



PCI MAX 2006+ SECRETS REVEALED

Everything you wanted to know about PCI MAX 2006+ (but they wouldn't tell you)

PCI MAX 2006+ is a all-in-one solution, perfect for transmitting your music throughout your house, your yard and further, if you couple it with our 15W booster. But did you know how to increase or decrease maximum power, solve various problems, change sensitivity of the VU-meter, run the unit from 2-5V in stand-alone mode? Well, read on this and other tips.

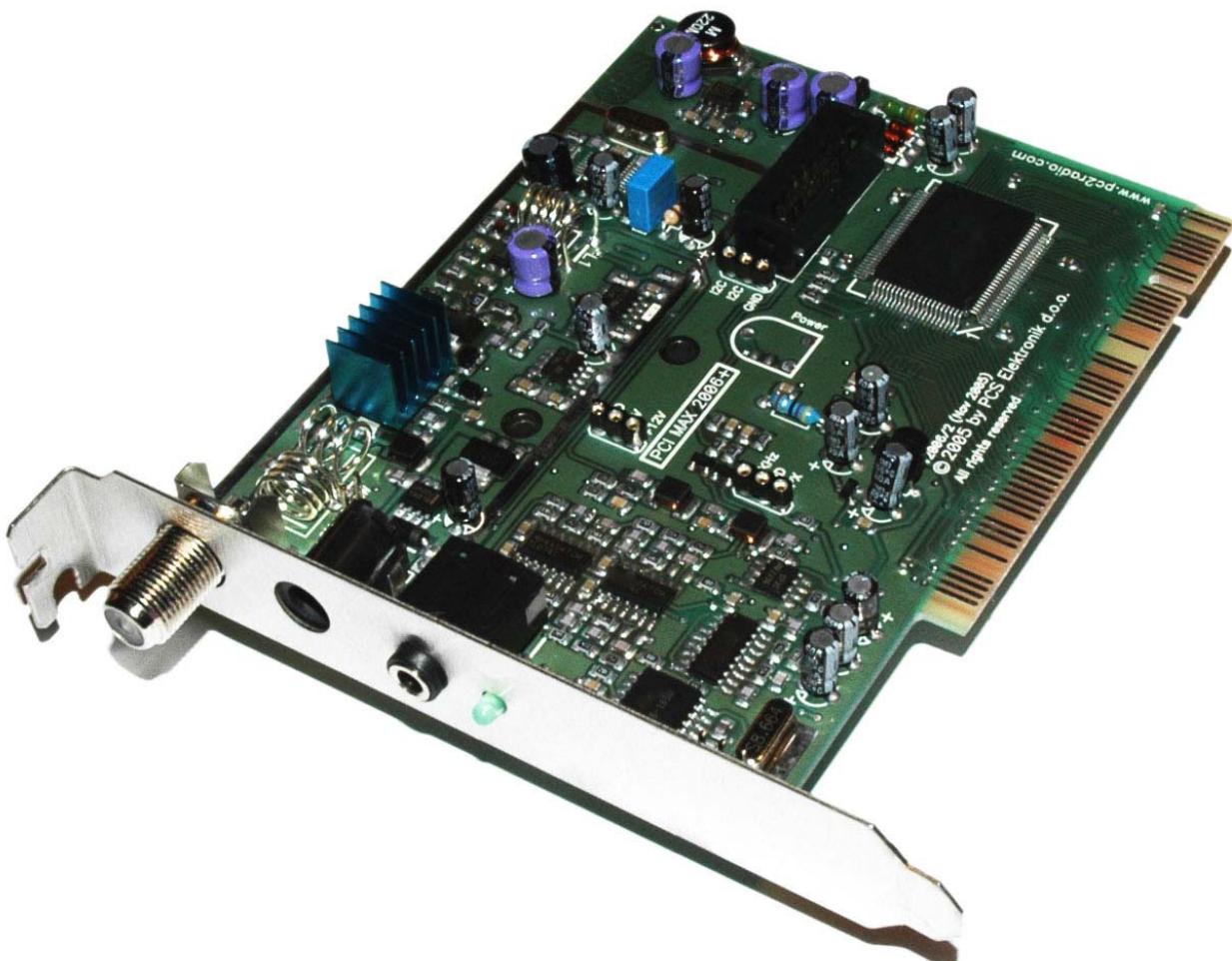


Fig. 1: PCI MAX 2006+...know it inside-out with this exciting guide to its most intimate secrets...

