Thank you for choosing EMM Labs

Safety Instructions

Prior to Installing you new EMM Labs 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 EMM Labs 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).

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Warranty

EMM Labs warrants the DA2 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.

EMM Labs will pay for return shipping charges back to the owner when the product is sent to EMM Labs 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 EMM Labs.

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 EMM Labs *(support@emmlabs.com)* for RMA number and shipping instructions before shipping any product to EMM Labs.

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

DA2 AUDIO CONVERTER

The DA2 is the first 16xDSD/DSD1024 stereo D/A converter with a wide variety of user selectable digital inputs. It has evolved from EMM Labs acclaimed converter systems which are used worldwide in professional studios to create some of the finest recordings.

The DA2 provides conversion from a wide variety of digital input formats, including USB Audio for computers, media systems and digital audio playback machines making it an extremely flexible converter system that can act as a standalone conversion hub to a host of digital sources.

The DA2 has:
- Ed Meitner's proprietary discrete Dual Differential 16xDSD/DSD1024 DACs.
- The enhanced MDAT2 DSP upsamples and conditions digital audio to sixteen times the SACD/DSD (45/49Mhz) samplerate.
- Proprietary MFAST technology for getting rid of source jitter.
- Proprietary Masterclock for sub-pico second jitter performance.
- Uses our exclusive aerospace grade composite laminate pcbs.
- Supports up to 24bit, 192kHz on all PCM inputs including USB
- Supports DSD and 2xDSD streaming over USB
- Supports 352 and 384DXD streaming over USB
- Supports DSD for CD/SACD playback over EMM Optilink

The DA2, when paired with an EMM Labs transport, performs as an unparalleled CD/SACD playback system.

Features & Specifications

2-Channel D/A conversions:
- from PCM (44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz) to analog
- from PCM 352DXD and 384DXD to analog via USB
- from DSD and 2xDSD to analog via USB
- from DSD to analog via EMM Optilink (SACD/CD playback)

Supported digital input formats:
- AES/EBU
- Two COAX SPDIF
- Two TOSLINK SPDIF
- EMM Optilink
- USB Audio

Analog outputs and impedances:
- Balanced on XLR (300Ω)
- Unbalanced on RCA (150Ω)

Output levels:
- XLR outputs: 5V (+16dBu)
- RCA outputs: 2.5V (+10dBu)

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 high resolution PCM and DSD) appropriate high quality TOSLINK, SPDIF, AES and USB 2.0 cables must be used.*
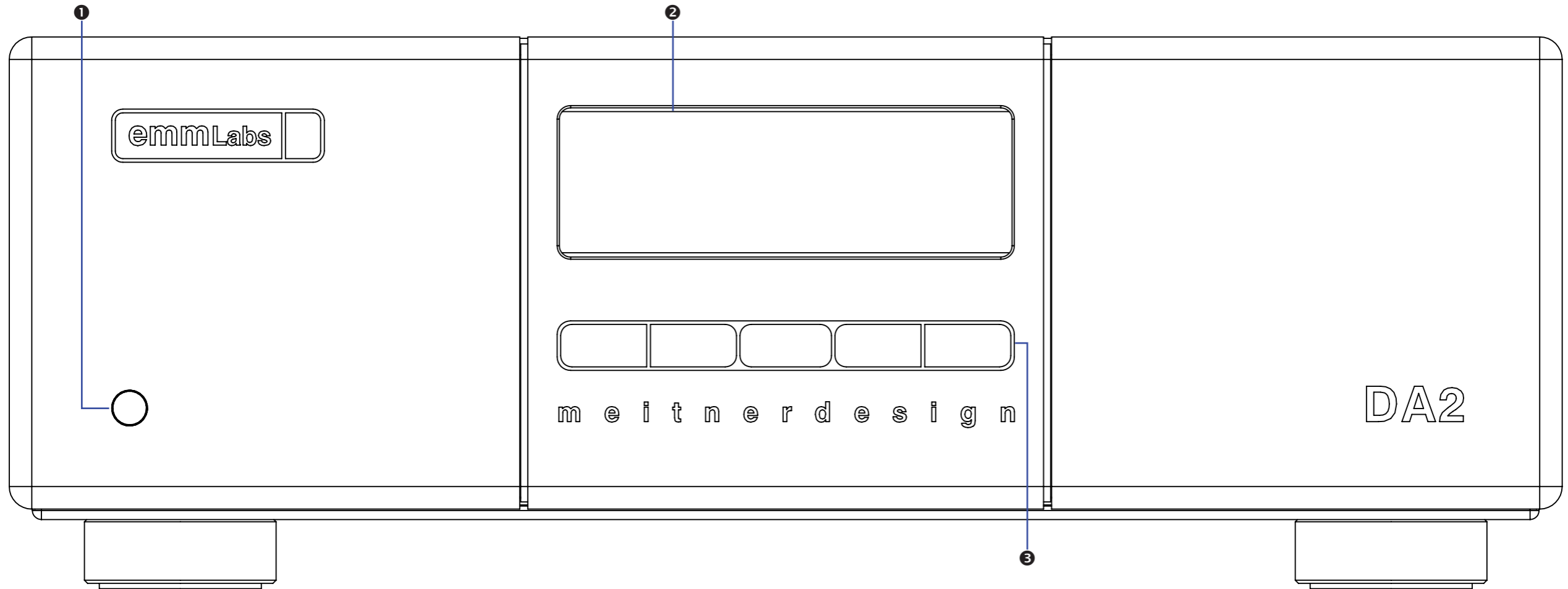
Features & Specifications

