

# Modular 16 x 16 Multi Format Digital Matrix



Model: **MAX-1616/AP4**



**HDBT ((HDCP))**

# User Operation Guide

## PRODUCT DESCRIPTION

The **MAX-1616/AP4** is a modular digital matrix that can support multi format input and output routing .

The modular design means that it is highly flexible making it a perfect solution for any installation. The matrix has a fast booting speed and is capable of going from powering on to fully operational (displaying all images) within 3-5 seconds.

Switching speed is also within the top end of the industry currently at < 3 seconds.

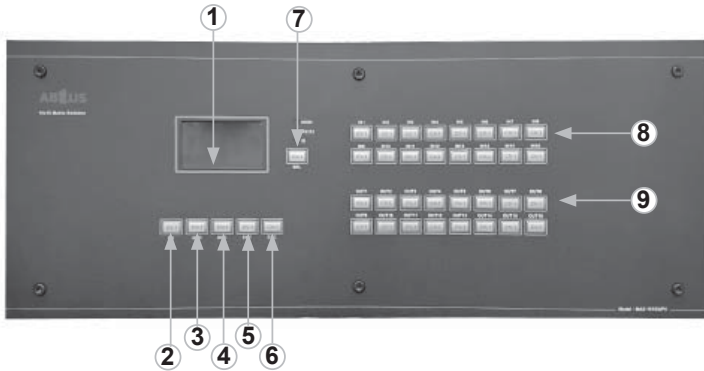
In terms of controls, the matrix has an unique bi-directional RS-232/IR routing that's useful for niche applications. Each machine can be assigned a machine ID in large scale deployment, for monitoring and control.

The MAX-1616/AP4 is compatible with HDBaseT enabled devices and supports up to 4k@60 4:2:0

## FEATURES

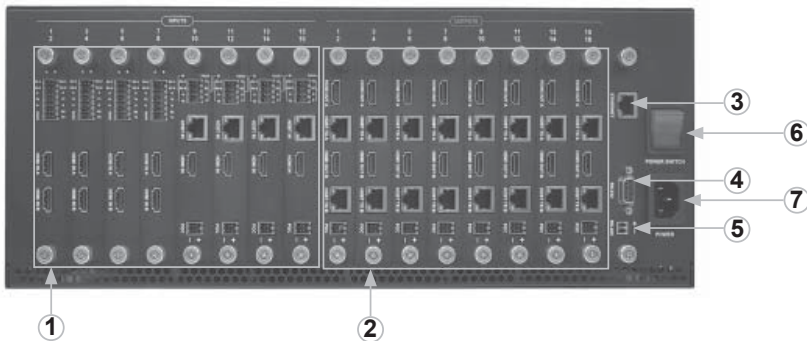
- Fast response time – < 2 seconds for channel switching
- Fast startup time – 3~5 seconds to fully operational
- Supports HDMI 2.0 Deep Color & full 3D & 4K 2K @60hz (HDBaseT technology)
- HDCP 1.4 compliant
- Supports PoC (Power over Cable) which can power all ABtUS HDBT TX & RX with power supply
- Bi-directional IR (pass-through), RS-232 and CEC signal routing
- Real time status monitoring
- Smart power management - ECO power svaing management
- Independent MCU for each I/O slot to improve perfoqmance
- HDMI jitter cleaning - Rebuilds the digital signals for transmission over longer distances
- Automatic error detection and data sychronization
- Automatically detect operating temperature and adjust fan speed for quietest performance
- Supports 7.1 channel digital audio
- Supports default HDMI EDID and learns the EDID of displays
- Controllable via Front Panel, RS-232 and Ethernet control
- Supports front panel key lock
- Supports source broadcasting
- Supports multi machine mode - Each matrix can be assigned a unique machine ID
- Easy installation with 4 RU rack-mounting

