

Prodif 88™

Instruction Manual

Version 0.98c

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1. Prodif 88™ Instruction Manual

Parts List:

- Prodif 88 AES/EBU Interface PCI card in anti-static bag
- DB-25 to XLR/RCA breakout cable for AES/EBU and word clock inputs and outputs
- Prodif 88 Driver Installation CD
- Prodif 88 Instruction Manual (this manual)
- Warranty & Registration card

System Requirements:

- PC with available PCI slot
(synchronization of multiple Prodif 88 cards requires adjacent available PCI slots)
- Pentium® II 300 MHz CPU minimum, Pentium® III 450 MHz or faster recommended
(some audio applications may require faster CPUs)
- 64 MB system memory minimum, 128 MB or more recommended
(Windows 2000/XP and some audio applications may require additional memory)
- CD-ROM drive
- Windows® 95, Windows® 98, Windows® Me, Windows NT® Workstation 4.0 (SP3 or higher), Windows® 2000 Professional or Windows® XP Professional
- Windows® MME-compatible or ASIO™-compatible audio application software

Specifications:

- 4 x XLR AES/EBU inputs (8 channels) via breakout cable
- 4 x XLR AES/EBU outputs (8 channels) via breakout cable
- 1 x RCA word clock input via breakout cable
TTL-compatible; 50 ohm coaxial cable recommended
- 1 x RCA word clock output via breakout cable
TTL-compatible; 50 ohm coaxial cable recommended
- 2 x ¼" (6.3 mm) balanced / unbalanced analog monitor outputs
(+4 dBu or -10 dBV, jumper-selectable)
SNR: 108 dBFS (A-weighted, 44.1 kHz, +4 dBu setting)
THD+n: 92 dB @ 1 kHz (A-weighted, 44.1 kHz, +4 dBu setting)
- Supported sample rates: 32, 44.1, 48, 88.2, and 96 kHz
(32 kHz not supported via word clock)
- Supported bit rates: 16 and 24 bits per sample, stereo mode
- Master clock sources: internal clock, AES/EBU inputs, word clock input
- Multiple card support
- Professional (AES3-1985/1992, EBU Tech. 3250-E, EIAJ CP-340 Type I) and consumer (EIAJ CP-340 Type II, IEC 958) modes
- Non-audio mode

2. Installing The Prodif 88 In Your Computer

ATTENTION! *Your computer must be turned off and unplugged when installing or removing the Prodif 88. Installing or removing any add-on card with the computer turned on may permanently damage the add-on card and/or your computer. Many computers appear to be off when, in fact, they are “sleeping” in Stand By (a low-power operating mode). It is imperative that you shut down your computer, turn it off and unplug it before installing or removing the Prodif 88.*

Note: You will need a Phillips Head Screwdriver for this installation. An anti-static wristband is recommended but not required.

Step 1: Shut down your computer:

- a) Shut down Windows. Please follow the instructions that match the version of Windows you have on your computer.

Windows 95, Windows 98, Windows Me, Windows NT 4.0, Windows 2000:

Click the Windows “Start” button and select “Shut Down”. Then, when the “Shut Down Windows” dialog appears, select “Shut down” and click “OK”.

Windows XP:

Click the Windows “Start” button and select “Turn off computer”. Then, when the “Turn off computer” dialog appears, click “Turn off”.

- b) Turn off the computer.

Note: Many computers do this automatically after Windows has shut down. Some computers may require you to manually turn off the power by pushing a button or flipping a switch after Windows shuts down. Please refer to the operating instructions that came with your computer if you are unsure how to turn off your computer.

- c) After the computer has been shut down and turned off, unplug the AC power cord from your computer. Leave the computer unplugged until instructed to plug it back in.

Step 2: Remove the cover from your computer:

- a) Before opening your computer, please note that removing the cover of some computers will void the manufacturer’s warranty. Please check the warranty statement that came with your computer to be sure you are authorized to open your computer and install the Prodif 88 yourself. If opening your computer will void the warranty, we recommend that you have the Prodif 88 installed by a manufacturer-approved technician.

Prodif 88

b) Refer to your computer's operating manual for instructions on how to remove the cover from your computer. Many computers have covers that are fastened to the computer by screws on the rear of the unit. Put the screws in a safe place after removing them, so they do not accidentally fall into the computer.

Step 3: Prepare to install the Prodif 88:

a) Place the Prodif 88 box next to your open computer. Do not remove the Prodif 88 card from its anti-static bag.

b) Touch a metal part of the computer chassis to discharge any static electricity that could damage the Prodif 88 card or your computer. At this time if you have an anti-static wristband, you should put on the wristband and connect the wristband to the chassis of the computer.

