iMatrix C604

4K60 6x4 Seamless Matrix Switcher with USB C

Datasheet V1.1

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1. INTRODUCTION

The **iMatrix C604** is a fixed 1RU 6x4 fast switching matrix with both USB-C and HDMI inputs. It builds in 4K60 scaler on all video outputs, and features seamless transition when switching video inputs. The USB-C input is fully featured, which supports 4K60, USB 3.1 gen1, 1G network and PD 3.0 USB host charging up to 60watts.

The matrix also features rich audio connections, which include analog microphone inputs, Dante 4x4 digital inputs and outputs, USB audio and line audio outputs.

The matrix is also integration friendly with flexible control options, including front panel buttons, RS232 and LAN control (Telnet & Web UI).

The matrix is designed for professional markets, such as high education classroom, corporate meeting rooms etc.

2. FEATURES

- Inputs and outputs support resolutions up to 4K@60Hz 4:4:4 8-bit.
- Supports HDCP 2.3 and is backward compatible.
- HDMI outputs support free scaler from 480p to 2160p, and provide seamless transition without seeing black screen switching.
- Full-featured USB-C input port, supports 4K@60Hz, USB 3.1 gen1, 1G network, and PD 3.0 charging up to 60 watts.
- Supports USB host switching and USB device extension.
- Switching USB hosts include 1x USB 3.0 type-C port and 2x local USB3.0 type-B ports;
- USB devices include 4x local USB3.0 type-A ports.
- Versatile audio connection and DSP
- 2x Mic inputs, and 1x LINE input
- 1x USB audio input and 1x USB audio output, with 48KHz sampling frequency
- Dante 4x4 with various sampling rates
- HDMI audio de-embedding with sampling frequency up to 192KHz;
- Supports 2x balanced audio outputs.
- Multi-Channel audio DSP Processing—Enables simultaneously processing of audio input and output signals, including gain, EQ, etc.
- Supports GPIO control and relay control.
- Multiple control options, including front panel buttons, RS-232 and LAN (Web UI &Telnet).

3. SPECIFICATIONS

Technical	
Input / Output Signal Type	4K@60Hz 4:4:4 8bit, HDCP 2.3
Input Resolutions	VESA: 800x600[8], 1024x768[8], 1280x768[8], 1280x800[8], 1280x960[8], 1280x1024[8],1360x768[8], 1366x768[8], 1440x900[8], 1600x900[8], 1600x1200[8], 1680x1050[8],1920x1200[8] SMPTE: 720x576P[6], 1280x720P[6,7,8], 1920x1080P[2,5,6,7,8], 3840x2160[2,3,5,6,8], 4096x2160[2,3,5,6,8] 2 = at 24 Hz, 3 = at 25 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = 60 Hz
Output Resolutions	4096x2160[3,5] 3840x2160[8], 3840x2160[6], 3840x2160[5], 3840x2160[3], 3840x2160[2], 1920x1200[8], 1920x1080[8], 1920x1080[6], 1680x1050[8], 1600x1200[8], 1600x900[8], 1440x900[8], 1366x768[8], 1360x768[8], 1280x1024[8], 1280x960[8], 1280x800[8], 1280x768[8], 1280x720[8], 1280x720[6], 1024x768[8], 800x600[8] 2 = at 24 Hz, 3 = at 25 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = 60 Hz
Audio Format	USB-C/HDMI/MIC IN/LINE IN/LINE OUT: PCM 2.0
Maximum Data Rate	HDMI: 18Gbps USB-C: 5Gbps (per lane)
Control Method	Front panel buttons, RS-232, LAN (Telnet API & Web UI)
General	
Operating Temperature/ Humidity	32°F ~ 113°F (0°C ~ 45°C), 10% ~ 90%, non-condensing
Storage Temperature/ Humidity	-4°F ~ 158°F (-20°C ~ 70°C), 10% ~ 90%, non-condensing
Power	AC 100~240V 50/60Hz
Power Consumption	TBD
ESD Protection	Human body model: ±8kV (air-gap discharge) / ±4kV (contact discharge)
Dimensions (W x H x D)	17.32" x 1.71" x 12.99" (440mm x 43.5mm x 330mm)

