



Safety Instructions

Prior to installing your new Meitner Audio product please read the following safety instructions:

- Read and follow all instructions.
- Keep these instructions.
- Do not use or install product near any sources of water, rain and/or moisture.
- Clean using only a dry cloth.
- Install only in accordance with the manufacturer's instructions.
- Refer all servicing to approved service personnel.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not install product outdoors or in direct sunlight.
- Leave at least 10cm or 4 inches around product to ensure proper ventilation.
- Do not place product near strong electrical or magnetic radiation/emissions or near a power amplifier.

This Meitner product must be connected to a mains socket outlet with a protective earthing connection (grounding pin).

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO WATER OR MOISTURE.

EEC: This product has been designed and tested to comply with the limits set out in EN55013, EN55020 and EN 60065:2009 (electrical safety).



Introduction

Welcome and congratulations on purchasing a Meitner Audio product.

We at Meitner Audio have strived to build and perfect the absolute best product using our award winning technology and decades of experience.

We are confident that our products will bring you musical joy and enjoyment for many years to come.

This manual provides important information regarding the use, installation and care of your new Meitner Audio product.

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Warranty

Meitner Audio warrants the MA-1 product against defects in material and workmanship under normal use and service for a period of time specified by the product's serial number from the date of first delivery to the owner. The warranty time period is 5 years. Warranty is limited to the original owner and is non-transferable.

Meitner Audio will pay for return shipping charges back to the owner when the product is sent to Meitner Audio within the first 90 days after purchase (US and Canada end-users only). Otherwise, owner will be responsible for all shipping charges to and from Meitner Audio.

For all warranty claims, a copy of the original invoice must accompany the product.

Opening the product or modifying it in any way by the owner, including but not limited to cryogenic treatment, will void any warranty.

Please contact Meitner Audio (support@meitner.com) for RMA number and shipping instructions before shipping any product to Meitner Audio.

Meitner Audio products are sold worldwide through authorized dealers with restricted territories. Meitner Audio product purchased from non-authorized dealers or from a dealer selling outside his/her authorized territory will automatically void product warranty.

MA-1 Stereo Digital Converter

The MA-1 is a high-performance stereo digital converter with a wide variety of user selectable digital inputs. It has been refined from our high end and acclaimed professional converter systems which are used worldwide in professional studios to create some of the finest recordings.

The MA-1 provides near instantaneous digital to analog conversion from a host of digital inputs.

The MA-1 includes digital inputs for USB, AES, TOSLINK and SPDIF.

Word lengths up to 24bit, and sample frequencies up to 192kHz are supported on all digital inputs.

DSD streaming is also supported on the USB digital audio input.

Features & Specifications

2-Channel Digital to Analog Conversions (All Digital Inputs):

- 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz & 192kHz
- Word lengths up to 24bit

2-Channel DSD (1bit, 2.8Mhz) Digital to Analog Conversion is supported using DoP 1.0 specification via the USB digital audio input.

Available Digital Inputs:

- 1x USB
- 1x AES/EBU (XLR)
- 2x SPDIF (RCA)
- 2x TOSLINK (Optical)

Analog Outputs:

- Balanced (XLR)
Output Line Level (0dBfs signal on AES/EBU input): 4.6Vrms
Output Impedance: 300Ω
- Un-Balanced (RCA)
Output Line Level (0dBfs signal on AES/EBU input): 2.3Vrms
Output Impedance: 150Ω

Note:

1. XLR analog outputs are balanced with pin 2 hot, pin 3 cold and pin 1 ground.
2. For proper digital audio data transfer (especially at 176kHz and 192kHz) appropriate high quality TOSLINK, SPDIF, AES and USB 2.0 cables must be used.

