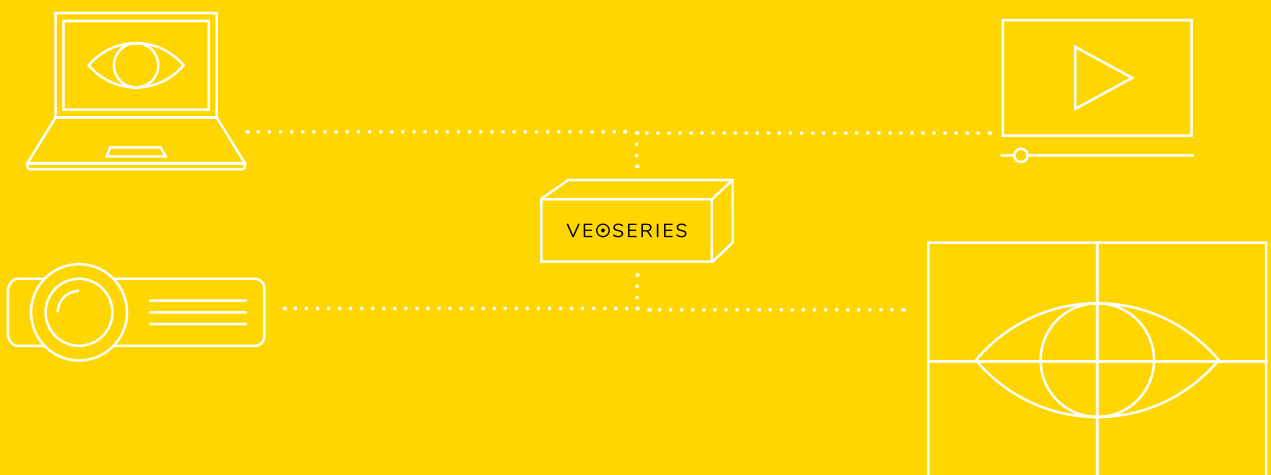


**2019 VIDEO PRODUCT GUIDE**





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For the past 54 years, since **Ecler's** birth back in 1965, we consistently developed **professional audio solutions** listening to you.

Today **Ecler** continues to hold true to this aim. We understand that these days technology, in constant change, must be a flexible tool to provide **global and integral solutions**, rather than just individual products. Striving to provide a complete audiovisual experience, Ecler is expanding its product offer introducing **Ecler Video Systems** and Ecler Acoustics to enhance our sound experience.

We continue to focus on **innovation and design**, which are two of our core values, appreciating how they really add value: unique features combined with a user-friendly and ergonomic **approach for the end-user**, the nontechnical

character of the story, but indeed the main one.

We realize that today **AV integration** has become a solid market, frequently encouraging companies towards a global outlook, which requires global **audio and video partners**, as we are.

A global **green awareness** is growing as well. We are proud to be part of this vital commitment, **taking care of the planet** with products designed for **energy-saving** and manufactured with **sustainable policies**.

**Ecler** catalogue includes several product technology levels in order to offer installers and end users complete and efficient solutions, ranging from basic and budget-minded to sophisticated, ergonomic and iintegration-friendly.

## Innovating with you



Ecler Acoustics Product Guide Ecler Audio Product Guide

### OUR VALUES

#### Experience:



#### Innovation:



#### Ergonomics:



#### Design:



#### Green:



#### Global:



### OUR PHILOSOPHY

With this new video division, **Ecler** offers you top notch video solutions, including:

- HDMI management and distribution fulfilling the highest quality standards in the industry, up to 4K @ 60 Hz / HDR / 4:4:4
- Smart integration of video with EclerNet hardware and User Control Panels (UCP) graphical control screens
- Ecler** background, focussed on quality, reliability and integral support, from projects' consultancy to total technical assistance

# VEO-SWM45

## 4K 5x1 PRESENTATION SWITCHER WITH HDBaseT EXTENDER



VEO-SWM45

HDMI

VGA

DP

4K ULTRAHD

HDBaseT

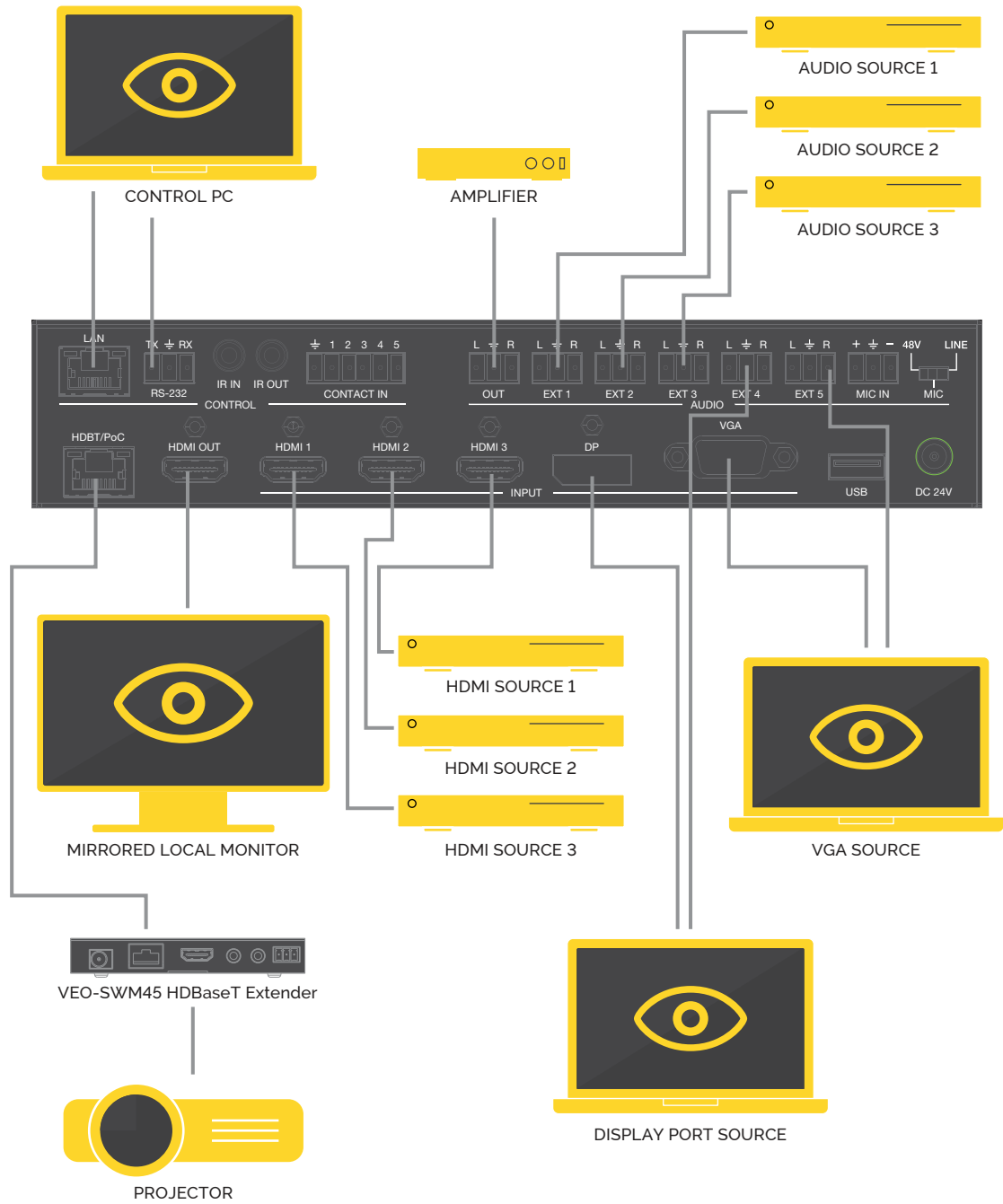
PoH

ECLER netmanager



VEO-SWM45 is a compact 4K presentation switcher and scaler that supports 3 HDMI 2.0 ports, VGA and a DisplayPort 1.2a sources with HDMI and HDBaseT outputs. An integrated audio matrix allows to embed 5 unbalanced stereo signals and route them independently to the output. Featuring a microphone/line input, with adjustable ducker and selectable phantom power, audio signals can be mixed with the source audio and sent to the amplifier through the line-level output. With simple, flexible, integration-friendly control options (including front panel, built in Web UI, contact closure panels, RS-232, telnet and IR remote), VEO-SWM45 is a flexible and smart solution, tailor-made for small-to-medium sized commercial applications such as corporate, education and training room environments.

- Ultra High Definition source selector with presentation features and integrated scaler
- Three HDMI 2.0 Inputs, one VGA (YPbPr/CVBS) and one DisplayPort video input
- Five Unbalanced Stereo and one Balanced Microphone/Line Inputs with 48V phantom power
- Digital input video resolutions up to 4Kx2K (4096x2160@60Hz YUV 4:4:4)
- VGA resolution up to 1920x1200@60Hz
- Output resolutions up to 4096x2160@30Hz
- Mirrored HDBaseT output for extension up to 70m
- Included HDBaseT Receiver
- HDCP 2.2 Compliant
- Supports automatic and manual switching options
- Supports EDID management
- Supports PCM stereo pass-through
- Touch Panel buttons, Embedded Web GUI, IR Remote, Logic contacts, RS-232 control and TCP/IP control (EclerNet Manager and third party remote control compatible)



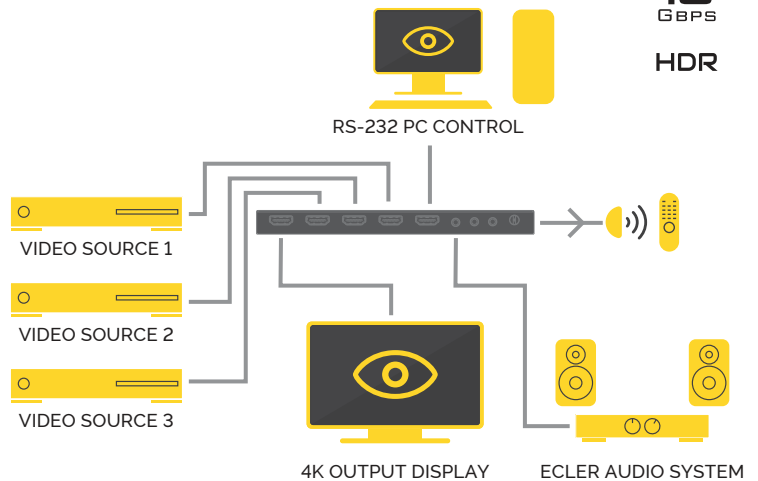
# VEO-SWH44

## HDMI 2.0 4x1 18GPBS SWITCHER WITH AUDIO DE-EMBEDDER AND RS-232 CONTROL

**4K**  
ULTRAHD

**HDMI**  
HIGH-SPEED MULTIMEDIA INTERFACE

**18**  
GBPS  
HDR



### VEO-SWH44

4x1 HDMI switcher for high dynamic range (HDR) formats. It is HDCP 2.2 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI signals with bandwidth up to 18 Gbps. It is the ideal solution for applications requiring 4K/UHD and HDR sources and displays. VEO-SWH44 includes audio de-embedding features and audio EDID management. The HDMI selection could be automatic (sense selection) and manual (frontal panel, remote control or serial commands). The controls include ARC mute and LED indications of the selected sources and settings.