Do not reach into the computer or touch any cards or wires until you have done this. Computers contain sensitive electronic devices that are easily damaged by static electricity.

c) Locate an empty PCI slot in your computer.

d) If the back panel of the empty PCI slot has a cover plate, remove it at this time.

Note: Some cover plates are attached with a screw. Some cover plates snap out, but have a pre-installed screw for attaching add-on cards; if your computer uses snap-out cover plates, please also remove the screw at this time. If you are not sure how to do this, please refer to your computer's operating manual for instructions or contact your computer manufacturer's customer support department.

e) If you are installing more than one Prodif 88 card in your computer, repeat steps 3(c) and 3(d) to prepare empty PCI slots for each Prodif 88 card to be installed. Please see the section "Using More Than One Prodif 88 Card" below for more information on using multiple Prodif 88 cards.

Step 4: Install the Prodif 88:

a) Touch a metal part of the computer chassis to discharge any static electricity that could damage the Prodif 88 card or your computer.

b) Carefully open and gently remove the Prodif 88 from its anti-static bag. Handle the Prodif 88 card carefully. Like your computer, the Prodif 88 is a sensitive electronic device, and can be easily damaged by static electricity. Do not bend or drop the Prodif 88 card.

c) If you want to change the output level of the Prodif 88 analog monitor outputs, you may do it at this time. By default, the Prodif 88 is shipped with the analog monitor output levels set to +4 dBu. To

change the analog monitor output levels to -10 dBV, remove jumpers WD1 and WD2, located slightly higher and to the right of the ¼" analog output jacks, as you look at the board with the front of the board facing you, the gold PCI connector at the bottom and the ¼" analog output jacks and the DB-25 jack on the left. If you remove the jumpers, do not throw them away; rather, save them in case you would like to change the analog monitor output levels back to +4 dBu. For more information, see the "Jumper Settings and Connector Information" section below.

d) Insert the Prodif 88 card into the empty PCI slot you located in Step 3(c). Press down gently to seat the card in the PCI slot. When the card is fully inserted, the bracket on the back of the Prodif 88 will sit snugly against the back of your computer. You may hear or feel a "click" as the Prodif 88 is seated into the PCI slot. Only press hard enough to seat the Prodif 88 card in the PCI slot. Applying too much pressure can damage the motherboard in your computer. If you have trouble with this step, please contact a manufacturer-approved technician for installation assistance.

e) If you are installing more than one Prodif 88 card in your computer, repeat steps 4(a) through 4(d) for each Prodif 88 card to be installed.

Note: If you want your Prodif 88 cards to use the same sample clock and/or start and stop at the same time, you will need to install a synchronization cable between each of the Prodif 88 cards. Please see the section "Using More Than One Prodif 88 Card" below for further information.

f) Secure each Prodif 88 card in your computer using the screw(s) you removed in Step 3(d). Do not over-tighten the screw. Making the screw snug plus a quarter turn is all that is needed.

g) Attach a DB-25 to XLR/RCA breakout cable to each Prodif 88 by inserting the cable's DB-25 plug into the matching DB-25 socket on the back of the Prodif 88 card. The plug will only go in one way; do not attempt to force the cable connector into the card. After the cable has been plugged into the card, secure by gently tightening the two thumbscrews on either side of the cable connector. Do not over-tighten. Making the thumbscrew snug is all that is needed.

Step 5: Reattach the cover to your computer.

a) Refer to your computer's operating manual for instructions on how to reattach the cover to your computer. If your cover attaches with screws, be sure to secure the cover with all the screws you removed in Step 2(b).

Step 6: Restart your computer and prepare to install the Prodif 88 driver software:

a) Plug the AC power cord back into your computer.

b) Turn on your computer and let it boot normally. Some computers

will require you to “log in” after the system has booted.

c) Insert the Prodif 88 Driver Installation CD into your CD-ROM drive.

d) At this point, depending on your version of Windows, you may see a “New Hardware Found” or “Add New Hardware” dialog. Please refer to the appropriate instructions below for information on installing the Prodif 88 driver software on your computer. Be sure to follow the instructions for the version of Windows you have on your computer.

Step 7: Install the Prodif 88 device driver software:

Please follow the instructions that match the version of Windows you have on your computer.

