The most variable
Modular Extender family

MODEX

visual engineering
LIGHTWARE

visual engineering
LIGHTWARE

Modular Extender family

Configuration

Configuration / Media connectors

Configuration / Video & Audio modules

Configuration / Interface modules

Application specific modular extenders with various video, audio, Ethernet, USB and other I/O modules.

Lightware Visual Engineering proudly introduces the MODEX family, the world's best and fastest modular extenders supporting all the AV and Broadcast industry's formats. MODEX (Modular Extender) offers a full range of modular transmitters and receivers extending both digital and analog video and audio, USB KVM, Ethernet and control signals over a single fiber or CATx cable.

The technology built into the MODEX family steps over many standard limitations allowing 30 meters DVI cable on input, Advanced EDID Management, Pixel Accurate Reclocking, LAN, RS-232, RS-422 control functions, USB K+M, remote powering and more.

To customize a MODEX is really easy and simple. There are 4 steps to be made. The first is to choose the right frame. After the selection of the frame type the next step is to find the required Media connector followed by the choice of any Video & Audio and Interface modules needed for the configuration. The MODEX modules are not hot swappable and are fixed configurations, the ordered MODEX is custom manufactured by Lightware.

Step1: Choose a MODEX frame

+

Step2: Choose a fiber or CATx Media connector

+

Step3: Select one Video & Audio module

+

Step4: Select two Interface modules

MODEX Graphical User Interface

Lightware's MODEX Modular Extenders have their own built-in websites. After a MODEX is connected and a browser launched the user meets the MODEX Graphical User Interface. This GUI allows the user to control both the MODEX transmitters and receivers in a very easy and user friendly way as the GUI is simple, smart and intuitive. To find out more please read the Quick Start Guide which is a detailed description of this software.

MODEX frames

MODEX transmitters and receivers are available in half rack unit size. On the front panel there is a 2x16 character LCD display, an additional 10/100 Mbps Ethernet port (with full functionality, but can be used as a control interface) and USB KVM connectors (transmitter has one USB-B for the computer; receiver has two USB-A connectors for the keyboard and mouse). Keyboard and mouse functions are emulated by the extender and no USB enumeration occurs while operator switching. A computer is not aware when a keyboard or mouse has been changed.
The 3/4 and full rack unit versions are under development as well which will be able to handle more modules and will be power redundant.

MODEX-TX specifications

Ethernet	RJ-45 connector
USB KVM	USB-B female connector
Front panel buttons:	Yes
Front panel LCD:	Yes, 2 x 16 characters
WEB:	Built-in website (TCP/IP Ethernet)
EDID management:	119 factory and 31 user programmable EDID
EDID emulation:	256-Byte Extended EDID v1.3

General (for Half RU extender):	
Dimensions:	221 W x 240 D x 42,5 H mm
Weight:	1850 g (excluding all modules)
Power consumption:	6.5 W (typical) 8.6 W (max) without modules 15 W (typical) 25 W (max) with modules
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing
Compliance:	CE
Warranty:	3 years

