DW-F14000

DATASHEET



The DW-F14000 is a four-channel Class D power amplifier delivering 4 × 3,500 W into 8 Ω from a 1.5U chassis weighing 14.8 kg. It is built for the situation that breaks most touring amplifiers: four channels driven hard, simultaneously, for hours, on a supply that is not a clean grid.

The output stage uses silicon carbide switching devices rather than conventional silicon MOSFETs. SiC switches faster with lower conduction and switching losses, which is what allows this much output from this little chassis — and, more usefully in the field, it means the amplifier keeps working as junction temperatures climb instead of folding back into thermal protection when the show is halfway through.

Power supply and amplifier sections sit in separate thermal zones, each with its own cooling fan, so heat from the PFC stage does not migrate into the output stage. Airflow is front-to-rear to professional rack convention, and fan speed tracks measured temperature rather than running flat out.

The input stage carries an active power factor correction circuit holding power factor close to unity across a 100–240 V AC input range. This matters in practice more than it reads on paper: on a diesel generator or a weak provincial grid, the amplifier draws a clean current waveform and holds output regulation through voltage sag rather than sagging with it. Across the full four-channel load the amplifier draws no more than 13 A from a 230 V supply.

Channel mode — dual, parallel or bridged — is selected from touch controls on the front panel rather than exposed mechanical switches, and the display can be locked against accidental adjustment during a show. The panel reports operating temperature, per-channel signal level for A/B/C/D, and protection status in real time.

Key Features

- 4 × 3,500 W into 8 Ω, 4 × 5,300 W into 4 Ω, 4 × 7,950 W into 2 Ω from a 1.5U, 14.8 kg chassis
- Silicon carbide output devices – lower switching loss and higher thermal headroom than conventional silicon
- Bridged mode: 2 × 10,500 W into 8 Ω, 2 × 15,750 W into 4 Ω
- Constant-voltage operation: 4 × 2,500 W at 100 V, 4 × 1,200 W at 70 V, 4 × 600 W at 50 V
- Maximum mains draw 13 A at 230 V with all four channels driven
- Active PFC across 100–240 V AC – stable output on diesel generator and unstable local supply
- Separate thermal zones for power supply and amplifier sections, each with dedicated cooling
- Damping factor ≥ 2,500 and slew rate ≥ 45 V/µs for transient response with all four channels driven
- THD ≤ 0.05 % at 8 Ω / 1 kHz, S/N ≥ 99 dB, channel separation ≥ 100 dB
- Touch-control mode switching (dual / parallel / bridge) with no exposed mechanical switches
- Full protection suite: short circuit, thermal, DC offset, soft start, clip and long-term power limiting

Applications

- Touring and rental production
- Arenas, stadiums and large halls
- Theatres and cultural centres
- Fixed installation and 100 V distributed systems

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Technical Data

Type	**4-channel Class D switching amplifier, silicon carbide output devices**
Output – dual mode	**4 × 3,500 W @ 8 Ω | 4 × 5,300 W @ 4 Ω | 4 × 7,950 W @ 2 Ω**
Output – bridged mode	**2 × 10,500 W @ 8 Ω | 2 × 15,750 W @ 4 Ω**
Output – constant voltage	4 × 2,500 W @ 100 V | 4 × 1,200 W @ 70 V | 4 × 600 W @ 50 V
Output measurement standard	**1 kHz sine burst, 20 ms on / 480 ms off THD 1 %, all channels driven**
Channel modes	Dual (1+/1– each) | Parallel (common input A, independent level) | Bridge (1+/2–) Selected by front-panel touch control, no exposed mechanical switch
Frequency response	**20 Hz – 20 kHz (±0.5 dB)**
THD	≤ 0.05 % @ 8 Ω / 1 kHz
Signal-to-noise ratio	≥ 99 dB
Channel separation	≥ 100 dB @ 8 Ω / 1 kHz
Damping factor	≥ 2,500
Slew rate	≥ 45 V/µs
Input sensitivity	Selectable 32 / 35 / 38 / 41 dB
Input impedance	≥ 20 kΩ balanced | ≥ 10 kΩ unbalanced
Inputs	**4 × XLR 3-pin balanced, female with male parallel link for daisy-chaining without an external splitter**
Outputs	**4 × Neutrik speakON® NL4**
Display / controls	Real-time temperature, per-channel level A/B/C/D, protection status Independent level control per channel | display lockout
Mains supply	**100 – 240 V AC, 50 / 60 Hz | active PFC, PF near unity across range**
Mains connection	Captive AC power cord with moulded strain relief Not detachable | power switch on front panel
Mains current @ 230 V	**Idle 1.0 A | typical programme 6 A | heavy programme 11 A Maximum 13 A, all channels driven**
Mains protection	No integral circuit breaker – external supply protection required Soft start inrush limiting
Cooling	Variable-speed temperature-tracking fans, front-to-rear airflow Separate thermal zones for PSU and amplifier, one fan per zone
Thermal headroom	**Stable to 60 °C semiconductor block temp. at sustained peak load**
Protection	Short circuit (<2 Ω, self-recovering) | thermal (self-recovering) | DC offset Soft start | clip limiter | long-term power limiter
Operating conditions	0 °C to +40 °C | 5 – 95 % RH, non-condensing
Chassis	Powder-coated black steel, aluminium alloy front panel
Rack format	**19" 1.5U per EIA-310**
Dimensions (W × D × H)	**483 × 420 × 66 mm | 19.02 × 16.54 × 2.60 in**
Weight	**14.8 kg | 32.6 lbs**
Certification	CO / CQ per shipment
Warranty / spare parts	26 months | replacement modules available 5 years