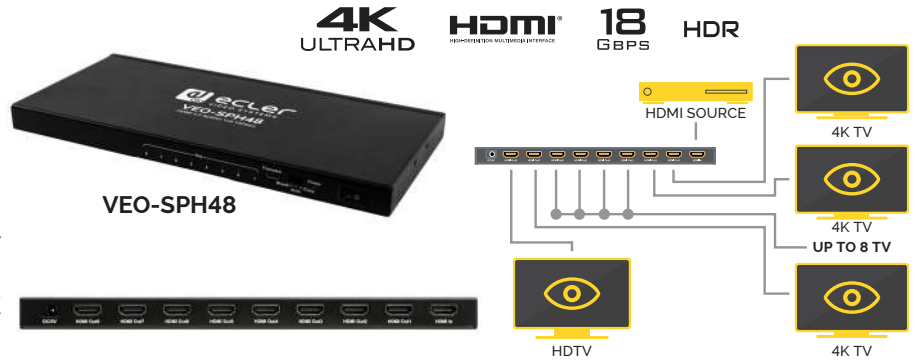
- 4x1 Ultra High Definition sources selector compliant with HDMI 2.0a standards
- Video formats up to 4Kx2K(4096x2160@60Hz YUV 4:4:4) and all HDMI 3D video formats and all HDMI
- Supports HDR and 3D contents
- HDCP2.2/1.4 Compliant
- Supports 36 bit Deep Color
- Smart EDID management (Auto/2CH/5.1CH/7.1CH selectable)
- PCM, Dolby TrueHD, DTS-HD Master Audio up to 7.1CH
- Supports Audio Return Channel (ARC)
- Digital and analog audio output
- RS-232 Control
- Supports up to 18Gbps video data rate

SPLITTER

# VEO-SPH48

## 1x8 HDMI 2.0 SPLITTER

1x8 HDMI splitter for high dynamic range (HDR) formats. It is HDCP 2.2/1.4 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI signals with bandwidth up to 18 Gbps. It is the ideal solution for applications requiring 4K/UHD and HDR sources and displays. It includes EDID management features, front panel LED indicators for power and signal status.



- Simultaneously displays an Ultra Hi-Definition source on up to eight Ultra HD displays
- Supports resolutions up to Ultra HD 4Kx2K(4096x2160@60Hz YUV 4:4:4)
- Three EDID setting modes
- HDCP2.2/1.4 Compliant
- Supports 36 bit Deep Color
- Supports LPCM 7.1, Dolby TrueHD, Dolby digital Plus, and DTS-HD Master Audio
- Supports HDR and 3D contents
- Supports up to 18Gbps video data rate

SPLITTER

# VEO-SPH44

## 1x4 HDMI 2.0 SPLITTER

1x4 HDMI splitter for high dynamic range (HDR) formats. It is HDCP 2.2/1.4 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI signals with bandwidth up to 18 Gbps. It is the ideal solution for applications requiring 4K/UHD and HDR sources and displays. It includes EDID management features, front panel LED indicators for power and signal status.



- Simultaneously displays an Ultra Hi-Definition source on up to four Ultra HD displays
- Supports resolutions up to Ultra HD 4Kx2K(4096x2160@60Hz YUV 4:4:4)
- Three EDID setting modes
- HDCP2.2/1.4 Compliant
- Supports 36 bit Deep Color
- Supports LPCM 7.1, Dolby TrueHD, Dolby digital Plus, and DTS-HD Master Audio
- Supports HDR and 3D contents
- Supports up to 18Gbps video data rate

SPLITTER

# VEO-SPH42

## 1x2 HDMI 2.0 SPLITTER

1x2 HDMI splitter for high dynamic range (HDR) formats. It is HDCP 2.2/1.4 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI signals with bandwidth up to 18 Gbps. It is the ideal solution for applications requiring 4K/UHD and HDR sources and displays. It includes EDID management features, front panel LED indicators for power and signal status.



- Simultaneously displays an Ultra Hi-Definition source on up to two Ultra HD displays
- Supports resolutions up to Ultra HD 4Kx2K(4096x2160@60Hz YUV 4:4:4)
- Three EDID setting modes
- HDCP2.2/1.4 Compliant
- Supports 36 bit Deep Color
- Supports LPCM 7.1, Dolby TrueHD, Dolby digital Plus, and DTS-HD Master Audio
- Supports HDR and 3D contents
- Supports up to 18Gbps video data rate

# VEO-XTI1C / VEO-XRI1C

## H.264 FULL HD OVER IP VIDEO EXTENDERS



VEO-XTI1C

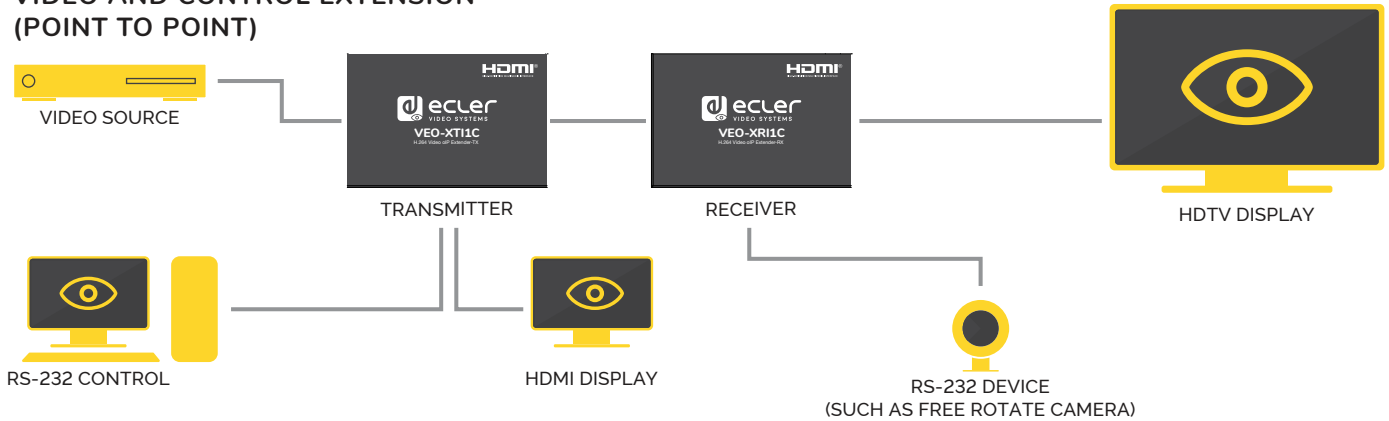
VEO-XRI1C

VEO-XTI1C and VEO-XRI1C are HDMI over IP Extenders that use the advanced H.264 compression for a limited network bandwidth use. Suitable both for creation of AVoverIP matrixes in point-to-multipoint configurations and also for point-to-point extensions up to 120m via single Cat.5e/6 cable. This over IP solution is widely suitable for installations like hotels, shopping malls, meeting rooms, class rooms, airports, train and metro stations and all the applications where latency is secondary to bandwidth occupation. The extenders can be powered both via PoE or via the external power supply included with the unit. Along with the HDMI signal, bidirectional RS-232 and large spectrum IR signals can be distributed over the network for a flexible remote control of sources and displays. An intuitive user panel with LEDs display allows to select the stream channel just out of the box, without the need of connecting a PC. Web browser interface, PC tools and third party control protocol are available for advanced settings and advanced control.

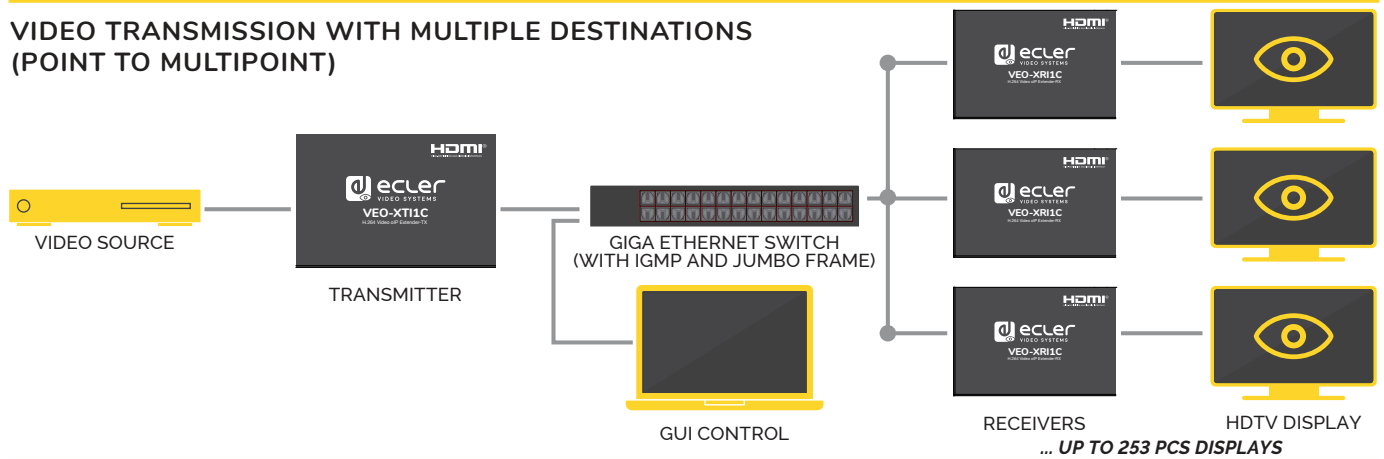
- Full HD over IP Extension
- Supports point-to-point, point-to-multipoint and multipoint-to-multipoint configurations
- Up to 120m over a single Cat.5e/6 cable in point-to-point connection, with 1x looping HDMI output for daisy chaining
- TCP/IP protocol compliant with selectable streaming bit rate up to 15Mbps per stream
- H.264 compression encoding that support resolution up to 1080p@60hz
- HDCP Compliant
- IR Remote control, with LED display to show the Group ID. Fully operating just out of the box without the need of PC connection
- Integrated web server for configuration, PC tool control and Telnet control (EclerNet Manager and third party remote control compatible)
- Supports LPCM audio format
- Wide-band IR pass through to control the source (38khz to 56khz)
- 2 way UART/RS-232 (Up to 115200) pass-through, with remote control function to select 8 group Baud rate options
- Dual power input: 802.3af compliant POE & DC 5V (No need of external power supply when encoders and decoders are connected to a POE Switch)
- Included DC 5V/1A international power supply



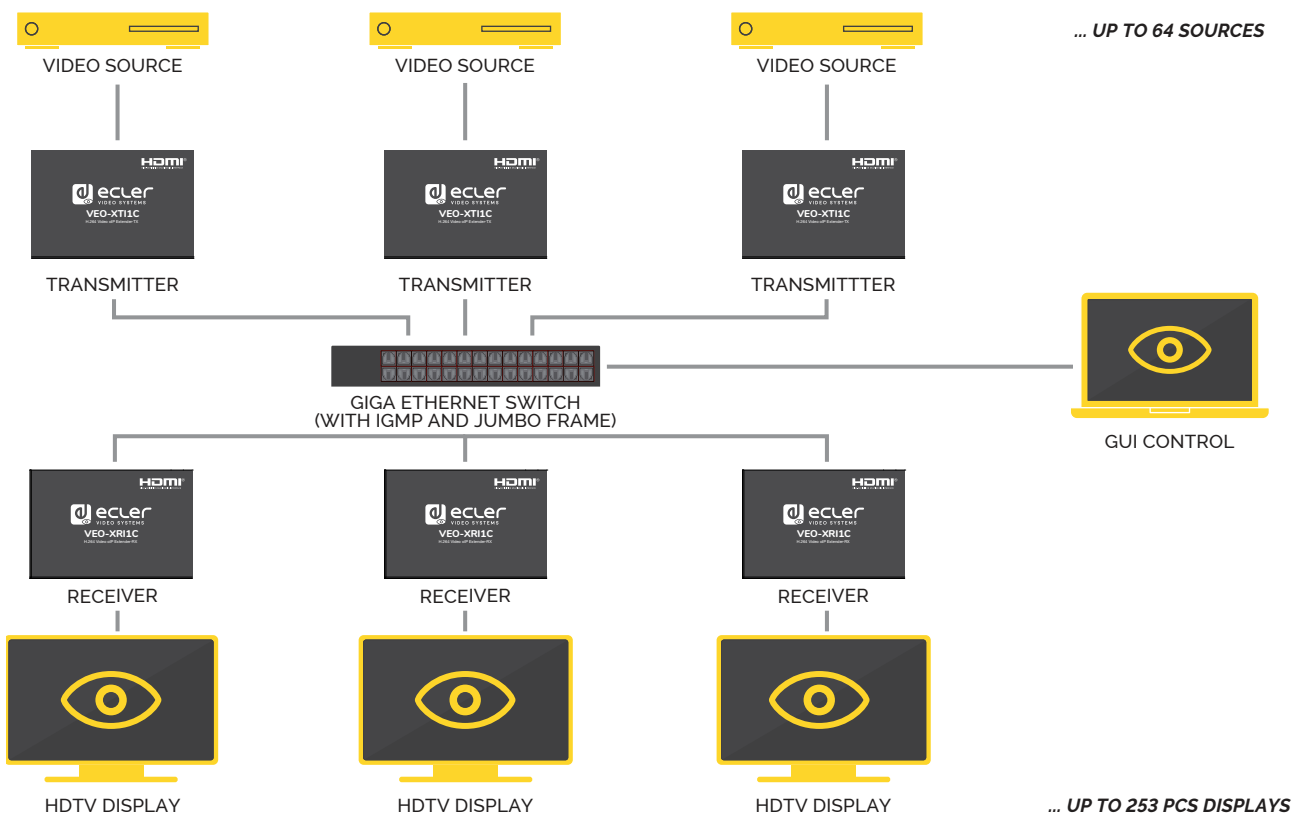
### VIDEO AND CONTROL EXTENSION (POINT TO POINT)



