

## ECLER DIGITAL TRILEVEL TECHNOLOGY AMPLIFIERS

ECLERs lightweight amplifiers employ a regulated switch-mode power supply with PFC (Power Factor Correction) together with two TRILEVEL technology digital amplifiers. ECLERs R&D engineers have developed innovative solutions in both devices obtaining as a result a lightweight amplifier that sounds like an analogue equivalent and is capable of delivering all its output power all the time. This last aspect in particular represents an important step taken by ECLER for the consolidation of this technology.

Finally a digital amplifier exists whose audio quality and reliability is perfectly comparable to the most reputable analogue power amps in the pro audio world. Its advantages, that go beyond low weight, exceptional efficiency and reduced thermal stress, make this option fit in a wide range of installations and events. Digital technology furthermore opens a universe of possibilities yet to arrive. Don't compromise! Amplify digitally with all the power all the time.

DT6800: The first 2 x 3300WRMS / 2 Ohm digital amplifier with "all the power all the time" operation that sounds like an analogue amp.

### MAIN FEATURES

- First high performance "all the power all the time" amplifier
- 3320 W per channel on 2 Ohm (Model DT6800) in only 9,8 kg
- Resonant structure stabilized switch-mode power supply with PFC (Power Factor Correction)
- Trilevel Technology class BD digital amplification
- High End audio performance
- Low distortion, comparable to an analogue amplifier
- Temperature controlled progressive "Back to Front" cooling system takes air from the rear and throws it out at the front panel. Thermal management system
- Effective protection systems that do not affect audio quality with status indicators
- VCA-controlled autogain protection system (Analogue Autogain Signal Processor) and intelligent variable threshold anticlip protection that adapts to the incoming type of transient peak.
- Built-in subsonic filter.
- Tropicalized printed circuit boards, for use in salty or extremely humid environments
- Sealable gain controls.
- Nominal gain can be adjusted at the back panel with micro-switches (1V, 32 dB, 26 dB, 24 dB)
- Electronically balanced XLR-3 input connectors
- XLR-3 stack output connectors for interconnection with additional power amps.
- Complies with EMC (Electromagnetic Compatibility) regulations.
- Robust, road tested. It has been certified to pass norm EN 60068-2-6:1995, level 5M3 as described on IEC 60721-3-5:1997. (Norm related to equipment to be transported by road through routes in bad conditions.)



## ALL THE POWER ALL THE TIME PHILOSOPHY

The main design and component selection criteria is reliability and sound quality. Component dimensioning for continuous operation in consequence the period delivering full specified output power is indefinitely.

The final result is a good reproduction of musical dynamics, professional reliability and oposite to many existing light amplifiers output power measurements can be done because DT's are able to reproduce sinusoidal signals.



Nominal gain can be adjusted at the back panel with micro-switches (1V, 32 dB, 26 dB, 24 dB)

### LABORATORY OUTPUT POWER MEASUREMENTS

|   | DT4800 |       |       | DT6800 |       |       |
|---|--------|-------|-------|--------|-------|-------|
|   | 8 Ω    | 4 Ω   | 2Ω    | 8 Ω    | 4 Ω   | 2Ω    |
| Maximum RMS Output Power per channel<br>0,3% THD, 1 kHz * | 700W   | 1320W | 2350W | 960W   | 1794W | 3320W |

\* Maximum RMS Output power remain constant even in heavy use situations and is independent from warm up time.

### TECHNICAL CHARACTERISTICS DT 6800 - 4800

|                                  |                        |
|----------------------------------|------------------------|
| Frequency response (-1dB / -3dB) | 10Hz±35KHz             |
| High pass filter (-3dB)          | ~20Hz                  |
| THD+Noise @ 1kHz Full Pwr.       | <0,05%                 |
| Imd. Dist. 50Hz & 7kHz, 4:1      | <0,03%                 |
| TIM 100                          | <0,04%                 |
| S+N/N 20Hz-20kHz @ 1W/4W         | >85dB                  |
| Damping factor 1kHz @ 8ohms      | 350                    |
| Channel crosstalk @ 1kHz         | >65dB                  |
| Input connector                  | XLR3 balanced          |
| Input CMRR/ref. Max. PWR         | >60dB                  |
| Input Sensitivity / Impedance    | 0dBV/10kHz             |
| Signal present indicator         | -40dB                  |
| Output connectors                | Speak-on               |
| Mains                            | 230V AC                |
| Power consumption (max.Out)      | 3.650 VA (2700VA 4800) |
| Dimensions Panel                 | 482.6x88mm             |
| Depth                            | 458mm                  |
| Weight                           | 9.8 Kg.                |

All the characteristics are subject to variation due to production tolerances. ECLER SA reserves the right to make changes or improvements in manufacturing or design that may affect specifications.





