INSTRUCTION MANUAL

PDR Portable Digital Audio Recorder





microSDHC Logo is a trademark of SD-3C, LLC

Quick Start Steps

- 1) Install good battery and turn the power on (see pp. 3, 5).
- 2) Insert microSD memory card and format it with the PDR (see p. 3)
- 3) Sync (jam) the timecode source (see pp. 6, 7).
- 4) Connect microphone or audio source.
- 5) Set input gain (see Mic Level p. 7).
- 6) Select record mode (see p. 7).
- 7) Set output level (see p. 7).
- 8) Begin recording (see pp. 4-7).

Fill in for your records:

Serial Number:

Purchase Date:



Introduction

Congratulations on your purchase of the PDR (Personal Digital Recorder). On occasion, there is a need to record audio in circumstances where a traditional full sized recorder is impractical or even impossible. Whether it might be an extreme sport, a public speaking event, a wedding or a next to impossible location sound recording, the PDR is designed for the difficult audio capture. When talent is at an extreme distance or using a wireless microphone is not practical (knights in armor come to mind), the PDR can travel with your subject and record professional quality audio, synchronized with timecode. The recorder is unobtrusive and easily hidden in garments and costumes, and easy to conceal when used as a "plant" microphone to capture environmental or location sound.

Broadcast Wave Format

With a timecode sync at the start of the production, the audio tracks include time data to make is easy to synchronize them in the timeline of a video clip. The industry standard BWF (.wav) file format is compatible with essentially any audio or video editing software.

Versatility and Compatibility

The PDR recorder can be tethered to a camera to capture a higher quality or backup audio recording. The headphone output doubles as a line output to feed the AV input on a camera.

The input connector is the industry standard TA5M jack that accepts any mic or line level signal, and provides bias voltage to power a wide variety of electret lavaliere microphones. The input connection and wiring is compatible with microphones pre-wired for "compatible" and "servo bias" configurations to feed 5-pin inputs on Lectrosonics wireless microphone transmitters.

Setup and adjustment is made through an intuitive interface provided by the keypad and LCD. In keeping with typical Lectrosonics mechanical designs, the housing is machined from a solid aluminum billet for the ruggedness needed in field production.

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CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

Battery Installation

The audio recorder is powered by a single AAA lithium battery, offering over six hours of operation.

We recommend using lithium batteries for longest life. Alkalines will offer from 2 to 3.5 hours. Zinc-carbon batteries marked "heavy-duty" or "long-lasting" are not adequate.

The battery status indicator circuitry requires compensation for the difference in voltage drop between alkaline and lithium batteries across their usable life, so it's important to select the correct battery type in the menu.

Push inward on the release catches to open the door.



Insert the battery according to the markings inside the battery compartment door. The (+) pos. end of the battery is oriented as shown here.



Compatible memory cards

The card should be a microSDHC memory card, speed class 10, or any UHS speed class, 4GB to 32GB. The recorder supports the UHS-1 bus type, marked on the memory card with an I symbol.

An example of typical markings:



Installing the card

The card slot is covered by a flexible cap. Open the cap by pulling out on the side flush with the housing.





Formatting the SD Card

SD cards come pre-formatted with a FAT32 file system which is optimized for good performance. The PDR relies on this performance and will never disturb the underlying low level formatting of the SD card. When the PDR "formats" a card, it performs a function similar to the WIndows "Quick Format" which deletes all files and prepares the card for recording. The card can be read by any standard computer but if any write, edit or deletions are made to the card by the computer, the card must be re-formatted with the PDR to prepare it again for recording. The PDR <u>never low level formats</u> a card and we strongly advise against doing so with the computer.

To format the card with the PDR, select *Format Card* in the menu and press MENU/SEL on the keypad.

See pages 4-7 for details on navigating the menus.

Features and Controls



The audio input circuitry is the essentially the same as on Lectrosonics SM and L Series transmitters. Any microphone wired as Lectrosonics "compatible" or "servo bias" will work with the PDR. See page 10 for details.

