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PCI MAX ULTRA
PC based FM stereo transmitter card

PCI MAX ULTRA 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 5W booster. It can even serve as a local, college or a community radio station, with all 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 Ultra is legal in most 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 ULTRA
Installation basically consists of two major steps:

STEP 1 – SOFTWARE INSTALLATION
Insert the PCI MAX ULTRA 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…

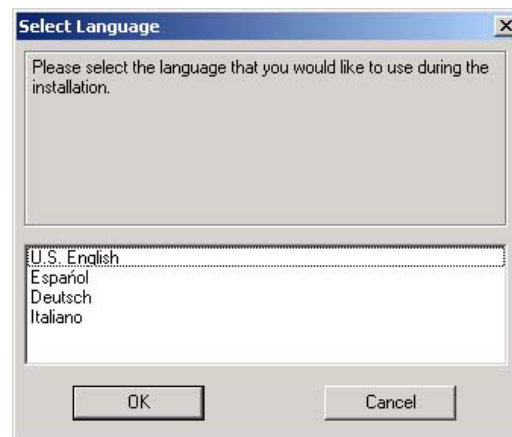The install itself is pretty straight forward.

Fig. 2: Choose the language for the installation…

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 ULTRA. 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 ULTRA. Finally secure your PCI-MAX ULTRA 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. 3: A; Antenna connection, B; external power supply (middle is plus), C,D; Audio input

Use the provided jumper audio cable to connect the audio input (C,D) 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. If you have a stabilized DC power supply (12V/200mA), you can connect it to the external power supply connector (B). Please make sure that it is properly polarized (+ in the middle). Now that you've installed your card Windows should report finding new hardware after loading Windows.

Fig. 4: Windows has found new hardware and guess what, its PCI MAX ULTRA!

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.
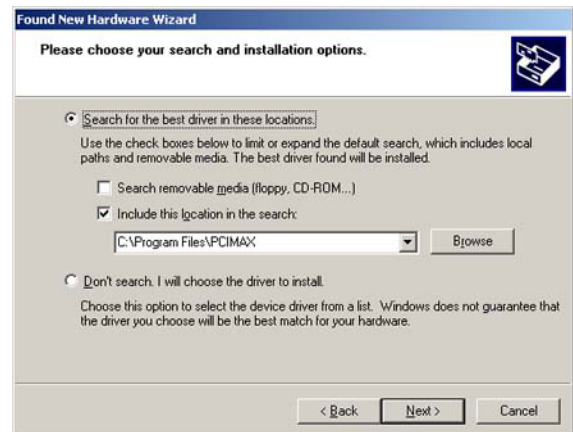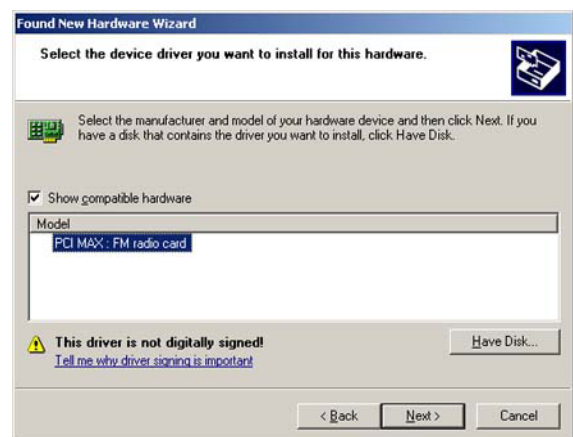

Fig. 5: This is an example for WindowsXP.

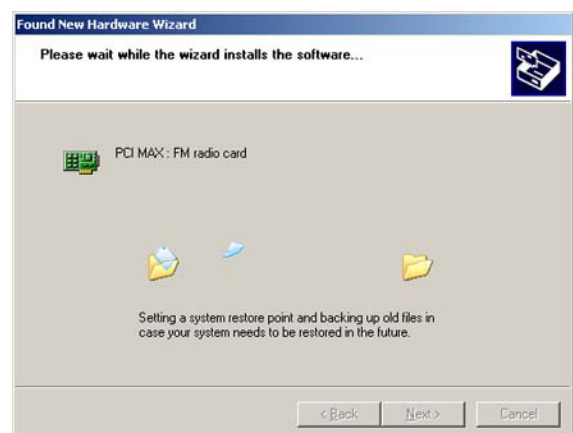Fig. 6: Another example for WindowsXP. Third panel.

Fig. 7: This is an example for WindowsXP. Fourth panel.

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

Fig. 8: PCI MAX Ultra icon, click it to bring up the control program for the PCI MAX Ultra 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. 9: One of thePCI MAX ULTRA control programs.