System control via Infrared remote and serial RS-232 ports *(see Appendix A)*

Power supply:
- Power factor corrected
- Factory set to 100V or 115V or 230V, 50/60Hz operation
- Power consumption: 30W
- Remote control: Infrared
- Dimensions W x D x H: 438 x 400 x 161mm
- Weight: 17kg

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. *Display*
3. *Button Bar:*
    Context sensitive function buttons.

Rear Panel & Functions
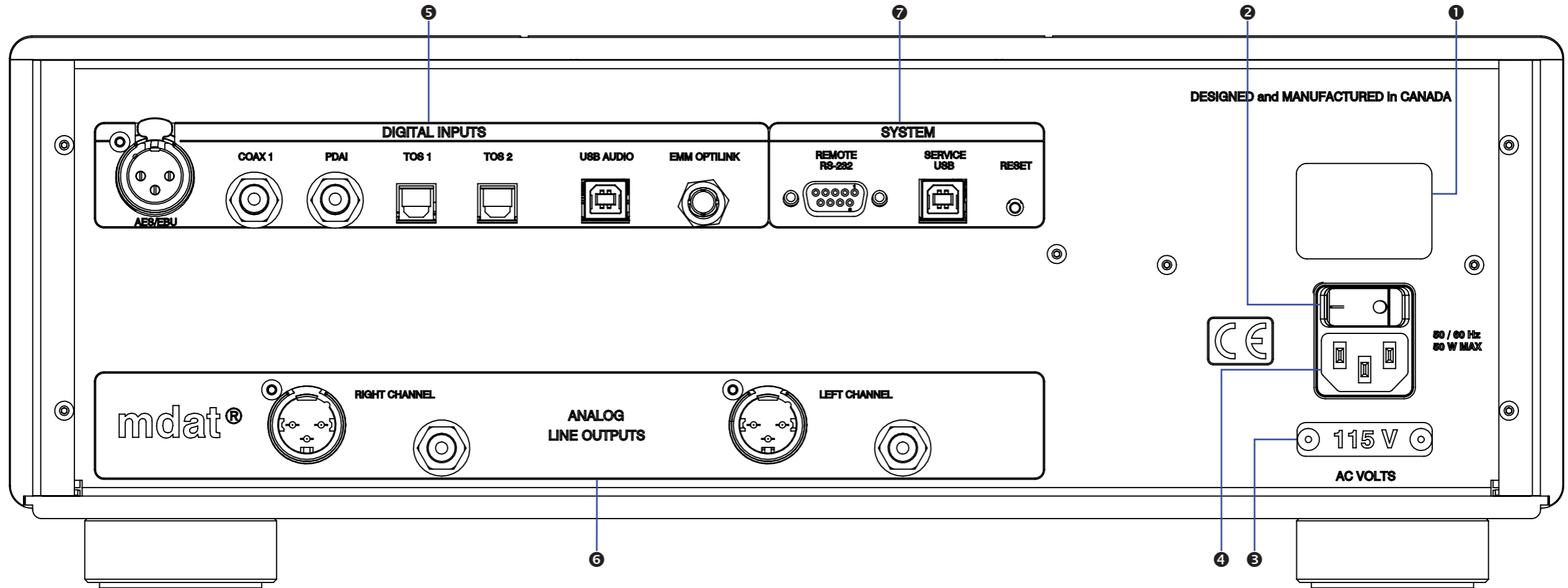
1. *Product model and serial number indicator:*
   Warranty void if model/serial number indicator is not attached to unit, missing or damaged whereby serial number cannot be seen.
2. *Main Power Switch*
3. *Product VOLTAGE indicator:*
   Indicates working voltage of the DA2. Only use with indicated line voltage.
4. *Main Power connector*

Rear Panel & Functions

5. *Digital Inputs (All inputs support up to 24bit, 192kHz. USB Audio input additionally supports DXD and DSD/DSD64 and 2xDSD/DSD128 streaming):*
    * EMM Optilink: input for interconnection with an EMM Labs transport.
    * USB Audio: USB PCM, DXD and DSD audio from computer, media player, server
    * AES/EBU: AES/EBU (XLR) PCM digital audio input.
    * COAX: SPDIF (RCA) format PCM digital audio input.
    * PDAI: SPDIF (RCA) format PCM digital audio input.
    * TOS1: SPDIF (TOSLINK) format PCM digital audio input.
    * TOS2: SPDIF (TOSLINK) format PCM digital audio input.

