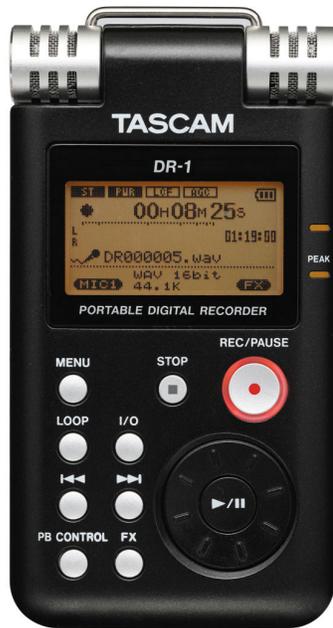


TASCAM DR-1 Portable Digital Recorder

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The DR-1 is TASCAM's entry into the burgeoning field of handheld 44.1/48 kHz (dare I say "standard speed"?) digital recorders. It offers all the common features you'd expect: built-in stereo microphones, external mic and line inputs, headphone/line outputs, 16- and 24-bit PCM and MP3 formats from 32 to 320 kbps, and records to SD flash memory. A 1 GB SD card is supplied with the unit, though it will accommodate SDHC cards as large as 32 GB when they become available, a nice bit of future-resistance (nothing is really "future-

Update: In the less than two years following this review, TASCAM has filled out their line of hand held digital recorders, some downscale from the DR-1, some upscale, with many features and look-and-feel in common. Check 'em all out.

proof"). The DR-1 is more than a typical field recorder, however. Drawing on 20+ years experience with Portastudios and Trainers, TASCAM has loaded the DR-1 with features particularly useful to the recording musician.

Features

Power is from a rechargeable lithium-ion battery pack or optional AC adapter. The battery pack is removable and spares are available for purchase. Charging is via either the USB port or AC adapter, though at least at this time no charging station or adapter for the battery pack is available. If you're packing along spare battery packs, you'll need to charge them in the recorder. Battery life is estimated at 7 hours when recording in the MP3 mode with the built-in mics. I got a bit more than 3 hours out of a charge recording 16-bit 44.1 kHz, which is a good match for the capacity of a 2 GB memory card.

An accessory kit including a snap-on cradle with a tripod socket, a desktop tripod with a swivel joint, and a windscreen is available as an option. See the photo.

The DR-1 feels comfortable in the hand, with all necessary controls within easy reach. A trapdoor on the side covers the 4-pin USB port and memory card slot. While it latches solidly, it feels flimsy when opened, and I can see this it breaking off (which won't incapacitate the recorder) fairly early if not handled gently. The built-in mics can be rotated through 90 degrees to aim them either toward a user facing the recorder or outward

from the end of the recorder. There are soft bumpers on the rear surface, but there no convenient way to stand the recorder vertically nor is there a tripod or stand mount. It's either hand-held or flat on a table.

Inputs are a curious mix. In addition to the built-in mics, there's the expected 1/8" stereo jack for an external mic (Mic 1). Plugging into this jack overrides the internal mics. A 1/4" jack provides an alternate external mono mic input (Mic 2). Stereo line input is via another 1/8" jack. A dedicated Input menu selects the input source, switches Plug-in Power for Mic 1, switches the Mic 1 input and the built-in mics to mono (same signal recorded to both channels), and selects one of three gain ranges for Mic 1 and the built-in mics. A thumbwheel provides continuous record level adjustment for the selected microphone, however the line input gain is fixed and the record level must be set from the source.

The Input menu also engages a low-cut filter at 40, 80, or 120 Hz, switches in a limiter or automatic record level control, and swaps the left and right channels when recording with the internal or external mics to maintain left/right perspective whether you're facing the mics or pointing them to a distant source.

The external mic inputs don't have a lot of gain, which makes their performance a bit disappointing. At the highest gain setting and record level thumbwheel set to maximum, Mic 1 (the 1/8" stereo jack) requires -41 dBu to reach 0 dBFS, and at that setting, with the inputs terminated with 150Ω, quiescent noise is around -57 dBFS. With the same gain settings, Mic 2 (the 1/4" jack) requires -33 dBu to reach 0 dBFS, but the noise is substantially lower than the Mic 1 input, about -72 dBFS. TASCAM recommends using an in-line impedance matching transformer with the 1/4" mic input which not only provides about a 12 dB boost but also provides a better load for a typical dynamic mic.

So far this sounds pretty much like any other recorder in its class. What distinguishes the DR-1 is a plethora of musician-oriented features and special functions that draw on TASCAM's more than twenty years experience building products for the working musician. The DR-1 includes a metronome, tuner, a wealth of effects. speed and pitch adjustment, loop playback, part (vocal or instrument) canceling (for "music minus" playback), and sound-on-sound recording. Effects can be applied either only on playback or to the input source while recording. While it would take a lot of care and effort to produce a release-quality production using only the DR-1 (and I do believe it's possible) you have the tool set here to go further than a simple demo when working out a song, arrangement, or production idea when you're away from the studio.

