User Manual

4x4 HDMI matrix Switch with 4 x CAT5 Receivers included
AT-PROHD44M-SR

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USA
★★★★★
SINCE
2003

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INTRODUCTION

Atlona Technologies' AT-PROHD44M-SR is a 4x4 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 four sources (such as: Blue-Ray player, HD DVD player, satellite receiver, game system, etc.) and eight displays. Because it is a matrix switch, any or all of the 4 inputs can simultaneously be switched to any or all of the outputs. Along with supporting HDMI 1.3 and HDCP Compliance, switcher will support high definition video in multiple resolutions of up to 1080p or 1920x1200. Five switching modes are available including front panel buttons, local IR, IR call back from remote locations, RS485 and TCP/IP. The PROHD44 is capable of routing IR signal 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 PROHD44M-SR has 4 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-PROHD44M-SR (main switch)
- 4 x AT-PROHD-REC (CAT5/6/7 receivers)
- 4 x 5 VDC Power Supply (110/240v universal) – for receivers
- 1 x 12V DC Power Supply (110/240v universal) – for the main switch
- 1 x IR Remote.
- 1x IR receiver extension cable.
- 4x IR (IR emitter cables).
- Rack Ears
- 1 x USB to RS232 adapter cable.
- Manual HDMI MATRIX 4:4:2AT-PROHD44M-SR

FEATURES

- HDMI 1.3b, HDCP and EDID compatible
- 4 x CAT5/6/7 receivers are included
- Allows up to four HDMI sources to be independently switched to eight HDMI outputs, where each output is featured with HDMI and Twisted pair connections and both are active at the same time.
- The four outputs could show the same or different source simultaneously
- Supports high definition resolutions up to 1920x1200 or 1080p
- Supports all latest HDMI audio formats including Dolby TrueHD and DTS-HD
- Switcher is featured with IR call back function which allows each remote location to send IR signal 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 (AT-PROHD-RP) unit which can double the distance and allow chain up to 6 units.
- Each input and output port is able to support HDMI or DVI signal. For DVI signal adapter will be required.
- Five switching modes: panel buttons, local IR, IR call back from remote locations, RS485 and TCP/IP.
- Rack Mountable, comes with 19-inch Rack-Ears (1U)

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: 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	30wtts (Max)
Dimensions (inch)	17.3"L×7.9"W×1.7"H – 1U
Main Unit Weight/Receiver	6.5LB/0.3LB

PANEL DESCRIPTION

Main Unit
1. Front Panel
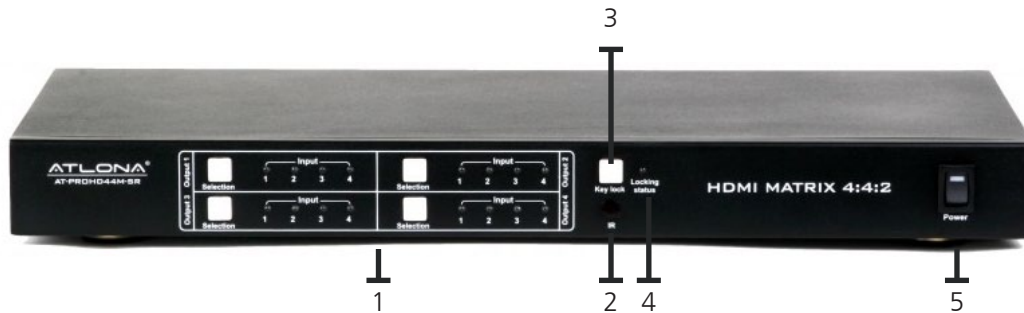
1. Output selection and indicator of input for outputs 1 to 4.
2. IR sensor for controlling the switch.
3. Key lock button, to lock the front panel buttons (it will not lock the power button).
4. Indicator of locking status: when the output selection buttons are locked, LED will illuminate.
5. ON/OFF switch.

