



User Manual

ATLONA

**16x16 HDMI MATRIX SWITCH WITH
16 X CAT5/6 RECEIVERS INCLUDED
AT-PROHD1616M-SR**



AT-PROHD1616M-S



AT-PROHD1616M-R

TABLE OF CONTENTS

1. Introduction	.....	3
2. Package Contents	.....	3
3. Features	.....	3
4. Specification	.....	4
5. Panel Description	.....	4
5.1 Main Unit	.....	4
5.1.1. Front Panel	.....	4
5.1.2. Rear Panel	.....	5
5.2 HDMI Receiver	.....	5
6. Connection and Operation	.....	6
7. LCD Display	.....	6
7.1. Main Menu	.....	7
7.2. Switch Menu	.....	7
7.3. Preview Menu	.....	7
7.4. Observe Menu	.....	8
7.5. Save Menu	.....	8
7.6. Setting Menu	.....	8
7.6.1. EDID menu	.....	8
7.6.2. Long Cable Mode	.....	10
7.6.3. IR Mode	.....	10
7.6.4. EQ Mode	.....	10
7.6.5. RST Mode	.....	11
7.7. Info Menu	.....	11
8. IR Remote Control	.....	11
8.1. RS232 Control	.....	12
8.2. RS232 Cable Wiring	.....	13
9. F.A.Q.	.....	13
10. Safety Information	.....	14
11. Warranty	.....	15
12. Atlona Product Registration	.....	16

INTRODUCTION

Atlona Technologies' AT-PROHD1616M-SR is a 16x16 HDMI Matrix Switcher over Twisted Pair designed to work as a switcher for multiple Audio/Video sources and displays. The Atlona unit is capable of switching HDMI signals between sixteen sources (such as: BluRay players, HD set top boxes, game systems, etc.) and sixteen displays. Because it is a matrix switch, any or all of the 16 inputs can simultaneously be switched to any or all of the outputs. Along with supporting HDMI 1.3 and HDCP compliance, the switcher will support high definition video in multiple resolutions of up to 1080p or 1920x1200. Six switching modes are available including a front panel touch screen, local IR, IR call back from remote locations, RS232, RS485 and a TCP/IP LAN connection. The AT-PROHD1616M is capable of routing IR signals from remote locations to the main location where the switcher is. The IR emitters/receivers can control the switch as well as sources next to it.

The Atlona PROHD1616M-SR has 16 dual* outputs.

**Dual Output: HDMI + Dual Twisted Pair output where both are active at the same time. Each output could be connected to either 2 displays or AVR and a Display; however the signal from both outputs will be identical.*

PACKAGE CONTENTS:

- AT-PROHD1616M-SR (main switch)
- 16 x AT-PROHD-REC (CAT5/6/7 receivers)
- 16 x 5V DC Power Supply (110/240v universal) – for receivers
- 1 x 12V DC Power Supply (110/240v universal) – for the main switch
- 1 x IR Remote.
- 1 x IR receiver extension cable.
- 16 x IR (IR emitter cables).
- Rack Ears
- 1 x USB to RS232 adapter cable.
- Manual

FEATURES:

- HDMI 1.3b, HDCP and EDID compatible
- 16 x CAT5/6/7 receivers are included
- Allows up to 16 HDMI sources to be independently switched to 16 HDMI outputs, where each output is featured with HDMI and Twisted pair connections and both are active at the same time.
- The 16 outputs could show the same or different sources simultaneously
- Supports high definition resolutions up to 1920x1200 or 1080p
- Supports all latest HDMI audio formats including Dolby TrueHD and DTS-HD Master Audio
- Switcher is featured with an IR call back function which allows each remote location to send IR signals though CAT5/6/7 receivers back to the switch and further down to the nearby sources.
- Each CAT5/6/7 output can go up to 165ft @ 1080p on CAT5/6 cables and up to 250ft @ 1080p on the CAT7 cable (tested with Tyco wire). If more distance is required, Atlona offers CAT5/6/7 repeater units (AT-PROHD-RP) which can double the distance and allow chaining up to 6 units.
- Each input and output port is able to support HDMI or DVI signals. For DVI signals an adapter will be required.
- Six switching modes: front touch panel, local IR, IR call back from remote locations, RS232, RS485 and a TCP/IP LAN connection.
- Rack Mountable, comes with 19-inch Rack-Ears (6U)

