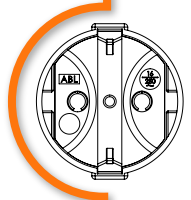
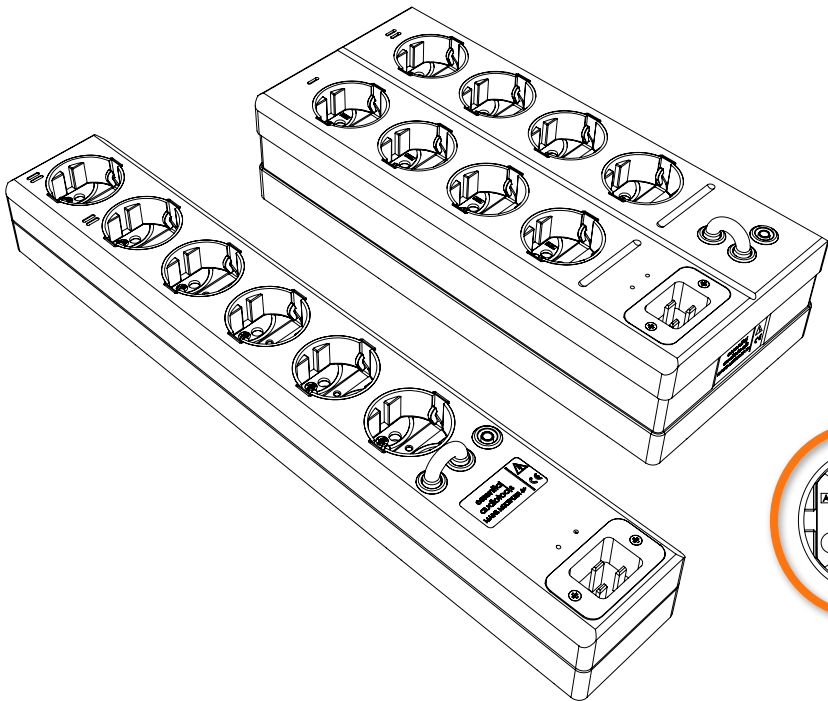


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audiotools

User Manual

Rev 2.2 April 2024

Mains Multiplier 6+
Mains Multiplier 8+



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Introduction

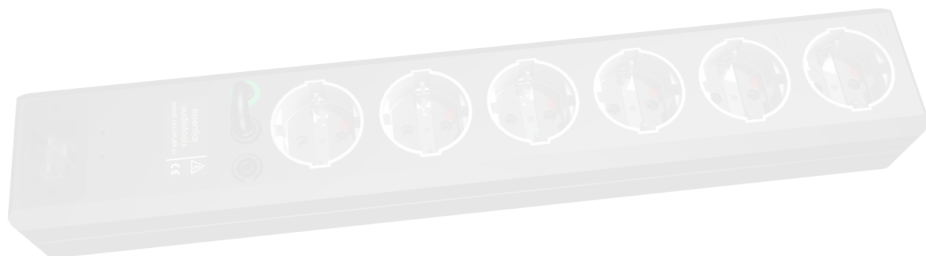
Thank you for purchasing this Essential Audio Tools Mains Multiplier 6+ / Mains Multiplier 8+!

'Essential Audio Tools' is a Square Audio brand name. The name speaks for itself, tools which are very essential for music reproduction. Better reproduction often means more involvement.

Our 'Essential Audio Tools' are products to improve the sound of your audio equipment where it all begins: the mains power supply. The power from the mains socket is being 'abused' even before it enters your audio equipment. Energy companies use the mains supply to control government property equipment, like streetlights. Also other equipment is communicating with each other by use of the mains power supply. But there is more: the past 25 years switching power supplies have made their way into computers, TV's and other home appliances. These devices pollute the mains supply with nasty pulses. This "Trojan Horse" comes into your equipment without you being aware of it. The pollution has to be taken out of the mains power supply before it reaches your (analogue) audio equipment. The Essential Audio Tools' cables, distribution boxes, filters and phase indicator make any audio set perform better.

Essential Audio Tools invests lots of time and effort to make products as good as they can be. They are all made with use of precision CNC machining. Beautifully shaped, well-designed and manufactured from top-quality material by experts. Experience the quality of our products and listen to the results, then you know what we mean.

