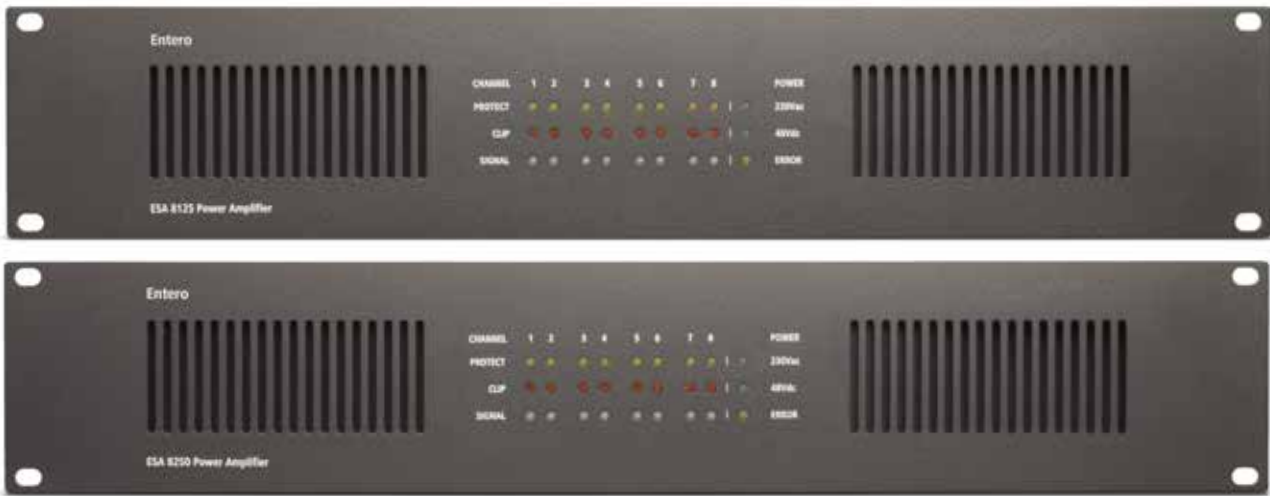


Entero® ESA 8250 / 8125 power amplifier

Entero®

TECHNICAL DATA SHEET



General description

The Entero® ESA 8250 / 8125 emergency system amplifiers are high efficient flexible power amplifiers. The ESA amplifiers can be used in fixed installations in low impedance, 50 V and 100 V bridged operation; both can also be used in Entero® Voice Alarm systems. The amplifiers deliver 8 x 250 Wrms @ 50 V (ESA 8250) and 8 x 125 Wrms @ 50 V (ESA 8125) and in bridge mode: 4x 500 Wrms @ 100 V (ESA 8250) and 4x 250 Wrms @ 100 V (ESA 8125), both without using 100 V output transformers. Output power can also be allocated: up to 300 Wrms per channel depending on the connected loads.

Both amplifier models include 8 high efficient Class D output stages and a redundant Switch Mode Power Supply (SMPS) operating from both a 230 Vac as from a 48 Vdc power source (the ESA-8250 includes 2 power supplies, 1 for Ch.1-4 and 1 for Ch.5-8). Each channel includes balanced input connections with input gain control and features an EQ card slot for Bose® series II-s EQ cards.

Applications

Designed for a wide range of sound systems, including those systems that also combine functionality to meet voice alarm requirements, e.g.:

- Hospitality venues
- Retail
- Shopping malls
- Sports facilities
- Multi-purpose venues
- Schools and universities
- Public buildings
- Entertainment venues
- Offices

Key features

- **Class-D amplifier**
High efficient class D amplifier design providing full frequency bandwidth audio performance, independent of the load connected, including low impedance loads. (4 and 8 ohm), 50 V loudspeakers lines and 100 V (in bridge mode) without the use of output transformers.
- **Redundant power supply**
High efficient switch mode power supply featuring a 230 Vac and 48 Vdc input. Seamless switching from AC to DC without any loss in output power, even at low AC input voltages.
- **Output power allocation**
Output power can be allocated between the different channels: up to 300 Wrms depending on the load connected.
- **Energy saving mode**
Energy saving mode switches the amplifier into standby mode reducing the idle current consumption to a minimum, which saves battery capacity. Using this feature's link in and out connection, multiple amplifiers can be controlled at once.
- **EQ card slots**
Each amplifier channel includes an EQ card slot to fit optional Bose® equalization cards series II (EQ card-II-S), which provide active equalization for Bose® professional loudspeaker systems.

