



## EXP-EX-COAX-50

50m Coaxial Extender with 2-way IR  
& EDID Management



**Instruction Manual**



Thank you for choosing this WyreStorm Express product.  
Please read these instructions carefully before installing to avoid complications later.

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## Introduction

The WyreStorm Express™ EXP-EX-COAX-50 is a single cable point to point HDMI extender set using copper-core 75Ohm Coax cable to transmit 1080p HD video @60Hz and multi-channel HD audio over distance up to 50m (164ft) including wide-band, 2-way IR control from both source and display location.

The 'Analog Sun' may have set, but even in these days of digital distribution, the use of coax as a cable medium is still a popular requirement to transmit and control HD signals between sources and display location in legacy or mixed analog/digital systems such as antenna and cable/satellite installations, where coax is effective due to the low loss at high frequencies, vital for TV Set-top boxes and cable modem installations.

Key to any installation is successful transmission, with the EXP-EX-COAX-50 featuring EDID management to manually handle device communication and cable distance settings to fine tune signal extension based on the length of cable between devices to maximise compatibility and reliable delivery of the signal between source and display.

Maintaining the integrity of the distribution within the installation environment is also paramount and the EXP-EX-COAX-50 include protection against ESD (electrostatic discharge) to further stabilise transmission with LED indication on the unit housing providing clear confirmation of power and signal link status.

As scalable as they are reliable, the EXP-EX-COAX-50 can be cascaded by connecting additional multiple extenders to further lengthen transmission and offer greater flexibility, whatever the application. The WyreStorm Express™ EXP-EX-COAX-50 is the perfect solution for retrofit HD distribution projects in which a Coax cable infrastructure is already present, as well for installers whose primary experience lies in antenna and satellite installations.

## Features

- Single Coax cable extends 1080p HD video @ 60Hz and multi channel audio transmissions over distances up to 50m (164ft)
- Automatically adjusts signal feedback, equalization and amplification
- EDID/Setting DIP switches on transmitter and receiver encourages communication between source/display devices to solve compatibility issues
- HDMI 1.3 supported
- Each port supports HDMI or DVI signals
- HDCP compliant
- LED indication of device power and video signal status
- Units contain ESD (electrostatic discharge) protection technology to guard against static build-up that can damage circuitry
- Wide band, 2-way IR control of source from display locations and display from source locations
- 24bit color depth (True color)
- Mounting brackets supplied
- Lockable BNC connectors
- IR receiver, emitter and 5v mains power supply included
- Units can be cascaded by connecting additional transmitters and receivers to further expand distribution

## Safety Precautions



### WARNING

To reduce the risk of fire, electric shock or product damage:

1. Do not expose this apparatus to rain, moisture, sprays, drips or splashes and ensure that no objects containing liquids are placed on the apparatus, including cups, glasses and vases.

## Package Contents

2. Do not place this unit in a confined space such as enclosed shelving, cabinets or bookshelves.
  3. Ensure the unit is adequately ventilated.
  4. To prevent the risk of electric shock or fire hazard due to overheating, do not cover the unit or obstruct ventilation openings with material, newspaper, cardboard or anything that may restrict airflow into the unit.
  5. Do not install near external heat sources such as radiators, heat registers, boilers or any device that produces heat such as amplifiers or computers and do not place near sources of naked flame.
  6. Unplug apparatus from power supply during lightening storms or when unused for long periods of time.
  7. Protect the power cable from being walked on, pinched or restricted in any way, especially at plug connections.
  8. Only use attachments/accessories specified by the manufacturer.
  9. Units contain non-servicable parts - Refer all servicing to qualified service personnel.
- 1 x EXP-EX-COAX-50 transmitter
  - 1 x EXP-EX-COAX-50 receiver
  - 1 x Printed quickstart installation guide\*
  - 2 x Pairs mounting brackets
  - 2 x 5VDC power supply
  - 1 x IR emitter for source connection
  - 1 x IR receiver for display connection - IR frequency range: 30KHz to 56KHz