We wish you lots of pleasure!



Description

The Mains Multiplier is not a regular multiple socket but more a work of art made on a CNC machine that shapes this form out of one piece synthetic material. Yes... synthetic! The results speak for themselves, optical as well as electrical.

The type of outputs is chosen because of the high contact pressure, which is obvious when putting in or pulling out an electric plug. More contact pressure and an optimal contact surface do create a low resistance value. This is very important for good power distribution.

The wiring for phase, neutral and earth is connected by a star principle. Every output has its own wiring towards the feed cable. Peaks in the current or interference signals that appear on contacts of one socket will now have less effect on the other sockets.

A 'Pulse Protector' is integrated behind the IEC input connector. This prevents peaks and pulses reaching your audio equipment. Our Pulse Protector is also available as a separate tool, please check our website.

Where to use

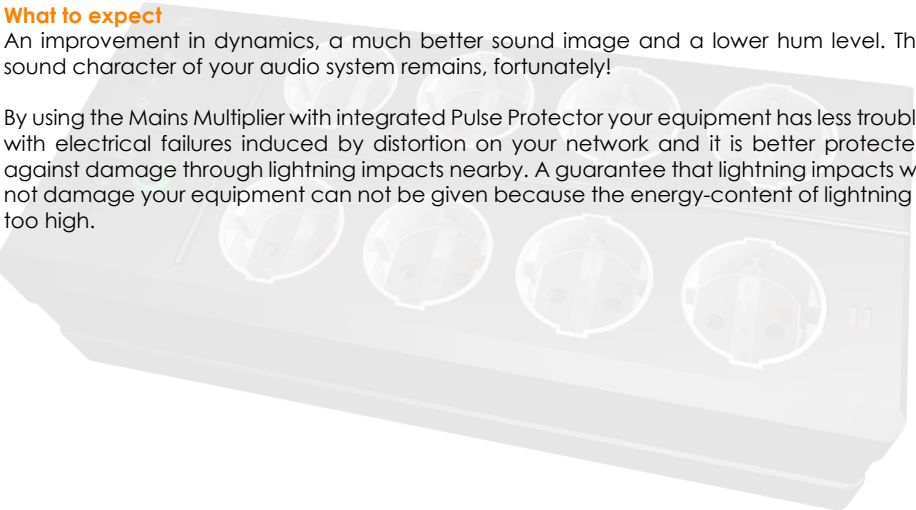
Wherever you need to connect multiple loads to the mains, the Mains Multiplier is the best choice. Of course you will have to use high performance power cords, else the Mains Multiplier will not perform at its best. It's a combination of factors, only if you use the Mains Multiplier in combination with high performance power cords -like our Current Conductor- you will achieve the maximum results for your audio system.

Of course it is possible to use the Mains Multiplier as an ordinary multiple socket without high performance power supply cables. Our advice is to buy better power cords, the results will be rewarding.

What to expect

An improvement in dynamics, a much better sound image and a lower hum level. The sound character of your audio system remains, fortunately!

By using the Mains Multiplier with integrated Pulse Protector your equipment has less trouble with electrical failures induced by distortion on your network and it is better protected against damage through lightning impacts nearby. A guarantee that lightning impacts will not damage your equipment can not be given because the energy-content of lightning is too high.



Safety precautions

For your protection and safe operation of the unit, please read the following:

Avoid water and other liquids

To avoid risk of fire and electrical shock: do not expose this device to moisture. Use indoors and in dry locations only. Do not expose to dripping and/or splashing. Do not place objects filled with liquids -such as vases- on or near the device. Do not operate the unit if any liquid is spilled on or into the unit; return it to your dealer for servicing.

Don't open the device

To avoid risk of electrical shock: do not open the device. There are no user serviceable parts inside. Repairs have to be performed by qualified personnel only.

Unplug before cleaning

Always disconnect the unit before cleaning. Only clean the unit with a dry cloth or duster. Do not use any cleaning solutions, sprays or water.

Connect to mains ground

For safety reasons and to protect connected equipment, this product **MUST** be connected to mains ground through a three conductors power cord or with an external ground connected to the green socket.