Technical specifications

Entero® ESA power amplifier	ESA 8250	ESA 8125
Output power* per channel in Watt RMS**, into:		
50 V loads (THD < 0.5%)	250 (@ 10 Ω)	125 (@ 20 Ω)
4 Ω & 8 Ω (THD < 0.5%)	250	125
Bridged mode at 100 V (THD < 0.5%)	500 (@ 20 Ω)	250 (@ 40 Ω)
Bridged mode at 8 Ω (THD < 0.5%)	500	250
Maximum power at 4 Ω & 8 Ω (limits remaining power for other channels)	200 / 300	200 / 300
Minimum load impedance	4 Ω / 8 Ω bridged	4 Ω / 8 Ω bridged
Maximum load capacitance	150nF	150nF
THD at 1 kHz - rated power (/ with TraPack)	< 0.5 % (/ < 1%)	< 0.5 % (/ < 1 %)
THD at 1 kHz – 1 W (& with TraPack)	< 0.2 % (/ < 0.5%)	< 0.2 % (/ < 0.5 %)
Frequency response (0, -3dB):		
at rated power	20 Hz-20 kHz	20 Hz - 20 kHz
at rated power, using TraPack	20 Hz-15 kHz	20 Hz - 15 kHz
at rated power in combination with Entero® ESC (/ Entero® TraPack)	20 Hz-18 kHz (/ 15kHz)	20 Hz - 18 kHz (/ 15 kHz)
at rated power in combination with Entero® ESC & Microphone (/ Entero® TraPack)	60 Hz-18 kHz (/ 15kHz)	60 Hz - 18 kHz (/ 15 kHz)
Channel separation (at 1 kHz)	> 65 dB	> 65 dB
Noise (A-weighted) @ 230 Vac / 48 Vdc	> 95 dB / > 85 dB	> 95 dB / > 85 dB
Noise (A-weighted) @ 230 Vac / 48 Vdc, in combination with Entero ESC	> 75 dB / > 70 dB	> 75 dB / > 70 dB
Input sensitivity for maximum output at 8 Ω and higher (/ 4Ω)	6.7 dBu (/ 3.7 dBu)	6.7 dBu (/ 3.7 dBu)
Input gain control	-infinite to +6 dB	-infinite to +6 dB
Input impedance	5 KΩ	5 KΩ
Maximum input signal	+18 dBu	+18 dBu
Input connectors	3 pin Euro block	3 pin Euro block
Output connectors	4 pin Euro block	4 pin Euro block
Fault contact/standby mode connectors	2 pin Euro block	2 pin Euro block
AC Power Supply	230 Vac (-15 % / + 10 %) 50 / 60 Hz	230 Vac (-15 % / +10 %) 50 / 60 Hz
AC Power consumption @ full power	2400 W	1200 W
AC Idle Power	69 W	64 W
AC Fuse	16 A slow	10 A slow
DC Power Supply	48 Vdc (-15 % / + 10 %)	48 Vdc (-15 % / +10 %)
DC fuse	2 x 30 A***	30 A***
DC Power consumption @ full power (triangle shaped / slowhoop signal ****)	33 A	18 A
DC Idle Current / Standby Mode	1.75 A / 0.01 A	1.4 A / 0.01 A
Dimensions (W x H x D) in mm	482 x 88 x 503	482 x 88 x 503
Weight	8.2 kg	7.1 kg
Operating temperature	0 to 40 degrees C.	
Humidity (without condensation)	93 % max.	

