

DIGITAL AUDIO RECORDER DAR-200

OPERATING INSTRUCTIONS v2.0



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.

OVERVIEW



Front Panel View - Digital Audio Recorder Model DAR-200

The Digital Audio Recorder Model DAR-200 represents the state of the art in solid-state audio recording and playback devices. It is capable of recording and storing either one or two mono audio tracks with a combined duration of up to 22 minutes total, depending on what sample rate configuration has been selected.

Audio is loaded into the DAR-200 from virtually any analog audio source (tape deck, CD player, microphone, PC sound card, etc.). In the recording process audio material is converted internally 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.

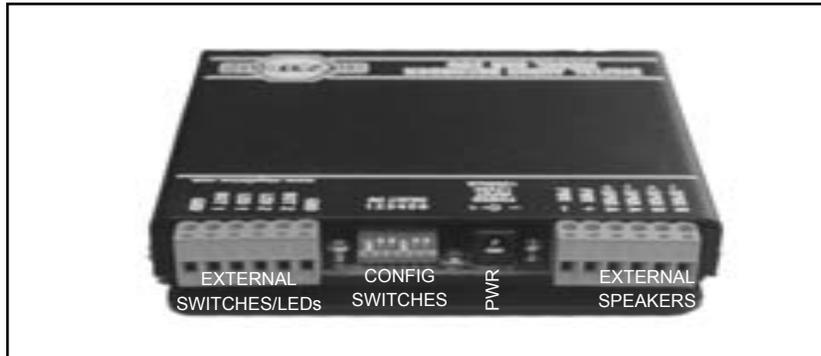
When the built-in PowerSaver circuit is enabled, power is automatically shut off to the unit between play cycles, allowing the system to be used effectively in solar and battery-powered applications where power consumption is critical.

At Stop and Listen we have gone to great lengths to ensure that your new DAR-200 represents the ultimate in durability and ease of use. As you become more familiar with the DAR-200 you will find that the on-board recording features can add a whole new dimension to your application.

OTHER FEATURES

INTERNAL FUSING The DAR-200 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.

POWER SAVER CIRCUITRY When enabled, the built-in PowerSaver circuit forces the unit into a 'sleep' mode when nothing is playing. It 'wakes' up only when it receives either a Start or a Record input. Ideal when the unit is installed using solar or battery power sources. In PowerSaver mode the POWER STATUS LED comes on when the unit is 'active'. Otherwise it will flash intermittently to indicate the circuit is enabled. In most applications the PowerSaver should be disabled (Configuration Switch #1 is DOWN).

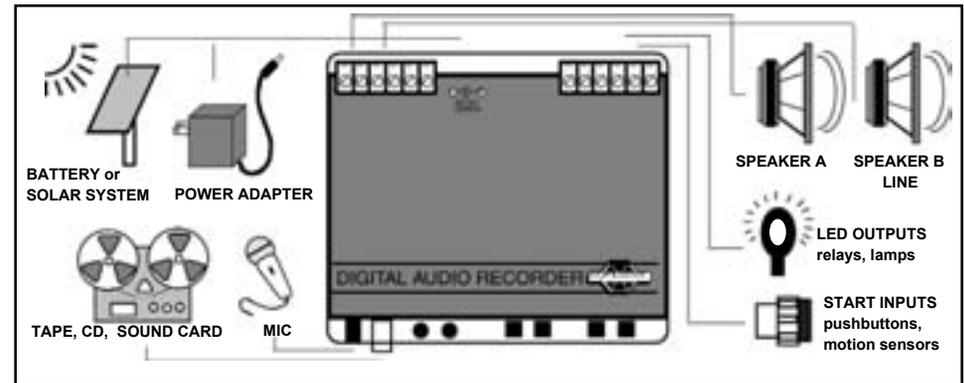


RECORD LOCK-OUT FEATURE The DAR-200 incorporates RECORD LOCKOUT features to prevent accidental erasure of the recorded message. In order to record a new audio track, an audio cord MUST be plugged in to the LINE IN jack or MIC jack, and Configuration Switch #3 (Record Enable) on the back of the unit must be in the UP position

EJECTABLE CONNECTOR BLOCKS The orange connector blocks on the back of DAR-200 are EJECTABLE for easy changing of the unit or for pre-wiring. Use a small screwdriver to gently pry each connector away towards 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 connector blocks).