### VIDEO TRANSMISSION WITH MULTIPLE DESTINATIONS (POINT TO MULTIPOINT)



### VIDEO MATRIX OVER IP (MULTIPOINT TO MULTIPOINT)



# VEO-XTI2L / VEO-XRI2L

## LOW LATENCY 4K OVER IP VIDEO EXTENDERS WITH KVM AND VIDEOWALL FEATURES



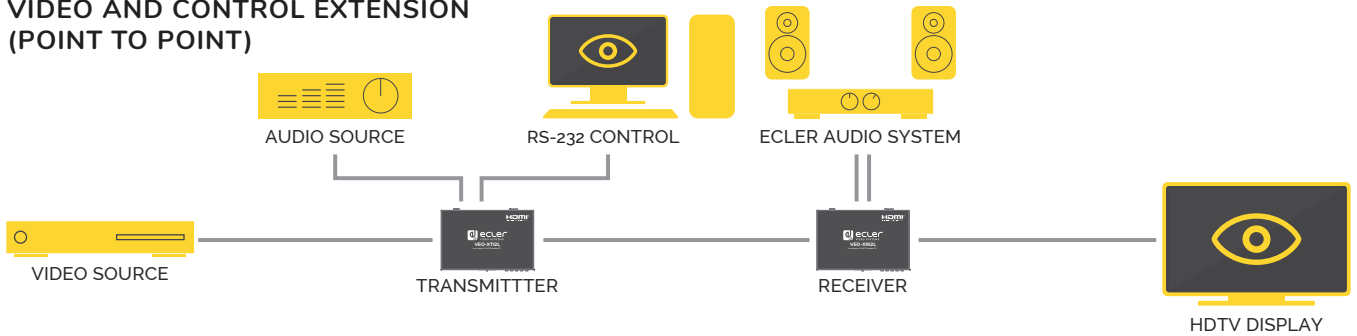
VEO-XTI2L

VEO-XRI2L

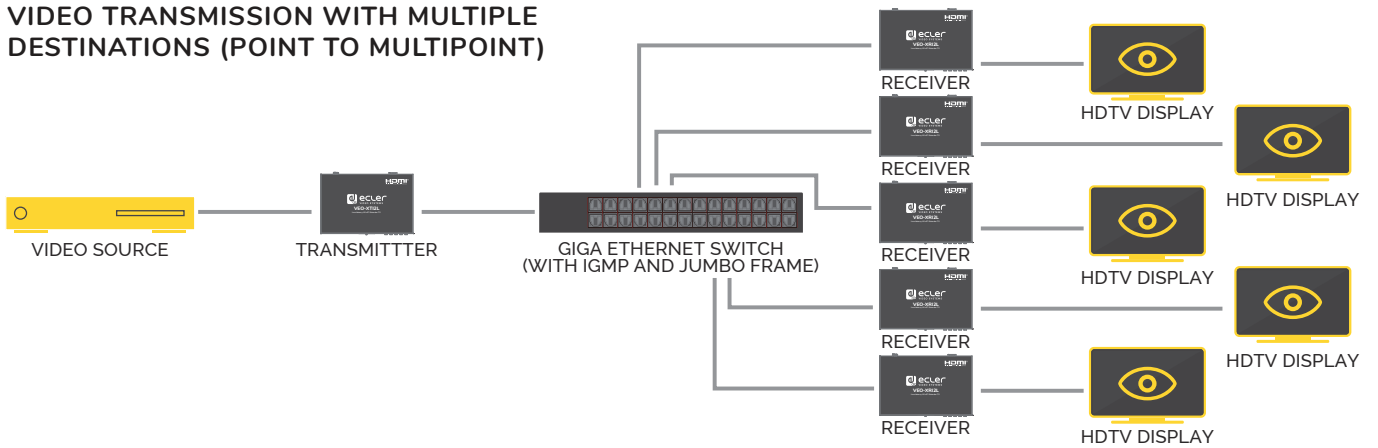
VEO-XTI2L and VEO-XRI2L are low latency 4K HDMI extenders over IP. Suitable both for creation of AVoverIP matrixes in multipoint-to-multipoint configurations and for point-to-point extensions up to 120m via single Cat.5e/6 cable. They also provide optional fiber optic connection for extension of 4K signals up to 2Km. This over IP solution is widely suitable for all the applications that require low latency video extension such as real time application or KVM. Along with the HDMI signal, bidirectional RS-232, USB and large spectrum IR signals can be distributed over the network for a flexible remote control of sources, displays and third party devices. Additional features like analog and digital audio embedding and de-embedding, and videowall option make this product a very versatile solution for many applications. An intuitive user panel with LEDs display allows to select the stream channel just out of the box, without the need of connecting a PC. The extenders can be power supplied both via PoE or via the included external PSU. Web browser interface, PC tools and third party control protocol are available for advanced settings and advanced control.

- Support Video Wall composition (Max 8x8)
- 4k UHD HDMI over IP/Fiber Extension
- Support point-to-point, point-to-multipoint and multipoint-to-multipoint configurations
- USB2.0 over IP extension for KVM
- Support transmission distances up to 120m over single Cat.5e/6 cable
- Support fiber optic extensions up to 60Km (Single Mode)
- Support up to 4K@60hz YUV 4:2:0 input and 4k@30hz outputs
- HDCP 2.2 / HDCP1.4 compliant
- Support Bi-Directional Wide Band IR (38KHZ-56KHZ) Pass through
- Support RS-232 pass through and Telnet control (EclerNet Manager and third party remote control compatible).
- Include IR remote/ Frontal Panel control of Group ID channel, with LED display to show the Group ID in use
- Support Dolby True HD, DTS-HD Master Audio formats
- Support 3D video formats
- SPDIF 5.1 and L/R analog stereo embedding and de-embedding
- Easy installation over Gigabit IGMP compliant LAN Networks
- The extenders can be powered with PoE or with the included external power supply

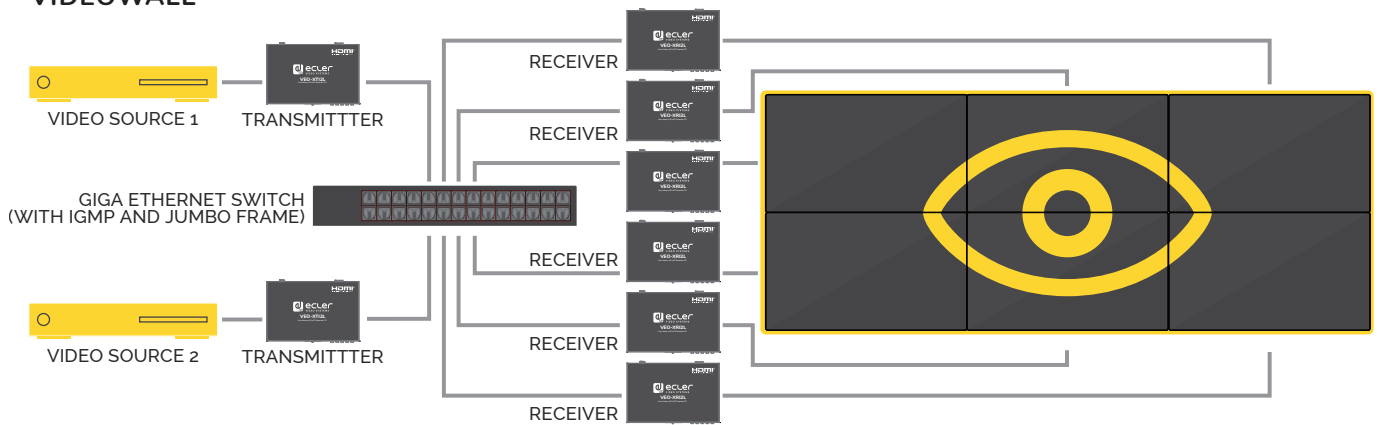
### VIDEO AND CONTROL EXTENSION (POINT TO POINT)



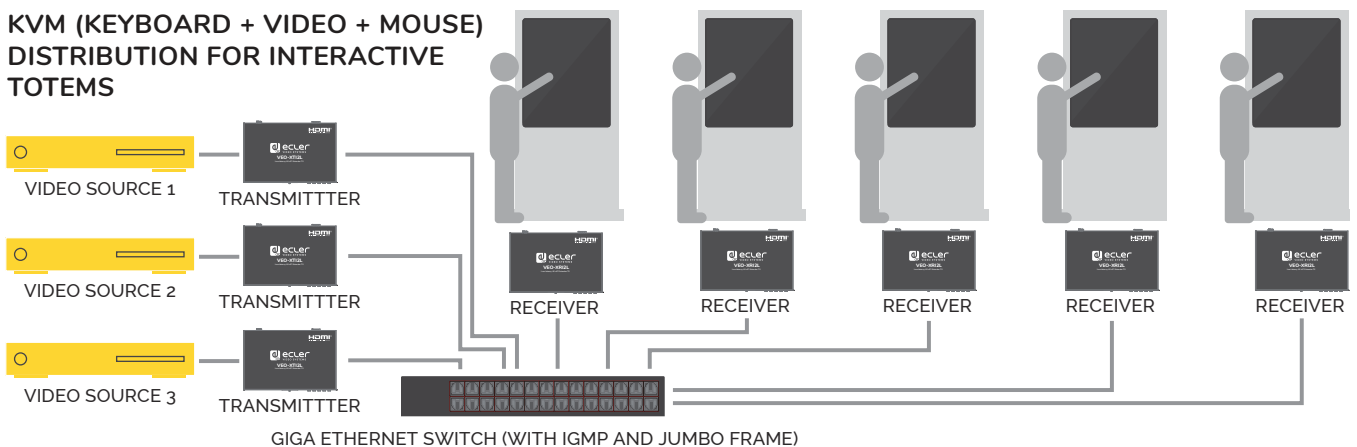
### VIDEO TRANSMISSION WITH MULTIPLE DESTINATIONS (POINT TO MULTIPPOINT)