SPECIFICATIONS:

Operating Temperature Range	-5 to +35°C (-41 to +95 °F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	12v (main unit) and 5v (receivers)
Video Format Supported	HDTV: 480i/480p/576p/720p/1080i/1080p (50/60Hz) Computer: up to 1920x1200
Audio Format Supported	All latest HDMI audio formats including Dolby TrueHD and DTS-HD
HDMI Standard	HDMI 1.3c
Maximum Output Distance (HDM out)	55ft (16m)
Maximum Output Distance RJ45 outputs	165ft (50m) @ 1080p on CAT5/6 cables and Up to 250ft (80m) @ 1080p on the CAT7 cable (Tested with Tyco wire)
Power Consumption	60watts (Max)
Dimensions (inch)	17.32" W x 13.78" H x 15.35" D – 6U
Main Unit Weight/Receiver	44.1LB/0.3LB (20kg)/(0.1kg)

PANEL DESCRIPTION

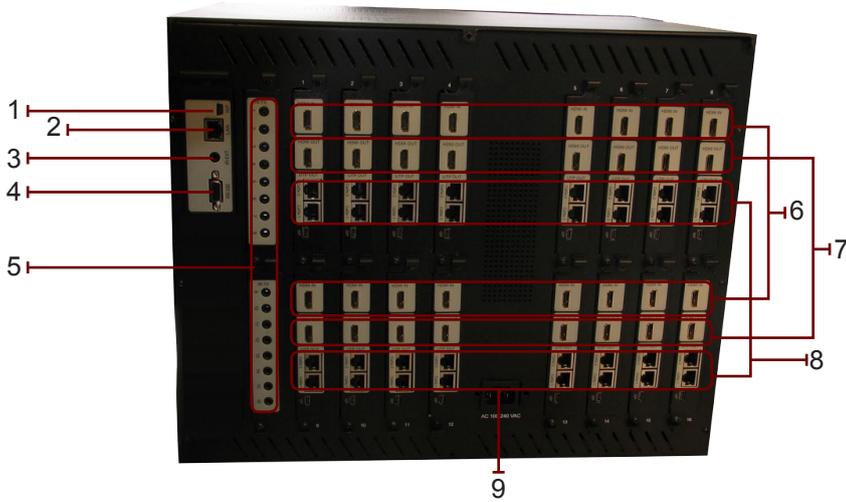
Main Unit

1. Front Panel



- 1. Touch Panel
- 2. Function Panel Buttons
- 3. Keypad
- 4. IR Receiver
- 5. Power Switch

2. Rear Panel



- | | |
|-----------------------|----------------------|
| 1. ISP Port (Service) | 6. HDMI Input Ports |
| 2. LAN port | 7. HDMI Output Ports |
| 3. IR Extensions | 8. UTP Output Ports |
| 4. RS232 Port | 9. Power Input |
| 5. IR Transmitters | |

*Note: The TCP/IP port has to be connected to the computer via direct Crosswire CAT5/6/7 wire while if connected to the router it needs to be connected through Straight wire.
 RS232 port, RS485 port and LAN port are for matrix control. The LAN port is connected to the computer via direct UTP and connected to the router via cross UTP. ISP port is only for upgrading.*

HDMI Receiver (16 x Receivers included)