Windows 95 (includes Windows 95 OSR 2.x):

a) When Windows detects the Prodif 88 card, you will see either the “Add New Hardware Wizard” or the “New Hardware Found” dialog, depending on which version of Windows 95 you have on your computer. If you see the “Add New Hardware Wizard”, select “Search for the best driver for your device (Recommended)” and click “Next>”. If you see the “New Hardware Found” dialog, select “Driver from disk provided by hardware manufacturer” and click “OK”.

b) Again, depending on your version of Windows 95, you will see either the next page of the “Add New Hardware Wizard” or the “Install From Disk” dialog. If you see the “Add New Hardware Wizard”, make sure the “CD-ROM drive” box is checked, and click “Next>”. If you see the “Install From Disk” dialog, make sure the drive letter for your CD-ROM drive (e.g., D:\) is shown in the “Copy manufacturer’s files from:” box and click “OK”.

c) When Windows finds the driver for the Prodif 88 AES/EBU Interface, click “Next>” to install the driver.

d) Wait for Windows to install the driver files on your computer. When installation is complete, remove the Prodif 88 Driver Installation CD from your CD-ROM drive and click “Finish” to end the Add New Hardware Wizard.

Windows 98 (includes Windows 98 SE):

a) When Windows detects the Prodif 88 card, the “Add New Hardware Wizard” will appear to help you install the device drivers for the Prodif 88. When the wizard appears, click “Next>”.

b) Select “Search for the best driver for your device (Recommended)” and click “Next>”.

c) Make sure the “CD-ROM drive” box is checked, and click “Next>”.

d) When Windows finds the driver for the Prodif 88 AES/EBU Interface, click "Next>" to install the driver.

e) Wait for Windows to install the driver files on your computer. When installation is complete, remove the Prodif 88 Driver Installation CD from your CD-ROM drive and click "Finish" to end the Add New Hardware Wizard.

Windows Me:

a) When Windows detects the Prodif 88 card, the "Add New Hardware Wizard" will appear to help you install the device drivers for the Prodif 88. When the wizard appears, select "Automatic search for a better driver (Recommended)" and click "Next>".

b) Wait for Windows to install the driver files on your computer. When installation is complete, remove the Prodif 88 Driver Installation CD from your CD-ROM drive and click "Finish" to end the Add New Hardware Wizard.

Windows NT 4.0:

a) Open the Multimedia Control Panel, and select the "Devices" tab.

b) Click the "Add..." button at the bottom of the Multimedia Control Panel.

c) Select "Unlisted or Updated Driver" and click "OK".

d) Click the "Browse..." button, and then browse into the WinNT subdirectory on your Prodif 88 Driver Installation CD. Then click "OK" to select the directory. Click "OK" once more to let Windows search for the driver.

e) Select "Prodif 88 AES/EBU Interface" and click "OK".

f) Wait for Windows to install the driver files on your computer. If you see a window that says, "The required prodif88.dll driver is already on the system. Do you want to use the current driver or install a new driver?", click "New" to install the new Prodif 88 driver files.

g) When the system asks if you want to restart the computer to complete installation, remove the Prodif 88 Driver Installation CD from your CD-ROM drive and click "Restart Now" to restart the computer. This step is required to complete the driver installation process.

Windows 2000:

a) When Windows detects the Prodif 88 card, the "Found New Hardware Wizard" will appear to help you install the device drivers for the Prodif 88. When the wizard appears, click "Next>".

- b) Select "Search for a suitable driver for my device (recommended)" and click "Next>".
- c) Select "Specify a location" and click "Next>".
- d) Browse into the Win2K subdirectory on your Prodif 88 Driver Installation CD. Then click "OK" to select the directory. Click "Next>" to instruct Windows to install the new driver.
- e) If Windows displays a window saying "Digital Signature Not Found", click "Yes" to continue the driver installation process.
- f) Wait for Windows to install the driver files on your computer. When installation is complete, click "Finish" to end the Found New Hardware Wizard.
- g) When the system asks if you want to restart the computer, remove the Prodif 88 Driver Installation CD from your CD-ROM drive and click "Yes". This step is required to complete the installation process.

Windows XP:

- a) When Windows detects the Prodif 88 card, the "Found New Hardware Wizard" will appear to help you install the device drivers for the Prodif 88. When the wizard appears, select "Install from a list or specific location (Advanced)" and click "Next>".
- b) Select "Search for the best driver in these locations", and make sure the "Include this location in the search" box is checked. Then click the "Browse..." button and browse into the Win2K subdirectory on your Prodif 88 Driver Installation CD. Then click "OK" to select the directory. Click "Next>" to instruct Windows to install the new driver.
- c) If Windows displays a window saying "The software you are installing for this hardware has not passed Windows Logo testing", click "Continue Anyway" to continue the driver installation process. Because Microsoft has not tested this driver, this window warns you that untested drivers can destabilize your computer. This is not an error. It is simply a notice that Microsoft does not guarantee the quality of this driver.
- d) Wait for Windows to install the driver files on your computer. When installation is complete, click "Finish" to end the Found New Hardware Wizard.
- e) When the system asks if you want to restart the computer, eject the Prodif 88 Driver Installation CD from your CD-ROM drive and click "Yes". This step is required to complete the installation process.

