

**ALF-SUK4- HDMI 2.0 1x4 Splitter with Audio
De-embedded**

ALF-SUK4

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated as of March, 2020. In the constant effort to improve the product, we reserve the right to make function or parameter changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with ventilation to avoid damage caused by overheating.
- Keep the module away from liquids.
- Spillage onto the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or forcefully pull ends of the optical cable. It may cause a malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat as normal electrical waste.

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1. Product Introduction

The ALF-SUK4, which is an HDMI2.0 splitter with one HDMI input and four HDMI outputs, for high dynamic range (HDR) formats.

It is HDCP 2.3 compliant, supports 4K / UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI data rates up to 18 Gbps.

This splitter includes de-embedded audio, scaling, EDID management, and front panel LED indicators for power and signal status.

1.1 Features

- 4K / UHD capability @ 60 Hz with 4:4:4 chroma sampling
- Compatible with 4K HDR10 and Dolby® Vision™ @ 60 Hz, HLG (Hybrid Log-Gamma).
- HDCP 2.3 and is backwards compatible
- Smart EDID management via 5 pin DIP switcher, with the source through a display's EDID or internally stored EDID
- De-embedded audio: 1 x balanced, 1 x Optical, 1 x RCA
- Automatically downscaling from 4k to 1080p for legacy displays
- Device can be updated in the field via USB port

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1.2 Packing List

- 1x ALF-SUK4
- 1x Power Adapter (5V DC 2A)
- 4x Plastic Cushions
- 2 x Mounting ears with 4 screws
- 1 x 5 Pins phoenix terminal
- 1x User Manual

Note: *Please contact your distributor immediately should any damage or defect in the components be found.*

2. Technical Specification

Video	
I/O	One HDMI in, four HDMI out
Connector	Type-A female HDMI
HDMI Resolution	Up to 4Kx2K@60Hz 4:4:4 8bit
HDMI Standard	2.0
HDR Formats	420, 422, 444 (10 and 12 Deep Colour) HDR10, HDR10+, DOLBY VIDION, HLG
Deep Colour	Up to 16 Bit (1080), up to 12 Bit (4K)
HDCP Version	2.3, 2.2, 1.4 compliant
CEC	Supported
Audio	
HDMI Audio	PCM 2.0 CH, LPCM5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby® TrueHD, Dolby Digital® Plus, and DTS-HD® Master Audio™, DTS-X, Dolby Atmos.
COAX	PCM 2.0 CH, LPCM5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby® TrueHD, Dolby Digital® Plus, and DTS-HD® Master Audio™, DTS-X, Dolby Atmos.
Optical	PCM 2.0 CH, LPCM5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby® TrueHD, Dolby Digital® Plus, and DTS-HD® Master Audio™, DTS-X, Dolby Atmos.
Analog (Balanced)	PCM 2.0 CH
Analog (on RCA)	PCM 2.0 CH
Control	
Control Part	(1) EDID 5-pin DIP switch, (1) Micro-USB port
General	
Bandwidth	18Gbps
HDMI 2.0 Cable Length	4K@60Hz 4:4:4 ≤ 5m, 4K@60Hz 4:2:0 ≤ 15m, 1080P ≤ 20m
Operation Temperature	-10°C ~ +55°C

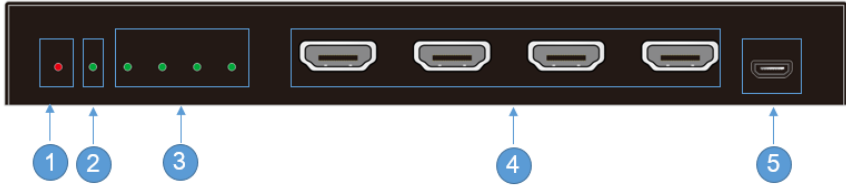
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Storage Temperature	-25°C ~ +70°C
Relative Humidity	10%-90%
Power Supply	Input:100V~240V AC; Output: 5V DC 1A
Power Consumption	2W (Max)
Dimension (W*H*D)	120 mm x 21mm x 75mm
Net Weight	

Note: Please use a high-quality HDMI cable fully compliant with HDMI 2.0 for reliable transmission and connection.