If the unit is booted with an unformatted SD card, the prompt to format the card will be the first window to appear after the boot sequence completes. Follow the screen instructions to format the card. If the card has an interrupted recording on it, the Recovery screen will be the first screen to appear (see page 8).

If there is no card or the card has good formatting, the first display that appears on the LCD after the recorder is turned on is the Main Window. Settings are accessed by pressing MENU/SEL on the keypad, and then using the UP and DOWN arrow buttons, and **BACK** button to navigate the menu items and select functions. The buttons also provide alternate functions as labeled by the icons on the LCD.



Functions indicated by the icons on the LCD are activated by pressing the adjacent buttons on the keypad

Icons in each corner of the LCD define the alternate functions of the adjacent buttons on the keypad. For example, in the Main Window shown above, recording is started by pressing the UP arrow button on the keypad, in which case, the display switches to the Recording Window. In the Recording Window, the functions of three keypad buttons change to provide the needed operations during recording.



In the Playback Windows, the icons on the LCD change to provide the functions needed during playback. There are three variants of the playback window:

- · active playback
- · paused playback in the middle of the recording
- · paused playback at the end of the recording

The icons in the corners of the LCD will change depending on the status of the playback.



NOTE: Refer to the Operating Instructions section for details on the specific button functions and operations in the Main, Recording and Playback Windows.

Operating Instructions

Powering On

Press and hold the Power Button until the Lectrosonics logo appears on the LCD.

Powering Off

Power can be turned off by holding the Power Button in and waiting for the countdown. The power off will not work while the unit is recording (stop recording first before powering down) or if the front panel has been locked out by the operator (unlock the front panel first).

If the power button is released before the countdown reaches 3, the unit will remain turned on and the LCD will return to the same screen or menu that was displayed previously.

Main Window

The Main Window provides a view of the battery status, current timecode and the input audio level. Icons in the four corners of the screen provide access to the Menu, Card Info (available recording time if SD card installed, PDR info if no card in unit), and the **REC** (record start) and **LAST** (play last clip) functions. These functions are invoked by pressing the adjacent keypad button as shown on the previous page.



Recording Window

To start recording, press the *REC* button in the top right corner of the Main Window. The screen will switch to the Recording Window.



Playback Window

Icons in the Playback Window provide the common button functions used for playback on a recording device. The icons will change depending on the status of the playback: active playback, paused in the middle, or paused at the end.



Navigating Menus

The LCD and keypad interface makes it easy to browse the menus and make the necessary selections. The setup screens allow the selection of a value or mode as depicted below.

Press MENU/SEL on the keypad to enter the menu structure. Use the UP ⁽¹⁾ and DOWN ⁽¹⁾ arrow buttons to select the menu item. Press MENU/SEL to enter the setup screen.



TC Jam (jam timecode)

When TC Jam is selected, **JAM NOW** will flash on the LCD and the unit is ready to be synced with the timecode source. Connect the timecode source and the sync will take place automatically. When the sync is successful, a message will be displayed to confirm the operation.

WARNING: Take your headphones off when jamming timecode. DO NOT leave timecode cable in place during recording.

Timecode defaults to zero at power up if no timecode source is used to jam the unit. Timecode data is logged into the BWF metadata.

Output

The output can be configured as a line level output or as a headphone output. Press MENU/SEL to highlight the selected output type and use the UP and DOWN arrows to change the setting. Press BACK or MENU/SEL to save the setting.



Mic Level



Use the UP and DOWN arrow buttons to adjust the input gain so loud peaks just touch full level. In the Split Gain mode, there is no limiter in the signal path, so a *C* symbol will appear next to *0* on the level meter to indicate clipping. In the HD Mode, the limiter circuit in the

C or L appears here

input provides 30 dB of clean limiting, so an *L* symbol will appear at the onset of limiting.

Lock/Unlock

The LOCKED mode protects the recorder from accidental changes to its settings. When the recorder is locked, pressing either arrow button or the power button will result in a "LOCKED can use menu to unlock" message on the LCD screen. The unit can be unlocked using the Lock/Unlock setup screen. Locked mode only affects the keypad. The "dweedle tone" remote control will still work.

