

FIG. 1: The Millennium Media TD-1 combines a mic pre, a tube and solid-state DI, EQ, and multiple I/O options in one unit. It also gives you remarkable sound quality at a relatively low cost.



MILLENNIA MEDIA TD-1

A high-quality yet affordable channel strip.

By Myles Boisen

As a maker of high-end hardware that traditionally spares no expense, Millennium Media has never been a household name in personal-studio circles. But that might change as a result of the company's new TD-1, a world-class quality and multifaceted channel-strip processor that is financially within reach of most studio owners.

To say that its chunky frame holds a wealth of features is an understatement. The unit offers Millennium's

there are many DI options for ground lifting and reamping, and the rear panel offers outputs for almost every application.

The Outside Scoop

The half-rack TD-1 is a tabletop unit, but a pair of them can be bolted together and rackmounted to fit a 2U space using an optional mounting kit (\$10). My review unit arrived with four thick rubber feet attached and a metal top-mounted handle wrapped in a black-leather sleeve. The TD-1's well-vented chassis is heavy-gauge steel.

The TD-1's glossy black front panel is bedecked with an assortment of lit push-button switches and machined black metal knobs, as well as plenty of white text (see Fig. 1). The only jack connections on the front are a ¼-inch

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premium HV-3 solid-state mic preamp, two bands of mastering-quality EQ, and a full-featured DI input.

Designer John LaGrou's Twin Topology routing allows one-touch switching between tube and solid-state processing for the DI signal path. Mic- and line-level processing is discrete solid-state. What's more,

unbalanced DI input (instrument or speaker level) and an XLR input for balanced line-level signals. That line-in can also be used as an input for signals to be reamped; you can output from the TD-1 to a guitar amplifier for additional processing and rerecording.

Beneath those two jacks is a pair of impedance-matching switches. Used in combination, the switches offer three impedance settings for the DI input: 470 k Ω , 2 M Ω , and 10 M Ω . Selectable impedance is most critical when connecting to passive or active pickups, but the timbre of some keyboard instruments can also be fine-tuned with those settings.

Switches for +48V phantom power, input ground lift (DI), and polarity reverse (mic, line, speaker, or DI) offer conventional channel-strip functions. The Soak switch enables the connection of a speaker-level power amp output (300W maximum) to the DI input. Beneath

that row is a continuously variable gain-control knob, with a maximum of +45 dB of gain for DI signals and +65 dB for mic signals.

Equalize It

Equalizer controls are a major part of the TD-1's user interface. Two fully independent parametric EQ bands are provided, with a bypass on each. The low frequencies are continuously adjustable between 20 and 250 Hz, while the high-frequency band covers 200 Hz to 2.5 kHz. A $\times 10$ switch for each band produces a tenfold increase in frequency. That control

TD-1 SPECIFICATIONS

Audio Inputs	(1) $\frac{1}{4}$ " TS unbalanced instrument/speaker, (1) XLR balanced line/reamp, (1) XLR balanced mic
Audio Outputs	(1) $\frac{1}{4}$ " TRS balanced line, (1) XLR balanced line, (1) $\frac{1}{4}$ " TS unbalanced line, (1) XLR unbalanced line, (2) $\frac{1}{4}$ " TS reamp, (1) XLR balanced XFMR, (1) $\frac{1}{4}$ " TRS headphone, (1) $\frac{1}{4}$ " TS direct
Minimum Gain	8.5 dB
Maximum Gain	65 dB (as high as 85 dB on request)
Total Harmonic Distortion + Noise, 35 dB Gain, 10 Hz–20 kHz Bandwidth, +27 dBu Out	< .001%, Typ. < .0005% (< 5 PPM)
Maximum Input Level, Mic	+23 dBu unpadding
Maximum Input Level, Line	+23 dBu unpadding (+43 dBu with pad = 110V RMS or 300V peak to peak)
Maximum Input Level, Tube DI	+18 dBu unpadding (+25 dBu with pad = 14V RMS or 39V peak to peak)
Maximum Input Level, FET DI	+18 dBu unpadding (+26 dBu with pad = 15.5V RMS or 44V peak to peak)
Maximum Output Level, Active Balanced	+32 dBu
Maximum Output Level, Active Unbalanced	+26 dBu
Maximum Output Level, DIT-01 Transformer	Nominal mic level (3 Hz–300 kHz transformer response)
Phantom Power	+48 VDC, ± 2 VDC
Equalizer Maximum Boost and Cut	± 15 dB (21 step detent)
Power Requirements	100 to 240 VAC, user selectable (50–60 Hz), 40W nominal
Dimensions	8.5" (W) \times 3.5" (H) \times 13" (D)
Weight	15 lbs.

allows for an upper bandwidth limit of 25 kHz for the unit and potential overlap on the two bands between 200 Hz to 2.5 kHz.

