# User Manual
# CS-88M, CS-44M
# 8x8 and 4x4 4K HDMI Matrix

The CS-88M and CS-44M supports up to 18Gbps 4K60, 4:4:4, HDR, Dolby Vision

The CS-88M and CS-44M are true 18Gbps 4K60 (4:4:4) 8x8 HDMI matrix switches. Supporting HDMI 2.0(a/b), HDCP 2.2, up to 4K video resolution, and up to 18 Gbps bandwidth. The CS-88M supports 8 HDMI sources (Blu-ray, UHD Blu-ray, satellite receiver, game consoles, PCs, etc. ...) and 8 separate displays, while the CS-44M supports 4 HDMI sources and 4 HDMI displays. Allowing you to view any of the connected sources on any of the connected displays at any one time.

Features:

- HDMI 2.0 (a/b)
- 4K60 4:4:4 Support
- Full HDR Support (HDR 10 & 12 Bit)
- Dolby Vision, HDR10+ and HLG Support
- HDCP 2.2 (up-to)
- Web GUI Interface
- Advanced EDID Management
- IR, RS-232 and LAN Control Options
- Audio De-Embedding via SPIDF & 3.5mm jack
- Install in seconds

- Powerful EDID management
- Front Panel Control
- IR Remote
- IR & RS-232 Control
- LAN Control
- Driver Support for Crestron, C4, Etc.

In The Box:

- CS-88M or CS-44M HDMI Matrix
- IR Remote Control
- 12V/4A Locking Power Supply

# Front Panel Control

## Switching

The CS-88M and CS-44M can be switched from the front panel by selecting the OUTPUT button first and then selecting the INPUT button:

1. Press the OUTPUT button (1 through 8) on the bottom row that corresponds with the OUTPUT (Display, or Sink Device) you would like to send to a source.
2. Once pressed, the switch will illuminate the OUTPUT button that you have selected, along with the INPUT row, indicating that it is ready for you to select the INPUT.
3. Select the desired INPUT.
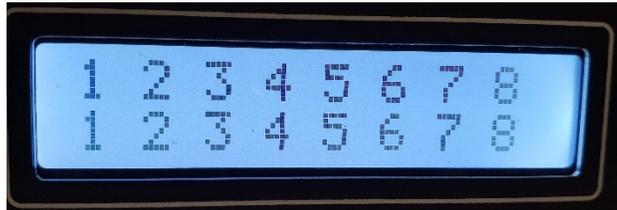


## EDID

The CS-88M and CS-44M has the ability to control the EDID that the source devices sees as a display

1. Press and hold the INPUT button of the source you want to set EDID for 3 seconds
2. Use the selected INPUT button as UP and the corresponding OUTPUT button as DOWN to select the desired EDID setting
3. To set the selected EDID setting press and hold for 3 seconds the original INPUT button



## Toggle DHCP

The CS-88M and CS-44M comes from the factory with DHCP turned off. To enable DHCP from the front panel:

1. Press and hold INPUT 1 and INPUT 4 together for 3 seconds

## View Network Settings

1. Press and hold INPUT 3 and INPUT4 together for 3 seconds

The CS-88M and CS-44M will cycle through the following information: Device IP, Host IP, Subnet Mask, and MAC Address.

TCP PORT: 0000
DHCP: ON

ROUTER IP:
192.168.135.001

NETMASK:
255.255.255.000
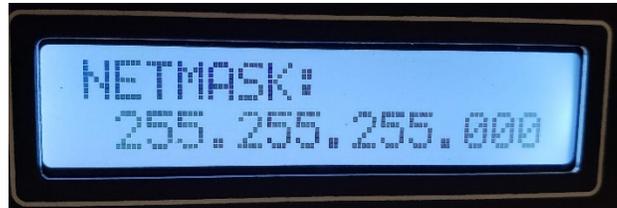
## View Firmware Version

To view the current firmware on the CS-88M or the CS-44M:

1. Press and hold INPUT 2 and INPUT 4 together for 3 seconds

NET   : V0.10

Main  : V0.01

## Locking Front Panel Buttons

You have the ability to lock the front panel buttons so any accidental button presses can be ignored.

