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User Manual [V1.0]



4K@60Hz HDMI Extender Over 400Ft. Cat5e/6 w/ Two-Way IR

IP280E (Encoder)

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1. Introduction

This product is a 4K@60Hz HDMI extender kit consisting of a transmitter and a receiver with low-latency transmission. The 4K@60Hz HDMI signal can be extended up to 120m via Category 6 and above network cables, supporting one-to-one connection, one to-many connections via gigabit switch, or switch cascades. It also supports HDMI loop out, bi directional IR passback, and RS-232 passthrough functions, and can be widely used in meetings, home entertainment, educational presentations, and other fields.

Please Note: When the input signal sent to ZT-380 (encoder) is 4K@60Hz 4:4:4, the loop-out port on ZT-380 (encoder) outputs 4K@60Hz 4:4:4 while the ZT-381 (decoder) outputs 4K@60Hz 4:2:0.

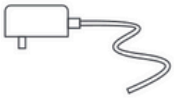
2. Features

1. Features high-definition resolution and low-latency transmission.
2. Supports up to 3840 x 2160@60Hz resolution, backward compatible.
3. Compatible with Cat5/5e/6 or above network cables, transmission distance of Cat6 cable is 120 meters.
4. Supports one-to-one or one-to-many connections through the gigabit switch.
5. Supports RS-232 passthrough.
6. The transmitter supports HDMI loop out.
7. Supports bi-directional IR passback (20~60kHz).
8. Firmware can be upgraded through Micro USB.
9. Lightning protection, surge protection, ESD protection.

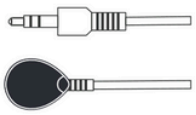
3. Package Contents



1 x Transmitter



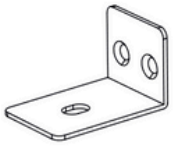
1 x Power Adapter
DC12V 1A



1 x IR RX Cable



1 x User Manual



2 x Mounting Ears



5 x Screws

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1 x Grounding Screw

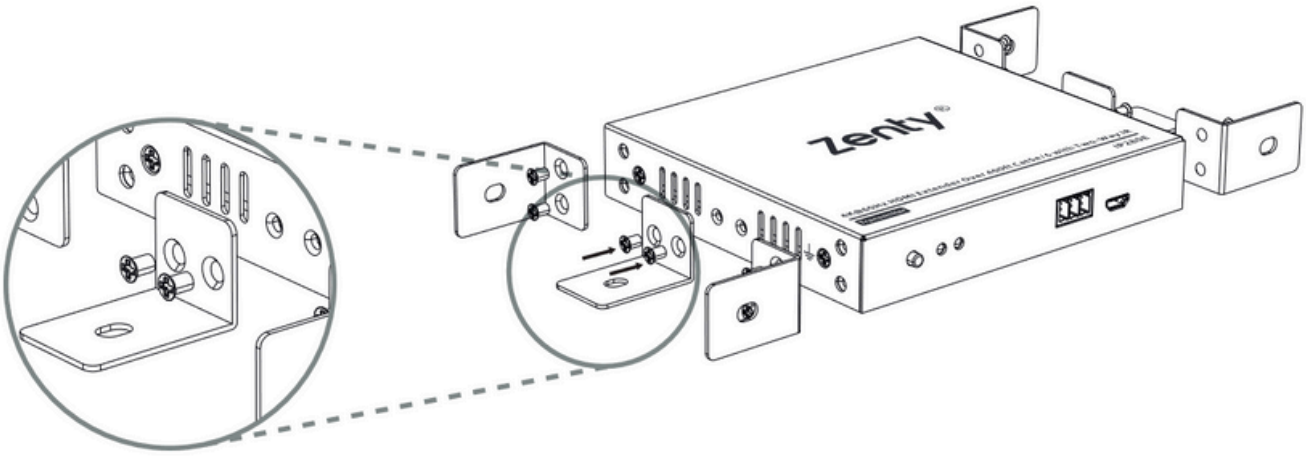


1 x RS232 Terminal Block

4. Installation Requirements

Item	Description	Requirement
Signal	PC, DVD, NVR, etc. with HDMI port	HDMI cable ≤ 5m
Source Device Cable	Cat5/5e/6 or above, following standard IEEE-568B	Cat6/6A/7 ≤ 120m
Display Device	TV, projector, LED screen, etc. with HDMI port	HDMI cable ≤ 5m
Network Switch	one-to-many or switch cascade	Gigabit switch