* **NOTE:** Output Power is measured with all channels driven at a 230 Vac (-15 % / + 10 %) mains supply and at a 48 Vdc (-15 % / +10 %) battery power supply. When the AC or DC power supply drop below the specified voltages (< 195.5 Vac & < 48 Vdc), the amplifier will not deliver the rated power anymore and may enter protection mode. Make sure the AC and DC power supply input never exceed their maximum voltage ratings (> 253 Vac & > 52.8 Vdc) to avoid failures or damages to the amplifier.

** **NOTE:** The RMS output power ratings are measured using a sine wave signal.

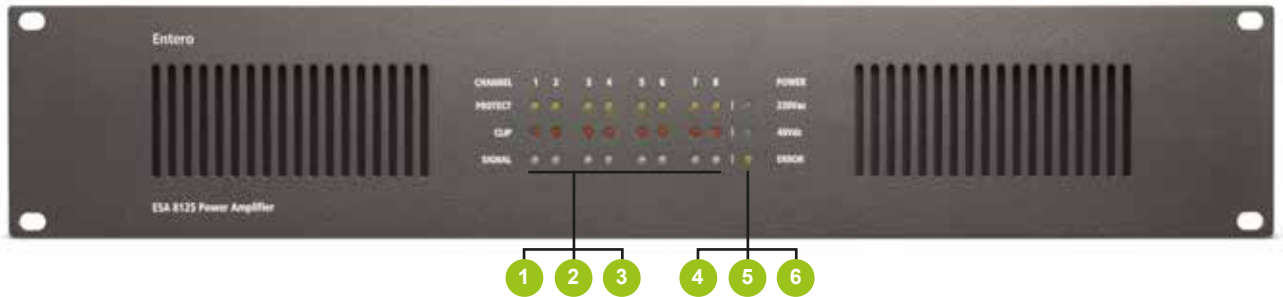
*** **NOTE:** If external fuses are required; use a 30 A fuse for the ESA 8125 and a 60 A fuse for the ESA 8250, between the DC input and the DC power supply.

**** **NOTE:** The power consumption is measured using a 'slowhoop' signal. This slowhoop signal is the internal emergency alarm tone signal from the Entero® ESC emergency system controller and is based on a triangle shaped signal; for further details on this signal and battery capacity calculation see the Entero® ESC emergency system controller manual.

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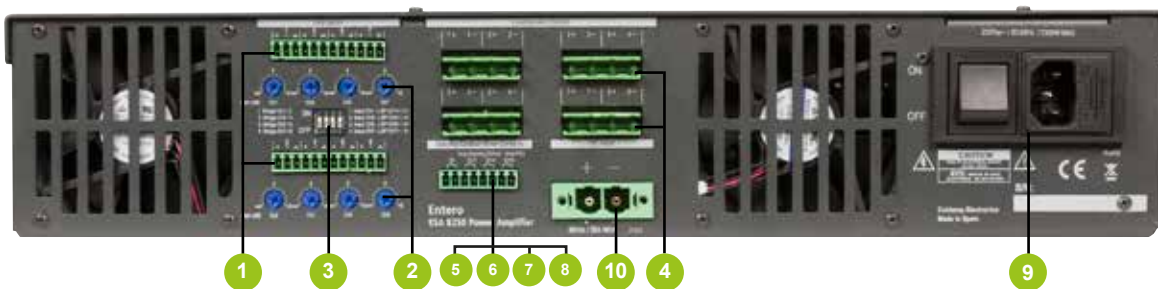
Front panel indicators

Channel 1 to 8:

1. PROTECT – YELLOW – indicates a fault or activated protection circuit
2. CLIP – ORANGE – indicates a clipping audio signal
3. SIGNAL – BLUE – indicates the presence of input signal

Power Supply:

4. 230 Vac – GREEN – indicates the presence of the 230 Vac mains voltage
5. 48 Vdc – GREEN – indicates the presence of the 48 Vdc battery voltage
6. ERROR – YELLOW – indicates a fault in the power supply



