

DXM G4 Series

Digital Xtreme Card Chassis 8x8 & 16x16



SAFETY INSTRUCTIONS

Please review the following safety precautions. If this is the first time using this model, then read this manual before installing or using the product. If the product is not functioning properly, please contact your local dealer or Aurora for further instructions.



The lightning symbol in the triangle is used to alert you to the presence of dangerous voltage inside the product that may be sufficient to constitute a risk of electric shock to anyone opening the case. It is also used to indicate improper installation or handling of the product that could damage the electrical system in the product or in other equipment attached to the product



The exclamation point in the triangle is used to alert you to important operating and maintenance instructions. Failure to follow these instructions could result in injury to you or damage to the product.



Be careful with electricity:

- **Power outlet:** To prevent electric shock, be sure the electrical plug used on the product power cord matches the electrical outlet used to supply power to the Aurora product. Use only the power adapter and power connection cables designed for this unit.
- **Power cord:** Be sure the power cord is routed so that it will not be stepped on or pinched by heavy items.
- **Lightning:** For protection from lightning or when the product is left unattended for a long period, disconnect it from the power source.



Also follow these precautions:

- **Ventilation:** Do not block the ventilation slots if applicable on the product or place any heavy object on top of it. Blocking the air flow could cause damage. Arrange components so that air can flow freely. Ensure that there is adequate ventilation if the product is placed in a stand or cabinet. Put the product in a properly ventilated area, away from direct sunlight or any source of heat.
- **Overheating:** Avoid stacking the Aurora product on top of a hot component such as a power amplifier.
- **Risk of Fire:** Do not place unit on top of any easily combustible material, such as carpet or fabric.
- **Proper Connections:** Be sure all cables and equipment are connected to the unit as described in this manual.
- **Object Entry:** To avoid electric shock, never stick anything in the slots on the case or remove the cover.
- **Water Exposure:** To reduce the risk of fire or electric shock, do not expose to rain or moisture.
- **Cleaning:** Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- **ESD:** Handle this unit with proper ESD care. Failure to do so can result in failure.

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.



Trademarks

All trademarks in this document are the properties of their respective owners.

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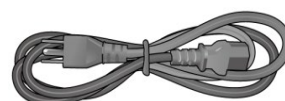
 Warranty56

PACKAGE CONTENTS

Please make sure the following items are included within your package. Contact your dealer if any items are missing or damaged.

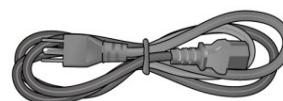
SKU

- DXM-884-G4
- IEC Power Cord




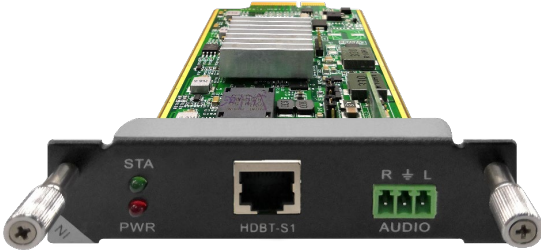
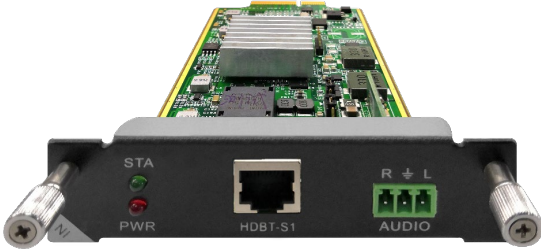

or

- DXM-1616-G4
- IEC Power Cord

















Note: Go to www.auroramm.com for latest manual and firmware.

CARDS & ACCESSORIES

DIGITAL XTREME (GEN 4) – CARDS	
<i>Input Cards</i>	
<p>DXCI-1-HDMI-G4</p> 	1 Input HDMI 4K60 444 Card with Stereo Audio Input
<p>DXCI-1-HDBT1-G4</p> 	1 Input HDBaseT 230' (70m) CAT 4K30 444/4K60 420 Card
<p>DXCI-1-HDBT2-G4</p> 	1 Input HDBaseT 330' (100m) CAT 4K30 444/4K60 420 Card
<p>DXCI-1-SDI-G4</p> 	1 Input 3G SDI Card
<i>Output Cards</i>	

<p>DXCO-1-HDMI-G4</p>	<p>1 Output HDMI 4K60 444 with Stereo audio output Card</p>
<p>DXCO-1-SHDMI-G4</p>	<p>1 Output HDMI with 4K30 444/4K60 420 Scaler and Stereo audio output Card. Allows for seamless switching.</p>
<p>DXCO-1-HDBT1-G4</p>	<p>1 Output HDBaseT 230' (70m) CAT 4K30 444/4K60 420 with Stereo audio output Card</p>
<p>DXCO-1-HDBT2-G4</p>	<p>1 Output HDBaseT 330' (100m) CAT 4K30 444/4K60 420 with Stereo audio output Card</p>
<p>DXCO-1-SDI-G4</p>	<p>1 Output 3G SDI with Stereo audio output Card</p>
<i>Accessories</i>	
<p>DXC-BLANK-G4</p>	<p>Blank Panel for Slot</p>

	
DIGITAL XTREME ACCESSORIES	
<i>External HDBT Boxes and Wall Plates</i>	
DXE-CAT-RX1-4K 	230' (70m) HDBaseT Receiver (No PS)
DXE-CAT-RX2-4K 	328'/600' (100/183m) HDBaseT Receiver (No PS)
DXE-CAT-TX1-4K 	230' (70m) HDBaseT Transmitter (No PS)
DXE-CAT-TX2-4K 	328'/600' (100/183m) HDBaseT Transmitter (No PS)
DXW-2 	2 Input HDBaseT Wall Plate (VGA & HDMI) - 230' (70m) CAT Extender
DXW-2EU 	2 Input HDBaseT Wall Plate (VGA & HDMI) - 230' (70m) CAT Extender with LAN and Dual USB

<i>Rack Mounts / Power Supplies / Cables</i>	
DXE-CAT-RK3 	3RU Rack Mount Kit for DXE-CAT-S1/S2/S2L (Fits up to 16 DXE-CAT units in 3RU space)
DXE-CAT-RK3BL 	Blank Panels for DXE-CAT-RK3 Rack Mount
PS0053-1 	24VDC PS w/US Adaptor (DXE-CAT)
CA0052-F2T3R 	3.5mm TRS to FEMALE DB9 2-TX 3-RX (Null Modem)
CA0052-F3T2R 	3.5mm TRS to FEMALE DB9 3-TX 2-RX
CA0052-M2T3R 	3.5mm TRS to MALE DB9 2-TX 3-RX (Null Modem)
CA0052-M3T2R 	3.5mm TRS to MALE DB9 3-TX 2-RX

INTRODUCTION

About

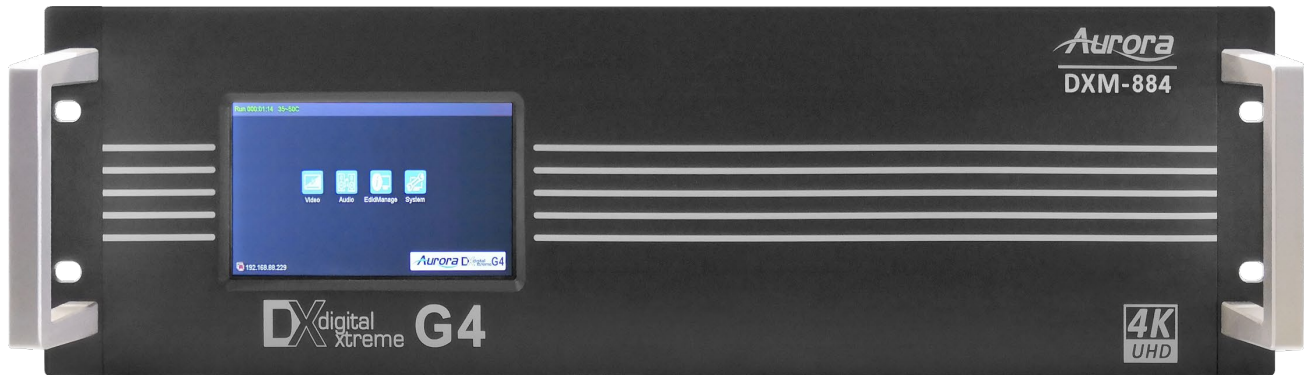
The 4th Generation Digital Xtreme Series is a 4K60 4:4:4 capable modular matrix switch, card-based chassis/frame, with a full complement of multimedia input and output cards. I/O cards have one channel of Input or Output and are available with HDMI®, HDBaseT™, and SDI interfaces.

The DXM-G4 series is designed for ‘ease of service’ as Input and Output cards can be ‘hot swapped’, allowing full serviceability while powered. Control of the DXM-G4 and connected devices is available through an integrated 5” touch screen, Web Server, RS-232, and LAN. The system also provides advanced EDID, HDCP, and data handling capabilities.

Features

- **20Gbps Per Port Backplane**
- **Advanced EDID Management**
- **Advanced HDCP Handling**
- **Remote Diagnostics**
- **5” Front Panel Touch Control**
- **Integrated Web Server Control**
- **PoH for HDBaseT™ Ports**
- **Units configurable 1-channels per card**
- **Break-away Audio Switching**
- **HDMI® I/O Cards (Output Cards with Audio De-embedding, and Auto DVI Detect)**
- **HDBaseT™ CAT I/O Cards (Powers remote Tx/Rx units and passes RS-232, IR, & Ethernet)**
- **Control Expansion Ports**
- **LAN and RS-232 Control**

DXM-884 Front



LCD

- 5" color touch screen for routing and setup.