# DIGITAL TRILEVEL

## THE POWER SUPPLY INSIDE THE DIGITAL TRILEVELS: The DT's engine is a quite special switch-mode power supply

### RESONANT STRUCTURE

A resonant type electronic structure minimizes energy losses. Its efficiency is clearly very high, over 90%. Its high efficiency involves reduced weight and volume. The resonant electronic structure reduces EMI, Electromagnetic interference. Finally, thanks to this circuit, reliability is increased for two reasons: The series LC structure – protecting against short circuits – and less stress on the switching power device.

### STABILIZED

The power supply delivers constant voltage for the digital amplification modules across a wide range of mains supply variations from 180 to 265 VAC. As a consequence of this feature, output power becomes independent from mains supply voltage.

### BUILT-IN PFC (POWER FACTOR CORRECTION)

The PF (Power factor) is an indication of how well a certain circuit makes use of electrical energy taken from the electrical network.

To avoid waste of energy, a so-called PFC circuit is included inside the Digital Trilevels, which forces the device to get energy with a PF near 1. In practice, the user may connect more amplifier units to the same power line or mobile power system, hire a smaller power system or even significantly reduce electric consumption costs in fixed installations.

### HIGH EFFICIENCY STRUCTURE

While the efficiency of stabilized linear power supplies, whose main characteristics are excellent regulation and heavy weight, merely reaches 50%, the efficiency of the switch-mode power supply built into the Digital Trilevels rises up to 92%

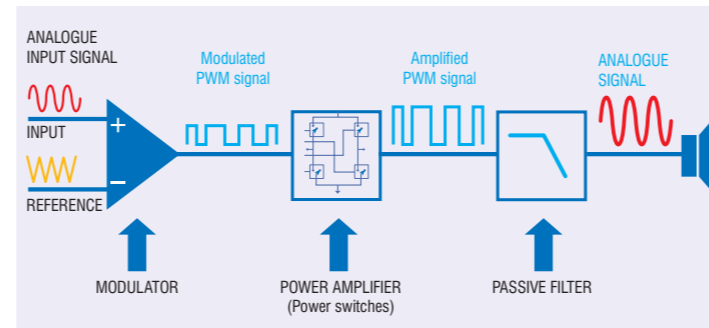
### HIGH RELIABILITY

The tough world of live touring needs extremely robust and reliable products. Ask your service technician about all that can be found inside a power amp after thousands of miles of touring. Here at ECLER we perfectly know about all kinds of things found inside amps and therefore the DT's power supplies are shorable. Today, few amplifiers feature shorable power supplies.

### REAL POWER, NOT PEAK VALUES

If sound quality is a key factor and additionally all the output power is required all the time, the "engine" should be well prepared for such a task. The switch-mode power supply inside the DT's is engineered so that the maximum power is available on every moment continuously, and not only during short periods of time.

## CLASS D: PWM AMPLIFIER (Pulse Width Modulation)



Efficiency rises spectacularly, it can be higher than 90%. Weight can be reduced around 30%. The heat sink can be 6 times smaller than on a conventional amp with similar output power



Digital Amplifier main circuit. SMD components. Tropicalized printed circuit boards, for use in salty or extremely humid environments.



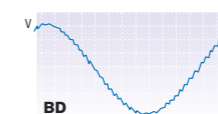
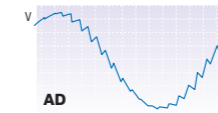
Sealable gain controls

## AMPLIFIER WITH BD-TYPE TRILEVEL MODULATOR

Class BD is characterized by:

- On absence of signal at the input, no output pulses appear at all. The acronym BD is coined by direct similarity with analogue class B amplifiers.
- Its effective frequency is twice that of the reference signal. The higher the frequency, the better the filter will attenuate unwanted frequencies and the less residual ripple will exist, thus directly affecting audio quality.
- The existence of both positive and negative pulses (TRILEVEL Modulation) means that the effective amplitude of the pulse signal is half that of a class AD Modulation, further decreasing residual ripple content.

• These two facts signify a 18 dB improvement during the filtering of the modulated signal using the same passive filter. Residual ripple is 8 times smaller, significantly improving audio quality.



Residual ripple comparison between both modulation systems

