GIESELER USB Reinigen

User Manual – Version 1

Welcome to the club.

Introduction

Thank you for purchasing the Gieseler USB Reinigen, we hope you will enjoy it.

The USB Reinigen is a new high speed (480 Mbps) USB 2.0 isolator/re-clocker. The main purpose for this device is to isolate and re-clock USB audio data between a digital source (such as a music server) and a digital-to-analogue converter (DAC) to maximise sound quality.

Gieseler products are built to a high level of quality, and include a full two year parts and labour warranty. All parts are sourced from reputable suppliers such as *Digikey*, *Element14*, *Mouser Electronics*, and *RS Components*, to ensure parts meet our quality standards. Every unit is hand built in Australia by an experienced electronics audio technician.

Adding the USB Reinigen between a digital source and DAC is aimed at enhancing the sound quality in terms of separation, vocal body and general minimisation of digital edge or glare. High speed data is re-timed for jitter reduction using a low phase noise Seiko 24.0000 crystal based clock.

Particular attention has been given to the internal power supplies as these are critical for optimal sound quality. The main power supply uses the same asynchronous rectifier as the Gieseler Kraftwerk II series power supplies. The oscillator/clock uses ultra low noise shunt based regulators with extra pi filtering.

The USB Reinigen also includes a double regulated 1 Amp USB A output connector, which often powers the USB input board on a DAC. The Reinigen provides a quality low noise regulated supply. This can be very useful when connecting an external CD drive for ripping as not only does the drive receive ‘clean’ power but also the USB data is cleaned up.

Contents

- Gieseler USB Reinigen
- 9 Volt AC Plug Pack

Features

- Total bidirectional galvanic isolation between in/out connections
- USB B Input and USB A output
- High speed 480 Mbps rating
- Multiple ultra low noise internal power supplies
- Discrete component design 24.0000MHz low phase noise clock.
- 1 Amp rated 5v USB A output connection.

Specifications

USB maximum data rate	480 Mbps
Galvanic isolation	Bidirectional USB isolation for up/down stream ports
USB A output power	5v 1 Amp with double linear regulators
Power adaptor	9v AC 2.0 A linear IE core transformer (Australian 240 v)
Power consumption	2.25 W
AC power input socket	5.5mm diameter with 2.1mm centre pin.

Operation

- Connect USB in and out cables first.
- Connect AC external 9v plug pack and switch unit on – Blue LED on indicator.
    - **Important**: only use the provided AC 9v output adaptor. Using a DC plug pack will damage the unit.
- The unit remains fairly cool during operation, but warms slightly during extended use; this is expected and poses no problems.

Internal jumper settings

There are three jumper settings included on the circuit board, by default these are set to 'closed', which should suit most users.
If you do need to change one of these settings, you can set a jumper to 'open' by carefully unplugging the jumper from the circuit board.
The jumpers are labelled on the board per the descriptions below:

- Chassis ground link
    - Closed (default): links PCB ground plane to case
    - Open: PCB is not grounded to case
- USB power out option
    - Closed (default): connects 5v on USB A output socket
    - Open: does not connect 5v on USB A output socket
        - Only set this jumper to open if you are certain that your DAC does not require 5v in via the USB input. Most digital sources output 5v on their USB sockets.
- Input pin 1 option (located near USB B in socket)
    - Closed (default): provides a small load (10K) on the power input pin.
        - This will assist some digital sources as it shows a connected device.
    - Open: does not provide the load.

Optimal operation conditions

- Conditioning devices connected between the USB Reinigen and the digital source (music server) or between the USB Reinigen and the DAC can cause problems, so direct connections from the digital source to USB Reinigen, then from USB Reinigen to DAC are strongly recommended.
    - Inline USB power filter products, such as 'Jitterbugs' in particular may cause issues.
- The clock circuitry takes at least forty eight hours to stabilise from when the USB Reinigen itself is powered on, which can have some effect on audio quality.
    - For optimal listening it is recommended to leave the USB Reinigen unit permanently powered on, however the unit is expected to perform well immediately from start up.
- Sound quality will optimise after three hundred hours of on time as electronic components are 'run in'.