

# DIGITAL AUDIO RECORDER DAR-800

## OPERATING INSTRUCTIONS



This unit has been pre-recorded with some great test audio tracks as part of the manufacturing and quality assurance process: try listening to them before recording new tracks. You should also read through these instructions from beginning to end to familiarize yourself with the installation and operation of this device.



Front Panel View - Digital Audio Recorder Model DAR-800

## OVERVIEW

The Digital Audio Recorder Model DAR-800 represents the state of the art in solid-state audio recording and playback devices. It is capable of recording and storing up to eight distinct mono audio tracks with a combined duration of up to 44 minutes, depending on what the sample rate configuration that has been selected via the Select Switches

Audio is loaded into the DAR-800 from virtually any analog audio source (tape deck, CD player, microphone, PC sound card, etc.). In the recording process the audio tracks are converted by the microprocessor into digital format and stored on digital FLASH PROM memory chips. There are absolutely no moving parts and memory is completely non-volatile: audio tracks are safe even during extended power failures.

On playback, the stored digital data is retrieved from memory and re-converted back into the original (analog) format. Audio tracks can be played back directly into conventional audio speakers, headphones, handsets or other audio equipment. Playback is initiated from the front control panel or by visitors from a wide variety of external switches (push-buttons, motion sensors, etc.). Audio tracks can also be looped for continuous and background sound applications. 3 different playback modes provide maximum flexibility: *Play Selected* plays any track once, *Play Next* plays the next track in sequence, or play everything once by selecting *Play All*.

When the built-in PowerSaver circuit is enabled, power is automatically shut off to the unit between play cycles, allowing the system to be used effectively in solar and battery-powered applications where power consumption is critical.

At Stop and Listen we have gone to great lengths to ensure that your new DAR-800 represents the ultimate in durability and ease of use. As you become more familiar with the DAR-800 you will find that the on-board recording features can add a whole new dimension to your application.

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## OTHER FEATURES

**POWERSAVER STATUS** When configured for PowerSaver the decimal point on the TRACK INDICATOR display will flash occasionally between play cycles to indicate the circuit is running. All other indicators will be off in this mode because the DAR-800 goes to 'sleep' between play cycles to conserve power. This is ideal for battery and solar-power applications. See Configuration Switches section for more info.

**INTERNAL FUSING** The DAR-800 is internally fused using a 1Amp Type 2AG fuse. The most common reason why the fuse trips is because either the power polarity is incorrect or there is a short-circuit in the external wiring. Replace only with same type fuse.

**RECORD LOCK-OUT** The DAR-800 incorporates RECORD LOCKOUT features to prevent accidental erasure of recorded tracks. In order to record a new audio track, an audio cord MUST be plugged in to the LINE IN jack or MIC jack, and Configuration Switch #3 on the back of the unit must be in the DOWN (Record Enable) position.

**EJECTABLE CONNECTOR BLOCK** The orange speaker connector block on the back of DAR-800 is EJECTABLE for easy changing of the unit or for pre-wiring. Use a small screwdriver to gently pry connector away from the back of the unit. Push on to reconnect.



**MOUNTING** This unit can be mounted in any orientation. 4 mounting holes are provided, 2 on each end of the chassis (may require removal of orange connector block).

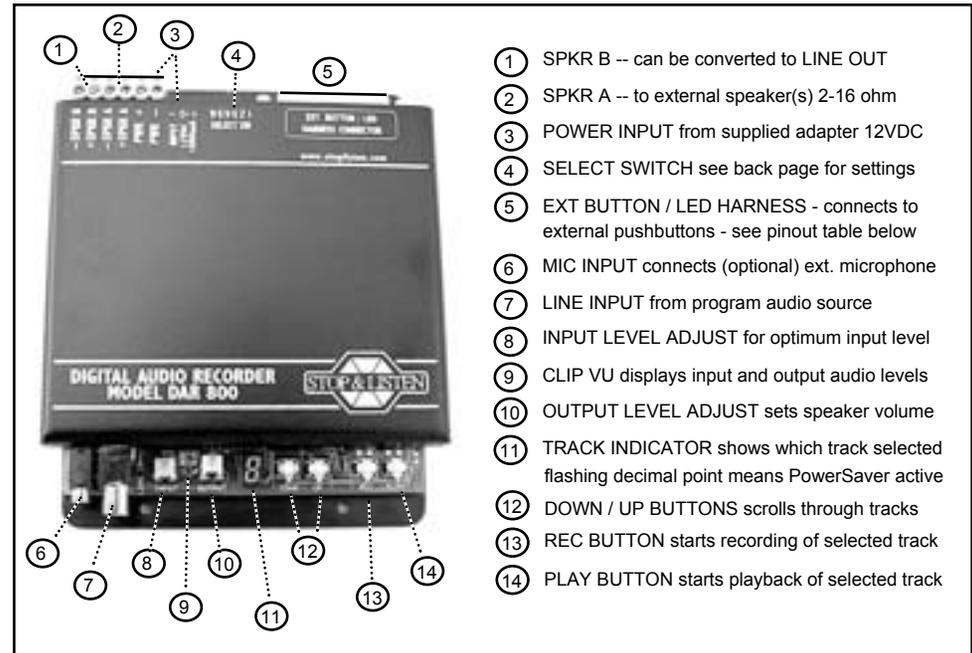
**A second speaker** can be connected to the SPKR B speaker terminals to provide additional output volume and/or to provide a fuller sound. Caution: SPKR outputs are 'bridged' - serious damage can occur if outputs are shorted to ground. The SPKR B output can also be converted to a line level output for interfacing to other audio equipment - remove the case lid of the DAR-800 and move BOTH the jumper shunts located near the SPKR B terminals to the LINE position.

