Quick Start Guide

MMX4x2-HDMI
MMX4x2-HT200

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

Introduction
Thank you for choosing Lightware’s MMX4x2 series device. The product is a uniquely mini size matrix switcher with additional Lightware developments. Audio can be de-embedded from the HDMI signal to a balanced 5-pole Phoenix (Euroblock) port and external audio signal can be embedded into the HDMI stream from another 5-pole Phoenix input port. The device has a built-in Event Manager configurable via the Lightware Device Controller software. Further control options are served by the USB, RS-232, IR (in and out) and Ethernet ports.

The MMX4x2-HDMI matrix is compatible with any third-party HDBaseT™ device. HDBaseT™ and the HDBaseT Alliance logo are trademarks of the HDBaseT Alliance.

Compatible Devices
MMX4x2-HDMI matrix is compatible with other Lightware TPS devices, matrix TPS and TPS2 boards, TPS2 boards, as well as third-party HDBaseT-extenders, but not compatible with the phased out TPS-90 extenders.

Box Contents
Matrix unit
12V DC adapter with interchangeable plugs
Phoenix Combicon 3-pole connector
Phoenix Combicon 5-pole connector
Infrared detector unit
Infrared emitter unit
UTP patch cable (3 m)
Safety and warranty info, Quick Start Guide

Mounting
To mount the matrix Lightware supplies optional accessories for different usage. There are two kinds of mounting kits with similar fixing method. The matrix switcher has two mounting holes with inner thread on the bottom side. Fasten the device by the screws enclosed to the accessory.

Under-deck double mounting kit
1U high rack shell
The Under-deck double mounting kit makes easy to mount a single device on any flat surface, e.g. furniture. 1U high rack shell provides mounting holes for fastening two half-rack or four quarter-rack sized units. Pocket-sized devices can also be fastened on the shell. To order mounting accessories please contact sales@lightware.com.

Using different (e.g. longer) screws may cause damage to the device.

The matrix is half-rack sized.

Locking DC Plug
Twist 90° clockwise to lock.

Further Information

The document is valid with the following firmware version: 1.2.0
For more information, please visit our website at www.lightware.com.

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HDMI + Ethernet + Local USB + RS-232 + Infrared

HDMI Analog audio

TPS

HDBaseT

TPS input port
TPS input port for compatible transmitter device (extender / matrix / board).

HDMI input ports
HDMI input ports for sources. Applied cable shall not be more than 20 m (22AWG) when signal resolution is 4K.

HDMI output ports
HDMI output ports for sink devices.

Audio output port
5-pole Phoenix connector for balanced analog audio.

Rear Panel LEDs
TPS link LED - for MMX4x2-HDMI

ON: No TPS link.
BLINKING: Device is in low power or Ethernet fallback mode.
ON: TPS link is live.

HDMI Inputs - SIGNAL LED
OFF: signal is not present on input.
ON: signal is present on input.

HDMI Outputs - SIGNAL LED
OFF: output signal is not present or muted.
ON: signal is present.

HDMI Outputs - HDCP LED
OFF: output signal is not HDCP-encrypted.
BLINKING: HDCP capable device is connected, encrypted signal is replaced with red screen.
ON: output signal is HDCP-encrypted.

Types of IR connectors (U98 TRS / TS)
3 pole, 2 rings: IR receiver
2 pole, 1 ring: IR transmitter

Connecting Steps
Connect the matrix and the sink devices (e.g. Blu-ray player) using the HDMI inputs and HDMI cables.

Connect the sink devices to the HDMI output port by HDMI cables.

Optionally for analog output connect an audio device (e.g. audio amplifier) to the analog audio output port by an audio cable.

optionally for audio extension: connect the audio source (e.g. media player) to the audio input port by an audio cable.

Optionally for infrared extension:
Connect the IR emitter to the IR IN port of the matrix, and/or
Connect the IR detector to the IR IN port of the matrix.

Optionally connect the matrix to a LAN in order to control the device.

Optionally for RS-232 extension: connect a controller/controlled device (e.g. touch panel) to the RS-232 port.

Connect the power adaptor to the DC input on the matrix first, then to the AC power socket.
Front Panel Operation

Video Select Buttons
Use the buttons for selecting the video input source. The sequence is the following for each device:

MMX4x2-HT200:
1. HDMI IN
2. TPS IN
3. HDMI IN
4. HDMI IN
5. HDMI IN
6. HDMI IN
7. Autoselect

Set Audio Config Button
Use the button to select the audio configuration mode. The sequence is:
1. Copy HDMI OUT 1 to Audio OUT.
2. Copy HDMI OUT 2 to Audio OUT.
3. Use audio from Analog Input on all outputs.
4. Keep Original Audio on HDMI outputs, de-embed from HDMI OUT 2 to Analog Audio Output.
5. De-embed from HDMI OUT 1 to Audio OUT.

Typical Application
Standalone layout - MMX4x2-HDMI

Typical Application
Standalone layout - MMX4x2-HT200

Maximum Extension Distances for MMX4x2-HT200

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Pixel clock rate</th>
<th>Cable lengths (Long reach TPS mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CAT5e AWG24</td>
</tr>
<tr>
<td>1080p 720p/60Hz</td>
<td>108.9 MHz</td>
<td>100 m / 150 m</td>
</tr>
<tr>
<td>1920x1080@60Hz</td>
<td>223 MHz</td>
<td>70 m / NA</td>
</tr>
<tr>
<td>2560x1440/30Hz</td>
<td>279 MHz</td>
<td>70 m / NA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 m / 170 m*</td>
</tr>
</tbody>
</table>

Audio Cable Wiring Guide

MMX4x2 series matrix is built with 3-pole Phoenix input and output connectors. See below a few examples of the most common assembling cases.

Audio Guide for RS-232 Data Transmission

MMX4x2 series devices are built with 3-pole Phoenix connector. See the below examples of connecting to a DCE (Data Circuit-Terminating Equipment) or a DTE (Data Terminal Equipment) type device.

Software Control – Using Lightware Device Controller (LDC)

The device can be controlled from a computer through Ethernet, RS-232, and USB ports using Lightware Device Controller. Please download the application from www.lightware.com, install on a Windows PC or a macOS and establish connection to the device.

The default IP address of the device is: 192.168.0.100, DHCP is disabled.

Set Dynamic IP Address (DHCP)
1. Keep the Set Audio Config button pressed for 5 seconds; all front panel LEDs start to blink.
2. Release the button, then press it 3 times quickly. DHCP is now enabled.

Restore Factory Default Settings
1. Keep the Set Audio Config button pressed for 30 seconds; after 5 seconds front panel LEDs start to blink but keep the button pressed; the LEDs start to blink faster 5 seconds later.
2. Release the button, then press it 3 times quickly, factory default settings are restored.

Wiring Guide for RS-232 Data Transmission

MMX4x2 series devices are built with 3-pole Phoenix connector. See the below examples of connecting to a DCE (Data Circuit-Terminating Equipment) or a DTE (Data Terminal Equipment) type device.

For more information about audio cable wiring see the user's manual of the device or the Audio Cable Wiring Guide on our website www.lightware.com.

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