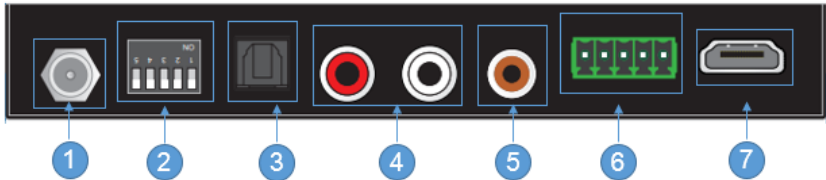
3. Panel Description

3.1 Front Panel



No.	Name & Description	Remark
1	Power LED indicator	The LED illuminates RED when it is powered on.
2	HDMI input LED indicator	The LED illuminates GREEN when the input is connected
3	HDMI output LED indicator	The LED illuminates GREEN when the output is connected
4	HDMI outputs	Four HDMI output ports
5	USB	For firmware update service

3.2 Rear Panel



No.	Name & Description	Remark
1	Power connector	Connect to 5V 2A power supply
2	5 DIP EDID switch	Each switch has 2 settings, 0 & 1 (UP=0, DOWN=1)
3	Optical audio output	Digital de-embedded audio at fiber connector
4	RCA audio output	Analog de-embedded audio at RCA connector
5	COAX audio output	Digital de-embedded audio at SPDIF connector
6	Balanced audio output	Analog de-embedded balanced audio with 5 pins phoenix
7	HDMI input	HDMI input port

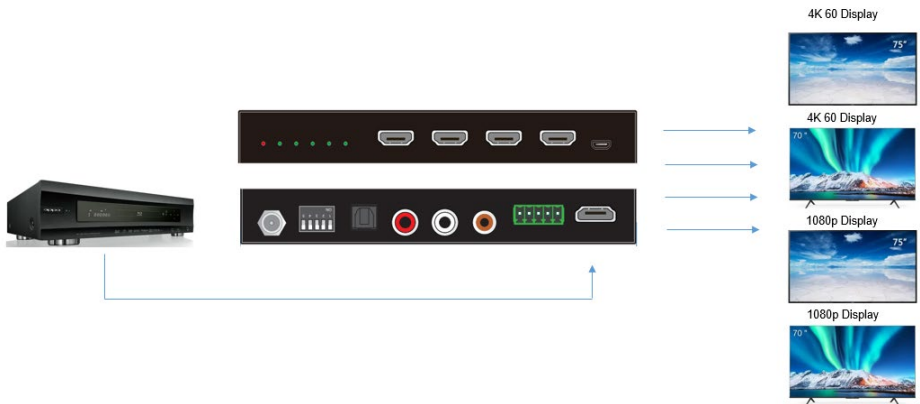
System Connection

3.3 Usage Precaution

- Ensure all components and accessories are included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

3.4 System Diagram

The following diagram illustrates the typical input and output connection of the splitter:



4. DIP Switch Operation

4.1 EDID Management

The Extended Display Identification Data (EDID) is used by the source device to match its video resolution with the connected display. By default, the source device obtains its EDID from the first connected display. Meanwhile, since the displays with different capabilities are connected to the splitter, the DIP switch on the front panel can be used to set the EDID to a fixed value to ensure the compatibility in video resolution.

The switch represents “1” when in the lower (**ON**) position, and it represents “0” while putting the switch in the upper (**OFF**) position.



DIP 1~4 are used for EDID setting. The DIP switch status and its corresponding setting are shown at the back of the product.

EDID Setting					
#	JUMPER	DIP-1	DIP-2	DIP-3	DIP-4
1	EDID COPY (See NOTE 1)	0	0	0	0
2	1080P_2CH(PCM)	0	0	0	1
3	1080P_5.1CH	0	0	1	0
4	1080P_7.1CH	0	0	1	1
5	4K30Hz_3D_2CH(PCM)	0	1	0	0
6	4K30Hz_3D_5.1CH	0	1	0	1
7	4K30Hz_3D_7.1CH	0	1	1	0
8	4K60Hz(Y420)_3D_7.1CH	0	1	1	1
9	4K60Hz_3D_2CH(PCM)	1	0	0	0
10	4K60Hz_3D_5.1CH	1	0	0	1
11	4K60Hz_3D_7.1CH	1	0	1	0
12	Set EDID OUT1 Audio, OUT2 Video MIX	1	0	1	1
13	Set EDID OUT2 Audio, OUT1 Video MIX	1	1	0	0
14	4K60Hz_3D_2CH(PCM)_HDR	1	1	0	1
15	4K60Hz_3D_5.1CH_HDR	1	1	1	0
16	4K60Hz_3D_7.1CH_HDR	1	1	1	1

4.2 HDCP Mode

Put the DIP-5 5 on the “OFF” position to select **HDCP Active** mode, or on the “ON” position for **HDCP Passive** mode.