WIRING CONNECTIONS



POWER INPUT - Plug the supplied wall-plug adapter in here. Requires 12 volt DC nominal, 800mA, center positive. Internally fused 1 amp type 2AG.

POWER +/- Identical to POWER INPUT jack above, can be used for power input in the case of solar- or battery-powered applications, or to tap power out for motion sensors, etc.

SPKR A,B - Two separate amplified audio outputs: connect to loudspeakers or other output devices. **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 - remove case lid, re-set BOTH internal jumpers on circuit board to LINE position.

LED 1, 2 -Used for triggering external devices, lighting effects, etc. Can provide (source) up to 5mA @5VDC for powering relay coils, LED's, etc. Includes 220 ohm load resistance in series. Active high during play cycle only, one output per channel.

BUT 1, 2 - Connect to external start button, motion sensor, etc. Typically a pushbutton switch is used. Switches should be momentary, normally open, dry contact. If continuous play (auto-looping) is desired connect a jumper wire between BUT and GND.

LINE IN / MIC - Audio inputs for recording. Use included audio patch-cords to connect from line level output or headphone output of audio source to LINE IN on front panel. Typically a discman, cassette player, or computer soundcard is used with pre-recorded audio material. If desired, a high Z microphone can be used for recording via the MIC jack. Signals at LINE IN and MIC jacks are combined internally.

For dependability all external wiring should use soldered connections or premium connectors wherever possible. 'Twisting' wires together is a serious NO-NO: don't do it or the wiring police might come and take you away!

RECORDING MADE EASY

- 1) Disable any external start inputs from external buttons, motion sensors, jumpers, etc. It may be easiest to eject the orange 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 (tapedeck, Discman, PC soundcard, etc) to the LINE IN jack on the front panel of the DAR-200 using the supplied RCA patchcord. If a headphone output is used set the source output volume to about 60-70% of full scale. If desired a microphone can also be used for input via the the MIC IN jack. Both inputs are combined internally in the DAR-200.
- 3) Set the desired sampling rate using the configuration switches on the back of the unit and make sure that DIP#3 is in the UP (Record Enabled) position. A different sampling rate can be used for each message. (Refer to CONFIGURATION SWITCHES)
- 4) Press and release the REC1 (record) button on the front panel. The red status LED above the button will flash red momentarily while the memory is erased and formatted for recording. This also enables the internal monitor circuit that allows you to hear what is being recorded via the external speaker.
- 5) SET LEVELS - start the audio source: you should be able to hear it on the external speaker. Adjust the INPUT level on the DAR-200 up or down using a small screwdriver. The level is set correctly when the green LED is lit almost continuously but the red LED flashes only occasionally . Set the OUTPUT to a comfortable listening level.
- 6) Cue the Audio source to the start of the audio track to be recorded. Press the REC1 button again and start the audio source: the red status LED above the REC1 switch will stay lit continuously until recording is terminated or the available memory is filled.
- 7) Press the REC1 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. The DAR-200 will retain messages in memory indefinitely. Repeat steps 3 thru 7 for the second message. Tracks can be protected from accidental erasure using the record enable/disable feature.

PLAYBACK !

Press the PB1 playback button on the front panel to begin playback of the audio track and set the OUTPUT control to the desired volume level. If volume is still low, try increasing the INPUT level during recording. Remember to set the OUTPUT level so that listeners can hear the message clearly even when the listening area gets crowded. The LED output(s) on the back of the unit will remain active as long as a message is playing.



For continuous play or looping applications, connect a wire jumper between the external BUT button and GND ground terminals of the appropriate track once it has been recorded. In this mode, the audio track selected will play to the end, then automatically reset to the beginning and start over. (TIP - If a delay is desired before the audio track repeats itself, simply leave a bit of blank space at the beginning or end of the audio track when making the recording.) A second speaker can be connected to the SPKR B speaker terminals to provide additional output volume and/or to provide a fuller sound.