Using this product without mains ground may result in personal injury or damage to your equipment.

Do not overload individual outputs

Do not connect loads which draw more current than the maximum rating for each individual outlet. Possible damages due to exceeding these maximum ratings will void warranty. The **MAXIMUM CURRENT** rating for each outlet may differ, please look at the **Specifications** further on in this manual for maximum loads.

Do not exceed maximum total load

The total current drawn from all outlets together may not exceed 16 Amps. At 230 Volts mains supply this is equivalent to 3680W.

Check your supply voltage

This device is designed for 220-240V~ @ 50/60 Hz mains supply. Connecting to a different voltage may damage the device and warranty will be void.

Avoid condensation

If the device is moved from a cold to a warmer area, allow the product to warm up to room temperature before connecting it to the mains supply. This is to avoid condensation inside the device.

Connect power cords safely

Power cords should be routed in such a way that they are not likely to be walked on or pinched by items. Do not route power cords near heat sources. To disconnect the power cord, pull it out by the plug (wall outlet side first). Do not pull the cable itself, doing so may result in damage which can lead to fire or electric shock.

Connections

Integrating your new Mains Multiplier 6+ / Mains Multiplier 8+ is as easy as can be.

Just connect the Mains Multiplier to your wall socket. Don't bother about the phase of the wall socket, you don't have to check it. The Mains Multiplier 6+ (figure 1) and the Mains Multiplier 8+ (figure 2) both have an integrated phase indicator which shows the following indications:

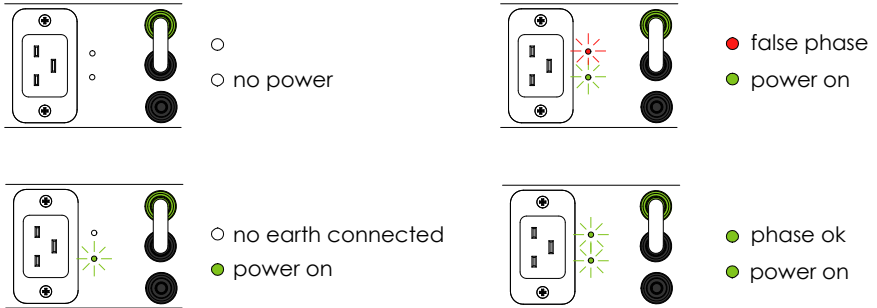


Figure 1. Phase indication Mains Multiplier 6+

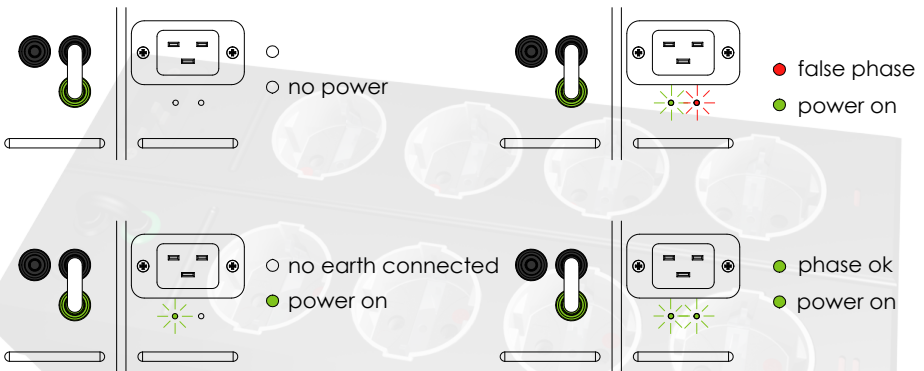


Figure 2. Phase indication Mains Multiplier 8+

If you get a false phase indication by a red light, you should reverse the power cable plug in the mains supply wall socket. You will notice that both indicators will light green which means that power is on and phase is ok.

For countries with an earth pin in the middle of the wall socket (France, Belgium) it is not possible to reverse the power cord plug in the wall socket. You should ask a technician to reverse the neutral and phase in your wall socket, NOT in your power cord. Don't do this yourself, the mains voltage is dangerous!