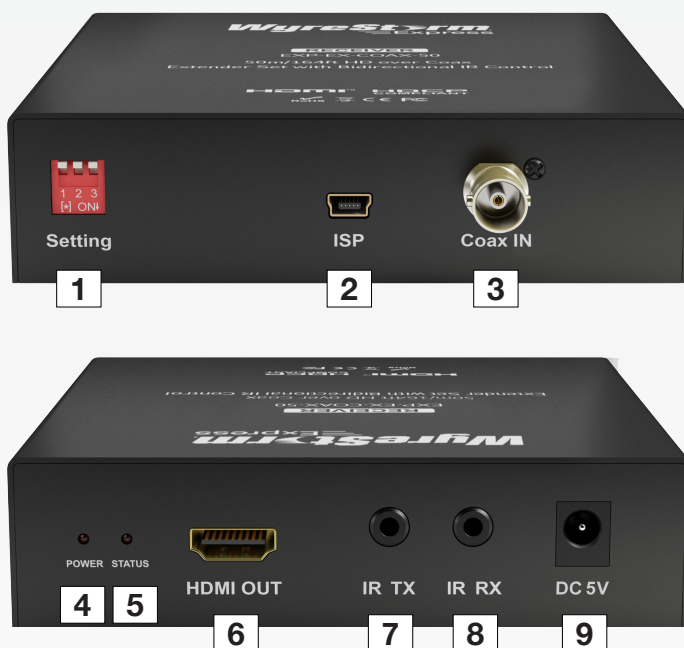
## Specification

Dimensions (W x H x D)	152mm/5.9" x 31mm/1.2" x 105mm/4.1"
Weight	0.9kg / 1.98lb
Operating Temperature Range	-5 to +35°C (-41 to +95 °F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Video Amplifier Bandwidth	6.75Gbps
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	5 volts p-p TTL
Maximum Single Link Range	1080p 24bit Colour Depth
Transmission distance	50m / 164ft max. (75Ω)
Video Format Supported	VESA: 640x480, 800x600, 1024x768, 1280x1024, 1600x1200, 1920x1200 DTV/HDTV: 720p/1080i/1080p
Output Video	HDMI 1.3+HDCP (Mirrors source to sync)
Audi Format Supported	Channel 7.1/5.1/stereo audio (PCM only)
Power Supply	5VDC - from mains
Power Consumption	5 Watts (Max.)
BTU Rating (British Thermal Unit)	17.06
Rack Space Required	N/A