If the green POWER STATUS indicator light on the front panel flashes intermittently, don't worry: the unit is in PowerSaver mode. See Configuration Switches for more info.

DIFFICULTIES?? - if you experience any problems at all,
or if you just want to let someone know what a great job you've done
CALL OUR TECHNICAL SUPPORT LINE

TOLL FREE
1-800-387-2365

NOTE The DAR-200 has 2 separate safety features to prevent accidental recording or erasure of messages. To record a new message there **must** be a connection made at one of the INPUT jack(s) and Configuration Switch DIP#3 **must** be UP (record enabled).

CONFIGURATION SWITCHES

Several operating parameters can be set using the Configuration Switches located on the back of the unit.

Switch	DESCRIPTION	DEFAULT
DIP#1	UP to enable PowerSaver Circuit, DOWN for Continuous power	default=DOWN
DIP#2	UP allows play cycles to be interruptible, DOWN for <u>un</u> -interruptible	default=DOWN
DIP#3	UP enables recording feature, DOWN disables (protects) recording	default=UP
DIP#4	Factory setting, BDREM interruptor/disruptor switch	default=DOWN

Dipswitches #5 and #6 determine the sample rate of the recorded audio track, and as a result determine both time available for recording and audio quality. Sample rates, corresponding audio track lengths, and resulting audio bandwidth are shown below. It is always best to use the highest sample rate wherever possible.

DIP#5	DIP#6	Sample Rate Format	(combined) DURATION	Audio Bandwidth
DOWN	DOWN	19.53 KHz uncompressed mono	14min 40sec	6.8kHz
DOWN	UP	26.04 KHz uncompressed mono	11min 00sec	9.8kHz
UP	DOWN	26.04 KHz compressed 2:1 mono	22min 00sec	9.8kHz
UP	UP	39.06 KHz uncompressed mono	07min 20sec	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 two recorded audio tracks may be recorded using different sample rates.

In un-interruptible mode, all start inputs are ignored while an audio track is playing (recommended for most applications). In interruptible mode, pressing the PB1 start button for audio track 2 while audio track 1 is playing will stop playback of audio track 1 and initiate playback of audio track 2 (and vice versa). If the PB1 (start) button for audio track 1 is pressed while audio track 1 is playing, then playback of audio track 1 will be terminated.

For continuous play or looping applications, connect a wire jumper between the external BUT button terminal and the GND ground terminal once the audio track has been recorded. In this mode, the audio track will play to the end, then automatically reset to the beginning and start over again.

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 UP on the back of the unit and connect an input cord to the LINE IN or MIC jack to enable the recording feature. Press REC1 once to begin the recording process, then press the PB1 playback button to interrupt. Likewise Press REC2 followed by PB 2. Next disconnect and re-connect the power. Both red REC 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-200

(Single/Dual Message Recordable Audio Playback device, single or continuous play)

Digital Sampling Rate is user selectable and effects Frequency Response and Max Recording Time as outlined. Max Recording Time is for audio tracks 1 and 2 combined.

Max. Record Time (combined, min:sec)	7:20	11:00	14:40	22:00
Freq. Resp. (@nom input, +/-3dB)	50-14.5kHz	50-6.8kHz	50-6.8kHz	50-6.8kHz
Digital Compression	n/a	n/a	n/a	2:1 Adaptive
Digital Sampling Rate	39.06kHz	26.04kHz	19.53kHz	26.04kHz

Message Capability	1 or 2 messages, selectable, accessed 1 at a time
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 (2)	5 volt 5mA sourcing, active on playback, one per audio track
Memory Type	128mbit / 16MB 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 Status, Play Status, Record Status
Start Inputs - S1, S2	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, or misapplication. 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-200 is designed and constructed for the utmost in quality and durability. Because of its 100% solid-state design, the only thing you should ever have to do is dust it with a dry cloth.

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