BEFORE YOU START...

-**A word of caution -1 !** Our PCI MAX card is legal to use in many countries, but may not be legal in yours. Please consult local authorities before you start using this product.

-**A word of caution -2 !** Some of the presented modifications could cause damage to your card. Especially increasing output power makes PCI MAX 2006+ more sensitive to bad SWR, overheating and voltage spikes on supply lines. By attempting to modify your card you take the risk of voiding your warranty.

CHANGING PRE-EMPHASIS

As you probably know most of the world uses 50uS pre-emphasis, yet some countries, such as USA, insist on using 75uS. PCI MAX 2006+ was hardware locked to 50uS. This was not a catastrophe in itself, the net effect is that the sound lacked a bit of high frequency content in the 75uS regions, which could be easily corrected by adding a bit more highs in the mix with audio equalizer (either in winamp or in the sound card settings). This setting could not be changed as it was hardware locked. However, here is how you can change it yourself, if you want.

Needed parts:

2x 470pF SMD capacitors, size 0805

Appropriate soldering iron for SMD parts

Time required:

1-5 minutes

Level or required skills:

Moderate Soldering skills

Procedure:

See the picture below and place two additional SMD capacitors on top of each of the red marked SMD capacitors. Make sure to solder both terminals and not disturb-short the “neighbors”.

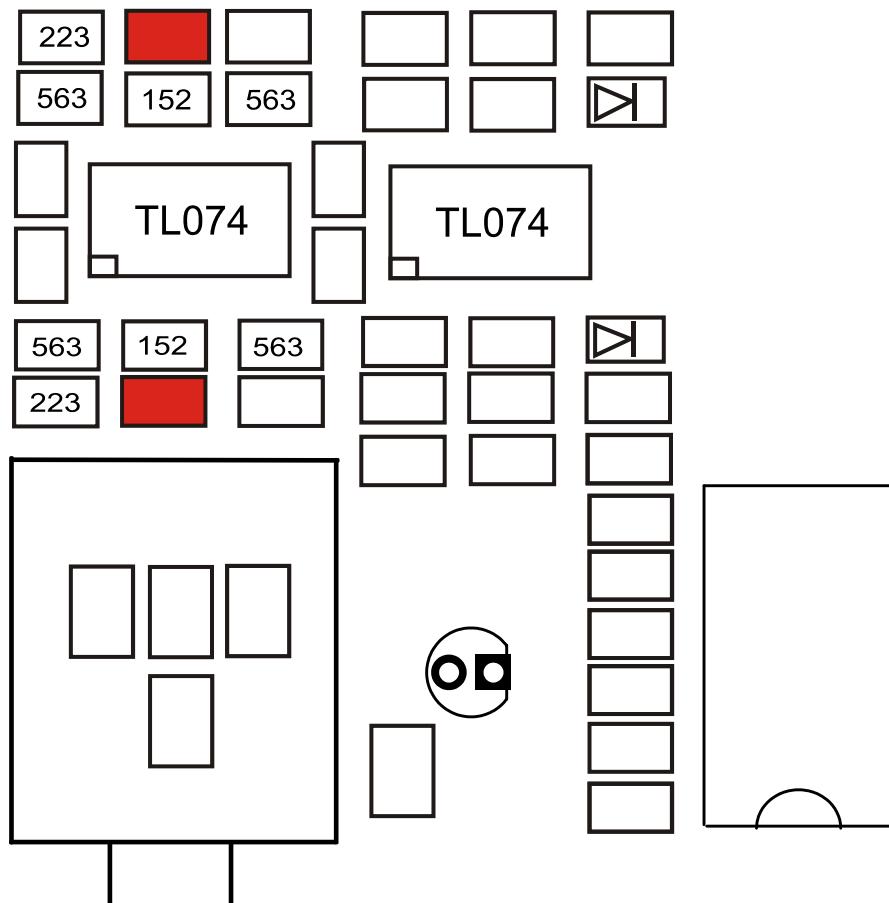


Fig. 2: PCI MAX 2006+...changing pre-emphasis to 75uS, install a 470pF capacitor above each of the red squares (already occupied with two capacitors).