## Panel Description - Transmitter



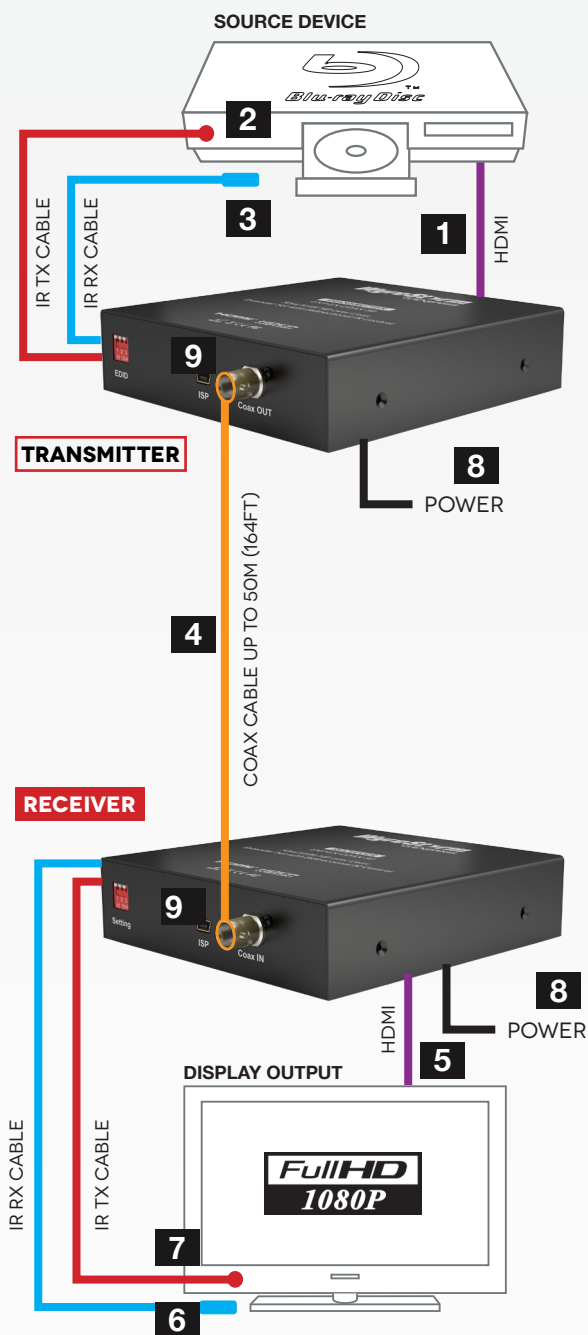
## Panel Description - Receiver



- 1** EDID – see Transmitter EDID for details (section 9)
- 2** ISP Port – Mini USB port for firmware updates
- 3** COAX Output
- 4** Power indication – LED lit when powered
- 5** Status indication – LED lit when signal detected
- 6** HDMI Input
- 7** IR TX Output – 3.5mm IR emitter connecting to source device for control from display location.
- 8** IR RX Input – 3.5mm IR Receiver placed at display location to remotely control the source device.
- 9** 5V Power Input

- 1** Setting – see Receiver Settings for details (section 9)
- 2** ISP Port – Mini USB port for firmware updates
- 3** COAX Input
- 4** Power indication – LED lit when powered
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- 6** HDMI Output
- 7** IR TX Output – 3.5mm IR emitter connecting to source device for control from display location.
- 8** IR RX Input – 3.5mm IR Receiver placed at display location to remotely control the source device.
- 9** 5V Power Input

## Typical Application



## Connection & Operation

**ATTENTION** We strongly recommend using the supplied mounting brackets to secure the extenders. Sudden movement of these devices can lead to unnecessary service call outs and loss of picture/sound due to stress on connections.

**1** Connect the HDMI source input (such as: HD-DVD, PS3, Cable/Sat box, Blu-ray etc.) to the HDMI IN of the

TRANSMITTER. Avoid excessive bending of the HDMI cable and ensure connectors are inserted firmly in all ports.

**ATTENTION** Do Not Hotswap! - Please insert and extract cables carefully with the power SWITCHED OFF. Connecting and disconnecting while the unit is powered can result in damage to circuitry.

**2** Position the IR emitter directly over the infrared receiving area of the source and secure with the adhesive backing. You may need to adjust the location of the emitter later to achieve the best results - sometimes moving the sensor to different areas on the source fascia can improve IR performance. Insert the IR emitter 3.5mm jack into the IR TX port on the TRANSMITTER.

**Tip:** You can locate the small, round infrared sensor by shining a flashlight onto the display panel of your source.

**3** For two-way IR (to control the TV from the source location) insert the IR receiver 3.5mm jack into the IR RX port on the TRANSMITTER and place the IR receiver within line of sight of the TV remote control. See 7.

**4** Connect a good quality, well terminated and tested Coax cable from the Coax OUT port of the TRANSMITTER to the corresponding Coax IN port of the RECEIVER. Ensure connectors are pushed securely into each port with no strain placed on the connection port.

**5** Connect the HDMI display input (such as: HD-LCD/ Plasma) to the HDMI OUT of the RECEIVER.

**6** Insert the IR receiver 3.5mm jack into the IR RX port on the RECEIVER. Discretely attach the IR receiver eye to the display with the adhesive backing, ensuring a clear line of sight to the remote control being used. You may need to adjust the position of the IR receiver to achieve best results.

**ATTENTION** Mind your IR surroundings. Interference caused by infrared radiation can disrupt IR signals - make sure your IR is away from direct sunlight, Halogen lighting and plasma screens.

**7** Two-way control - for the display to be controlled at the source location, insert the IR emitter eye 3.5mm jack into the IR TX port on the RECEIVER. Attach the emitter directly over the infrared receiving area of the display and secure with the adhesive backing. You may need to adjust the location of the emitter later to achieve the best results - sometimes moving the sensor to different areas on the display fascia can improve IR performance.

**Tip:** You can locate the small, round infrared sensor by shining a flashlight onto the display panel of your source.

**8** Finally, add the provided 5V power supplies to both extender sets. We do not recommend passing power remotely over long cable distances as this can affect product performance.

**NOTE** Check the LED lights are lit to confirm the units are powered and a signal link is established between the Transmitter and Receiver.

**ATTENTION** Turn off all power to devices before you disconnect any cables to avoid hotswapping plugs that could damage circuitry. Follow 'last on first off' protocol when connecting and disconnecting cables.

**9** ISP - for firmware updates

## EDID & Distance Setting

Distribution of HD signals through devices requires mutual communication or 'handshake' between source and display. If there is any disparity between the two successful transmission becomes problematic.