## 1. FRONT PANEL VIEW



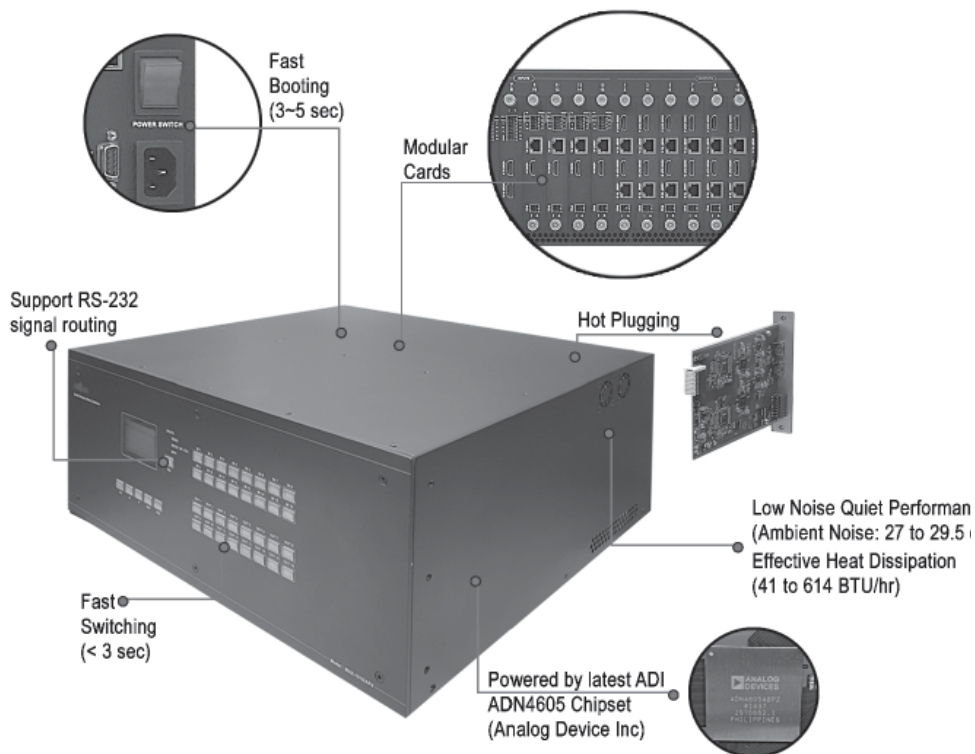
- |   |                 |                                       |
|---|-----------------|---------------------------------------|
| 1 | LCD screen      | Status screen                         |
| 2 | Function button | Toggle to switch menus                |
| 3 | Up button       | Toggle to move selections             |
| 4 | Down button     | Toggle to move selections             |
| 5 | Enter button    | Press to enter selection              |
| 6 | Escape button   | Press to exit selection/page          |
| 7 | Select button   | Toggle to selects                     |
| 8 | Input buttons   | Press to select input port            |
| 9 | Output buttons  | Press to select corresponding outputs |

## 2. BACK PANEL VIEW



- |   |                   |                               |
|---|-------------------|-------------------------------|
| 1 | Input Card Slots  | Insert input cards            |
| 2 | Output Card Slots | Insert output cards           |
| 3 | Ethernet Port     | Control the matrix via IP     |
| 4 | RS-232 Port       | Control the matrix via RS-232 |
| 5 | RS-485 Port       | Control the matrix via RS-485 |
| 6 | Power switch      | On/Off power                  |
| 7 | Power Plug        | 100-240V AC                   |

## OVERVIEW



## SYSTEM FUNCTION



### MAIN MENU

When powered on the LCD panel will show the information and the current device ID of the product.

To change the device ID. Press FN, followed by the up and down keys to select the desired ID



### MEMORY MODE

Press FN on the main menu to call out memory mode menu. This menu allow user to save or call out their desired routing configurations.

Press ENT on the memory mode menu and use the UP and DOWN keys to navigate the cursor to LOAD MEMORY or SAVE MEMORY.



Press ENT on LOAD MEMORY and use the UP and DOWN key to select the memory position.

Press ENT again to load the mapping from the selected memory



Press ENT on SAVE MEMORY and use the UP and DOWN key to select the memory position.