RUNNING THE UNIT AT 2-5V (STAND ALONE MODE)

This is useful when using PCI MAX in stand-alone configuration outside of the PC (of course with the LCD control unit attached). You can use the 3.6V or 4.8V battery pack to power PCI MAX. The only disadvantage versus using the 12V external power supply is that output power is limited in this mode to the amount available when used inside the PC without external power supply.

Needed parts:

Some wire

Appropriate soldering iron

Time required:

1-5 minutes

Level or required skills:

Moderate Soldering skills

Procedure:

See the picture below and attach two supply power wires to the PCI MAX board. Make sure not to reverse polarity as that will definitely damage PCI MAX 2006+.

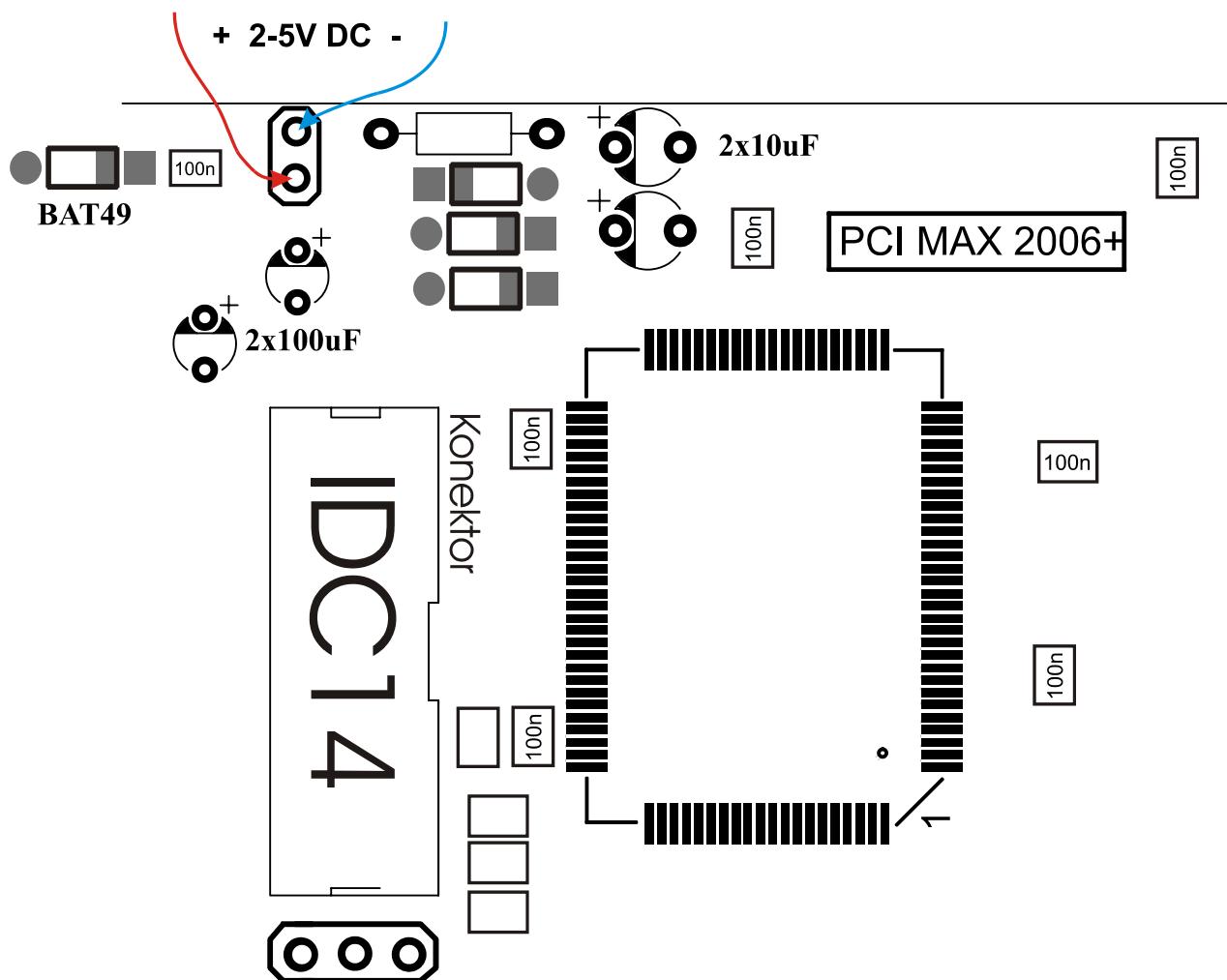


Fig. 3: Powering PCI MAX from low-voltage external power supply in stand-alone mode.

FORCING THE UNIT INTO STEREO MODE (STAND ALONE MODE)

This is useful when using PCI MAX in stand-alone configuration outside of the PC (of course with the LCD control unit attached). In some rare cases the PCI control chip interferes with the MONO/STEREO mode selection function in the LCD control module. This fix can be used than either with the mini or big control LCD module.

Needed parts:

Appropriate soldering iron

Time required:

1-5 minutes

Level or required skills:

Moderate Soldering skills

Procedure:

See the picture below and remove the SMD component marked with RED. You can verify voltages in STEREO mode as shown below.

