NEW DEVELOPMENTS 2020
MX2M-FR24R is a member of the Lightware MX2 modular matrix switcher series, supporting uncompromised 4K UHD resolution at 60Hz with RGB 4:4:4 colorspace and with down-conversion capabilities to 4:2:2, supporting HDCP 1.x and 2.2, 3D, Dolby TrueHD and DTS-HD Master Audio. The non-blocking matrix architecture distributes and switches 24 video signals to 24 outputs, distributed along six 4-port boards respectively per direction.

This versatile and customizable device is suitable for various types of applications, the actual application determining the choice of input and output boards to be included in the frame. It is a perfect choice for installations where a huge number of HDMI 2.0 compliant and other types of input and output video ports are required, including HDMI 2.0, DisplayPort 1.2, HDBaseT™ and compressed AV-Over-IP standards, as well as extension through fibre.

Besides the six 4-port input and six 4-port output video boards, there are four low speed installable slots for Dante, ADC and DAC audio input and output boards, GPIO, USB and other connectivity options.

Control for connected extenders is served by Ethernet layer. The Ethernet layer can also be used for IP extension, command injection for IR and serial control by third-party devices.

For operation safety power redundancy is available, and PSU drawers are field-exchangeable for ease of maintenance. The device also supports various IT security standards.

Features
- Non-blocking matrix architecture to distribute and switch 24 uncompressed 4K@60Hz 4:4:4 input video signals to 24 outputs
- HDCP 1.4 and 2.3 support
- Flexible design with support for hot-swappable IO boards
- Six slots for 4-port video input boards, six slots for 4-port video output boards and additional four slots for low-speed (audio, GPIO, etc) IO boards
- Audio layer for independent audio routing of uncompressed (e.g. 7.1 LPCM) and compressed audio
- Audio signals received and extracted by the video IO boards or via low-speed audio IO boards
- Ethernet layer for IP extension to extenders
- Command injection for IR and serial control of third-party devices
- Low-speed IO boards can be placed in video input and output slots
- Front to back cooling
- LCD, jog dial, and push buttons for front panel operation
- Internal power distribution system for video IO boards with PoE PSE feature and for future high power consumption IO boards
- Optional AC line redundancy for protection against AC line power outage
- Field replaceable PSU drawers for ease of maintenance
- IT security features e.g. LDAP and AD integration, SSH, HTTPS for control, etc.
- Embedded web and Lightware Device Controller support for control
- Open LW3 control API for integration with third-party controller systems
- Connectivity for breakout boxes that can accommodate additional low-speed IO boards
MX2M Series I/O Cards for MX2M Modular Matrix Switchers

**HDMI 2.0 Input Board**
MX2M-4HDMI20-IB
- 4K@60Hz 4:4:4, 18 Gbps bandwidth
- HDMI 2.0 compliant
- HDCP 1.x and 2.3 support
- Audio de-embedding to the Audio layer
- Hot-swappable design

**HDMI 2.0 Output Board**
MX2M-4HDMI20-OB
- 4K@60Hz 4:4:4, 18 Gbps bandwidth
- HDMI 2.0 compliant
- HDCP 1.x and 2.3 support
- Supports conversion from 4:4:4 to 4:2:0
- Audio de-embedding to the Audio layer
- Hot-swappable design

**Single Stream DP 1.2 Input Board**
MX2M-4DH-DP12-IB
- DisplayPort 1.2 compliant
- DisplayPort input signals are converted to HDMI signals via the built-in chipset on each port
- Supported input format of 4K@60Hz with 4:4:4 sampling pattern and 10 bit per component
- Supports conversion from 4K/UHD at 60Hz 4:4:4 10bit to 4K/UHD at 60Hz YCbCr 4:2:2 10bit
- Audio de-embedding to the Audio layer
- Hot-swappable design

**HDMI 2.0 Single Fiber, Multimode Input Board**
MX2M-4OPTJ-IB
- Single Fiber Technology, multimode transmission via SC connector
- Uncompressed video up to 18 Gbps datarate (600 MHz pixel clock)
- 4096x2160@60Hz/4:4:4 maximum resolution (600MHz)
- Compatible with HDMI20-OPTJ-TX90
- Audio de-embedding to the Audio layer
- Hot-swappable design

**HDMI 2.0 Single Fiber, Multimode Output Board**
MX2M-4OPTJ-OB
- Single Fiber Technology, multimode transmission via SC connector
- Uncompressed video up to 18 Gbps datarate (600 MHz pixel clock)
- 4096x2160@60Hz/4:4:4 maximum resolution (600MHz)
- Supports conversion from 4:4:4 to 4:2:0
- Compatible with HDMI20-OPTJ-RX90
- Audio embedding from the Audio layer
- Hot-swappable design