6. *Analog Line Output:*
    * Left and Right Balanced (XLR) Connectors
    * Left and Right Un-Balanced (RCA) Connectors
    * 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. See Appendix A.
    Service:
    * USB data port for firmware upgrades (see separate USB update instructions)
    * RESET button used to temporarily access the backup firmware. Only for diagnostic purposes. Should not be used during normal operation.

Main Screen
Main screen shows input and sample rate information plus the 4 main functions:

1. Mute

   Mute the DA2 by pressing the button directly below the "MUTE" function on the display. When muted the display will show "MUTED" and it will be highlighted.

2. Polarity

   Toggle the analog output polarity by pressing the button directly below the "POLARITY" function on the display. When polarity is inverted the display will show "INVERTED" and it will be highlighted. Polarity inversion is performed in the digital domain.

3. Menu

   Engage the "MENU" function by pressing the button directly below it and a a pop-up menu will open with 5 features (details in following pages):
   - CONTRAST & BRIGHTNESS - DA2 display brightness and contrast controls
   - ASSIGN INPUT BUTTON 1 - assigns a fixed input to input button 1
   - ASSIGN INPUT BUTTON 2 - assigns a fixed input to input button 2
   - REMOVE ASSIGNMENTS - removes input button assignments
   - SAVE/RESET SETTINGS - saves DA2 settings or reverts the settings back to factory default.

4. Input Toggle Back (◄) or Forward (►)

   Toggle/scroll through the DA2 source inputs using the back (◄) button or forward (►) button.

USB **DSD128**
MUTE   POLARITY   MENU   ◄   ►

meitnerdesign

CONTRAST & BRIGHTNESS
ASSIGN INPUT BUTTON 1
ASSIGN INPUT BUTTON 2
REMOVE ASSIGNMENTS
SAVE/RESET SETTINGS
EXIT   ↑   ↓   ENTER

meitnerdesign
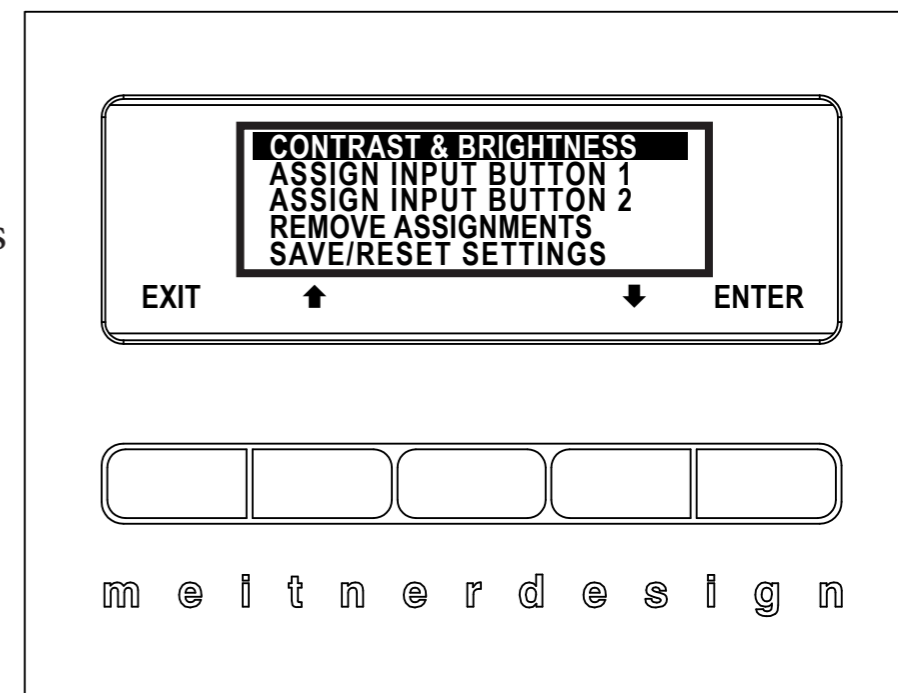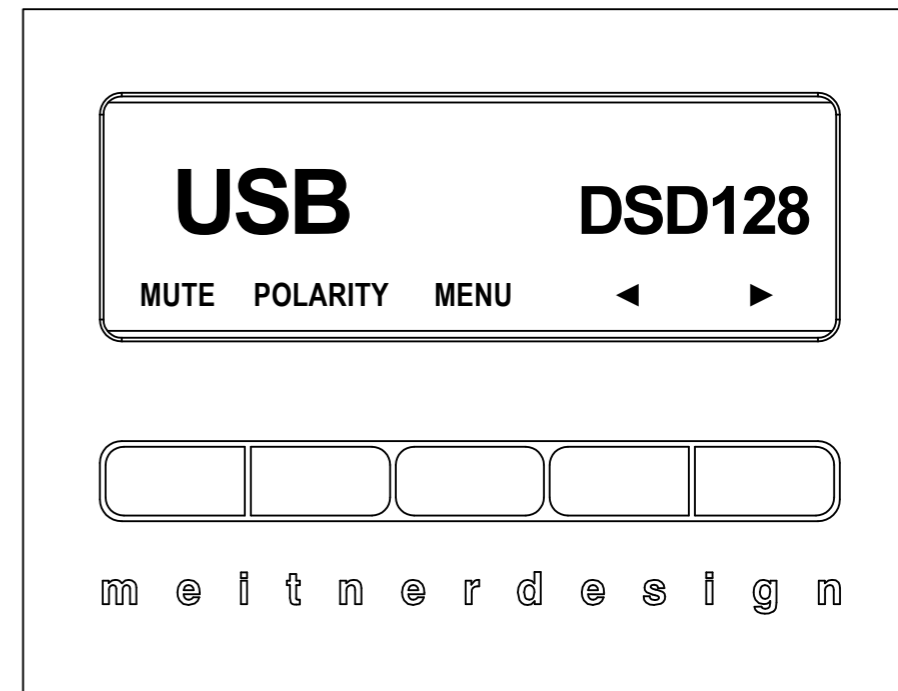
Menu Details