Step 8: Install the Prodif 88 ASIO driver software (optional):

Note: This step is necessary only if you will be using ASIO-compatible audio software, such as Cubase/VST. If your audio software uses only standard Windows MME (Multimedia or Wave) drivers, this step is not required.

- a) Insert the Prodif 88 Driver Installation CD into your CD-ROM drive.
- b) Open a Windows Explorer window and browse into the "ASIO" subdirectory on your Prodif 88 Driver Installation CD.
- c) Find the file that looks like a notepad with writing on it and a small yellow gear in the lower right corner. Depending on your system, this file will be called either "prdif88a" or "prdif88a.inf". Right-click on that file and select "Install".
- d) After the system finishes installing the Prodif 88 ASIO driver, remove the Prodif 88 Driver Installation CD from your CD-ROM drive.

You can now use the Prodif 88 with ASIO-compatible audio software by selecting the "ASIO Prodif 88" driver from within that software. Please refer to the manual for your audio software for information on how to change the ASIO driver selection.

Step 9: Install the Prodif 88 Control Panel desktop shortcut (optional):

Note: This step is necessary only if you will need to change the default configuration settings for the Prodif 88 (internal clocks, professional mode, no emphasis, default analog output monitor settings, no digital output monitoring, etc.). If you will need to change any of these settings, we recommend you install the Prodif 88 Control Panel desktop shortcut.

Note: Windows 95 and Windows NT 4.0 users may need to install Internet Explorer 4.0 (or any later version) before performing this installation step.

- a) Insert the Prodif 88 Driver Installation CD into your CD-ROM drive.
- b) Open a Windows Explorer window and browse into your Prodif 88 Driver Installation CD.
- c) Find the file that shows a blue sheet of paper with writing on it that is curled up on the top and bottom. Depending on your system, this file will be called either "prdif88" or "prdif88.vbs". Double-click on that file to install the desktop shortcut to the Prodif 88 Control Panel.
- d) After the system finishes installing the Prodif 88 Control Panel shortcut, remove the Prodif 88 Driver Installation CD from your CD-ROM drive.

You can now access the Prodif 88 Control Panel by double-clicking the "Configure Prodif 88" icon on your desktop.

Note: If you are unable to use the desktop shortcut installer, as described above, you can manually install the desktop shortcut by right-clicking in an empty area on your Windows desktop, clicking “New” and “Shortcut”, entering:

RUNDLL32 Prodif88,Configure

in the “Command line:” box (type exactly as shown above), clicking “Next>”, entering:

Configure Prodif 88

as the name of the shortcut and clicking “Finish”.

3. Operation

Operating your Prodif 88 is similar to operating any other sound card:

- Connect your AES/EBU digital I/O devices to the Prodif 88 breakout cable XLR connectors. The wire going into each XLR connector is labeled with “IN” or “OUT” and the channel pair number (1-4). For example, “IN2” is the input connector for AES/EBU channel pair 2, and “OUT4” is the output connector for AES/EBU channel pair 4.
- If you need to sync to one of the AES/EBU inputs (use one of the AES/EBU inputs as the clock master), please see the “Configuration Settings: Clocks + Sync page” section below.
- If desired, use the RCA word clock in/out connectors to receive or supply a word clock signal from/to the rest of your studio. The wire going into each RCA connector is labeled either “WCIN” (word clock input) or “WCOUT” (word clock output). Please see the “Configuration Settings: Configuration page” and “Configuration Settings: Clocks + Sync page” sections below for further information.
- Operate the Prodif 88 Control Panel controls to select the desired operating modes, as described below.
- Use your audio application software. Specific operating instructions vary from application to application, and are outside the scope of this manual. Please refer to the documentation that came with your audio application software for further information.
- The Prodif 88 card will appear as four input devices and four output devices, one for each AES/EBU channel pair. The devices will be called “Prodif 88: 1/2” for the first pair, “Prodif 88: 3/4” for the second pair, “Prodif 88: 5/6” for the third pair and “Prodif 88: 7/8” for the fourth pair. If you change the card name using the Prodif 88 Control Panel, the name you enter will be shown instead of “Prodif 88”. See the “Configuration Settings: Configuration page” section below for more information.