5. Wall Mounting

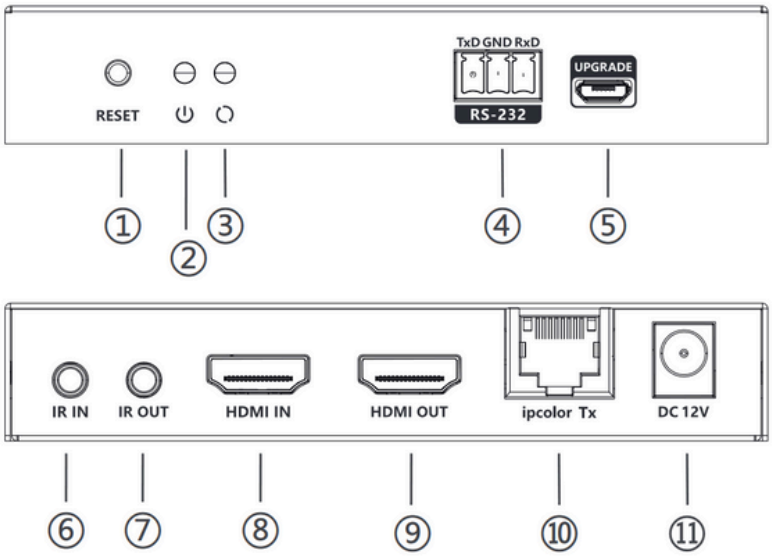


Note: Choose the wall mounting position and attach the mounting ears to the unit according to the diagram

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6. Panel Description

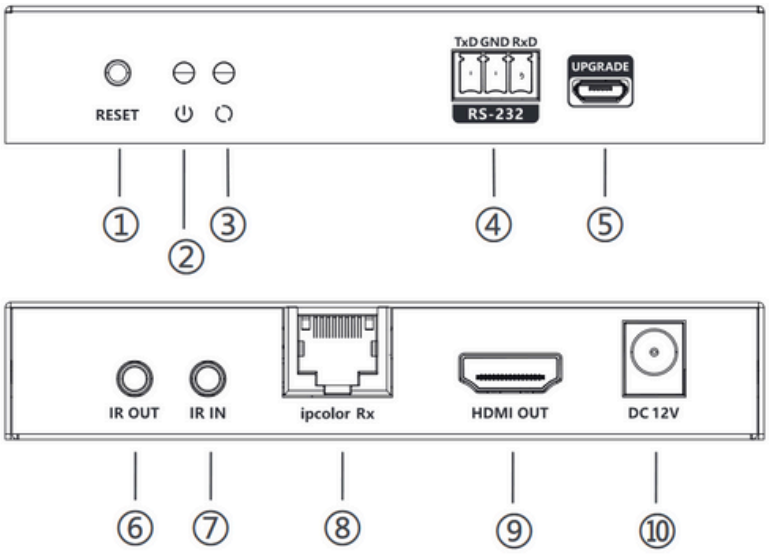
6.1 Transmitter



1	Reset	Press to restart the device
2	Power Indicator (blue)	The indicator will turn on when power is turned on
3	Status Indicator (orange)	1) Light off: The transmitter and the receiver have not established a connection 2) Slow flash: The transmitter and receiver are connected but no video data transmission (gigabit Ethernet) 3) Quick flash: The transmitter and receiver are connected but no video data transmission (100M Ethernet) 4) Steady on: The video data is transmitting
4	RS-232 (TXD/GND/RXD)	User for RS-232 passthrough
5	Micro USB interface	User for firmware upgrade
6	IR input	Connect with IR receiver extension cable
7	IR output	Connect with IR blaster extension cable
8	HDMI input	Connect with HDMI source device
9	HDMI output	Connect with local HDMI display device
10	Tx (RJ45)	Connect with the network cable
11	Power	Connect with DC12V/1A power adapter

