

Quick Start Guide

MX4x4DVI, 4x4DVI-DL, 6x6DVI-DL, 8x8DVI-DL MX8x4DVI-Pro, 8x8DVI-Pro, 8x8DVI-HDCP-Pro, 8x8HDMI-Pro MX9x9DVI-Slim, 12x12DVI-Slim, 16x16DVI-Slim MX9x9DVI-Plus, 12x12DVI-Plus, 16x16DVI-Plus

Important Safety Instructions

Please read the supplied safety instruction document before using the product and keep it available for future reference.

Introduction

Lightware's 4x4 to 16x16 I/O sized standalone matrix switchers are perfect for dynamically changing environments. The switchers handle DVI-D, HDMI signals with HDCP support and can be controlled either by RS-232 port, TCP/IP LAN connection, or by the built-in website - depending on the capabilities of the appliance. Crosspoint switching is done instantly without frame delay or frame latency.

Box Contents





Power supply unit, power cable with Neutrik plugs *

* The external PSU and the cable is only available for purchase for the **Slim** matrix switchers, as a separate accessory. For the details, please contact sales@lightware.com.

Mounting with Front Rack Ears

The front rack ears allow mounting the device as a standard rack unit installation.



Ventilation

A To ensure the correct ventilation and avoid overheating let enough free space around the appliance. Do not cover the appliance, let the ventilation holes free on both sides.





Connecting Steps (MX8x8-HDMI-Pro)



HDMI/DVI Connect the HDMI/DVI cable(s) between the source(s) to the input port(s) of the matrix. HDMI/DVI Connect the HDMI/DVI cable(s) between the sink(s) and the output port(s) of the matrix. Audio Optionally for S/PDIF audio extension: connect the audio cable(s) between the audio device (e.g. power amplifier) and the S/PDIF output port(s) or the matrix. * RS-232 Optionally for serial extension: connect a controller device (e.g. touch panel) to the RS-232 port. CATx Optionally connect the matrix to a LAN in order to control the device. Power Firstly connect the power cable to the AC input connector on the matrix, then to the AC power socket		
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* Only MX8x8HDMI-PRO model contains S/PDIF audio output ports.

Front View Legend

1	Output lock	Locks and protects one or more outputs.
2	Control lock	Disables or enables front panel operations. Red light means the switching and function buttons are disabled.
3	Destinations	Buttons to select an output or to see the state of an output.
4	Sources	Buttons to select an input, to select a preset number, or to view the state of the selected input port.
5	Take button	Switching between Take and Autotake working modes; keep the button pressed for 3 seconds to toggle the modes.
6	Preset buttons	Performing preset operations (Load and Save).
1	EDID button	The EDID mode can be (de)activated by the button. The illuminated button shows that the mode is active.
8	Signal present	This Signal present mode can be (de)activated by the button. The illuminated button shows that the mode is active.
9	Display	2x16 character LCD display for menu operations.
10	Menu navigation	Up, down, left, right and enter buttons.
	Status LEDs	Power LED indicates that the unit is powered on. CPU LIVE blinking LED indicates normal operation.
12	Reset button	Reboots the matrix; the same as switching it off and on again. Only on MX8x8HDMI-Pro and -DVI-HDCP-Pro switchers.
13	On/Off switch	The matrix can be switched on/off by the switch.

Rear View Legend

1	AC connector	Standard IEC connector accepting 100-240 V, 50 or 60 Hz.
2	Fuse	Replace with F3.15A type only when necessary. In the case of DVI-DL series use an F1A fuse.
3	RS-232 port	9-pole D-sub female connector for a standard RS-232 port.
4	LAN	Standard RJ45 connector. This port can be connected to a computer directly or to LAN via switch/router.
5	Input ports	Standard DVI-I or HDMI connectors for DVI-D or HDMI input signals.
6	Output ports	Standard DVI-D or HDMI connectors for DVI-D or HDMI signals.
0	Equipotential connector	Plug connector for potential equalization. Only in case of Plus and Slim matrix switchers.
8	Reset button	Reboots the matrix; the same as switching it off and on again. Only in the case of Slim and Plus matrix switchers.