1. Press and hold INPUT 2 and INPUT 3 together for 3 seconds

Locked

Un-locked

# Web Interface

In order to access the Web Interface use a web browser (e.g. Internet Explorer, Chrome, Edge, Safari, etc.) and go to the IP address of the Matrix.

## Switching



Use the following page to switch between inputs and outputs from the web interface live.

## IR Setting



The IR switching allows you to route the IR signals on the IR outputs manually if you need to have a fixed route.

Note: By default the IR OUT is automatically routed with the active source.

**Video Setting**

| | HDMI Video Scaler Mode | | HDMI Output Signal Generator | | HDBT Video Scaler Mode | | HDBT Output Signal Generator | |
|---|---|---|---|---|---|---|---|---|
| OUT1 | HD-4K | BYPASS | OUT1 ON | OFF | OUT1 4K-HD | MLC MODE | OUT1 ON | OFF |
| OUT2 | HD-4K | BYPASS | OUT2 ON | OFF | OUT2 4K-HD | MLC MODE | OUT2 ON | OFF |
| OUT3 | HD-4K | BYPASS | OUT3 ON | OFF | OUT3 4K-HD | MLC MODE | OUT3 ON | OFF |
| OUT4 | HD-4K | BYPASS | OUT4 ON | OFF | OUT4 4K-HD | MLC MODE | OUT4 ON | OFF |
| OUT5 | HD-4K | BYPASS | OUT5 ON | OFF | OUT5 4K-HD | MLC MODE | OUT5 ON | OFF |
| OUT6 | HD-4K | BYPASS | OUT6 ON | OFF | OUT6 4K-HD | MLC MODE | OUT6 ON | OFF |
| OUT7 | HD-4K | BYPASS | OUT7 ON | OFF | OUT7 4K-HD | MLC MODE | OUT7 ON | OFF |
| OUT8 | HD-4K | BYPASS | OUT8 ON | OFF | OUT8 4K-HD | MLC MODE | OUT8 ON | OFF |

Live Switch | Link Info | IR Setting | Video Setting | Audio Setting | Audio Matrix | EDID Manage | System Setting

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CS-88MHDBTS
V1.00

On this screen you can modify the video signal that is being output by the matrix.

- either upscale, downscale or bypass the scaling feature
- Enable to disable the Output Signal Generator
  - NOTE: The HDMI and HDbT outputs can be tested independent from each other.

The CS-88MHDBTS and CS-44MHDBTS have the ability to extract audio out to either SPDIF or a Stereo 3.5. It also has the ability to give matrix control over where the audio is output.

**Audio Settings**

Live Switch | Link Info | IR Setting | Video Setting | Audio Setting | Audio Matrix | EDID Manage | System Setting

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| | Ex-Audio Output Delay(MS) | | | | | | | | Audio Status | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OUT1 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT1 | ON | OFF |
| OUT2 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT2 | ON | OFF |
| OUT3 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT3 | ON | OFF |
| OUT4 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT4 | ON | OFF |
| OUT5 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT5 | ON | OFF |
| OUT6 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT6 | ON | OFF |
| OUT7 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT7 | ON | OFF |
| OUT8 | 90 | 180 | 270 | 360 | 450 | 540 | 630 | Bp | OUT8 | ON | OFF |

NOTE: Bp - Bypass;

CS-88MHDBTS
V1.00

Here you can turn on or off the extracted audio for the SPDIF digital Coax or 3.5 Stereo ports.

