emm Labs SE

Thank you for choosing EMM Labs...

CAUTION

This product is a Class 1 laser product, but this product contains a laser diode higher than Class 1. To ensure continued safety do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personel. The following caution label appears on your unit on the rear panel:

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. The use of optical instruments with this product will increase eye hazard.

Information To The User

Alteration or modification carried out without appropriate approval may invalidate the user's right to operate the equipment.

Warranty

EMM Labs warrants the TSD1 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 1 year for the drive unit and associated drive electronics. 5 years for all other parts. 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.

TSD1 CD/SACD TRANSPORT

The TSD1 is a digital disc player for CD and stereo SACD. It is a companion product to be used with EMM Labs high quality digital-to-analog converters and provides a proprietary digital audio link via fiber optical cable (EMM OptiLink) for optimum data transfer.

The TSD1 transport has EMM Labs proprietary internal MDAT algorithm to up-sample and condition digital audio to twice the SACD/DSD sample rate before sending it to its EMM OptiLink output for external D/A Conversion.

Features & Specifications

Supported disc formats:

- Redbook CD
- Stereo SACD

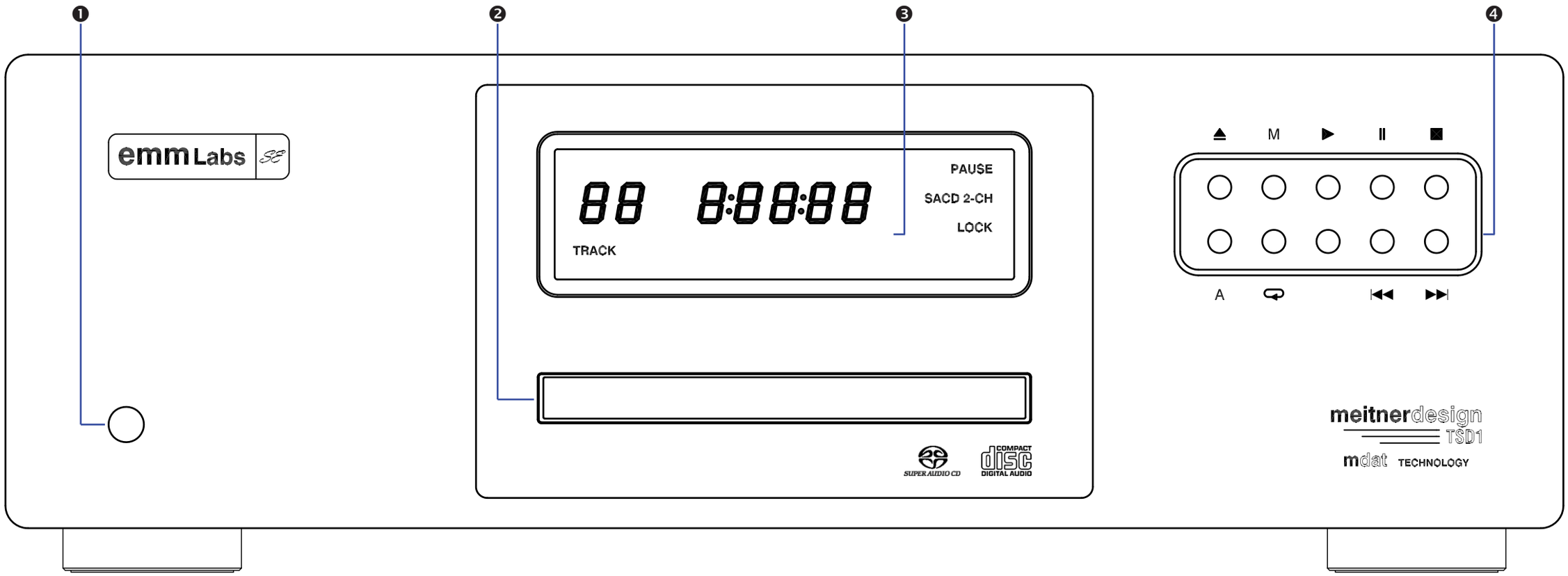
Outputs:

- AES/EBU (XLR) PCM digital audio output for CD only.
- EMM Labs OptiLink.
- BNC clock input allowing TSD1 to be slaved by reference master clock.
- System control via wired Infrared remote and serial RS-232 (see Appendix A)
- USB data port for software upgrades

Power supply

- Power factor corrected
- Factory set to 100V or 115V or 230V, 50/60Hz operation
- Power consumption: 40W
- Dimensions W x D x H: 435 x 400 x 140mm
- Weight: 15kg

Front Panel & Functions

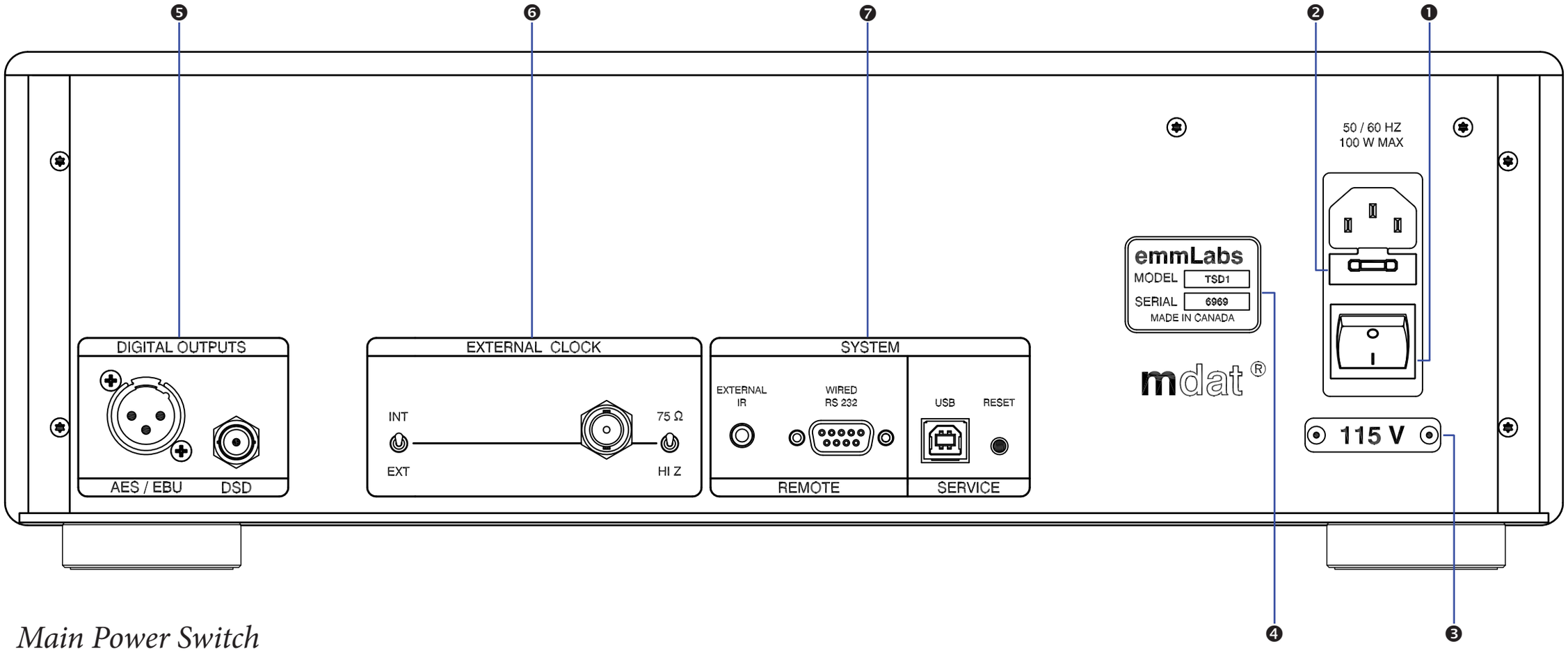


1. *Standby/Power-Save button:*
   Toggles the operation between on and power-save mode. In power save mode the remote control and all front panel functions become inactive.
2. *TSD1 drive Tray*
3. *TSD1 Display:*
   Display can be dimmed or turned off using the the remote DISC button.
4. TSD1 Front Panel Buttons and Indicators:
   - ⏏ -> OPEN: Opens and closes disc tray