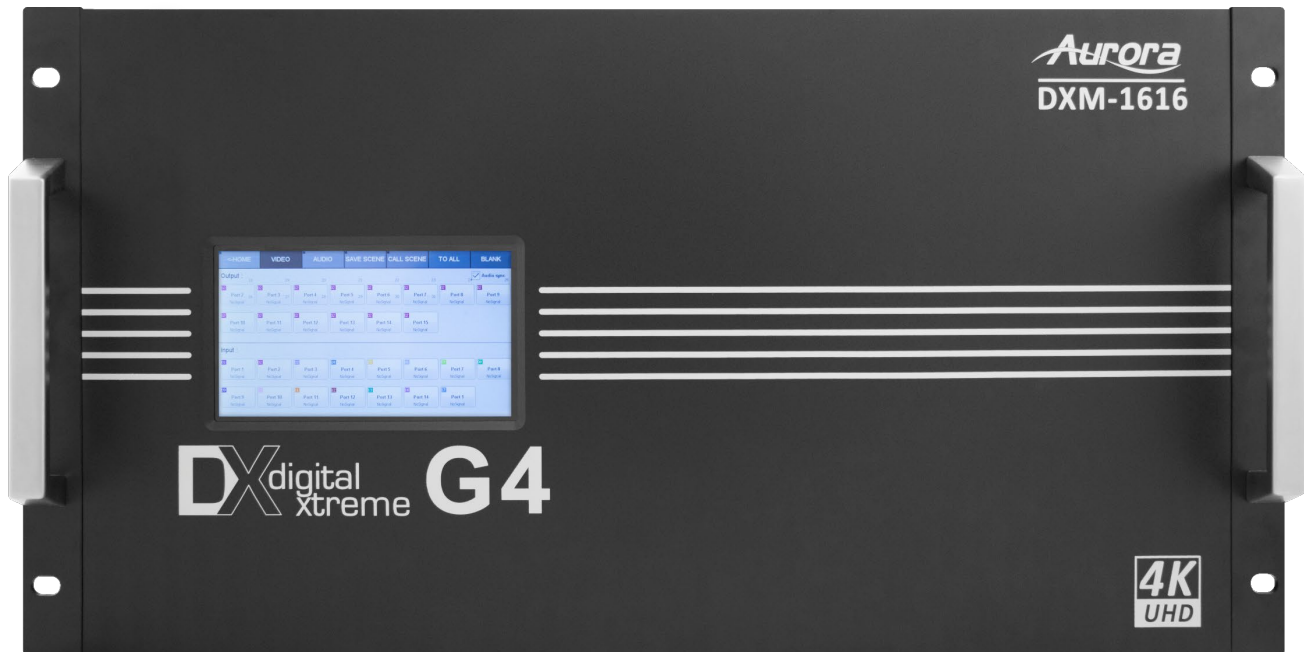
DXM-884 Rear



Rear

- 8 input only slots
- 4 input/output slots
- 4 output only slots
- 1 control card slot with 10/100 LAN and RS-232 port
- 2 IEC power connectors for redundant power.
- 1 Expansion slot for additional control ports and future capabilities.

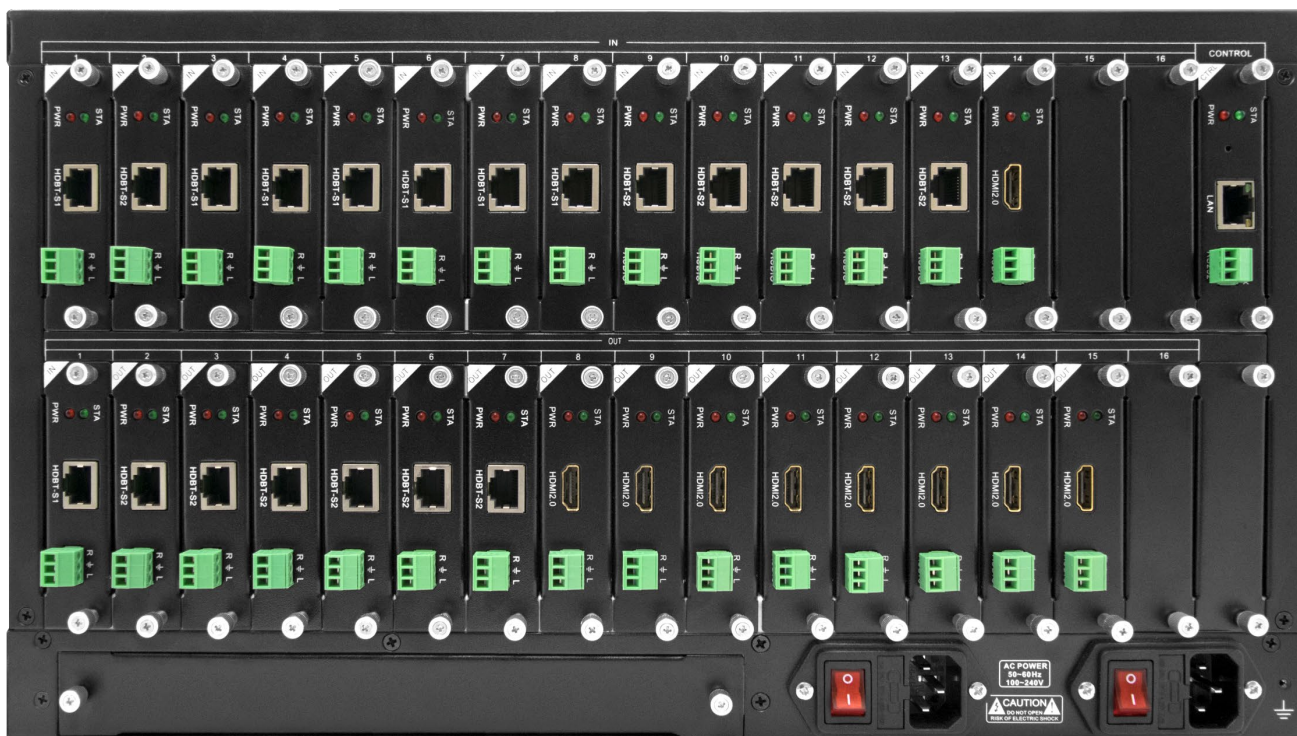
DXM-1616 Front



LCD

- 5" color touch screen for routing and setup.

DXM-1616 Rear



Rear

- 16 input only slots
- 16 output only slots
- 1 control card slot with 10/100 LAN and RS-232 port
- 2 IEC power connectors for redundant power.
- 1 Expansion slot for additional control ports and future capabilities.

CARD FUNCTIONALITY

Main Control Card

The main control card comes with the DXM unit and allows the control of the unit via LAN or RS-232.



LED's:

STA (Status): Green if signal is active

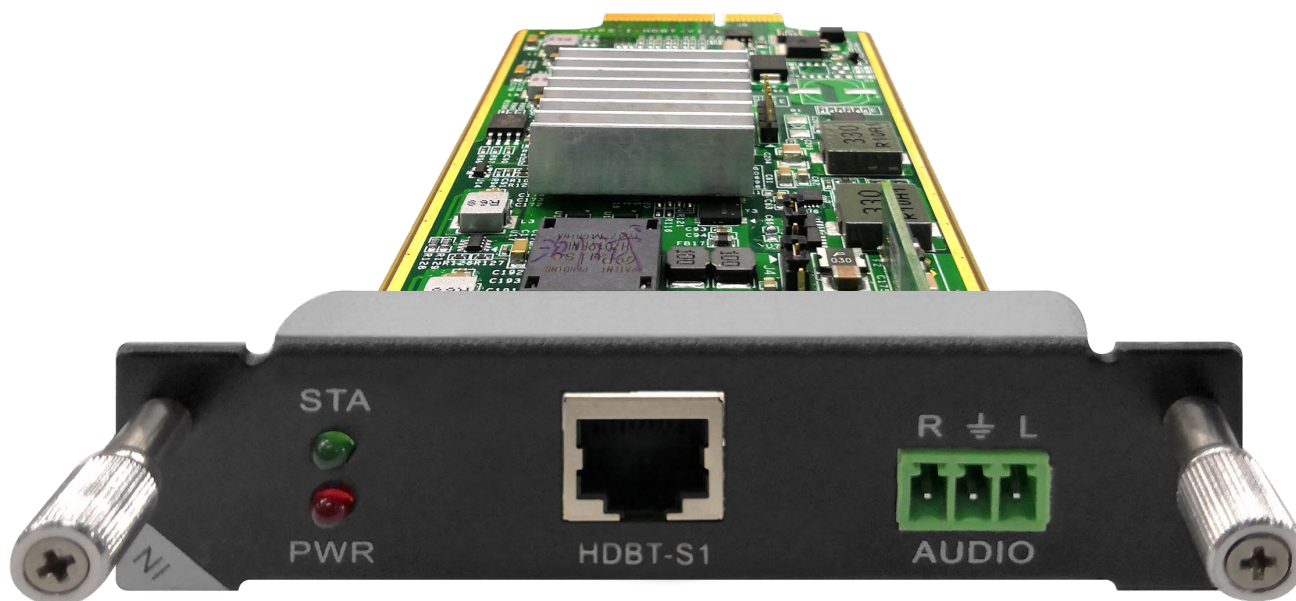
PWR (Power): Red if board is working accordingly

Technical parameters

Type	Specification
RS232	1 channel RS232 port <ul style="list-style-type: none">➤ Can control the matrix by the commands➤ Supports bidirectional communication
LAN	1 channel LAN port <ul style="list-style-type: none">➤ Controls and firmware updates via TCP/IP➤ Supports WEB based management

HDBaseT Cards

HDBaseT input and output cards are designed to receive or transmit audio, video, control, and power up to 70m with 24bit 4K30Hz/4K60 4:2:0 depending on model using a single common CAT 5e / 6 / 6A cable. DXCI-1-HDBT1 & DXCO-1-HDBT1 will go up to 230ft with 36bit color depth. DXCI-1HDBT2 & DXCO-1-HDBT2 will go up to 328ft 48-bit color depth or 600ft with 24bit color depth (CAT 6A shielded cable required for this distance). The output card has the unique ability to auto detect a DVI display or device connected and automatically remove the audio from the signal even if the source is HDMI. This saves space and cost as an external device to strip the audio electrically is not required. The need to learn a DVI EDID is not required with the DXM series due to this feature. Both the input and output card have the ability to audio de-embed and allow stereo output via the 3 pin Euro connector.