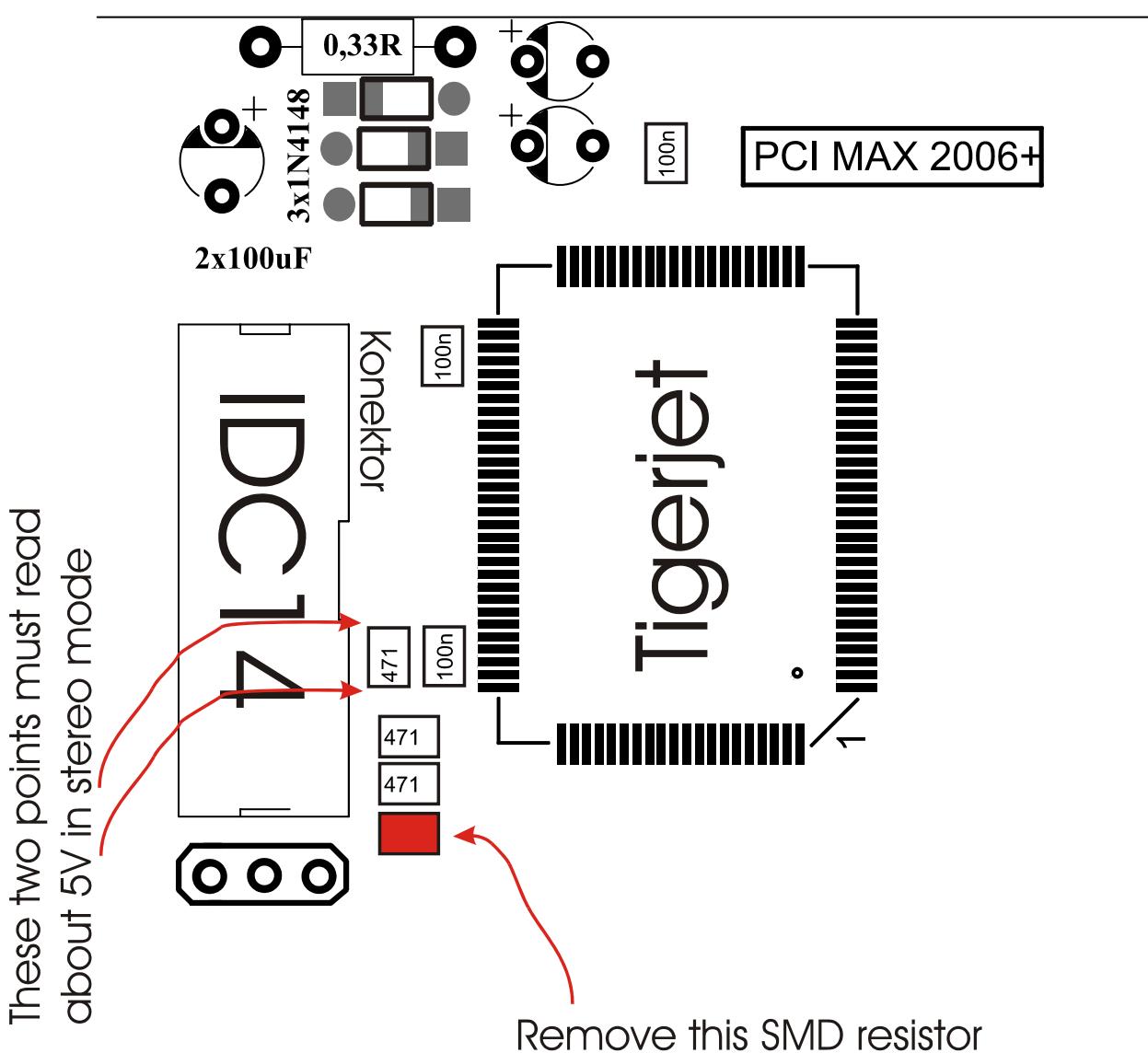


Fig. 4: Remove the SMD component marked RED

INCREASING OR DECREASING MAXIMUM POWER LEVEL

This will probably be the most interesting mod for most PCIMAX owners. However, I need to warn all of you, push it and it will fry the output transistor. Make sure you have perfect cooling and perfect SWR at all times before even considering increasing the output power. Also, to take advantage of the full power potential of the PCI MAX cards you need to use external power supply. The card will detect external power supply and engage full output power.

Note the SMD component in the picture below, marked with RED circle. The lower the value of this resistor the greater the output power of PCI MAX. 350mW version of the card will have this set to 56 ohms. 1W version will have this set to 10 or 22 ohms. Experience shows 22 ohms to be a safe value, with good tolerance against bad SWR. 10 ohms will provide more power, but do take extreme care. Less than 10 ohms is not recommended.