Front Panel & Functions

4. TSD1 Front Panel Buttons and Indicators (cont'd):
   - M -> MODE: To switch between the SACD and CD layers of a hybrid SACD, press this button while the disc is stopped.
   - ▶ -> PLAY: Starts playback or continues it from Pause mode.
   - ⏸ -> PAUSE: Pauses playback (press PLAY to continue).
   - ■ -> STOP: Stops playback. Pressing stop a second time within a second ejects the disc from the TSD1.
   - A -> ALT: Function
   - ↻ -> REPEAT: This buttons toggles through 3 states:
     Repeat Track – repeats current track
     Repeat All – repeats entire disc
     Repeat Off - turns repeat function off
   - ⏮ -> PREVIOUS: Jumps back a track. Hold down for 2 seconds to enter fast rewind mode. In this mode pressing the PREVIOUS button immediatly a second and third time causes the rewind speed to increase. To exit press PLAY.
   - ⏭ -> NEXT: Jumps ahead a track. Hold down for 2 seconds to enter fast forward mode. In this mode pressing the NEXT button immediatly a second and third time causes the forward speed to increase. To exit press PLAY.

Rear Panel & Functions



1. *Main Power Switch*
2. *Main Power connector and fuse holder:*
   Main fuse holder as well as included spare fuse is located within this compartment.
3. *Product VOLTAGE indicator:*
   Indicates working voltage of the TSD1. Only use with indicated line voltage.
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 Outputs:*
    - AES/EBU: AES/EBU (XLR) PCM digital audio output for Redbook CD and MP3 CDs
    - DSD: EMM Labs OptiLink connector which enables the TSD1 to transfer high resolution digital audio. via the included ST OptiLink fibre optic cable.

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6. *External Clock:*
    - INT / EXT: When the switch is set to INT the TSD1 uses its internal clock. On EXT the TSD1 locks to an external master clock input via the BNC connector. (Refer to the Operations section for more details)
    - 75Ω / HI Z: This toggle switch turns cable termination for the BNC clock input on /off. In HI Z position it is turned off.
7. *System:*

    Remote:
    - External IR: wired infra-red communication port
    - Wired RS232: RS232 communication port

    Service:
    - USB: software update port please see Appendix A for details
    - RESET: Used to access the backup BIOS in connection with software upgrades via the USB port. Should not be used during normal operation. Please see Appendix A for details.

Basic Operations and Input Connections

1. *Two Interface Choices*
   The TSD1 can be connected to the DAC via 2 different digital audio interfaces, EMM OptiLink or AES/EBU. The latter is muted during SACD playback as it cannot transmit DSD signals which are the SACD native encoding method. EMM OptiLink, however, is designed for DSD and PCM signals and works for playback of all discs. For best performance you should always use EMM OptiLink cable and interface for connection of your TSD1 to EMM Labs converters.

2. *Clock Master and Slave Modes*
   Using the INT/EXT switch located in the *External Clock* section on the back of the TSD1:
   - With the switch in the INT position the TSD1 will act as the clock master and transmit the master clock Any external digital audio device can then slave to the TSD1's clock via its BNC connector.
   - When set to EXT the TSD1 will slave to incoming master clock via the the same BNC connector. This will allow the TSD1 to synchronize to external digital to analog converters using their clocks or to a master clock.