DXCI-1-HDBT1-G4 / DXCI-1-HDBT2-G4



DXCO-1-HDBT1-G4 / DXCO-1-HDBT2-G4

LED's:

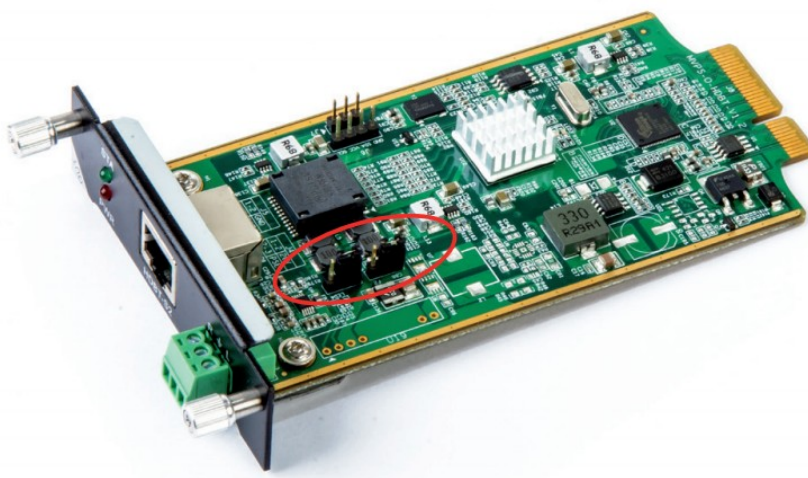
STA (Status): Green if signal is active

PWR (Power): Red if board electricity works accordingly

Technical parameters

The board type	HDBT1 input	HDBT2 input	HDBT1 output	HDBT2 output
number/Signal types	A HDBaseT audio and video signals and control signals			
The connector type	RJ-45 8P line terminal			
Recommend the cable type	STP CAT6/CAT6A and above			
1080P Maximum transmission distance	≤ 70m		≤ 100m	
4KMaximum transmission distance	≤ 30m(CAT6A)		≤ 60m (CAT6A)	
Support video standard	HDTV 1080p @60Hz ; VESA 1920×1200 ; 4K30Hz			

Support color space	RGB : YCbCr(4:2:2) YCbCr(4:4:4)			
Seamless switching	No support			
EDID management	DDC channels, EDID manager			
HDCP Management	Settings HDCP authorization or not			
Board type	HDBT1 input	HDBT2 input	HDBT1 output	HDBT2 output
Audio embedded	embedded		De-embedded	
Port hot plug	support			
Power supply	Single channel transceiver power supply DC +28V			
Storage temperature/humidity	-20℃ ~ 85℃/ 5%~40% RH			
Work temperature/humidity	0℃ ~ 50℃/ 10%~70% RH			
Note	Support RS232 pass through, terminal blocks, more flow			



The matrixs HDBT modules (PoC) can supply power to connected HDBT modules. Plug in the jumpers J4 / J5: PoE (right, prepared but not yet available) or PoC (left, see illustration). Remove the jumpers when connected HDBT modules have their own power supply.

HDMI Cards

HDMI input and output cards support 4K60Hz 4:4:4 video resolutions with stereo and Dolby® Surround Sound audio. The input and output cards will work with DVI signals. The output card has the unique ability to auto detect a DVI display or device connected and automatically remove the audio from the signal even if the source is HDMI. This saves space and cost as an external device to strip the audio electrically is not required. The need to learn a DVI EDID is not required with the DXM series due to this feature. Both the input and output card have the ability to audio de-embed and allow stereo output via the 3 pin Euro connector.



DXCI-1-HDMI-G4



DXCO-1-HDMI-G4

LED's:

STA (Status): Green if signal is active

PWR (Power): Red if board electricity works accordingly

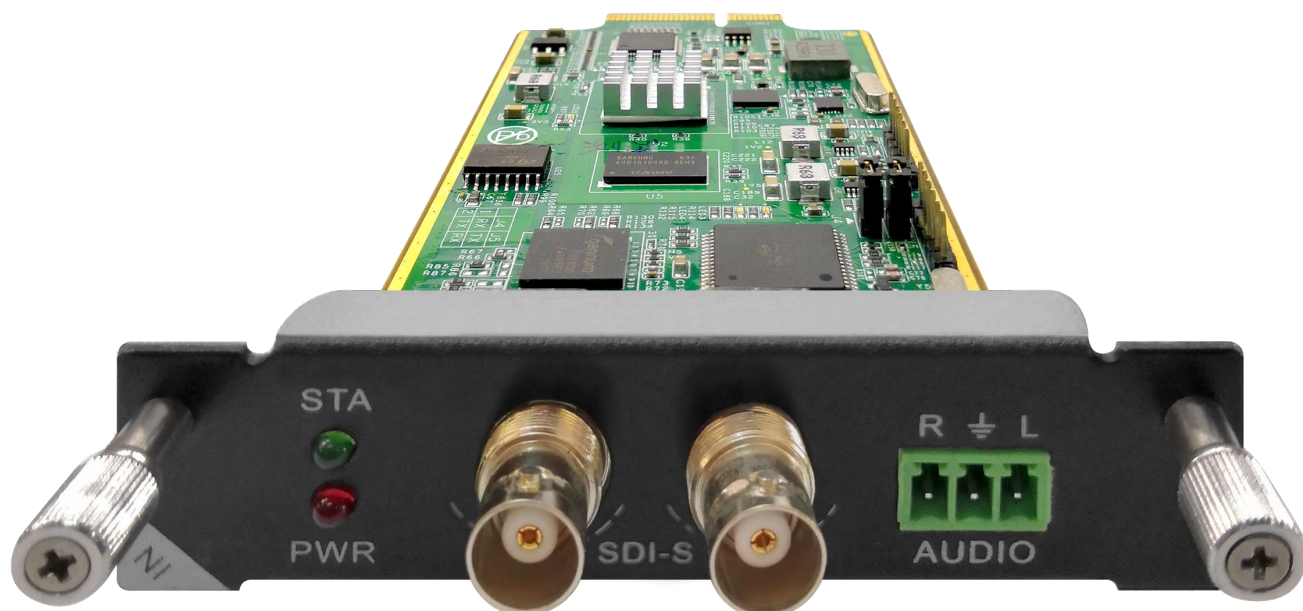
Technical parameters

The board type	HDMI input	HDMI output	
number/Signal types	A HDMI signal	A HDMI signal	
The connector type	HDMI Type A terminal	HDMI Type A terminal	
Recommend the cable type	The standard 26AWG HDMI 2.0		
Maximum transmission distance	≤ 10m		
Support video standard	HDTV 1080p @60Hz; VESA 1920×1200; 4K@60Hz 4:4:4		

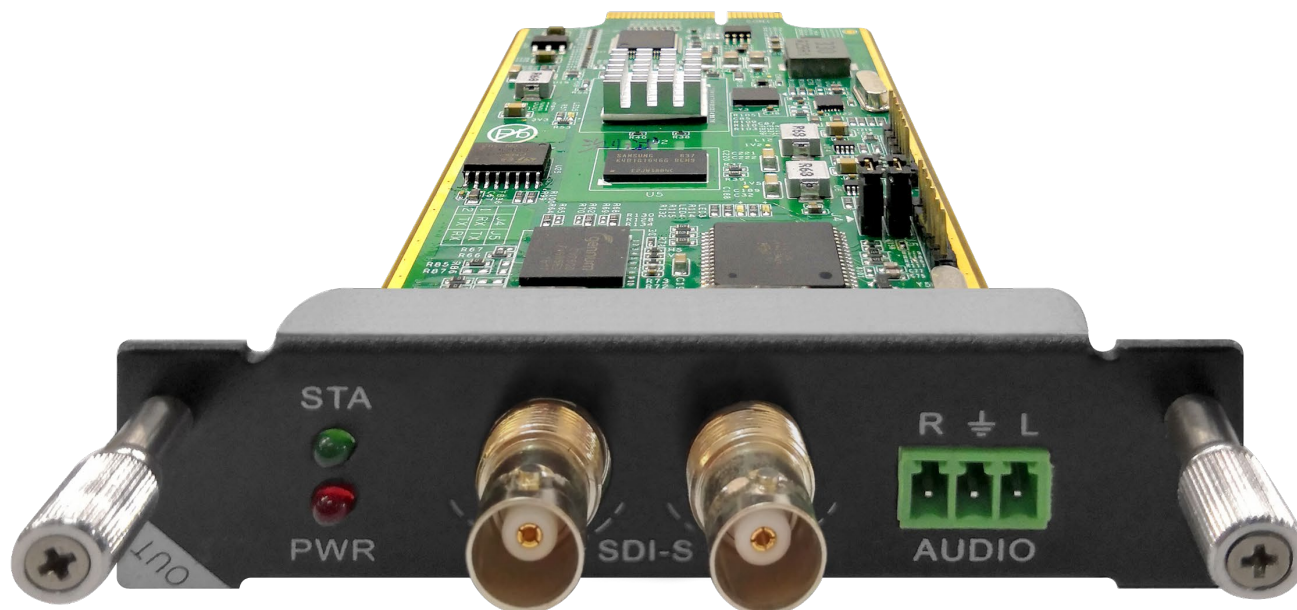
Support color space	RGB ; YCbCr(4:2:2) YCbCr(4:4:4)	
Seamless switching	Not support	Support
EDID management	DDC channels, EDID manager	
HDCP management	Settings HDCP authorization or not	
Audio embedded	embedded	De-embedded
Port hot plug	support	
Power supply	DC +5V 0.25A(1.25W)	
Storage temperature/humidity	-20°C ~ 85°C/ 5%~40% RH	
operating temperature/humidity	0°C ~ 50°C / 10%~70% RH	

SDI Cards

3G SDI input and output cards support 4K30Hz video resolutions with audio. Both the input and output card have the ability to audio de-embed and allow stereo output via the 3 pin Euro connector.



DXCI-1-SDI-G4



DXCO-1-SDI-G4

LED's:

STA (Status): Green if signal is active

PWR (Power): Red if board electricity works accordingly

Technical parameter




The board type	3G SDI Input	3G SDI Output
number/Signal types	1channel SD/HD/3G – SDI signal	
The connector type	BNC	
Recommend the cable type	75-5 RG6/RG59	
Maximum transmission distance	RG6 ≤ 120m ; RG59 ≤ 80m	
Support video standard	SMPTE-259M/ 274M/292M/296M/ 372M/424M/425M	
Support color space	RGB ; YCbCr(4:2:2) YCbCr(4:4:4)	
Seamless switching	Not support	Support (Scaler Version)


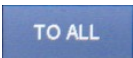
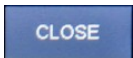
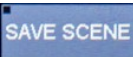
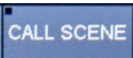
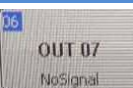
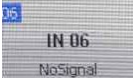
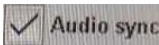
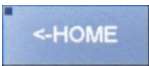
EDID management	Not support	
HDCP management	Not support	
Audio embedded	embedded	De-embedded
Port hot plug	support	
Power supply	Not support	
Storage temperature/humidity	0°C ~ 60°C/ 5%~40% RH	
operating temperature/humidity	0°C ~ 50°C/10%~70% RH	

Front Panel Functionality

Home Page



Button	Function
 Video	Video settings
 Audio	Audio settings
 EdidManage	EDID management

	System settings
	Switches the selected input to all outputs
	Close the selected outputs
	Save the actual switching state
	Restore a switching state
	Symbol for output with slot number
	Symbol for input with slot number
	Audio and video synchronization when switching
	Opens main interface

Basic Operation

There are four sub-menus in the main menu, which can be selected: Video, Audio, EDID Management and system settings.

