



Lectrosonics HH Digital Hybrid Handheld Wireless Transmitter

By Mark Frink

Lectrosonics offers one capsule for their HH transmitter: the HHC cardioid condenser. It is a warm and crisp, open-sounding element that can be best compared to a C-535 without its HPF engaged. However, OEM wireless capsules with the same thread diameter and pitch can be used, including those from EV, Blue, Earthworks, Heil, Telefunken and many from Shure. Audix, Neumann and Sennheiser capsules can be used with adaptors.

Measuring a quarter inch longer, a millimeter slimmer and an ounce lighter than Shure's UR2 handheld, Lectrosonics' HH transmitter fits into standard 2-inch diameter mic stand clips. Lectrosonics also provides a padded blue pouch (with a convenient business card holder on the outside) and a handy four-battery AA storage cartridge that's helpful for users who purchase in bulk and need to furnish fresh batteries with their transmitters.

Live Applications

FOH

While Lectrosonics makes many wireless receivers designed for film and broadcast, their single rack-space Venue receiver is a unique value for live sound applications, because it provides up to six receivers in a 1RU chassis, permitting higher-than-normal rack density. Secondly, the Venue frame allows the flexibility of using various combinations of their 25.5MHz-wide frequency blocks with a choice of standard (VRS) or tracking front-end (VRT) receivers.

I've used a Venue for a couple years with their affordable LMa body-pack transmitters, while looking forward to the new HH. The Venue "Low" frame supports receiver

modules covering most of the U.S. UHF TV spectrum from in eight consecutive 25.5MHz groups (block 19 to 26), plus an additional one that starts at 470.1MHz and overlaps block 19.

We won't review the Venue here other than to point out that it is compact, affordable and never fails to impress engineers. This Road Test focuses on the new HH transmitter.

My Venue is loaded with six block 24 VRS receivers, so it operates in the unoccupied TV channel "safe haven" for unlicensed microphones just above 614MHz (TV 37, reserved for radio astronomy), and I easily get all six to coexist within 6MHz-wide TV 38 (614-630MHz).

Naturally, I ordered my pair of HH transmitters in the same block 24.

Lectrosonic's patented Digital Hybrid Wireless audio chain preserves audio quality, overcoming analog RF noise without resorting to use of a compander by encoding the analog signal into 24-bit digital, transmitting it over analog FM and then decoding it in the receiver, improving range and efficient use of spectrum while providing frequency response to 20,000 Hz.

Secret Weapon

FOH

Due to its lack of companding, Digital Hybrid is a secret weapon of both guitar techs and system engineers wanting to employ wireless FFT measurement mics. The resulting audio transmission is impossible to tell apart from hardwired mics (or guitars) other than 3

ms of latency.

Tuning for Lectrosonics is classically in 100 kHz steps, providing 256 frequencies in each block, but can be switched to 25 kHz steps in "fine" tuning mode when needed. In the Venue receiver and in the HH transmitter, this is simply a menu selection.

HH, like other current Lectrosonics wireless transmitters (and receivers) is not only backwards-compatible with previous Lectrosonics "200" and "100" analog systems, its "mode 6" is compatible with Shure's previous-generation "MARCAD" companding, while "mode 3" is compatible with Sennheiser's "Hi-Dyn plus" companding.

The HH transmitter provides nearly six hours of battery life on two alkaline AA batteries, more than enough for line check, sound check and a show (or 10 hours with Lithium batteries). An icon on the receiver's main window displays a familiar battery fuel gauge. Inside, HH employs a clever blue lever that assists in ejecting the AAs for rapid battery changes.



The lower housing unscrews with a three quick spins, sliding open to a detent, but keeping its lower shell captive, to reveal a control panel with six membrane switches and two modulation LED meters. The nine sub-menus are straightforward and described in a manual that's as well constructed as any Lectrosonics hardware. The HH has a number of unique features.

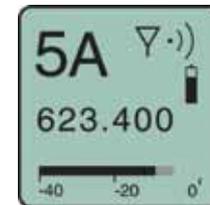


Pressing the power button without holding it for three seconds turns on the transmitter with its RF muted. Similarly, the power button must be depressed for three full seconds to turn it off. The backlit LCD multifunction display on the exterior can be programmed to turn off after 30 seconds, five minutes or to remain lit.

Dual bi-color LED signal meters assist gain adjustment for the particular capsule and individual voices for maximum modulation. The first (-20) glows red when the first limiter stage

kicks in, and the second (-10) glows red when the second stage of the dual-envelope limiter

engages, for over 30 dB of limiting. As a variety of capsules are accommodated, audio gain can be adjusted up to 45 dB in 1 dB steps. Low-frequency roll-off can be selected as 35, 50,



70, 100 or 125 Hz (-3 dB down) with a steep 36 dB per octave slope.

A small momentary button on the side of the HH can be programmed for mute or to direct the audio to an alternate, unused output on the Venue receiver for studio or control-room talkback, or even private IEM communication on live stages.

Hidden features include an RF output isolator that blocks RF energy from coming back into the transmitter from others in close proximity, thus greatly reducing intermodulation (IM). HH also incorporates an internal helical antenna, reducing dropouts in any orientation when used with any receiver antenna type.

Output power can be set for either 50mW, the legal maximum for unlicensed users, or increased to 100mW to extend operating range, though only legal for licensed users and slightly shortening battery life. There's also an IR sync port for use with future Lectrosonics receivers.

Key Jingle Test

FOH

Comparison between a hardwired SM58 and an RPW 112 wireless cartridge proved them indistinguishable. We moved on to compare the Beta 58 with the RPW 118, followed by a few other wireless capsules, and still couldn't tell the difference, once gains were matched. After voice checks, the time-honored test of jingling a ring of keys into both wireless and wired versions also showed no difference, and if you haven't tried this with your current wireless, you may be surprised.

We used a pair of HH transmitters at Jacksonville's Alhambra Dinner Theater for their biopic, *A Closer Walk with Patsy Cline*, as lead Gail Bliss has a strong preference for an SM58, but the old house VHF LX handheld used for announcements was too noisy and a second handheld was needed for another actor.

At the same time, we were able to use three channels of Lectrosonics' affordable LMa packs with Countryman lavaliers, allowing the entire show's wireless to fit on a single 6-channel Venue, including a spare. Naturally, the focus of this show was the vocal quality of the songs, and the three-week sold-out run was a success. For singers annoyed by typical companding artifacts of wireless, the Digital Hybrid in Lectrosonics HH handheld provides wired quality with cordless freedom.

Lectrosonics HH's ability to provide hardwired quality for a wide choice of capsule elements makes it a great asset to any venue or vendor inventory, allowing a single handheld transmitter to be paired with a wide variety of capsules. Those unfamiliar with Lectrosonics wireless should consider renting a Venue and a few HH transmitters for their next production. FOH

FRONT of HOUSE editor Mark Frink can be reached at mfrink@fohonline.com.

PYROTECHNICS LOOK MUCH BETTER ON STAGE THAN THEY DO IN YOUR GEAR.

Professional Power Protection and Conditioning Technologies For Audio Equipment.

SMP Series Multi-Stage Protection
Worry-free protection from spikes and surges

EVS Extreme Voltage Shutdown
Automatically shuts gear off in dangerous conditions

LIFT Linear Filtering Technology
Removes noise and distortion from incoming power

FURMAN
www.furmansound.com

Furman Classic Series