Some of the settings are available in the Setup dialog. You can bring it up by right-clicking on the main program dialog and selecting Setup.
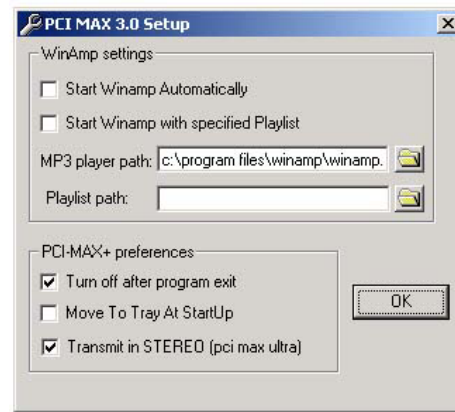

Fig. 10: The Setup dialog

I'd like to point out here that SAM2 also supports PCI MAX ULTRA 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!

USE AND FINAL NOTES

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 LISTENTING TO LOCAL RADIO STATIONS, IT'S RUDE AND ALSO ILEGAL!

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

IMPORTANT NOTE!
Please remember to turn off the transmitter when not in use! This goes especially for the 5W 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 ULTRA 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.
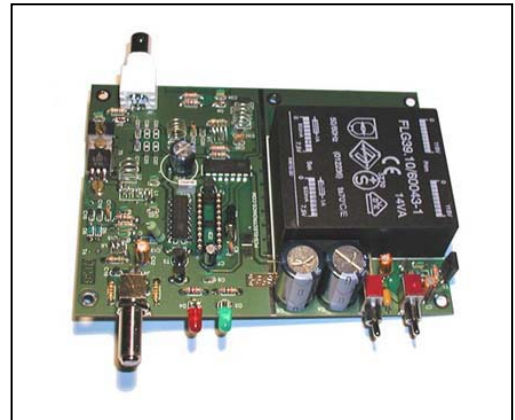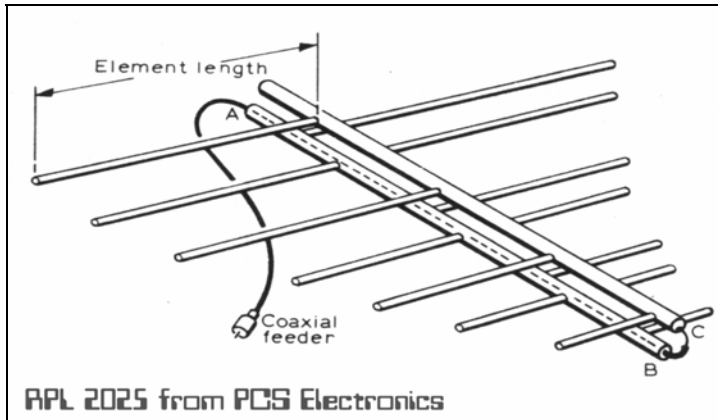
Thank you for purchasing the PCI-MAX ULTRA!
We hope you will enjoy it as much as we do and remember to tell your friends about it. Please feel free to send us your comments to feedback@pcs-electronics.com. For tech support please send email to support@pcs-electronics.com or post your questions to the forum on our website.

From all of us we wish you happy broadcasting!

PCS Electronics
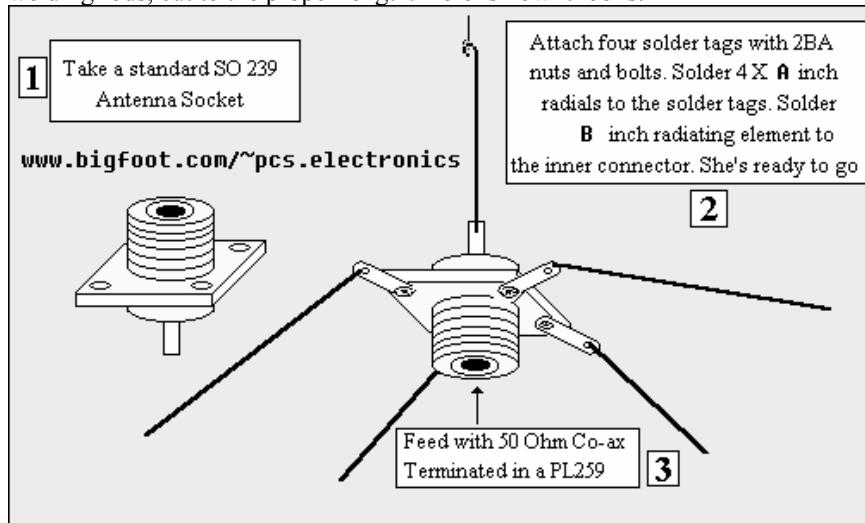www.pcs-electronics.com

Also available from PCS Electronics

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

Check www.pcs-electronics.com!

Simple 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:

1 Take a standard SO 239 Antenna Socket

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2 Attach four solder tags with 2BA nuts and bolts. Solder 4 X **A** inch radials to the solder tags. Solder **B** inch radiating element to the inner connector. She's ready to go !

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

3 Feed with 50 Ohm Co-ax Terminated in a PL259

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.

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