

cicable® PS 2.4q

● frequently asked questions concerning the cicable® Power Sourc PS 2.4q

FAQ about the PS 2.4q

The cicable ac power source points out:

Differences between audio components are not based upon „better-worse“ criteria, but simply on the better or worse ability of absorbing random power line disturbances.

The cicable PS 2.4q improves the whole system, not only a single component.

It can also make buying of new components obsolete.

Hello! Dear high end enthusiast !

The AC Power Source from cicable is the crucial step in upgrading already high grade audio systems.

The construction, the background and complexity create many questions we would like to answer here.

The following information is identical to the one you can find on the internet, but you can read it „on paper“.

If you have further questions, please call us [phone 02203.982255] or [mail@cicable.com].

Kind regards

Helmut Puellmanns

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Question ::

Are there any smaller versions of the cicable Power Source PS2.4q ?

Answer ::

Offering smaller models isn't reasonable, because ...

Power Rating

Models with lower power output can't supply the necessary power rating for the whole hifi-system. As a result you'd have to install more sources for bigger systems, with higher cost and more complex set-up causing more problems than it solves, or smaller systems which are permanently driven to their maximum capability.

Distortions

Exactly what we are trying to avoid, could happen here: the excessive load results in increased and raised distortions ... you start spinning around in a circle, because as a result you get what you want to prevent by using a self sufficient power supply: Power line perturbations and distortion up to the highest frequency range.

Price

A smaller power source [for example with a rating of 500VA], wouldn't necessarily cost 1/4 of the current price. Due to the high basic costs [technical development, basic control modules security circuits, concept, labour costs] a smaller power source would only effect a price reduction of 10% or 15%.

Costs?

If the price prevents you from buying a high class, adequately rated and properly dimensioned AC power source, you'd have to correct the rating of the under specified power source by buying new power sources

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when you upgrade your high-end system with high performance amplifiers. In the end, total costs and expense rise.

Supplement

Bigger versions are available at any time, but they require a three phase input. Power ratings up to 10.000 VA are possible. Among the basically bigger power reserves, three phase mains always offers the better precondition; of course a power source of this kind requires an extensive installation on site.



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Question ::

Can the cicable Power Source be operated with 110V/60 Hz power lines ?

Answer ::

Yes, the cicable Power Source can be operated with every power supply system in the world. But the switching isn't accesible for customers, as we don't want to be held responsible for the total breakdown of your hifi system.



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Question ::

How big is the improvement in contrast to the normal power line ?

Answer ::

If you presume approximately 5% distortion for a normal power line [measurements showed distortions up to 10%], the third harmonic distortion using the PS 2.4q is about 90dB below the fundamental signal, which is equivalent to a 30.000 fold reduction.



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Question ::

What kinds of distortions does the cicable PS 2.4q filter ?

Answer ::

This is one of the most asked questions. Apparently the subject of filtering is so popular that it's thought of as the cure-all. - No, the cicable PS 2.4q Power Source has nothing to do with „filtering“ or „cleaning“.

Not only is the method of filtering contrary to the thought of providing a clean supply voltage; a subsequent improvement of the supply voltage is only attainable by selective and specific measures. For example if the power line is affected by radio frequency interference, an appropriate filter couldn't do anything against a DC-offset or fluctuations of the supply voltage. But generating a new, clean supply voltage from the beginning instead of filtering is just the basic function and an even greater advantage of a clean power source [see samples of typical mains distortions >]. We at cicable are strongly convinced that this problem can only be completely and extensively solved by this measure.

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Question ::

What happens if a load distortion caused by connected consumers does occur?

Answer ::

The cicable Power Source has a load regulation of just 0.1% or a thousandth part..

Explanation

The low internal impedance results [among the function of keeping the supply voltage constant while energised] in a very low voltage reduction under load. While common voltage regulators create additional interferences by working with a "supplementary" voltage correction, the construction of the PS 2.4q Power Source delivers a permanent constant output signal voltage without any regulative processes.

The PS 2.4q Power Source always operates with an alternative voltage-coupling [AC-coupling], preventing direct voltage offsets [DC-offsets], making subsequent „power line conditioners" unnecessary. Possible saturation effects of subsequent transformers do not occur [main hum].