Press ENT again to save the current mapping into the selected memory

## SYSTEM FUNCTION



### SYSTEM CONTROL

Toggle FN on the main menu to call out SYSTEM CONTROL menu. This menu allow user to make adjustments on the EDID of every individual port, view devcie version information, adjust fan speed and turn on/off CEC controls



### EDID SETTING

Press ENT on the SYSTEM CONTROL menu and select RX EDID.

Press ENT oagain to enter EDID SETTING menu

USE the UP and DOWN keys to select and ENT to enter the desired function



### VIC MODE

Use the UP and DOWN key to move the cursor and ENT key to select the desired selection

The first selection is an user defined EDID. For more information on how to edit and save this selection please refer to the operation manual for the matrix control AP. As default, this selection will be for FHD 1080p

FHD None will set EDID to EDID passthrough  
FHD 1080p will set EDID to 1080p  
UHD 4K@30 will set EDID to 4k@30  
4k60 4:2:0 will set EDID to 4k@60 4:2:0

## SYSTEM FUNCTION



### DEEP COLOUR

Use the UP and DOWN key to move the cursor and ENT key to select the desired selection



### RECALL DDC

Use the UP and DOWN key to move the cursor and ENT key to select the desired selection



### VERSION INFORMATION

This menu shows the version information for each input/output card

Use the UP and DOWN key to move the cursor and ENT key to view the desired selection\



### FAN CONTROL

Use the UP and DOWN key to move the cursor and ENT key to select the desired fan speed.

## SYSTEM FUNCTION



### CEC CONTROL

USE the UP and DOWN keys to select and ENT to turn on/off the desired function

When turned on, a circular icon, will appear in front of the selection

Enabling CEC ON will allow the matrix to turn on the display when routing a source to CEC enabled displays

Enabling CEC OFF will allow the matrix to turn off the display when removing a source from CEC enabled displays



### MATRIX STATUS

Toggle FN on the main menu until the MATRIX STATUS screen appears

This screen will show all inputs and outputs that's currently connected

Users can use this screen to check if any slot card on the matrix has malfunctioned



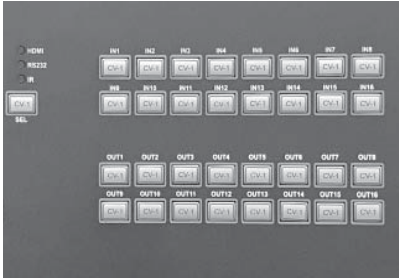
### CARD STATUS

Toggle FN on the main menu until the CARD STATUS screen appears

This screen will provide further information on each I/O, such as routing status, EDID information and etc



## SYSTEM FUNCTION



### ROUTING VIA FRONT PANEL

Toggle SEL button to select the desired function

Selecting video will allow user to route video signals from one input to the desired outputs

Selecting RS-232/IR/CEC will allow users to route RS-232 and IR signals to the desired outputs

Selecting info will allow user to view information of the selected I/O on the LCD

(Note: RS-232/IR has a separate routing from video signals. Please refer to the RS-232 command manual on how to duplicate the video routing onto RS-232/IR routing

To route video/command signals, simply press on an input button followed by the desired output buttons

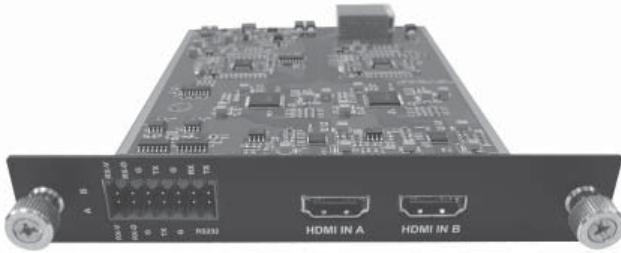
Pressing and holding onto a input button for 1 second will trigger a broadcast command. When BROADCAST is shown on the LCD, press the input button again and the matrix will broadcast the chosen input to all outputs

## INPUT CARDS

### MAXMU-HD02-IN

#### Input

- 2 × HDMI
- Support 4K
- Support hot plugging
- Support RS-232 and IR



### MAXMU-HDBTHD11-IN

#### Input

- 1 × HDMI
- 1 × HDBaseT
- Support 4K
- Support hot plugging
- Support RS-232 and IR



