

User Manual
Version 1.0

4K / 1080P SCALER

EDID MINDER, AUDIO DE-EMBEDDER

ABLE TO HANDLE 4K60 (4:4:4)

THE LITTLE BLACK BOX THAT EVERY INSTALLER IN THE WORLD SHOULD BE USING.



 **HDR**

HDMI™

HIGH-DEFINITION MULTIMEDIA INTERFACE

Introduction

The AVPro Edge's AC-SC2-AUHD is the ideal solution for integrators that are needing to distribute a signal to a variety of displays and keep an optimal picture. Integrators will enjoy its versatility of not only being able to control up/down scaling but handling EDID issues (including 4K HDR EDID's), image enhancement, and being able to access audio from the stream. This scaler is ready for future content as well as it's able to distribute 18Gbps signaling. Yet if you have 480, 720, or 1080 displays the AC-SC2-AUHD will make sure it's getting the right picture.

Typical Applications:

- For mixed systems with SD, HD and UHD displays within a matrix. Since a matrix will typically “down-clock” to the lowest common format, putting a scaler in will essentially “trick” the matrix into sending 4K UHD material. The scaler will downscale the content to 480 for the HD display.
- As an Audio Extractor – Stand-alone audio extractors cost about the same thing, so purchasing the AC-SC2-AUHD which does so much more, is a no brainer.
- EDID causes about 80% of HDMI connectivity issues – The AC-SC2-AUHD can fix them all.
- EDID capture and emulation – would you like to test end points prior to hanging that 600-pound projector 100 feet up on the ceiling? Use the AC-SC2-SUHD and your problem is solved.

What's in the Box?

- 1 x AC-SC2-AUHD
- 1 x 5V 3A Power Supply
- Mounting Ears

Features

- HDMI 2.0a w/HDR & HDCP 2.2
- Fixed Output Options 480P, 720P, 1080p & 4k
- Adaptive Scaling Mode
- Plug & Play Match Display Preference Mode
- 16 EDID Options (Including Auto & HDR EDID Options)
- EDID Management and EDID emulate
- L/R Audio De-embedding (PCM only, does not downmix)
- Simple, easy to use. 3-Button Operation

Specifications

Video Bandwidth

HDMI - 18 GBP/sec

Video Resolutions

All SMPTE & VESA in HDMI 2.0 Specification. Max SMPTE UHD - 4096x2160P60/RGB/4:4:4 8-bit.

Color Space

RGB, YUV

Color Bit Depth

8-bit, 10-bit, 12-bit & 16-bit per pixel

Note: Resolution and video bandwidth limited – ex. 2160P60 RGB or 4:4:4 8-bit would use almost the entire 18 GBPS of bandwidth. 2160P60 4:2:2 12-bit (new players with HDR would exceed the previous 10.2 GBPS maximum of HDMI 1.4a and would not be able to travel over category cable using HDBaseT.

Chroma Subsampling

4:4:4, 4:2:2, 4:2:0

See note above – chroma subsampling or color compression is related to bit depth and video resolution settings regarding total bandwidth requirements. A 4K/60 signal at 4:4:4 chroma subsampling can have a maximum bit depth of 8 bits.

Audio

HDMI in & Out – Up to Dolby TrueHD and DTS-HD Master
3pin phoenix Stereo - Analog 2 Channel

Distance - HDMI – Up to 11M @ 4K60 4:4:4, HDBaseT – Up to 100M at 4K/60 4:2:0 8-bit

HDCP – all up to HDCP 2.2

CEC - Pass through

Connections

1 x HDMI type A HDMI Input
1 x HDMI type A HDMI Output
1 x L/R Analog 2-Channel Audio Output
1 x Micro USB Jack for Firmware & Control

Temperature – Operating 32-122 F (0-50 C), Humidity: 20-90% non-condensing.