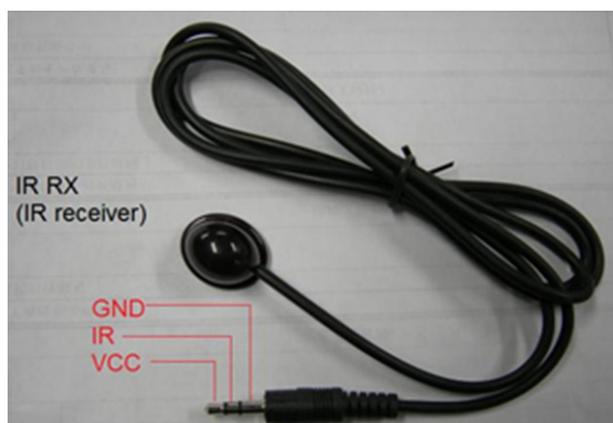
RJ45 inputs – please be careful when connecting RJ45 # 1 and # 2 inputs. They absolutely have to match the outputs on the switch. Output # 1 should be connected to Input # 1 and Output # 2 should be connected to Inputs # 2.

CONNECTION AND OPERATION

- 1) Connect the HDMI input sources (such as BluRay, PS3, AppleTV, DirecTV etc) into the inputs on AT-PROHD1616M-SR.
- 2) Connect the HDMI outputs from AT-PROHD1616M-SR (such as LCD, Plasma, LED, Projector, Monitor)
- 3) Power on the input source you want to show. (Keep the unused input power OFF, otherwise it may interfere with the normal display.)
- 4) Use IR remote, front panel, RS232, TCP/IP or RS485 connections to choose desired input source.
- 5) IR calls back from remote locations allows controlling the matrix switch as well as nearby sources (such as BluRay, AppleTV, Satellite, Cable and etc...).
- 6) Instruction on IR Emitter.

The sequence of "IR1, IR2, IR3, IR4, IR5, IR6, IR7, IR8, etc." one-to-one correspond with "HDMI Inputs 1~16". When an output chooses certain input, the call-back IR signal of RJ45 on this output will choose the corresponding "IR" port to send the signal out.

For example, OUTPUT#1 chooses INPUT#3, then the call-back IR signal of RJ45 on OUTPUT#1 will choose "IR 3" to send the signal out.



Note: For better functionality of the IR, we suggest to place the IR receiver Eye at the IR Eye of the controlling source.

LCD DISPLAY

If the touch screen becomes insensitive, calibration is required

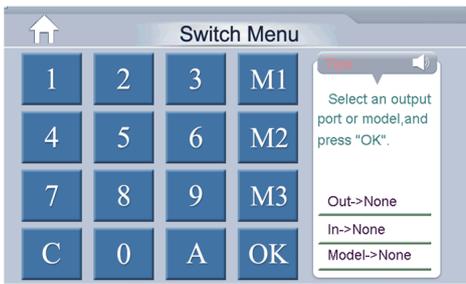
Press the panel button "Setting" in the home menu status, holding until the following prompt appears (about 4s). Press the symbol's center, until the one disappears and another symbol appears, and press its center again until the end of the calibration—OK or Failure. If the calibration failed, please confirm whether the symbol's center was aligned, then try again. After calibration is finished, press the panel button "Setting", holding until exit the calibration menu (about 4s)

Operations on Touch panel

7.1. Main Menu



7.2. Switch Menu



TYPE A:

Step A.1: Select an output port or 'A', and press "OK",

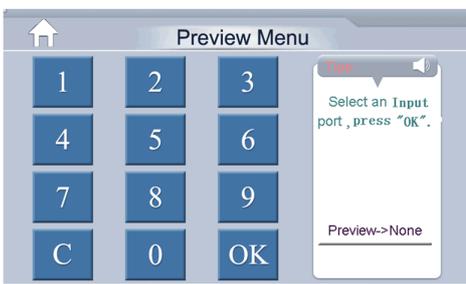
Step A.2: Select an input source, and press "OK".

TYPE B:

Step B.1: Select a memory, and press "OK".