**PWR +/-** Terminals additional power terminals are provided on the orange connector block. These terminals are in parallel to the coaxial power connector and can be used to connect to external power supplies or used to tap power out for motion sensors, etc.

OTHER FEATURES

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## WIRING CONNECTIONS



- ① SPKR B -- can be converted to LINE OUT
- ② SPKR A -- to external speaker(s) 2-16 ohm
- ③ POWER INPUT from supplied adapter 12VDC
- ④ SELECT SWITCH see back page for settings
- ⑤ EXT BUTTON / LED HARNESS - connects to external pushbuttons - see pinout table below
- ⑥ MIC INPUT connects (optional) ext. microphone
- ⑦ LINE INPUT from program audio source
- ⑧ INPUT LEVEL ADJUST for optimum input level
- ⑨ CLIP VU displays input and output audio levels
- ⑩ OUTPUT LEVEL ADJUST sets speaker volume
- ⑪ TRACK INDICATOR shows which track selected flashing decimal point means PowerSaver active
- ⑫ DOWN / UP BUTTONS scrolls through tracks
- ⑬ REC BUTTON starts recording of selected track
- ⑭ PLAY BUTTON starts playback of selected track

Use the following table for wiring to the 25 pin D-sub EXT BUTTON / LED connector.

Button 1/SW 1 >>> PIN 6	LED 1 >>> PIN 1	GROUND/COM 1 >>> PIN 18
Button 2/SW 2 >>> PIN 7	LED 2 >>> PIN 14	GROUND/COM 2 >>> PIN 19
Button 3/SW 3 >>> PIN 8	LED 3 >>> PIN 2	GROUND/COM 3 >>> PIN 20
Button 4/SW 4 >>> PIN 9	LED 4 >>> PIN 15	GROUND/COM 4 >>> PIN 21
Button 5/SW 5 >>> PIN 10	LED 5 >>> PIN 3	GROUND/COM 5 >>> PIN 22
Button 6/SW 6 >>> PIN 11	LED 6 >>> PIN 16	GROUND/COM 6 >>> PIN 23
Button 7/SW 7 >>> PIN 12	LED 7 >>> PIN 4	GROUND/COM 7 >>> PIN 24
Button 8/SW 8 >>> PIN 13	LED 8 >>> PIN 17	GROUND/COM 8 >>> PIN 25

LED outputs are 5VDC sourcing, and include a built-in 330 ohm series protection resistor. Switches should be normally-open momentary contact type. Looping applications require sustained contact on any one input. All switches and LED's should be tied to GROUND (COMMON), pins 18 - 25. Pin 5 can provide power at up to 250mA at 12 VDC (poly-fused) to supply external circuits where needed. We STRONGLY recommend that all connections be made by a qualified technician.

If your DAR-800 has been shipped with a pre-fabbed button wiring harness connect wires labeled SW1, SW2, etc. to the N.O. terminals of visitor pushbuttons #1, #2, etc. Connect wires labeled GND1, GND2, etc. to the COM terminals of visitor pushbuttons #1, #2, etc.

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## RECORDING MADE EASY

1) Disable any external start inputs from external buttons, motion sensors, jumpers, etc. It may be easiest to disconnect the EXT BUTTON/LED connector at the back of the unit. A speaker should be connected to the speaker connector to monitor recording.



2) Connect the LINE-OUT or headphone output of the audio source (tape deck, Discman, PC soundcard, etc) to the LINE IN jack on the front panel of the DAR-800 using the supplied RCA patchcord. If a headphone output is used from the source set the output volume to about 60-70% full scale. (A microphone can also be used for input via the the MIC IN jack - both LINE and MIC are combined internally in the DAR-800.)