2. Rear Panel
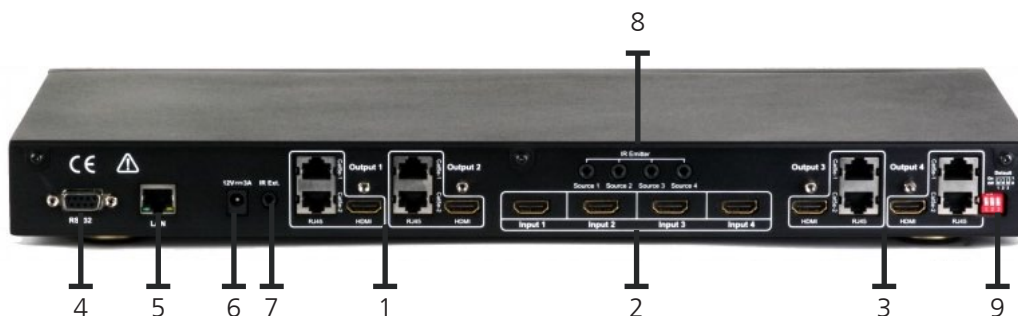
1. Outputs 1- 2 via HDMI and RJ45.
2. HDMI Inputs 1 - 4.
3. Outputs 3 - 4 via HDMI and RJ45.
4. RS485 port – comes with RS485 to RS232 adapter.
5. TCP/IP port.
6. 12v DC input.
7. IR extension for controlling the switcher from further away.
8. IR port for controlling devices located near the switch.
9. DIP Switch Selection

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 though Straight wire.

HDMI Receiver (4 x Receivers included)

Power Input

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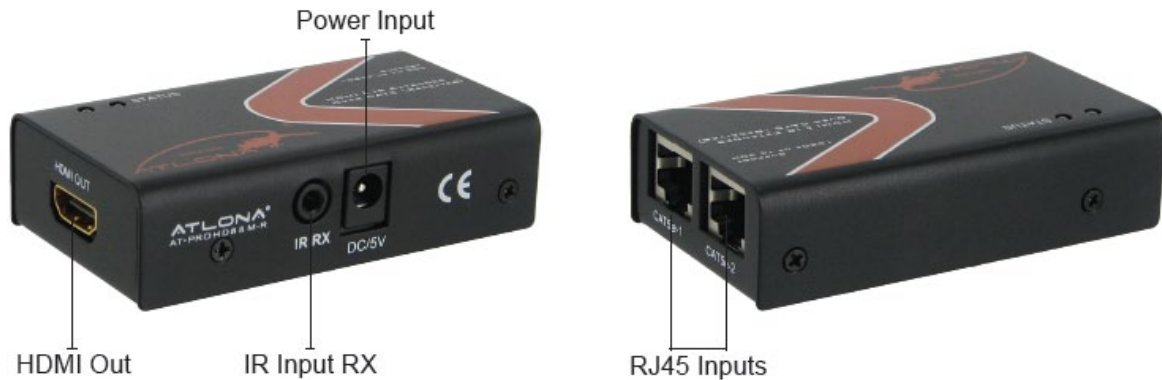
RJ45 inputs – please be careful when connecting RJ45 # 1 and # 2 inputs. They absolutely have to match the outputs on the switch. Output # 1 should be connected to Input # 1 and Output # 2 should be connected to Inputs # 2.

CONNECTION AND OPERATION

1. Connect the HDMI input sources (such as HD-DVD, PS3, AppleTV, DirecTV etc) into the inputs on AT-PROHD0408M-SR.
2. Connect the HDMI outputs from AT-PROHD0408M-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 DVD, AppleTV, Satellite, Cable and etc…).
   Note: To enable the function: press the output2 selection button and the key lock button at the same time for about 3 seconds. After all the output1 LEDs and the output2 LEDs flash once, the function is enabled.
   *Disable the function: press the output2 selection button and the key lock button at the same time for about 3 seconds. After all the output1 LEDS and the output2 LEDS flash twice, the function is disabled.
6. Instruction on IR Emitter.
   The sequence of "IR1, IR2, IR3, IR4" one-to-one correspond with "HDMI INPUTS1 through 4". 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, OUTPUT1 chooses INPUT3, then the call-back IR signal of RJ45 on OUTPUT1 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.

8. EDID Settings (PLEASE READ, IT IS VERY IMPORTANT):
The functionality of the switch will depend on how you select the DIP Switches below. Please read the instructions and explanations below to understand the purpose of different configurations.
There are four DIP switches on the back of the 4x4 matrix switcher. Below you will find the definition of each one of the dip switches.