Files/Play

The recorded files are listed in order of newest to oldest to select the desired one for playback. Use the UP and DOWN arrow buttons to navigate through the listing and select the desired file. Press MENU/SEL to open the playback window. Date, time, recording mode, length and timecode will be displayed. The icon in the lower right corner of the display is the prompt to press the DOWN arrow button on the keypad to begin playback.

Format Card

This item erases the recorded files on the card and prepares the card for recording.

Record Mode

HD Mono records the audio in a single file. Split Gain records two different channels in the file, one at the normal level and another at -18 dB as a "safety" track that can be used in place of the normal track in the event that overload distortion (clipping) has occurred on the normal track. In either mode, long recordings are broken into sequential segments so most recordings will not be a single file.

File Naming

Filenames of the recordings can be set as a progressive sequence of numbers or as the time of the internal clock at the beginning of the recording.

Backlight

The recorder backlight can be set to turn off after either 5 minutes or 30 seconds, or stay on continuously.

Bat Type

Choose either Alkaline or Lithium battery type. The voltage of the installed battery will be shown at the bottom of the display.

Date & Time

Set the date and time on the recorder by using the MENU/SEL button to toggle through the options and the UP and DOWN arrow buttons to choose the appropriate number. Date and time are preserved during battery changes. Date and time are independent of the timecode. Date and time are preserved in the file attributes, timecode is written inside the file. The Main Window will indicate the time elapsed since the last power up or the timecode if it has been "jammed." If, however, the unit has been left without power for more than 90 minutes, the time and date will need to be reset.

Remote

The recorder can be configured to respond to "dweedle tone" signals from the Lectro RM remote control or to ignore them. Use the arrow buttons to toggle between "yes" (remote control on) and "no" (remote control off). The default setting is "no."

Default

To return the recorder to its factory default settings, use the UP and DOWN arrow buttons to choose **Yes**.

Firmware Updates

Firmware updates are made using the micro SD card. Download and copy the following firmware update files to a drive on your computer.

• *pdr vX_xx.ldr* is the firmware update file, where "X_xx" is the revision number.

In the computer:

- 1) Perform a Quick Format of the card. When the quick format on the computer is complete, close the dialogue box and open the file browser.
- Copy the *pdr v1_xx.ldr* file to the micro SD card, then eject the card from the computer.

In the PDR:

- 1) Leave the PDR turned off and insert the micro SD card into the slot.
- 2) Hold down both the UP and DOWN arrow buttons on the recorder and turn the power on.
- 3) The recorder will boot up into the firmware update mode with the following options on the LCD:
 - **Run** Skips the update and starts up the recorder in the normal operating mode.
 - **Update** Displays a list of the .ldr files on the card.
 - **Power Off** Exits the update mode and turns the power off.

NOTE: If the unit screen shows **FORMAT CARD?**, power the unit off and repeat step 3. You were not properly pressing UP, DOWN and Power at the same time.

- 4) Use the arrow buttons to select Update. Use the UP and DOWN arrow buttons to select the desired file and press MENU/SEL to install the firmware. The LCD will display status messages while the firmware is being updated.
- 5) When the update is complete, the LCD will display this message: UPDATE SUCCESSFUL REMOVE CARD. After the card is removed, the LCD will return to the three options shown in step 4 above.
- 6) Select *Power Off* and press MENU/SEL to finish the update.
- If you re-insert the update card and turn the power back on for normal use, the LCD will display a message prompting you to format the card:

Format Card? (files lost) • No • Yes

If you wish to record audio on the card, you must re-format it. Select **Yes** and press MENU/SEL to format the card. When the process is complete, the LCD will return to the Main Window and be ready for normal operation.

If you choose to keep the card as is, you may remove the card at this time. The firmware update process is managed by a bootloader program - on very rare occasion, you might need to update the bootloader.

• pdrboot vX_xx.ldr is the bootloader file

Follow the same process as with a firmware update and select the pdrboot file. Be forewarned, this can corrupt your unit if interrupted. Don't update the bootloader unless advised to do so by the factory (not for the faint of heart).