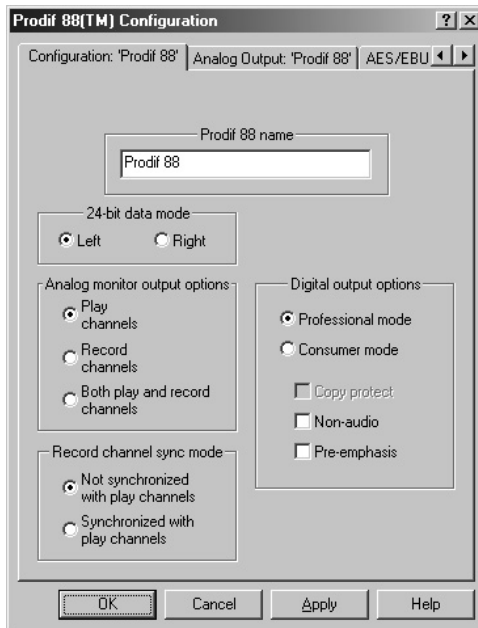
4. Configuration Settings:

The Prodif 88 includes several configuration settings that can be changed using the Prodif 88 Control Panel. If you want to change any of the Prodif 88 configuration settings, we recommend installing the Prodif 88 Control Panel desktop shortcut, as described in installation Step 9 above.

To access the Prodif 88 Control Panel, double-click the “Configure Prodif 88” icon on your desktop. This will display a multi-page tabbed dialog that contains all the software-configurable options available on the Prodif 88. Each page contains a group of related functions. If you have more than one Prodif 88 installed in your computer, you will see several groups of pages, one for each Prodif 88. Each page will include the name of the specific Prodif 88 card to which the settings apply.

Most pages in the Prodif 88 Control Panel provide on-line assistance via the “Help” button at the bottom of the dialog. Help for each configuration setting can also be obtained by clicking the “?” help button at the top of the dialog and then clicking on the control(s) for that configuration setting.

Configuration page:



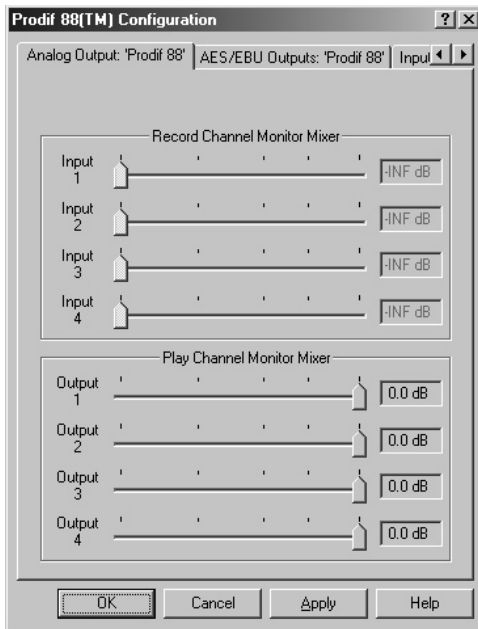
This page contains general configuration settings for the Prodif 88.

- To change the card name, click in the box labeled "Prodif 88 name", and enter the name you want to assign to the Prodif 88 card. This name will appear in your audio applications and in configuration dialogs, so you can more easily identify each Prodif 88 you have installed.
- To change the way the driver interprets 24-bit audio data sent as a 32-bit value, operate the 24-bit data mode controls. Some audio applications send 24-bit audio data to wave drivers as a 32-bit value. This control allows you to specify whether the 24-bit audio data is in the left side or the right side of that 32-bit value. If your audio application sends 24-bit data as a 32-bit value, and the audio is at either too high or too low a level, try using the other selection for this control. Most of the time, you will want to leave this set as "Left".
- To select between monitoring record channels, play channels or both record and play channels, operate the Analog monitor output selection controls. If you choose to monitor both record and play channels, all channels must use the same clock source and run at the same sample rate.

Please note that this selection also affects the ability to directly monitor AES/EBU inputs on AES/EBU outputs, and the word clock output, which runs at the same clock rate as the analog monitor output.

- To sync the record and play channels together, or to allow the record channels to operate independently from the play channels, operate the Record channel sync mode controls.
- To change the digital transmitter options, such as professional vs. consumer mode, copy protection, non-audio mode and pre-emphasis, operate the Digital output options controls. When pre-emphasis is turned on, the Prodif 88 selects 50/15 μ S pre-emphasis.

Analog Output page:



This page contains the settings for the analog monitor outputs. By changing these controls, you can change how the Prodif 88 analog output monitors the AES/EBU inputs and outputs.

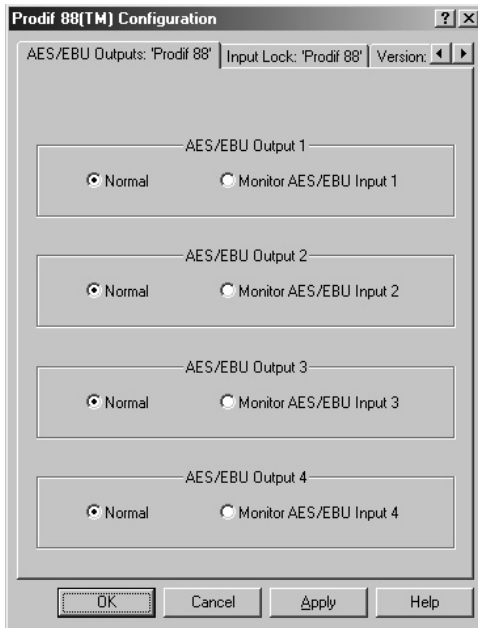
- To turn off monitoring for an input or an output, set the slider to -INF dB (all the way to the left).
- To turn on monitoring for an input or output, set the slider to any other position.