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Question ::

How does the cicable Power Source perform if voltage fluctuations occur ?

Answer ::

Voltage fluctuations of the primary power supply system are compensated in the range of 205 to 245 volts in a few μsec ; the rise time is 60 volts per μsec [1 millionth sec].

Explanation

The ability of compensating major low voltages depends on ...

- [1] consumer load
- [2] voltage drop and
- [3] duration of the voltage drop
- [4] power correction factor [$\cos \phi$ 0.7 – 1.0]

General statements are impossible because of different system configurations and different load. In practice the cicable PS 2.4q Power Source is charged at an average of only 25 to 50% of its maximal rating. Dependent of the voltage drop, regeneration within several msec remains unrecognized.

At any rate the connected consumers remain unaffected by spontaneous "dropouts". The permanently regulating cicable PS 2.4q smoothes existing voltage fluctuations so that the connected consumers may expect a nominal mains voltage of an accuracy of better than 0.5% within 10% to 100% of the rated voltage.



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Question ::

Does the cicable PS 2.4q work like an over-voltage protector ?

Answer ::

The cicable Power Source strictly prevents over-voltage output signals. This directly protects your devices and keeps them alive.

Explanation

An over-voltage conductor protects against sudden peak voltages, whereby the term „peak“ can be defined differently, depending on voltage level, occurrence and endurance. Anyway, over-voltages are smoothed and kept away from connected devices.

An over-voltage protector is similar in its function, but primarily protects against momentary, spontaneous over-voltages caused by arcing or lightning discharge. Here the effect is heavily dependent on the construction and layout as well; a total protection is surely impossible, although a high security level is achieved for the connected consumers.

But all these solutions are just isolated applications preventing these kinds of interferences and can only protect some [depending on the model] devices.



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Question ::

Is the cicable Power Source also an uninterruptible power supply ?

Answer ::

The cicable Power Source can only bridge voltage interruptions for a short period, because voltage interruptions are nothing less than „major“ power supply fluctuations. A distinction is drawn between voltage reduction in percent, also called „depth“ and the period the drop-off is active. - The cicable Power Source has the capability of sustaining [resp. regulating] the line voltage for one or two periods, depending on kind, duration and „depth“.

Explanation: An uninterruptible power supply [UPS] is often used in computer industry. These constructions sustain a minimum voltage line for a certain period, even if the power interruption persists for a long time. Often these constructions are combined with isolating transformers or galvanic decoupled batteries, achieving a simultaneous decoupling from the primary power supply. Admittedly this denotes the build-up of a new AC voltage, e.g. by a chopper [which doesn't work quite distortion free].

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Question ::

Can other devices be disturbed by the cicable PS2.4q ?

Answer ::

This question is more than justified due to our previous explanations! Also a "clean" power supply like the cicable PS2.4q is not absolutely distortion free. Particularly "on load" all devices that are in the chain, react with their own distortions; sometimes these interferences are even a multiple of what should be improved by the operation of this device. The cicable PS 2.4q impairs other connected devices with only 0.1% load regulation at rated power.

Explanation

By the way, this is also the reason why smaller models aren't clever. Small dimensioned models wouldn't possess the power reserves the cicable PS 2.4q has and would interfere with other consumers. The second [no less important] argument is that the cicable PS2.4q operates like a buffer amplifier, meaning the output is decoupled from the input by circuitry, and all connected devices [consumers] don't „see" eventual cicable PS 2.4q interference.

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Question ::

Which components are more sensitive to power quality: pre-amplifiers, CD-players or power amp ?

Answer ::

That depends on device construction and system configuration. Difficult speakers demand more from final stage amps, particularly with music that contains a lot of low frequencies energy than a quiet middle accentuated violin quartet. The results are different in both cases but definitely audible.



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Question ::

Does the cicable Power Source feature a „balanced output“ ?

Answer ::

The amplifier output isn't DC-isolated from the power line. VDE precautions for dangerous touch voltage remain preserved.

A galvanic decoupling would be technically realizable. But please bear in mind that we cannot assume liability for that. Particularly not for components unable to operate conventionally due to their missing safety ground connection.