Use the up/down arrow keys to select one of the 5 features from the pop-up menu. Press the "ENTER" button to select. Feature details:

1. CONTRAST & BRIGHTNESS

Use the CONTRAST & BRIGHTNESS feature to change the display brightness and contrast settings. Starting with the brightness setting, use the left and right arrow buttons to adjust the level of brightness then press the "SAVE" button to save the brightness setting. Press the "NEXT" button to access the CONTRAST control. The process to set and save the contrast setting is the same as setting the brightness. Press the "EXIT" button to exit the CONTRAST & BRIGHTNESS controls.
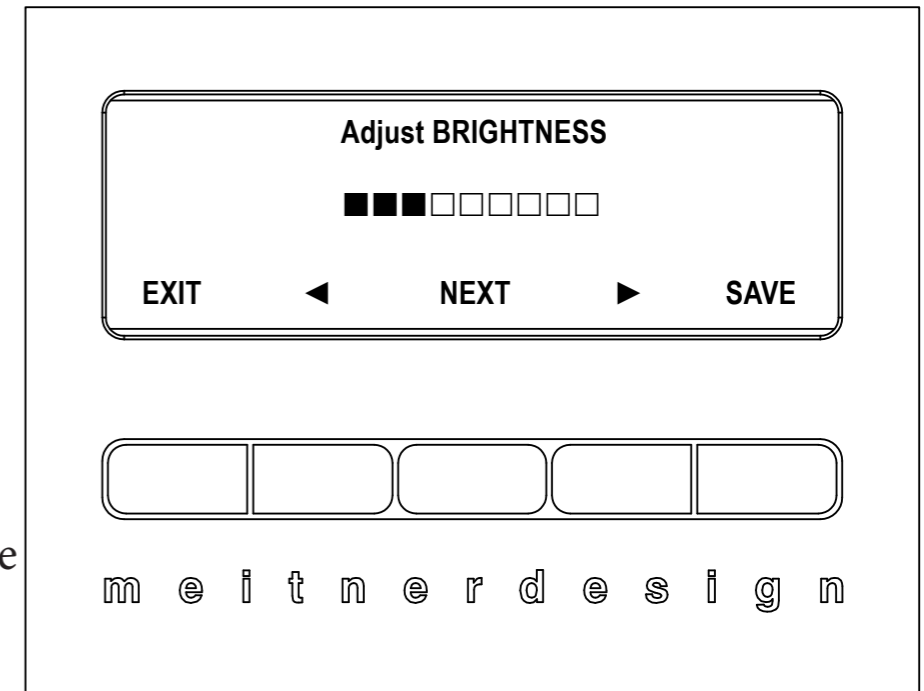
2. ASSIGN INPUT 1 & ASSIGN INPUT 2

