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REVIEW

BY LORENZ RYCHNER

Olympus LS-20M and LS-100

Audio with video or multitrack audio with extras—take your choice

Olympus's LS lineup of Linear PCM recorders is aimed at capturing quality audio for recording musicians—we first reviewed the LS-10 in March 2009. Now we are looking at the LS-20M, that does both audio and video-with-audio, and at the LS-100 that can be an 8-track recorder and then some. We'll be posting files to see and hear on our website and accompany our discussion here.

LS-20M

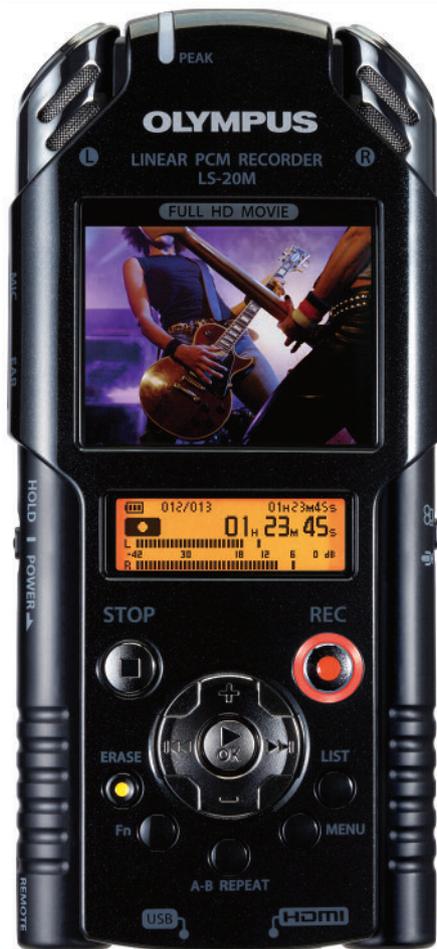
The LS-20M audio/video recorder looks very much like a smart phone, and the two microphones found at the far end (as you hold the unit like you would a smart phone) are not protruding but rather discreetly fitted into the slanted corners. Between the mics is the camera lens. So you record audio or shoot video while pointing the unit away from you, towards the target, and as you look down onto the two screens, you appear to be just one of the myriad smart-phone users out there, not looking like a recordist in action.

The larger of the two screens is of course your video display, showing what the camera sees, with lots of little icons indicating status and settings. During audio-only recording it goes black, but at other times it displays memory folder lists and other menu items. Below the larger screen is a smaller LCD that shows battery status, current file number, elapsed recording time, remaining recording time, and the audio level.

The user controls are grouped around a four-way ring with a center OK button: Stop, Rec, List, Menu, A-B Repeat, Fn, and Erase. At the bottom end, behind a snap-out cover, sit the USB port and micro-HDMI connector.

Around the corner, on the left narrow side of the LS-20M, is the tiny jack for the (optional) RS30W infrared remote-control connector (approx. \$40), then the Power on/off toggle (with Hold), and mini stereo sockets for earphones and for an external stereo mic.

On the opposite narrow side is the cover hiding the SD card slot, and a sliding switch that toggles between video and audio-only recording. The underbelly has a



thread for tripod or mic-stand mounting, and a speaker grille for minimal but occasionally useful checking of signal presence.

The battery well contains a proprietary Olympus battery—you charge the battery while it's in the LS20-M, via the USB port, either while the USB port is connected to a computer or via the supplied AC adapter that has the USB outlet. For \$45 a pop you can stock up on additional batteries for emergencies, and for another \$40 you get the separate plug-in charger.

In addition to an AC adapter, USB cord and SD card, the LS20-M comes with a substantial printed manual that is also available

Recording audio

online. The LS-20M can do much more than I could begin to describe—please read or download the .pdf of the manual at tinyurl.com/OlympusLS20Mmanuals.

The mics are doing a fine job, although I remember those of the LS-10 as having more subtlety and a wider stereo field in their capture. The Auto Gain setting is entirely workable, pumping is not in evidence, but if your mic sensitivity is set to High and things get loud, you will soon end up with distortion.

Unfortunately, the mic sensitivity is only adjustable (High/Low) in menu mode—a serious shortcoming in my view. Why did the designers not incorporate the same switch that we found on the LS-10, which had an outside toggle for just that?

On the plus side, I found the LS-20M to have good internal insulation—even though the mics are firmly mounted in the chassis, if the operator is careful holding and handling the LS-20M, contact noises in your recordings can largely be avoided.

The LS-20M records .wav (PCM) files at 24-bit/96 or 88.2 kHz, 16-bit/48 or 44.1

kHz, and MP3 at 320 and 256 kbps, no lower settings are available. That shows that the LS series indeed stands apart from the rest of the Olympus recorders that are primarily designed for speech, dictation and conference recording. One remnant of that heritage is the Voice Sync feature—recording can start as soon as the recorder



detects a source at a preset level during a selectable timeframe; if the source level drops below the chosen threshold, recording stops.