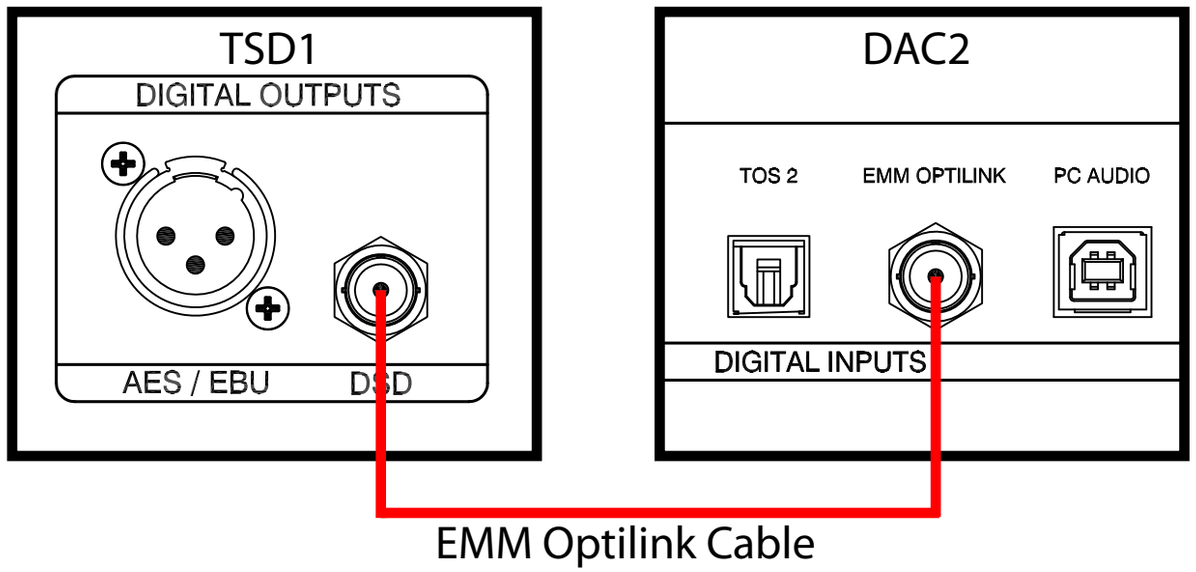
3. *75Ω / HI Z toggle:*
   The 75Ω position is for standard BNC connections where 75Ω termination is necessary . Only toggle to HI Z position when using a T-connector to split the BNC clock signal.

4. *EMM OptiLink Connection*
   As explained above this interface offers the best performance when connecting EMM Labs converters to the TSD1. An EMM OptiLink Cable is included with the TSD1.

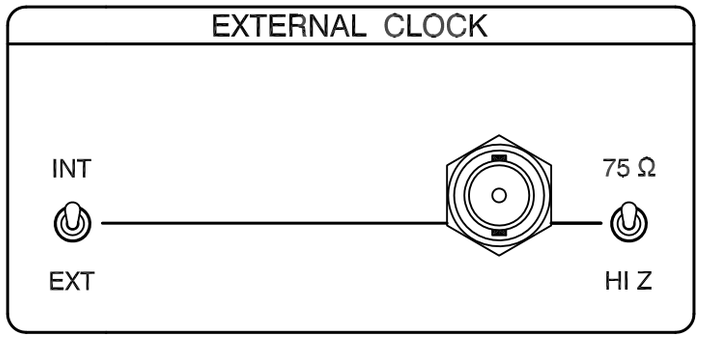
Basic Operations and Input Connections

5. *TSD1+DAC2 Quick Connect:*

Connect the EMM Optilink cable from the TSD1 to the DAC2



Make sure the TSD1 is External Clock switch is set to internal



Using either the remote or the front panel of the DAC2 select EMM Link.
The LOCK light and the 44.1kHz sync. light both should be lit on the DAC2.

Infrared Remote Control

The remote control provides combined functions for both the TSD1 and EMM Labs DAC2 converter. The functions that are relevant to the TSD1:

DISC This function toggles the front panel display to different preset brightness settings. One of the settings will turn the display OFF however the TSD1 will still continue to functions normally.

Numeric Buttons: These buttons can be used to directly access any track on the CD or SACD.

MODE: This provides the same functionality as the "M" button on the front panel (i.e. toggling through CD or SACD playback or SACD stereo and SACD multi channel playback).

REPEAT: Toggles through Repeat track then Repeat all the Repeat Off.