Recovery Process

In the event of a battery failure while the unit is recording, a recovery process is available to restore the recording in proper format. When a new battery is installed and the unit is turned back on, the recorder will detect the missing data and prompt you to run the recovery process. *The file must be recovered or the card will not be usable in the PDR.*

First it will read:

Interrupted Recording Found

The LCD message will ask:

Recover? for safe use see manual

You will have the choice of **No** or **Yes** (No is selected as the default). If you wish to recover the file, use the DOWN arrow button to select Yes, then press MENU/ SEL. The next window will give you the option to recover all or part of the file. The default times shown are the best guess by the processor where the file stopped recording. The hours will be highlighted and you can either accept the value shown or select a longer or shorter time. If you are unsure, simply accept the value shown as the default. Press MENU/SEL and the minutes are then highlighted. You can increase or decrease the time to be recovered. In most cases you can simply accept the values shown and the file will be recovered. After you have made your time choices, press MENU/ SEL again. A small GO! symbol will appear next to the DOWN arrow button. Pressing the button will initiate the file recovery. The recovery will happen guickly and you will see:

Recovery Successful

Special Note:

Files under 4 minutes long may recover with additional data "tacked on" to the end of the file (from previous recordings or data if the card had been used previously). This can be effectively eliminated in post with a simple delete of the unwanted extra "noise" at the end of the clip. The minimum recovered length will be one minute. For example, if the recording is only 20 seconds long, and you have selected one minute there will be the desired 20 recorded seconds with an additional 40 seconds of other data and or artifacts in the file. If you are uncertain about the length of the recording you can save a longer file - there will simply be more "junk" at the end of the clip.

LectroRM

By New Endian LLC

LectroRM is a mobile application for iOS and Android operating systems. Its purpose is to remotely control Lectrosonics transmitters and PDR recorder, including:

- SM Series
- WM
- L Series
- PDR (pending not active as of Oct 13, 2016)

The app remotely changes settings on these units through the use of encoded audio tones, which when received by the attached microphone, will alter the configured setting. The app was released by New Endian, LLC. The app is available for download and sells on the Apple App Store and Google Play Store.

LectroRM's remote control mechanism is the use of an audio tone sequence of ("dweedle tone") that are interpreted by the transmitter as a configuration change. The settings available in LectroRM for the PDR are:

- Record
- Stop
- Lock/unlock
- · Absolute or relative level controls

The PDR tones are unique to the PDR and will not react to "dweedle tones" meant for Lectrosonics transmitters.

The user interface involves selecting the audio sequence related to the desired change. Each version has an interface for selecting the desired setting and the desired option for that setting. Each version also has a mechanism to prevent accidental activation of the tone.

iOS Version



This iPhone version keeps each available setting on a separate page with the list of options for that setting. The "Activate" toggle switch must be enabled to show the button which will then activate the audio. This iOS version's default orientation is upside-down but can be configured to orient right-side up. The purpose for this is to orient the device's speaker, which is at the bottom of the device, closer to the recorder's microphone.

Android Version



The Android version keeps all settings on the same page and allows the user to toggle between the activation buttons for each setting. The activation button must be long pressed to activate. The Android version also allows users to keep a configurable list of full sets of settings.

Activation

For a Lectrosonics recorder or transmitter to respond to remote control audio tones, the unit must meet certain requirements:

- The microphone must be within range.
- The recorder must be configured to enable remote control activation.

Please be aware this app is not a Lectrosonics product. It is privately owned and operated by New Endian LLC, <u>www.newendian.com</u>.

5-Pin Input Jack Wiring

The wiring diagrams included in this section represent the basic wiring necessary for the most common types of microphones and other audio inputs. Some microphones may require extra jumpers or a slight variation on the diagrams shown.

It is virtually impossible to keep completely up to date on changes that other manufacturers make to their products, thus you may encounter a microphone that differs from these instructions. If this occurs please call our toll-free number listed under Service and Repair in this manual or visit: www.lectrosonics.com/US



Audio input jack wiring:

and line level inputs.

Shield (ground) for positive biased electret lavaliere

microphones. Shield (ground) for dynamic microphones

Bias voltage source for positive biased electret lavaliere

microphones that are not using servo bias circuitry and

voltage source for 4 volt servo bias wiring.