The EXP-EX-COAX-50 extender comes equipped with EDID management on the transmitter to encourage communication between INPUT and OUTPUT devices and Distance SETTINGS on the Receiver to toggle Long Cable mode ON/OFF should the length of the cable run impact transmission quality.

If compatibility or transmission issues arise during installation, check the settings on your connected devices and adjust the DIP settings as required.

**ATTENTION** Changes to DIP settings become effective upon powering ON the units. Changes to settings should be made with all devices OFF, ideally with all power cables and HDMI leads and UTP cables removed to guard against electrostatic build up that may damage your system.

**DO NOT HOTSWAP** your cables when changing DIP SETTINGS.

**ATTENTION** Make sure switches are set to DEFAULT for initial installation.

**Remove all cables and power supply for switch changes to take effect. Switch settings become active on re-boot.**



Default factory settings are all three switches set to the **OFF/UP** position. Please ensure switch is set to this position on initial connection.

### TRANSMITTER



#### 1080P Stereo audio

TRANSMITTER set to 1080P video and embedded stereo audio



#### 1080P 5.1 audio

TRANSMITTER set to 1080P video and embedded 5.1CH audio



#### 1080P 7.1 audio

TRANSMITTER set to 1080P video and embedded 7.1CH audio



#### EDID auto copy

Automatically copies EDID from the DISPLAY connected to the RECEIVER to the HDMI INPUT port of the TRANSMITTER to encourage EDID compatibility between SOURCE and DISPLAY.

### RECEIVER



#### Normal Mode (8 bit colour depth)

Colour depth limited to 8 bit



#### Long Cable Mode (8 bit colour depth)

If experiencing poor picture quality when using a long cable run or lower quality UTP/HDMI Cable, LC mode setting can improve picture quality



#### Normal Mode (DISPLAY colour depth)

Colour depth decided by DISPLAY - mirrors display colour depth





#### **Long Cable Mode (DISPLAY colour depth)**

As with 8 bit LC mode, but colour depth is decided by DISPLAY - mirrors DISPLAY colour depth when improving picture quality over long cable runs or when using lower quality UTP/HDMI cable.

**NOTE** For ease of installation and convenience on site, we have printed the **DIP SETTINGS** for both Transmitter and Receiver on the base of the units.

## Troubleshooting

Generally, the majority of HD distribution installation issues are either caused by minor connection errors, communication problems between devices, or when the transmission of high signal bandwidth is attempted using insufficient cable. Should you encounter any technical difficulties when installing and configuring the equipment, we are confident solutions can be found by working through the following troubleshooting checklist before seeking alternative technical support.

### **No Picture or poor quality picture**

**1) Power** – Is the coax transmitter and display receiver powered both ends? Transmitters and receivers should have their own power source i.e. the 5v power adaptors included with your units. Are all sources definitely powered and firmly connected?

**2)** It is highly recommended to always use test equipment prior to installation and to troubleshoot any problems.

**3) Distance** – Is your cable too long for the signal to be transmitted effectively? This extender set allows transmission of 1080p up to 50m (164ft) so make sure you cable distance matches your requirements and is well within the maximum transmission distance of the signal.

**Note:** If you are approaching the limits of the transmission capabilities, you will need to use an additional WyreStorm Extender set for the signal to transmit effectively.

**4) Cable joins?** Joins in your cable run can impact on signal strength, resulting in reduced transmission that may manifest itself in poor picture quality or a complete lack of picture.

**5) Signal Reduction** – Are you using stranded patch leads as interconnects between patch panels or wall outlets? Such use reduces signal strength – we recommend solid core straight through connections to be used wherever possible.

**6) Resolution** – If you reduce the resolution of the source, do you get a picture? If so, this suggests a discrepancy between source and display resolution or a bandwidth capacity issue with your cable. Check that your inputs and outputs share the same resolution and that the signal is being successfully transmitted along your cable run.

**7) Correct connection** – It may seem obvious but double check all Coax, HDMI, power and IR cables are connected to the correct ports. Note: Even a fraction off can be the difference between a perfect picture and a blank screen. Double check all connections are firmly made in the correct ports.

**8)** Use a high specification solid policeman cable. Refrain from using CCA or stranded cables.

**9) Electrical interference** – Coaxial transmission is susceptible to interference compared to regular transmissions so the location of cables and devices should be considered - could any form of interference be generated? If so, attempt to remove the source of electrical interference or move the cable run to decrease the effects of the interference.