Using the ASSIGN INPUT 1 & ASSIGN INPUT 2 feature, you can directly assign up to two DA2 inputs to the front panel buttons rather than using the back (◄) and forward (►) scroll/toggle buttons. First select either ASSIGN INPUT 1 or ASSIGN INPUT 2 from the main pop-up menu. Once selected you will be given a list of available inputs to assign to the button. Select an input from the list by using the up (▲) and down (▼) scroll button. Save the input selection to the button by pressing the "SAVE" button. You can assign one or both inputs. If you just assign one input to a button, the other button can still be used to scroll through the DA2's inputs. Press the "EXIT" button to exit the ASSIGN INPUT controls.
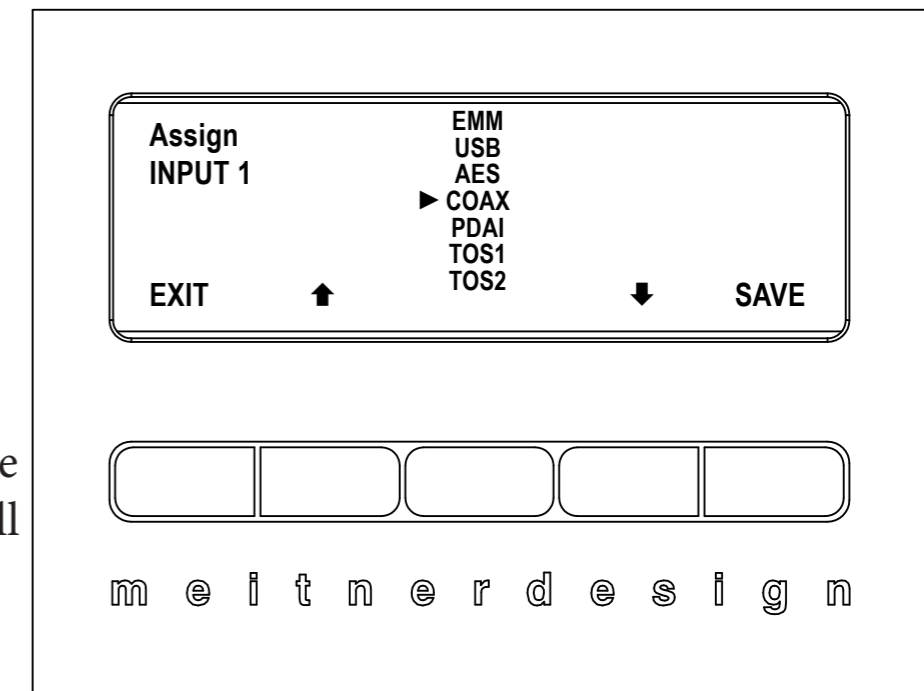
Menu Options

3. REMOVE ASSIGNMENTS

The REMOVE ASSIGNMENTS feature allows you to remove a previously assigned inputs individually. You can also completely remove all inputs assigned. Press the button below the input you want to remove and this will remove the input assigned to it. To remove all assigned inputs, press the "REMOVE ALL" button. Press the "EXIT" button to exit the REMOVE ASSIGNMENTS controls.

To remove Input Assignment
press the assigned button.

EXIT   REMOVE ALL   ↓ USB   ↓ EMM

m e i t n e r d e s i g n
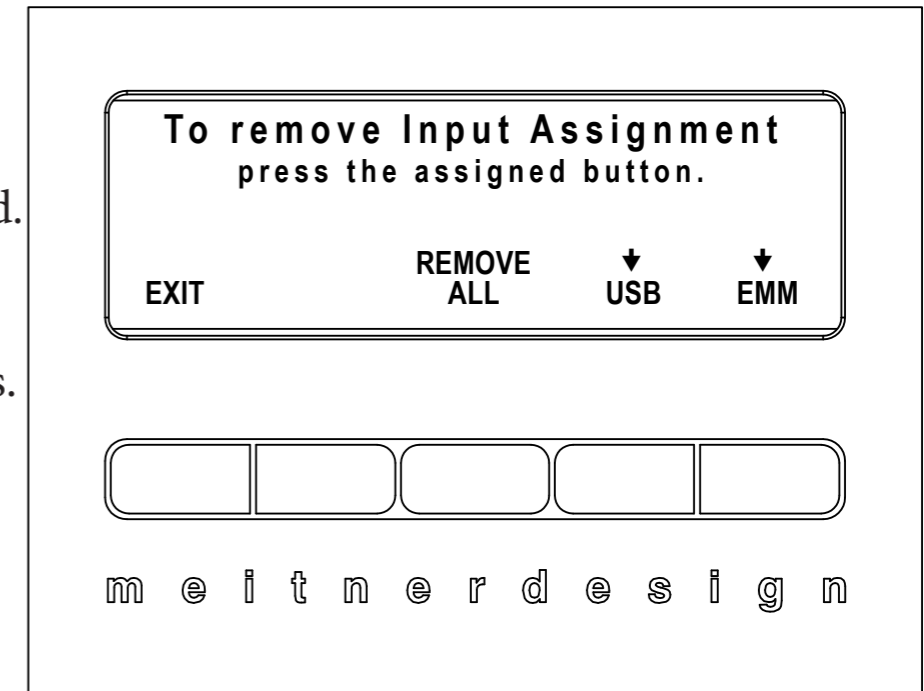
4. SAVE/RESET SETTINGS

Use the SAVE/RESET SETTINGS feature to save the current DA2 settings or reset the DA2 back to factory default. Press the "SAVE" button to save all current DA2 settings. Press the "RESET" button to reset the DA2 back to factory defaults. Press the "EXIT" button to exit the SAVE/RESET SETTINGS controls.