**2 x 16-channel Dante Input and Output Board**
MX2M-AUX-DANTE-32CH
- Transmission of 2 x 16 uncompressed mono audio channels from the Audio layer to a Dante network
- Reception of 2 x 16 mono audio channels from a Dante network to the Audio layer
- Dante and AES67 support
- Redundant configuration for the Dante network
- Independent transmission of the same audio content from the Audio layer to two separate Dante networks
- Hot-swappable design

**Stereo Analog Input and Output Board**
MX2M-AUX-8AUDIO
- 8x 5-pole Phoenix connectors for analog audio input or output
- Independently configurable audio interface direction with interface direction indicator
- ADC conversion of balanced or unbalanced stereo analog audio input to the Audio layer
- DAC conversion of uncompressed audio from the Audio layer to the balanced stereo analog audio output
The MX2 matrix switcher series includes more than 20 models, including variants with mixed HDMI and DisplayPort I/O ports. The MX2 series is a fully HDMI 2.0 compatible matrix router line, with a maximum resolution of 4K UHD @ 60 Hz in 4:4:4 format, while also supporting HDR, Dolby Vision, 3D, Dolby TrueHD and DTS-HD Master Audio. The devices are HDCP 2.2 and HDCP 1.4 compliant with cross conversion capabilities, while device control can be achieved via Ethernet, RS-232 and USB ports. The rich feature set of the routers also include proprietary Lightware services and technologies.
<table>
<thead>
<tr>
<th>Product</th>
<th>Inputs</th>
<th>Outputs</th>
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</table>
Floorbox TPS Extenders for Single CATx Cable with PoE

FP-UMX-TPS-TX130

- 4K/UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0) and 3D capabilities
- Extends HDMI, VGA or DisplayPort + Audio + Ethernet + RS-232 + IR over a single CAT5e-CAT7e cable up to 170 m distance*
- Audio and video connectors: HDMI, VGA, DisplayPort**, Stereo jack
- Embedded 7.1 HBR audio support
- Active cooling system
- Separate audio and video transmission
- Autoselect mode: video and audio priority modes
- Intuitive Control Software
- Event Manager
- 10/100 Ethernet extension
- Bi-directional RS-232 and IR
- IR and RS-232 connection supports command injection
- HDCP compliant, CEC, EDID transparent
- Embeds analog audio
- HDBaseT™ compatibility
- Advanced EDID management
- No signal latency
- Frame detector
- Remote powering through CAT cable

* Depends on cable category and quality
** FP-UMX-TPS-TX130 only
The Table Box (TBX) is a cable pass-through bracket for six AV signal cables, for easy BYOD connection, which also hosts two power outlets. An extender for video signals can be mounted under desk and the cables can be connected, without being visible when not in use.

User can open the lid and pull out the required AV cable to connect to the source device. When not used, the cables can be placed back inside and held by their own weight. The excess cable parts remain hidden by dropping out of sight below the TBX, under the desk.

The installation is quick and easy with the supplied mounting kit.

- 2x multi-region AC connector
- 1x IEC power input on bottom (with locking flange)
- 6x cable holes for cable pass-through
- Soft open and close mechanism
- Desk cut hole size: 179 x 145 (mm)
- Device dimensions: 193 x 184,8 x 163,2 (mm)
- Laser cut metal housing
Uncompressed AV Over IP
System for 10G Networks

Ubex is a fiber-optical, scaling AV-Over-IP system which allows uncompressed 4K UHD@60Hz 4:4:4 signal extension with latency-free multistreaming, designed to use in a 10G Ethernet network. UBEX operates with zero frame latency, provides seamless switching and lossless reproduction of source signals of up to 4K60Hz 4:4:4, without artifacts. It has standard, 10 Gbps SFP+ optical modules installed. The maximum reachable distance is ranging between 400 m and 80 km, depending on the type of singlemode or multimode SFP+ optical modules installed in the device. The UBEX design also favors dual-screen applications as a single UBEX device can handle 2x HDMI 2.0 video ports.