Regarding heatsink, it is recommended that you use thermal paste or even better thermal conducting glue. Do not over-tighten the screw (if using the screwed-on heatsink).

Needed parts:

22 ohms or 10 ohms SMD resistor, size 0805

Appropriate soldering iron

Time required:

1-5 minutes

Level or required skills:

Moderate Soldering skills

Procedure:

See the picture below and place an additional SMD resistor on top of the existing resistor. Make sure that the combined resistance of all installed resistors never falls below about 10 ohms (DO NOT PLACE 10 ohms on top of another 10 ohms – 1W version).

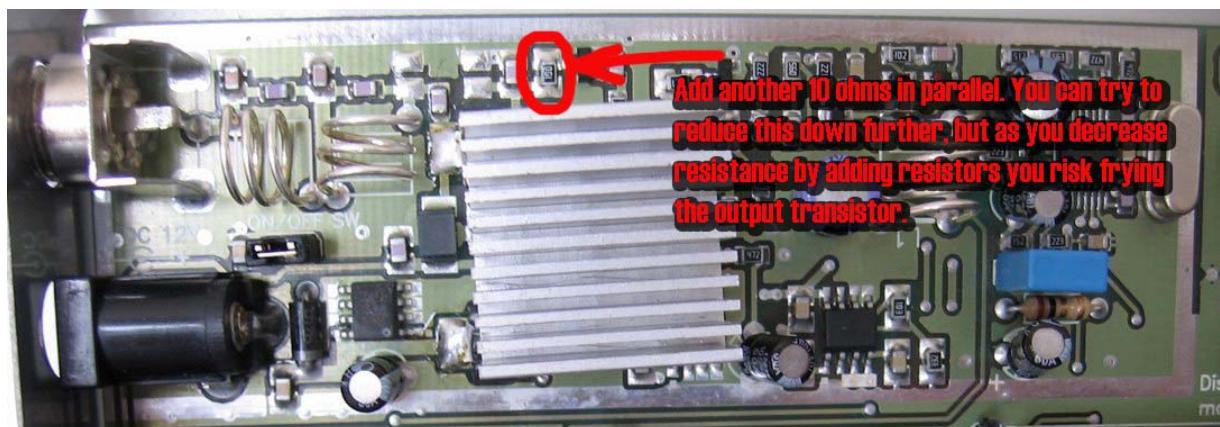


Fig. 5: The smaller the value of this resistor the greater the output power, until at some point things go BUM.