SAVE all User Settings
or RESET to factory defaults.

EXIT   RESET   SAVE

m e i t n e r d e s i g n
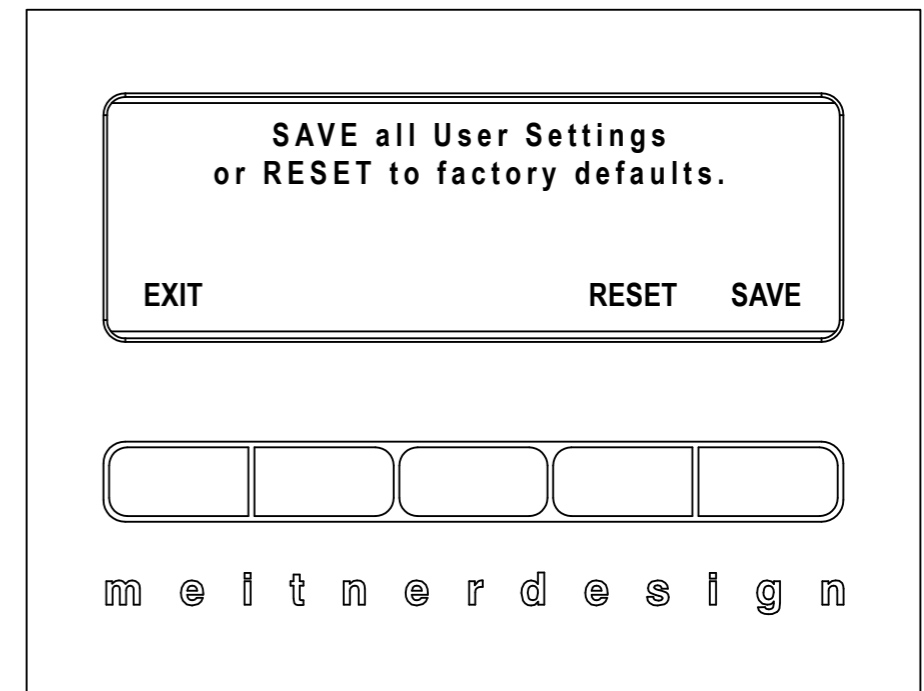
Basic Operations and Input Connections

The main screen shows the current input that is being used and sample rate. The sample rate is shown when a valid digital audio stream is detected. If there is nothing connected or there is no valid audio stream "NO LOCK" is displayed.

The DA2 has a host of digital inputs :