Switch Status	Mode	HDCP
ON (1)	Passive (Default)	Automatically follows the display’s HDCP version.
OFF (0)	Active	Automatically removes the HDCP content of HDMI output for broader video solution.

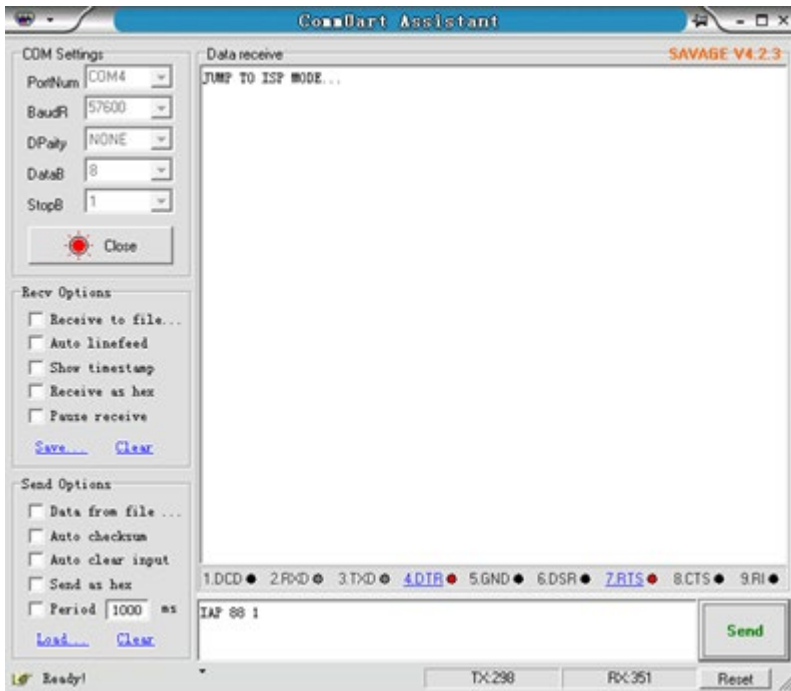
4.3 Downscale

The unit supports Auto downscaling when detecting that the display does not support 4K, and will downscale to 1080p, the downscale capability is shown below:

Input			Output	
Resolution	Refresh	Color Space	Downscale	1080p Specs
4K	60Hz	4:4:4	Support	1080p@60Hz 4:4:4
4K	50Hz	4:4:4	Support	1080p@50Hz 4:4:4
4K	30Hz	4:4:4	Support	1080p@30Hz 4:4:4
4K	25Hz	4:4:4	Support	1080p@25Hz 4:4:4
4K	24Hz	4:4:4	Support	1080p@24Hz 4:4:4
4K	60Hz	4:2:0	Support	1080p@60Hz 4:4:4
4K	50Hz	4:2:0	Support	1080p@50Hz 4:4:4
4K	30Hz	4:2:0	Support	1080p@30Hz 4:4:4
4K	25Hz	4:2:0	Support	1080p@25Hz 4:4:4
4K	24Hz	4:2:0	Support	1080p@24Hz 4:4:4