### VIDEOWALL



### KVM (KEYBOARD + VIDEO + MOUSE) DISTRIBUTION FOR INTERACTIVE TOTEMS





# VEO-XPT44

## HDMI 2.0 HDBaseT EXTENDER KIT 18GBPS

HDMI<sup>®</sup>  
HIGH SPEED VIDEO INTERFACE

HDBaseT<sup>™</sup>

4K  
ULTRAHD

18  
GBPS

HDR

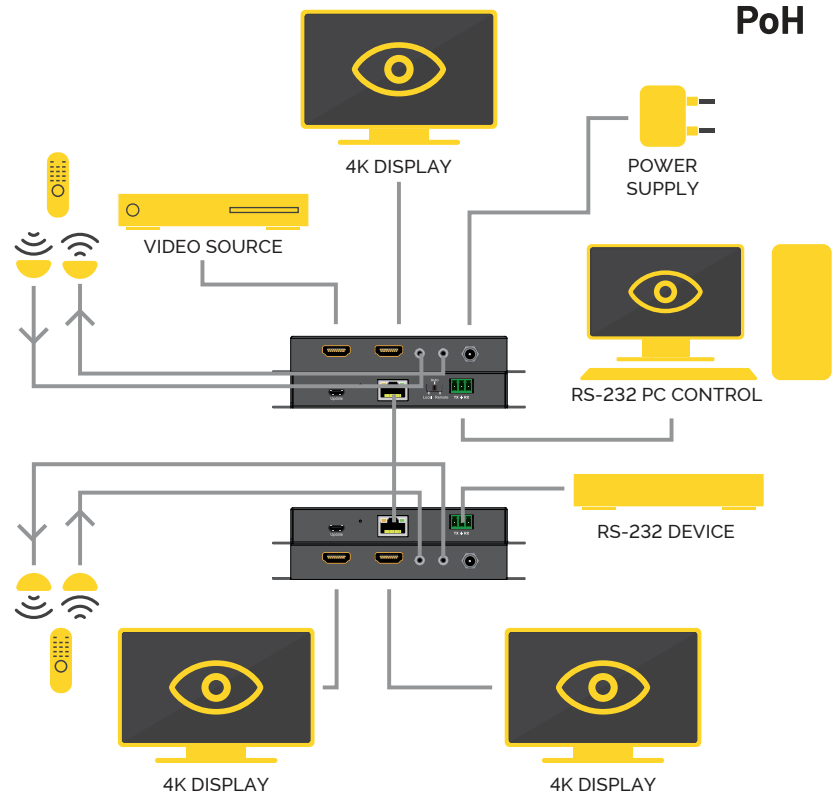
PoH



VEO-XPT44



VEO-XPT44



HDMI 2.0 extender over HDBaseT.

VEO-XPT44 allows to extend one 4K video signal up to 40m over a single Cat.5e/6 cable or a Full HD signal up to 70m. It supports real 4K video signals at 60Hz with 4:4:4 YUV chroma subsampling and HDR 10 with a maximum bandwidth of 18Gbps. With bidirectional PoH feature, the transmitter can be powered by the receiver and viceversa. The transmitter includes 1 HDMI link output while the receiver includes 2 mirrored HDMI outputs for daisy-chain connection. With a very reduced form factor added features of RS-232 and bidirectional IR, this is the perfect solution for any application where AV and control extensions are required.

- Complete extender kit, no settings needed
- Bandwidth up to 18Gbps, resolution up to 4k @60Hz YUV 4:4:4
- HDR10 and 3D supported
- Transmission distances up to 70 meters under 1080p and 40 meters under 4K
- Bi-directional IR and RS-232 pass-through
- Bidirectional PoH (RX powered by TX or TX powered by RX)
- 1x looping HDMI out on Transmitter and 2 x HDMI out at Receiver for daisy chaining or local monitoring purposes
- Use single UTP/STP category cable (Cat.5e/6/7) to substitute HDMI cable to achieve long distance transmission
- UTP/STP cable termination follows the standard of IEEE-568B
- HDCP2.2/1.4 compliant
- ESD protection

## 4K HDBaseT EXTENDER

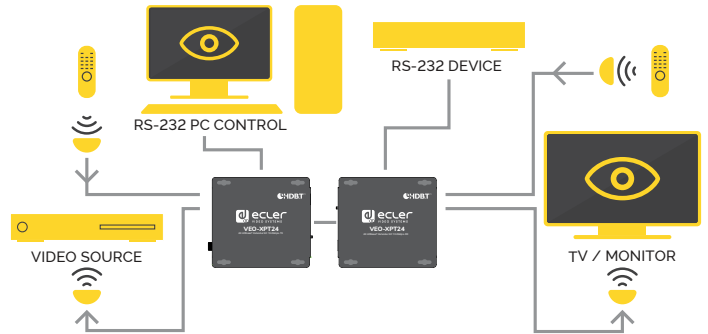
### VEO-XPT24

**4K HDBaseT EXTENDER KIT**  
**10.2 GBPS**



HDMI 1.4 extender over HDBaseT.

VEO-XPT24 allows to extend one 4K video signal up to 40m over a single Cat 5e/6 cable or a Full HD signal up to 70m. It supports 4K video signals with a maximum bandwidth of 10.2Gbps including 3D formats. The product is HDCP 2.2 compliant and supports CEC control and Power Over HDBaseT: the receiver can be power supplied by the transmitter over the Cat.5e/6 cable. With the added features of RS-232 and bidirectional IR, this is the perfect solution for extending a HDMI 1.4 video signal and control signals.



- Complete extender kit, no settings needed
- Full HD support: 1080p@60Hz
- 4K/UHD support: up to 4096x2160@30Hz (or 60Hz with YUV 4:2:0)
- Transmission distances up to 70 meters under 1080p and 40 meters under 4K
- Bi-directional IR and RS-232 pass-through

- Use single UTP/STP category cable (CAT.5e/6/7) to substitute HDMI cable to achieve long distance transmission
- UTP/STP cable termination follows the standard of IEEE-568B
- POC (RX powered by TX)
- HDCP2.2/1.4 compliant
- Mounting ears supplied

## EXTENDER FULL HD

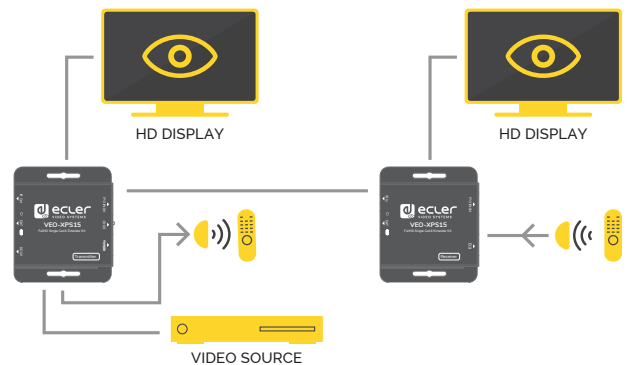
### VEO-XPS15

**FULL HD SINGLE CAT.5e/6 EXTENDER KIT**



Full HD extender over single Cat.5e/6 cable.

VEO-XPS15 allows to extend 1080p video signal up to 50m over a single Cat 6 cable. It supports 480i/480p/720p/1080i/1080p @60Hz resolutions and it includes unidirectional PoC feature: the receiver is power supplied by the transmitter. The transmitter also includes 1 HDMI link output that is very useful both for daisy-chaining more transmitters and for connecting local displays. With a very reduced form factor and unidirectional IR extension from the source to the display, this is a the perfect cost effective solution where Full HD and IR extensions are required.



- Complete HDMI Extender Kit for HDMI Audio Video and IR signals extension over single Cat.5e/6/7 cable
- Supports up to 1080p/60Hz High Definition resolution
- Compact design for easy and flexible installation
- Supports EDID copying from receiver display or loop out display

- Allows for cascading via additional HDMI loop out port
- Supports Power over cable function (Receiver is powered by Transmitter)
- Works with HDMI and HDCP compliant devices

# WPNETTOUCH

## USER CONTROL PANELS (UCP) TOUCH SCREEN CONTROL DEVICE

**ECLER**  
netmanager



WPNETTOUCH is a 10" capacitive TFT tactile panel compatible with all the VEO Series networked products (VEO-XTI2L, VEO-XRI2L, VEO-XTI1C, VEO-XRI1C and VEO-SWM45) and all the EclerNet products. When including a WPNETTOUCH in a VEO Series or EclerNet installation it is not necessary to use a computer to manage connected devices. Each WPNETTOUCH unit could be configured to work as a single zone control panel or as a global multi-zone controller. It allows executing customized User Control Panels that are able to control volume, sound source selection, video sources selection, presets recovery, communication via TCP/UDP with external devices, etc.

Is fully compatible as a UCP server for other Ecler clients, like WPNETTOUCH, WPmSCREEN as well as a UCP server for third party devices (iOS®, Android®, Windows®, etc.).

Power over Ethernet or local power supply. Surface-mount accessories included. Compatible with VESA75 mounting standard.

- 10" Capacitive Touch Panel for fully customized control surfaces
- EclerNet, VEO Series and third party devices remote control compatible
- UCP client/server
- POE and local power supply
- VESA75 mounting standard



## AUDIO DE-EMBEDDER

# VEO-AXS4

**HDMI 2.0 AUDIO**  
**DE-EMBEDDER 18GBPS**



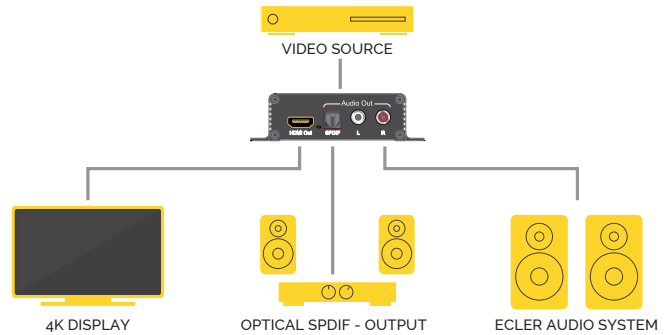
VEO-AXS4

**HDMI** HDR

**18** GBPS **4K** ULTRAHD

The VEO-AXS4 allows to extract audio signals from HDMI signals up to 4K.

It provides a stereo analog output on RCA connectors or a 5.1 digital output on Toslink connector, selectable through the onboard switch.



- Extracts the digital HDMI audio signal from the HDMI input to analog stereo output or to 5.1 S/PDIF output
- Audio EDID Settings: Auto/2.0 CH/5.1CH
- Signal amplification and equalization to extend HDMI input and output ports up to 10 meters (33 feet)
- Supports LPCM, Dolby Digital and DTS

- Supports resolution up to 4K@60Hz YUV4:4:4
- Supports deep color up to 36bit
- Supports samplerate up to 192 KHz and resolutions up to 24 bit
- HDCP2.2/1.4 Compliant
- Supports CEC • Supports up to 18Gbps video data rate

## CABLES

# VEO-CH201-202-205-210

**HDMI** **ETHERNET** HDR

**4K** ULTRAHD **18** GBPS



VEO-CH201-202-205-210

### VEO-CH201

High Speed HDMI 2.0 cable with Ethernet. Length: 1m

- Maximum supported HDMI clock: 600 MHz
- Supported TMDS data rate: 18 Gbit/s
- Maximum supported color depth: 48 bit/px
- Maximum supported resolution: 4096x2160p60
- HEAC (HDMI Ethernet Audio Control)

### VEO-CH202

High Speed HDMI 2.0 cable with Ethernet. Length: 2m

- Maximum supported HDMI clock: 600 MHz
- Supported TMDS data rate : 18 Gbit/s
- Maximum supported color depth : 48 bit/px
- Maximum supported resolution: 4096x2160p60
- HEAC (HDMI Ethernet Audio Control)

### VEO-CH205

High Speed HDMI 2.0 cable with Ethernet. Length: 5m

- Maximum supported HDMI clock: 600 MHz
- Supported TMDS data rate: 18 Gbit/s
- Maximum supported color depth: 48 bit/px
- Maximum supported resolution: 4096x2160p60
- HEAC (HDMI Ethernet Audio Control)

### VEO-CH210

High Speed HDMI 2.0 cable with Ethernet. Length: 10m

- Maximum supported HDMI clock: 600 MHz
- Supported TMDS data rate: 18 Gbit/s
- Maximum supported color depth: 48 bit/px
- Maximum supported resolution: 4096x2160p60
- HEAC (HDMI Ethernet Audio Control)



# APPLICATIONS





## PRODUCTS

1 x VEO-SWM45 | WPNETTOUCH



## SYSTEM FEATURES

### Multiformat 5x1 Presentation Switcher

5 different sources including HDMI, DisplayPort and VGA interfaces with integrate scaler that allows to keep the output resolution fixed up to 4K. The HDMI output can be extended up to 70m using the included HDBaseT receiver.