PIN 1

PIN 2

PIN 3

Installing the Connector:

- 1) If necessary, remove the old connector from the microphone cable.
- 2) Slide the dust boot onto microphone cable with the large end facing the connector.
- If necessary, slide the 1/8-inch black shrink tubing onto the mircrophone cable. This tubing is needed for some smaller diameter cables to ensure there is a snug fit in the dust boot.
- Slide the backshell over the cable as shown above. Slide the insulator over the cable before soldering the wires to the pins on the insert.
- 5) Solder the wires and resistors to the pins on the insert according to the diagrams shown in *Wiring Hookups for Different Sources.* A length of .065 OD clear tubing is included if you need to insulate the resistor leads or shield wire.

Note: If you use the dust boot, remove the rubber strain relief that is attached to the TA5F cap, or the boot will not fit over the assembly.

- 6) If necessary, remove the rubber strain relief from the TA5F backshell by simply pulling it out.
- Seat the insulator on the insert. Slide the cable clamp over the and of the insulator and crimp as shown on the next page.
- 8) Insert the assembled insert/insulator/clamp into the latchlock. Make sure the tab and slot align to allow the insert to fully seat in the latchlock. Thread the backshell onto the latchlock.

Microphone Cable Termination for Non-Lectrosonics Microphones

TA5F Connector Assembly



Mic Cord Stripping Instructions



Crimping to Shield and Insulation



which is different from what is shown here.

Optional Accessories

Belt Clip (TBA)

MC70 line level adapter cable. Male 3.5 mm TRS to female TA5F; 14 inches long. Feeds line level signal to pin 5 on the TA5M input jack.



MC35 line level adapter cable. Female XLR to female TA5F; 37 inches long. Feed line level signal to pin 5 on the TA5M jack.



 $\rm MC41$ mic level adapter cable. Female XLR to female TA5F; 37 inches long. Feeds mic level signal to pin 3 on the TA5M jack.



Specifications

Recording

Storage media: File format: A/D converter:

Sampling rate: Recording modes/Bit rate:

Input

Туре:

Input level:

Input connector:

Headphone/Line Output

Connector: Maximum level:

Audio Performance

Frequency response: Signal to Noise ratio:

Distortion:

Time Code

Connector: Signal voltage: Input impedance: Format:

Battery Power/Life

Power consumption: Battery type:

AAA Lithium: AAA alkaline

Operating temperature range

Celsius: Fahrenheit:

Dimensions and Weight

Dimensions:

Weight:



microSDHC memory card*

.wav files (BWF - Broadcast Wave File) 24-bit (with additional 8 bits for wav format compatibility) 48 kHz

HD mono mode: 192 kb/s
Split gain mode: 384 kb/s

Analog mic/line level compatible; servo bias preamp for 2V and 4V lavaliere microphones

- Dynamic mic: 0.5 mV to 50 mV
- Electret mic: Nominal 2 mV to 300 mV
 Line level: 17 mV to 1.7 V

TA5M 5-pin male

3.5 mm mini jack; TR -3 dBu (575 mV RMS)

20 Hz to 20 kHz; +0.5/-1.5 dB

- HD mono mode: 105 dB A-weighted
- Split gain mode: 80 dB A-weighted
- < 0.035%

5-pin LEMO 0.5 Vp-p to 5Vp-p 10 k Ohms SMPTE 12M - 1999 compliant

300 mW AAA Lithium non-rechargeable (recommended) 6.5 hours typical 2 to 3 hours; varies with brand

-20 to 50 -5 to 122

Inches: 2.37H x 2.14W x 0.67D Millimeters: 60H x 54W x 17D 71 grams (2.5 ozs.) w/ AAA Lithium battery

*microSDHC Logo is a trademark of SD-3C, LLC

Available Recording Time

Using a microSDHC memory card, the available recording times are as follows. The actual time may vary slightly from the values listed in the tables.