Video control

The keypad can be used for uninterrupted switching between image input and external outputs.

Switch signal from one input to one or more output ports

In the video menu, select the input by touch. Next press the output(s) you want switch to.

At the icon for the output, the number of the switched input will appear. This switching is shown in the display.

Switch signal from one input to all outputs

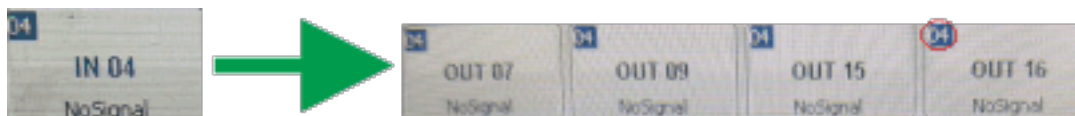
In the video menu, select the input by touch. Next, press the button 'TO ALL'.

This switching is shown in the display.



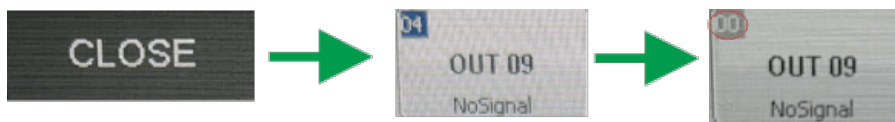
In the video menu, select the input by touch. Now press the output.

This switching is shown in the display.



Blank output

In the video menu, press the button 'Blank Output' and the output(s) you want to blank. The switching is shown in the display.



Audio control

Audio can be switched like video for single or all outputs to a selected input. They can be deactivated with 'Mute Output'.

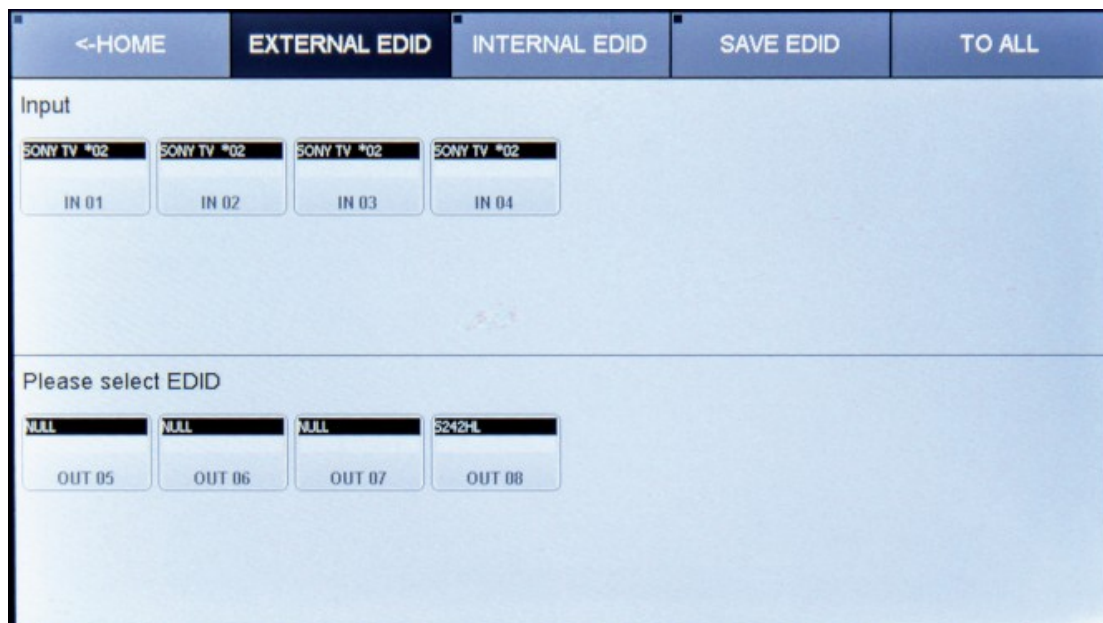
EDID management

With the EDID information, the source can adapt to the resolution of the destination (projector, LCD, etc.).

The EDID information can be read from an HDMI connected to the active output (display or projector).

This EDID can be copied via the touch panel or via the GUI of the Web browser to the required input so the

individual EDID data is available at the input for the source. This only needs to be done once at the time of install or if destination equipment is changed out to a different model.




At the main menu, select the EDID Management icon. Choose the Output you want to copy the EDID from and select the input you want to write this EDID to. Now this input will present the EDID to the connected source. On the screen this Information is shown at the input symbol. The EDID tables are stored in the unit via touch screen and Web-Browser.

<-HOME		EXTERNAL EDID		INTERNAL EDID		SAVE EDID		TO ALL	
System									
NULL	EPSON PJ	NULL	SONY PJ	NULL	SONY TV *02	NULL	PT-RW330		
SYS 01	SYS 02	SYS 03	SYS 04	SYS 05	SYS 06	SYS 07	SYS 08		
SYSTEM UHD	SYSTEM UHD	SYSTEM UHD	S242HL	SYSTEM UHD	SYSTEM UHD	SYSTEM UHD	SYSTEM UHD		
SYS 09	SYS 10	SYS 11	SYS 12	SYS 13	SYS 14	SYS 15	SYS 16		
Please select EDID									
NULL	NULL	NULL	S242HL						
OUT 05	OUT 06	OUT 07	OUT 08						

System configuration

IP configuration

In the main menu select System settings, 'NETWORK' to configure the LAN Settings.


→

<-HOME		GENERAL		DISPLAY		NETWORK		UART		RESET		ABOUT HOST	
1.Network Address Config													
IP Address		192.168.101.35											
Subnet Address		255.255.255.0											
Gateway Address		192.168.101.1											
Server Port		1001											
DHCP		<input checked="" type="radio"/> NO <input type="radio"/> YES											

At Server Port you can define the port for the TCP Connection. Commands are also available for the RS232.

With activated DHCP the IP Address will be requested from an existing DHCP Server automatically.

RS232 settings

In the main menu select System settings, 'UART' to configure the RS232 settings.

<-HOME	GENERAL	DISPLAY	NETWORK	UART	RESET	ABOUT HOST
1.Baud Rate						
<input type="radio"/> 115200 <input type="radio"/> 38400 <input type="radio"/> 19200 <input checked="" type="radio"/> 9600						
2.Data bits						
<input type="radio"/> 8 <input checked="" type="radio"/> 9						
3.Stop bits						
<input type="radio"/> 1 <input type="radio"/> 1.5 <input checked="" type="radio"/> 2						
4.Parity bits						
<input type="radio"/> None <input type="radio"/> Odd <input checked="" type="radio"/> Even						

General settings

<-HOME	GENERAL	DISPLAY	NETWORK	UART	RESET	ABOUT HOST
1.Open control sound						
<input checked="" type="radio"/> NO <input type="radio"/> YES						
2.Receiving external command						
<input checked="" type="radio"/> NO <input type="radio"/> YES						
3.Open WEB server						
<input type="radio"/> NO <input checked="" type="radio"/> YES						
4.Open cursor shows						
<input checked="" type="radio"/> NO <input type="radio"/> YES						

Show unit information

Firmware version, Hardware version, MAC address

<-HOME	GENERAL	DISPLAY	NETWORK	UART	RESET	ABOUT HOST
Host						8C
MAC Address						00-00-5E-91-E3-C8
Main-Version						v2.0.9.26
Back-Version						v2.0.9.20
System Update Time						2018-11-29

Web server

The factory default IP: 192.168.88.229, Port 80

User: ,user'; password: ,123456'

To access the web server, connect the PC LAN port directly to the DXM LAN port with a straight RJ45 cable.

After making the connection, go to network connection of the PC and revise the IP property to static IP as below.

Once done, open a web browser and enter the 192.168.2.245 to access the web server.

To connect the DXM to the local area network, please update the DXM product IP to match the LAN network setting from the web server.

For example if the LAN IP is set as 192.168.88.xxx, then please revise the product to 192.168.88.1xx. Once the IP is set, you access to the device from any PC in the same network.

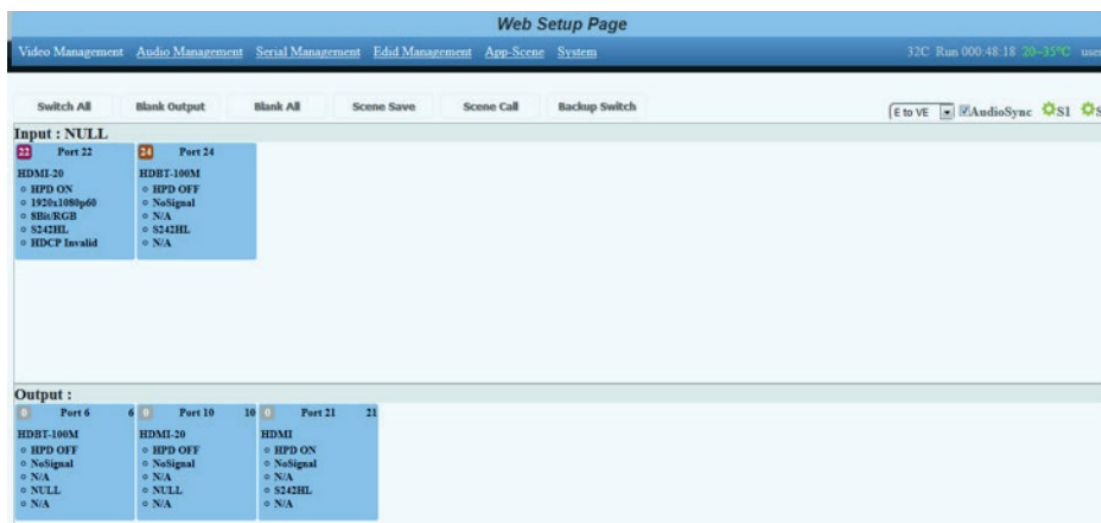


The screenshot shows a web browser window titled "Web Setup Page". In the top right corner, there is a status bar displaying "12C Run 001:09:07 20-35°C user". The main content area has a light blue background and is titled "The user login". It contains a login form with two input fields: "user name:" with the text "user" entered, and "password:" with eight asterisks entered. A "Login" button is positioned to the right of the password field.

Default: User: ,user'; password: ,123456'

Video management

The control of the DXM can be done via a web browser. The menu on top offers: Video Management, Audio Management, Serial Management, EDID Management, App-Scene and System (configuration).