### MAXMU-GAHD11-IN

#### Input

- 1 × VGA + 3.5mm audio
- 1 × HDMI
- Support 4K
- Support hot plugging
- Support RS-232 and IR

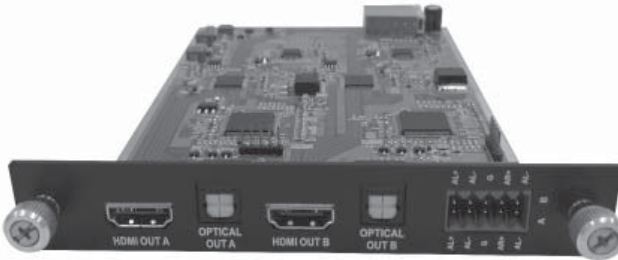


## OUTPUT CARDS

### MAXMU-HD020-OT

#### Output

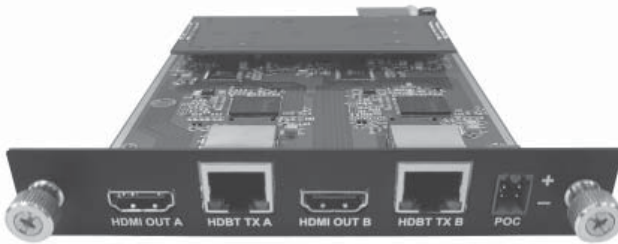
- 2 × HDMI
- 2 × Balanced audio
- Support audio de-embedding
- Support hot plugging



### MAXMU-HDBT02M-OT

#### Output

- 2 × HDMI
- 2 × HDBaseT (mirrored)
- Support POC
- Support hot plugging



## POC POWER INJECTOR

### PWR-INJ24V10A

- Supply DC power for POC and USB powered devices
- 10 x 24V 1 A DC outputs
- 4 x 24V 0.5 A DC outputs (DC jack)
- 2 x 5V 2 A USB A outputs



## SPECIFICATIONS

Input:	up to 16 video inputs up to 16 RS-232/IR/CEC inputs
Output:	up to 16 video outputs up to 16 RS-232/IR/CEC inputs up to 16 monitor inputs
HDMI source control:	RS-232 control Ethernet control Front Panel
HDMI connector:	Electro-optical characteristics: $\pi = 25^\circ$ / Carrier frequency: 20-60kHz
RJ-45 connector:	Type A [19-pin female]
RS-232 connector:	WE/SS 8P8C [Reversed mode] / Frequency: 100 Hz to 13.5MHz
Modular I/O slots:	8 x input slots , 8 x output slots
HDMI compliance:	HDMI 2.0 Deep Color & full 3D & 4K2K@60 hz
HDTV compatibility:	Yes
HDCP compliance:	Yes [HDCP 1.4]
EDID Management:	Able to set, create, capture and stores EDID configurations
Video bandwidth:	12.75Gbps [4.25Gbps per graphic channel]
Video supports:	480i/ 480p/ 720p/ 1080i/ 1080p@60 / 4K 2K@60 hz [4:2:0]
Audio support:	Surround sound (up to 7.1ch) or stereo digital audio
Fixedness:	19" rack-mount (4 RU) with ears & wall hanging holes
Power supply:	AC Power 100-240V AC
Operation temperature:	0° to +70°C [32~158°F]
Storage temperature:	-40° to +70°C [-40~158°F]
Heat Dissipation:	41 to 614 BTU/hr
Relative humidity:	10% to 90% RHL, (non-condensing)
Ambient Noise:	41 to 614 BTU/hr
Power consumption:	250W
Power supply:	100-240V AC
Enclosure:	Metal case
Dimension:	450 x 345 x 78 mm
Weight:	11.0 Kg

**ABtUS**  
S I N G A P O R E

\*\* For details and updated RS-232 Command and Program Software, please visit and download from [www.abtussingapore.com](http://www.abtussingapore.com)