Dimensions - Unit

AC-SC2-AUHD – 5.375" L x 3.5" W x .75" 136.5 x 88.9 x 19 (mm)

Weight -Unit

AC-SC2-AUHD - .6 pounds/.27kg

Dimensions - Package

5.375" L x 3.5" W x .75"

Weight - Package

1.2 pounds/.54 kg

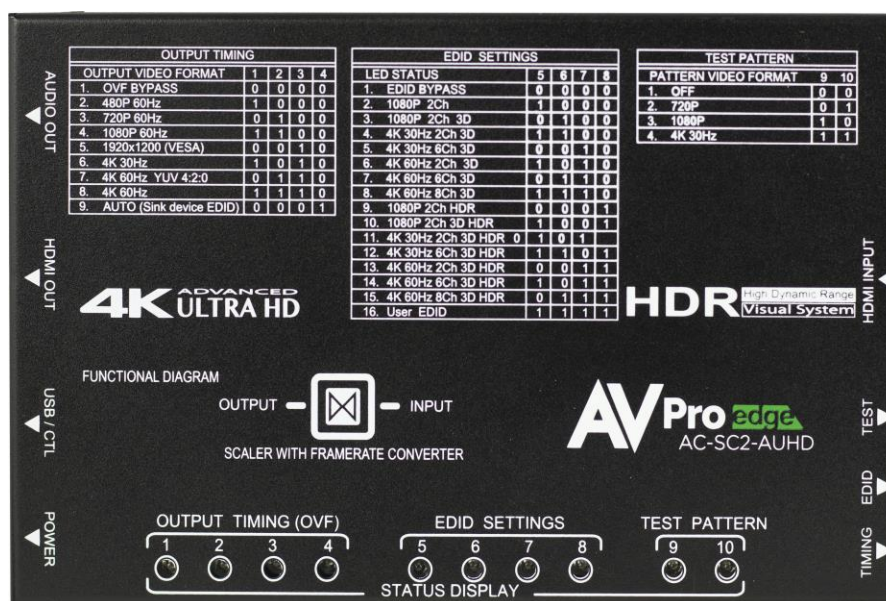
General Operation

Powering the device: Use the supplied 5V 3A power adapter.

Setting the device:

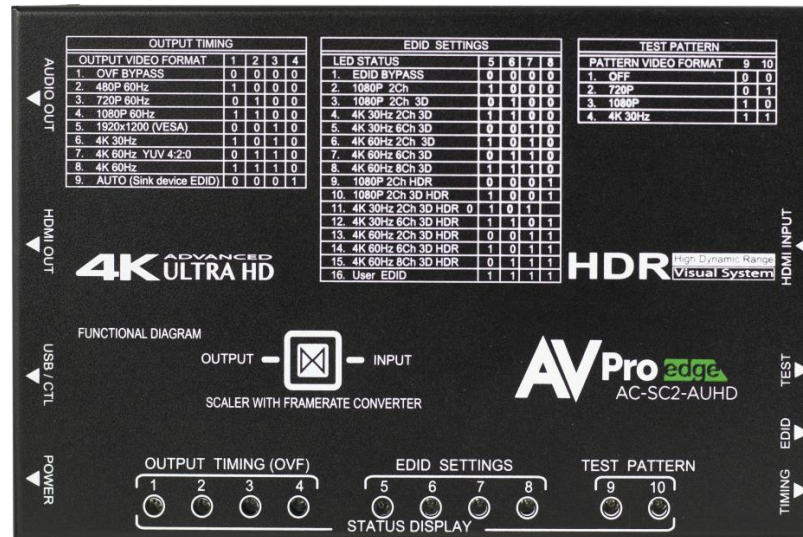
The AC-SC2-AUHD uses a simple on device control method, and all the available settings are printed on the top as pictured:

Top View



Toggle Buttons

To control the device simply press the corresponding button on the front of the device to toggle through the settings (Pictured Above). To indicate what your current setting is there are lights on the top (Pictured Below) whereas the number "1" indicates the light is on and "0" indicates the light is off.



Here is a list of the available settings:

OUTPUT TIMING		EDID SETTINGS		TEST PATTERN	
OUTPUT VIDEO FORMAT 1 2 3 4		LED STATUS 5 6 7 8		PATTERN VIDEO FORMAT 9 10	
OVF BYPASS	0 0 0 0	EDID BYPASS	0 0 0 0	OFF	0 0
480P 60Hz	1 0 0 0	1080P 2Ch	1 0 0 0	720P	0 1
720P 60Hz	0 1 0 0	1080P 2Ch 3D	0 1 0 0	1080P	1 0
1080P 60Hz	1 1 0 0	4K 30Hz 2Ch 3D	1 1 0 0	4K 30Hz	1 1
1920X1200 (VESA)	0 0 1 0	4K 30Hz 6Ch 3D	0 0 1 0		
4K 30Hz	1 0 1 0	4K 60Hz 2Ch 3D	1 0 1 0		
4K 60Hz YUV 4:2:0	0 1 1 0	4K 60Hz 6Ch 3D	0 1 1 0		
4K 60Hz	1 1 1 0	4K 60Hz 8Ch 3D	1 1 1 0		
AUTO (Sink Device EDID)	0 0 0 1	1080P 2Ch HDR	0 0 0 1		
"ADAPTIVE MODE"	1 0 0 1	1080P 2Ch 3D HDR	1 0 0 1		
		4K 30Hz 2Ch 3D HRD	0 1 0 1		
		4K 30Hz 6Ch 3D HDR	1 1 0 1		
		4K 60Hz 2Ch 3D HDR	0 0 1 1		
		4K 60Hz 6Ch 3D HDR	1 0 1 1		
		4K 60Hz 8Ch 3D HDR	0 1 1 1		
		User EDID	1 1 1 1		

OUTPUT TIMING / SCALER SETTINGS

The AVPro Edge's AC-SC2-AUHD is the ideal solution for integrators that are needing to distribute a signal to a variety of displays and keep an optimal picture. Integrators will enjoy its versatility of not only being able to control up/down scaling but handling EDID issues (including 4K HDR EDID's), image enhancement, and being able to access audio from the stream. This scaler is ready for future content as well as it's able to distribute 18Gbps signaling. Yet if you have 480, 720, or 1080 displays the AC-SC2-AUHD will make sure it's getting the right picture.

- *OVF BYPASS* – Scaler is OFF
- 480P 60Hz
- 720P 60Hz
- 1080P 60Hz
- 1920X1200 (VESA)
- 4K 30Hz
- 4K 60Hz YUV 4:2:0
- 4K 60Hz
- AUTO (Sink device EDID)
- ADAPTIVE MODE *

ADAPTIVE MODE - Anything below 1080p will be automatically up converted to 1080p. 1080p and above will be untouched.

EDID Settings: With EDID Settings you can manage the sources devices and force a certain output. This is especially important on newer sources that rely on EDID communications in implement high bandwidth and HDR signals.

- **1080 EDIDs** – Legacy EDIDs, these will ask the sources (especially high bandwidth ones) to output 1080 to function in 1080 Systems.
- **4K30 EDIDs** – Asks the sources to output 4K30 and/or 4K60 4:2:0 (Ideal to force source device to work on common extension infrastructure that are less than 10G like HDBaseT)
- **4K60 EDIDs** – Asks the source to output 4K60 4:4:4 or signals above 9G
- **HDR EDIDs** – When you see HDR in the EDID, the EDID will ask the source to send HDR regardless of resolution.
- **USER EDID** – If you press and hold the EDID button for 2 seconds while connected to a display that's powered on the SC2 will copy and store the displays EDID.

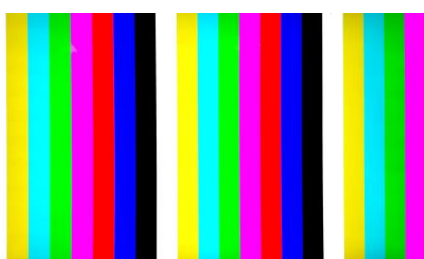
There are three built in Test patterns available

To Enable and Disable press "TEST" button to cycle through the 3 resolutions.

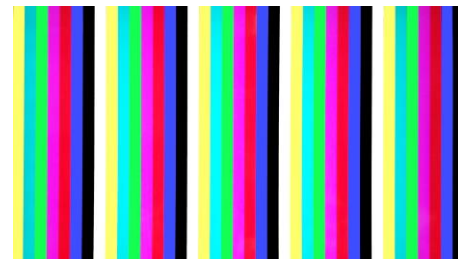
• **720P**



• **1080P**



• **4k 30Hz**



TEST PATTERN	
PATTERN VIDEO FORMAT 9 10	
OFF	0 0
720P	0 1
1080P	1 0
4K 30Hz	1 1

You can also send the commands

SET OUTx SGM EN/DIS : Set Output Signal Generator Enable/Disable{x=[1]}
 SET OUTx SGMT y : Set Output Signal Generator Timing
 x=[1],y=[0~2](0=1080p 60Hz,1=4K 30Hz,2=720P 60Hz)

CTRL/ISP

1. Micro USB Port for firmware and control.
2. Command list below.
For CTRL, use a Micro to USB cable and set the serial communications to: 57600,n,8,1 (baud: 57600, no parity, 8 data bits and 1 stop bit) with no handshaking.

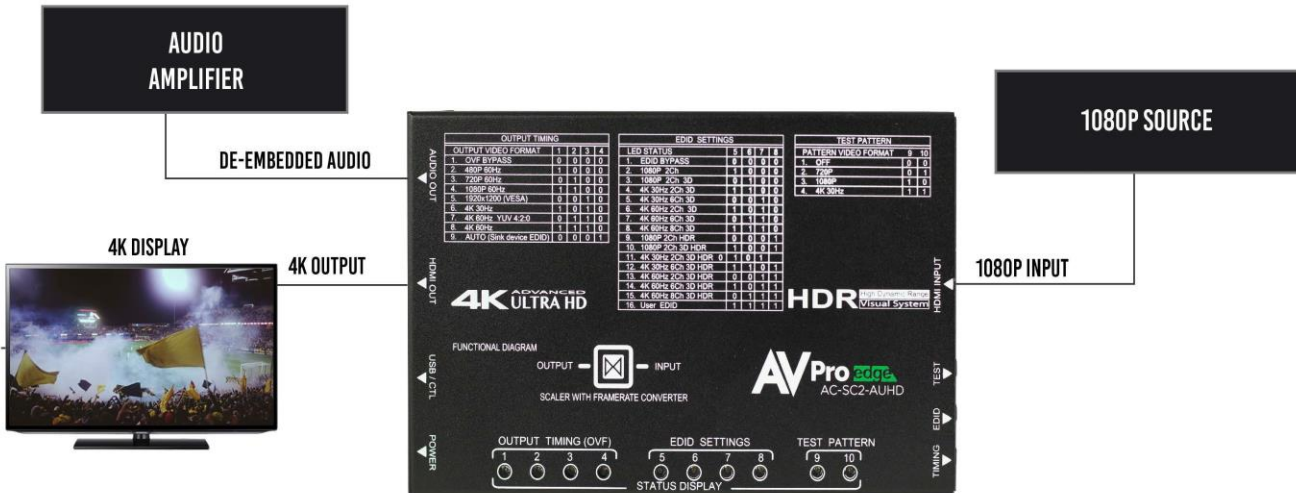
AC-SC2-AUHD ASCII Command List:

AC-SC2-AUHD 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 CAS EN/DIS	Set Cascade Mode Enable/Disable
GET ADDR	Get System Address
GET CAS	Get Cascade Mode Status
GET STA	Get System System Status
GET Inx SIG STA	Get Input x Signal Status{x=[1]}
AC-SC2-AUHD Output Setup Commands	
Command	Action - (Note:output number(x)=HDMI(x),x=1)
SET OUTx VFMTy	Set Outputx Video Timing Format {x=[1], y=[0-8](0=BYPASS,1=480P60Hz,2=720p60Hz, 3=1080p60Hz,4=1920X1200RB60Hz, 5=4K30Hz,6=4K60HzY420, 7=4K60Hz,8=Self-adapt,9=Advanced Bypass)}
SET OUTx SGM EN/DIS	Set Output Signal Generator Enable/Disable{x=[1]}
SET OUTx SGMT y	Set Output Signal Generator Timing {x=[1],y=[0~2](0=1080p 60Hz,1=4K 30Hz,2=720P 60Hz)}
SET OUTx EXA EN/DIS	Set Ex-Audio Output Enable/Disable{x=[1]}
SET OUTx STREAM ON/OFF	Set Output x Stream ON/OFF{x=[1]}
GET OUTx VFMT	Get Output x Video Timing Format{x=[1]}
GET OUTx EXA	Get Ex-Audio Output Enable/Disable Status{x=[1]}
GET OUTx SGM	Set Output Signal Generator Status{x=[1]}
GET OUTx SGMT	Get Output Signal Generator Timing Status{x=[1]}
GET OUTx EDID DATA	Get Output x EDID DATA{x=[1]}
GET OUTx STREAM	Get Output x Stream ON/OFF Status{x=[1]}
AC-SC2-AUHD Input Setup Commands	
Command	Action - (Note:output number(x)=HDMI(x),x=1)
SET Inx EDID y	Set Input x EDID{x=[1], y=[0~15] 0:EDID_BYPASS 1:1080P_2CH 2:1080P_3D_2CH 3:4K30Hz_3D_2CH 4:4K30Hz_3D_6CH 5:4K60Hz_3D_2CH 6:4K60Hz_3D_6CH 7:4K60Hz_3D_8CH 8:1080P_2CH_HDR 9:1080P_3D_2CH_HDR 10:4K30Hz_3D_2CH_HDR 11:4K30Hz_3D_6CH_HDR 12:4K60Hz_3D_2CH_HDR 13:4K60Hz_3D_6CH_HDR 14:4K60Hz_3D_8CH_HDR 15:User_EDID
SET INx EDID CY OUTy	Copy Output y EDID To Input x(USER1 BUF) {x=[1], y=[1]}
SET INx EDID Uy DATAz	Write EDID To User y Buffer of Input x {x=[1], y=[1],z=[EDID Data]}
SET INx EDID	Get Input x EDID Index {x=[1]}
SET INx EDID y DATA	Get Input x EDID y Data {x=[1],y=[0~15]}

Applications:



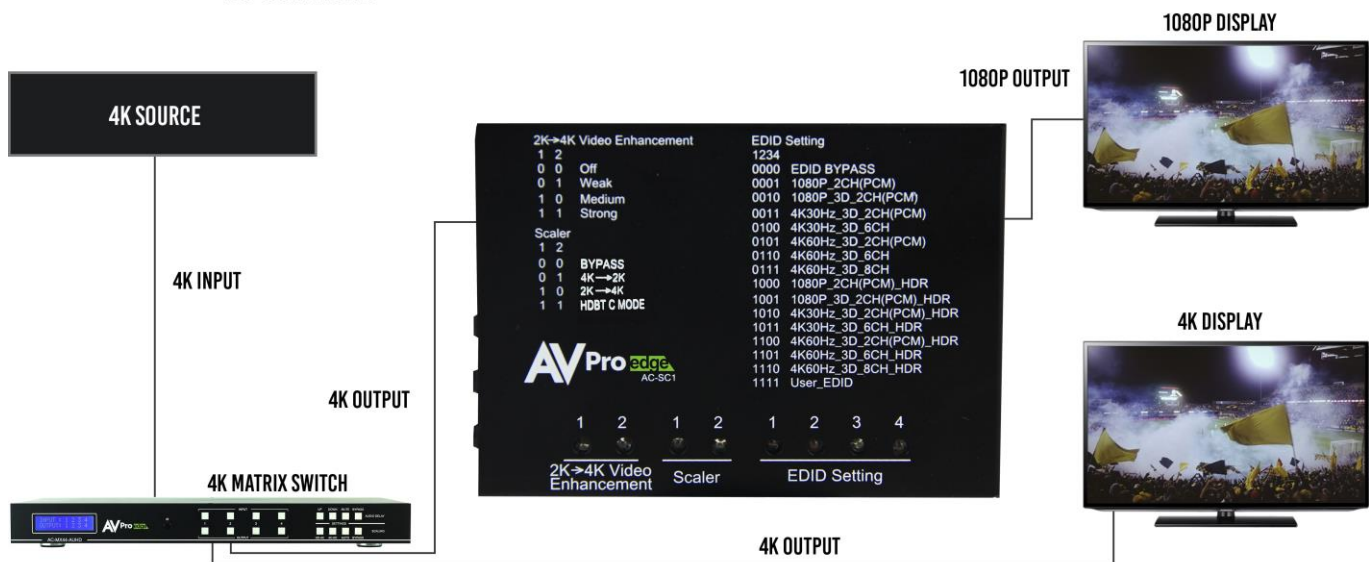
AUDIO DE-EMBEDDING / UPSCALING



WITH THE AC-SC2-AUHD YOU ARE ABLE TO DE-EMBED AUDIO AND UP/DOWN SCALE AT THE SAME TIME

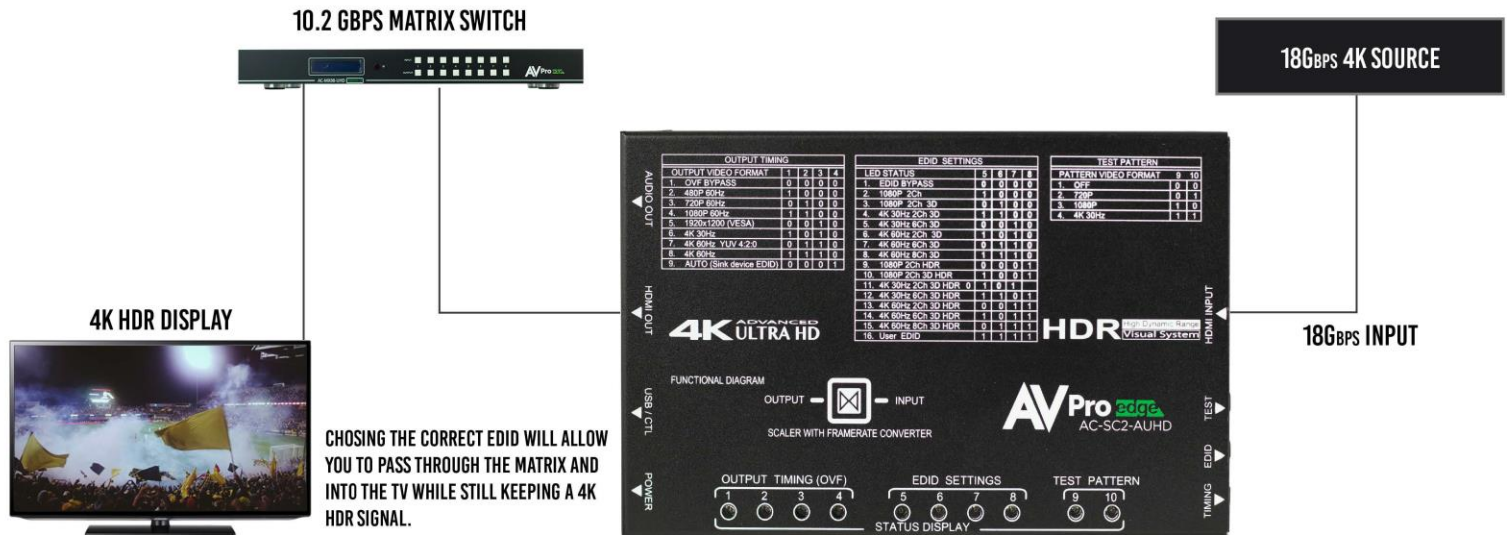


DISTRIBUTED SYSTEM DOWN-SCALING



WITH THE AC-SC1-AUHD YOU ARE ABLE TO DOWNSCALE (AS SHOWN) OR UPSCALE A SIGNAL TO DISTRIBUTE THE BEST POSSIBLE PICTURE TO ANY DISPLAY.

EDID MANAGEMENT



WITH THE AC-SC2-AUHD COMMON EDID SETTINGS ARE EASY TO FIND AS THEY ARE PRINTED RIGHT ON THE CASE

■ Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

■ Product Service

● Provided Service

1) Damage Requiring service: The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adaptor has been damaged;
- Objects or liquids have gotten into the unit;
- The unit has been exposed to rain;
- The unit does not operate normally or exhibits a marked change in performance;
- The unit has been dropped or the cabinet damaged.
-

2) Servicing Personnel: Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.

3) Replacement parts: When parts need replacing ensure the service uses parts

specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.

4) Safety check: After repairs or service, ask the service to perform safety checks to confirm that the unit is in proper working condition.

● Mail-In Service

When shipping the unit, carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a daytime phone and/or email address where you can be reached. If repair is needed during the limited warranty period, the purchaser will be required to furnish a sales receipt/proof of purchase indicating date of purchase, amount paid and place of purchase. Customer will be charged for the repair of any unit received without such proof of purchase.

● Warranty

If your product does not work properly because of a defect in materials or workmanship, AVProEdge (referred to as “the warrantor”) will, for the length of the period indicated as below, (10 Years) which starts with the date of original purchase (“Limited Warranty period”, at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the “Labor” Limited Warranty period there will be no charge for labor. During the “Parts” warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

● Warranty Limits and Exclusions

1) This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship and DOES NOT COVER normal wear and tear or cosmetic damage. The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, mis adjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service Center or other Authorized Service, or damage that is attributable to acts of God.

2) There are no express warranties except as listed under “limited warranty coverage”. The warrantor is not liable for incidental or consequential damages resulting from the use of this product or arising out of any breach of this warranty. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service location, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive but are for illustration only.)

Safety Instructions:

After Sale Service

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

1. Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
2. Do not operate these products outside the specified temperature and humidity range given in the above specifications.
3. Ensure there is adequate ventilation to allow this product to operate efficiently.
4. Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive devices that may be damaged by any mistreatment.
5. Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.

After Sale Service

1. Should you experience any problems while using this product, firstly refer to the Troubleshooting section in this manual before contacting Technical Support.
2. When Calling Technical Support, the following information should be provided:
 - Product name and model number
 - Product serial number
 - Details of the fault and any conditions under which the fault occurs.
3. This Product has a ten-year standard warranty, beginning from the date of purchase as stated on the sales invoice.
4. Product warranty is automatically void under any of the following conditions:

The product is already outside of its warranty period

- Damage to the product due to incorrect usage or storage
- Damage caused by unauthorized repairs
- Damage caused by mistreatment of the product

5. Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.

Thanks for Using AVProEdge

If you have any questions just call us at 1-877-886-5112