Video Port management

The Video Management page offers direct, trouble-free switching from any input (source) to one or more outputs (sinks): for switching, user can select the input (once selected, it will stay highlighted) and then click on the output tab (or tabs) to switch. Once switched, the output tab will indicate the input port info once switched.

Changing name of port

For switching, you can choose which audio source is used in the top right corner of the pull-down menu.

The following options are available:

VE to VE: Source audio to sink +embedded audio to de-embedded

VE to EV: Source audio to de-embedded, embedded audio to sink

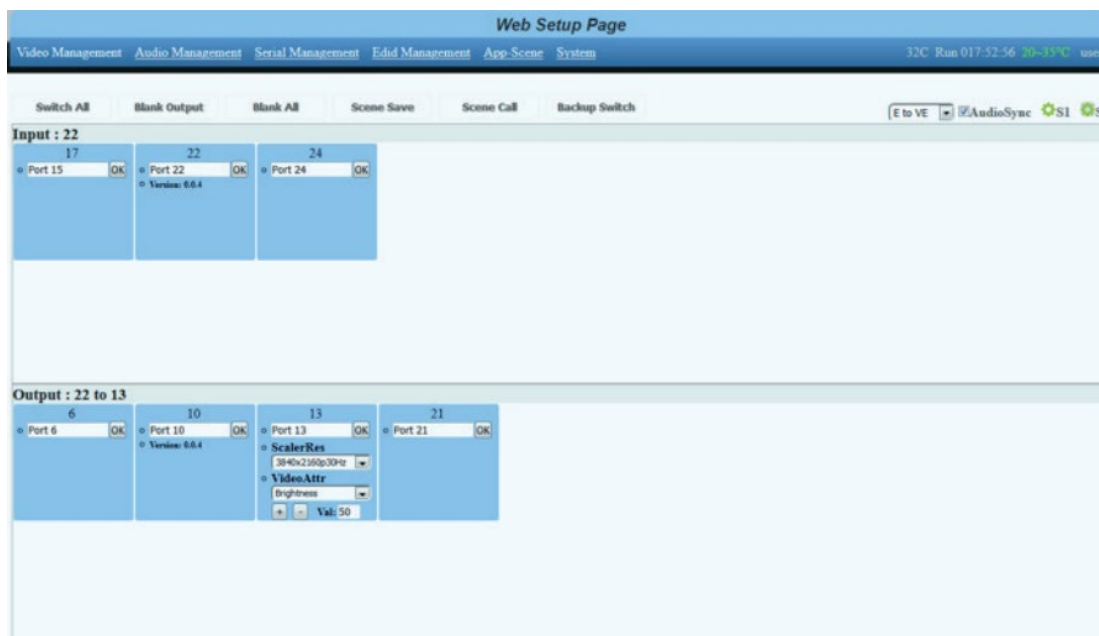
E to VE: Embedded audio to sink and de-embedded

E to E: Embedded audio to de-embedded

V to V: Source audio to sink

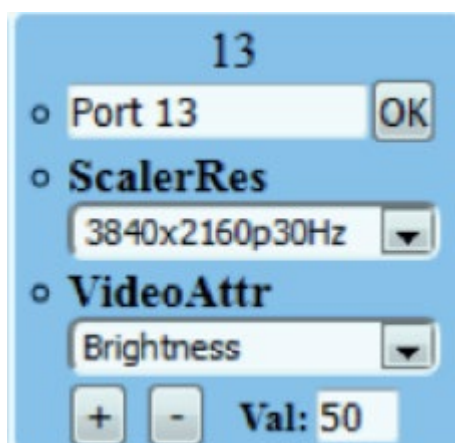
V to E: Source audio to de-embedded

The name of a slot can only be changed in the Web GUI. In the menu item Video Management on the right, switch to the view S2. There you can edit the names of the slots and save them with OK.



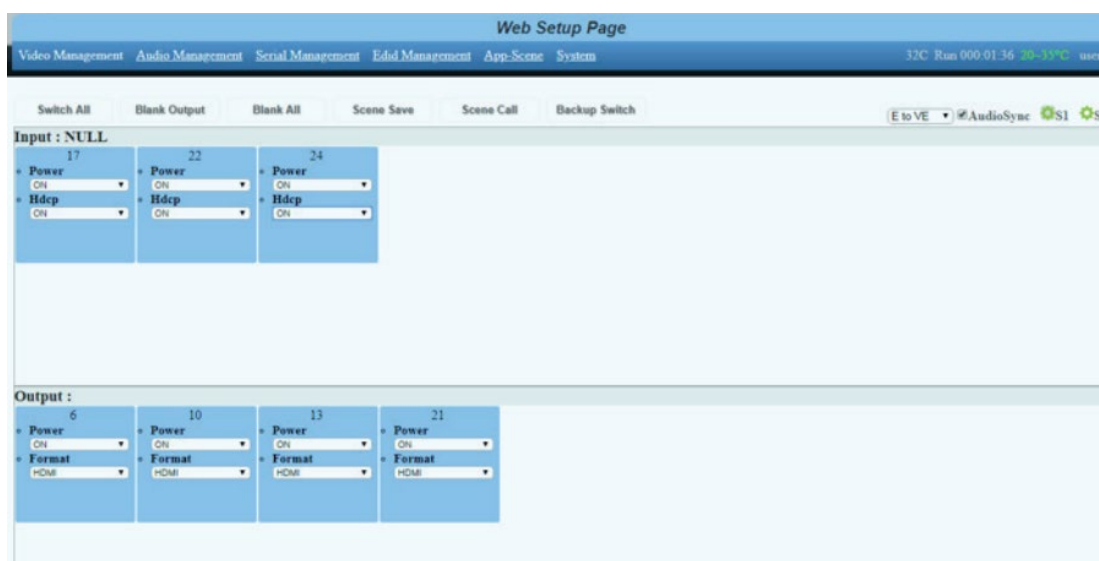
Changing Resolution of Scaler output card

The output resolution of a scaler card can only be changed in the Web GUI. In the menu item Video Management on the right, switch to the view S2. There you can set the available resolutions. Likewise, the brightness, color saturation, contrast and sharpness can be finely adjusted by +/- 50.



activate/ cards

The power supply of each input/output card can be switched on/off individually for each card via Web GUI. In the menu item Video Management right-click on the view, S1 . There you can switch the supply voltage of the card on and off via pull-down (default: ON).



HDCP management

The HDCP capability of each input card can be switched individually for each card in the Web GUI. In the menu item Video Management right-click on the view, S1 . There you can switch the HDCP function of the card on and off via pull down (default: ON).

Switching HDMI/DVI operating mode

Each HDMI/HDBT output card can be switched from HDMI (default) to DVI. To do this, in the menu item Video Management, switch right to the view S1. There you can set the format of each output card to DVI/HDMI by pull down.

Audio Port management

Choose the Audio Management in the menu bar. Now the available inputs and outputs will be shown. At first, select the source and then the output(s).

Note: V means in Video signal embedded; E means external connector. With mute output the selected output can be muted.

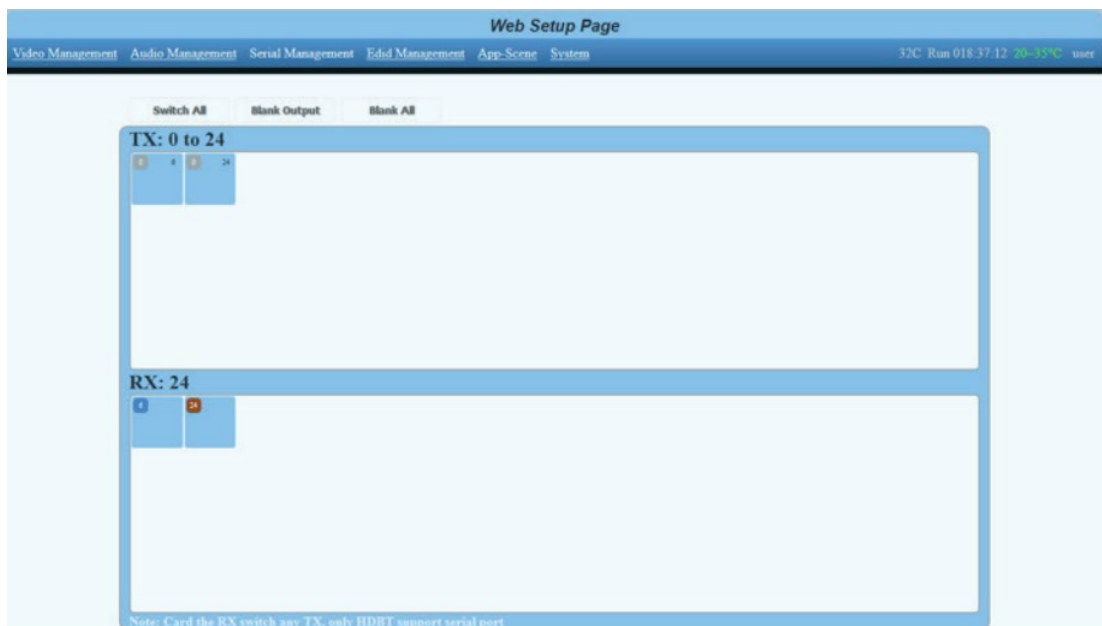


Serial management

Select serial Management in the menu bar. Now the available RS232 interfaces are displayed separately according to input and output card. First select the desired source and then the sink/sink. Now the two RS232 connections are internally routed.

- (1) Switch the Input's TX to the output's RX.
- (2) Switch the input's RX to the output's TX.

Note: Bidirectional transmission is only possible with a point-to-point connection.



EDID management

The EDID management via WEB GUI is equivalent to the EDID configuration via touch screen.