**10) Do you get a picture if you connect the source directly to the display?** If not then the problem could lie with the input or output device rather than the means of distribution i.e. the cable or matrix itself.

**11) HDMI lead condition and quality** – HDMI cables and connectors are delicate and can be easily damaged. Furthermore, lead quality varies dramatically, particularly in lower price brackets. Swap your HDMI leads for high speed rated HDMI cables and check operation. If in doubt, replace them. Always take care inserting and extracting your HDMI cables. Keep cables lengths as short as possible.

**12) Picture snow/HD 'noise'** – represents a poorly established signal that may be caused by poor quality terminations or excessive cable lengths. Try swapping the display adaptors from a location you know is functioning properly or swapping the outputs of the matrix switch used. If the problem remains on the same screen this may

be caused by a connection problem between transmitter and receiver – turn off all equipment and swap the signal carrying cables at both ends to ascertain if the cable or termination is at fault. Breaks in the lines of transmission e.g patch panels, wall outlets, stranded cable use or excessive cable length are likely to reduce stability and range.

**13) Blu-ray: Deep color** – Deep color and 3D is not supported by this product.

**14) color distortion** – a pink or green screen indicates an incompatibility between color spacing formats – the commonly used RGB or YUV used by older displays. Some sources allow switching between RGB and YUV which may solve any color problems. If not, try changing the HDMI cable between the source and the matrix to rule out defective cabling.

**Audio is transmitted within the video signal – there is no separate audio track – so generally a problem with sound will be accompanied by a problem with picture. However, if technical issues with audio are experienced, the cause is typically communication between sources, displays and/or AV receiver settings.**

## No sound or poor quality audio

**1) If using an AV receiver, check your source input assignment** – do you have specific speaker sets or zones enabled? Some AV receivers allow individual speaker selections assigned to specific zones in the set up so check the speakers used are fully connected to the amplifier and correctly assigned within the system set up.

**Note:** If you experience problems when an AV receiver is used, the cause is usually the settings of the AVR itself. Refer to the AVR manufacturer's guidelines on the correct settings to use for your requirements.

**2) Consistency of audio output between devices** – Is there any discrepancy between the audio output of the source, the audio or zonal settings of the AV receiver and the speaker configuration used needed for successful audio replication? If you are outputting 5.1, make sure all devices connected are also outputting 5.1.

**Note:** Occasionally with some sources, the device settings allow the specification of audio output through a TV or an HDMI port. If using an AV receiver, check the HDMI output option is selected.

**3) Do all the local sources work through the AV receiver?** Check the operation of each source individually.

## Bandwidth

1) If using a graphics-based source (such as a PC/Mac/ media server), make sure the source resolution is set to a maximum of 1080p, 60Hz. Higher resolutions available for graphics-based systems require higher bandwidth that may affect transmission of signals as well as incompatibility with devices.

## IR

**1) Check you are using emitters at the transmitter end and receivers at the receiver end** – are they connected to the correct ports on the units.

**2) Is the emitter correctly positioned on the source?**

Fix the emitter directly over the infrared sensor of the source and attach using the adhesive backing. Note: Locate the infrared source sensor by using a flashlight to find the small sensor within the fascia of the source display. If necessary, secure the emitter over the sensor with a small amount of contact adhesive.

**3) Is your remote powered and sending a signal?**

**Note:** IR is invisible to the naked eye, so use a digital camera/ phone camera to check the remote signal – point the camera at the remote control when pressing a button. You should see the remote transmitter flashing to indicate a signal being sent. Replace batteries if flashing is not seen on the digital camera screen.

**4) IR dropout issues** can be due to exterior influences emitting infrared radiation that can interrupt IR signals. Ensure emitters and receivers are away from the following causes of IR interference.

- Direct sunlight
- Halogen lighting
- Plasma screens

**5) Are you using WyreStorm emitters and receivers?**

The use of third party products/magic eyes may not be compatible. Always use WyreStorm components included with your purchase or check compatibility of third party control systems with your WyreStorm dealer.

**6) If problems persist**, swap out the IR emitters and receivers to rule out faults with the units themselves. Use



emitters you know are fully operational to test working condition.

## FAQ's

**5e or 6?** While our equipment is tested and graded to Cat5e cable standard; tests have shown that better results are achieved when using Cat6 cable. The lower gauge, thicker policeman cores ensure higher signal transfer rates. Newly installed cabling should always conform to Local Regulations and should be terminated to 568B standard.