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6.2 Receiver



1	Reset	Press to restart the device
2	Power Indicator (blue)	The indicator will turn on when power is turned on
3	Status Indicator (orange)	1) Light off: The transmitter and the receiver have not established a connection 2) Slow flash: The transmitter and receiver are connected but no video data transmission (gigabit Ethernet) 3) Quick flash: The transmitter and receiver are connected but no video data transmission (100M Ethernet) 4) Steady on: The video data is transmitting
4	RS-232 (TXD/GND/RXD)	User for RS-232 passthrough
5	Micro USB interface	User for firmware upgrade
6	IR output	Connect with IR blaster extension cable
7	IR input	Connect with IR receiver extension cable
8	Rx (RJ45)	Connect with the network cable
9	HDMI output	Connect with HDMI display device
10	Power	Connect with DC12V/1A power adapter

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7. Installation Procedures

7.1 How to make a network cable

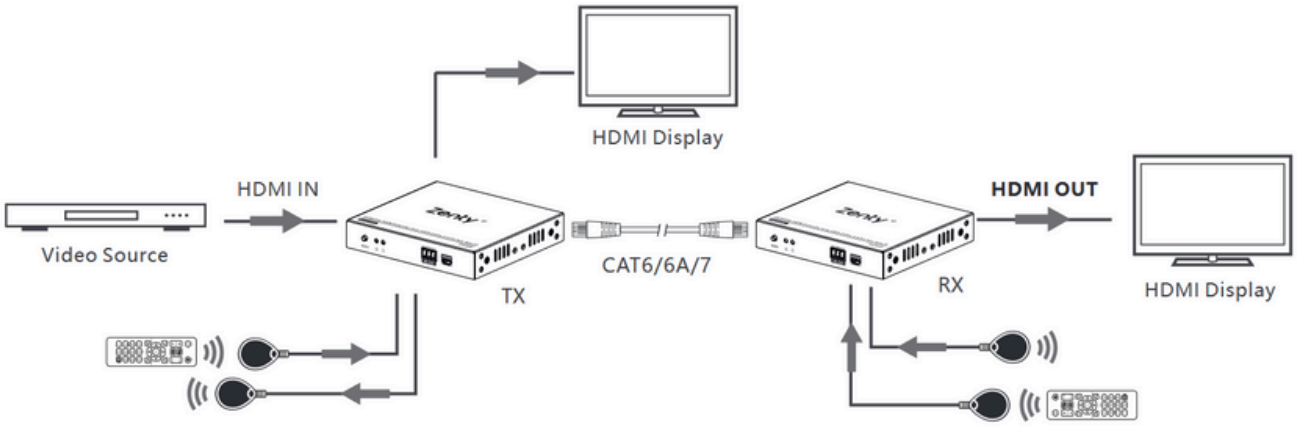
Follow the standard of IEEE-568B:

1-white and orange 2-orange 3-white and green 4-blue

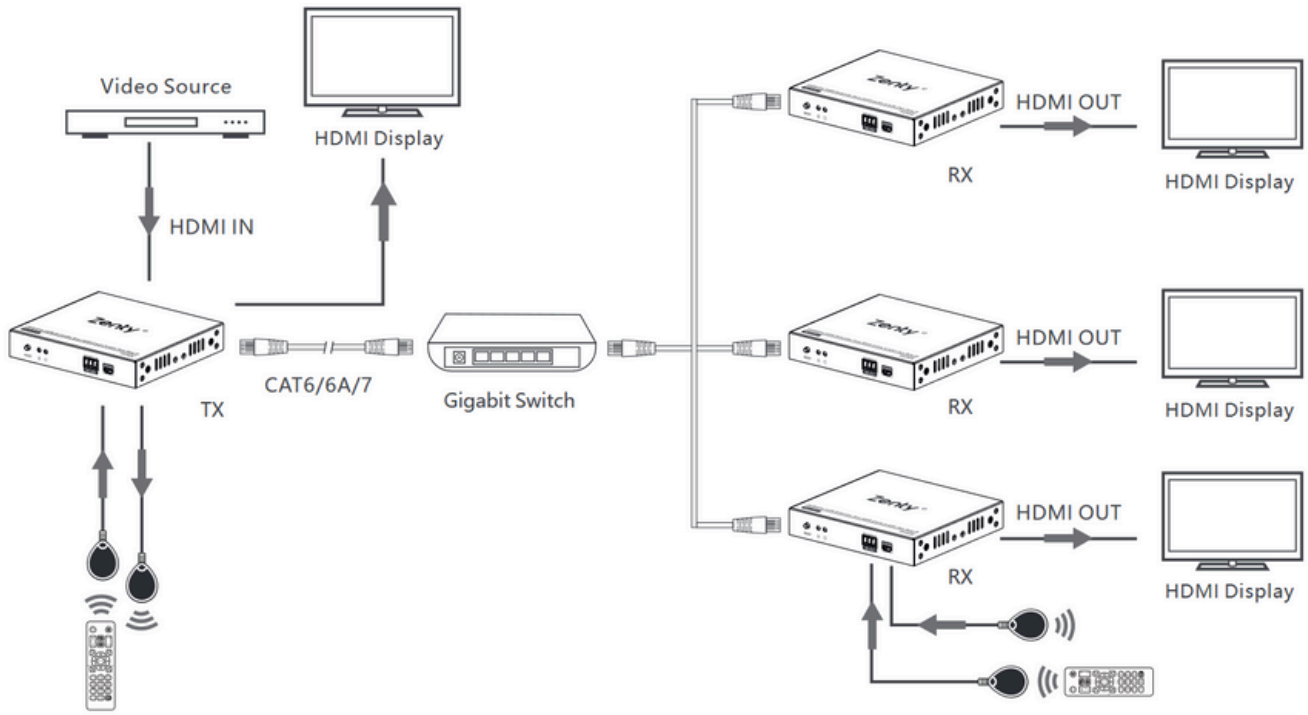
5-white and blue 6-green 7-white and brown 8-brown