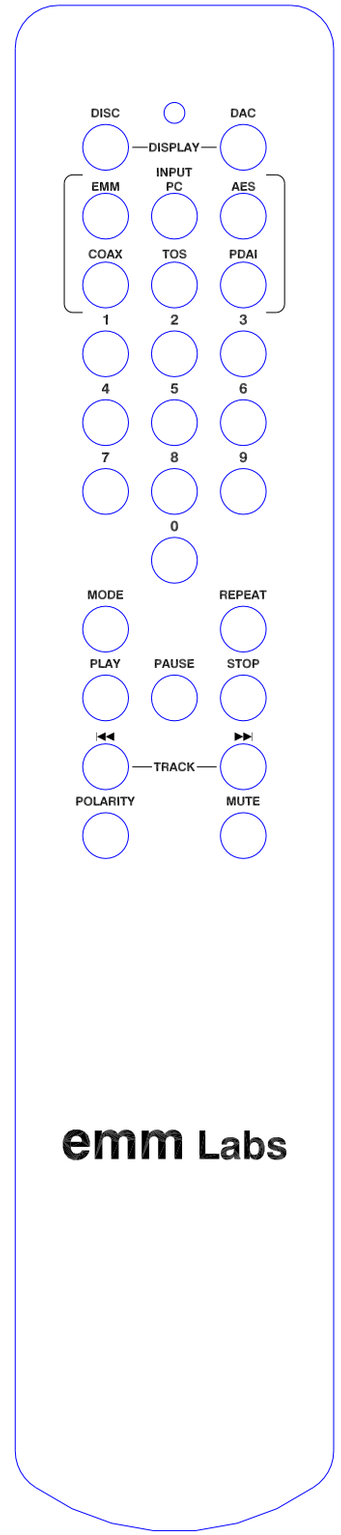
PLAY: Starts playback or continues it from Pause mode.

PAUSE: Pauses playback (press PLAY to continue).

STOP: Stops playback. Pressing stop a second time within a second ejects the disc from the TSD1.

PREVIOUS: Jumps back a track. Hold down to enter fast rewind mode (exit mode by pressing PLAY).

NEXT: Jumps to next track. Hold down to enter fast forward mode (exit mode by pressing PLAY).



Serial Remote Control (RS232)

The TSD1 is equipped with a 9-pin RS232 port for system remote control via a serial cable (not provided by EMM Labs). 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 TSD1

All commands sent to the TSD1 consist of 3 ASCII characters (all lowercase) followed by a carraige 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 TSD1 to execute a command before receiving the next one.

Command	Function
ply	Start Playback
pse	Pause Playback
stp	Stop Playback
mod	Toggles through the SACD playback layers. Only works when not playing.
rpt	Toggles through the different repeat modes
nxt	Jumps ahead a track
prv	Jumps back a track

Commands to the TSD1 (cont`d)

Command	Function
dim	Toggles through display brightness settings
try	Tray open and close
tr(x)	tr followed by a single digit (x) to jump to a particular track. See example.

tr(x) example:
a) Jump to track 5 : tr0<CR>, tr5<CR>
b) Jump to track 12 : tr1<CR>, tr2<CR>
c) For SACDs, function would be quicker if implemented this way:
i. Jump to track 5 : tr0<CR>, tr0<CR>, tr5<CR>
ii. Jump to track 12 : tr0<CR>, tr1<CR>, tr2<CR>

Status bytes sent from TSD1

The TSD1 sends back 9 Bytes terminated with a <CR> whenever any status changes.

<Byte 0><Byte 1><Byte 2><Byte 3><Byte 4><Byte 5><Byte 6><Byte 7><Byte 8><CR>

Byte 0 Seconds ones in ASCII
Byte 1 Seconds tens in ASCII
Byte 2 Minutes ones in ASCII
Byte 3 Minutes tens in ASCII
Byte 4 Hours ones in ASCII
Byte 5 Track number ones in ASCII
Byte 6 Track number tens in ASCII
Byte 7
bit 0 - 1 when "Reading" indicator is on (front panel)

Status bytes sent from TSD1 (cont`d)

Byte 7

bit 1 - 1 when "Repeat Track" indicator is on(front panel)
bit 2 - 1 when "Repeat All" indicator is on (front panel)
bit 3 - 1 when "CD" indicator is on (front panel)
bit 4 - 1 when "SACD 2CH" indicator is on (front panel)
bit 5 - 1 when "SACD MCH" indicator is on (front panel)
bit 6 - Not used
bit 7 - Not used

Byte 8

bit 0 - Reserved
bit 1 - Not used
bit 2 - Not used
bit 3 - 1 when "No Disc" indicator is on (front panel)
bit 4 - 1 when internal clock selected
bit 5 - Not used
bit 6 - 1 when in pause
bit 7 - 1 when clock is locked

Byte 9 <CR> (x0D)