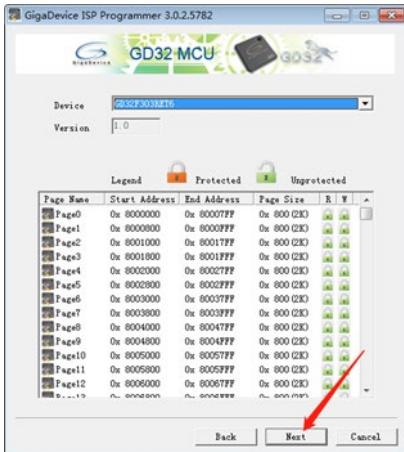
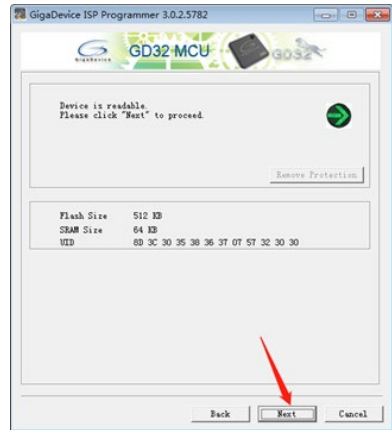
5. Firmware Upgrade

- Connect Micro-USB from the PC to the ALF-SUK4
- Power on the ALF-SUK4
- Run the “Uart” tool [**UartAssist.exe**] on PC, Select COM port which can be used for firmware upgrading. Choose [56700 bps] and click [**open**] button as shown below. Send command [IAP 88 1] and CRLF to enter update state, and click [**Close**] to exit the “Uart” tool.

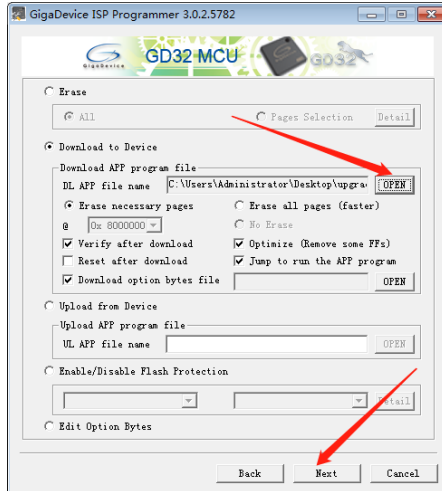


- Run the Flash tool [**GigaDevice MCU ISP Programmer.exe**] on PC, choose [56700 bps] and click [**Next**], [**Next**] and [**Next**] button as below picture shown.

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- Load the firmware hex file, such as [SP12HH-H22-033-V1.04(DDEC).hex], then click **[Next]** button to upgrade, pictured below:

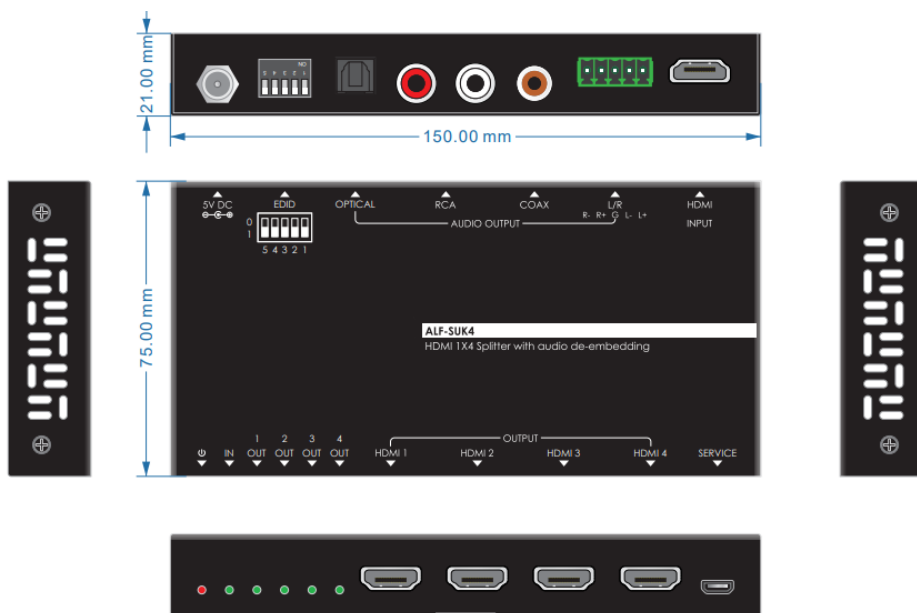


After completing the upgrade, then click **[Finish]** button



Please reboot the unit once the firmware update is completed.