Position ID			EDID Operational Mode
1	2	3	
OFF	OFF	OFF	AUTO EDID MANAGEMENT (DIP # 1)
OFF	OFF	ON	Record EDID (DIP # 2)
OFF	ON	OFF	Up to 1080P with Stereo Audio (DIP#3)
ON	OFF	OFF	Up to 1080P with 5.1 Audio (DIP#4)
ON	OFF	ON	Up to 1080P with 7.1 Audio (DIP#5)
OFF	ON	ON	Up to 1080i with Stereo Audio (DIP#6)

Note: 1 – ON and 0 – OFF

EACH TIME DIP SWITCHES ARE CHANGED; THE ATLONA SWITCH HAS TO POWER CYCLED.

DIP#1: Auto EDID Management (ADM) is a smart function which will allow users to have matrix switch figure out the best and most appropriate EDID.

The way it works: Atlona 8x8 matrix acquires EDID from all the outputs and after processing it, chooses the EDID which will work on all the outputs.

Example # 1: User has 8 outputs connected where 6 of the outputs are 1080P TV's only and the other 2 locations are 720P TV's. The Atlona's EDID would be 720P with 2-channel Stereo (because most TV's will only be able to take stereo audio though HDMI input).

Example # 2: User has 8 outputs connected, where 6 outputs are 1080P TV's and the remaining are 2 x Surround Sound Receivers (after connected to the TV's for video only). The Atlona's EDID would be 1080P with Stereo or PCM (because most TV's will only take Stereo Audio though HDMI input).

DIP#2: Record EDID from output port to the input port. Select the output you would like to record the EDID from and select the input you would like to record it to. Press and hold the output you wish to record the data from for # 4 seconds; the data will be recorded to the input pointed at the output you were holding. For example, when input # 1 is going to output # 3, after pressing and holding the Output # 3 button for 4 seconds, switch will record EDID from output # 3 to input # 1.

DIP#3: Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080P with Stereo Audio.

DIP#4: Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080P with 5.1 Digital Audio. This mode is designed for applications where user has AV Receivers in each remote location which are able to accept Digital Audio from HDMI inputs. If this mode is selected and in even one of the locations user has a TV without an AV receiver, the TV might "mute" or start outputting garbled audio (because most TV's don't support digital audio though HDMI input)

DIP#5: Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080P with 7.1 Digital Audio. This mode is designed for applications where user has AV Receivers in each remote location which are able to accept Digital Audio from HDMI inputs. If this mode is selected and in even one of the locations user has a TV without an AV receiver, the TV might "mute" or start outputting garbled audio (because most TV's don't support digital audio though HDMI input)

DIP#6: Atlona Switcher has a few built-in EDID modes; this mode is for resolutions up to 1080i with Stereo Audio.
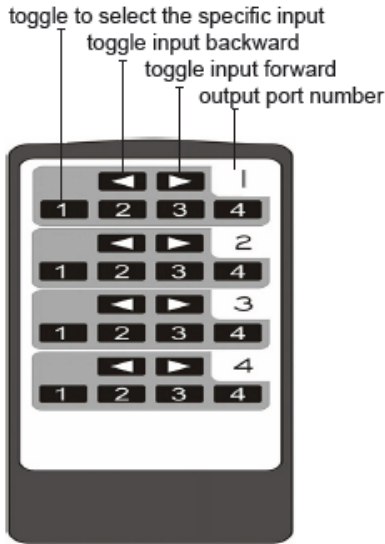
VERY IMPORTANT:
If one of your Output devices is a projector or a display with a unique resolution your sources/source which are/is connected to the switch might not send out a proper video format which will result image to intermit or signal not show up on the display.
Solution: Make sure your DIP switch configuration is either DIP # 2. Route the device in question to the output in question. Press and hold the output you wish to record the data from for # 4 seconds; the data will be recorded to the input pointed at the output you were holding. For example, when input # 1 is going to output # 3, after pressing and holding the Output # 3 button for 4 seconds, switch will record EDID from output # 3 to input # 1
Resetting back to Default: Select DIP combination # 3 and power cycle the switch

IR REMOTE CONTROL

toggle to select the specific input
toggle input backward
toggle input forward
output port number

The AT-PROHD44M-SR comes with 16 button 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 part 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-PROHD44M-SR.

There are 2 scenarios which codes to use:
• User will need to learn all 64 x codes in order to control each location when pointing at the switcher
• User will only need to learn 8 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 though out HDMI receiver and the IR signal is higher than 38 KHz, the IR signal will not pass though.