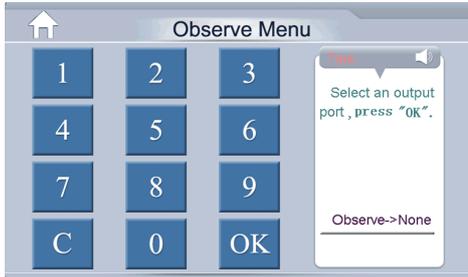
A - Stands for All and **M** – Stand for Memory; **C** - Stand for Clear

7.3. Preview Menu



Step: Select an Input port, and press "OK"

7.4. Observe Menu



Step: Select an output port, and press “OK”

7.5. Save Menu

Step: Select a save model, and press “OK”.

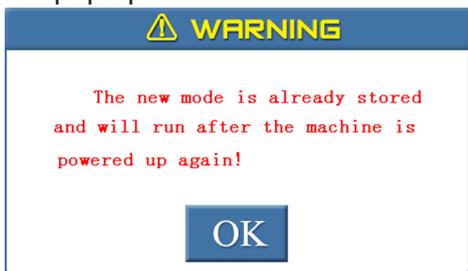
7.6. Settings Menu

There are 5 sub-menus here: EDID/LC/IR/EQ/RST.



7.6.1. EDID menu

There are 6 mode provided. When select a different mode, and press “OK”, the following warning box will pop up:



The mode selected will be effective after next power-on.

EDID mode details:

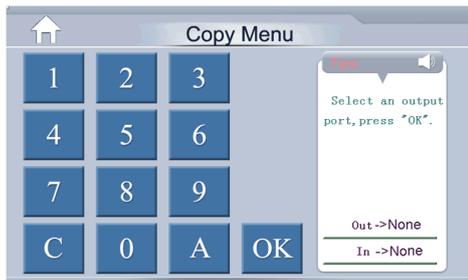
Index	EDID Mode	Details	Remark
1	Full Copy	Copy HDMI output's edid to the specified input port	Mode #1
2	Limited Copy	Limited copy HDMI output's edid to the specified input port	Mode #2
3	Fixed 1080P-2CH	Fixed EDID--1080P stereo	Mode #3
4	Fixed 1080P-6CH	Fixed EDID--1080P 5.1Audio	Mode #4
5	Fixed 1080P-8CH	Fixed EDID--1080P 7.1Audio	Mode #5
6	Fixed 1080i-2CH	Fixed EDID—1080i stereo	Mode #6

NOTE:

Mode # 1

If one of your Output devices is a projector or a display with a unique resolution your sources/source which are connected to the switch might not send out a proper video format which will result image to intermit or signal not show up on the display. Therefore our switcher is featured with EDID learning function which allows to copy Output Data and embed it on the input. This will trick the source to think that it is connected to the output directly rather than through the switch.

When this mode is effective, press "CPY", select the output port and input port. For example, if you want to copy EDID from an output # 4 to an input # 6, you would press #4→OK→#6→OK



Mode # 2

This function is very similar to Mode # 1; however it is designed for users who have very long CAT5/6/7 cables and signal is going in and out. This DIP Switch setting will replace some of the hdmi control signals with video, which will allow picture to stabilize.

Mode # 3

Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080P with Stereo Audio.

Mode # 4

Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080P with 5.1 Digital Audio.

Mode # 5

Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080P with 7.1 Digital Audio.

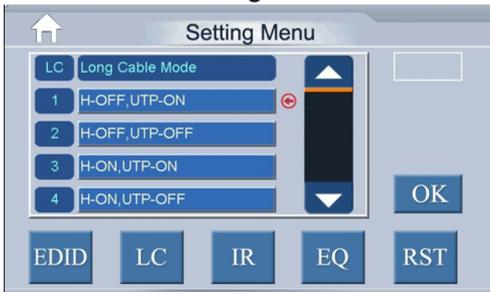
Mode # 6

Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080i with Stereo Audio. This mode is recommended if some of the displays connected to the output of the switcher are only able to support 1080i/720p. If user still wants the highest possible resolution to be sent from the source even if the display doesn't support it, Atlona makes a great down-scaler AT-HD550 which will down-scale any input resolution such as 1080p to 720p or 1080i

7.6.2. Long Cable Mode

This function is designed for users who are using long HDMI and or Long CAT5/6/7 Cables and the video is not stable or has a lot of static. We do suggest to enable the Long Cable Mode.