7.2 Connection Diagrams

1) One-to-one connection

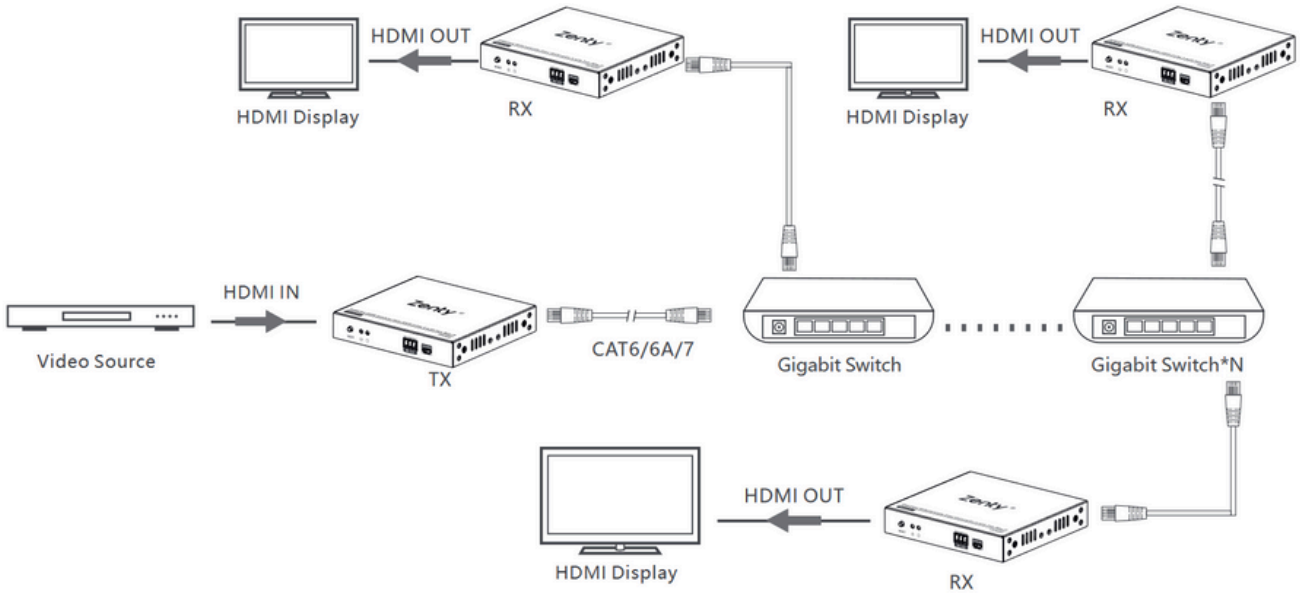


2) One-to-many connection (through gigabit switch)



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3) One-to-many connection (cascade of gigabit switches)



Note: It is suggested to use gigabit (1000 Mbps) switches in LAN transmission, and 100Mbps switches should not be mixed with gigabit switches when cascading.

7.3 Connection Instructions

1) Connect the source device to the HDMI IN port of the transmitter with an HDMI cable, and connect the HDMI OUT port of the receiver to the display device with another HDMI cable.

2) If it's a one-to-one connection, use a network cable to connect the RJ45 port of the transmitter and receiver. If it is a one-to-many connection, use the gigabit switch as a bridge to connect the transmitter and the receivers with the network cable respectively.

3) If using HDMI loop out, connect the display device to the HDMI OUT port of the transmitter.

4) Plug the power supply into the devices to get started.

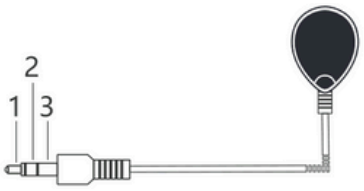
7.4 IR User Guide

1) IR blaster extension cable should plug in the IR OUT port of the transmitter or receiver, IR receiver extension cable should plug in the IR IN port of the transmitter or receiver.

2) The emitter of the IR blaster extension cable should be as close as possible to the IR receiving window of the source device.

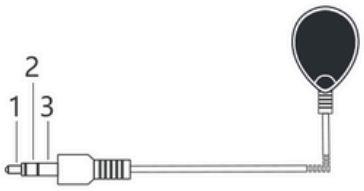
3) Point the remote control at the receiving head of the IR receiver extension cable to operate.

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IR blaster

1. Power
2. IR Signal
3. Null



IR receiver

1. Power
2. IR Signal
3. Grounding

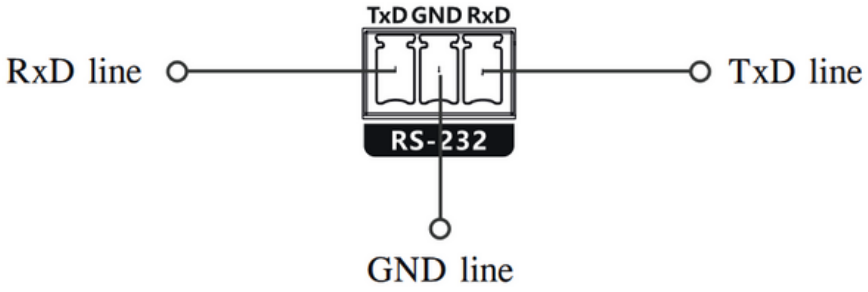
7.3 Connection Instructions

1） Baud rate

Different encoding mechanisms cannot be mixed, the baud rate of the RS-232 port of this transmitter and receiver is 2400, 4800, 9600, 19200, 38400, 57600, 115200.