System:

- System control via serial RS-232
- USB data port for software upgrades

Features & Specifications

Power supply:

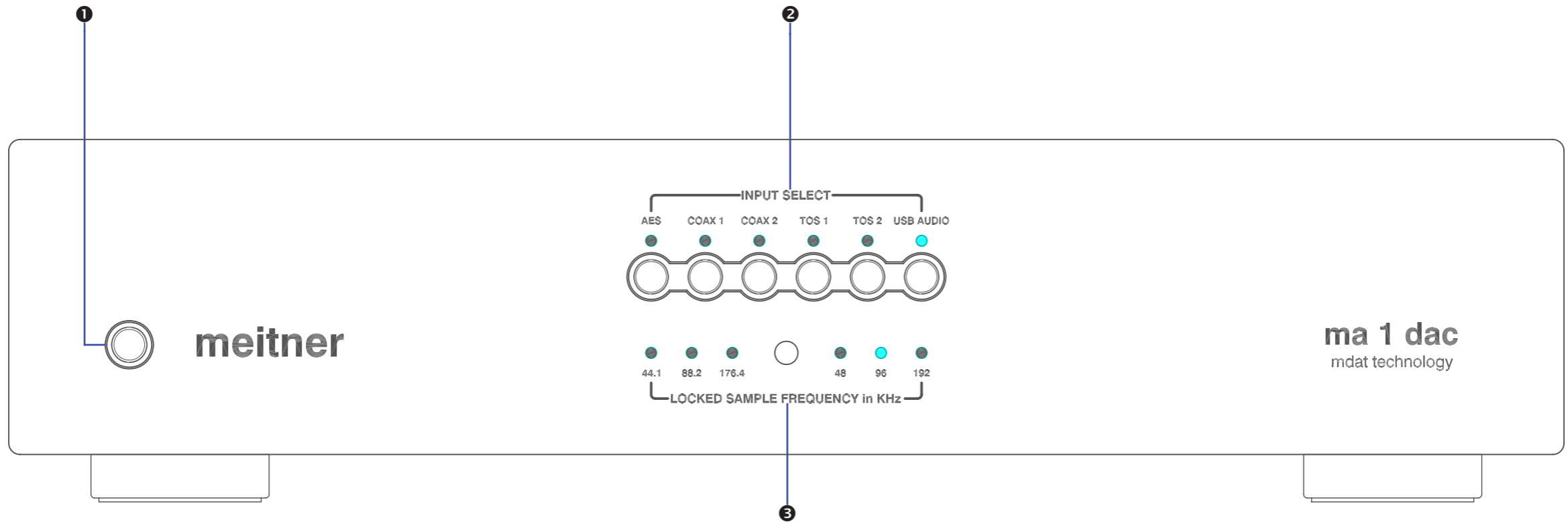
- Power factor corrected
- Universal 90V-260V, 50/60Hz operation
- Power consumption: 50W
- CE Approved

Remote control: Infrared

Dimensions: W x D x H: 435 x 400 x 92mm

Weight: 7.43kg

Front Panel & Functions



1. Standby/Power-Save button:
Toggles the operation between on and power-save mode. In power save mode the remote control and all front panel functions become inactive.
2. Locked Sample Frequency Indicators:
The appropriate sample rate indicator is lit when the unit detects valid digital audio data at the selected digital audio input.

Front Panel & Functions

3. Digital Input Selector Buttons:

- AES: Selects AES/EBU (XLR) format PCM digital input .
- COAX 1: Selects SPDIF (RCA) format PCM audio from COAX 1 connector.
- COAX 2: Selects SPDIF (RCA) format PCM audio from COAX 2 connector.
- TOS 1: Selects SPDIF (TOSLINK) format PCM audio from TOS 1 connector.
- TOS 2: Selects SPDIF (TOSLINK) format PCM audio from TOS 2 connector.
- USB Audio: Selects USB PCM audio (computer, media player, media server).

All digital inputs support 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz and 192kHz.

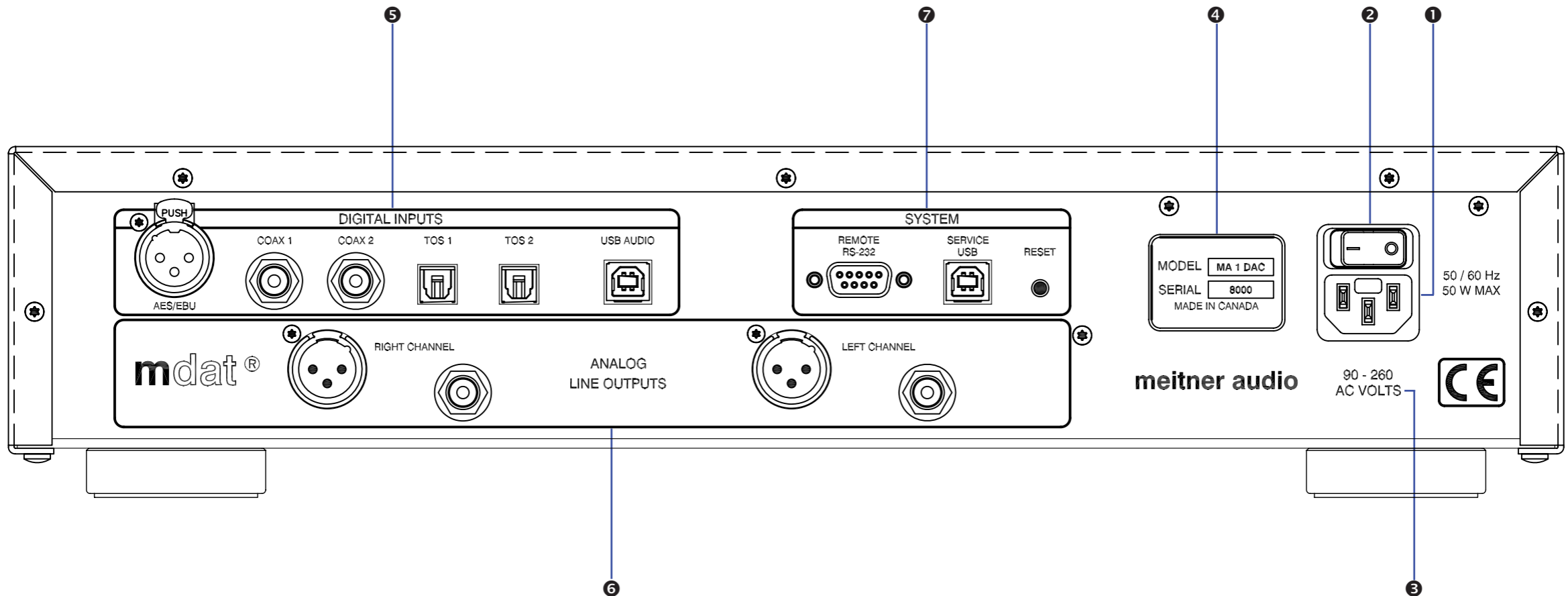
All digital inputs support word lengths up to 24bit.

USB input also supports DSD streaming over USB using DoP 1.0 specification.

Please note:

1. The Meitner Audio MA-1 is a Class 2.0 USB Audio device. Class 2 audio devices are supported natively in OSX 10.5.7 and higher, and on Linux with ALSA 1.0.23 and higher.
2. For Windows XP, Vista and Windows 7, Class 2 USB Audio device drivers are included with the MA-1. Please see page 14 for installation instructions.
3. Please use USB 2.0 compliant devices for maximum high resolution audio compatibility. Using the MA-1 with a USB 1.0 and 1.1 device/interface may limit digital audio bandwidth to 44.1/48kHz sample frequencies.
4. For proper high definition audio transfer (especially 176.4 and 192kHz sample frequencies) using the TOSLINK interfaces please ensure that your digital source device and optical cables support sample frequencies above 48kHz.

Rear Panel & Functions



1. Main Power connector
2. Main Power Switch.
3. Product VOLTAGE indicator: Indicates working voltage of the MA-1.
4. Product model and serial number indicator:
Warranty void if model/serial number indicator is not attached to unit, missing or damaged whereby serial number cannot be seen.

Rear Panel & Functions

5. Digital Inputs:

- AES/EBU: AES/EBU (XLR) PCM digital input.
- COAX 1: SPDIF (RCA) format PCM audio.
- COAX 2: SPDIF (RCA) format PCM audio.
- TOS 1: SPDIF (TOSLINK) format PCM audio.
- TOS 2: SPDIF (TOSLINK) format PCM audio.
- USB Audio: USB PCM audio from a computer, media player, server

6. Analog Line Output:

- Left and Right Balanced (XLR) Connectors
- Left and Right Un-Balanced (RCA) Connectors
- Level (Output Line Level with 0dBfs signal on AES/EBU input):
 - XLR outputs: 4.6Vrms (+15.45dBu)
 - RCA outputs: 2.3Vrms (+9.45dBu)

7. System

Remote:

- Wired RS232: RS232 communication port

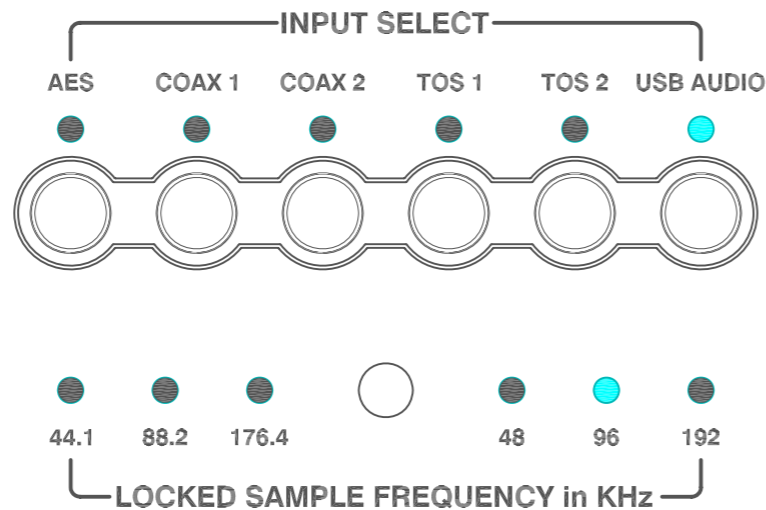
Service:

- USB: Software update port.
- RESET: Used to access the backup BIOS in connection with software upgrades via the USB port. Should not be used during normal operation.

Connecting & Operating the MA-1

Please see next page with regards to installing the MA-1's USB Audio drivers.

1. Connect the included power cable to the MA-1 power connector than to a free power receptacle.
2. Connect the appropriate digital source connections up to the MA-1's digital inputs using the appropriate high quality digital audio and USB cables.
3. Connect the appropriate analog outputs of the MA-1 to your pre-amp or integrated amplifier.
4. Turn on the MA-1 using the main power switch and select a digital input by pressing one of the digital input selector buttons.
5. Once the MA-1 receives a valid digital audio stream from the digital source, the detected frequency LED will light up signifying that the MA-1 has started its conversion process.



6. Please see example above. The USB Audio input is selected hence the USB Audio LED is lit. Once the MA-1 detects a valid digital audio stream the appropriate sample frequency LED will be lit. In this case the MA-1 has detected a valid 96kHz digital audio stream.
7. When valid DSD data is detected both the 176.4 and 192 LEDs will be lit.

Connecting & Operating the MA-1

8. Once locked to a sample frequency the MA-1 will start its conversion process and you will almost instantaneously be able to listen to music.
9. The MA-1 remembers the last digital input it was switched too prior to being switched off.

USB Audio Input:

1. First, use only well-shielded certified USB 2.0* cables to connect the MA-1's USB Audio input to any USB digital audio source component (computer, laptop, media server etc.)
2. The MA-1's USB Audio interface uses the B-type USB connector similar to connectors used on printers. Please see image below:



3. Select the USB Audio input using front panel input selector buttons.
4. For MAC OSX systems, no driver is needed. OSX has the appropriate USB driver already installed.
5. For Windows XP, Vista (32 or 64bit) and Windows 7 (32 or 64bit) systems install the provided USB driver located on the software CD in folder named "Meitner MA-1 USB Audio Driver" and run the "setup.exe" file. Read and follow the installation instructions.
6. Kernal, ASIO and WASAPI (Vista and Windows 7) drivers will be installed.

*Not using proper cables will cause audio issues between digital source and DAC.

Connecting & Operating the MA-1

7. For Windows Media Player playback; in Windows Control Panel set the default sound playback to the MA-1 USB Audio device (XMOS XS1-L1 Audio).
8. In general for most audio applications you will be able to select the MA-1 USB Audio device (XMOS XS1-L1 Audio) from within the application and choose the appropriate driver Kernel, ASIO or WASAPI.

DSD Audio

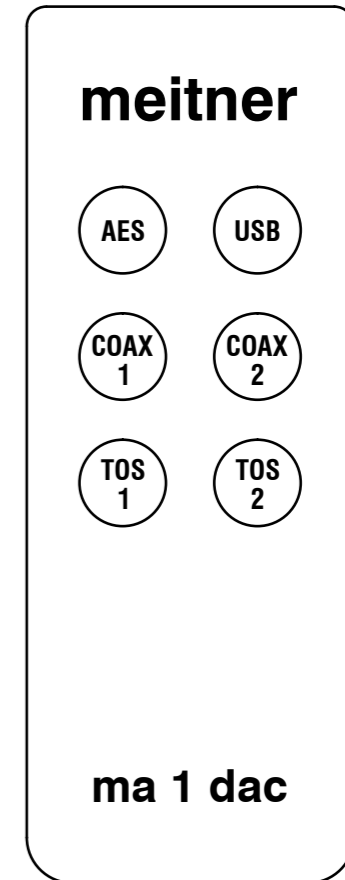
1. The MA-1 currently supports DSD audio streaming and conversion over USB using DoP 1.0 specification.
2. Please make sure that your MA-1 has the latest installed software and drivers. If unsure please email support@meitner.com with your MA-1 serial number and our engineers will be able to tell you if you need to update your unit.
3. Currently there are many different media players that support DSD audio file playback. Some of them that have been fully tested in-house eg. JRiver for Windows, and Audivarna and Pure Music for OSX.
4. Every media player will have specific software installation instructions and setup procedures for enabling DSD streaming. Please consult the specific software manual.
5. Some software manufacturers have also provided quickstart and software setup guides for download and online. If available Meitner Audio will post links to this on the MA-1 support website.
6. When setup correctly DSD data detected by the MA-1 will cause both the 176.4 and 192 LEDs to light up.

Infrared Remote Control

Included with the MA-1 is an infrared remote control. You can use the infrared remote control to select or toggle between the various digital inputs available on the MA-1.

Please see remote guide provided to the right:

- AES : Selects the AES/EBU input via AES/EBU XLR connector.
- USB : Selects the USB Audio input via USB Audio interface.
- COAX 1 : Selects the COAXIAL 1 SPDIF input via COAX 1 RCA connector.
- COAX 2 : Selects the COAXIAL 2 SPDIF input via COAX 2 RCA connector.
- TOS 1 : Selects the TOSLINK 1 SPDIF input via TOS 1 optical connector.
- TOS 2 : Selects the TOSLINK 2 SPDIF input via TOS 2 optical connector.



Serial Remote Control (RS232)

The MA-1 is equipped with a 9-pin RS232 port for system remote control via a serial cable (not provided by Meitner Audio). Please use a standard RS232 cable. Do not use a null model cable, as this will not work. RS232 communication port settings:

- 19,200 baud
- 8 bits
- 1 stop bit
- no flow control
- no parity bit

Commands to the MA-1

All commands sent to the DAC2 consist of 3 ASCII characters (all lowercase) followed by a carriage return or <CR>. Repeating a <CR> will repeat the last command sent. Received commands are not stored in a stack. They need to be sent in intervals of at least 50ms to allow enough time for the MA-1 to execute a command before receiving the next one.

Command	Function
aes<CR>	Selects AES input
to1<CR>	Selects TOS 1 input
to2<CR>	Selects TOS 2 input
co1<CR>	Selects COAX 1 input
co2<CR>	Selects COAX 2 input
usb<CR>	Selects USB Audio input

Serial Remote Control (RS232)

Status bytes sent from MA-1

The MA-1 sends back 2 Bytes terminated with a <CR> whenever any status changes.

<Byte 0> <Byte 1> <CR>

Byte 0 is input select byte and Byte 1 is sampling frequency and multiplier select.

Byte 0	bit 7	1 (Not Used)
	bit 6	1 (Not Used)
	bit 5	Status of USB Audio input (0 when selected)
	bit 4	Status of TOS 1 input (0 when selected)
	bit 3	Status of TOS 2 input (0 when selected)
	bit 2	Status of COAX 1 input (0 when selected)
	bit 1	Status of COAX 2 input (0 when selected)
	bit 0	Status of AES input (0 when selected)
Byte 1	bit 7	1 (Not Used)
	bit 6	1 (Not Used)
	bit 5	1 (Not Used)
	bit 4	4x sampling frequency (0 when selected)
	bit 3	2x sampling frequency (0 when selected)
	bit 2	1x sampling frequency (0 when selected)
	bit 1	48khz sampling frequency (0 when selected)
	bit 0	44.1khz sampling frequency (0 when selected)

Eg. USB input selected, and 176.4kHz sampling frequency:

Byte 0 = 11011111 (USB Audio input)

Byte 1 = 11101110 (176.4kHz sampling rate, 4x multiplier and 44.1kHz base)