There are 4 modes in Long Cable menu.



Index	Long cable mode	Details
1	H-OFF, UTP-ON	HDMI Long Cable mode OFF; CAT5/6 mode ON (Default)
2	H-OFF, UTP-OFF	HDMI Long Cable mode OFF; CAT5/6 mode OFF
3	H-ON, UTP-ON	HDMI Long Cable mode ON; CAT5/6 mode ON
4	H-ON, UTP-OFF	HDMI Long Cable mode ON; CAT5/6 mode OFF

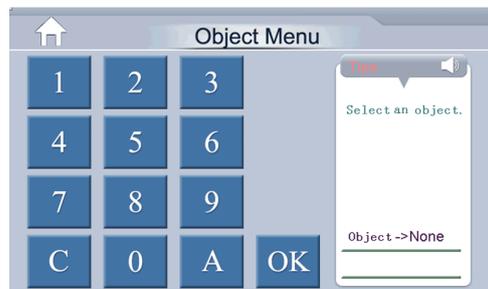
7.6.3. IR Mode

The Atlona AT-PROHD1616M-SR is featured with an ability of transferring IR signal from a remote location (for example Bedroom) to a main switch, which allows users to control the switcher and the devices next to it via IR. This mode could be Turned ON or Turned OFF. The ON mode is default.



7.6.4. EQ Mode

This mode is designed to adjust Equalization of the HDMI output. If the HDMI output is showing static or signal is over modulated (red/green colors are mixed), this EQ needs to be adjusted. Please do not use it unless you understand how this mode works.

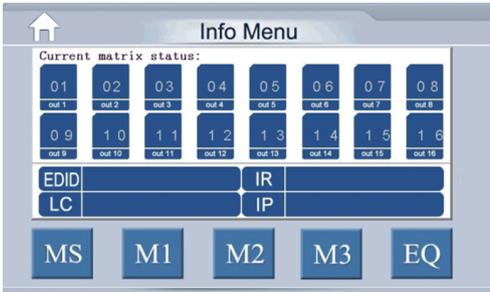


Index	Setting details	Index	Setting details	Index	Setting details	Index	Setting details
1	0db/0db (default)	9	16db/0db	17	23db/0db	25	26db/0db
2	0db/-3db	10	16db/-3db	18	23db/-3db	26	26db/-3db
3	0db/-6db	11	16db/-6db	19	23db/-6db	27	26db/-6db
4	0db/-9db	12	16db/-9db	20	23db/-9db	28	26db/-9db
5	10db/0db	13	19db/0db	21	25db/0db	29	27db/0db
6	10db/-3db	14	19db/-3db	22	25db/-3db	30	27db/-3db
7	10db/-6db	15	19db/-6db	23	25db/-6db	31	27db/-6db
8	10db/-9db	16	19db/-9db	24	25db/-9db	32	27db/-9db

7.6.5. RST Mode

Press “RST”, all of the settings will be reset to original manufacture default.