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.

IR RX
(IR receiver)

GND
IR
VCC

IR TX
(IR emitter)

Negivate
Positive

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

CONNECTION AND OPERATION

RS232 Cable Wiring:

AT-PROHD44M-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

Note: ' ↙ ' is carriage return.

OUTPUT	COMMAND	ACTION
<	cir 57 ↙	Output 1 select Input previous
>	cir 41 ↙	Output 1 select Input next
Output 1	cir 09 ↙	Output 1 select Input 1
	cir 1D ↙	Output 1 select Input 2
	cir 1F ↙	Output 1 select Input 3
	cir 0D ↙	Output 1 select Input 4
<	cir 63 ↙	Output 2 select Input previous
>	cir 62 ↙	Output 2 select Input next
Output 2	cir 19 ↙	Output 2 select Input1
	cir 1B ↙	Output 2 select Input2
	cir 11 ↙	Output 2 select Input3
	cir 15 ↙	Output 2 select Input4
<	cir 65 ↙	Output 3 select Input previous
>	cir 64 ↙	Output 3 select Input next
Output 3	cir 17 ↙	Output 3 select Input1
	cir 12 ↙	Output 3 select Input2
	cir 59 ↙	Output 3 select Input3
	cir 08 ↙	Output 3 select Input4
<	cir 67 ↙	Output 4 select Input previous
>	cir 66 ↙	Output 4 select Input next
Output 4	cir 50 ↙	Output 4 select Input1
	cir 55 ↙	Output 4 select Input2
	cir 48 ↙	Output 4 select Input3
	cir 4A ↙	Output 4 select Input4

F.A.Q.

1. **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
2. **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
3. **Question**: How do I terminate the RJ45 cable?
   Answer: We strongly suggest terminating your RJ45 cables 568B for the best performance
4. **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:
   a) 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.
5. **Question**: The audio which comes into the Audio receiver is only Stereo or PCM
   Answer: Please check EDID dip switch configuration page, as it fully explains the audio works
6. **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.
7. **Question**: When using local HDMI outputs the signal is going in and out; however when connecting displays though CAT5 receivers everything is fine.
   Answer: Our switcher has priority set on CAT5 outputs and some sources require priority to be changed in order to work properly. Please contact Atlona tech support to obtain software which will allow you to unlock the priority and change it to HDMI outputs.

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SAFETY INFORMATION

Safeguards

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

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

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

This equipment should be installed near the socket outlet and the device should be easily accessible in the 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, fish tanks, 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 and not cleaning fluid or aerosols.
Such products could enter the unit and cause damage, fire, or electric shock. Some substances may also mar the finish of the product.

Never open, 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-PROHD44M-SR. Opening the product will void the warranty.

Do not attempt to service the unit. Disconnect the product and contact your authorized Atlona reseller or contact Atlona directly.

WARRANTY

Limited Warranty

Atlona Technologies warrants that (a) its products (the AT-PROHD44M-SR) 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 customers that fall within those areas.

Customer Remedies

Atlona Technologies' and its suppliers' entire liability and Customer's exclusive remedy shall be, at Atlona Technologies' decision, either return of the price paid for the product, repair, or replacement of the product that does not meet this Limited Warranty and which is returned to Atlona Technologies with a copy of the Customer's receipt. This Limited Warranty is void if failure of the product has resulted from accident, abuse, misapplication, or natural occurrence. In example but not limited to: power surges (electrical storms, local power outage), dropping the product (or items on the product), contact with fluids, and physical misconduct (i.e. kicking or punching). Any replacement product will be warranted for the remainder of the original warranty period.

No other warranties

To the maximum extent permitted by applicable law, Atlona Technologies and its suppliers disclaim all other warranties, either expressed 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. Customers may have other rights depending on the jurisdiction.

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 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. Such damages include but are not limited to: special, incidental, consequential, or indirect damages for personal injury, loss of business profits, business interruption, loss of business information, or any other pecuniary loss. 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. Some Jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damage. The above limitations may not apply to you in such jurisdictional cases.

ATLONA PRODUCT REGISTRATION

Thank you for purchasing this Atlona product. - We hope you enjoy it and will take an extra 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, assuring you that your registration information is completely secure. Atlona product registration is completely voluntary and failure to register will not diminish your limited warranty rights.

To register go to: http://www.atlona.com/registration