3) Set the desired sampling rate for the track using the CONFIGURATION SWITCHES DIP#5 and DIP#6 on the back of the unit: a different sampling rate can be used for each track. DIP#3 should be DOWN (Record Enabled) and DIP#4 should be DOWN (front panel enable). Refer to CONFIGURATION SWITCHES section for further detail.

4) Select the location of the track to be recorded from 1 to 8 using the UP and DOWN buttons on the front panel then press and release the REC (record) button. The red status LED above the REC button will light dimly indicating the unit is ready to record.

5) SET LEVELS - start the audio source: you should be able to hear it play through on the external speaker. Adjust the INPUT level on the DAR-800 up or down using a small screwdriver. The level is set correctly when the green CLIP LED is lit almost continuously but the red LED flashes only occasionally. Set the OUTPUT control to a comfortable listening level.

6) Cue the audio source to the start of the audio track to be recorded. Press the REC button again and start the audio source: the red status LED above the REC switch will light brightly indicating recording is in progress and stays lit until recording is terminated or the available memory is filled.

7) Press the REC button a third time to terminate recording: the red status LED will go out indicating recording is complete.

### THAT'S IT!

Your recording is now locked in memory until you want to record something else.

## PLAYBACK !

### TRY IT OUT!

Select the desired audio track using the UP/DOWN buttons on the front panel, then press PLAY to begin playback. Set the OUTPUT control to the desired listening level using a small screwdriver. (Remember to set the OUTPUT level so that listeners can hear the track clearly even when the listening area gets crowded.)



The DAR-800 supports 3 different PLAYBACK MODES that can be selected using the UP/DOWN buttons once recording is completed:

**PLAY SELECTED** - (Track Indicator shows a digit from 1 to 8) - Pressing a start button will play the selected track once and then stop. In interruptible mode, pressing another start button while a track is playing will start the new track immediately.

**PLAY NEXT** (Track Indicator = 'n'). Pressing any start button will result in the next track in the sequence playing. The active track number will show while it is playing, then 'n' again upon completion. In interruptible mode, pressing any start button while playing will immediately advance to and play the next track in sequence.

**PLAY ALL** (Track Indicator = 'A'). Playback starts at track 1 and plays all tracks in sequence once. The active track number will show while it is playing, then 'A' again upon completion. In interruptible mode, pressing any start button while playing will cause playback to reset to and start over at track 1. For looping applications, such as background sound, any sustained (shorted) start input will cause all tracks to play then automatically reset and start over. (TIP - If a delay is desired before the tracks repeat , leave a bit of blank space at the beginning or end of an audio track when recording.)

TIP - when you're done, you can protect audio tracks from accidental erasure by setting CONFIGURATION SWITCH #3 to the UP (record disabled) position. You can also 'lock in' the selected PLAYBACK MODE by setting CONFIGURATION SWITCH #4 to the UP (front panel disable) position.

DIFFICULTIES?? - if you experience any problems at all,  
or if you just want to let someone know what a great job you've done  
TECHNICAL SUPPORT **TOLL FREE 1-800-387-2365**

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## CONFIGURATION SWITCHES (SELECT SW)

Switch	DESCRIPTION	DEFAULT
DIP#1	UP to enable PowerSaver Circuit, DOWN for Continuous power	default=DOWN
DIP#2	UP allows play cycles to be interrupted, DOWN for <u>un</u> -interruptible	default=DOWN
DIP#3	UP disables (protects) recording, DOWN enables recording feature	default=DOWN
DIP#4	UP disables front panel, DOWN to enable -see PLAYBACK section	default=DOWN

DIP #1 - When enabled, the built-in **PowerSaver** circuit forces the DAR-800 into a 'sleep' mode between play cycles to reduce power consumption - only the decimal point on the TRACK INDICATOR LED will be flashing. When a start button is pressed the unit 'wakes' up: the TRACK INDICATOR LED shows when and which track is playing. This mode is ideal for solar and battery power applications. In most cases however the PowerSaver should be disabled (DIP #1 DOWN).

DIP #2 - In un-interruptible mode, all start inputs are ignored while an audio track is playing (recommended for most applications). In interruptible mode, pressing a start button while a track is playing will cause the new selection to start playing immediately, depending on the PLAYBACK MODE - see PLAYBACK section for details

DIP #3 - extra precaution against accidentally erasing recorded tracks.

DIP #4 - protect against accidentally changing PLAYBACK MODE

Dipswitches #5 and #6 set the digital sample rate of the recorded audio track, which also determines available recording time and audio bandwidth (quality), as shown below.