Technical	
Net Weight	10.03lbs (4.55kg)

Transmission Distance

Cable Type	Range	Supported Video
HDMI	Input/Output: 15m/49ft	1080P@60Hz
	Input/Output: 10m/33ft	4K@30Hz 4:4:4 24bpp
	Input/Output: 5m/16ft	4K@60Hz 4:4:4 24bpp
USB Type-C	2m/7ft	4K@60Hz 4:4:4 24bpp

4. PANEL OVERVIEW

4.1 FRONT PANEL

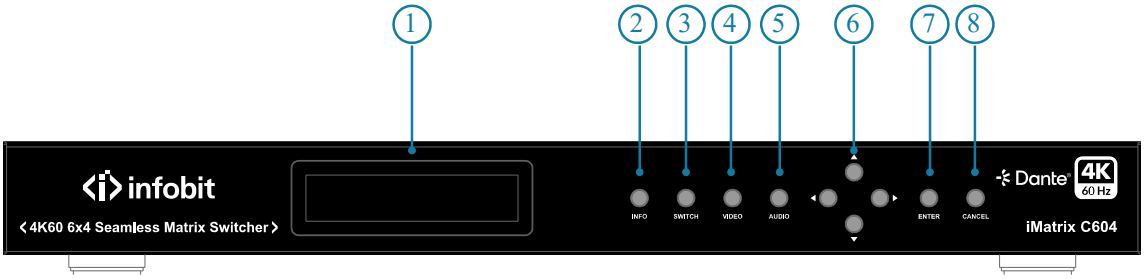

Figure 1: Front Panel

#	Name	Description
1	LCD Screen	Display the information of button operation.
2	INFO Button	Press to enter viewing device information mode on the LCD screen. In this mode, use the navigation buttons to turn pages and view the following information on LCD screen, including firmware version, IP address, fan speed, temperature, and physical address.

#	Name	Description
3	SWITCH Button	Press to enter input channel selection mode.
4	VIDEO Button	Press to display the video information of the selected input port on LCD screen, including resolution, color space and HDCP encrypted status.
5	AUDIO Button	Press to enter audio volume adjust mode.
6	Navigation Button	• INFO: Press the four navigation buttons to turn pages to display the device information. • AUDIO: Press the left/right button to switch audio output ports and the up/down button to increase/decrease volume. • SWITCH: Press the left/right button to switch output and the up/down button to select input for the selected output. • VIDEO: Press the left/right button to switch input port and the up/down button to turn the page to display video information of current selected input.
7	ENTER Button	Press to apply the settings.
8	CANCEL Button	Press to cancel the button operation or exit current mode.

4.2 REAR PANEL

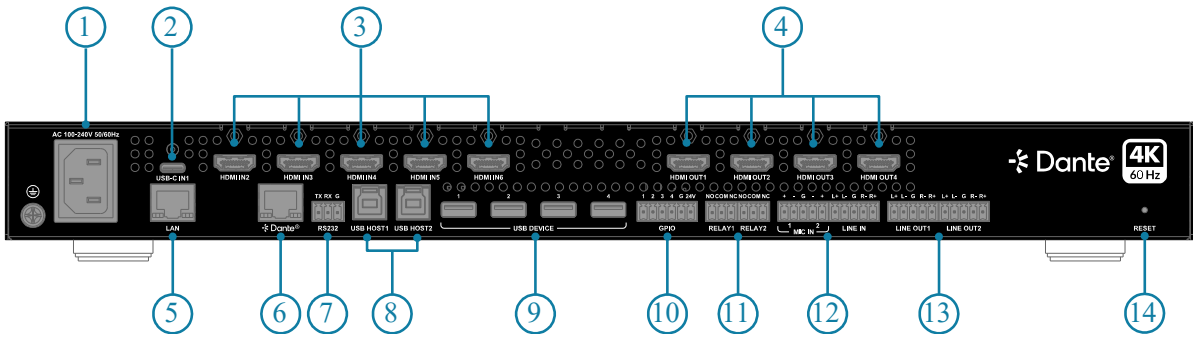

Figure 2: Rear Panel

#	Name	Description
1	AC 100~240V 50/60Hz	Connect to the power source using the provided AC power cord.
2	USB-C IN 1	USB 3.0 Type-C port; connect to a laptop with USB type-C port.