Bandwidth (or "Q") is sweepable on a knob ranging clockwise from 4.0 (narrow) to .4 (wide) on each band. The large cut and boost gain knobs for the two EQ bands have centered zero detents, as well as ten incremental steps for cut and boost over a total gain range of ± 15 dB.

Another vertical row on the panel's right side includes small LEDs to indicate output-signal overload, signal present, and AC power. Below those LEDs are switches for EQ in/out, tube or solid-state-FET processing (Millennia's Twin Topology routing for DI), input select (instrument or line/mic), and a -20 dB pad (all inputs). Because they are relay based, the Twin Topology and primary EQ in/out switches mute the output momentarily when engaged. That can make comparing processed and unprocessed signals a bit more difficult. Individual EQ-band switches are non-muting and noiseless.

Making Connections

Around the back of the TD-1 (see Fig. 2) are an XLR microphone input, two ground-lift switches, and an AC-power switch, connector, and fuse bay. There's also an array of output connectors, including two $\frac{1}{4}$ -inch TRS reamp jacks (single-coil and humbucking pickup emulations), a $\frac{1}{4}$ -inch TS direct out (multed from the DI input), $\frac{1}{4}$ -inch TRS and XLR balanced line outs (+4 dBu), $\frac{1}{4}$ -inch TS and XLR unbalanced line outs (+4 dBu), and an XLR balanced transformer out (mic level). There is no provision for -10 dBV input/output, and there isn't an insert.

The addition of a $\frac{1}{4}$ -inch mono headphone out may qualify this unit as the world's most high-tech bedroom practice amp. A recessed screw, accessible through a small hole in the back panel, controls the headphone level. Thorough

PRODUCT SUMMARY

MILLENNIA MEDIA TD-1

channel-strip processor
\$1,675

OVERALL RATING (1 THROUGH 5): 4.5

PROS: Superb channel-strip processing in a compact package. Twin Topology (tube or solid-state) DI with impedance switching. Millennia HV-3 mic pre-amp. Mastering-quality EQ. Reamping and other specialized features. Polarity reverse for all inputs. Heavy-duty steel chassis. Thorough manual.

CONS: Muting on primary EQ and Twin Topology switching is a distraction during A/B testing.

MANUFACTURER

Millennia Music & Media Systems
www.mil-media.com

documentation on all I/O connections and controls, as well as useful applications and other tech tips, are found in the 36-page manual.

Glowing Inside

The TD-1 has a single 12AT7 vacuum tube for the DI input. The review unit came with a NOS (new-old stock) tube—a vintage Mullard CV 4024—which costs \$30 extra.

A heavy-duty black gig bag (\$100) is offered as an option for those who want to take the TD-1 out on the town. As is, the 15-pound unit is built to survive being run over by a pickup truck (see the company Web site for proof). The custom-made bag should keep the TD-1 Recording Channel free of scratches, dust, and tire tracks.

Try It, You'll Like It

I spent an afternoon at my studio evaluating the TD-1's DI on a Fender Squier P-Bass and a custom Tele/Strat-style guitar. I compared the TD-1's FET routing with that of a Grace 101 preamp, and found that the sound from the Millennia offered superior midrange details, thicker bass response, and dramatically richer harmonics.

The TD-1's midrange reminded me of the DI in a Langevin Dual Vocal Combo. In the Solid-state mode, the TD-1 direct produced increased clarity and was generally more dynamic and pleasing on bass and guitar than the Langevin.

Using the TD-1's DI tube circuitry, I was able to produce deeper bass fundamentals and much greater high-end clarity than an all-tube Peavey VMP-1 DI. The Universal Audio 2-610 offered thick and tubey low-end response and got closer than the Peavey did to the detailed mids of the TD-1.

In all the tests using electric bass, however, the TD-1 smoked the competition by offering deeper bass, outstanding midrange detail, and a more defined and immediate presence without getting too bright or clacky. With the possible exception of the punchy and highly colored Peavey VMP-1, I can't think of another DI/preamp I'd need for bass recording. In addition, the TD-1 delivered the best direct guitar sound of anything in my racks.

