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# PCI MAX 2004

## PC based FM stereo transmitter card

*PCI MAX 2004 is a high performance PLL controlled FM transmitter for your everyday PC compatible computer. It's 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. It can even serve as a local, college or a community radio station, with the features and quality you expect from the professional setup, with amazing audio quality and stereo separation. It is perfectly suited for homebrew DJ's. Easily tunable anywhere on the dial with a simple click of the mouse.*

### Before you start...

#### -A word of caution!

PCI MAX 2004 is legal to use in many countries, but may not be legal in yours. Please consult local authorities before you start using this product.

-Antenna You have to realize that antenna was, is and will always be a crucial part of the system,

**A PROVIDED PIECE OF WIRE WILL WORK, BUT YOUR RANGE WILL BE LIMITED!**

especially if you need extra range. It is usually a good idea to place antenna away from your transmitter and audio system! A good antenna placed as high as possible can massively increase your range.

-Coaxial cable The common RG-58 from Radio Shack is NOT the best you can do. Use it only for short runs. BELDEN makes terrific coax in various qualities and with very low loss (measured in dB's...decibels). Don't buy more than you need to make the long run to your antenna and make up a few "jumpers" to go between your exciter, VSWR meter and your antenna as all you'll do is create a higher SWR and more line losses. Don't use cheap TV coaxial cable.

-Audio equipment. This is probably going to be your PC. WinAmp or any other MP3 player will be very useful here. Plug-ins are available that take care of limiting-compression, at least to some degree. Get a good sound board! Check <http://www.pcs-electronics.com> for tips.

### INSTALLING PCI-MAX 2004

Installation basically consists of two major steps:

#### STEP 1 – SOFTWARE INSTALLATION

Insert the PCI MAX 2004 cd in the computer's cd-rom drive. NOTE: Some computers will start the cd automatically and others will not. If the CD does not begin after a couple of seconds, you need to manually run the "Setup.exe" file in the root directory of the CD. The setup program makes a

backup of every file installed so that you can simply uninstall the program, if you experience any problem with your computer.



Fig. 1: You've just started the Setup program...

The install itself is pretty straight forward.

Shut down the PC after you've successfully installed the Setup program.

### STEP 2 – PCI MAX CARD INSTALLATION

You will need one free PCI slot to install your PCI MAX 2004. Remember to turn off your computer and remove the power cable from the wall or power strip. Open your PC, find an empty PCI slot and insert your PCI-MAX ULTRA into that slot as you would any other PCI card. You may need to move your card to another slot, if Windows doesn't find it as you boot up. This usually happens with other cards as well (network cards, sound cards) so don't be alarmed. If you can, place your card as far away from other cards as possible. Also, move any cables as far as possible away from the PCI-MAX 2004. Finally secure your PCI-MAX 2004 with a screw. Make sure that none of the cards are in contact with each other. It is now time to install the provided antenna (or another better antenna); plug it into the F connector (denoted with A on the picture below).

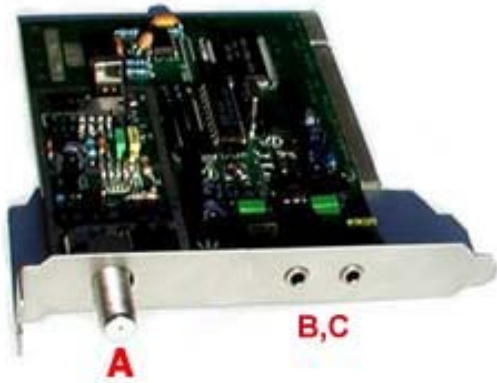


Fig. 2: A; Antenna connection, B,C; Audio input

Use the provided jumper audio cable to connect the audio input (B or C) to the sound card. Note that there are two audio inputs. You can use them to connect your speakers since one of the outputs on your sound card is now taken. Now that you've installed your card Windows should report finding new hardware after loading Windows.

When it does, point the location of the driver to the CD-ROM (make sure you inserted installation CD first ) or to the directory where you installed the program. Example below is for WindowsXP. Other operating systems will display similarly looking panels. Complete the installation as the operating system instructs you. You may need to reboot your PC again, depending on the operating system that you're using.