#	Name	Description
		The port supports the following functions: • Audio, video, and USB 3.0/2.0 signal transmission, with a maximum data rate of 5Gbps. • Power Delivery (PD) 3.0, capable of supplying up to 60W of power to the connected device. • 1G network connectivity, enabling the laptop to access the Ethernet through the connected matrix. The following cable are recommended to use: USB Type-C to Type-C cable (USB 3.0 or above)
3	HDMI IN 2~6	Connect to HDMI sources.
4	HDMI OUT 1~4	Connect to HDMI displays.
5	LAN	RJ45 port. Connect to Ethernet devices for LAN control (Web UI/Telnet).
6	DANTE	RJ 45 port. Connect to the network for Dante audio connection.
7	RS232	Connect to a RS-232 enabled control device for API control or RS-232 routing.
8	USB HOST 1~2	USB 3.0 Type-B ports. Connect to USB host devices.
9	USB DEVICE 1~4	USB 3.0 Type-A ports. Connect to USB devices.
10	GPIO	Connect to GPIO devices. Support connecting up to four GPIO devices.
11	RELAY 1~2	Connect to relay devices for relay control. • NO: Normally open; • NC: Normally closed; • COM: Common connector. Detail setting information about relay, please refer to "Device Control via Web UI" section.
12	MIC IN 1~2 & LINE IN	• MIC IN 1~2: Connect to microphones. • LINE IN: Connect to line in device.
13	LINE OUT 1~2	Connect to audio receivers.

#	Name	Description
14	RESET	Use a needle to press and hold the recessed reset button: • Less than 5s: Nothing will happen. • More than 5s but less than 15s: Reset the IP mode of the device to DHCP, and reset the login passwords of telnet and web UI to defaults. Both the default login password of telnet and web UI are “**admin**”. • More than 15s: Reset the device to factory defaults.

5. APPLICATIONS

5.1 DANTE

The **iMatrix C604** supports 4x4 Dante audio transmission. Before using Dante function, please enable all devices are connected to the same network, as the Dante Controller is only available on wired connections.

Connect the “Dante” port to a local area network, and launch the “Dante Controller” software on the laptop connected in the same network (Refer to https://www.audinate.com/products/software/dante-controller to download the latest Dante Controller). Pair the transmitters and receivers (both the transmitters and receivers are connected with the same network) as required on the Dante Controller with the matrix. The paired transmitters can generate Dante audio and transmit it to the Dante in of the matrix through the network, and the paired receiver can receive Dante audio from Dante out of the matrix through the network. Users can set audio sources and audio outputs through API commands or web UI. Refer to the separate document **“*API Command Set_iMatrix C604*”** or “**Device Control via Web UI**” section for more information.

5.2 LOCAL PRESENTATION

It supports seamless switching between visitor's PC, Room PC, BYOD devices in meeting rooms or among teacher's laptop, class PC or document camera in education applications.