Further information on the device is available at www.lightware.com. The User's Manual is also available via the QR code below:



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Powering On

Connect the power cord to the device's IEC C14 standard power input connector. The router is immediately powered on when the power cord is connected to the AC source (on Slim matrix switchers the power switch has to be in position 'ON'). If the self-test is finished the last configuration is reloaded and the appliance is ready to use.

• After switching ON, the router reloads the latest settings which had been used before it was turned off. The router has an internal emergency memory that stores all current settings and tie configurations. This memory is independent from presets and invisible for the user. This built-in feature helps the system to be ready immediately in the case of a power failure or accidental power down.

Front Panel Controls in TAKE Mode

Take mode allows the user to connect or disconnect multiple outputs to an input TAKE at once. This mode is useful when time delay is not allowed between multiple AUTO switching. The commands are only realized when the Take button is pressed.

1. First press and release the desired **source button**.

The pressed source button and all destination buttons

which have to be (dis)connected to/from the selected

source. The preselected destination buttons will blink.

3. Press and release the Take button. The selected input

1. Press and release the **Output Lock** button. It starts to

blink and all the buttons of any locked destinations light

2. Press and release a destination button. It starts to

which are currently connected to the source light up.

2. Press and release the desired **destination buttons**

is switched to the selected output(s).

destinations are now locked.

up (view state).

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Front Panel Controls in AUTOTAKE Mode

Autotake mode is useful when immediate actions must be taken or fast switching is needed between sources on a particular destination. In this mode switching occurs immediately upon pressing one of the input selector buttons.



operations	1. Press and release the desired destination button . The pressed destination button and the actually connected source button light up green. If no source is connected (the output is muted) no source button will light up.	123456 sources 1243456			
Switching	2. Press and release the desired source button . The switch action will be executed immediately. Switching between sources to the selected destination can be done directly.	23456 - EXERCISE - EXERCISE			
output	1. Press and release the required destination button . Now the selected destination button and the currently configured source button light up (view mode).				
Lock an	2. Press and release the Output Lock button; it lights up in red, and lock function is activated at once. No source can be changed at the locked destination.				

Remote Operation

The matrix can be controlled through various interfaces remotely. The feature allows using functions which are not accessible via the front panel. Also, this helps system integrators and operators to control multiple devices in a complicated system through a single user interface.

Control Interfaces

The user can connect to the matrix through Ethernet (TCP/IP), or Serial port (RS-232). After establishing the connection, generally, there is no difference between the connection types.

User interface	Ethernet port	RS-232 port
Lightware Device Controller	>	 Image: A set of the set of the
Built-in website	~	×
Third party control system	~	~

Ethernet port can be connected to a LAN hub, switch, or router with a UTP patch cable. If connecting to a computer directly, a cross-link UTP cable has to be used!

Multiple Simultaneous Connections

Ethernet and Serial connections can be used at the same time. However, only one connection is allowed for Lightware Device Controller (LDC) via the Ethernet port.

Control Protocols

The matrix can be controlled with multiple control protocols. Lightware routers have a special protocol, but to inter-operate with third-party devices, a secondary protocol is also provided. For detailed information about control protocol, please read the User's manual of the device.

Software Control – Using Lightware Device Controller (LDC)

The device can be controlled from a computer using the Lightware Device Controller software. The application is available at www.lightware.com. install it on a Windows PC or a macOS and connect to the device. The following ways are available to connect to the device directly.



Local RS-232 Port

Connect a serial cable between the matrix and the computer and start the LDC. Press the Query button of the connected COM port to list the device, select it then press Connect. The factory default RS-232 port settings are the followings:

9600 Baud, 8 data bits, No parity, 1 stop bit.

LAN Port

Connect the supplied LAN cross-link cable between the matrix and the computer for direct connection or connect to an Ethernet by a patch cable. The default parameters are listed under Network settings section.