**Audio Matrix and EX-Audio Matrix Mode**
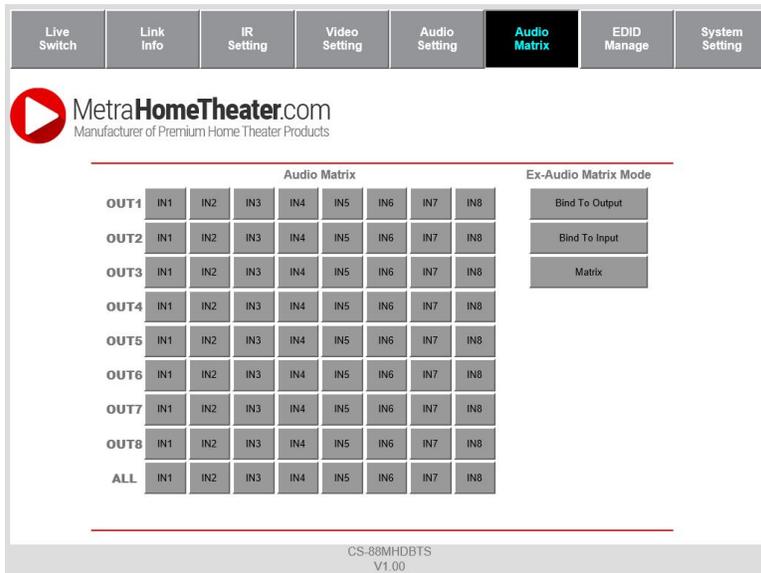


Here you can set the route of the audio in a matrix fashion for the extracted audio connections and bind the audio to follow either the INPUT, OUTPUT, or set it to be Matrixed.

- Audio Delay – This allows you to change the audio delay to combat lip-sync issues on the extracted audio. Each audio output can be delayed independently of the others.
- Bind to Input – The extracted audio binds to its corresponding input. E.g. Audio out 3 will always output audio from INPUT 3.
- Bind to Output – The extracted audio binds to its corresponding output. E.g. Audio Out 3 will always output audio from whichever input is selected for OUTPUT 3.
- Matrix – The extracted audio can be set manually to specific Audio Outs. E.g. Audio Out 3 will always play audio from INPUT 4 regardless of what INPUT is selected for OUTPUT 3.

**EDID Manage**
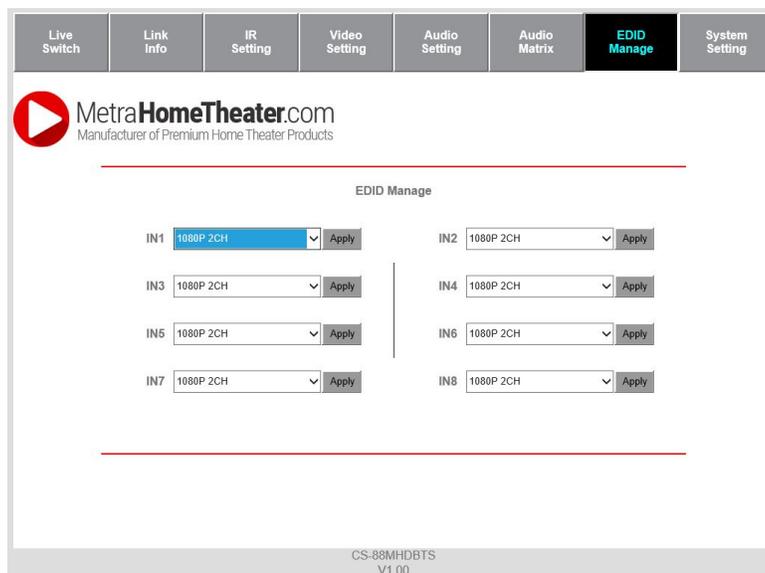


Here you can set or control the EDID for the individual inputs.

## System Settings



IP Settings – Here you can set the network configurations. E.g. set the static IP address, change the TCP port, or find the MAC address.

Port Alias Setting – Here you can give the individual inputs or outputs an Alias, or a name. E.g. if INPUT 1 is a cable box, you can name it "Cable", or if OUTPUT 3 is the Master Bedroom TV, you can name it "Master Bed"

# EDID Management

The CS-88M and CS-44M matrices have 29 pre-configured EDID settings. They also have 3 user defined EDID memories. NOTE: In order to maximize compatibility, by default the matrix is set to a 1080p EDID. When using 4K sources, you will want to define a 4K EDID on that input (or read from the display).

To Change the EDID setting with the face buttons:

1. Press and hold the INPUT you want to change for 3 seconds
2. Now "press" the desired INPUT/OUTPUT (Example: Setting EDID for INPUT3, use IN 3 & OUT 3) to toggle through the available EDID options
3. Once you are on the EDID you want to select, press and hold the INPUT button again for 3 seconds. The LCD Screen will say "Please Wait", then "OK" once the EDID is set.