In Use

The DR-1 works just fine as a field recorder using its built-in mics. They're a little on the bright side, but the low end is solid and up to about 25 feet away from the source, the stereo image is good, getting a bit weak in the middle at greater distances. There's no getting around proper mic placement (in this case, recorder placement) when it comes to bringing back a good single point stereo recording. With proper setting of the gain range, the recorder will handle an uncomfortably loud source without clipping. You'll have to push the gain close to maximum to record a quiet acoustic source from a distance, but it was just right for recording myself singing with an acoustic guitar about two feet away.

The limiter is on the output side of the mic preamp so it only prevents digital clipping. It's important to set the gain range properly as at the high gain setting, you can reach (analog) clipping in the preamp well before the limiter starts working. The limiter will save your bacon at the low gain setting, but when dealing with quiet material that has a wide dynamic range, rely on your ears (plug in a set of headphones) and not the meter to assure a clean recording. The meter scale has no numbers (major divisions appear to be -1, -4, -10, -20, and -40 dBFS) so with the limiter engaged, it's hard to tell when you're getting into the danger zone. There's an automatic record level mode, but I never found an effective use for it.

The overdub capability is pretty straightforward once you get the hang of it. With a little practice I was able to sing a trio with myself. The only control you have over panning in the overdub mix is which side of center you're on relative to the mics, and you need to get the balance correct when you record (just like Les Paul was doing with two disk recorders). Recording in the overdub mode is non-destructive, though. You can always undo, revert to the previous file, and try another pass. The best position for recording yourself is with the recorder on a table, lying on its back with the mics pointing toward you, and aimed upward in the direction of your mouth or instrument. This means you'll be operating the controls upside down but it's not bad.

The reverbs are usable, the effects so-so. "Detune" sounds like a bad case of wow, "Emphasis" sounds like an SM58's presence peak on steroids. In the Chromatic mode, the tuner displays the note played and direction of deviation from true pitch. In Osc mode, it generates a tone at the selected pitch. The reference pitch is adjustable from A=435 to 445 Hz. The metronome is a basic tick accented on the first beat, with the number of beats after the accent adjustable between 2 and 8. There doesn't appear to be a way to play the metronome while you're recording; it's useful as a practice tool, it won't give you a click track in the phones.

You can vary the playback speed while maintaining pitch, vary the pitch while maintaining speed, or vary both together (tape deck style). As expected, it gets

glitchy when off speed or pitch, but I suspect that this set of features, perhaps combined with the loop-repeat function, is intended primarily as a learning tool rather than a production tool. The effectiveness of the part canceller depends on how “mono” the part you’re trying to remove is. Beyond simply canceling the center material, the part canceller can be adjusted to work on material that’s left or right of center, another adjustment to fiddle with which might improve results.

File transfer speed through the USB port is pretty speedy, a bit under three minutes for a 1GB file. That’s not full USB 2.0 speed, but definitely faster than USB 1.1.

I’m a real fussy budget when it comes to user interfaces, and this one, though well intentioned, came close to driving me batty. There are four different menu buttons: Menu, PB Control, FX, and Setting. The Setting menu is related to input settings, PB Control has the variable speed and pitch controls and part canceling, FX has the effect processors, and Menu has the file library controls, record mode settings, system settings such as date/time, the tuner and metronome, and memory card formatting. There’s an I/O button, but in this case, I and O stand for “in” and “out” rather than “input” and “output.” It selects the loop start and end points.

The FX and PB menu buttons have two modes. Hold them for a second or so and the menu comes up, but tap them briefly and whatever effect or process has been selected from the menu is engaged or disengaged. More than once I wondered why playback was at the wrong speed and figure that I must have inadvertently hit the PB Control button. There are indicators on the LCD that show that a process is active, but you have to look for them.

What’s particularly annoying about the way the menus work is that there’s a scroll wheel to browse through the menu, but once you find what you’re looking for, it’s necessary to press another button to move from the parameter to the selections for that parameter, then go back to the scroll wheel to select what you want to do, then press another button to get back to the parameter list if you want to make another selection from that menu. Nearly everything is a two-handed, three-finger operation.



The DR-1 comes with a printed quick start guide, but the full manual is a PDF that’s loaded on to the memory card which is supplied with the recorder. If you don’t read the printed documentation, you probably won’t know where to find the manual (though it can be downloaded from the TASCAM web page). As manuals go, it’s adequate, but not very tutorial.

Conclusion

Like so many of these devices, it gets easier to use as time goes on and in practice there's less need to jump from function to function and menu to menu than when trying everything for the purpose of a review. Most of the time all I needed to do was press the Record button once to engage recording and a second time to start rolling, and I had a perfectly reasonable recording from the built-in mics. The DR-1 wouldn't be my first choice as a field recorder, but it would be great for a songwriter to take to the beach or on a family vacation.