|	
EMM Optilink (EMM)	Proprietary ST glass optical connection to EMM Labs CD/SACD transport and players like the TX2, TSDX XDS1 V2, TSD1 and XDS1.
USB Audio (USB)	USB Audio connection which supports up to 24bit 192kHz PCM, DXD 352 and 384kHz and DSD64 and DSD128 (2xDSD) and uses USB 2.0 cables.
AES	Balanced digital interface which supports up to 24bit 192kHz and uses XLR 110Ω digital cables.
COAX	COAX SPDIF interface which supports up to 24bit 192kHz and uses RCA 75Ω digital cables.
PDAI	Same as COAX SPDIF interface.
TOS1	TOSLINK optical interface which supports up to 24bit 192kHz and uses TOSLINK optical interface.
TOS2	Same as TOS1.
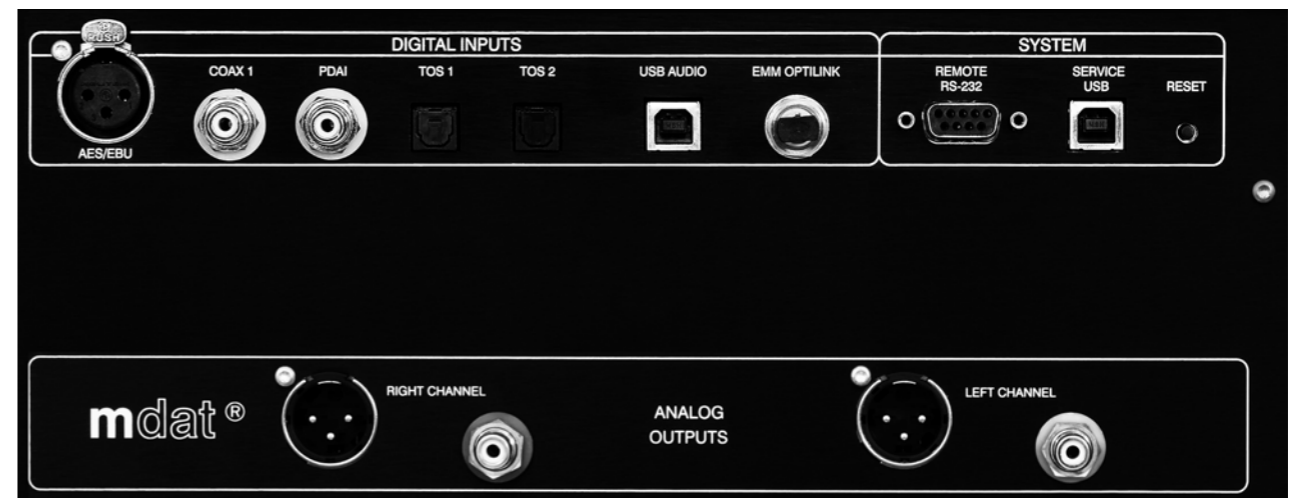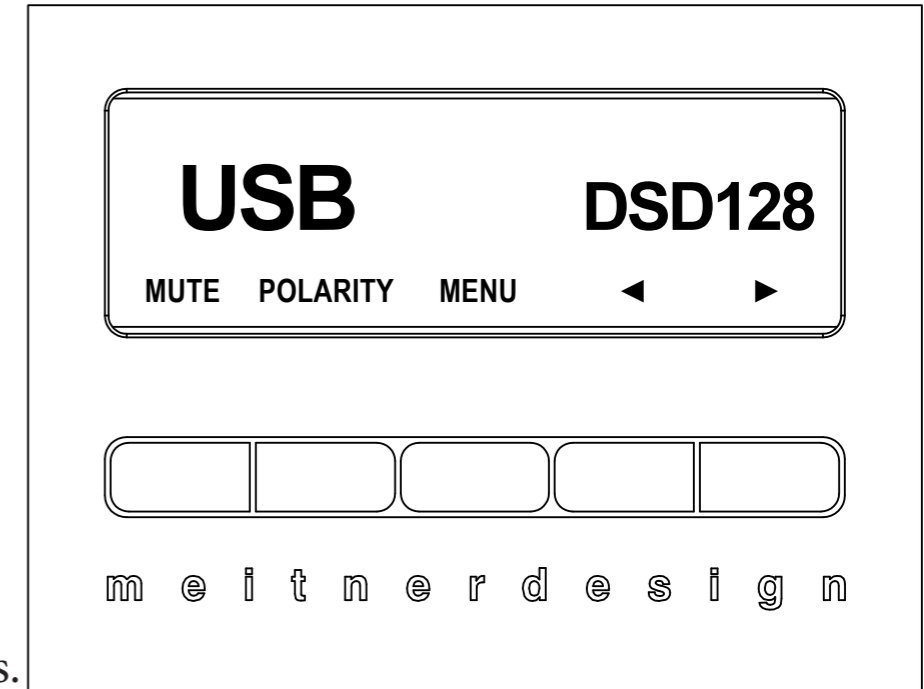
Connect the source digital outputs to the appropriate DA2 digital inputs and select the appropriate input using the input toggle/scroll back (◄) or forward (►) buttons.
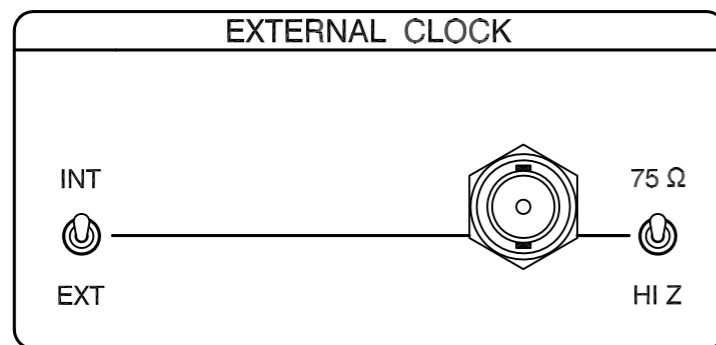
Basic Operations and Input Connections

TX2 and DA2 (including TSDX and TSD1) Quick Connect:

Connect the EMM Optilink cable from the TX2 to DA2 (same for TSDX/TSD1)