To change the EDID setting with the Web Interface, login to the Matrix through a web browser using the IP address and then select EDID. From there you can select the desired/required EDID for each input individually.

These are the pre-configured EDID settings that are available to toggle through:

0: 1080P_2CH(PCM)
1: 1080P_6CH
2: 1080P_8CH
3: 1080P_3D_2CH(PCM)
4: 1080P_3D_6CH
5: 1080P_3D_8CH
6: 4K30Hz_3D_2CH(PCM)
7: 4K30HZ_3D_6CH
8: 4K30HZ_3D_8CH
9: 4K60Hz(Y420)_3D_2CH(PCM)
10: 4K60Hz(Y420)_3D_6CH
11: 4K60Hz(Y420)_3D_8CH
12: 4K60HZ_3D_2CH
13: 4K60HZ_3D_6CH
14: 4K60HZ_3D_8CH
15: 1080P_2CH(PCM)_HDR
16: 1080P_6CH_HDR

17: 1080P_8CH_HDR
18: 1080P_3D_2CH(PCM)_HDR
19: 1080P_3D_6CH_HDR
20: 1080P_3D_8CH_HDR
21: 4K30Hz_3D_2CH(PCM)_HDR
22: 4K30Hz_3D_6CH_HDR
23: 4K30Hz_3D_8CH_HDR
24: 4K60Hz(Y420)_3D_2CH(PCM)_HDR
25: 4K60Hz(Y420)_3D_6CH_HDR
26: 4K60Hz(Y420)_3D_8CH_HDR
27: 4K60Hz_3D_2CH(PCM)_HDR
28: 4K60Hz_3D_6CH_HDR
29: 4K60Hz_3D_8CH_HDR
30: USER_EDID_ 1
31: USER_EDID_2
32: USER_EDID_3

The first 30 EDID settings cannot be changed. The three USER EDID settings are programmed using RS-232 or the web interface. However, you can read an EDID from any output and it will automatically store in USER EDID 1. Remember, each INPUT has an independent EDID setting and you may need to program each one. To read and set an EDID to a specified input the steps are the same as switching the EDID normally, except when you see the following figure, press and hold the original INPUT button again for 3 seconds. This will read, store, and set the EDID for that INPUT based on the OUTPUT selected.

# IR Remote Control

The HDMI matrix can also be controlled by using the supplied IR remote. The left arrow button switches to the previous button in the sequence, and the right arrow switches to the next input in sequence.



# RS-232 TCP/IP Control Commands

These commands apply to both the CS-88M and the CS-44M. Where applicable, commands that show 1-8 for inputs or outputs if used with the CS-44M do not exceed 4 for the inputs and outputs.

| System HELP | |
|---|---|
| | |
| System Address = 00 | F/W Version : 1.00 |
| | |
| Azz | All Commands start by Prefix System Address zz, if [01~99] |
| | |
| **System Control Setup Commands** | |
| H | Help |
| STA | Show Global System Status |
| SET RST | Reset to Factory Defaults |
| SET ADDR xx | Set System Address to xx {xx=[00~99](00=Single)} |
| SET LCD ON Tx | Set LCD Remain On Time{x=[0~3](0=Always ON,1=15,2=30,3=60Sec) |
| SET KEY LOCK ON/OFF | Set Key Lock On/Off |
| GET ADDR | Get System Address |
| GET STA | Get System System Status |
| GET INx SIG STA | Get Input x Signal Status{x=[0~16](0=ALL)} |
| GET LCD ON T | Get LCD Remain On Time |
| GET KEY LOCK | Get Key Lock Status |
| **Output Setup Command** | (Note:output number(x)=HDMI(x),x=1-8) |
| SET OUTx VS INy | Set Output x To Input y {x=[0~8](0=ALL), y=[1~8]} |
| SET OUTx EXA EN/DIS | Set Ex-Audio Output Enable/Disable{x=[0~8](0=ALL)} |
| SET EXAMX MODEx | Set Ex-Audio Matrix Mode {x=[0~2](0=Bind To Output,1=Bind To Input,2=Matrix} |