2） Line order

Make sure the RS-232 serial line is firmly connected and that the serial data line is connected correctly as follows:



If the RS-232 serial does not work by following the above connection, please try to change the order of the TXD line and RXD line.

3） Check baud rate

If you need to check the baud rate, set the baud rate value of the serial port test tool to the default value of 115200, connect the serial port test tool to the product, and then power on the product. The baud rate printed at this time is the current baud rate. For example:"Baudrate:9600", that is, the baud rate value is 9600.

4）Set baud rate

For example: the baud rate of the product is 9600, and the baud rate of the serial port test tool is 115200. At this time, the baud rate of the serial port test tool must be set to 9600, which is consistent with the product, and then input the command you want to set "Bset:19200", if "Succeed" is displayed after sending data, the baud rate 19200 is set successfully.

8. FAQ

Q：Why the status indicator is off?

A：Please check whether all equipment is powered on and the network cable is connected properly.

Q：Why is the status indicator has been flashing?

A：1) Please check whether there is HDMI signal input for the TX.

2) Try to connect the signal source directly to the display device, or try to change the signal source and HDMI cable and test again.

Q：Why is the output image unstable?

A：1) Check whether the length of the network cable is within the specified range.

2) The length of HDMI cable is recommended to be ≤ 5 meters.

3) Press the "reset" button on TX and RX panels to restart and reconnect.

Please Note: When the input signal sent to ZT-380 (encoder) is 4K@60Hz 4:4:4, the loop-out port on ZT-380 (encoder) outputs 4K@60Hz 4:4:4 while the ZT-381 (decoder) outputs 4K@60Hz 4:2:0.

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9. Specifications

Item	Transmitter	Receiver
Video		
Input interface	1x HDMI	1x RJ45
Output interface	1x HDMI 1x RJ45	1x HDMI
HDMI length	≤ 5m	≤5m
Maximum transfer rate	18Gbps	
Compatibility	HDMI 2.0	
Resolutions	HDCP 1.4/HDCP 2.2 3840x2160@24/30/50/60Hz, 1080p@50/60Hz, 720p@50/60Hz, 1920x1200@60Hz, 2560x1440@60Hz, 2560x1600@60Hz	
Connection types	One-to-one connection One-to-many connection Switch cascading	
Transmission distance	Cat6/6A/7 ≤ 120m	
Transmission latency	70~180ms	
Command Signal		
IR interface	1x 3.5mm IR out 1x 3.5mm IR in	1x 3.5mm IR out 1x 3.5mm IR in
IR receiving range	≤ 5m	
IR frequency	20kHz~60kHz	
RS-232 (GND/RXD/TXD)	Default baud rate: 115200 Supported: 2400, 4800, 9600, 19200, 38400, 57600, 115200	
Power		
Power supply	DC12V/1A	DC 12V/1A
Power consumption	TX ≤ 4.5W	RX ≤ 2.5W
Operating Environment		
Working temperature	-20°~60°C	
Storage temperature	-30°~70°C	
Humidity	0~90% RH (no condensation)	

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Physical Properties		
Housing	Iron	
Weight	273g	262g
Color	Black	
Dimensions	106.0(L)*114.0(W)*20.6(H)mm	
Protection	ESD protection 1a Contact discharge level 2 (±4KV) 1b Air discharge level 3 (±8KV) Implementation of the standard: IEC61000-4-2	
	Lightning protection, Surge protection	

10. Maintenance

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

11. Warranty

If your product does not work properly because of a defect in materials of workmanship, our company (referred to as "the warrantor") will, for the length of the period indicated as below, "Parts and Labor (5) 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 products purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

12. 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 phone and/or email address where you can be reached.

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13. Limited Warranty Limits and Exclusions

This Limited Warranty ONLY COVERS failures due to defects in material 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 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 Servicer, or damage that is attributed to acts of God.

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, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive but are for illustration only). Parts and service, which are not covered by this limited warranty, are your responsibility.

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