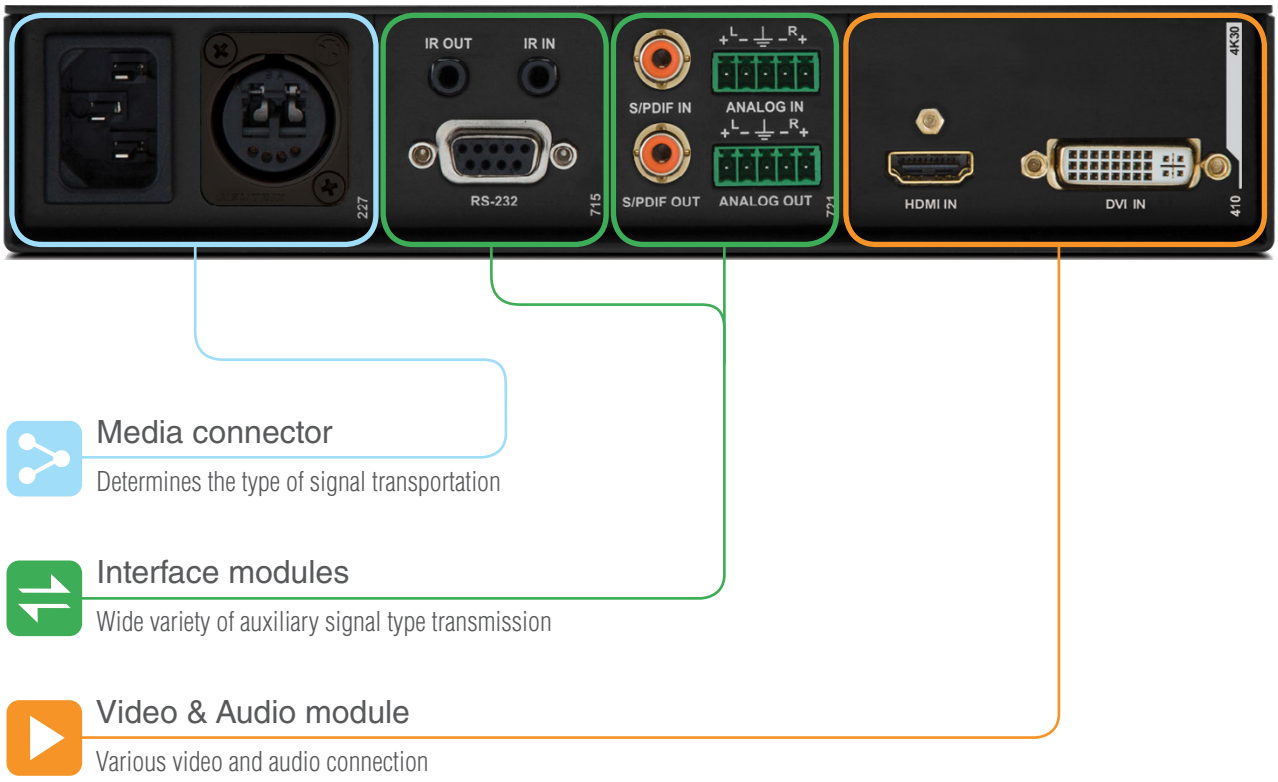
MODEX-RX specifications

Ethernet	RJ-45 connector
USB KVM	2 x USB-A female connector
Front panel buttons:	Yes
Front panel LCD:	Yes, 2 x 16 characters
WEB:	Built-in website (TCP/IP Ethernet)
EDID management:	119 factory and 31 user programmable EDID
EDID emulation:	256-Byte Extended EDID v1.3

General (for Half RU extender):	
Dimensions:	221 W x 240 D x 42,5 H mm
Weight:	1850 g (excluding all modules)
Power consumption:	6.5 W (typical) 8.6 W (max) without modules 15 W (typical) 25 W (max) with modules
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing
Compliance:	CE
Warranty:	3 years

MODEX modules

The half unit extender allows a Media connector module, one Video & Audio module and two Interface modules (each can be the same or different types). By choosing the modules you choose signal types your application requires these will be transferred by the MODEX extender pair or end point transmitter or receiver.



Media connectors

MODEX includes a family of long distance transmitters and receivers for sending and receiving video, audio, RS-232 and IR control, USB KVM and Ethernet over a single fiber or CATx cable. The Media connector is the heart of the MODEX because it determines the type of signal transportation.

OPTS & OPTM Media connectors

Part No: see the Connectors table

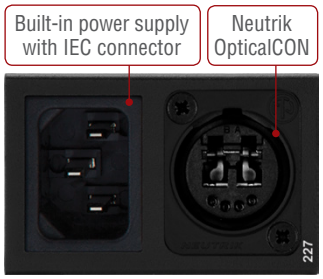
The OPTS and OPTM Media connectors give optical transmission over a single Singlemode (OPTS) or Multimode (OPTM) fiber. Lightware provides several fiber connector types to choose the best option for your application such as Neutrik OpticalCON, industrial grade LC ODVA, ST, SC, HF4, EBCM, EBCJ or LEMO. For cost effective smart solutions Lightware introduced the LC breakout Media connector which allows the user to connect another MODEX extender with a patch cable at the end point. It means you can send the signals for two MODEXs over a single Neutric OpticalCON duo cable. There are also two optional power connectors provided – to see the available combinations please check the 'Optional fiber and power connectors' chart. The MODEX OPTx series provide a reliable optical connection powered by an internal power supply.

Connectors

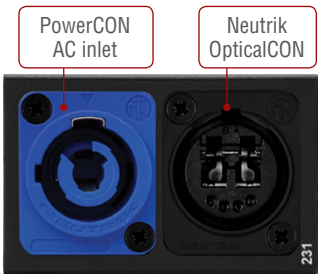
	Mod. No.	Fiber connector	Power connector	Part number
OPTS (RX/TX)	227	Neutrik OpticalCON DUO	IEC C14 AC	9161 0227
	231	Neutrik OpticalCON DUO	PowerCON AC	9161 0231
	229	LC ODVA	IEC C14 AC	9161 0229
	235	ST	IEC C14 AC	9161 0235
	237	SC	IEC C14 AC	9161 0237
	233	HICON HI-FIBER4	IEC C14 AC	9161 0233
	223	Expanded Beam Mini (HMA)	IEC C14 AC	9161 0223
	207	Expanded Beam Junior (HMA)	IEC C14 AC	9161 0207
	239 (TX)	SMPTE 304M HDTV socket	IEC C14 AC	9161 0239
	240 (RX)	SMPTE 304M HDTV plug	IEC C14 AC	9161 0240
	241	Neutrik OpticalCON DUO and LC	IEC C14 AC	9161 0241
OPTM (RX/TX)	228	Neutrik OpticalCON DUO	IEC C14 AC	9161 0228
	232	Neutrik OpticalCON DUO	PowerCON AC	9161 0232
	230	LC ODVA	IEC C14 AC	9161 0230
	236	ST	IEC C14 AC	9161 0236
	238	SC	IEC C14 AC	9161 0238
	234	HICON HI-FIBER4	IEC C14 AC	9161 0234
	226	Expanded Beam Mini (HMA)	IEC C14 AC	9161 0226
	210	Expanded Beam Junior (HMA)	IEC C14 AC	9161 0210
	242	Neutrik OpticalCON DUO and LC	IEC C14 AC	9161 0242