6. Panel Drawing



7. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Colour loss or no video signal output in HDMI display.	The connecting cables may not be connected correctly or may be broken.	Check whether the cables are connected correctly and in working condition.
	The display is not compatible with the present output resolution.	Ensure the resolution of the display(s) is compatible with the present resolution.
No HDMI signal output through the splitter while local HDMI input is in normal working state.	The connecting cables may not be connected correctly, or it may be broken.	Check whether the cables are connected correctly and in working condition.
Splash screen in output devices.	Poor quality of the connecting cable.	Replace with a cable of good quality.
Static becomes stronger when connecting the video connectors.	Bad grounding.	Check the grounding and ensure it is connected well.

Note: If the problem persists after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance.

8. After-sales Service

Should you experience problems using the ALF-SUK4, please refer to the manual and troubleshooting and maintenance section (8). Should the error persist, note that any transport costs of the equipment to the distributor are borne by the user during the warranty.

1) Product Limited Warranty: The company warrants that its products will be free from defects in materials and workmanship for **seven years**, which starts from the first day of purchase.

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the warranty period must be presented to obtain warranty service.

2) What the warranty does not cover (servicing available for a fee):

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration, or malfunction caused by:
 - Normal wear and tear
 - Use of supplies or parts not meeting product specifications
 - No certificate or invoice as the proof of warranty.
 - The product model showed on the warranty card does not match with the product or if the product had been altered.
 - Damage caused by force majeure.
 - Servicing not authorized by the company
 - Any other causes which do not relate to a product defect
- Delivery, installation or labour charges for installation or setup of the product

3) Technical Support: Contact our after-sales department via email or telephonically and please inform us the following information about your case:

- Product version and name.
- Detailed failure situations.
- The formation of the cases.

1. Limited Warranty

1.1 This limited warranty covers defects in materials and workmanship in this product.

1.2 Should warranty service be required, proof of purchase must be presented to the Company. The serial number on the product must be clearly visible and not have been tampered with in any way whatsoever.

1.3 This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by the Company to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover equipment enclosures, cables or accessories used in conjunction with this product.

This limited warranty does not cover the cost of normal maintenance. Failure of the product due to insufficient or improper maintenance is not covered.

1.4 The Company does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

1.5 Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

1.6 Unless otherwise specified, the goods are warranted in accordance with the manufacturer's product specific warranties against any defect attributable to faulty workmanship or materials, fair wear and tear being excluded.

1.7 This limited warranty only covers the cost of faulty goods and does not include the cost of labour and travel to return the goods to the Company's premises.

1.8 In the event of any improper maintenance, repair or service being carried out by any third persons during the warranty period without the Company's written authorization, the limited warranty shall be void.

1.9 A 7 (seven) year limited warranty is given on the aforesaid product where used correctly according to the Company's instructions, and only with the use of the Company's components.

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1.10 The Company will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1.10.1 Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labour to complete the repair and restore this product to its proper operating condition.; or

1.10.2 Replace this product with a direct replacement or with a similar product deemed by the Company to perform substantially the same function as the original product; or

1.10.3 Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

1.11 The Company is not obligated to provide the Customer with a substitute unit during the limited warranty period or at any time thereafter.

1.12 If this product is returned to the Company this product must be insured during shipment, with the insurance and shipping charges prepaid by the Customer. If this product is returned uninsured, the Customer assumes all risks of loss or damage during shipment. The Company will not be responsible for any costs related to the removal or reinstallation of this product from or to any installation. The Company will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

1.13 Please be aware that the Company's products and components have not been tested with competitor's products and therefore the Company cannot warrant products and/or components used in conjunction with competitor's products.

1.14 The appropriateness of the goods for the purpose intended is only warranted to the extent that the goods are used in accordance with the Company's installation, classification and usage instructions.

1.15 Any claim by the Customer which is based on any defect in the quality or condition of the goods or their failure to correspond with specification shall be notified in writing to the Company within 7 days of delivery or, where the defect or failure was not apparent on reasonable inspection by the Customer, within a reasonable time after discovery of the defect or failure, but, in any event, within 6 months of delivery.

1.16 If delivery is not refused, and the Customer does not notify the Company accordingly, the Customer may not reject the goods and the Company shall have no liability and the Customer shall pay the price as if the goods had been delivered in accordance with the Agreement.

1.17 THE MAXIMUM LIABILITY OF THE COMPANY UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT.