cost of operations; loss, damage or corruption of data; loss resulting from system or service failure, malfunction, incompatibility, or breaches in system security; or (b) any special, consequential, incidental or exemplary damages arising out of or in any way connected with the Equipment or otherwise, including but not limited to damages for lost profits, cost of substitute or replacement equipment, down time, injury to property or any damages or sums paid to third parties, even if Daktronics has been advised of the possibility of such damages. The foregoing limitation of liability shall apply whether any claim is based upon principles of contract, tort or statutory duty, principles of indemnity or contribution, or otherwise
- C. In no event shall Daktronics be liable for loss, damage, or injury of any kind or nature arising out of or in connection with this Warranty in excess of the Purchase Price of the Equipment. The End User's remedy in any dispute under this Warranty shall be ultimately limited to the Purchase Price of the Equipment to the extent the Purchase Price has been paid.

4. Assignment of Rights

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

5. Governing Law; Election of Remedies

- A. The rights and obligations of the parties under this Warranty shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sales of Goods of 1980. The parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce each of the parties' rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Warranty, without regard to conflict of law principles.
- B. Any dispute, controversy or claim arising from or related to this Warranty, the parties shall first attempt to settle through negotiations. In the event that no resolution is reached, then such dispute, controversy, or claim shall be resolved by final and binding arbitration under the Rules of Arbitration of the International Chamber of Commerce. The language of the arbitration

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

6. Availability of Extended Service Agreement

- A. For End User's protection, in addition to that afforded by the warranties set forth herein, End User may purchase extended warranty services to cover the Equipment. The Extended Service Agreement, available from Daktronics, provides for electronic parts repair and/or on-site labor for an extended period from the date of expiration of this warranty. Alternatively, an Extended Service Agreement may be purchased in conjunction with this Warranty for extended additional services. For further information, contact Daktronics Customer Service at 1-800-DAKTRONics (1-800-325-8766).

Additional Terms applicable to sales outside of the United States

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

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

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

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