

THEL

Audio-World



T.Hartwig-ELEktronik owner Thomas Hartwig
Blumenweg 3a, D-34355 Staufenberg Tel.
05543-3317, email Office hours: Mon-
Thu, approx. 2 p.m. - 4 p.m. Ust. ID. No.:
(VAT) DE 115268023 Privacy Policy

< to the home page

general overview

audio modules

power adapter

basics

Were

an order

The exceptional power supply in the audiophile world



Black Pulsar "Class A" power supplies in constant current technology with electronic shunt resistor, making them extremely fast.

For audiophile small consumers, such as preamps, phono preamps, active crossovers, Raspberry Pi, DA converters, audio boards, and much more. The power supply is double, both halves can be adjusted separately.





Waste of energy in its purest form While conventional analog power supplies only deliver as much current as the consumer draws, the maximum possible current flows constantly here, which is "consumed" by a load resistance and which at the same time keeps the output voltage constant. If the consumer draws current, this is shared with the load resistance, since the same current always flows through the constant current source. This switching principle is comparable to a car that is driven at full throttle and the speed is only controlled with the brakes. As a result, this "waste of energy" causes the power supply's cooler to get very hot, with the temperature dropping as the load draws more current. Since this circuit technology offers very special advantages in terms of power quality, the power supply unit does not have to be significantly oversized.

The sketch shows one half of the dual power supply

In view of the relatively high loss values (approx. 3 - 12 watts per half, depending on the module), it is necessary that the matter is well thought out.

As a reward, a hitherto unfulfillable wishful thinking seems to have been achieved - a voltage in battery quality, in terms of freedom from interference and audiophile behavior.

Through the skilful use of appropriate ICs and transistors, this perfected type of circuit is in principle free of any tendency to oscillate and generate noise. Even mains disturbances are effectively suppressed, since a power source for alternating current of any kind represents an almost infinitely high resistance. For the same reason, almost no reverse interference is caused in the mains, since the constant flow of current - apart from the usual current peaks caused by rectification - does not allow any further impulse-like current changes, which is the great misery of switch-mode power supplies. Therefore, a digital consumer on the Black Pulsar, such as a DA converter, Raspberry Pi, etc., causes almost no feedback on the network due to the clocked power consumption.

There are hardly any measurable hum or noise voltages or other interference components at the output. Also, not a single measure to compensate for the tendency to oscillate is necessary, as is often the case with line voltage-regulated power supplies.

This enables a puristic use of components, which has a corresponding effect on the liveliness of the music reproduction. Depending on your needs and preferences, unlimited electrolytic capacitor capacities can also follow.

The increase in performance of the connected high-end audio modules is of such magnitude that the relatively high energy loss seems justified in any case. Preamplifiers, phono preamplifiers, etc. reach their highest level, caused by a voltage purity, as it is only known from rechargeable batteries , and even surpasses it in some values - such as speed.

Important components are of high audiophile quality: Super-fast rectifier diodes, selected Krummer capacitors (only BLP-25) in their behavior when connected in parallel, temperature behavior, ESR and service life, as well as a straight layout and easy handling.

Consider that the output voltage of an audio circuit is 100% the supply voltage, only modulated by the input signal. This is the only way to realize how important the quality of the power supply is and what unexpected effects such a crazy power supply has.

Housing ventilation

The cooler may reach a temperature of 85°-90° degrees. Ventilation may be necessary if the housing is too small. If in doubt, test. Ventilation could be provided by drilling holes in the floor (below or next to the circuit board) and in the back panel. The circuit board already contains ventilation holes under the coolers.

Info on the electrolytic capacitor temperature: The electrolytic capacitors are selected LOW-ESR 105° types. At a cooler temperature of approx. 85° degrees, the electrolytic capacitor temperature levels off at approx. 50° degrees.

Short-circuit proof as a matter of principle - also in this case no more than the constant current can flow.

Double power

The power pack is doubled up, the voltage of both halves can be adjusted separately and can be used individually. For operation on our audio modules, the two outputs are connected in series, which results in the required symmetrical operating voltage (eg +/-18V).

Connection options see here. A parallel connection as shown in Figure 3 is not possible with the black pulsar (current source).

Due to the so-called "Class-A" circuit principle (see below), the power supply constantly draws its maximum power from the mains, which means that the cooler gets very warm (approx. 80-90°). In contrast to conventional power supplies, the cooler temperature drops accordingly due to the power consumption of the consumers. Therefore, the power pack gets warmest when there is no load. Of course, the power packs are also operationally safe without a load, even if a high temperature of approx. 80-90°C occurs, depending on the housing ventilation.

The maximum output current should not be more than approx. 80% of the internal constant current (see table).

The internal constant current is fixed. If you want to reduce it, you can increase the value of the built-in resistor intended for this purpose in inverse proportion according to the operating instructions (described in the instructions).

Type	transformer	internal	Dates /Prices (incl. VAT)	Max	output voltage	weight	EUR
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Machine Translated by Google			Constant current	Output current (approx.)	adjustable		
	10VA; 2x15V	2x360mA		2x300mA 2x170mA	3.3V - 7V	490gr	126.00
BLP10-15	10VA; 2x15V	2x210mA		2x110mA	3.3V-14V	490gr	126.00
BLP10-22	10VA; 2x22V	2x135mA			11V-23V	490gr	126.00
BLP25-09	25VA; 2x09V	2x1000mA		2x800mA	3.3V - 7V	900gr	148.00
BLP25-15	25VA; 2x15V	2x440mA		2x350mA	3.3V-14V	900gr	148.00
BLP25-22	25VA; 2x22V	2x270mA		2x220mA	11V-23V	900gr	148.00

Before using
the power packs, set the output voltage to the required value and check it under load in the application.

Further data

BLP10

BLP25

[Instruction manual/manual](#)



Input voltage: 230V~

230V~

Power consumption: 11W permanent

23W permanent

Dimensions LxWxH: 163x72x40mm

182x92x53mm

The BLP-10's actually equipped electrolytic capacitors may differ from the photos.

The global delivery situation does not always allow the same manufacturer to be used.
(BLP-25 Krummer capacitors only).

The designation "Class A"

is not a common name for a power supply. It is mainly used in power amplifiers. However, the principle is the same.

The maximum current is constantly drawn and converted into heat when not in use. In the case of power amplifiers due to the high quiescent current, in the case of power supply units due to the shunt resistance. Only when the consumer draws electricity is the energy released to the consumer instead of to the heat sink. In the case of power amplifiers, these are the loudspeakers in the case of power supply units, the connected loads.

Thus, the unofficial designation "Class-A power supply" best describes the functional principle of our power supply series "Black-Pulsar".
Alternative name: shunt power supply

The sonic successes of such a power pack on correspondingly sensitive circuits and ears can hardly be physically (or scientifically) verified to explain.

Anyone who still thinks that the world needs his comment on the sense or nonsense of a Class-A power supply should accept that the tonal advantage is not you have to prove it - you just know it.