OPTS: singlemode MODEX Media connector
OPTM: multimode MODEX Media connector

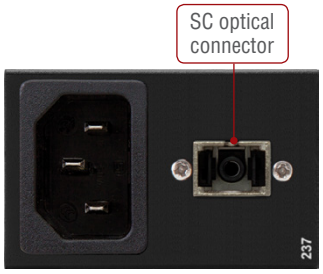
Power cable with the right male connector for the Media connector module is provided.



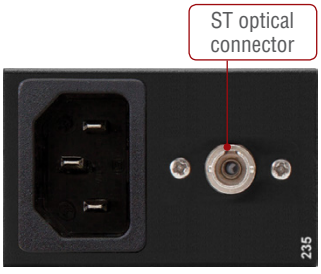
MODEX-CON-OPTS/M-NT



MODEX-CON-OPTS/M-NT-PCN

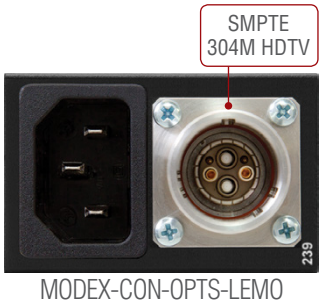


MODEX-CON-OPTS/M-SC

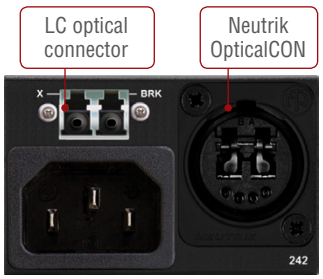


MODEX-CON-OPTS/M-ST

MODEX-CON-OPTS/M-ODVA



MODEX-CON-OPTS-LEMO



MODEX-CON-OPTS/M-NT-BRK-LC

MODEX-CON-OPTS/M-EBCJ

MODEX-CON-OPTS/M-HF4

Module specifications

	Module number	Power consumption:	Weight:
OPTS/ OPTM	207/210	0,75 W typ, 1.1 W max.	380g
	223/226		335g
	227/228		285g
	229/230		295g
	231/232		290g
	233/234		310g
	235/236		270g
	237/238		270g
	239		315g
	240		390g
	241/242		300g

Fiber specifications

Link speed:	6,25 Gbps
Singlemode fiber wavelength:	1310, 1490, 1550 nm
Multimode fiber wavelength:	850, 1310, 1550 nm
Singlemode extension distance:	10 km (32800 ft)
Multimode extension distance:	300 m (1000 ft)
Optical transmission channel 1:	OPTS/OPTM connection
Optical transmission channel 2:	USB 2.0 transmission**

**under development

Video specifications:	
Supported video resolutions:	Up to 4K (30 Hz, 4:2:2, 297 MHz, 24 bit)
Max pixel clock:	297 MHz
Frame delay:	No delay
Video signal latency:	Approx. 3 lines

Audio specifications:	
Embedded audio:*	8 channel PCM or HBR compressed
Return AUX:	4 channel PCM or 5.1 compressed
Forward audio:	2 channel PCM or 5.1 compressed
Return audio:	2 channel PCM or 5.1 compressed

*configurable, the embedded audio in the video stream can be switched to any other audio.

Ethernet specifications:	
Ethernet:	10/100 Mbit/s

USB specifications:	
USB standards:	Only HID devices, Smart Card
USB HUB:	Not supported
Device number:	2 USB HID devices

Video & Audio modules

Various video formats are supported by the MODEX Video & Audio modules: video could be DisplayPort 1.1, HDMI 1.4 with 3D, Dual-Link DVI, SDI, 3G-SDI and analog VGA, Interlaced Composite Video. No matter, what kind of video format you have, your pixels will be extended perfectly. The video format conversion is automatic if the two ends have different modules. The Video & Audio modules are also capable of transmitting audio. The source may be external S/PDIF, RCA, XLR or the embedded sound present in different video signals. Embedding and extracting audio or transmitting in both directions simultaneously is also supported.

4K UHD HDMI 2 port input module with monitor out

MODEX-AV-2HDMI-4K-IM-LH

new!

Under development

Features

- DVI 1.0, HDMI1.4 compliant
- Video connectors: 2xHDMI (input), HDMI (output)
- Resolution up to 4K UHD on both inputs and the output
- 3D support
- Deep color support up to 36bpp
- Embedded 7.1 HBR audio support
- HDCP 1.4 compliant
- EDID emulation
- Max cable length: 15m

The MODEX-AV-2HDMI-4K-IM-LH is a 4K UHD video module for the MODEX family which has two input connectors and one local output connector. The video from any of the inputs can be sent to the local output connector, or to the Media Connector module, or both, in a 2:2 matrix fashion. The audio stream on the local output can be switched to be the same as on the selected input connector, or a different audio stream from the S/PDIF group of the Media Connector module. On-Screen-Display (OSD) is available on the local output connector only. Simultaneous 4K video input signals are supported on both input connectors of the MODEX-AV-2HDMI-4K-IM-LH. The EDID on the inputs can be changed to any type of EDID (factory, user or a dynamic from one of the two outputs). All HDMI connectors support consumer electronics control (CEC). The local output and one input HDMI connector support HDMI1.4 audio return channel (ARC). Test pattern generator is available on both the local output and the Core output. 480p60 and 576p60 resolutions are supported without input video signal; with input video signal the resolution can be the same as the input resolution of the input video. The following patterns are available: solid red, green, blue, black, white, ramp, chessboard and color bar. These patterns can be cycled around automatically.

4K UHD HDMI 5 port input module with monitor out

MODEX-AV-5HDMI-4K-IM-LH

new!

Under development

Features

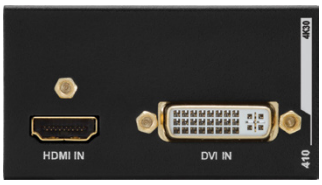
- DVI 1.0, HDMI1.4 compliant
- Video connectors: 5xHDMI (input), HDMI (output)
- Resolution up to 4K UHD on both inputs and the output
- 3D support
- Deep color support up to 36bpp
- Embedded 7.1 HBR audio support
- HDCP 1.4 compliant
- EDID emulation
- Max cable length: 15m

The MODEX-AV-5HDMI-4K-IM-LH is a 4K UHD video module for the MODEX family which has five input connectors and one local output connector. The video from any of the inputs can be sent to the local output connector, or to the Media Connector module, or both, in a 5:2 matrix fashion. The audio stream on the local output can be switched to be the same as on the selected input connector, or a different audio stream from the S/PDIF group of the Media Connector module. On-Screen-Display (OSD) is available on the local output connector only. Simultaneous 4K video input signals are supported on the lower 2 input connectors of the MODEX-AV-5HDMI-4K-IM-LH. The EDID on the inputs can be changed to any type of EDID (factory, user or a dynamic from one of the two outputs). All HDMI connectors support consumer electronics control (CEC). The local output and one input HDMI connector support HDMI1.4 audio return channel (ARC). Test pattern generator is available on both the local output and the Core output. 480p60 and 576p60 resolutions are supported without input video signal; with input video signal the resolution can be the same as the input resolution of the input video. The following patterns are available: solid red, green, blue, black, white, ramp, chessboard and color bar. These patterns can be cycled around automatically.

4K UHD HDMI and DVI input module

MODEX-AV-HDMI-DVI-4K-IM

Part No: 9161 0410



Features

- HDMI 1.4, DVI and HDCP 1.4 compliant
- Resolution up to 3840x2160@30Hz, 1600x1200@60Hz
- Supports any 3D formats

HDMI 1.4 input module is a compliant receiver of HDMI 1.4 and DVI signals with HDCP with the resolution up to 4K. The input has 30 m copper cable compensation and the signal can be switched between the HDMI and DVI connector (simultaneously only one can be used). Advanced professional functions such as HDCP enable/disable mode and Advanced EDID Management functions provide the highest level of setup and usage.

Specifications

Max resolution:	1600x1200 @ 60Hz 36bit 3840x2160 @ 30Hz 24bit 1920x1080p @ 120Hz 24bit
Max cable length:	30m / 22 AWG
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	9 Gbps
Max pixel clock:	300 MHz
Supported video standards:	DVI 1.0, HDMI 1.4
3D support:	Yes
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.4

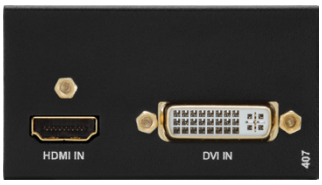
Audio capability:*	4 stereo PCM or HBR compressed
Weight:	105 g
Power consumption:	2.75 W (max)
Connectors:	DVI-D, HDMI
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

HDMI 1.3 and DVI input module

MODEX-AV-HDMI-DVI-IM

Part No: 9161 0407



Features

- HDMI 1.3, DVI and HDCP 1.3 compliant
- 36-bit deep color support

HDMI 1.3 input module is a compliant receiver of HDMI 1.3a and DVI signals with HDCP compliance. The input has 30 m copper cable compensation and the signal can be switched between the HDMI and DVI connector (simultaneously only one can be used). Advanced professional functions such as HDCP enable/disable mode and Advanced EDID Management functions provide the highest level of setup and usage.

Specifications

Max resolution:	1920x1200 @ 36bit 1600x1200 @ 24bit
Max (in/out) cable length:	30 m / 22 AWG
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	Total max 6,75 Gbps
Max pixel clock:	225 MHz
Supported video standards:	DVI 1.0, HDMI 1.3a
3D support:	No
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

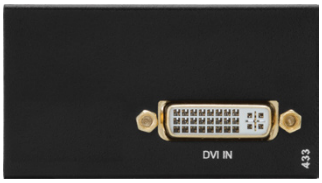
Audio capability:*	4 stereo PCM or HBR compressed
Weight:	105 g
Power consumption:	1,3 W (typ) 2,2 W (max)
Connectors:	DVI-D, HDMI
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

DVI input module

MODEX-AV-DVI-IM

Part No: 9161 0433



Features

- HDMI 1.3, DVI and HDCP 1.3 compliant
- 36-bit deep color support

DVI input module is a compliant receiver of HDMI 1.3a and DVI signals with HDCP compliance. The input has 30 m copper cable compensation. Advanced professional functions such as HDCP enable/disable mode and Advanced EDID Management functions provide the highest level of setup and usage.

Specifications

Max resolution:	1920x1200@36bit 1600x1200@24bit
Max (in/out) cable length:	30 m / 22 AWG
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	Total max 6,75 Gbps
Max pixel clock:	225 MHz
Supported video standards:	DVI 1.0, HDMI 1.3a
3D support:	No
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	95 g
Power consumption:	0,4 W (typ) 0,7 W (max)
Connectors:	DVI-D
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

Dual-Link DVI input module

MODEX-AV-DVIDL-IM

Part No: 9161 0401

Features

- Pro series Dual-Link DVI input module
- Resolution up to 2560 x 1600, 1920x1200@120Hz
- HDCP 1.1 compliant
- Advanced EDID Management

Dual-Link DVI input module was designed for higher video resolutions such as 2560 x 1600. It incorporates Advanced EDID Management and HDCP encryption besides Lightware's Pro series technologies.

Specifications

Max resolution:	2560x1600@60Hz 1920x1200@120Hz
Max (in/out) cable length:	20 m / 22 AWG
Color depth:	8 bit per color
Color space:	RGB
Frame delay:	No delay
Data rate:	Total max 9,9 Gbps
Max pixel clock:	165 MHz
Supported video formats:	DVI 1.0
3D support:	Yes
Embedded audio / Return audio:	No / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.1

Audio capability:	Not supported
Weight:	100 g
Power consumption:	1,4 W (typ) 2 W (max)
Connectors:	DVI-D
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

3G-SDI input module with 2 SDI loop out

MODEX-AV-3GSDI-IM

Part No: 9161 0426

Features

- Accepts SD-SDI, HD-SDI and 3G-SDI video signals
- SDI multichannel audio de-embedding
- Auto detects input formats

3G-SDI input accepts SD-SDI, HD-SDI and 3G-SDI video signals with embedded audio on BNC connectors. SDI input signals are automatically equalized and reclocked. The module has two loop outputs for further transmission of the input signal.

Specifications

Max resolution:	1920 x 1080p @ 60Hz 3G-SDI Level A: 1920x1080p YCbCr 4:2:2 3G-SDI Level B: 1920x1080p YCbCr 4:2:2
Max input cable length:	130 m @ 3G-SDI
Color depth:	20 bit
Color space:	10 bit / Y, 10 bit / CbCr, 12 bit RGB
Frame delay:	No delay
Data rate:	Total max 2,97 Gbps
Supported video standards:	SD-SDI, HD-SDI, 3G-SDI
3D support:	No
Embedded audio:	Yes
EDID emulation:	No

Audio capability:*	4 stereo PCM
Weight:	120 g
Power consumption:	0,7 W (typ) 1,1 W (max)
Connectors:	3 x BNC (1 x in, 2 x loop out)
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing
Part number:	9161 0426

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

Supported resolutions

Signal type	Resolution	Refresh	ColorSpace	Sampling	Color depth
HD-SDI	720p	50 / 59,94 / 60	YCbCr	422	10
	1080i	50 / 59,94 / 60	YCbCr	422	10
	1080sF	25 / 29,97 / 30	YCbCr	422	10
	1080p	23,98 / 24 / 25 / 29,97 / 30	YCbCr	422	10
3G-SDI (3G-A)	720p	50	YCbCr / RGB	444	10
		59,94	YCbCr / RGB	444	10
		60	YCbCr / RGB	444	10
	1080i	50	YCbCr	422 / 444	12
		50	YCbCr / RGB	444	10
		50	RGB	444	12
		59,94	YCbCr	422 / 444	12
		59,94	YCbCr / RGB	444	10
		59,94	RGB	444	12
		60	YCbCr	422 / 444	12
		60	YCbCr / RGB	444	10
		60	RGB	444	12
3G-SDI (3G-A)	1080sF	25	YCbCr	422 / 444	12
		25	RGB	444	10
		29,97	YCbCr	422 / 444	12
		29,97	RGB	444	10
		30	YCbCr	422 / 444	12
		30	RGB	444	10
	1080p	23,98	YCbCr / RGB	444	10
		24	YCbCr / RGB	444	10
		25	YCbCr	422 / 444	12
		25	YCbCr / RGB	444	10
		25	RGB	444	12
		29,97	YCbCr	422 / 444	12
		29,97	YCbCr / RGB	444	10
		29,97	RGB	444	12
		30	YCbCr	422 / 444	12
		30	YCbCr / RGB	444	10
		30	RGB	444	12
		50 / 59,94 / 60	YCbCr	422	10
3G-SDI (3G-B)	1080i	50 / 59,94 / 60	YCbCr	444	10
	1080sF	29,97 / 30	YCbCr	444	10
	1080p	50 / 59,94 / 60	YCbCr	422	10

DisplayPort 1.1 input module

MODEX-AV-DP-IM

Part No: 9161 0419

Features

- Accepts DisplayPort 1.1a signals with embedded audio
- Up to 2560 x 1600 pixel resolution
- Audio embedding, de-embedding
- HDCP 1.3 compliant

Input module for DisplayPort 1.1a video signals extends high resolution video and embedded audio. The interface's 10.8 Gbps bandwidth is capable of transmitting 2560 x 1600 pixel resolution video with full support of content protection (HDCP).

Specifications

Max resolution:	2560x1600@60Hz 4096x2160@24Hz
Max DP cable length:	15 m / 24 AWG
Color depth:	24, 30, 36 bit deep color
Color space:	RGB/YUV (4:4:4) – 10-bit color YUV (4:2:2/4:2:0) – 12-bit color RGB (4:4:4) to YUV (4:4:4)
Frame delay:	No delay
Data rate:	Total max: 10.8 Gbps (1.62/2.7 Gbps/lane)
Supported video standards:	DP 1.1a compliant
3D support:	Yes
Embedded audio	Yes
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	95 g
Power consumption:	0,8 W (typ) 2,5 W (max)
Connectors:	Standard DisplayPort gold plated connector
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

4K UHD HDMI output module

MODEX-AV-HDMI-4K-OM

Part No: 9161 0416

Features

- HDMI 1.4, DVI 1.0 and HDCP 1.4 compliant
- Resolution up to 3840x2160@30Hz, 1600x1200@60Hz
- Supports any 3D formats

Video output module for HDMI 1.4 can output HDMI 1.4 and DVI signals with HDCP compliancy. The module is compatible with deep color formats and features embedded audio as well.

Specifications

Max resolution:	1600x1200 @ 60Hz 36bit 3840x2160 @ 30Hz 24bit 1920x1080p @ 120Hz 24bit
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	9 Gbps
Max pixel clock:	300 MHz
Supported video standards:	DVI 1.0, HDMI 1.4
3D support:	Yes
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.4

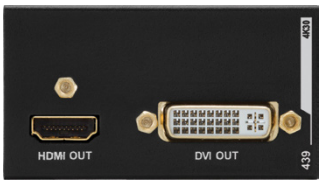
Audio capability:*	4 stereo PCM or HBR compressed
Weight:	95 g
Power consumption:	0.38 W (typ), 2.88 W (max)
Connectors:	HDMI
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

4K UHD HDMI and DVI dual output module

MODEX-AV-HDMI-DVI-4K-OM

Part No: 9161 0439



Features

- HDMI 1.4, DVI and HDCP 1.4 compliant
- Resolution up to 3840x2160@30Hz, 1920x1080p@120Hz, 1600x1200@60Hz
- Supports any 3D formats

HDMI 1.4 output module is a compliant transmitter of HDMI 1.4 and DVI signals with HDCP with the resolution up to 4K. The same signal can be sent on both the HDMI and DVI connector simultaneously. Advanced professional functions such as HDCP enable/disable mode and Advanced EDID Management functions provide the highest level of setup and usage.

Specifications

Max resolution:	1600x1200 @ 60Hz 36bit 3840x2160 @ 30Hz 24bit 1920x1080p @ 120Hz 24bit
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	9 Gbps
Max pixel clock:	300 MHz
Supported video standards:	DVI 1.0, HDMI 1.4
3D support:	Yes
Embedded audio / Return audio:	Yes / Yes (on HDMI connector)
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.4
Video test pattern generator (both outputs)	480p, 576p or 720p with different patterns

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	110 g
Power consumption:	0.38 W (typ), 2.88 W (max)
Connectors:	DVI-D, HDMI
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

4K UHD DVI output module

MODEX-AV-DVI-4K-OM

Part No: 9161 0436

Features

- HDMI 1.4, DVI and HDCP 1.4 compliant
- Resolution up to 3840x2160@30Hz, 1920x1080p@120Hz, 1600x1200@60Hz
- Supports any 3D formats

Video output module for HDMI 1.4 with DVI connector which can output HDMI 1.4 and DVI signals with HDCP compliancy. The module is compatible with deep color formats and features embedded audio as well.

Specifications

Max resolution:	1600x1200 @ 60Hz 36bit 3840x2160 @ 30Hz 24bit 1920x1080p @ 120Hz 24bit
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	9 Gbps
Max pixel clock:	300 MHz
Supported video standards:	DVI 1.0, HDMI 1.4
3D support:	Yes
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.4

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	100 g
Power consumption:	0.38 W (typ), 2.88 W (max)
Connectors:	DVI
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

HDMI 1.3 output module

MODEX-AV-HDMI-OM

Part No: 9161 0413

Features

- HDMI 1.3, DVI and HDCP 1.3 compliant
- 36-bit deep color support

Video output module for HDMI 1.3 can output HDMI and DVI signals with HDCP compliancy. The module is compatible with deep color formats and features embedded audio as well.

Specifications

Max resolution:	1920x1200@36bit 1600x1200@24bit
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	Total max 6,75 Gbps
Max pixel clock:	225 MHz
Supported video standards:	DVI 1.0, HDMI 1.3a
3D support:	No
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	95 g
Power consumption:	0,4 W (typ) 0,7 W (max)
Connectors:	HDMI
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

DVI output module

MODEX-AV-DVI-OM

Part No: 9161 0430

Features

- HDMI 1.3, DVI and HDCP 1.3 compliant
- 36-bit deep color support

Video output module with DVI connector. It can output HDMI and DVI signals with HDCP compliancy. The module is compatible with deep color formats and features embedded audio as well.

Specifications

Max resolution:	1920x1200@36bit 1600x1200@24bit
Color depth:	24, 30, 36 bit deep color
Color space:	RGB, YCbCr 4:4:4/4:2:2
Frame delay:	No delay
Data rate:	Total max 6,75 Gbps
Max pixel clock:	225 MHz
Supported video standards:	DVI 1.0, HDMI 1.3a
3D support:	No
Embedded audio / Return audio:	Yes / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	95 g
Power consumption:	0,4 W (typ) 0,7 W (max)
Connectors:	DVI-D
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

Dual-Link DVI output module

MODEX-AV-DVIDL-OM

Part No: 9161 0404

Features

- Pro series Dual-Link DVI output module
- Resolution up to 2560 x 1600, 1920x1200@120Hz

Dual-Link DVI video output module supports up to 2560 x 1600 pixel resolution video signals with HDCP compliancy. The DVI output can power external peripheral devices via +5 V pin up to 500 mA current.

Specifications

Max resolution:	2560x1600 @ 60Hz 1920x1200 @ 120Hz
Color depth:	8 bit per color
Color space:	RGB
Frame delay:	No delay
Data rate:	Total max 9,9 Gbps
Max pixel clock:	165 MHz
Supported video standards:	DVI 1.0
3D support:	Yes
Embedded audio / Return audio:	No / No
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

Audio capability:	Not supported
Weight:	100 g
Power consumption:	3,5 W (typ) 3,5 W (max)
Connectors:	DVI-D
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

DisplayPort 1.1 output module

MODEX-AV-DP-OM

Part No: 9161 0422

Features

- Transmits DisplayPort 1.1a signals with embedded audio
- Up to 2560 x 1600 pixel resolution,
- Audio embedding, de-embedding
- HDCP 1.3 compliant
- Compatible with Apple Cinema Display, 27” and 30” LCD displays

The DisplayPort output module transmits DisplayPort 1.1a high resolution video and embedded audio. The interface’s 10.8 Gbps bandwidth is capable of transmitting 2560 x 1600 pixel resolution video with full support of content protection (HDCP).