Details can be found in chapter 8.3

Scene management

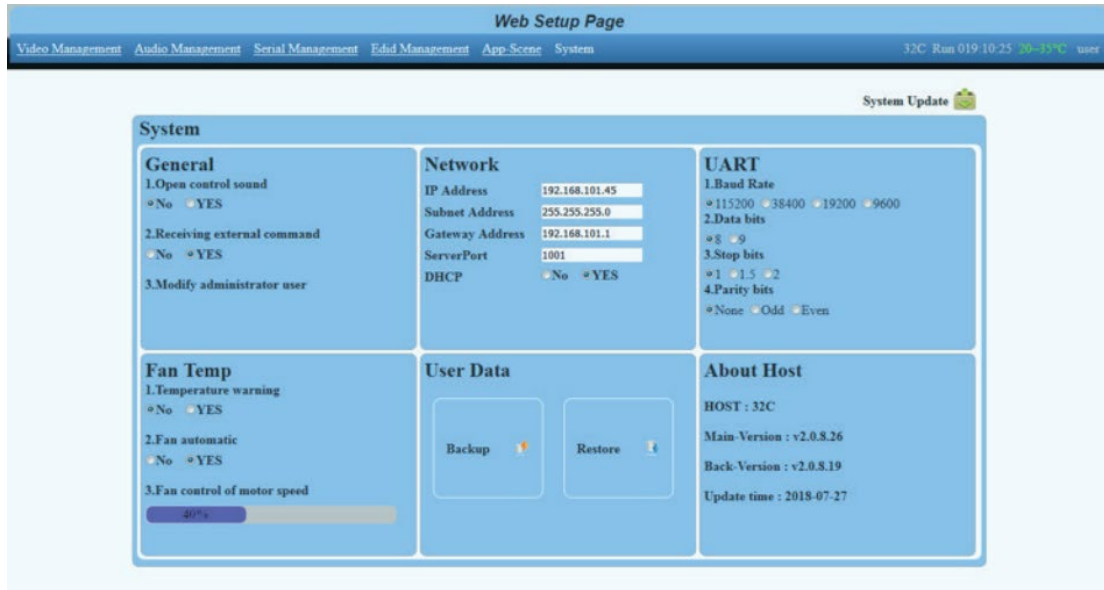
The DXM allows saving and restoring up to 32 scenarios. These can be saved in the video or audio menu.

The administration of those scenes takes place under the tab App -Scene in the WEB GUI.

Scene setup and overview

This page combines all important parameters of the DXM:

- Network and RS232 settings
- Installed firmware versions
- Fan settings
- User administration
- Save and restore the system configuration
- Key tones on/off
- TCP port on/off



Firmware update can be done with the button 'System update' in the right upper corner.

Important

- Make certain all units are using the latest firmware.
- Remember to setup EDID for proper operation.

UNDERSTANDING EDID

EDID and its Importance

One of the most forgotten setup procedures in AV systems is the EDID. The EDID comes from the destination (display, VTC, recorder, etc.) and must be saved into the encoder and decoder HDMI input ports. This allows the source (Blu-ray, computers, etc.) to know the capabilities of the destination.

This includes the audio type if any, video resolution and timing, color space, color depth, and more. If no EDID is present an HDMI device will revert to lowest resolution in DVI mode which also means no audio. If the wrong EDID is used, the image may look pink, green, or have no image at all.

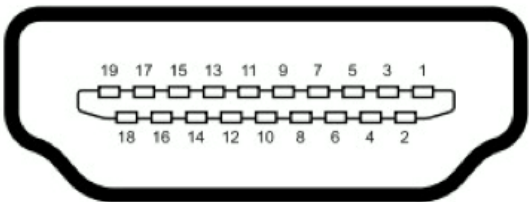
To make matters more complex, if different destinations/displays are in use in a matrix configuration, then it is important to use an EDID with a common denominator or only one or the other destination may work. In an ideal installation, all the destinations should have the same capabilities for optimal performance. If this is not possible a scaler may have to be implemented to assist in the compatibility. For example, there are 2 displays one 1080p the other 4K UHD. If the EDID of the 4K display is used, the 1080p will not see an image if the source is capable of 4K. If the 1080p EDID is used, then both will see the image but the 4K will never benefit from 4K content. In a situation where this is unacceptable, a 4K scaler can be used on the 1080p screen to down scale the 4K content so the 4K EDID can be used and the better screen can have a benefit. Note scalars do add frame latency and can affect image quality based on the quality of the scaler. This is why it is always ideal to use destinations with similar capabilities for optimal performance.

Audio can be impacted just as easily. If a destination is 6-channel surround sound capable and the other destination is not, then the EDID from the 5.1 destination cannot be used, or there will be no audio on the other destination. In most commercial installations, it should not be an issue to choose the lowest common denominator, which is 2-channel audio, but in cases where you must have surround sound then a down-mixer for the 2-channel destination must be used.

In some cases, a custom EDID could be created, as the audio and video are mismatched between the destinations. This can occur for example, when one destination has 4K 2-channel audio and the other 1080p with multichannel surround sound. If the EDID of the 1080p destination is used, audio will not be present on the 4K destination. If the 4K EDID is used, there will be no video present on the 1080p destination. The only way to solve this issue, is a new EDID combining the common features. In this case an EDID which is set at 1080p with 2-channel audio is the solution.

CONNECTOR PIN DEFINITION

HDMI



Type A (Receptacle) HDMI

Pin 1	TMDS Data2+	Pin 8	TMDS Data0 Shield	Pin 15	SCL
Pin 2	TMDS Data2 Shield	Pin 9	TMDS Data0–	Pin 16	SDA
Pin 3	TMDS Data2–	Pin 10	TMDS Clock+	Pin 17	DDC/CEC Ground
Pin 4	TMDS Data1+	Pin 11	TMDS Clock Shield	Pin 18	+5 V Power
Pin 5	TMDS Data1 Shield	Pin 12	TMDS Clock–	Pin 19	Hot Plug Detect
Pin 6	TMDS Data1–	Pin 13	CEC		
Pin 7	TMDS Data0+	Pin 14	Reserved (N.C. on device)		

CAT5e/6/6A

T568A and T568B Wiring

Pin	T568A Pair	T568B Pair	Wire	T568A Color	T568B Color	Pins on plug face (socket is reversed)
1	3	2	tip	white/green stripe	white/orange stripe	 Pin Position
2	3	2	ring	green solid	orange solid	
3	2	3	tip	white/orange stripe	white/green stripe	
4	1	1	ring	blue solid	blue solid	
5	1	1	tip	white/blue stripe	white/blue stripe	
6	2	3	ring	orange solid	green solid	
7	4	4	tip	white/brown stripe	white/brown stripe	
8	4	4	ring	brown solid	brown solid	

RS-232

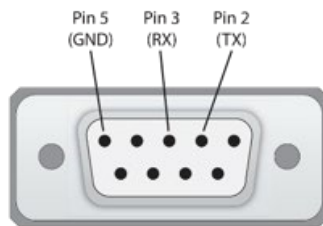
The RS-232 is a 3.5mm TRS connector. Tip is TX (output), ring is RX (input), and Sleeve is ground. To simplify connections Aurora offers pre-molded RS-232 cables in null and none null in male and female DB9.

CA0052 Selection Guide

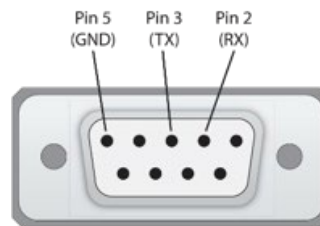
CA0052 (all versions) TRS Male



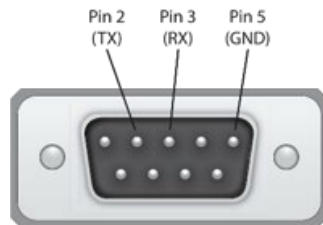
CA0052-F2T3R DB9 Female (Crossover)



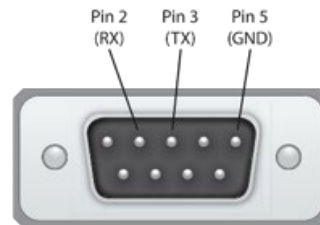
CA0052-F3T2R DB9 Female (Straight)



CA0052-M2T3R DB9 Male (Crossover)



CA0052-M3T2R DB9 Male (Straight)



APPENDIX 1

Troubleshooting

For best results always make certain you have the latest firmware.

Problem	Solution
1. No Video Signal.	<ul style="list-style-type: none"> a. Check that the power plug is properly inserted into a functioning power outlet. b. Make certain source is on. c. Verify pin-out of connector at each end. d. If used in electrical noisy environment shielded CAT cable may be required. e. Verifying routing is correct
2. LED is not lit	<ul style="list-style-type: none"> a. Check to see if Wall supply is plugged into wall outlet. b. Make certain wall outlet has power.
3. No Dolby® Surround Sound	<ul style="list-style-type: none"> a. Make certain the proper EDID from a Dolby® capable receiver unit is learned. Note this could affect non-Dolby® devices from playing sound if the source outputs Dolby®.
4. LEDs on HDBaseT cards alternating	<ul style="list-style-type: none"> a. Pull out all cards and reseal each card one by one until defective card is found. The pattern signifies the backplane bus cannot communicate and something is tying the bus up.
5. RS-232 commands not working	<ul style="list-style-type: none"> a. If you are using HyperTerminal to test, try to use Hercules as it can send the commands in one shot vs. typing it in. The speed at which the commands are sent could affect operation. b. Check cabling for RX and TX being swapped. c. Check baud rate settings
6. Intermittent Noise in image	<ul style="list-style-type: none"> a. Exceeding recommend distance relative to cable specification b. Use shielded cable. Sometimes external devices like radio transmitters can interfere with HDBT signals. Even though the HDBaseT will work with non-shielded cabling we recommend its usage for best performance.

1. All transmission distances are measured using West Penn cable as per Appendix 4. The transmission distance is defined as the distance between the video source and the display.
2. To reduce the interference among the unshielded twisted pairs of wires in UTP cable, you can use shielded STP cables to improve EMI problems, which is worsen in long transmission.

Warning: Do not plug RJ-45 HDBaseT output to non-HDBaseT complaint devices or damage may occur to either product.

APPENDIX 2

Firmware Update

For the latest firmware updates please go to: www.auroramm.com. You must be signed up to the Customer Portal in order to download firmware with instructions on how to update.

UPDATE TOOL:

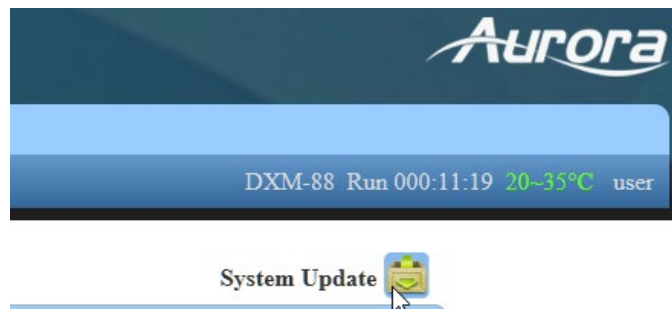
The G4 series of matrix uses a web server to update firmware. It requires a browser that supports HTML5 or above. IE9 or below is not supported, we advise using Google Chrome or Microsoft Edge.