For those who record a direct and an amped signal from the same source (as is typically done with bass and guitar), having a polarity reverse switch available for the DI input is a big bonus.

The TD-1's impedance switching didn't have much effect on the sound of my Fender bass. On guitar (single-coil and humbucking pickups), the 10 M Ω setting was more open and airy, while at 470 k Ω there was improved bass punch. Both settings resulted in usable guitar tones, and impedance switching didn't produce any noticeable gain change.

At the 10 M Ω value, the TD-1's FET circuit seemed to offer deeper bass response, while the DI's Tube

Topology sound was more aggressive in the upper mids. And in Tube mode the TD-1 brought out harmonics to give extra-rich presence to bass guitar. During tests I was amazed to hit a bass chord and effortlessly hear the natural decay of the harmonic series from high to low partials.

Ears on the Mix

For the next phase of testing, I used a loudspeaker playing full-spectrum mixes, miked by a Manley Cardioid Reference tube mic. Splitting the mic's output to pairs of preamps opened my ears to the qualities of the TD-1's HV-3 mic preamp.

In a phase-null comparison (a procedure used for level matching in critical listening tests), the TD-1 closely matched the audible-range frequency response of a Grace 101 preamp. The HV-3 mic pre gave more heft to kick and bass but was just as airy as the solid-state Grace. I was impressed to hear that the TD-1 electronics offered improved resolution, enhancing reverb, room sound, and low-level mix elements.

When compared against a Focusrite Red 6, which is a warm solid-state pre with a transformer-enriched low end, I found once again that bass instruments were more focused and present in complex mixes through the TD-1. The Focusrite had a hair more presence around 7 kHz; otherwise, however, it was comparable in terms of timbre.

When contrasted with the Universal Audio 2-610 (a favorite tube preamp of mine), the word that instantly came to mind when auditioning the TD-1 was "clarity." Millennia's preamp delivered a smooth and seemingly limitless high end, and mixes through the TD-1 were more dynamic across the entire frequency spectrum.

Session Tales

The TD-1 and its HV-3 mic preamp got a good workout during a soundtrack-recording session for composer and multi-instrumentalist Fred Frith. The unit coaxed thick and gorgeous tone from a delicate bamboo flute, and drew positive comments from the composer when employed as a bass DI. Paired with a Royer R-122 ribbon mic, the Millennia brought amazing presence to a violin track without ever sounding scratchy.

When used with Frith's amplified string-instrument prototype (a compact zither with guitar pickups), the TD-1's EQ was a big help in adding high-end sparkle. The muting of the audio signal when engaging the master EQ switch hindered A/B comparison. But it was easy enough to hear that some major



FIG. 2: The rear panel includes a range of outputs such as balanced and unbalanced 1/4-inch and XLR jacks and a pair of 1/4-inch reamp outputs for rerecording guitar parts.

EQ magic was taking place between the DI input jack and the line output.

The TD-1's EQ is wonderfully subtle and usable right out to the extremes of the bass and treble ranges. Boosts at 25 kHz are easily audible and wonderfully airy, while low-end adjustments remain transparent and free of muddiness.

As a further testimonial to Millennia's precision work, solid-state and tube DI output levels matched exactly. I was also pleased that the TD-1 worked on an unbalanced insert with my Soundcraft mixing board—something that most balanced devices will not do.

One for the Millennia

Millennia's TD-1 has already been nominated for several industry awards. And its truly superlative sonics, abundant world-class features, and indestructible build quality would enhance any operation, from well-stocked pro facilities to modest personal studios.

Discriminating DAW users in particular are advised to savor the sonic upgrade that the versatile TD-1 offers. The portable charms of its DI and HV-3 mic preamp should also appeal to gigging musicians and remote recordists.

Though the price tag is upscale, Millennia has packed this box with outstanding value. The TD-1 will stand the test of time and put smiles on the faces of those in the control room. Its Twin Topology super DI had more presence and rich definition than any other DI/preamp that I tried on bass or guitar. Additionally, the airy highs and deep resolution of the HV-3 mic preamp were equal or superior to my favorite solid-state pres. And in all applications, the EQ was a joy to use and truly deserving of the phrase "mastering quality."

With all those things going for it, readers may wonder how a gearhead like me can go on engineering without the TD-1. The fact is, I can't. The TD-1 is a keeper and receives my highest recommendation.

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