Explanation

The PS 2.4q AC Power Source features a symmetrical output stage completely decoupled from the primary power source; the ground wire persists for qualitative reasons: Audio components with class_1 electrical mains isolation must have a safety ground. If missing, loss of quality, interferences or even safety problems may occur [that's why using isolating transformers without a safety ground is absolutely not permitted!] By separating the safety ground and neutral line, distortions commonly introduced by ground-wires are being eliminated with the PS 2.4q Power Source.

Also see :: What are the advantages and disadvantages of an isolating transformer?

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Question ::

Voltage fluctuations can also be eliminated by magnetic voltage regulator, can't they?

Answer ::

As a matter of principle: yes. But most voltage regulators compensate fluctuations of the primary power supply in a relatively slow and imprecise way. The cicable Power Source has an advantage in comparison to a voltage regulator, because it fits to every system configuration and additionally it's largely unaffected by connected consumer load.

Explanation

Magnetic voltage regulators are primarily designed for a power frequency fluctuating between $\pm 1.0\%$. Also they're optimised for a pure resistive load, equivalent to a **Power Correction Factor** of $\text{Cos Phi} = 1.0$ [**PCF** > voltage and power phase shift].

Anyway, the benefit of a voltage regulator is limited, as most consumers have a different PCF. Otherwise the differing PCF must be specified at the purchasing stage. This means that you would eventually have to buy a new voltage regulator if you buy an amplifier with another PCF in the future!

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Question ::

What are the advantages and disadvantages of an isolating transformer?

Answer ::

In contrast to isolating transformer the cicable Power Source keeps the power constant with the smallest fluctuations, decoupling the secondary power from the primary power line [like a transformer] but keeping the effect of a ground wire.

Explanation

In case of a 1:1 isolating transformer, the secondary power is DC-decoupled by the principle of induction; there's no electric connection. But often the ground wire gets interrupted to, so connected devices operate without safety ground.

Apart from not meeting standard requirements, dangerous voltages are not grounded if defective class_1 devices are in use. This means that in the event of damage insurers may deny payment.

Even worse, some class_1 circuitry is electrically not „defined“ without the ground wire; the required 0-volt reference for circuitry operation is missing. The worst case is that such devices show inexplicable defects, but in most cases they „sound“ totally different.

Also see :: Does the cicable Power Source feature a „balanced output“ ?



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Question ::

What's the difference between the cicable Power Source and a DC-conditioner ?

Answer ::

The DC-offset results in mechanical hum of transformers; particularly with often used modern toroidal transformers. Dependant on its qualitative construction it can also affect the operating voltage and function of semi-conductors. The cicable PS 2.4q Power Source features the DC-interference suppression „automatically“, because this phenomenon is just one amongst many others [see also > mainanomalies].

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Question :: Does the cicable Power Source feature a synthesizer ?

Answer :: No, the cicable Power Source is a pure analogue, linear power amplifier with a distortion free oscillator.



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Question ::

How does the cicable Power Source perform practically?

Answer ::

Like any other device - turn on and forget. – Automatic protective circuits prevent over voltages or illegal operating conditions. Big CEEkom-plugs allow cable connections with more than 4x2.5 mm profile. A very silent temperature controlled fan prevents the device from overheating. A FI-switch protects from device malfunction.

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Question ::

Does the cicable Power Source need additional accessories ?

Answer ::

No, that's the advantage of a "clean" power source. Further accessories are not necessary, because all connected devices are supplied by a clean, load-decoupled operating power source.

At all events the use of high quality, shielded power cables can prevent radio frequency interference [particularly in short-wave range] from intruding. In general all power cables act like an antenna and carry high frequency distortions into connected devices. Tests with the cicable PC3+1 EMV have proven a damping up to 20 db.

Explanation: Additionally we'd like to point out, that the use of different power cable constructions has rather harmful consequences! Coupling effects between contiguous cables give distortions the chance to 'leap' between cables, nullifying the primary damping effects. So if additional power cables are used they should have similar construction.



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W E L L C O N N E C T E D

object

frequently asked questions about
the cicable PS 2.4q PowerSource

date, version

2002.3.3

idea & realisation

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