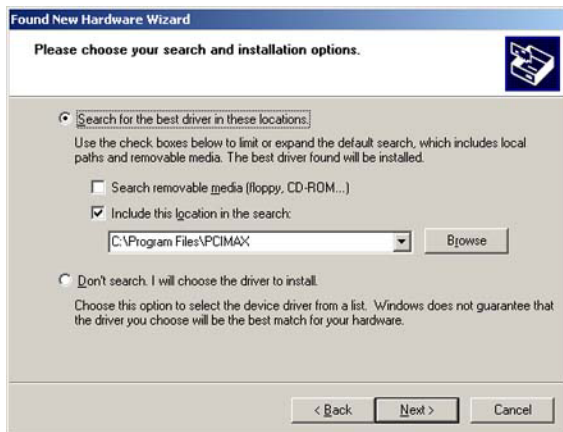


Fig. 3: This is an example for WindowsXP.

There will be a new icon on your desktop... go ahead, click it!



Fig. 4: PCI MAX 2004 icon, click it to bring up the control program for the PCI MAX 2004 card.

A program will come up, enabling you to change frequency, mode of operation (stereo or mono) and turn the transmitter on or off.

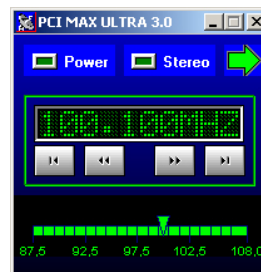


Fig. 5: ThePCI MAX 2004 control program.

I'd like to point out here that SAM2 also supports PCI MAX through its interface. SAM 2 is a all-in-one broadcasting program for PC, supporting DSP plug-ins, scheduling, it publishes your play lists on the internet automatically and does a lot more. We recommend this program to everyone! Check our software section!

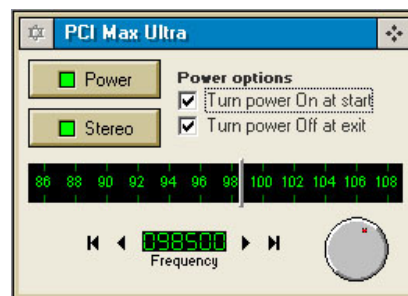


Fig. 6: ThePCI MAX control program in SAM2.

## USE AND FINAL NOTES

Select working frequency with the mouse. Open your MP3 player or CD-ROM audio player. Turn on any fm

**WARNING: PLEASE BE SURE THAT YOU ARE TUNING IN TO AN AREA ON YOUR LOCAL FM BAND THAT HAS NO STATION BROADCASTING ON IT, YOU DO NOT WANT TO INTERRUPT ANYONE ELSE'S LISTENING TO LOCAL RADIO STATIONS, IT'S RUDE AND ALSO ILEGAL!**

radio and turn the tuning dial on the transmitter until you hear the computer's audio through the fm radio. You will need to adjust audio level so that the sound on the radio sounds naturally and without distortion. Too much volume may sound good on your radio, but

will sound horrible a few hundred meters from the transmitter! You shouldn't sound louder as other FM stations. Now any audio you play through your computer will play through the transmitter to any fm radio tuned to the frequency you have the transmitter set to. You may want to try a few different stations because of better reception in different areas some spots on the dial may work better than others.

## FOR ADVANCED USERS

PCI MAX 2004 contains a high quality digital stereo encoder and PLL stabilised FM transmitter. There's a lot more you can do with PCI MAX than meets the eye. For example, you could use it without the PC. Have you noticed the IDC14 connector on the PCI MAX 2004 board? This is what you can attach to it:

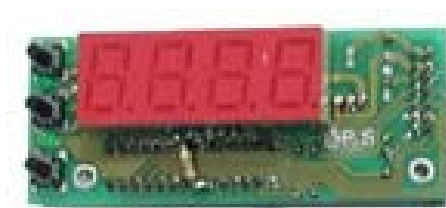


Fig.7: The LED control/display unit. You can now use PCI MAX without the PC.