CONNECTION:

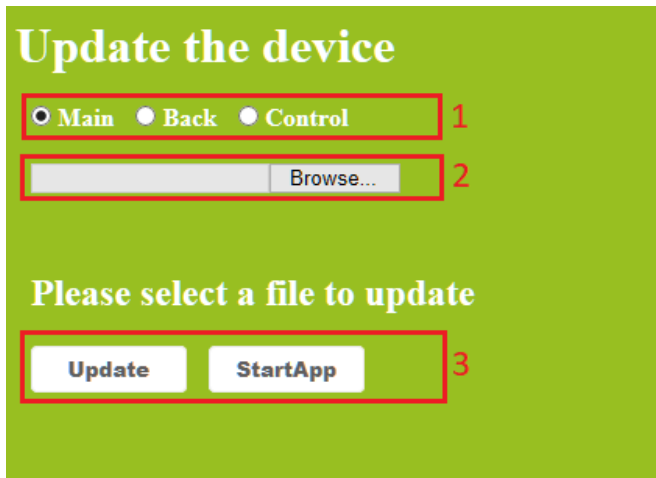
To access to the product web server, connect a PC to the LAN port of the G4 with a straight RJ45 cable. Once connected, make sure you are on the same subnet as the G4. (Default IP is 192.168.88.229)

BOOT MODE:

Once done, open a web browser and enter the IP address of the G4 to access to the web server. Click System -> System Update and wait for the G4 to enter update mode.



FIRMWARE UPDATE PROCESS:



1. Select your update. Click Main, Back or Control
2. Select your update firmware.
 - Main firmware filename is "DXM-xx-Main.bin".
 - Back panel firmware filename is "DXM-xx-Back.bin"
3. Click "Update" to update the firmware. Once complete, click "StartApp" to boot the G4 when the update is complete.

NOTE: If the update fails and you cannot boot the G4, try updating it again.

APPENDIX 3

Telnet and RS-232 Protocol

Supports communication via TCP/IP and RS232.

Default IP: 192.168.88.229 Port 1001

Default RS232: 115200 8N1 None

! (Command), ? (Query), ~ (Response)

<CR> = 0x0D Hex / 13 Decimal

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
1	Switch the single channel input of the video to the single channel or may multiple output	!Catob,c<CR>	a = input(1 ~ matrix max) b c = output(1 ~ matrix max or ALL)	Switch the video input 1 to the video output 2 and 3	!C1to2,3<CR>	~C1to2,3<CR>
2	Switch the video input channel to the video output channel, their correspondence	!CRA:b,c:d<CR>	a c = output(1 ~ matrix max) b d = input(1 ~ matrix max)	Switch the video input 1 to the video output 3, and switch the video input 2 to the video output 4	!CR1:3,2:4<CR>	~CR1:3,2:4<CR>
3	Select the video input channel, it needs to combination with the !CSWO command use	!CSWI:a<CR>	a = input(1 ~ matrix max)	Select the video input 2	!CSWI:2<CR>	~CSWI:2<CR>
4	Select the video input from the !CSWI, then switch to the video out	!CSWO:a<CR>	a = output(1 ~ matrix max)	Select the video input from the >CSWI, then switch to the video output 2 and 3	!CSWO:2,3<CR>	~CSWO:2,3<CR>
5	Query the status of the video output	?CR<CR>	NULL	Query corresponding relations between	?CR<CR>	~CR1:3,2:4<CR>
6	Switch the single channel input of the audio to the	!Tatob,c<CR>	a = input(1 ~ matrix max) + V/E	the input1's internal audio	!T1Vto2V,2E<CR>	~T1Vto2V,2E<CR>

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
	single channel or multiple channel audio out		b c = output(1 ~ matrix max or ALL) + V/E Note:V=Internal audio E=External audio	switch to the output2's internal and external audio		
7	Switch the audio input channel to the audio output channel, they're correspondence	!TRa:b,c:d<CR>	a c = output(1 ~ matrix max) + V/E b d = input(1 ~ matrix max or ALL) + V/E Note:V=Internal audio E=External audio	Switch the audio input 1V to the audio output 2V, and switch the audio input 1E to the audio output 2E	!TR1V:2V,1E:2E<CR>	~TR1V:2V,1E:2E<CR>
8	Select the audio input channel, it needs to combination with the >TSWO command use	!TSWI:a<CR>	a = input(1 ~ matrix max) + V/E Note: V=Internal audio E=External audio	Select the audio input 2A	!TSWI:2V<CR>	~TSWI:2<CR>
9	Select the audio input from the >TSWI, then switch to the audio out	!TSWO:a<CR>	a = output(1 ~ matrix max) + V/E Note:V=Internal audio E=External audio	Select the audio input from the >TSWI, then switch to the audio output 3V and 3E	!TSWO:3V,3E<CR>	~TSWO:2,3<CR>
10	Query the status of audio output	?TR<CR>	NULL	Query corresponding relations between	?TR<CR>	~TR1V:3V,2V:4B<CR>
11	Save the scene	!Sa<CR>	a = Scene location (1~32max)	Save the current state to the 10 scenes	!S10<CR>	~CR1:3,2:4,...<CR>
12	Call the scene	!Ra<CR>	a = Scene location (1~32max)	Call the scene 10	!R10<CR>	~CR1:3,2:4,...<CR>
13	Switch the audio and video synchronization	!SYNC:a<CR>	a = 0:no synchronous 1:synchronous	Switch synchronous	!SYNC:1<CR>	~SYNC:1<CR>
14	Query the status of the audio and video synchronization	?SYNC<CR>	NULL	Query synchronous	?SYNC<CR>	~SYNC:1<CR>
15	Set the audio and video	!SYNC_MODE:a<C	a = (mode)	Set the audio	!SYNC_MODE:	~SYNC_MOD

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
	synchronization mode	R>	0 : VE -> VE 1 : VE -> EV 2 : V -> VE (default) 3 : E -> VE 4 : V -> V 5 : E -> E 6 : V -> E 7 : E -> V Note: V=Internal audio E=External audio	and video synchronization mode	1<CR>	E:1<CR>
16	Query the audio and video synchronization mode	?SYNC_MODE<CR>	NULL	Query the audio and video synchronization mode	?SYNC_MODE:1<CR>	~SYNC_MODE:1<CR>
17	Set the scene name	!SNAMEa:b<CR>	a = Scene number (1~32max) b = scene name (15 English char)	Set the scene10 name to "Meeting"	!SNAME10:Meeting<CR>	~SNAME10:Meeting<CR>
18	Query the scene name	?SNAMEa<CR>	a = Scene location (1~32max)	Query the scene10 name	?SNAME10<CR>	~SNAME10:Meeting<CR>
19	Whether the scene is displayed on the WEB	!SUSEa:b<CR>	a = Scene number (1~32max) b = scene use (0=no display 1=display)	Set the scene10 for display on the WEB	!SUSE10:1<CR>	~SUSE10:1<CR>
20	Query the status of the scene	?SUSEa<CR>	a = Scene location (1~32max)	Query the scene10 use	?SUSE10<CR>	~SUSE10:1<CR>
21	Uart switch	!CUARTatob,c<CR>	a = RX (1 ~ matrix max) b c = TX (1 ~ matrix max or ALL)	Uart switch rx1 to tx1\2	!CUART1to1,2<CR>	~CUART1to1,2<CR>
22	Query the status of all uart	?CRUART<CR>	NULL	Query the status of all uart	?CRUART<CR>	!CRUART1:1,2:1,...<CR>
23	Set the IP address	!IP:a.b.c.d<CR>	a b c d = address (0~255)	set IP address to the 192.168.2.229	!IP:192.168.2.229<CR>	~IP:192.168.2.229<CR>
24	Set the Subnet	!SUBNET:a.b.c.d<CR>	a b c d = address (0~255)	set Subnet to the	!SUBNET:255.255.255.0<CR>	~SUBNET:255.255.255.0<CR>

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
25	Set the Gateway	!GATEWAY:a.b.c.d<CR>	a b c d = address(0~255)	255.255.255.0 set Gateway to the 255.255.255.0	CR> !GATEWAY:192.168.2.1<CR>	5.0<CR> ~GATEWAY:192.168.2.1<CR>
26	Set the Socket Server port	!PORT:a<CR>	a = Server port	Set the Socket Server port to the 1001	!PORT:1001<CR>	~PORT:1001<CR>
27	Set Network DHCP	!DHCP:a<CR>	1= 0:no open 1:open	Set Network DHCP for open status	!DHCP:1<CR>	~DHCP:1<CR>
28	Query the network information	?NETWORK<CR>	NULL	Query the network information	?NETWORK<CR>	~IP:192.168.2.229<CR> <SUBNET:255.255.255.0<CR> <GATEWAY:192.168.2.1<CR> <PORT:1001<CR>
29	Set the serial port	!UART:a,b,c,d<CR>	a = Baud Rate(115200 38400 19200 9600) b = Data bits(8 9) c = Stop bits(1 1.5 2) d = Parity bits(None Odd Even)	Set the serial to the 9600, 8, 1, None	!UART:9600, 8, 1, None<CR>	~UART:9600, 8, 1, None<CR>
30	Query the serial port	?UART<CR>	NULL	Query the serial port	?UART<CR>	~UART:9600, 8, 1, None<CR>
31	Set command enable, the commands received by socket and serial port will not be processed after closing (but the >CMDEN:a<CR> command will not be affected).	!CMDEN:a<CR>	a = 0:no make 1:make	Set command enable	!CMDEN:1<CR>	~CMDEN:1<CR>
32	Query the status of the command enable	?CMDEN<CR>	NULL	Query the status of the command enable	?CMDEN<CR>	~MDEN:1<CR>
33	Set the sound when send the	!CSOUND:a<CR>	a = 0:no sound	Set the sound	!CSOUND:1<CR>	~CSOUND:1