### Easy integration and flexible control

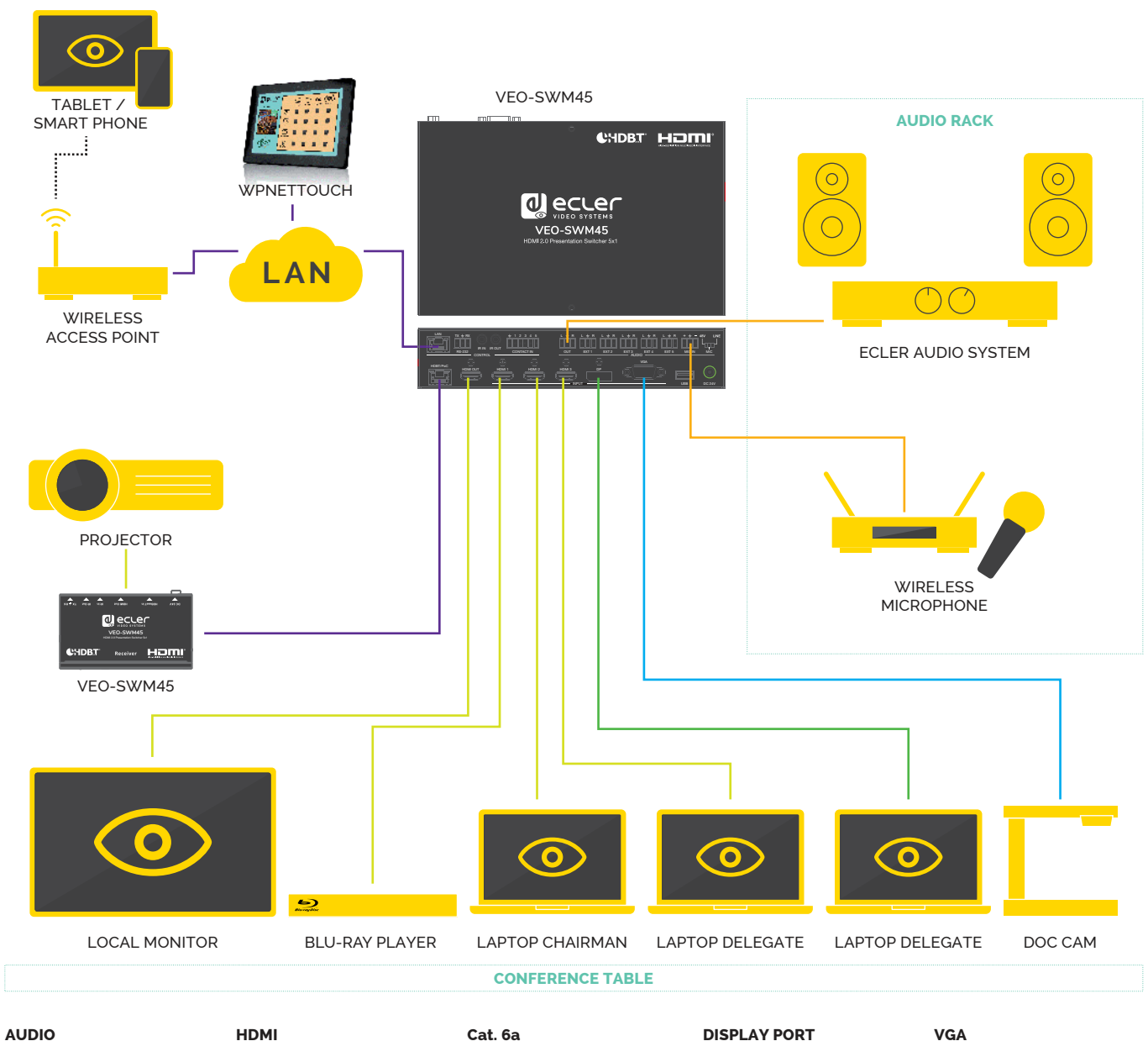
The switcher can be controlled using Ecler Net Manager using TCP/IP connection, mobile devices through the internal user web interface, IR (included remote controller), RS-232 and logic contact.

### Priority Mic/Line input

A wired or wireless microphone can be connected to the dedicated input and the presenter voice can be mixed or prioritized on the AV audio content.

### Independent audio matrix

The audio coming from each video source or the embedded audio of each channel can be routed and de-embedded on the line output in order to be amplified by the room PA.





# APPLICATIONS



## PRODUCTS

VEO-XTI2L | VEO-XRI2L | WPNETTOUCH

**ECLER**  
netmanager

**4K**

**HDMI**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

## SYSTEM FEATURES

### 4 K Matrix over IP

4 independent 4K UHD sources can be independently routed via IP command to different Displays or Videowall up to 8x8 without any extra devices needed.

### Flexible distance options

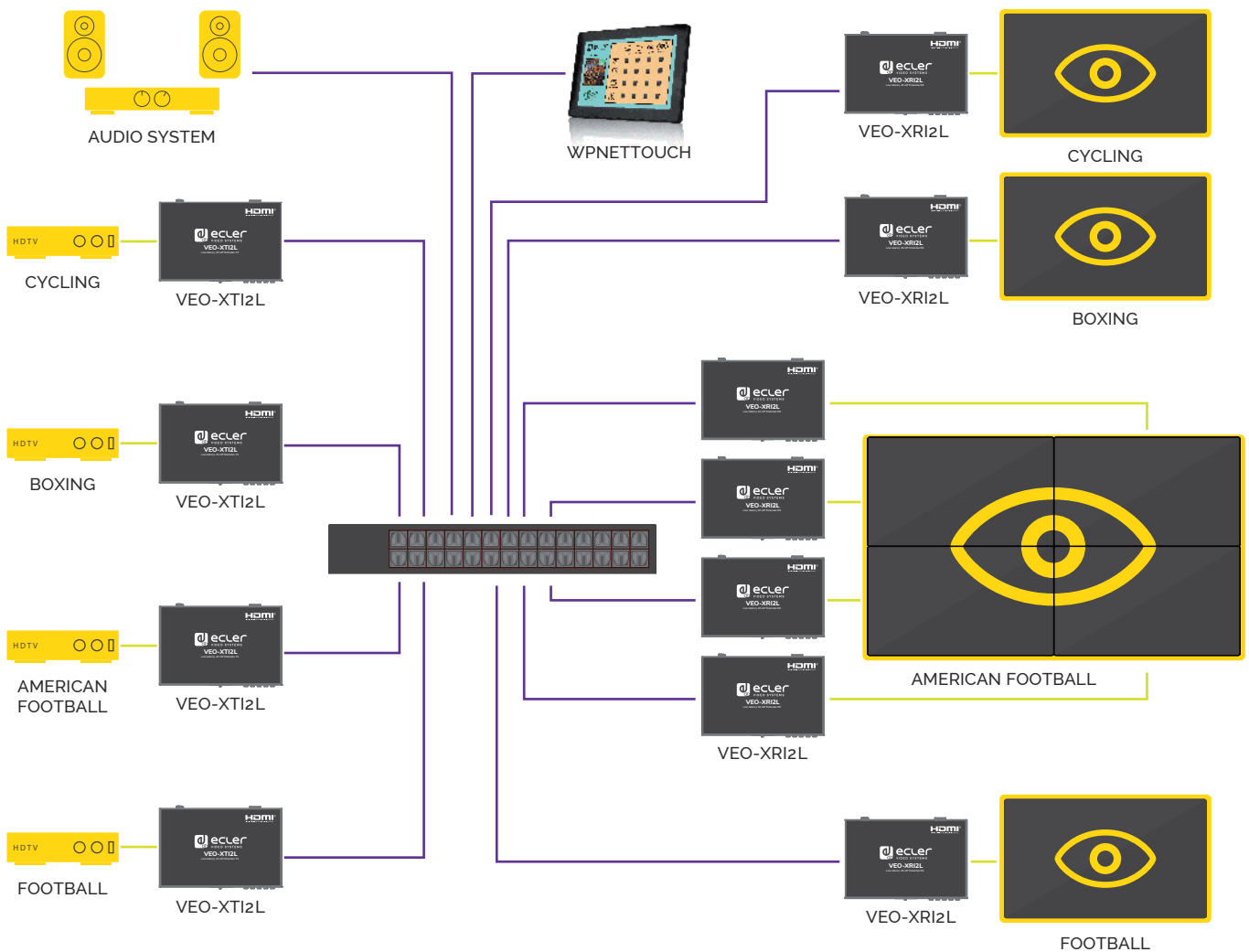
The connection to the network switch can be done with standard Ethernet cables (up to 120m) or with fiber (up to 60km).

### Easy integration and flexible control

The devices can be controlled with Ecler Net Manager using TCP/IP connection, IR (included remote controller) or the included user web interface.

### Audio embedding and de-embedding

Each VEO-XTI1L transmitter can accept an external digital or analog audio signal that can be embedded on the transmitted HDMI video streaming. The VEOXRI2L receivers can extract audio as an analog or digital signal in order to be distributed by an external audio system.