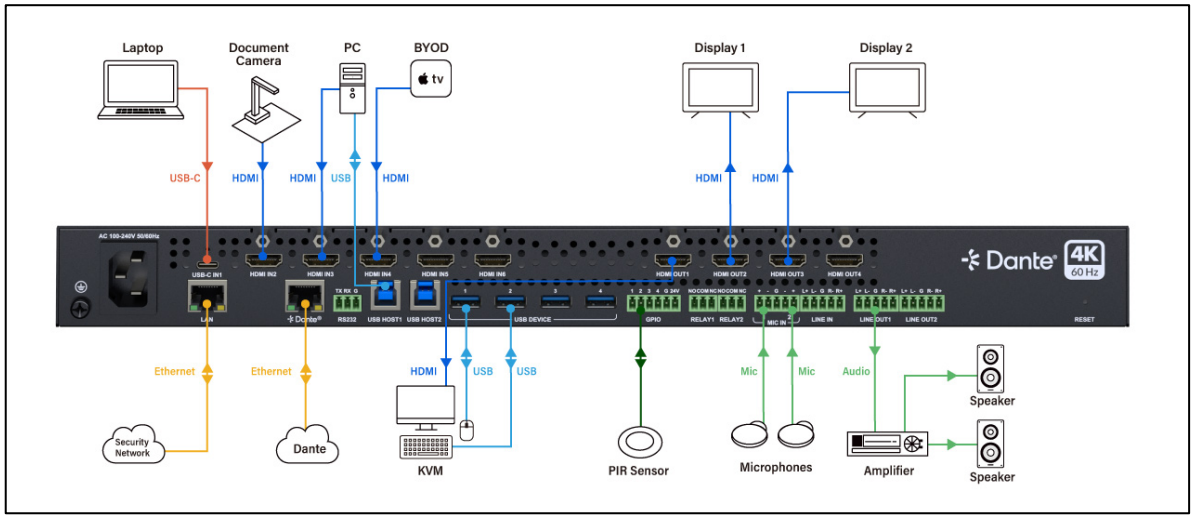

Figure 3: Application of Local Presentation

5.3 LARGE LECTURE HALL

It supports seamless switching among lecture's laptop, Room PC, document camera, web cameras, or BYOD devices in tranining applications.

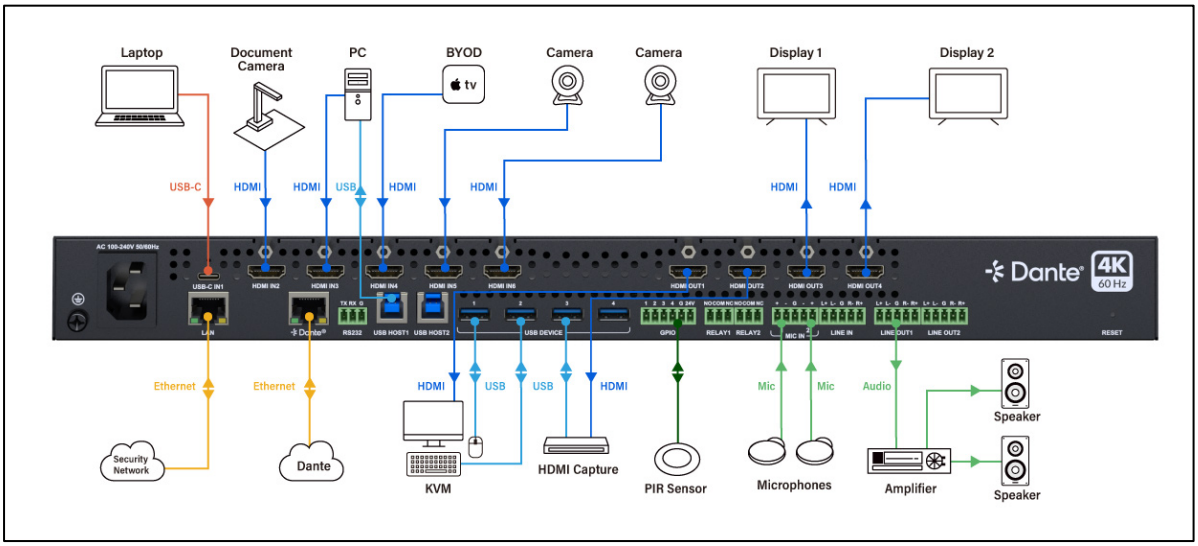

Figure 4: Application of Large Lecture Hall

5.4 BYOD MEETING ROOM

It supports seamless switching among meeting guest's laptop, Room PC or BYOD devices and share the web camera signals in meeting room applications.