For example, you could buy a 19" professional rack mount enclosure and turn your PCI MAX 2004 into a stand-alone no-tune stereo FM transmitter. If you need more power, why not put our 15W booster into this very same enclosure?

Fig.8 shows how to change preemphasis, adjust power output and connect the LED control unit. Make sure to check local laws/regulations before changing the output power. It may be illegal to broadcast outside your house/office/yard.

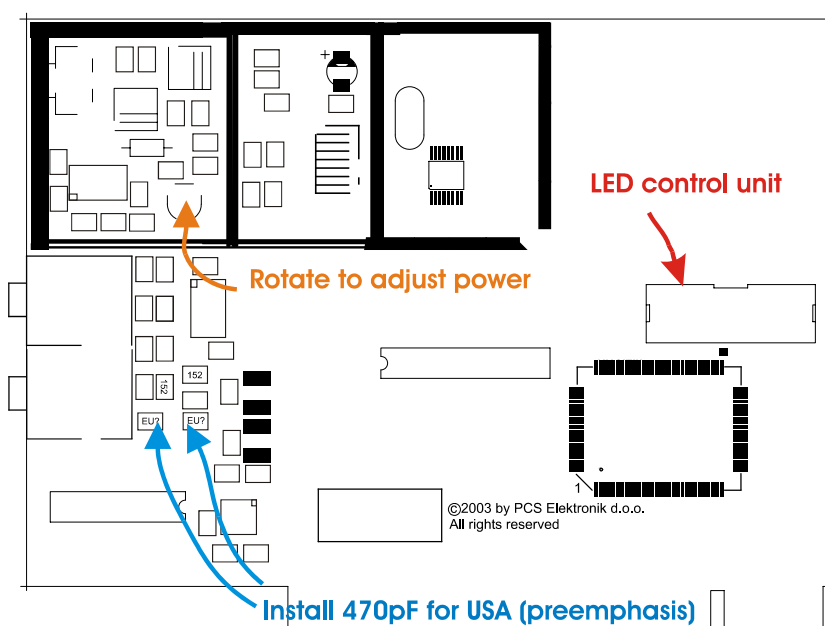


Fig.8: Preemphasis, LED control unit and power adjustment trimmer.

This is usually done in the factory, but if you ever want to change preemphasis this is how you can do it yourself. For EU and other countries remove the 470pF capacitors shown above. For USA install the 470pF capacitors.

## **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.

## **WARRANTY**

Any PCI MAX unit that fails due to defects in workmanship and/or materials will be repaired or replaced, at the discretion of the manufacturer, to the original purchaser who provides dated proof of purchase. Damages caused by abuse, misuse, negligence (i.e. Water damage, improper installation, lightning strike) are considered to be avoidable.

## **LEGAL INFO**

It may be illegal to operate this device in your county. 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.

## **LIMITATION OF LIABILITY**

To the maximum extent permitted by applicable law, in no event shall PCS Elektronik d.o.o. or its suppliers be liable for any special, incidental, indirect, or consequential damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the PRODUCT, even if PCS Elektronik d.o.o. has been advised of the possibility of such damages. In any case, PCS Elektronik d.o.o.' entire liability under any provision of this agreement shall be limited to the greater of the amount actually paid by you for the PRODUCT or U.S. \$5.00; because some states and jurisdictions do not allow the exclusion or limitation of liability, the above limitation may not apply to you.