AUDIO

HDMI

Cat. 6a

DISPLAY PORT

VGA



# APPLICATIONS





## PRODUCTS

VEO-XPT44 | VEO-SWH44

HDR

4K

HDBT<sup>®</sup>

HDMI<sup>®</sup> 2.0  
HIGH-DEFINITION MULTIMEDIA INTERFACE

## SYSTEM FEATURES

### 4K Sources Selection

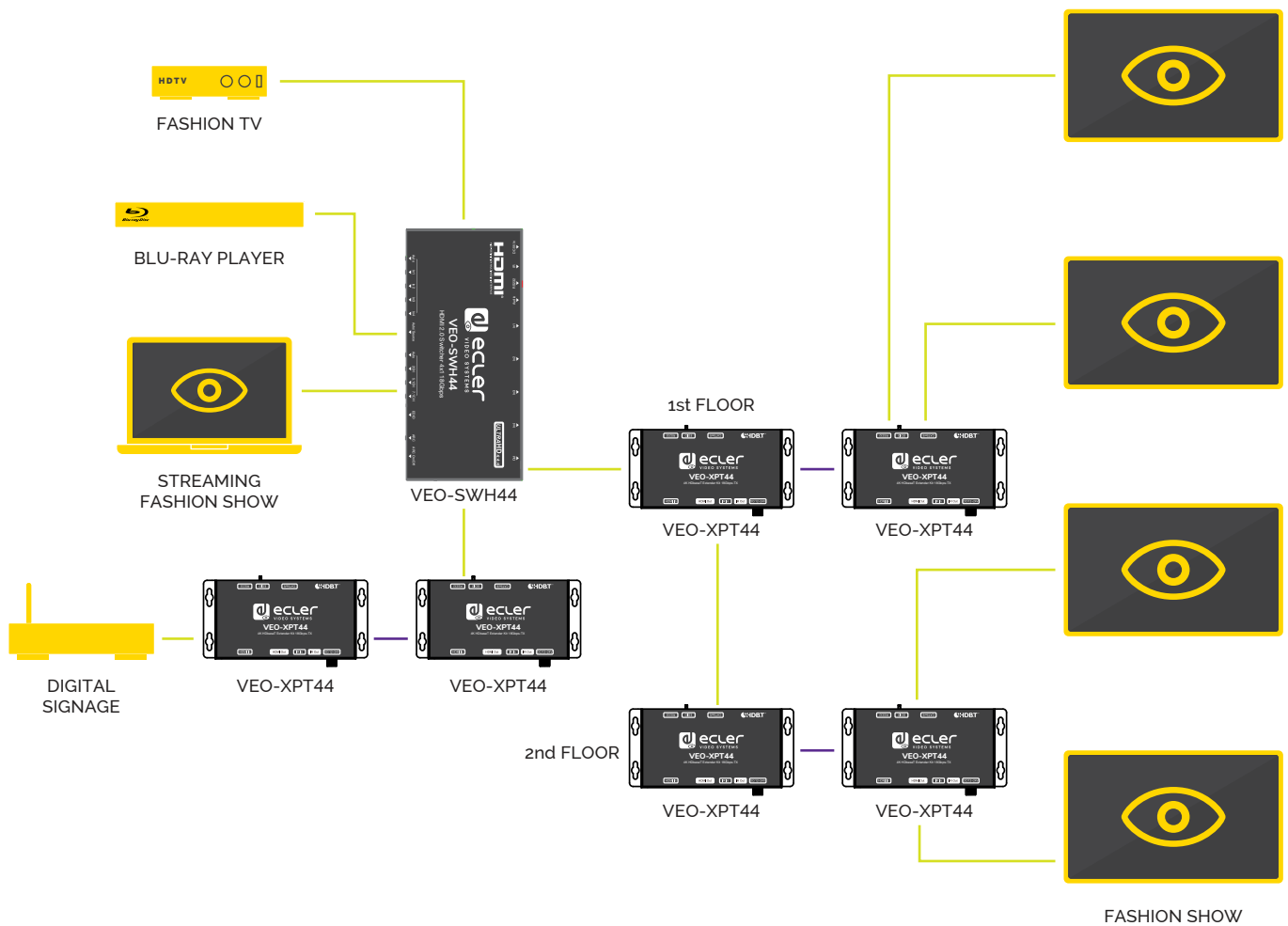
4 HDMI 2.0 sources with resolution up to 4K/60 4:4:4 can be selected on the VEO-SWH44 using the included IR control or with RS-232.

### Audio De-embedding

The audio signal of the selector output is available as analog output to be amplified with an external PA system.

### Video signal extension with splitter option included

The selected video signal can be extended using the VEO-XPT44 HDBaseT extenders. Each HDBaseT transmitter and receiver include a 1:2 splitter in order to provide an easy daisy-chain connection.



# APPLICATIONS



**PRODUCTS**

VEO-XPT44 | VEO-XT1C | VEO-XR11C | VEO-SPH44

**ECLER**  
netmanager

**4K**

**FULLHD**

**HDBT**

**HDMI**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

**SYSTEM FEATURES**

**FULL HD Matrix over IP**

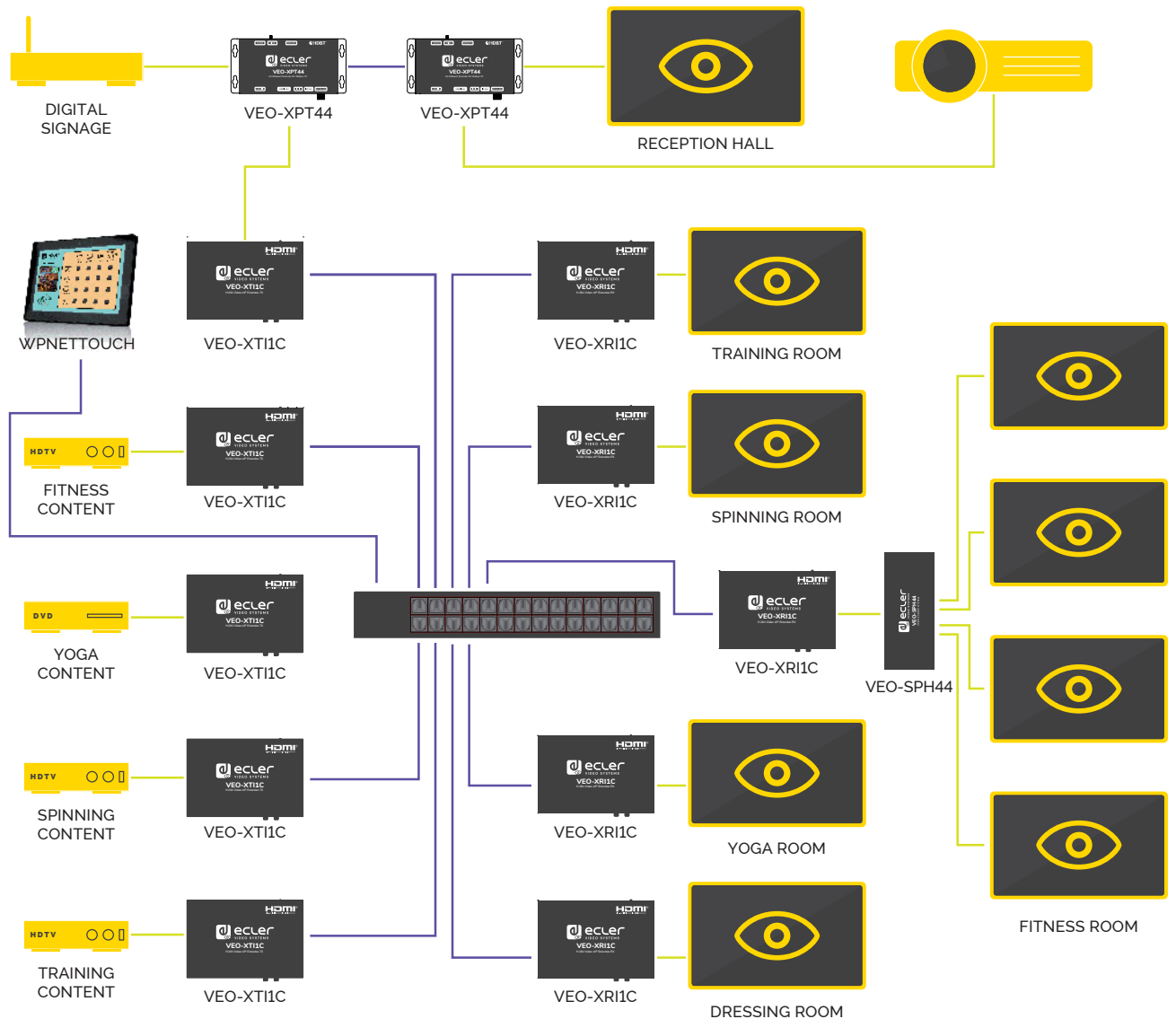
Independent sources up to 1080p/60Hz can be routed independently with IP commands to different Displays. The system uses H.264 compression for a light bandwidth usage to share existing networks.

**Distributed video signal**

If compared to a traditional video matrix, the HDMI sources and output displays can be installed in different locations without the need of external signal extenders. Each device can be connected to the network switch using standard Ethernet cables (up to 120m).

**Easy integration and flexible control**

The devices can be controlled with Ecler Net Manager using TCP/IP connection, and IR (remote control included).