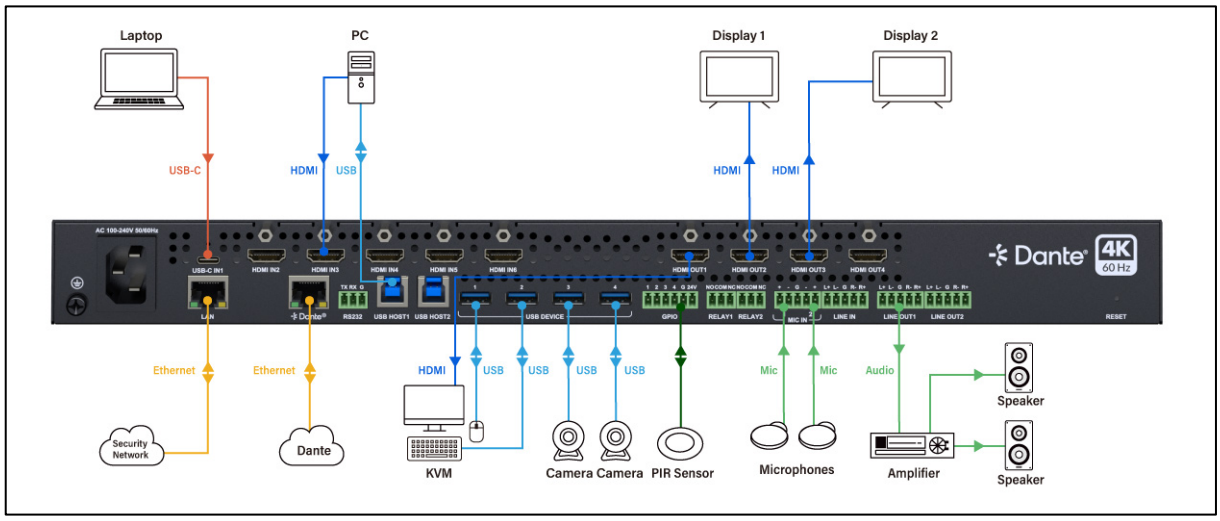

Figure 5: Application of Corporate Unified Communications

5.5 BYOM MEETING ROOM

It supports passthrough the USB devices like videobar camera, webcam, microphone or speakerphone to USB C, USB B Host 1 and 2 which can connect to iShare X400 directly to allow users to use wireless BYOM at will.

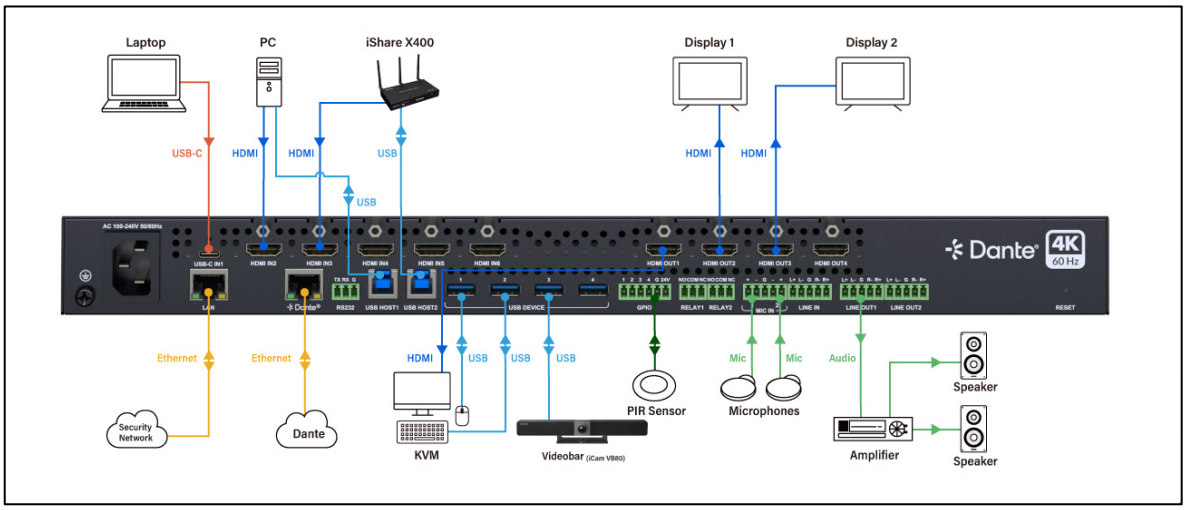

Figure 6-2: Application of Corporate Unified Communications with BYOM