Rear Panel



rear panel — 4 x speakON NL4 out, 4 x XLR in with parallel link, captive mains cord, dual-zone cooling

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Architect Specification

The amplifier shall be a four-channel Class D switching power amplifier employing silicon carbide semiconductor devices in the output stage, housed in a 19-inch 1.5U rack chassis conforming to EIA-310.

Rated output power shall be not less than 3,500 W per channel into 8 Ω, 5,300 W per channel into 4 Ω and 7,950 W per channel into 2 Ω in dual mode, measured with a 1 kHz sine burst of 20 ms duration at 480 ms intervals, at 1 % total harmonic distortion, with all channels driven. In bridged mode the amplifier shall deliver not less than 10,500 W per bridged pair into 8 Ω and 15,750 W into 4 Ω under the same measurement condition. In constant-voltage mode the amplifier shall deliver not less than 2,500 W per channel at 100 V, 1,200 W at 70 V and 600 W at 50 V.

Channel configuration shall be selectable between dual mode with independent 1+/1– output per channel, parallel mode sharing input A with independent level control per channel, and bridge mode combining two channels to a 1+/2– output. Mode selection shall be made from front-panel touch controls; exposed mechanical switches shall not be accepted.

Frequency response shall be 20 Hz to 20 kHz within ±0.5 dB. Total harmonic distortion shall not exceed 0.05 % at 8 Ω and 1 kHz. Signal-to-noise ratio shall be not less than 99 dB and channel separation not less than 100 dB at 8 Ω and 1 kHz. Damping factor shall be not less than 2,500. Slew rate shall be not less than 45 V per microsecond, ensuring transient response is maintained with all four channels driven simultaneously at high output. Input sensitivity shall be selectable at 32, 35, 38 and 41 dB. Input impedance shall be not less than 20 kΩ balanced and 10 kΩ unbalanced.

The amplifier shall provide four balanced 3-pin XLR inputs, each female connector accompanied by a male parallel link permitting signal distribution to downstream equipment without an external splitter, and four Neutrik speakON® NL4 outputs. A front-panel display shall report operating temperature, signal level for each of channels A, B, C and D, and protection status including clip, thermal and DC conditions in real time. Level control shall be independent per channel and the display shall incorporate a lockout function preventing accidental adjustment during operation.

The mains input shall accept 100 to 240 V AC at 50 or 60 Hz and shall incorporate an active power factor correction circuit maintaining power factor close to unity across the full input range, compensating for voltage fluctuation from diesel generator supply or unstable local mains. Maximum mains current shall not exceed 13 A at 230 V with all four channels driven. Mains connection shall be by captive power cord with moulded strain relief exiting the rear panel; no detachable inlet is fitted. The mains switch shall be located on the front panel. The amplifier shall incorporate a soft start circuit limiting inrush current. No integral circuit breaker is fitted; overcurrent protection shall be provided by the supply distribution.

Cooling shall be by variable-speed fans tracking measured temperature, with front-to-rear airflow to professional rack convention. The power supply and amplifier sections shall occupy separate thermal zones, each served by its own fan, so that heat from the power supply stage does not affect the amplifier stage. The amplifier shall operate stably at sustained peak load with semiconductor block temperatures reaching 60 °C without triggering thermal protection. Permitted ambient conditions shall be 0 °C to +40 °C at 5 to 95 % relative humidity, non-condensing.

Protection shall include short-circuit protection activating below 2 Ω and self-recovering, self-recovering thermal protection, DC offset protection at the output, soft start, clip limiting, and long-term power limiting to protect against sustained non-programme signal.

The chassis shall be powder-coated black steel resistant to abrasion and corrosion under repeated transport handling, with an aluminium alloy front panel. Dimensions shall not exceed 483 mm wide by 420 mm deep by 66 mm high and weight shall not exceed 14.8 kg.

The amplifier shall be supplied with certificate of origin and certificate of quality per shipment, and third-party test reports for output power, total harmonic distortion and signal-to-noise ratio. Availability of replacement modules — power supply, amplifier, fans and control board — shall be guaranteed for not less than five years.

The amplifier shall be the D&L DW-F14000.

References

Full measurement data and loudspeaker presets are available on request – dailycompanyltd@gmail.com