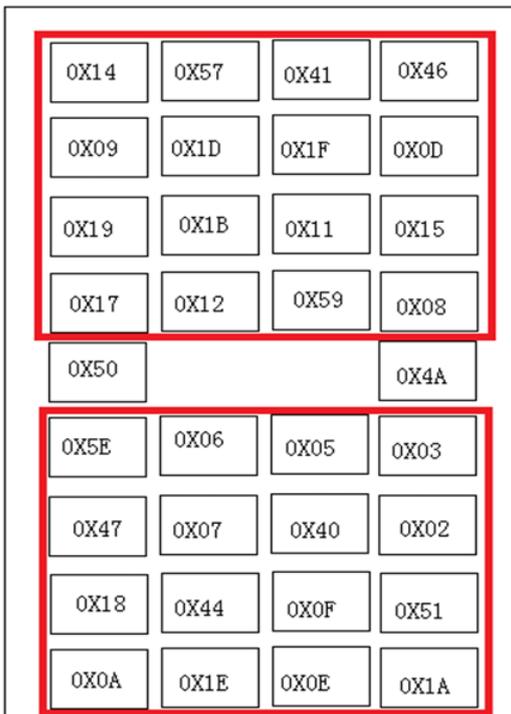
7.7. Info Menu



Press “MS”-----View the current status of matrix switcher

Press “M1, 2, 3”-----View the pre-existing Memory #1, 2, 3

IR REMOTE CONTROL



⇒ **OUTPUTS**

⇒ **INPUTS**

The AT-PROHD1616M-SR comes with an IR remote control, which could be used to control the switcher when pointing at it or controlling the switcher from a remote location by pointing the remote control to the IR Eye connected to the HDMI receiver.

For users who would like to use a 3rd party IR remote control or IR remote system, we recommend either learning IR codes off the remote or copying and pasting the IR HEX code into the remote control software. The file with HEX codes could be found on Atlona website under downloads for AT-PROHD1616M-SR.

There are 2 scenarios which codes to use:

- User will need to learn all 32 x codes in order to control each location when pointing at the switcher
- User will only need to learn 16 x codes if there will be a separate remote for each remote location

Note: The switcher can only accept and route IR signal which doesn't exceed 38 KHz. In other words, if you are trying to send IR signal from the remote location through HDMI receiver and the IR signal is higher than 38 KHz, the IR signal will not pass through.

VERY IMPORTANT:

When connecting IR receivers and IR emitters, be very careful as if they are reversed the IR Eye will burn-out and also may damage the IR module inside of the switch and Receiver.



TX – Connects to the Switch
RX – Connects to the HDMI Receivers

RS232 Control:

Baud Rate: 9600 bps
Data bits: 8 bits
Parity: None
Stop bits: 1 bit
Flow control: None

RS232 Cable Wiring:

AT-PROHD1616M-SR			Controller	
Pin	Definition		Pin	Definition
1	NC		1	NC
2	Tx	→	2	Rx
3	Rx		3	Tx
4	NC		4	NC
5	GND	←	5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

PLEASE DOWNLOAD RS232 COMMANDS FROM ATLONA WEBSITE

F.A.Q.

Question: Some of my sources are not HDMI, how can I have them all routed though this switch?

Answer: Atlona offers a wide range of scalers and converters for converting: Composite, S-Video, Component, VGA, DVI, HDSDI to HDMI

Question: What type of cable do you suggest I use for connecting the matrix switch to the HDMI receiver?

Answer: CAT7 would be the best, then CAT6, and then CAT5e and the last would be CAT5

Question: How do I terminate the RJ45 cable?

Answer: We strongly suggest terminating your RJ45 cables 568B for the best performance4.

Question: On one of the TV's the signal is going in and out; however it is able to support as high of resolutions as other TV's

Answer: We recommend illuminating RJ45 wall plates and patch panels and connect the output of the switch directly with the receiver. b) Also, we suggest checking the termination of the wire with RJ45 tested, all 8 wires have to work. c) HDMI receiver is not plugged in to the power outlet. d) Try another input on the TV.

Question: The audio which comes into the Audio receiver is only Stereo or PCM

Answer: Please check EDID configuration page, as it fully explains the audio works.

Question: I have a universal remote control and I would like to program this switcher into it.

Answer: Under the download page on Atlona website you would be able to find IR codes in HEX format which you use to program your remote control or you can also learn the commands.

Question: When using local HDMI outputs the signal is going in and out; however when connecting displays though CAT5/6 receivers everything is fine.

Answer: Our switcher has priority set on CAT5/6 outputs and some sources require priority to be changed in order to work properly. Please refer to the Long Cable operation menu previously discussed in the manual.