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
	command is sent		1:sound	when send the command is sent	R>	<CR>
34	Query the status of the sound when command is sent	?CSOUND<CR>	NULL	Query the status of the sound when command is sent	?CSOUND<CR>	~CSOUND:1<CR>
35	switch EDID of the output to the input port	!EDIDatob<CR>	a = output(1 ~ matrix max) b = input(1 ~ matrix max or ALL)	Switch EDID of the output 1 to the input 2 port	!EDID1to2<CR>	~EDID1to2<CR>
36	switch EDID of the system to the input port	!SYSEatob<CR>	a = system(1 ~ 16) b = input(1 ~ matrix max or ALL)	Switch system' s EDID 1 to the input 2 port	!SYSE1to2<CR>	~SYSE1to2<CR>
37	Save EDID of the output to the system	!SEDIDatob<CR>	a = output(1 ~ matrix max) b = system(1 ~ 16)	Save EDID of the output 1 to system 2	!SEDID1to2<CR>	~SEDID1to2<CR>
38	Select the output port to output HDMI or DVI formats	!HDMODE:a,b<CR>	a = output(1 ~ matrix max) b = 0:DVI 1:HDMI	Set the output 2 for HDMI format	!HDMODE:2,1<CR>	~HDMODE:2,1<CR>
39	Open or close the HDCP of the port (IN/OUT card)	!HDCP:a,b<CR>	a = port(1 ~ matrix max) b = 0:OFF 1:ON	Set the port 2 the hdp for off	!HDCP:2,0<CR>	~HDCP:2,0<CR>
40	Turn on or off the power of the card	!CPOWER:a,b<CR>	a = port(1 ~ matrix max) b = 0:OFF 1:ON	Close the port 2 power supply	!CPOWER:2,0<CR>	~CPOWER:2,0<CR>
41	Query the power status of card	?CPOWER:a<CR>	a = port(1 ~ matrix max)	Query the power status of card 2	?CPOWER:2<CR>	~CPOWER:2,0<CR>
42	Set user login WEB interface' s username and password (Arabic numerals and English word only)	!MUNP:a,b<CR>	a = name(15 the English characters or Arabic numerals) b = password(15 the English characters or Arabic numerals)	set user name:Main password:123456	!MUNP:Main,123456<CR>	~MUNP:Main,123456<CR>
43	Query management username and password	?MUNP<CR>	NULL	Query management	?MUNP<CR>	~MUNP:Main,123456<CR>

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
				username and password		CR>
44	Send commands to control board	!COMa<CR>	a = control card command	send "-TEST" string	!COM-TEST<CR>	NULL (you don't online returns the ERROR)
45	Checking whether the central control board is online or not	?COM<CR>	NULL	can check out the central control board is online by sending "#COM<CR>" to get a response of "<COM:1<CR>"	?COM<CR>	~COM:1<CR>
46	To TCP Socket server send data	!SEND-SS:a:b,c<CR>	a = IP b = Server port c = data	To 192.168.88.100 : 1001 send "TEST"	!SEND-SS:192.168.88.100:1001,TEST<CR>	~SEND-SS:4<CR>
47	Query status information Returned in JSON format	?JSON:a,b<CR>	a = ("video", "scene", "system", "weburl", "cont") b = mark(Status update version, 0 = Request all data)	Query the state of the video	?JSON:video,0<CR>	{ "system": { "run": "Run 000:01:15" , "temp": "20~35", "ip": "192.168.88.151:8020", "wcolor": "#66ff00" }, "mark": 55, "ahpd": 1, "uhpd": 1, "lang":

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
						1, "update": true }, }
48	Set the system language	!LANG:a<CR>	a = 0: English 1: Chinese	Set the system language is Chinese	!LANG:1<CR>	~LANG:1<CR>
49	Query system language	?LANG<CR>	NULL	Query system language	?LANG<CR>	~LANG:1<CR>
50	Restart the system	!SOF-RESTART<CR>	NULL	Restart the system	!SOF-RESTART<CR>	~SOF-RESTART<CR>
51	Restore the factory Settings	!SYS-RESET<CR>	NULL	Restore the factory Settings	!SYS-RESET<CR>	~SYS-RESET<CR>
52	Query all the daughter card types	?RCID<CR>	NULL (return data reference link)	Query all the daughter card types	?RCID<CR>	~RCID:1:1 1,2:N/A.. <CR>
53	Query main software version	?SVER<CR>	NULL	Query main software version	?SVER<CR>	~SVER:1.0 .0<CR>
54	Query hardware version	?HVER<CR>	NULL	Query hardware version	?HVER<CR>	~HVER:1.0 .0<CR>
55	Query the firmware version of the back board	?BVER<CR>	NULL	Query back software version	?BVER<CR>	~BVER:1.0 .0<CR>
56	Query the matrix type	?MO<CR>	NULL	Query matrix type	?MO<CR>	~DXM-884<CR>
57	Send commands to HDBT cards	!SEND-CU:a:xb:c<CR>	a = baud Rate(115200 38400 19200 9600) x = I or 0 b = card port c = data	For example, send "TEST" to output port1	!SEND-CU:115200:01:TEST<CR>	
58	Send and receive commands from HDBT cards	!SEND-CU-RECV:a:xb:c<CR>	a = baud Rate (115200 38400 19200 9600) x = I or 0 b = card port c = data	For example, recv data "RECV-OK" to output port1	!SEND-CU-RECV:115200:01:TEST<CR>	~RECV-CU:1:RECV-OK<CR> No Return: <RECV-CU:1:Timeout<CR>

Num	Action	Basic ASCII String	Variables	Example Settings	Example String	Example Response
! - Command, ? - Query, ~ - Response <CR> = 0x0D Hex / 13 Decimal Note: The default communication settings are 115200 8N1 None. IP address:192.168.88.229 Socket Server port:1001 To send Hex instead of ASCII for HDBT serial commands use %H. Example: HEX 01 02 03 04 05 0D 0A Command format: >SEND-CU-RECV:115200:1:%H 01 02 03 04 05 0D 0A<CR>						

APPENDIX 4

Recommended Cabling

Aurora extender products have been tested utilizing shielded cabling. Although our products will work fine without shielded cable it is highly recommended for environmental reasons as the signals are high frequency and can radiate as well as be susceptible to external frequencies and possibly cause noise or disruption in the image. Unshielded cabling will work fine in a conduit as it will provide the shielding. We have found not all cable is created equal even though they appear similar. This can affect distance and overall performance. Below is a list of cables that have been officially tested with our products by the manufacturer of the cable.

West Penn Wire

CAT 6 Shielded - HDBaseT Certified - Only in Black

4246F – CMR, 254246F – CMP (Plenum)

CAT 6a Shielded HDBaseT Certified - Only in Black

4246AF – CMR, 254246AF – CMP (Plenum)

Both CAT 6 and CAT 6a Shielded Cables utilized a Modular Plug Kit:

90170-BI - Includes: 100 Connectors, 100 Boots, Crimp Tool, External round Crimp Tool, Strip Tool

CAT 6 Unshielded - Colors

4246 – CMR, 254246 - CMP (Plenum)

Connector: 32-6EZP

CAT5e Shielded - Blue or Gray

4245F – CMR, 254245F - CMP (Plenum)

Connector: 32-EZSTP

CAT 5e Unshielded- 12 Colors

4245-CMR, 254245 - CMP (Plenum)

Connectors: 32-EZP

APPENDIX 5

Technical Specifications

Model Name	DXM-884
Technical	
HDMI/DVI compliance	HDMI 2.0A Deep Color, full 3D & 4K2K/ DVI 1.0
HDCP compliance	HDCP 1.4/2.2
Video bandwidth	Single-link 600MHz [18Gbps]
Firmware update	LAN
Input	8 Input Slots (4 output slots can be inputs for up to 12)
Output	8 Total Output Slots, 4 can be input Slots too.
EDID	Full Management & Custom
LAN	10/100Mbps PoE RJ-45
Mechanical	
Housing	Metal enclosure
Dimensions [L x W x H]	317.7 x 84.7 x 30mm (12.51" x 3.33" x 1.18")
Weight	6.88kg [15.17lbs]
Mounting	Rack Mount 3RU
Power supply	100-240V 50Hz/60Hz Redundant
Power consumption	96 Watts
Operation temperature	0~60°C [32~140°F]
Storage temperature	-20~85°C [-4~185°F]
Relative humidity	20~80% RH [no condensation]
Package Contents	
	1x DXM-884

Specifications subject to change without notice.

Model Name	DXM-1616
Technical	
HDMI/DVI compliance	HDMI 2.0A Deep Color, full 3D & 4K2K/ DVI 1.0
HDCP compliance	HDCP 1.4/2.2
Video bandwidth	Single-link 600MHz [18Gbps]
Firmware update	LAN
Input	16 Input Slots
Output	16 Output Slots
EDID	Full Management & Custom
LAN	10/100Mbps PoE RJ-45
Mechanical	
Housing	Metal enclosure
Dimensions [L x W x H]	317.7 x 84.7 x 30mm (12.51" x 3.33" x 1.18")
Weight	11.96kg [26.37lbs]
Mounting	Rack Mount 5.5RU
Power supply	100-240V 50Hz/60Hz Redundant
Power consumption	202.5 Watts
Operation temperature	0~60°C [32~140°F]
Storage temperature	-20~85°C [-4~185°F]
Relative humidity	20~80% RH [no condensation]
Package Contents	1x DXM-1616

Specifications subject to change without notice.

APPENDIX 6

Warranty

Limited 3 Year Warranty

Aurora Multimedia Corp. ("Manufacturer") warrants that this product is free of defects in both materials and workmanship for a period of 3 years as defined herein for parts and labor from date of purchase. This Limited Warranty covers products purchased in the year of 2009 and after. Motorized mechanical parts (Hard Drives, DVD, etc), mechanical parts (buttons, doors, etc), remotes and cables are covered for a period of 1 year. Touch screen displays are covered for 1 year; touch screen overlay components are covered for 90 days. Supplied batteries are not covered by this warranty. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with same or similar model) at our option without charge for parts or labor for the specified product lifetime warranty period.

This warranty shall not apply if any of the following:

- A. The product has been damaged by negligence, accident, lightning, water, act-of-God or mishandling; or,
- B. The product has not been operated in accordance with procedures specified in operating instructions: or,
- C. The product has been repaired and or altered by other than manufacturer or authorized service center; or,
- D. The product's original serial number has been modified or removed: or,
- E. External equipment other than supplied by manufacturer, in determination of manufacturer, shall have affected the performance, safety or reliability of the product.
- F. Part(s) are no longer available for product.

In the event that the product needs repair or replacement during the specified warranty period, product should be shipped back to Manufacturer at Purchaser's expense. Repaired or replaced product shall be returned to Purchaser by standard shipping methods at Manufacturer's discretion. Express shipping will be at the expense of the Purchaser. If Purchaser resides outside the contiguous US, return shipping shall be at Purchaser's expense.

No other warranty, express or implied other than Manufacturer's shall apply.

Manufacturer does not assume any responsibility for consequential damages, expenses or loss of revenue or property, inconvenience or interruption in operation experienced by the customer due to a malfunction of the purchased equipment. No warranty service performed on any product shall extend the applicable warranty period. This warranty does not cover damage to the equipment during shipping and Manufacturer assumes no responsibility for such damage.



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