If you are playing and recording simultaneously, you will be able to hear the mixed playback and record data.

Remember that setting the monitor levels too high can result in distorted output.

Please note that monitoring does not affect the data being recorded.

AES/EBU Outputs page:



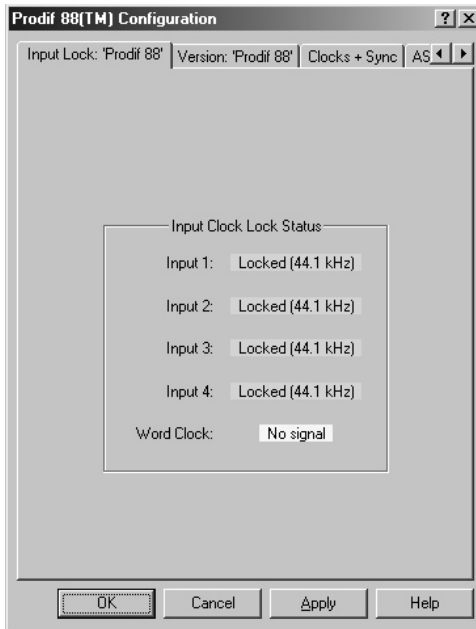
This page allows you to change the way the AES/EBU outputs work. Normally, the AES/EBU outputs are used to play back audio from your computer. However, each AES/EBU output can also be used to monitor the incoming audio on the corresponding AES/EBU input. Use the controls on this page to select between normal operation and monitoring the AES/EBU inputs.

- To use the card normally, select "Normal".
- To monitor an AES/EBU input on its corresponding AES/EBU output, select "Monitor AES/EBU Input".

In order to do this type of monitoring, the Analog monitor output selection on the "Configuration" page must be set to "Both play and record channels".

Please note that AES/EBU input monitoring does not affect the data being recorded.

Input Lock page:

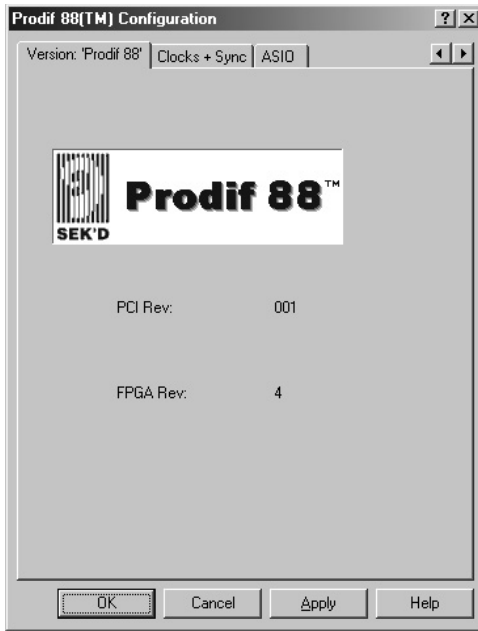


This page displays the lock status of the AES/EBU inputs and word clock input on the Prodif 88.

- If an AES/EBU input channels is not locked, the display shows "Unlocked".
- If an AES/EBU input channels is locked, the display shows "Locked". When possible, the sample rate of the incoming signal is also shown.
- If the word clock input is not connected to a clock source, or if the clock source is too fast or too slow to detect, the display shows "No signal".
- If the word clock input is connected to a clock source that is not at a supported sample rate, the display shows "Invalid clock".
- If the word clock input is connected to a valid clock source, the display shows the approximate sample rate of the incoming signal.

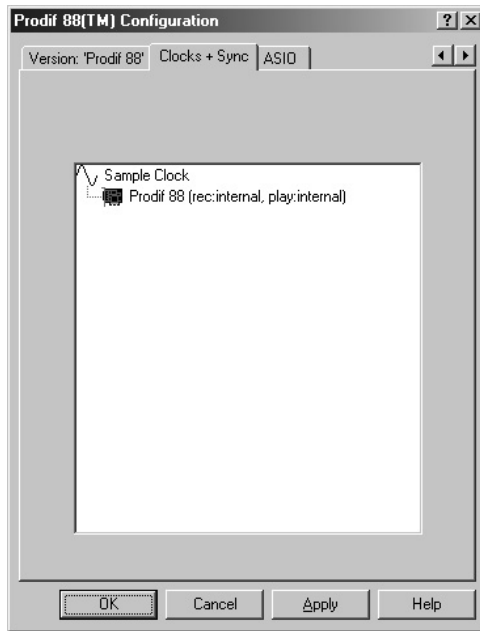
Prodif 88

Version page:



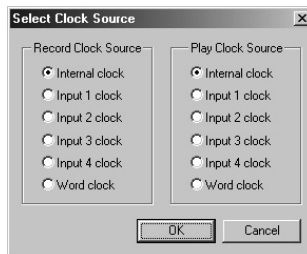
This page shows the hardware and firmware version information for your Prodif 88. This information is helpful for our technical support engineers, should you have any problems with your Prodif 88.

Clocks + Sync page:



Each Prodif 88 can choose from a number of clock sources. On this page, you can choose the clock source for each Prodif 88.

- Right-click the Prodif 88 you want to change, and select “Change clock sources”. Then, select the desired clock source for the inputs and the outputs:



- Internal clock: use the internal sample clock.
- Input 1-4 clock: use the clock from the corresponding AES/EBU input.
- Word clock: use the clock from the word clock input connector.

Please note that some clock combinations are not allowed:

- If the record clock is set to the internal clock or the word clock, the play clock cannot be one of the AES/EBU inputs.
- If the play clock is set to one of the AES/EBU inputs, the record clock must be set to the same AES/EBU input.
- If the monitor output selection is set to monitor both record and play channels, the record clock and the play clock must be set to the same clock source.

The Prodif 88 also provides a word clock output. The word clock output runs at the same rate as the analog monitor output.

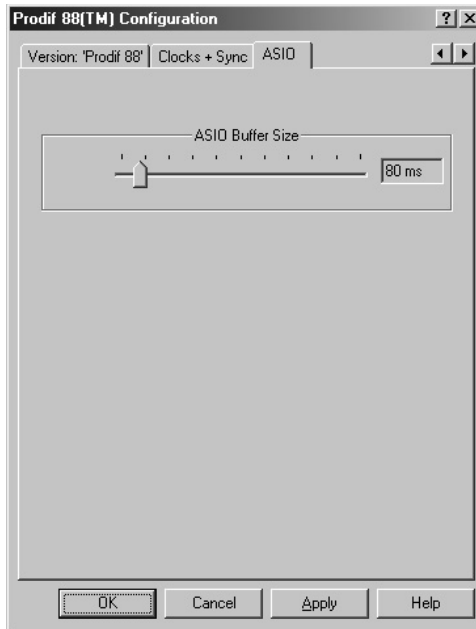
Note: When using external clock sources (AES/EBU inputs or word clock input), please close your audio application software before changing cables or changing the sample rate of the external clock source. This allows the Prodif 88 to properly synchronize with the external clock source when you restart your audio application software.

One Prodif 88 can act as the clock master for other Prodif 88 cards. Cards that are configured to slave to a master also start recording and playback in sync with each other.

- To make a Prodif 88 the clock master for all other Prodif 88 cards, right-click the Prodif 88 you want to be the clock master and select "Become clock master".
- To make one Prodif 88 be the clock master for another "slave" Prodif 88, drag and drop the slave onto the Prodif 88 you want to be the clock master. Only one Prodif 88 can be the clock master at any one time.
- To stop a Prodif 88 from slaving to a master, either right-click it and select "Stop being a slave", or drag and drop it onto the Sample Clock icon.
- To stop a Prodif 88 from being a clock master, right-click it and select "Stop being a clock master".

Please note that in order for a multi-card Prodif 88 configuration to work properly, you will also need to install a synchronization cable between all Prodif 88 cards in your computer. For more information about this, please see the "Using More Than One Prodif 88 Card" section below.

ASIO page:



This page allows you to change the buffer setting for applications that use the ASIO Prodif 88 driver, such as Cubase/VST.

- To change the buffer setting, operate the slider control. The buffer size is specified in milliseconds.

Please note that this buffer setting does not apply when using the ASIO Multimedia or ASIO DirectSound drivers. These two ASIO drivers have their own control panel to set buffer sizes.

5. Using More Than One Prodif 88 Card:

Note: This section only applies to multiple Prodif 88 card configurations that require either sample clock synchronization or start/stop synchronization. If you will be using only one Prodif 88 card in your computer, if you do not require all Prodif 88 cards to use the same sample clock or if you do not require all Prodif 88 cards to start and stop at the same time, the information in this section does not apply to you.