DIP#5	DIP#6	Sample Rate Format	DURATION per track	Audio Bandwidth
DOWN	DOWN	19.53 KHz uncompressed mono	3min 40sec	6.8kHz
UP	DOWN	26.04 KHz uncompressed mono	2min 45sec	9.8kHz
DOWN	UP	26.04 KHz compressed 2:1 mono	5min 30sec	9.8kHz
UP	UP	39.06 KHz uncompressed mono	1min 50sec	14.5kHz

The sample rate format is stored as part of the recording in memory: changing these settings after recording will have no effect until the next record cycle is initiated. Each of the recorded audio tracks may be recorded using different sample rates. Always use the highest sample rate wherever possible.

**HARD RESET** - The unit may act erratically or be difficult to record if the internal Flash memory is corrupted due to electrostatic discharge (ESD) or lightning. If this happens, the memory should be re-formatted using a 'hard reset'. Caution - all audio data previously recorded will be ERASED. To initiate a hard reset, make sure Configuration Switch #3 (record enable) is DOWN and #4 (panel lockout) is DOWN on the back of the unit and connect an input cord to the LINE IN or MIC jack to enable the recording feature. Start with the display at the 'n' position, then press the UP and DOWN select buttons at the same time until the display shows F (format), then press the REC button to initiate. Both REC and PB LEDs should flash for a few moments as the memory is re-formatted. Proceed with re-recording per the recording instructions.

## Specifications: Digital Audio Recorder DAR-800

Eight Separate Tracks Recordable Audio Playback device, single or continuous play

Digital Sampling Rate is user selectable and effects Frequency Response (audio quality) and Max Recording Time as outlined. TIP - always use highest sampling rate possible for each track

Max. Record Time (per track, min:sec)	1:50	2:45	3:40	5:30
Freq. Resp. (@nom input, +/-3dB)	50-14.5kHz	50-8.2kHz	50-6.8kHz	50-4.1kHz
Digital Compression	n/a	n/a	n/a	2:1 Adaptive
Digital Sampling Rate	39.06kHz	26.04kHz	19.53kHz	26.04kHz

Message Capability	8 messages, selectable, accessed 1 at a time or sequentially
Audio Inputs -Line Level	230mV p-p ( -20dBm) sensitivity, 10 K impedance, adjustable
-Mic Level	5mV p-p (-53dBm) sensitivity, unbalanced, 30 dB gain, 3.5mm jack
Audio Processing	On-Board Variable Slope compression/expansion
Audio/ Anti-Alias Filters	8th order Butterworth type
Dynamic Range	70+dB
Audio Output -Output A	6 watt nom / 2.2 watt true RMS speaker level, bridged, adjustable
-Output B	6 watt as above, user configurable to 200mV Line Level
LED Outputs (8)	5 volt 5mA sourcing, active on playback, one per audio track (8)
Memory Type	256mbit / 32MB non-volatile NAND Flash EEPROM
Memory Backup	NOT REQUIRED, non-volatile
A/D Conversion	Companded 8 Bit Linear, real time streaming
Indicators	VU Level on Rec/PB, PowerSaver, Play/Record Status, Play Mode, Track ID
Start Inputs	Momentary dry contact closure for single play, sustained for continuous play
	Inputs are user configurable for interruptible/non-interruptible modes
PowerSaver Capability	Selectable on/off, proprietary auto-standby mode for remote power systems
Power Consumption	60mA @ 12 VDC (typical, average), 140 microamps in PowerSaver mode
Power Supply (supplied)	12 VDC output nominal @ 800 mA, 120 VAC source
Approvals	Class II Device, CSA, UL, FCC CLASS A Compliant
Construction Standard	Industrial/Commercial, carbon steel enclosure, polyester finish
Operating Temp/Humid.	-20°F to +130°F (-30°C to +55°C), non-condensing
Dimensions, Weight	5.0"w x6.0"d x 0.75"h, 2.0 lbs (130mm x 152mm x 19mm., 0.9 kg)
Warranty	5 year 'Gold Seal' manufacturer direct

*Includes 12VDC Power Supply, Set of Audio Patch Cords, Detailed Operating Instructions*

### WARRANTY

This Stop and Listen Inc. product is warranted against defects in workmanship and materials under normal use for 5 years from the original date of purchase. This warranty does not cover equipment which has been tampered with in any way, or damage caused by accident, negligence, alteration, misapplication, or shark attack. This product must be returned transportation prepaid, properly packed and insured. This warranty applies only to the original purchaser. No other warranties are expressed or implied. Stop and Listen Inc is not responsible for consequential damages.

### CARE AND CLEANING

The Digital Audio Recorder Model DAR-800 is designed and constructed for the utmost in quality and durability. Because of it's 100% solid-state design, the only thing you should ever have to do is dust it with a dry cloth.

[www.stoplisten.com](http://www.stoplisten.com)

Configuration Switches

**STOP & LISTEN**

**Stop and Listen Inc**  
7515 Flint Road SE  
Calgary, Alberta, Canada T2H 1G3  
1-800-387-2365 ph 403 276-5905

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