Connecting the Mains Multiplier 6+

The Mains Multiplier 6+ has two outputs with each a Common Mode + Differential Mode filter and four direct outputs, see figure 3. The direct outputs can supply 10 Amps maximum current each, the filtered outputs can supply 6 Amps maximum current each.

The total current of all six outputs may not exceed 16 Amps.

You can NOT just connect loads to any group, **so read this carefully!**

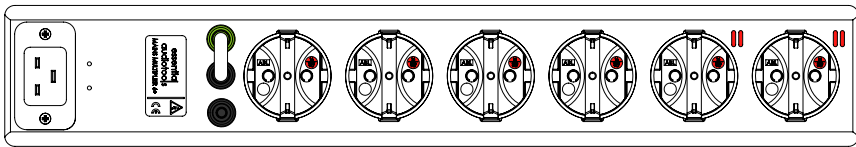


Figure 3. Mains Multiplier 6+

- Group I** has four outputs, they are wired directly to the mains. You can connect heavy loads to this group, like power amplifiers and heavy subwoofers.
- Group II** has two outputs, both have their own separate Common Mode + Differential Mode filter. This group is meant to feed pre-amplifiers, digital surround processors and light to medium subwoofers. Integrated amplifiers can be connected to this group as well, but please check power consumption carefully.

The maximum current or power you can draw from each group is different:

Group I	4 outputs	maximum 10A each	maximum 16A in total
Group II	2 outputs	maximum 6A each	maximum 12A in total

To prevent that you exceed the maximum load, use the power indication (W or Watt) at the back of your equipment to calculate the total power for each group. The value(s) of the fuse(s) in your equipment is/are not important for the calculation.

After checking the power use the following values:

Group I	4 outputs	maximum 2300W each	maximum 3680W in total
Group II	2 outputs	maximum 1380W each	maximum 2760W in total

Total power connected to the Mains Multiplier 6+ may not exceed 3680W.

Connecting the Mains Multiplier 8+

The Mains Multiplier 8+ has four outputs with each a Common Mode + Differential Mode filter and four direct outputs, see figure 4. The direct outputs can supply 10 Amps maximum current each, the filtered outputs can supply 6 Amps maximum current each.

The total current of all eight outputs may not exceed 16 Amps.

You can NOT just connect loads to any group, **so read this carefully!**

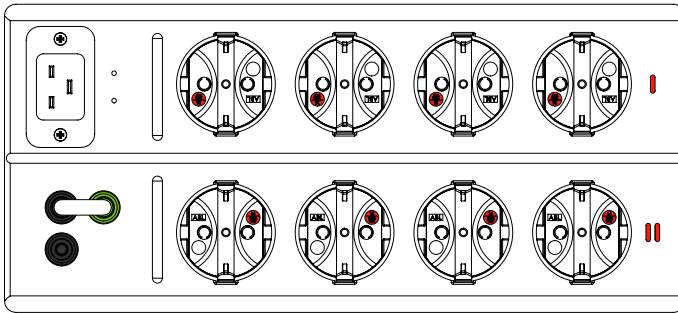


Figure 4. Mains Multiplier 8+

Group I

has four outputs, they are wired directly to the mains. You can connect heavy loads to this group, like power amplifiers and heavy subwoofers.

Group II

has four outputs, with each their own separate Common Mode + Differential Mode filter. This group is meant to feed pre-amplifiers, digital surround processors and light to medium subwoofers. Integrated amplifiers can be connected to this group as well, but please check power consumption carefully.

The maximum current or power you can draw from each group is different:

Group I	4 outputs	maximum 10A each	maximum 16A in total
Group II	4 outputs	maximum 6A each	maximum 16A in total

To prevent that you exceed the maximum load, use the power indication (W or Watt) at the back of your equipment to calculate the total power for each group. The value(s) of the fuse(s) in your equipment is/are not important for the calculation.

After checking the power use the following values:

Group I	4 outputs	maximum 2300W each	maximum 3680W in total
Group II	4 outputs	maximum 1380W each	maximum 3680W in total

The total power connected to the Mains Multiplier 8+ may not exceed 3680W.