| | |
|---|---|
| SET OUTx AS INy | Set Ex-Audio Output x To Input y{x=[0~8](0=ALL), y=[1~8]} |
| SET OUTx STREAM ON/OFF | Set Output x Stream ON/OFF{x=[0~8](0=ALL)} |
| GET OUTx VS | Get Output x Video Route{x=[0~8](0=ALL)} |
| GET OUTx EXA | Get Ex-Audio Output Enable/Disable Status{x=[0~8](0=ALL)} |
| GET OUTx EDID DATA | Get Output x EDID DATA{x=[1~8]} |
| GET EXAMX MODE | Get Ex-Audio Matrix Mode |
| GET OUTx AS IN | Get Output x  Ex-Audio Route{x=[0~8](0=ALL)} |
| GET OUTx STREAM | Get Output x Stream ON/OFF Status{x=[0~8](0=ALL)} |
| **Input Setup Command** | (Note:input number(x)=HDMI(x),x=1-8) |
| SET INx EDID y | Set Input x EDID{x=[0~8](0=ALL), y=[0~32](None:[12~14],[27~29]) |
| | 0:1080P_2CH(PCM)              1:1080P_6CH              2:1080P_8CH |
| | 3:1080P_3D_2CH(PCM)           4:1080P_3D_6CH          5:1080P_3D_8CH |
| | 6:4K30Hz_3D_2CH(PCM)          7:4K30HZ_3D_6CH         8:4K30HZ_3D_8CH |
| | 9:4K60Hz(Y420)_3D_2CH(PCM)     10:4K60Hz(Y420)_3D_6CH |
| | 11:4K60Hz(Y420)_3D_8CH |
| | 15:1080P_2CH(PCM)_HDR         16:1080P_6CH_HDR         17:1080P_8CH_HDR |
| | 18:1080P_3D_2CH(PCM)_HDR      19:1080P_3D_6CH_HDR |
| | 20:1080P_3D_8CH_HDR |
| | 21:4K30Hz_3D_2CH(PCM)_HDR     22:4K30Hz_3D_6CH_HDR |
| | 23:4K30Hz_3D_8CH_HDR |
| | 24:4K60Hz(Y420)_3D_2CH(PCM)_HDR 25:4K60Hz(Y420)_3D_6CH_HDR |
| | 26:4K60Hz(Y420)_3D_8CH_HDR |
| | 30:USER1_EDID              31:USER2_EDID              32:USER3_EDID |
| SET INx EDID CY OUTy | Copy Output y EDID To Input x(USER1 BUF) {x=[0~8](0=ALL), y=[1~8]} |
| SET INx EDID Uy DATAz | Write EDID To  User y Buffer  of Input x {x=[0~8](0=ALL), y=[1~3],z=[EDID Data] |
| GET INx EDID | Get Input x EDID Index {x=[0~8](0=All)} |
| GET INx EDID y DATA | Get Input x EDID y Data {x=[1~8],y=[0~32} |
| **IR  Code Setup** | |
| SET IR SYS xx.yy | Set IR System Code {xx=[00~FFH],yy=[00~FFH] |
| SET IR OUTx INy CODE zz | Set IR Data Code {x=[1~8],y=[1~8],zz=[00~FFH]} |
| GET IR SYS | Get IR System Code |
| GET IR OUTx INy CODE | Get IR Data Code {x=[1~8](0=All),y=[1~8]} |
| **Network Setup Command** | ( xxx=[000-255], zzzz=[0001~9999] |
| SET RIP xxx.xxx.xxx.xxx | Set Route IP Address to xxx.xxx.xxx.xxx |
| SET HIP xxx.xxx.xxx.xxx | Set Host IP Address to xxx.xxx.xxx.xxx |
| SET NMK xxx.xxx.xxx.xxx | Set Net Mask to xxx.xxx.xxx.xxx |
| SET TIP zzzz | Set TCP/IP Port to zzzz |
| SET DHCP y | Set DHCP {y=[0~1](0=Dis,1=Enable)} |
| GET RIP | Get Route IP Address |
| GET HIP | Get Host IP Address |
| GET NMK | Get Net Mask |
| GET TIP | Get TCP/IP Port |
| GET DHCP | Get DHCP Status |
| GET MAC | Get MAC  Address |