What if things go wrong?

Push it too far and you will see. A whisk of smoke will emerge along with the typical burning electric smell. Disconnect the power supply immediately, power off your PC and take the card out of your computer! You will have to replace the output transistor (contact our tech support for help) and sometimes also the output power adjustment stage (BCP 56). DO NOT ATTEMPT TO OPERATE until you replace the damaged parts or damage could spread to other components on the PCI MAX board.

VU METER – CHANGING SENSITIVITY AND FALBACK TIME

This is useful when using PCI MAX in stand-alone configuration outside of the PC with MINI LCD control unit with built-in VU meter. You may want your VU-meter to respond to quieter sounds or perhaps you want it to fall off slower/faster. The components you need to change are marked below. Fall back time is the time it takes the VU-meter reading to go back to zero after a strong signal (drum beat for example).

Needed parts:

SMD resistors – 100K, size 0805, or a couple of trimmer resistors

1uF electrolytic capacitor

Appropriate soldering iron

Time required:

5-20 minutes

Level or required skills:

Good Soldering skills

Procedure:

If you replace the orange marked components with 100K resistors (currently 22K), the sensitivity of the VU meter increases and the fall-back time increases. If you want to increase fall-back time further, add 1uF capacitor in parallel to the 100nF capacitors. Watch the polarity, one of the ends is connected to the ground (check with ohm meter) and that should be negative terminal of the capacitor.

For those with better understanding of electronics, 100nF and 22K are connected in parallel after diode rectifier. Resistor controls the discharge time, capacitor value controls the time it takes to charge and discharge.

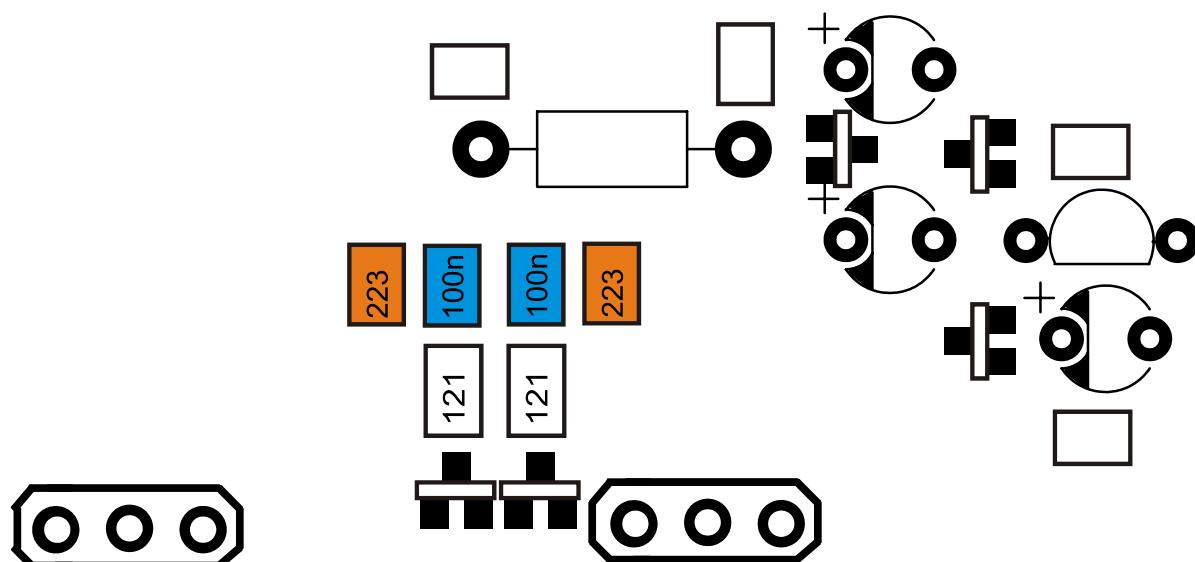


Fig. 6: Modifying the VU-meter

AUDIO INPUTS – GROUNDING THE “GROUND”

This is almost never useful, however I will address it just in case. The PCI MAX inputs are basically balanced DC coupled, meaning they offer great noise suppression and low-frequency response. However, this can be a problem if your audio source's ground is not at the same potential as your PCI MAX card's ground. This never happens when using PCI MAX in a PC with PC as audio source, but could happen if another audio source is used with different ground potential. You can use this modification to ground one of the balanced inputs, effectively “grounding the ground” of your audio source and connecting the two ground together.