EMM Optilink Cable
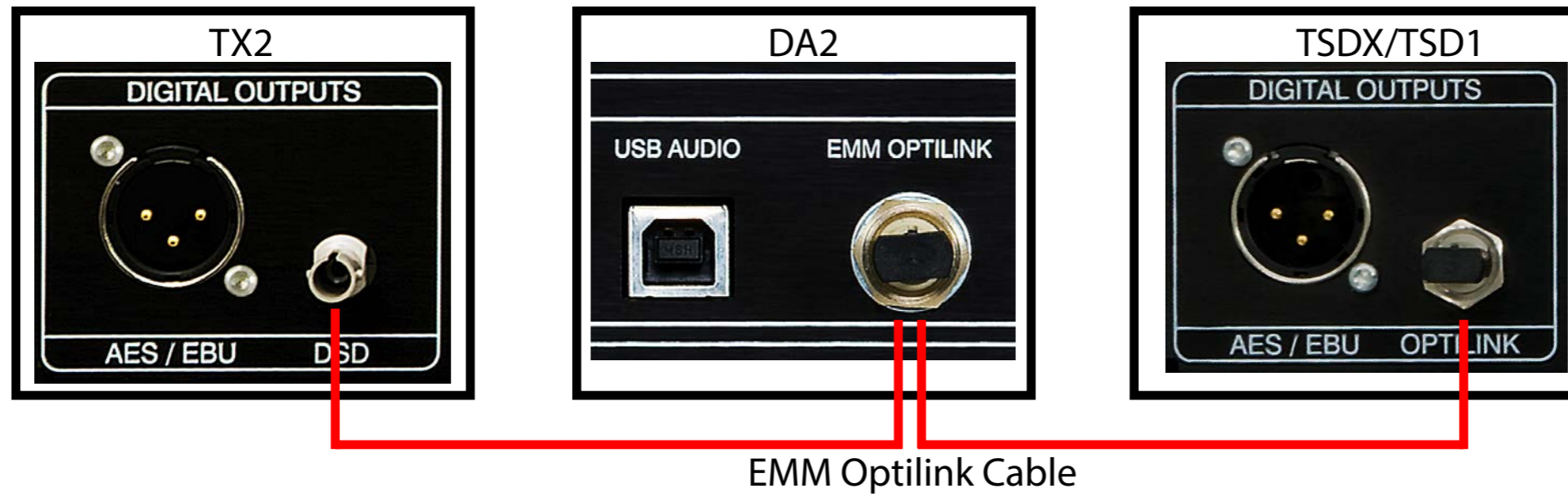
Additionally for the TSD1 External Clock switch must be set to internal:

Using either the remote or the front panel of the DA2 select EMM Link.
The DA2 display should show the appropriate sample rate when locked.

Basic Operations and Input Connections

5. *DA2 USB Audio:*

    a. First, use only an appropriate well-sheilded certified USB 2.0* cable to connect the DA2's USB Audio input to any USB digital audio source component (computer, laptop, media server etc.).
    b. The DA2 USB Audio interface uses the B-type USB connector similar to connectors used on printers. Please see image below:

    c. Select the USB Audio input using front panel input selector buttons.
    d. For MAC OSX systems, no driver is needed. OSX has the appropriate USB driver already installed.
    e. For Windows XP, Vista, Windows 7, 8.1 and 10 (32 or 64bit) systems install the provided USB audio driver located on the software CD in the folder named "DA2 USB Audio Driver". Read and follow the installation instructions.
    f. Kernel, ASIO and WASAPI (Vista, 7, 8.1 and 10) drivers will be installed.

6. For Windows Media Player playback; in Windows Control Panel set the default sound playback to the DA2 USB Audio device (Meitner Audio 2.0).

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

Basic Operations and Input Connections

7. In general for most audio applications you will be able to select the DA2 USB Audio device (Meitner Audio 2.0) from within the application and choose the appropriate ASIO, WASAPI or Kernel driver.

DSD and DXD Audio

1. The DA2 currently supports both DSD (DSD64), 2xDSD (DSD128) and DXD audio streaming and conversion over USB. DSD streaming is enabled using DoP spec.

2. Please make sure that your DA2 has the latest installed firmware and drivers. If unsure please email support@meitner.com with your DA2 serial number and our engineers will be able to tell you if you need to update your unit.

3. DSD and 2xDSD audio files have the extension DFF and DST. DXD files are PCM 352 and 384kHz and are available in standard filetypes like WAV or FLAC. You can use any mediaplayer like JRiver and Audivarna to playback these files to the DA2.

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.

6. When setup correctly DSD and DXD samplerate types will be displayed on the DA2 display.

Infrared Remote Control

The remote control provides combined functions for both the DA2, associated transport and some pre-amp functions. The functions that are relevant to the DA2:

DAC: This function toggles the front panel preset display brightness settings on DA2.

INPUT: These buttons are used to select the digital source input:
- EMM : Selects the EMM Optilink input.
- PC : Selects the USB Audio input.
- AES : Selects the AES/EBU input via balanced digital XLR
- COAX : Selects SPDIF input via digital COAX/RCA
- TOS : Toggles between the two TOSLINK SPDIF inputs, TOS1 and TOS2.
- PDAI : Selects PDAI SPDIF digital input via COAX/RCA

POLARITY: Toggles the analog output polarity. Polarity inversion is performed in the digital domain.

MUTE: Mutes the DA2 outputs.

TRANSPORT: Use the transport functions shown to control an associated EMM Labs transport when used with the DA2.

PRE-AMP: Use the VOL+, VOL- and MUTE buttons shown to control an associated EMM Labs pre-amp when used with the DA2.