Connecting Earth

Your Mains Multiplier 6+ or 8+ must be connected to ground, however if your system is not properly earthed the Mains Multiplier will still function. The Mains Multiplier itself will make a connection between all earth contacts of your equipment. This will prevent that small currents will run through your interlinks due to differences between earth potentials at your equipment's chassis. So even without an earthed wall socket you should keep using your earthed power cords.

On both the Mains Multiplier 6+ and Mains Multiplier 8+ you will find a tool which is unique in the world of high-end audio equipment. It is called the **Ground Bridge**.

It consists of three terminals (one green, two black) which can be connected in two ways by a bridge. With the Ground Bridge you are able to choose between the earth terminal in your wall socket or an external earth you supply yourself. This external earth can be an earth pole which you can have installed by a specialized company. The earth pole (outside your house, deep in the ground) should have an exclusive connection to your Mains Multiplier 6+ or Mains Multiplier 8+. Nothing else should be connected to this special earth pole. The Mains Multiplier's green socket must be used to connect your external earth.

Do not plug or unplug the Ground Bridge when the Mains Multiplier is powered!



Figure 5. Wall socket earth applied



Figure 6. Setup for external earth

In figure 5 you can see how the Ground Bridge is connecting the earth pin of the wall socket with the earth connection inside the Mains Multiplier 6+ or Mains Multiplier 8+.

In figure 6 you can see how the Ground Bridge is placed so the green socket can be used to connect the external earth.

After placing the ground bridge, check the indicators, you should see two green lights. One green light means that there is no earth connection.

Tips

For maximum noise reduction, it is best to keep power cords and audio cables separated by some distance from each other, also avoid routing cables in parallel.

Use high-quality power cords (our Current Conductors for example) to connect your equipment. The screenings will prevent stray-fields reaching your audio cables. Order your power cords as short as possible, for best results.

Do not connect distribution blocks or mains splitters to the outputs, it will possibly cause interference.

Feed ALL your equipment from the Mains Multiplier. Having an extra external power feed to one device will possibly cause interference and/or hum.

Specifications

Rated voltage

220-240V~ @ 50/60 Hz

Protecting Phase-Neutral, Phase-Earth and Neutral-Earth

Maximum voltage

250V~

Maximum peak-voltage

2500V

Maximum peak-current

4500A

Maximum peak-energy

3 x 65 Joule

Response time

< 25 nanoseconds

Mains Multiplier 6+

Maximum continuous current per **filtered** socket

6A

Maximum continuous current per **unfiltered** socket

10A

Maximum continuous total current all sockets together

16A

Maximum continuous total power all sockets together

3680W

Size 424(l) x 70(w) x 71,5(h) in mm

Weight 1,4 kg

Mains Multiplier 8+

Maximum continuous current per **filtered** socket

6A

Maximum continuous current per **unfiltered** socket

10A

Maximum continuous total current all sockets together

16A

Maximum continuous total power all sockets together

3680W

Size 298(l) x 135(w) x 96,5(h) in mm

Weight 3 kg



There are no serviceable parts inside. Do not open your Mains Multiplier!

Please check the following before requesting service:

- 1 – Check the wall socket by plugging in a light or load to check if the power is present.
- 2 – Check if the power cord from the wall socket to the Mains Multiplier is functioning and make sure the power cord is plugged deep enough into the Mains Multiplier's input.
- 3 – Check your equipment and the power cord by connecting them directly to a wall socket to test if they work without the Mains Multiplier in between.

Please contact your local dealer if all of the above is tested and working, but the unit is still not functioning.

Warranty

Essential Audio Tools products have a warranty period of two years from date of purchase. This warranty covers manufacturing defects and failures within products specifications.

When warranty is claimed the original bill with the buyer's name and date of purchase should be presented.

Warranty will void if:

- The device has not been used in conformance with the user manual.
- The device has been used in an industrial environment.
- The bill has been altered or made illegible.
- Modifications or repairs have been performed by non-authorized persons.
- Malfunction is caused by device-external conditions, such as: overloading, atmospheric discharges and fire or water damages etc.

Warranty is limited to damages regarding the Mains Multiplier itself: all eventual consequential damages are not covered by warranty.

More information about our products:



essential audiotools

MORE INFORMATION:
WWW.ESSENTIALAUDIOTOOLS.COM