Rear panel connection and controls

1. Analog balanced line level inputs (Ch.1 – 8)
2. Input gain controls (Ch. 1 – 8)
3. Dipswitch for Bridge mode settings (Ch.1 – 8)
4. 50 Vrms / Low Impedance Loudspeaker outputs (Ch. 1 – 8)
5. Standby mode input – when triggered (contact closure) the internal power supply will switch into standby mode
6. Standby mode link - output contact (NO) to link to standby input of next amplifier
7. 230 Vac error contact (NO) – when closed it indicates the loss of the 230 Vac input
8. Fault relay contact (NO) – indicates a general amplifier failure and/or power supply failure
9. 230 Vac input & power switch (OFF position will not affect the 48 Vdc input)
10. 48 Vdc battery input for emergency battery backup

Architects' and Engineers' Specifications

The amplifier shall contain Class D amplifier stages and redundant switch mode power supplies. The redundant power supply shall switch over from 230 Vac to 48 Vdc while output power is maintained. The amplifier shall include protection from shorted and open loads, overheating, DC, under/over voltage, overcurrent and internal faults.

The amplifier shall contain eight independent amplifier channels, which can be configured to allocate output power across the channels. The amplifier channels shall be bridgeable.

Fan airflow will be from the front panel to the rear panel. Rack mounting of multiple amplifiers shall be possible without extra rack spacing for ventilation. The amplifier shall be capable of continuous operation at 1/3 of rated power into 4 ohm, 8 ohm or 50 V line loads, in ambient temperatures of up to 40° C.

The amplifier shall have a provision for Bose EQ cards for each channel.

The amplifier shall include Energy save mode which switches the amplifier in standby mode reducing idle current to a minimum.

The amplifier shall be available in different models, each providing different levels of output power and shall meet or exceed the following performance specifications:

- Input sensitivity for rated output: 5.35 dBu.
- Rated output power model 1, per channel, with all channels driven and with less than 0.5% THD: mono mode with up to 8 channels of 250 Wrms into 50 V lines (10 ohm), 4 and 8 ohm loads; bridged mode with up to 4 channels of 500 Wrms into 100 V lines (20 ohm), 8 or 16 ohm loads.
- Rated output power model 2, per channel, with all channels driven and with less than 0.5% THD: mono mode with up to 8 channels of 125 Wrms into 50 V lines (20 ohm), 4 and 8 ohm loads; bridged mode with up to 4 channels of 250 Wrms into 100 V lines (40 ohm), 8 or 16 ohm loads.
- Frequency response (0, -3 dB): 20 Hz- 20 kHz
- Signal to Noise ratio: >95 dB (at 230 Vac) / >85 dB (at 48 Vdc)
- Channel separation: > 65 dB.

The amplifier shall be constructed of aluminum with a durable powder coated finish. The amplifier shall be lightweight; 7,7 kg for model 1 and 7 kg for model 2.

The amplifier shall be the Entero® ESA 8250 power amplifier for model 1 or the Entero® ESA 8125 power amplifier for model 2.

Regulatory information

The Entero® ESA power amplifiers comply with the following regulations:

EMC: EN55103-1/-2, Safety: EN60065 6th edition
RoHS2 Directive 2011/65/EU
EN54-16 – when part of the Entero® Voice Alarm system

Warranty information

The Entero® ESA power amplifiers are covered by a 5-year, transferable limited warranty.

Entero® TraPack



Enclosure to house up to eight 100 Volt transformers; can be used in combination with the Entero® ESA 8125 / 8250 power amplifiers.

Dimensions (W x H x D): 482 x 88 x 503 (mm)
Weight (empty): 2 kg



Entero® TraPack 125 W/100 V transformer

Voltage ratio: 50 to 100 V
Max. power handling (RMS): 125 W
Peak power handling: 175 W
Weight: 3 kg



Entero® TraPack 250 W/100 V transformer

Voltage ratio: 50 to 100 V
Max. power handling (RMS): 250 W
Peak power handling: 350 W
Weight: 4 kg