**How far can the signal travel?** Under recommended transmission conditions our HD receivers will operate at 50, 70 or 100m (@1080p) depending on the model used. Recommended conditions mean no electrical interference, straight cable runs with no bends or kinks and no patch panels or wall outlets.

If some of the above are factors in your installation then signal strength and bandwidth can be compromised. 10% loss or reduction in performance should be considered. If a cable run is reaching the upper limit of the receivers' capabilities, then the signal can be boosted by way of another Coax, or any other WyreStorm HDMI extender product (such as HDBaseT). Our transmission signals can be repeated up to 7 times (490m) using HDBaseT technology.

**How do I control the sources?** Most of our HDMI distribution products support some kind of IR pass-through from point-to-point extender sets and HDBaseT matrices. Most of the range now supports wideband IR meaning it is compatible with most IR devices available on the market. Our HDBaseT matrix range (Cat5e/6) has IR pass-through from each of the outputs and has discrete IR outputs at the switch end, meaning you can have multiple identical sources yet the IR would be routed only to the applicable source.

**Are WyreStorm products compatible with high speed HDMI cables?** Due to the continuously evolving nature of the technology, HDMI Licensing LLC have now decided to simplify terminology by testing and referring to cable in terms of STANDARD or HIGH-SPEED rather than in generations 1.3, 1.4 etc. WyreStorm recommends HIGH-SPEED (or "category 2") HDMI cables that have been tested to perform at speeds of 340Mhz or up to 10.2Gbps, which is the highest bandwidth currently utilised over an HDMI cable and

can successfully handle 1080p signals including those at increased color depths and/or increased refresh rates from the source. HDMI version support will be stated in product features/specification so please check website, technical documents or manuals if unsure of compatibility.

## Maintenance

Clean this unit with a soft, dry cloth only. Never use alcohol, paint thinner or other harsh chemicals.

## Provided Service

Clean this unit with a soft, dry cloth only. Never use alcohol, paint thinner or other harsh chemicals.

- 1. Damage requiring service:** This unit should be serviced by a qualified service personnel if:
  - The DC power supply or AC adaptor has been damaged.
  - Objects or liquid 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 authorised servicing personnel.
- 3. Replacement Parts:** When parts need replacing, ensure parts approved by the manufacturer are used – either those specified by the manufacturer or parts possessing the same characteristics as the original parts. Be aware – unauthorised substitutes may result in fire, electric shock, or other hazards and will invalidate your warranty.
- 4. Safety Check:** After repairs or service, ask the service personnel to perform safety checks to confirm the unit is in proper working condition.

## Mail-in-Service

When shipping the unit, carefully pack and send it prepaid, with adequate insurance and preferably in the original packaging. Please include a document or letter detailing the reason for return and include a daytime telephone number and/or email address where you can be contacted.

If repair is required during the limited warranty period, the purchaser will be required to provide a sales receipt or other proof of purchase, indicating date and location of purchase as well as the price paid for the product. The customer will be charged for the repair of any unit received unless such information is provided.

## Warranty

Should you feel your product does not function adequately due to defects in materials or workmanship, we (referred to as “the warrantor”) will, for the length of the period indicated below (starting from the original date of purchase) either:

- a) Repair the product with new or refurbished parts. or
- b) Replace it with a new or refurbished product.

### Limited warranty period:

All WyreStorm Express products are covered by a 1 year PARTS and labor warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of product if necessary. The decision to repair or replace will be made by the warrantor. The purchaser must mail-in the product during the warranty period.

This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferable to subsequent owners, even during the warranty period.

A purchase receipt or other proof of original purchase date is required for the 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 damage that occurs in shipment or failures caused by products not supplied by the warrantor, failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, incorrect installation, set-up adjustment, implementation of/to consumer controls, improper maintenance, power line surge, lightening damage, modification, service by anyone other than a manufacturer-approved service center or factory-authorized personnel, or damage 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 damage resulting from the use of this product or arising out of any breach of this warranty.**

For example: damages for lost time, the cost of having a person/persons remove or re-install previously installed equipment, travel to and from service location, loss of or damage to media, images, data or other recorded/stored content. The items listed here are not exclusive, but are for illustration only.

**3. Parts and service not covered by this limited warranty are not the responsibility of the warrantor and should be considered the responsibility of the individual.**

# Installation Notes

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## **WyreStorm Offices**

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WyreStorm reserves the right to change product specifications, dimensions or appearance at any time.