



DGX EXTENDER

User's Guide

© June 2005, v1.0 MARIAN
Hardware Design by MARIAN

All rights reserved. No part of this User's Guide may be reproduced or transmitted in any form or by any means, electronically or mechanical, including photocopy, translation, recording, or any information storage and retrieval system, without permission in writing from MARIAN.

All trademarks are the property of the respective owners.

MARIAN is not liable for any damage to the software, hardware and data and costs resulting from it, which are caused by improper handling or installation of the hardware. Technical changes are reserved.

marian

Welcome	3
Features	4
Scope of Supply	5
System Requirements	6

Installation	7
---------------------	----------

The DGX Extender within Marc X Manager	9
---	----------

Mixer Surface	9
Output Control	10
Settings	10

Sample Rate Conversion in Use	12
The Situation	12
The Solution	13

Technical Facts	14
------------------------	-----------

Service and Support	15
Warranty	15
Contact	16

Welcome

Congratulations and thank you very much, for deciding for the DGX extender. This topnotch, yet compact expansion for your Marc X sound system is the access to the professional digital audio world. More and more often AES/EBU connections for balanced and thereby high quality data transmission are being used. That is why the DGX extender provides two independent Stereo AES/EBU connectors. In order to allow most flexible digital routings, you can switch on the integrated sample rate converters, if you wish. Those allow e.g. the use of different digital inputs at the same time, without external synchronization! It's self understood, that the DGX fits to the high resolution format of the Marc X with 24 bit and 96 kHz. Therefore we hope that the DGX extender will be a great pleasure for you and is going to be a sufficient expansion and workflow enhancer for your digital audio setup.

Your MARIAN Team

Features

- ✓ 4 channel I/O expansion for the Marc X sound system
- ✓ 2 digital stereo connectors in AES/EBU format
- ✓ 24 Bit/96 kHz support
- ✓ 2 independent, switch able sample rate converters for the inputs
- ✓ both inputs usable as clock sources for the Marc X system
- ✓ DAT marker support

Scope of Supply

After opening the DGX box, please check if the following components are to be found completely and undamaged:

- ✓ DGX extender
- ✓ XLR breakout cable with 2 AES/EBU connectors
- ✓ Connection cord to Marc X (flat cable)
- ✓ Power connector
- ✓ Driver CD
- ✓ This manual

System Requirements

For a successful and orderly operation of the DGX, the following basic requirements have to be met:

- ✓ Correctly installed soundcard Marian Marc X
- ✓ Operating system Microsoft Windows 2000/XP
- ✓ DirectX™ 9
- ✓ 1 free PCI case slot

Installation

1. With the computer turned off, pull the power plug.
2. Open the case of the computer.
3. Take out the DGX extender from its box and wrapping.
4. Plug the supplied power cable and the connection cable to the DGX extender.
5. Carefully plug the DGX extender into a free slot and fix the slot bracket with a screw.
6. Connect the power cable of the DGX extender to the computers' power system
7. Connect the Marc X connection cable of the DGX to the Marc X.
8. Close the computer case and replug the power cord.

9. Start the computer and install the Marc X driver from version 3.0 up as you can read described in the “readme.htm” file supplied with the driver update.

The DGX Extender within Marc X Manager

Mixer Surface

The channels of the DGX will appear in the “Input” and “Play” section of the Marc X mixer as “AesEbu 1-2” and “AesEbu 3-4”. At the “Show” section they can be shown or hid via the button “Extender”. Hidden channels are still functionally active.

If no DGX is connected, the “Input” channels “AesEbu 1-2” and “AesEbu 3-4” are not available in the mixer. The “Play” “AesEbu 1-2” and “AesEbu 3-4” channels become virtual outputs “Virtual 1-2” and “Virtual 3-4”. They are available in every audio software as playback channels, but can only be heard via a routing to another physical output within the output control.

Output Control

In the output control the output channels of the DGX appear as “AesEbu 1-2” and “AesEbu 3-4”. At the “Show” section they can be shown or hid via the button “Extender”. The “Source” selections for “Play” and “Input” are updated along with the new channels.

Settings

Clock Sources „AesEbu Input 1“ and „AesEbu Input 2“

Two new clock sources will appear in the “Audio Synchronization” tab of the Marc X manager: „AesEbu 1“ and „AesEbu 2“. They refer to the corresponding stereo AES/EBU input pair. If one of the two options is chosen, the complete Marc X system is synchronized to the input signal of this connector.

Hardware Sample Rate Conversion

The control of the sample rate converters you will find at the tab “Audio Synchronization” within the settings window of the Marc X manager. Here you can define when the available sample rate converters of the DGX („AesEbu Input 1 SRC“ and „AesEbu Input 2 SRC“) will become active. Choosing the option “Activate automatically” will always activate the corresponding sample rate converter except when this input is chosen as clock source. If you choose “Activate never [DAT - Marker available]“ the sample rate conversion is deactivated permanently. Please note: only with this setting DAT markers from e.g. a DAT recorder can be transmitted.

Important note: If you are going to record from a digital input, whose source is not synchronized with your Marc X sound system, the recording will suffer digital errors. These are possibly not instantly perceptible while quickly checking, but can ruin a recording by periodical “cracks” in the long run.

Sample Rate Conversion in Use

The Situation

Let's suppose the following situation: You have connected a DAT recorder with S/PDIF output and an external signal processor (e.g. reverb generator) with AES/EBU output to your Marc X/DGX system. In your music project, if you wish to record both signals or simply want to monitor them via the Marc X Mixer, this usually turns out to be a problem. Because, even if both devices play back at 44.1 kHz, this sample rate differs unequally strongly between both devices. That means there is not one single clock source with one single sample rate only, as required for digital signal routing. This makes at least one input signal unusable because of digital errors. Normally, this type of problem is solved by synchronizing all devices externally. But only few DAT recorders and only very professional signal processors provide the necessary word clock input.

The Solution

Activate the sample rate conversion for the AES/EBU input which is connected with effect unit. The sample rate is now caught from the S/PDIF input (that means from the DAT recorder). This is now the clock source for the Marc X system. The sample rate converter on the AES/EBU input converts the 44.1 kHz of the reverb unit and makes it fit to S/PDIF input. This way, the Marc X can process even those signals, and the recording succeeds distortion-free.

Technical Facts

- Output voltage $3V_{ss}$ on 110 Ohm
- Output sample rate: 8 – 108 kHz
- Input sensibility approx. $200mV_{ss}$
- Input impedance: 110 Ohm
- Input sample rate: 32 - 96 kHz
- Input sample rate converters:
 - Input SNR: 128dB
 - Input THD+N : 0,00032%
 - Max. sample rate ratio In/Out: 1:3 resp. 3:1

Service and Support

Warranty

Each DGX leaving us is put under extensive functionality checks. We allow full 24 month of warranty. A copy of the receipt or bill serves as proof of purchase. If there is a deficiency occurring during the time of warranty, you can exchange the unit at your dealer. Damages originating in inappropriate handling or false operation are excluded of the warranty.

You can still send the DGX extender in to us for repair after the warranty has expired. You can decide to have it repaired, after receiving a calculation of the approximate repair costs. For this, please get in contact with our support service.

Contact

If you have any questions or problems when installing or operating the DGX, please proceed as follows:

1. Make sure, the newest driver is installed. The current driver files can be found on: *www.marian.de/en/downloads*
2. If still any questions remain, you can contact us via the internet using our support form at: *www.marian.de/en/support*
3. Or talk to us personally. Dial: +49 (0)341-589 32 22

Interesting news, information, and driver-updates as well as information about our products and authorized dealers can be found on *www.marian.de*.