# Specifications

| Video | |
|---|---|
| Supported Video Resolutions | Up to 4K 60Hz 4:2:0, 4K 30Hz 4:4:4, DCI 4K (1096x2160 |
| Supported HDR Formats | 4:2:0, 4:2:2, 4:4:4 10 and 12 Bit Deep Color - HDR10, HDR10+, Dolby Vision (24/30 Frames), HLG |
| Supported Color Space | YUV, RGB - CSV: REC. 601, REC. 709, BT2020, DCI, P3 D6500 |
| Supported Chroma Subsampling | 4:4:4, 4:2:2, 4:2:0 |
| Supported Deep Color | Up to 16bit @ 1080p, Up to 12bit @ 4K |
| **Audio** | |
| Support HDMI Audio Formats | PCM 2.0 CH, LPCM 5.1 & 7.1, Dolby Digital, DTS 5.1, Dolby Digital Plus, Dolby TrueHD, DTS-HD Master Audio, DTS-X, Dolby Atmos |
| Supported Extracted Audio Digital Coax | PCM 2.0 CH, LPCM 6CH, Dolby Digital, DTS |
| Supported Extracted Audio 3.5mm Stereo | PCM 2.0 CH (No Downmixing) |
| **Other** | |
| HDMI Bandwidth | 18Gbps |
| Supported HDCP | HDCP 2.2 and earlier |
| **Control** | |
| Ports | IR, RS-232, LAN |
| Web GUI | Yes |
| **Ports** | |
| HDMI | 4x In, 4x Out CS-44M |
| | 8x In, 8x Out CS-88M |
| LAN | 1x RJ45 10/100 |
| Audio | 4x Coax SPDIF Out, 4x 3.5mm Stereo Out CS-44M |
| | 8x Coax SPDIF Out, 4x 3.5mm Stereo Out CS-88M |
| IR | 1x IR 3 conductor input |
| RS232 | 1x DB9 Female |
| **Environmental** | |
| Operating Temperatures | 23 to 125°F (-5 to 51°C) |
| Storage Temperatures | -4 to 140°F (-20 to 60°C) |
| Humidity Range | 5-90% RH (No Condensation) |
| **Power** | |
| Consumption | 92 Watts Max |
| Power Supply | Input: AC 100-240V ~ 50/60Hz |
| | Output: DC 12V 3A |

## Physical

| Dimensions | CS-88M: | MM: 44.45 x 225.42 x 438.15 |
|---|---|---|
| | | Inch: 1.75 x 8.75 x 17.25 |
| | CS-44M: | MM: 44.45 x 225.42 x 438.15 |
| | | Inch: 1.75 x 8.75 x 17.25 |
| Rack Units | | 1x RU |
| Weight | 7 Lbs / 3.5 Kg | |

Weights and Dimensions are approximate, Specifications may change without notice.

# Safety Instructions

To protect the safety of any person using or handling these devices and to ensure the reliable operation of these products, please follow these instructions:

1. Use provided power supplies
   a. If alternate power supply is necessary, check Voltage, Polarity and Amperage to ensure sufficient and correct power is supplied to the device.
2. Operate these products within specified temperature and humidity ranges
3. Ensure adequate ventilation
4. Repair should be handled only by qualified professionals due to sensitive devices that may be damaged if mistreated.
5. Only operate in a dry environment. These devices are not meant for outdoor or marine environments

# Troubleshooting

- Verify Power - he LCD screen on the front of the matrix should be lit up when power is applied. Check that both power supplies are connected to the matrix and powered
- Verify Connections - Check that all cables are properly connected
- Issues with one INPUT/OUTPUT - Swap ports/cables/etc to help narrow down if the issue stays with the input/output/etc
  o Follows the device, then it may be an EDID issue.  Default out of the box is a 1080p 2ch. Try another canned EDID or use the COPY FROM OUTx command to copy the connected displays EDID - Pg.12, 17, 23
- Issues with 4k but 1080p or less is working
  o Verify all connected devices are capable of the signal you are sending

# Warranty

If your device does not work properly because of a defect in material or manufacturing, Metra Home Theater will either repair or replace with a new or refurbished unit for a period of 10 Years. You must mail-in your product during the warranty period. This Limited Warranty is available only to the original purchaser and only covers products purchased as new. A receipt or other proof of original purchase with the purchase date is required for warranty service.