Needed parts:

Piece of wire, can be from resistor

Appropriate soldering iron

Time required:

1 minute

Level or required skills:

Moderate Soldering skills

Procedure:

See the picture below and connect the two points together.

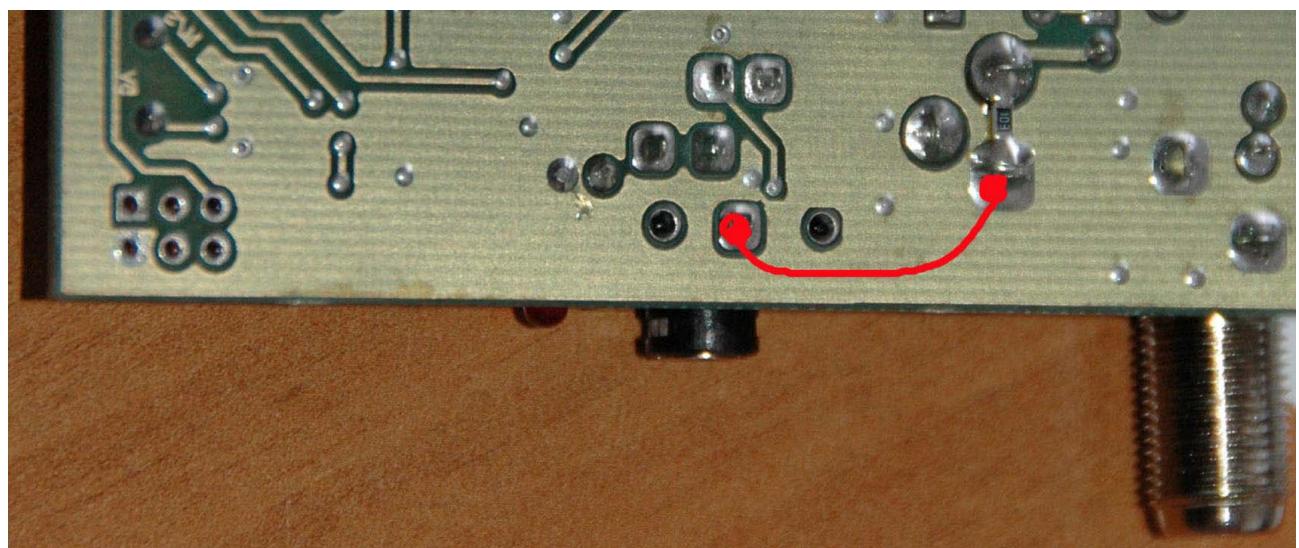


Fig. 7: Grounding the ground

IMPORTANT NOTICE!

Please remember to turn off the transmitter when not in use! This goes especially for the 15W booster. Make sure you turn it off until you start the program on the desktop and turn it off after you stop using the program! Remember that anything you broadcast through the transmitter can be heard by anyone tuning in to that frequency. Although it is unlikely certain weather conditions may allow the signal to go further than your immediate listening area so please don't broadcast anything you don't mind anyone else hearing.

LEGAL INFO

It may be illegal to operate this device in your country. Please consult local authorities before using our products! PCS Elektronik d.o.o. is not responsible for any damage to your PC arising from use of this product and will not be held responsible for any violation of local laws pertaining to the use of this product. It is entirely your responsibility that you make sure you operate in accordance with local laws and/or regulations.

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Thank you for purchasing the PCI MAX card!

We hope you will enjoy it as much as we do and remember to tell your friends about it. We would also like to invite you to visit our website; it offers an abundance of information related to broadcasting and radio, as well as feedback form, a forum and support section.

From all of us we wish you happy broadcasting!

Your PCS Electronics team
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