Recording video

Three resolutions are available, 1920x1080, 1280x720, and 640x480, all at 30 fps. The video white balance is

user-adjustable or it can be left on auto. The camera is quite capable of low-light recording, but it is also susceptible to washed-out over-exposed images in bright lights—and that included a (classical) concert stage with bright static ceiling lights. Exposure control is available in menu mode, and the Fn (Function) button can be programmed to access exposure control, among other items.

Before the 4x zoom is engaged, the lens captures quite a wide field, I'm guessing about the equivalent of a 35–40 mm "wide" lens in terms of 35mm photography. I achieved no images that I would call razor-sharp, that seems to be beyond the lens with its tiny 4.1mm focal length. But for web uploads and other less-than-critical applications it will suffice.

Wish list and final thoughts on the LS-20M

I wished the LS-20M could shoot still pictures. I missed a real switch for Low/High mic sensitivity and a dedicated button to light up the lower screen. (The Fn button can be programmed for that, but you may want to use it for something else.)

The remote control (available separately) is badly needed to get steady video with the LS-20M on a tripod or mic stand, but why does the remote only do Start and Stop? That's hardly worth the money—why not also incorporate Record, Pause, Recording Level up/down, Zoom In/Out, and a button to turn on and off the LCD illumination? Then you could keep your mitts off the recorder, raise it up to shoot over any obstacles, and avoid handling noises.

The Olympus LS-20M is a handy and very capable device for both audio-only and video recording. It can record good audio and decent video, but its shortcomings cause this reviewer to hope for the next model—which may not be too far off since Olympus tends to replace models at a fast clip.

LS-100

At twice the thickness of the LS-20M, and with considerably more weight, the LS-100 is more at home in sturdy jacket pockets rather than shirt pockets. But it is versatile enough that it might well become the home-and-away recorder of many a recording musician. Its full name is Multi-Track Linear PCM Recorder, and it can indeed record up to 8 tracks. It does that from either two built-in condenser mics of remarkable quality, or with the

help of two combo mic/line XLR-1/4" sockets, or from a mini stereo mic input.

Additional capabilities like sync and overdub recording, phantom power, metronome and tuner, Lissajous feature for optimal mic placement, and extensive USB functions take it beyond the realm of the grab-it-and-run recorder. A remote control is available as a separate purchase; we did not receive it for review.

There are way too many features to describe here; check out the online version of the manual (much more useful than the quick-start booklet in the box) at tinyurl.com/OlympusLS100manualPDF.



Sound in

The two built-in mics are fixed, screwed into a sturdy rail that wraps around the top of the recorder, and they are angled out, each at 45 degrees from center.

Recording happens in a variety of useful ways. In two-track mode: One pass in stereo, or overdubbing to a previous file (resulting in a new composite mix), or overdubbing into a new discrete file

while monitoring an existing file (called Play Sync mode, available only with PCM 16-bit/44.1 kHz format).

In multitrack mode: Recording up to eight tracks as stereo pairs, or in mono (if using both L+R inputs they get summed) with individual adjustments to tracks, and with playback checking of all tracks or soloing individual tracks. Pitch adjustments of up to plus/minus a half step are possible, as are output balance, Left/Right balance, track reassignment, and overdubbing new tracks (that remain discrete of course).

Having filled up 8 tracks doesn't mean the end of a project. Selected tracks can be bounced into a single track, re-assigned, and recording continues. Files can be erased completely, or partially after setting a start and end point.

A metronome can be used, with or without a count-off feature. A low-cut filter (100 or 300 Hz) keeps the low end clean. Tracks can be slowed down without affecting the pitch. There's a built-in tuner, and a Lissajous phase analysis feature with a phase-difference readout for placement of external mics.

Sound out

The Olympus LS-100 pretty much lets you complete a project to the point of being ready to share around, as a rough mix in stereo, even with its own ability to directly write to an audio CD in PCM 16-bit/44.1 kHz format, or converting its PCM files into MP3 files.

Then again, if you take the eight tracks and transfer them to your computer where you can align them in your DAW and add effects (the LS-100 has none), you can have the best of both worlds, a nifty front end in the LS-100 and an editing/mixing/mastering back end on your DAW.

Final thoughts on the LS-100

I used both the LS-20M (in audio mode) and the LS-100 to bootleg the same concert performances, at one point both set to auto gain, and the LS-100 provided superior audio. That's probably not only a result of its superior built-in mics, but also due to the intermediate mic sensitivity setting that is lacking on the LS-20M. But then again, as rich an audio tool as it is, the LS-100 doesn't do video...

The LS-100 is a great audio tool. If Olympus finds a way to incorporate a decent set of dynamics processing and effects—nothing fancy, just maybe a compressor and some reverbs at a minimum—then this already outstanding recorder would be a real heavy hitter among portable recorders. ➤

Prices: LS-20M, \$299; LS-100, \$399

More from: Olympus, www.getolympus.com