HD mono mode

Size	Hrs:Min
8GB	11:12
16GB	23:00
32GB	46:07

Split gain mode		
Size	Hrs:Min	
8GB	5:36	
16GB	11:30	
32GB	23:03	

Service and Repair

If your recorder malfunctions, you should attempt to correct or isolate the trouble before concluding that the equipment needs repair. Make sure you have followed the setup procedure and operating instructions and check the interconnecting cables.

We strongly recommend that you **do not** try to repair the equipment yourself and **do not** have the local repair shop attempt anything other than the simplest repair. If the repair is more complicated than a broken wire or loose connection, send the unit to the factory for repair and service. Don't attempt to adjust any controls inside the units. Once set at the factory, the various controls and trimmers do not drift with age or vibration and never require readjustment. **There are no adjustments inside that will make a malfunctioning unit start working**.

LECTROSONICS' Service Department is equipped and staffed to quickly repair your equipment. In warranty repairs are made at no charge in accordance with the terms of the warranty. Out-of-warranty repairs are charged at a modest flat rate plus parts and shipping. Since it takes almost as much time and effort to determine what is wrong as it does to make the repair, there is a charge for an exact quotation. We will be happy to quote approximate charges by phone for out-of-warranty repairs.

Returning Units for Repair

For timely service, please follow the steps below:

- **A.** DO NOT return equipment to the factory for repair without first contacting us by email or by phone. We need to know the nature of the problem, the model number and the serial number of the equipment. We also need a phone number where you can be reached 8 A.M. to 4 P.M. (U.S. Mountain Standard Time).
- **B.** After receiving your request, we will issue you a return authorization number (R.A.). This number will help speed your repair through our receiving and repair departments. The return authorization number must be clearly shown on the **outside** of the shipping container.
- **C.** Pack the equipment carefully and ship to us, shipping costs prepaid. If necessary, we can provide you with the proper packing materials. UPS is usually the best way to ship the units. Heavy units should be "double-boxed" for safe transport.
- **D.** We also strongly recommend that you insure the equipment, since we cannot be responsible for loss of or damage to equipment that you ship. Of course, we insure the equipment when we ship it back to you.

Telephone:

(505) 892-4501

(800) 821-1121 Toll-free

(505) 892-6243 Fax

Lectrosonics USA:

Mailing address: Lectrosonics, Inc. PO Box 15900 Rio Rancho, NM 87174 USA Shipping address: Lectrosonics, Inc. 561 Laser Rd., Suite 102 Rio Rancho, NM 87124 USA

Web: www.lectrosonics.com E-mail: sales@lectrosonics.com

Lectrosonics Canada:

Mailing Address:	Telephone:	E-mail:
720 Spadina Avenue,	(416) 596-2202	Sales: colinb@lectrosonics.com
Suite 600	(877) 753-2876 Toll-free	Service: joeb@lectrosonics.com
Toronto, Ontario M5S 2T9	(877-7LECTRO)	·
	(416) 596-6648 Fax	

LIMITED ONE YEAR WARRANTY

The equipment is warranted for one year from date of purchase against defects in materials or workmanship provided it was purchased from an authorized dealer. This warranty does not cover equipment which has been abused or damaged by careless handling or shipping. This warranty does not apply to used or demonstrator equipment.

Should any defect develop, Lectrosonics, Inc. will, at our option, repair or replace any defective parts without charge for either parts or labor. If Lectrosonics, Inc. cannot correct the defect in your equipment, it will be replaced at no charge with a similar new item. Lectrosonics, Inc. will pay for the cost of returning your equipment to you.

This warranty applies only to items returned to Lectrosonics, Inc. or an authorized dealer, shipping costs prepaid, within one year from the date of purchase.

This Limited Warranty is governed by the laws of the State of New Mexico. It states the entire liablility of Lectrosonics Inc. and the entire remedy of the purchaser for any breach of warranty as outlined above. NEITHER LECTROSONICS, INC. NOR ANYONE INVOLVED IN THE PRODUCTION OR DELIVERY OF THE EQUIPMENT SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT EVEN IF LECTROSONICS, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF LECTROSONICS, INC. EXCEED THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT.

This warranty gives you specific legal rights. You may have additional legal rights which vary from state to state.