Some applications may require more than four synchronized AES/EBU stereo input or output channels. For these situations, the Prodif 88 allows multiple cards to be synchronized to a single sample clock and started and stopped at the same time. To allow this synchronization to take place, all Prodif 88 cards must be installed in physically adjacent PCI slots and a synchronization cable must be connected between each of the Prodif 88 cards. To obtain a synchronization cable, please contact SEK'D and request one of the following part numbers:

- 2-card system: P/N PD88SB2
- 3-card system: P/N PD88SB3

If you require synchronization of more than three Prodif 88 cards, please contact SEK'D for support and availability information.

Note: It is important to use the correct synchronization cable for your Prodif 88 configuration. Do not attempt to use a 3-card synchronization cable in a 2-card system.

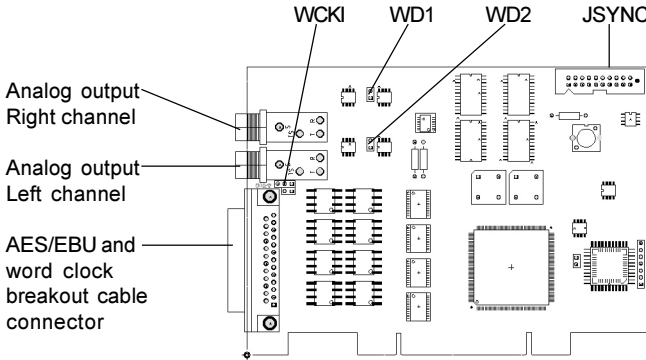
Note: If you are not installing the synchronization cable during the Prodif 88 card installation process, you must shut down, power off, unplug and open your computer as described in the "Installing The Prodif 88 In Your Computer" section above before installing the synchronization cable.

To install the synchronization cable, plug one of the synchronization cable connectors into the Prodif 88 synchronization connector marked "JSYNC", located at the top right corner of each Prodif 88 card. The cable should connect smoothly between each card, with no twists in the cable, and each cable connector should be completely seated into the synchronization connector on each Prodif 88 card. There must be no unused connectors on the synchronization cable.

To enable synchronization between your Prodif 88 cards, double-click the "Configure Prodif 88" icon on your desktop to bring up the Prodif 88 Control Panel. Follow the instructions in the "Configuration Settings: Clocks + Sync page" section above to make one of your Prodif 88 cards the clock master. This will also enable play and record synchronization for the Prodif 88 cards in your system.

6. Jumper Settings and Connector Information

The Prodif 88 card has two jumper-selectable configurable options.



WD1, WD2 jumpers: analog monitor output level selection
 These jumpers allow selection of either +4 dBu or -10 dBV output levels on the analog monitor outputs.

- +4 dBu: WD1, WD2 jumpers installed (default)
- -10 dBV: WD1, WD2 jumpers removed

WCKI jumpers: word clock mode selection

These jumpers allow the word clock input and output to be connected or disconnected from the breakout cable.

- Prodif 88 mode: word clock input, output supported on pins 25, 13
 - ☐[☐☐] upper jumper installed on rightmost two pins (default)
 - [☐☐] lower jumper installed (default)
- Alternate mode: no word clock in or out, pin 25 grounded, pin 13 open
 - [☐☐]☐ upper jumper installed on leftmost two pins
 - ☐☐ lower jumper removed

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AES/EBU and word clock breakout cable connector pinout:

Pin #	Signal
1	+TX4
2	Ground
3	-TX3
4	+TX2
5	Ground
6	-TX1
7	+RX4
8	Ground
9	-RX3
10	+RX2
11	Ground
12	-RX1
13	Word clock output (Prodif 88 mode) or no connection (Alternate mode)
14	-TX4
15	+TX3
16	Ground
17	-TX2
18	+TX1
19	Ground
20	-RX4
21	+RX3
22	Ground
23	-RX2
24	+RX1
25	Word clock input (Prodif 88 mode) or Ground (Alternate mode)

FCC and CE Compliance Statements:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

This product complies with the European CE regulations EN 50081-1 and EN 50082-1.

Warranty Statement:

SEK'D warrants the Prodif 88 against defects in material and workmanship for a period of one year from the date of purchase. During this period, SEK'D will, at its option, either repair the defective unit or replace it with a new or rebuilt one. This warranty does not cover damage due to abuse, misuse, or accident, damage due to operation contrary to the instructions provided herein, units on which the product serial number has been removed or altered, or units that have been serviced by unauthorized personnel.

All implied warranties, including warranties on merchantability and fitness, are limited in time to the length of this warranty. Some states do not allow time limitations on implied warranties, so this limitation may not apply to you.

The liability of SEK'D, DTD, plus24 and LR Sound, Inc. is limited to the repair or replacement of the product. SEK'D, DTD, plus24, and LR Sound, Inc. shall in no way be held liable for incidental or consequential damages resulting from the use of the Prodif 88 or its driver software, including, without limitation, damages from loss of business profits, business interruption, loss of business information or other pecuniary loss. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Prodif 88

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