AUDIO

HDMI

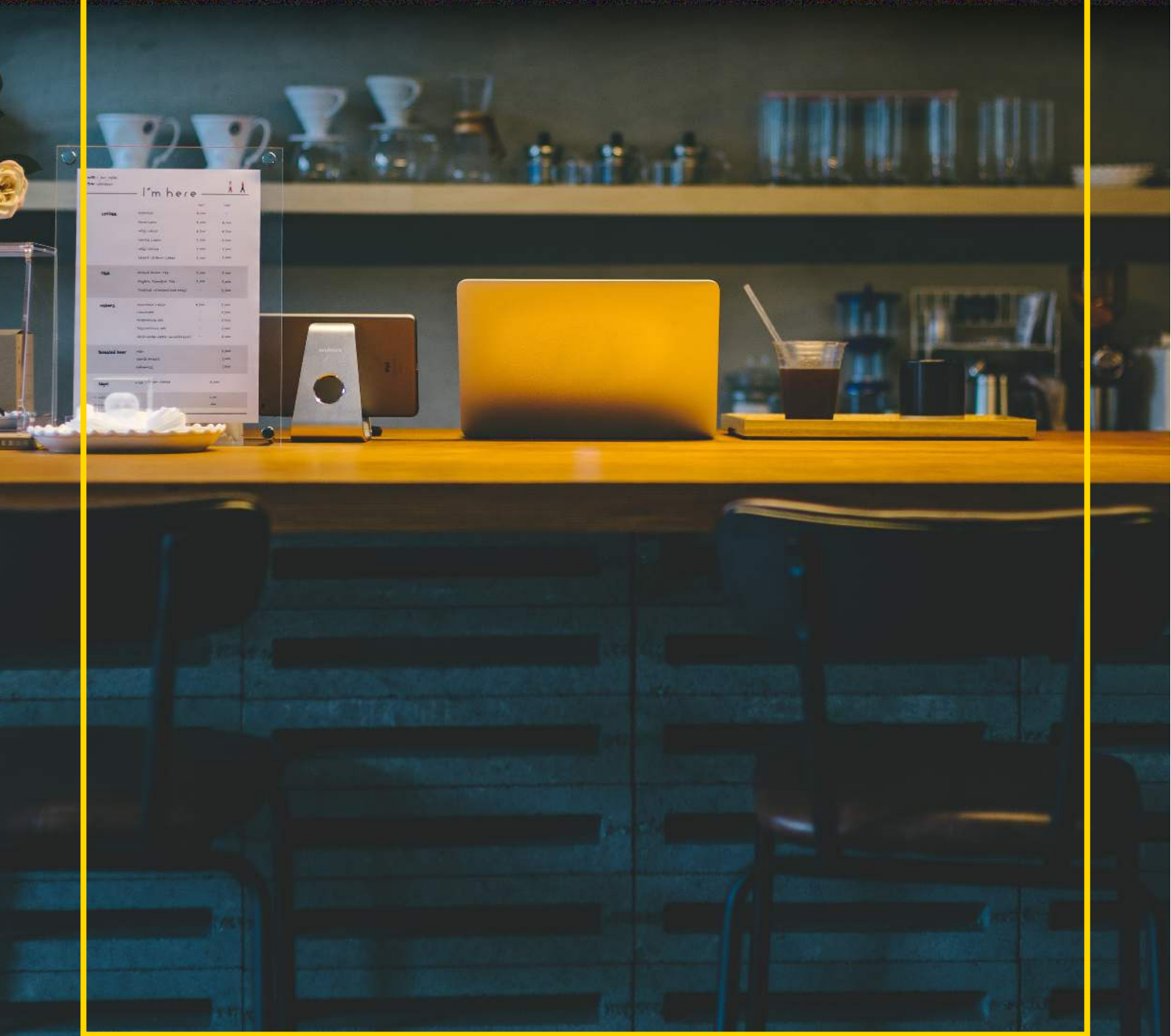
Cat. 6a

DISPLAY PORT

VGA



# APPLICATIONS





## PRODUCTS

VEO-XPT44 | VEO-SWH44 | VEO-SPH44

HDR

HDBT

4K

HDMI  
HIGH-DEFINITION MULTIMEDIA INTERFACE

## SYSTEM FEATURES

### 4K Sources Selection

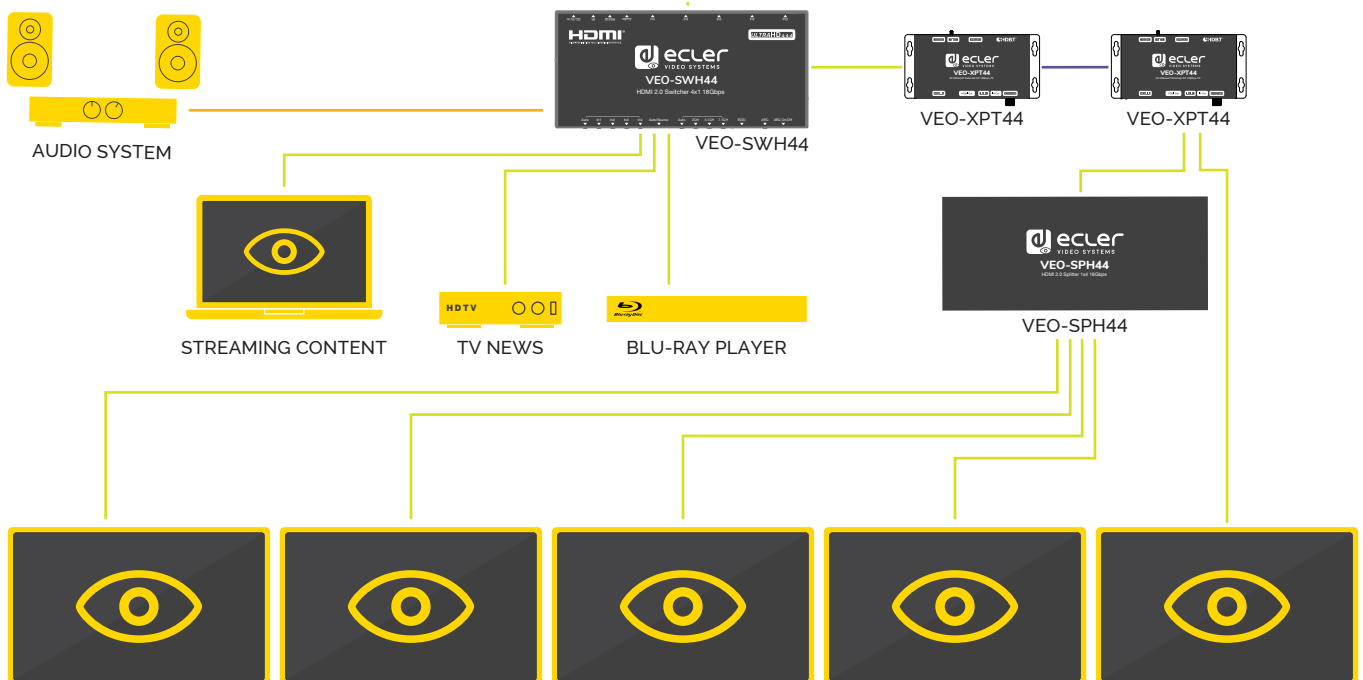
4 HDMI 2.0 sources with resolution up to 4K/60 4:4:4 can be selected on the VEO-SWH44 using the included IR control or with RS-232.

### Audio De-embedding

The audio signal of the selector output is available as analog output to be amplified with an external PA system.

### Video signal extension with splitter option included

The selected video signal can be extended using the VEO-XPT44 HDBaseT extenders. Each HDBaseT transmitter and receiver includes a 1:2 splitter in order to provide an easy connection for signal distribution. VEO-SPH44 allows to distribute 4K 60Hz video signals up to 4 displays.



# APPLICATIONS



## PRODUCTS

VEO-XTI2L | VEO-XRI2L | VEO-XPT44 | VEO-SPH44 | WPNETTOUCH

4K

HDBT

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE

## SYSTEM FEATURES

### 4K over IP

5 independent 4K UHD sources can be independently routed using IP to different Displays or Videowall up to 8x8 without any extra devices needed.

### Cabling distance options

The connection to the network switch can be done with standard Ethernet cables (up to 120m) or via fiber (up to 60km).

### Easy integration and flexible control

The devices can be controlled with Ecler Net Manager using TCP/IP connection, IR (remote control included) or the included user web interface.

### Audio embedding and de-embedding

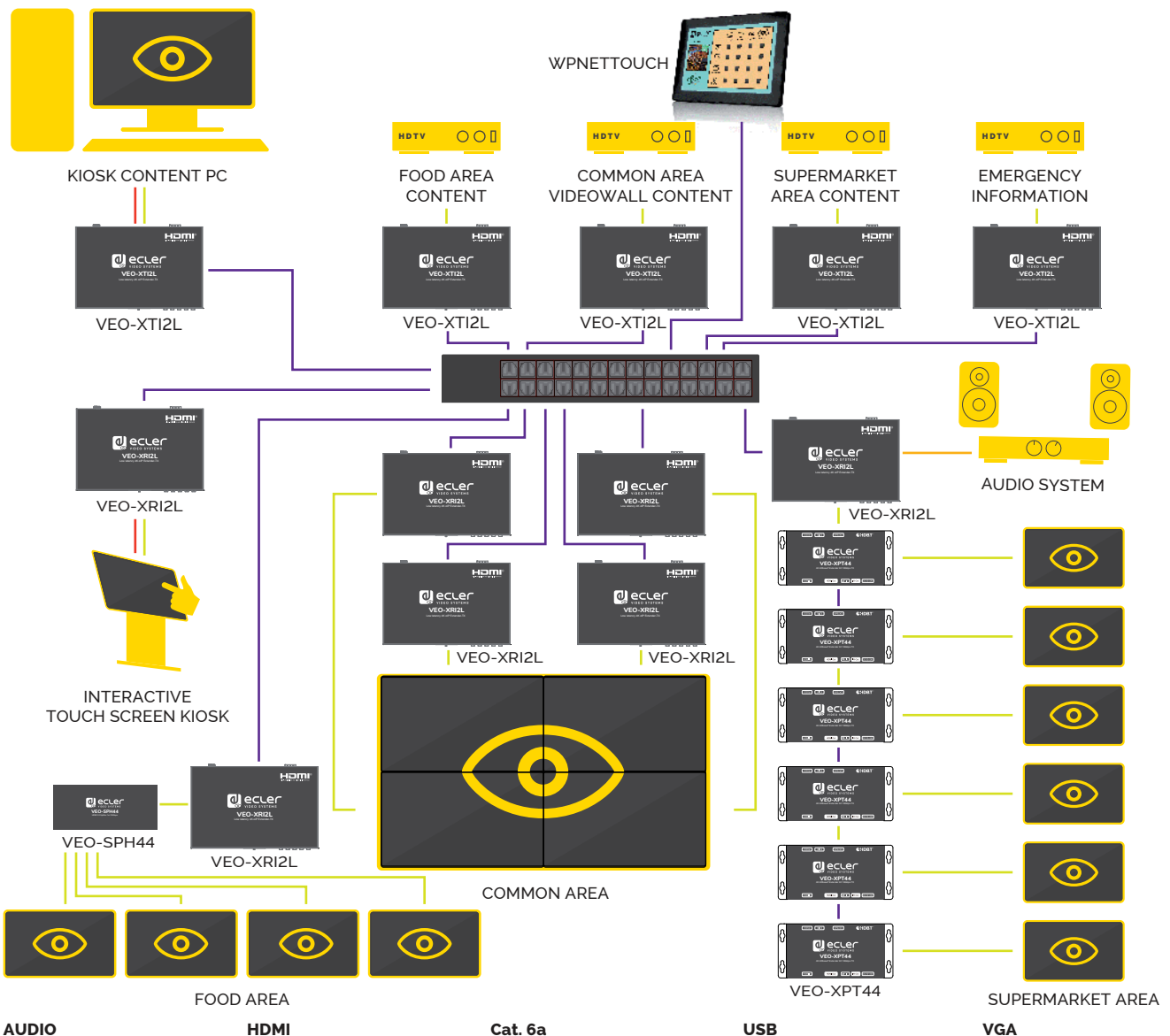
Each VEO-XTI1L transmitter can accept an external digital or analog audio signal that can be embedded to the transmitted HDMI video streaming. The VEO-XRI2L receivers can extract audio as an analog or digital signal in order to be distributed by an external audio system.

### USB extension for Touch Screen or KVM control

It is possible to distribute USB signals over the network for controlling touch panels or remote computers.

### Video Signal Extension with splitter option included

The selected video signal can be extended via the VEO-XPT44 HDBaseT extenders. Each HDBaseT transmitter and receiver include a 1:2 splitter in order to provide a daisy-chain extension or other external distribution device connections like a VEO-SPH44 splitter.



TYPE	TECHNOLOGY	DESCRIPTION
<b>CABLES &amp; CONNECTORS</b>	<b>HDMI 2.0</b>	HDMI stands for High Definition Multimedia Interface: it is the most used standard for video communications. Its 2.0 version enables transmission of High Dynamic Range (HDR) video Bandwidth up to 18Gbps Up to 32 audio channels for a multi-dimensional immersive audio experience Up to 1536kHz audio sample frequency for the highest audio fidelity.
	<b>HDMI 1.4</b>	HDMI stands for High Definition Multimedia Interface: it is the most used standard for video communications. Its 1.4 version enables transmission of 4K/UHD video Bandwidth up to 10.2Gbps and Up to 8 audio channels. It supports 3D content and Ethernet transmission on the same cable.
	<b>VGA</b>	Video Graphics Array (VGA) is an analog graphics standard for video display controller. Today, the VGA analog interface is used for high-definition video, including resolutions of 1080p and higher.
	<b>DISPLAY PORT</b>	DisplayPort is an interface protocol for digital displays, particularly computer monitors. It was developed by the Video Electronics Standards Association (VESA) as a high-performance replacement for other display modes such as VGA (Video Graphics Array) and DVI (Digital Visual Interface). Its last 1.4 version enables video transmission bandwidth up to 32.4 Gbps.
	<b>UTP</b>	Found in many Ethernet networks and telephone systems, UTP (Unshielded Twisted Pair) cables are the most common cables used in computer networking.
	<b>FTP</b>	In a Ethernet cable it stands for Foiled Twisted Pair. Each pair is individually shielded with aluminum foil. This type of shielding protects cable from external EMI entering or exiting the cable and also protects neighboring pairs from crosstalk.
	<b>SFTP</b>	In a Ethernet cable it stands for Shielded Foiled Twisted Pair. Each pair is individual shielded using foil between the twisted pair sets, and also an outer foil or braided shielding. This type of shielding helps prevent EMI from entering or exiting the cable and also protects neighboring pairs from crosstalk.
<b>INTERNET PROTOCOLS</b>	<b>ETHERNET JUMBO FRAME</b>	A jumbo frame is an Ethernet frame with a payload greater than the standard maximum transmission unit (MTU) of 1500 bytes. Jumbo frames are used on local area networks that support at least 1 Gbps.
	<b>DHCP</b>	The Dynamic Host Configuration Protocol (DHCP) is a network management protocol used on UDP/IP networks whereby a DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks.
	<b>TCP</b>	TCP is a connection-oriented protocol. A connection is established and maintained until the application programs have finished exchanging messages. It determines how to break data into packets, flow control and eventual retransmissions.
	<b>UDP</b>	UDP is "connectionless" protocol widely used for streaming audio and video over IP. It is considered an unreliable delivery protocol because it does not check for errors. When transmitting voice and video, there is no time to retransmit erroneous or dropped packets.
	<b>UNICAST &amp; MULTICAST</b>	Unicast is communication between a single sender and a single receiver over a network. The term exists in contradistinction to multicast, communication between a single sender and multiple receivers. The format of IP multicast packets is identical to that of unicast packets and is distinguished only by the use of a special class of destination address (class D IPv4 address). Since TCP supports only the unicast mode, multicast applications must use the UDP transport protocol.
<b>A/V TECHNOLOGY &amp; PROTOCOLS</b>	<b>IGMP</b>	The Internet Group Management Protocol (IGMP) is a communications protocol used by hosts and adjacent routers on IPv4 networks to establish multicast group memberships. IGMP is an integral part of IP multicast
	<b>HDCP</b>	HDCP stands for High-Bandwidth Digital Content Protection. It is a copy protection scheme created to eliminate the possibility of intercepting digital data midstream between the source and the display.
	<b>CEC</b>	An HDMI feature enabling control of up to 15 CEC-enabled devices connected through HDMI by using one of their remote controls.
	<b>ARC</b>	Audio Return Channel is a HDMI feature that allows to simplify the connection between displays and external audio systems like home theaters or soundbars. The same HDMI cable is used to send the video signal to the display and to receive the audio back, avoiding external SPDIF or analog connections.
	<b>KVM</b>	KVM stands for "keyboard, video and mouse". A KVM switch is a hardware device that allows a user to control multiple computers from one or more sets of keyboards, video monitors, and mice.
	<b>1080p</b>	1080p stands for 1920x1080 pixels and it is also known as Full HD. It is a set of HDTV high-definition video modes characterized by 1,920 pixels displayed across the screen horizontally and 1,080 pixels down the screen vertically; the p stands for progressive scan, i.e. non-interlaced.
	<b>2K</b>	2K resolution stands for 2048x1080 pixels. 2K is often used to indicate a Full HD resolution (1920x1080).