Web Control - Using the Built-in Website

The matrix switchers have a built-in web page, which can be accessed over TCP/IP protocol and offers you full control over all settings even if you don't have the opportunity to install new programs. The router's built-in website is compatible with most widely spread browsers and requires no additional software components. To access the web page just run your preferred web browser and type the IP address of the router as a URL. The computer and the router have to be in the same subnet.

1 The only way to find out the router's IP address (if it is not known) is to search for devices with the Lightware Device Controller software. If this is not possible for some reason, the IP address can be reset to factory default (192.168.254.254) with the front panel buttons.

 Only one opened web page is allowed simultaneously. Other TCP/IP connections are prohibited while the web page is opened.

Establishing the Connection

If the computer has multiple Ethernet connections (e.g. Wi-Fi and LAN connections are used simultaneously) you will have to know the IP address for the one that is used for controlling the matrix.

- 1. Connect the matrix switcher and the computer via :
 - Ethernet by a LAN patch cable (to a Hub, Switch or Router), or
 - Directly by a LAN cross-link cable.
- 2. Change to the desired IP settings if it is needed.
- 3. Type the IP address to the address bar of the web browser. After a few seconds, the Control menu appears. The current state of the crosspoint is displayed.

blink (more destinations can be selected sequentially). 23 3. Press and release the Take button. The selected

CONTROL LOOK

1 2 3 4 5 6

1 2 3 4 5 6

23456

123

123

1 2 3

CONTROL LOCK

If the button illuminates in red the switching- and function buttons are disabled. Press the Control lock button to toggle the state.

 When the front panel buttons are locked, remote control (RS-232, Ethernet) is still available.

LCD Menu Operation Modes

(Valid for the MX8x8DVI-HDCP-Pro, and MX8x8HDMI-Pro switchers.)

Normal Mode

Most settings can be done in this mode; this is the default mode after powering on.

EDID Mode

Use this mode to set up the emulated EDID on the inputs, learn EDID from the outputs or to view the EDID memory. This mode is activated when the EDID button is illuminated. You can enter or exit this mode by pressing the EDID button.

Signal Present Mode

This mode is for checking the presence of the display devices and incoming signals. It is activated when the SIGNAL PRESENT button is illuminated. You can enter this mode or exit by pressing the SIGNAL PRESENT button.

Network Settings - Resetting the IP Address with Front Panel Buttons

The factory default IP address or DHCP mode can be set by the front panel buttons guickly. To reset the IP configuration perform the followings:

- 1. Switch the router to Take mode if used previously in Autotake mode by pressing Take button for 3 seconds (light will go off).
- 2. Press and release Control Lock button (it lights in up red continuously).
- 3. Press and keep pressed the Output Lock button (the current protocol is indicated).
- 4. Press and release the
- a. Load Preset button to set the factory default static IP settings:
 - IP address: 192.168.254.254
 - port number: 10001
 - subnet mask: 255.255.0.0
 - gateway: 0.0.0.0
 - b. Save Preset button to set DHCP enabled (dynamic IP address):
 - IP address: Acquired with DHCP
 - port number: unchanged
 - subnet mask: Get from DHCP server
 - gateway: Get from DHCP server

• Setting a dynamic IP address by the front panel buttons is available only in case of the following products: MX8x8HDMI-Pro, MX8x8DVI-HDCP-Pro, MX-...-Slim and MX-...-Plus matrix switchers.

- 5. A light sequence will occur to confirm the command.(Take/Auto. Load Preset and Save Preset buttons will light up one after the other).
- 6. Reinsert the LAN cable to the Ethernet port if it was unplugged.
- 7. Wait about 20 seconds before connecting the router via Ethernet.
- The factory default IP port no. is 10001.