Features
- 4K UHD @ 60Hz 4:4:4 Scaler
- Multistreaming technology (multiple video transmission on a single optical link)
- Video Over IP or Point-to-Point operation modes: UBEX can also work as a conventional extender, no Ethernet switch is required for simple extension
- Versatile operation modes: dual channel 4K transmitter or receiver or transceiver mode: sending and receiving signals simultaneously
- Virtual Matrix mode with UBEX units connected to a central Ethernet switch
- Front panel jog dial push button, color display and feedback LEDs
- Internal power supply and front-to-back cooling air trail
- Source Locked - Low Latency Mode: receivers can be set to source-locked mode when the video transmission latency is very low

Rugged – Robust – Rental

The R-type UBEX product variant is specifically designed to withstand the daily wear and tear impacts of dynamic, Rental&Staging type of applications. The devices shares the features of the standard UBEX–PRO20–HDMI–F100 model, with additional features and changes in build and dimensions.

R-type Features
- Exchangeable cooling air filter inlay
- Reinforced SFP+ module connector, modules can be changed by removing protective top cover
- Standard M10 threads on side and top for safe and secure mounting onto truss assemblies
- Mounting ears and loops for secondary safety clamps
- Various reinforced optical and power connector type options (see table for details)

### Product Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>SFP+ Module Installed</th>
<th>Optical Connector(s)</th>
<th>Ethernet Port for Control</th>
<th>Power Connector</th>
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<td>UBEX-Pro20-HDMI-R100 2xMM-2xDUO</td>
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<td>2x Neutrik OpticalCON DUO</td>
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</table>
The four latest VINX models feature options for fiber optical transmission in the form of an SFP port and also maintain great audio features besides the product capabilities already introduced in the previous models, with one of the encoders (VINX-120AP-HDMI-ENC-DNT) also offering Dante Audio/AES67 support.

The new VINX devices can be powered by PoE remote powering. Contrary to common belief, PoE systems, like VINX, can run on much less power than PoE+ devices, contributing to carbon footprint reduction and energy saving. Nevertheless, VINX devices can also receive power from PoE+ sources as well.

- Analog audio output port for audio de-embedding
- PoE remote powering

- Analog audio input port for audio embedding
- PoE Remote Powering
- Local HDMI output port for monitoring

Dante® / AES67 Audio output

- Analog audio input port for audio embedding
- PoE Remote Powering
- Local HDMI output port for monitoring

- Analog audio input port for audio embedding
- PoE Remote Powering
- HDMI and VGA inputs
HDMI-TPS-TX96 and HDMI-TPS-RX96 twisted pair HDBaseT™ extenders provide extension of uncorrected Full-HD video for long distances over a single CATx cable. The unit offers bi-directional RS-232, IR, and Ethernet pass-through on the same CATx cable that carries the video signal. The TPS extenders support full HDCP and EDID compliance and work at all standard AV resolutions up to 4K and 48-bit color depth handling all standard audio formats and also 120 Hz 3D signals. Remote powering is available through a single CATx cable, but a local power supply can also be used. All devices can be mounted on a rack shelf or used standalone.

The Auto operation mode allows the device to detect the far end extender’s mode and adopt it. If the far end device is in Auto mode or it is a third party HDBaseT™ device the link will be set to HDBT mode. If the far device is in forced Long Reach Mode then the auto operation will set the Link to Long Reach Mode.

**Features**

- Selectable operation mode (Auto or forced Long Reach mode)
- Ethernet extension (100 Mbps)
- Bi-directional RS-232 and IR extension (pass-through)
- Extends DVI or HDMI 1.4 + Audio + Ethernet + RS-232 + IR over one CAT5/6/7 cable
Lightware’s unique Advanced Control Pack takes the Cisco Integration to the next level by unlocking further possibilities in controlling and configuration. The enhanced features including CEC command sending and the increased number of programmable tracks within Event Manager along with the RS-232 recognizing capabilities makes the Advance Control Pack a revolutionary solution for corporate environments utilizing the combined strengths of Cisco and Lightware systems.

**Advanced Control Plus Features**

- Support to send raw Infrared messages (Pronto HEX codes) to control TVs, Blurays, etc. with connected IR emitters
- Support to send CEC messages to control TVs, Blurays etc which are connected on HDMI ports
- Support to recognize incoming CEC messages in Event Manager and trigger custom actions
- Support to recognize incoming RS-232 messages to integrate with 3rd party devices like VC codecs
- Increased number of Events to 100

**TPS Receiver** with Relay Modules and Balanced Audio Out

**HDMI-TPS-RX110AY-Plus**

**TPS Switcher and Transmitter** for DisplayPort, HDMI and DVI with Local Monitor Out

**SW4-TPS-TX240-Plus**

**UMX Series TPS Wallplate** for VGA and HDMI DisplayPort

**WP-UMX-TPS-TX130-Plus-US**