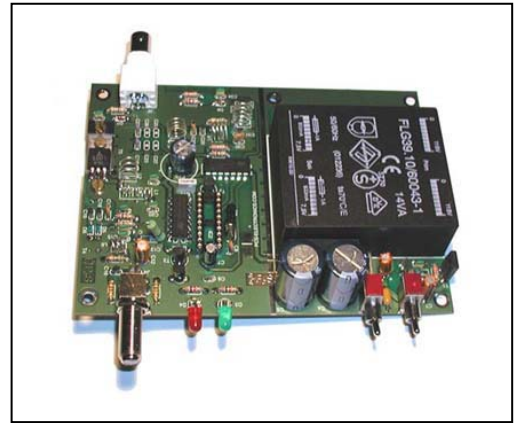
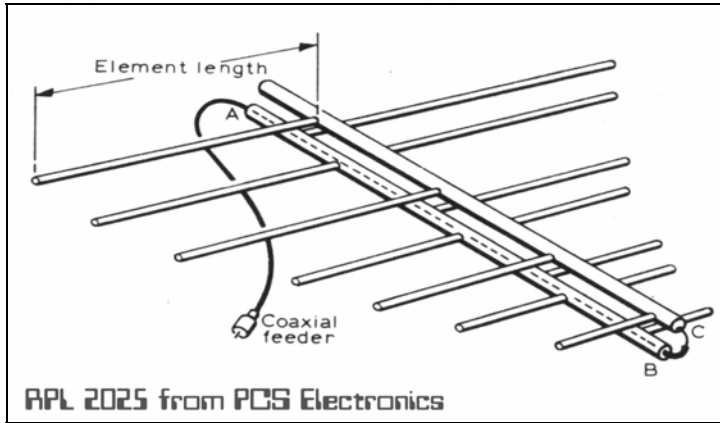
## **Thank you for purchasing the PCI-MAX 2004!**

We hope you will enjoy it as much as we do and remember to tell your friends about it. Please feel free to send us your comments to [feedback@pcs-electronics.com](mailto:feedback@pcs-electronics.com). For tech support please send email to [support@pcs-electronics.com](mailto:support@pcs-electronics.com) or post your questions to the forum on our website.

From all of us we wish you happy broadcasting!

PCS Electronics  
[www.pcs-electronics.com](http://www.pcs-electronics.com)

**Also available from PCS Electronics**

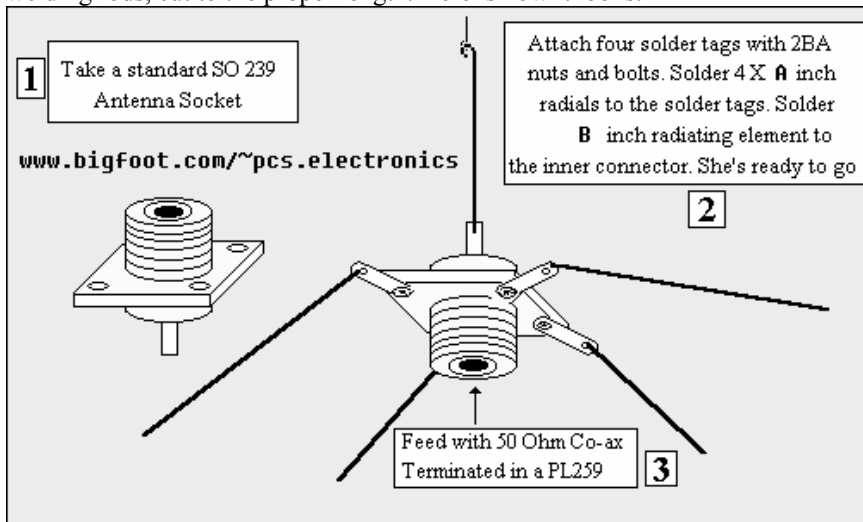


**Directional antennas, 5W boosters, stand-alone FM transmitters, RDS encoders and much much more...**

**Check [www.pcs-electronics.com](http://www.pcs-electronics.com)!**

**Finally, a simple DIY GP antenna design**

You can build an inexpensive 1/4 wave antenna from 1 SO-239 chassis mount RF connector and 5 - 3' bronze welding rods, cut to the proper length. Here is how it looks:



If you have a SWR meter, leave a bit longer radiator and adjust it later by cutting to achieve minimum SWR.

Most designs on the web don't compensate for the fact that GP aerials are not wideband aerials. Here is a Freq/element length chart for this simple GP aerial, all element lengths are in millimeters:

Frequency	Radiator - B	Radials - A
108MHZ	660	693
104MHz	684	720
100MHz	713	749
90MHz	792	819

For other aerial designs check our website.