SAFETY INFORMATION

Safeguards

To reduce the risk of electric shock, do not expose this product to rain or moisture.

If the wall plug does not fit into your local power socket, hire an electrician to replace your obsolete socket.

Do not modify the wall plug. Doing so will void the warranty and safety features.

This equipment should be installed near the socket outlet and the device should be easily accessible in case it requires disconnection.

Precautions

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Operate this product using only the included external power supply. Use of other power supplies could impair performance, damage the product or cause fires.

In the event of an electrostatic discharge, this device may automatically turn off. If this occurs, unplug the device, and plug it back in.

Protect and route power cords so they will not be stepped on or pinched by anything placed on or against them. Be especially careful of plug-ins, or cord exit points from this product.

Avoid excessive humidity, sudden temperature changes or temperature extremes.

Keep this product away from wet locations such as bathtubs, sinks, laundries, wet basements and swimming pools.

Use only accessories recommended by ATLONA to avoid fire, shock or other hazards.

Unplug the product before cleaning. Use a damp cloth for cleaning. Do not use cleaning fluid or aerosols, which could enter the unit and cause damage, fire or electrical shock. Some substances may also mar the finish of the product.

Never open or remove unit panels or make any adjustments not described in this manual. Attempting to do so could expose you to dangerous electrical shock or other hazards. It may also cause damage to your AT-PROHD1616M-SR. Opening the product will void the warranty.

Do not attempt to service the unit. Instead disconnect it and contact your Authorized ATLONA reseller or contact ATLONA directly.

1. LIMITED WARRANTY

Atlona Technologies warrants that (a) its products (the "Product") will perform substantially in accordance with the accompanying written materials for a period of 3 YEARS from the date of receipt and (b) that the Product will be free from defects in materials and workmanship under normal use and service for a period of 3 years. In the event applicable law imposes any implied warranties, the implied warranty period is limited to 3 years from the date of receipt. Some jurisdictions do not allow such limitations on duration of an implied warranty, so the above limitation may not apply to Customer.

2. CUSTOMER REMEDIES

Atlona Technologies and its suppliers' entire liability and Customer's exclusive remedy shall be, at Atlona Technologies' option, either return of the price paid for the Product, or repair or replacement of the Product that does not meet this Limited Warranty and which is returned to Atlona Technologies with a copy of Customer's receipt. This Limited Warranty is void if failure of the Product has resulted from accident, abuse, or misapplication. Any replacement Product will be warranted for the remainder of the original warranty period or 3 year, whichever is longer.

3. NO OTHER WARRANTIES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ATLONA TECHNOLOGIES AND ITS SUPPLIERS DISCLAIM ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE PRODUCT AND ANY RELATED WRITTEN MATERIALS. THIS LIMITED WARRANTY GIVES CUSTOMER SPECIFIC LEGAL RIGHTS. CUSTOMER MAY HAVE OTHER RIGHTS DEPENDING ON THE JURISDICTION.

4. NO LIABILITY FOR DAMAGES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL ATLONA TECHNOLOGIES OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES FOR PERSONAL INJURY, LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT, EVEN IF ATLONA TECHNOLOGIES HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY CASE, ATLONA TECHNOLOGIES' AND ITS SUPPLIERS' ENTIRE LIABILITY UNDER ANY PROVISION OF THIS AGREEMENT SHALL BE LIMITED TO THE AMOUNT ACTUALLY PAID BY YOU FOR THE PRODUCT. BECAUSE SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

ATLONA PRODUCT REGISTRATION

Thank you for purchasing this Atlona product — we hope you'll enjoy it.

We also hope that you'll take a few moments to register your new purchase. Registration creates an ownership record if your product is lost or stolen and helps ensure you'll receive notification of performance issues and firmware updates.

At Atlona, we respect and protect your privacy and assure you that your registration information is completely secure. Of course, Atlona product registration is totally voluntary and failure to register will not diminish your limited warranty rights.

To register go to www.atlona.com/registration