TYPE	TECHNOLOGY	DESCRIPTION
<b>A/V TECHNOLOGY &amp; PROTOCOLS</b>	<b>4K</b>	4K resolution stands for 4096x2160 pixels. 4K is often used to indicate a UHD resolution (3840x2160).
	<b>UHD</b>	Ultra High Definition resolution stands for 3840x2160 pixel. It is the dominant 4K standard.
	<b>HDBaseT</b>	HDBaseT is a global standard for the transmission of ultra-high-definition video & audio, Ethernet, control, USB and up to 100W of power over a single Cat. cable, for up to 100 m/328 ft. HDBaseT simplifies the connections without compromising performance and AV quality.
	<b>HDR</b>	High Dynamic Range is a technology that improves the range of color and contrast in a digital image
	<b>H.264</b>	H.264 or MPEG-4 Part 10, Advanced Video Coding (MPEG-4 AVC) is a block-oriented, motion-compensation-based, video compression standard designed to greatly reduce transmission bandwidth requirements while maintaining high video quality at the cost of greater video latency. Generally, when bandwidth is the primary concern, H.264 is a better choice than MJPEG.
	<b>16:9</b>	16:9 is a screen aspect ratio with a width of 16 units and height of 9. It is very common in TV and Cinema.
	<b>4:3</b>	4:3 is a screen aspect ratio with a width of 4 units and height of 3. It is common in earlier TV sets and computer monitors.
	<b>4:2:2</b>	Chroma subsampling is the practice of encoding images by implementing less resolution for chroma information than for luma information, taking advantage of the human visual system's lower acuity for color differences than for luminance. The two chroma components are sampled at half the sample rate of luma: the horizontal chroma resolution is halved. This reduces the bandwidth of an uncompressed video signal by one-third with little to no visual difference.
	<b>4:4:4</b>	Chroma subsampling is the practice of encoding images by implementing less resolution for chroma information than for luma information. Each of the three YCbCr components have the same sample rate. This scheme is used in high-end film scanners and cinematic post production. 4:4:4 has no compression (so it is not subsampled) and transports both luminance and color data entirely.
	<b>YUV</b>	YUV digital model defines a color space in terms of one luma (Y) and two chrominance (UV) components.
	<b>YPbPr</b>	YPbPr, is a color space used in video electronics, in particular in reference to component video cables. The three cables ("Y," "Pb" and "Pr") provided a higher quality analog connection than the single-wire composite cable commonly used to hook up earlier video equipment, because the brightness and color components of the signal were maintained separately.
	<b>CVBS</b>	CVBS stands for Composite Video Blanking Sync. At this level, the color, luminance and synchronization information are combined in one signal. The audio signal is transferred separately. YUV offers better signal quality than CVBS.
	<b>PAL/NTSC</b>	There are two television display systems in commercial use: PAL (common in Europe and parts of Asia) delivers a frame rate of 25 fps (frames per second) with 625 lines, while NTSC (used in the U.S. and Canada) delivers a frame rate of 30 fps using 525 lines.
	<b>LPCM</b>	Linear Pulse-Code Modulation (LPCM) is a method of encoding digital uncompressed audio. Once encoded, the audio signal can be transported along with a digital video signal. HDMI 1.4 interface supports up to 8-channel of LPCM/192 kHz/24-bit audio, which is generally the default audio output format of Blu-ray player. HDMI 2.0 supports up to 32 channels for immersive audio formats.
	<b>SPDIF 5.1</b>	Sony/Philips Digital Interface is a type of digital audio interconnect used in consumer audio equipment to output audio over reasonably short distances. The signal is transmitted over either a coaxial cable with RCA connectors or a fibre optic cable with TOSLINK connectors.
	<b>EDID</b>	Extended Display Identification Data (EDID) is a metadata format for display devices to describe their capabilities to a video source. The data format is defined by a standard published by the Video Electronics Standards Association (VESA).
<b>PoE</b>	Power over Ethernet (PoE) is a technology for wired Ethernet local area networks (LANs) that allows the electrical current necessary for the operation of each device to be carried by the data cables rather than by power cords. Doing so minimizes the number of wires on the installation.	
<b>PoC/PoH</b>	PoC stands for Power Over Cable and it identifies the delivery of power from a source to device over a standard Cat 5e/6 cable. The HDBaseT protocol includes this feature and it's also called PoH (Power over HDBaseT).	



# COMPARISON TABLE



	PRESENTATION SWITCHERS	AV DISTRIBUTION OVER IP				SWITCHERS	
	VEO-SWM45	VEO-XTI2L	VEO-XRI2L	VEO-XTI1C	VEO-XRI1C	VEO-SWH44	
Maximum cat.6a/7 extension length	40m@4K30/70m@Full HD	120m/60Km@4K30	120m/60Km@4K30	120m Full HD	120m Full HD	-	
<b>Inputs</b>							
HDMI	3	1	-	1	-	4	
VGA	1	-	-	-	-	-	
DisplayPort	1	-	-	-	-	-	
HDBaseT	-	-	-	-	-	-	
H.264 streaming	-	-	-	-	1	-	
Fiber Port	-	-	1	-	-	-	
USB	-	Yes	Yes	-	-	-	
RS-232	1	1	1	1	1	1	
IR	1	2	2	1	2	1	
SPDIF	-	1	-	-	-	-	
Stereo Analog Audio	5+1 Mic/Line	1	-	-	-	-	
Full HD support	Yes	Yes	Yes	Yes	Yes	Yes	
4K@30 Hz support	Yes	Yes	Yes	-	-	Yes	
4K@60 Hz support	Yes	-	-	-	-	Yes	
<b>Outputs</b>							
HDMI	1	-	1	1	1	1	
HDBaseT	1 mirrored	-	-	-	-	-	
H.264 streaming	-	-	-	1	-	-	
Fiber Port	-	1	-	-	-	-	
USB	-	Yes	Yes	-	-	-	
RS-232	1	1	1	1	1	1	
IR	1	1	1	1	1	-	
SPDIF	-	-	1	-	-	1	
Stereo Analog Audio	1	-	1	-	-	1	
Full HD support	Yes	Yes	Yes	Yes	Yes	Yes	
4K@30 Hz support	Yes	Yes	Yes	-	-	Yes	
4K@60 Hz support	-	-	-	-	-	Yes	
<b>Features</b>							
Videowall	-	Yes	Yes	-	-	-	
Scaling	Yes	Yes	Yes	Downscaling	Downscaling	-	
EDID Management	Yes	Yes	Yes	-	-	Yes	
HDR	-	-	-	-	-	Yes	
HDCP Support	Yes	Yes	Yes	Yes	Yes	Yes	
CEC	-	-	-	-	-	Yes	
ARC	-	-	-	-	-	Yes	
RS-232/IR extension	Yes	Yes	Yes	Yes	Yes	-	
Audio extension	-	Yes	Yes	-	-	-	
Maximum extension length	40m@4K30/70m@Full HD	100m/60Km@4K30	100m/60Km@4K30	120m Full HD	120m Full HD	-	
PoE, PoH	Yes	Yes		Yes	Yes	-	
<b>Control options</b>							
Web	Yes	Yes	Yes	Yes	Yes	-	
Telnet	Yes	Yes	Yes	Yes	Yes	-	
RS-232	Yes	-	-	-	-	Yes	
IR	Yes	Yes	Yes	Yes	Yes	Yes	
Contact closure	Yes	-	-	-	-	-	
<b>Dimensions</b>							
Height	44 mm / 1.76"	30 mm / 1.18"	30 mm / 1.18"	28 mm / 1.10"	28 mm / 1.10"	12 mm / 0.47"	
Length	220 mm / 8.66"	160 mm / 6.30"	160 mm / 6.30"	119 mm / 4.68"	119 mm / 4.68"	180 mm / 7.09"	
Width	220 mm / 8.66"	104 mm / 4.09"	104 mm / 4.09"	80 mm / 3.15"	80 mm / 3.15"	85 mm / 3.34"	
Weight	1250g / 2.75 lb	470g / 1.04 lb	470g / 1.04 lb	280g / 0.62 lb	280g / 0.62 lb	300g / 0.66 lb	

	SPLITTERS			EXTENDERS			AUDIO DE-EMBEDDER
	VEO-SPH42	VEO-SPH44	VEO-SPH48	VEO-XPT44	VEO-XPT24	VEO-XPS15	VEO-AXS4
	-	-	-	40m@4K60 70m@FullHD	40m@4K30 70m@FullHD	50m@FullHD	-
	1	1	1	1	1	1	1
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	1	1	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	Yes	Yes	-	-
	-	-	-	Yes	Yes	1	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	-	Yes
	Yes	Yes	Yes	Yes	-	-	Yes
	2	4	8	1TX + 2 RX	1	1TX + 1RX	1
	-	-	-	1	1	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	Yes	Yes	-	-
	-	-	-	Yes	Yes	1	-
	-	-	-	-	-	-	1
	-	-	-	-	-	-	1
	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	-	Yes
	Yes	Yes	Yes	Yes	-	-	Yes
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	Yes	Yes	Yes	Yes	-	Yes	-
	Yes	Yes	Yes	Yes	-	-	Yes
	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	-	-	-	-	Yes	Yes	Yes
	-	-	-	-	-	-	-
	-	-	-	Yes	Yes	IR	-
	-	-	-	-	-	-	-
	-	-	-	40m@4K60 70m@Full HD	40m@4K30 70m@Full HD	50m@Full HD	-
	-	-	-	yes (bidirectional)	Yes	Yes	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	15 mm / 0.59"	17 mm / 0.67"	17 mm / 0.67"	20 mm / 0.79"	25 mm / 0.98"	15mm / 0.59"	29 mm / 1.14"
	94 mm / 3.70"	150 mm / 5.90"	248 mm / 9.76"	140 mm / 5.51"	105 mm / 4.13"	60mm / 2.36"	105 mm / 4.13"
	61 mm / 2.40"	65 mm / 2.56"	110 mm / 4.33"	67 mm / 2.64"	71 mm / 2.79"	60mm / 2.36"	65 mm / 2.56"
	120g / 0.26 lb	245g / 0.54 lb	610g / 1.34 lb	700g / 1.54 lb (pair)	700g / 1.54 lb (pair)	300g / 0.66 lb (pair)	175g / 0.39 lb

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