Specifications

Max resolution:	2560x1600 @ 60Hz 4096x2160 @ 24Hz
Color depth:	24,30,36 bit deep color
Color space:	RGB/YUV (4:4:4) – 10-bit color YUV (4:2:2/4:2:0) – 12-bit color RGB (4:4:4) to YUV (4:4:4)
Frame delay:	No delay
Data rate:	Total max: 10.8 Gbps (1.62/2.7 Gbps/lane)
Supported video standards:	DP 1.1a compliant
3D support:	Yes
Embedded audio	Yes
EDID emulation:	Yes, Advanced EDID management
HDCP compliancy:	1.3

Audio capability:*	4 stereo PCM or HBR compressed
Weight:	95 g
Power consumption:	0,8 W (typ) 2,5 W (max)
Connectors:	Standard DisplayPort gold plated connector
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

*The transmitted audio depends on the Media connector. For final audio transmission capabilities please see the chosen Media connectors audio specification.

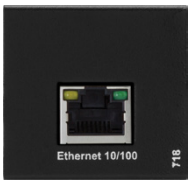
Interface modules

Lightware's innovative MODEX architecture allows each transmitter and receiver to support a wide variety of auxiliary signal types through the Interface modules. All auxiliary signal types can be simultaneously transmitted at full bandwidth over fiber or twisted pair reducing the need for additional extenders and cabling. MODEX frames have auxiliary interface slots (half RU has two module slots). It can be any control signal, audio or Ethernet.

Ethernet 10/100 Mbit module

MODEX-IF-ETH

Part No: 9161 0718



Features

- 10/100 Mbit Ethernet transmission

Additional 10/100 Ethernet port is available through the Ethernet interface module supporting a full duplex autodetect connection. Power over Ethernet is not supported however the module can be connected to PoE devices as well.

Specifications

Ethernet data rate:	10/100Base-T, full duplex with autodetect
Ethernet protocol:	ARP, ICMP (ping), IP, TCP, DHCP, HTTP, SMTP, Telnet
Power over Ethernet:	Not supported
Auto-MDIX:	Yes

Weight:	70 g
Power consumption:	0,05 W (typ) 0,066 W (max)
Connectors:	1 RJ-45
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

RS-232 and 2 port Ethernet 10/100 Mbit module

MODEX-IF-2ETH-RS232

Part No: 9161 0730

Features

- Two RJ-45 and an RS-232 connectors
- 10/100 Mbit Ethernet transmission
- Bidirectional RS-232 for AV device control
- Configurable RS-232 baud rate

Two additional 10/100 Ethernet port are available through this Ethernet – RS-232 interface module supporting a full duplex autodetect connection. Power over Ethernet is not supported however the module can be connected to PoE devices as well. Bidirectional RS-232 control signals can be transmitted alongside the video and audio signals, allowing the remote device to be controlled without the need for additional cabling. The RS-232 baud rate can be configured for the need of the system.

Specifications

Ethernet data rate:	10/100Base-T, full duplex with autodetect
Ethernet protocol:	ARP, ICMP (ping), IP, TCP, DHCP, HTTP, SMTP, Telnet
Power over Ethernet:	Not supported
Auto-MDIX:	Yes
Supported baud rate:	2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 / 128000 / 153600 / 230400 / 256000 (configurable)
Signal type:	RX/TX bidirectional
Weight:	85 g
Power consumption:	1,5 W (typ) 2,3 W (max)
Connectors:	2 x RJ-45, male 9-pole D-sub male
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

Ethernet 4 port 10/100 Mbit module

MODEX-IF-4ETH

Part No: 9161 0726

Features

- Four RJ-45 connectors
- 10/100 Mbit Ethernet transmission

Four additional 10/100 Ethernet port are available through this Ethernet interface module supporting a full duplex autodetect connection. Power over Ethernet is not supported however the module can be connected to PoE devices as well.

Specifications

Ethernet data rate:	10/100Base-T, full duplex with autodetect
Ethernet protocol:	ARP, ICMP (ping), IP, TCP, DHCP, HTTP, SMTP, Telnet
Power over Ethernet:	Not supported
Auto-MDIX:	Yes
Weight:	75 g
Power consumption:	1,5 W (typ) 2,3 W (max)
Connectors:	4 x RJ-45
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

Ethernet 10/100 Mbit module with EtherCON connector

MODEX-IF-ETH-ECN

Part No: 9161 0727

Features

- Durable latch lock Neutric EtherCON connector
- 10/100 Mbit Ethernet transmission

Additional 10/100 Ethernet port is available through the Ethernet interface module supporting a full duplex autodetect connection. Power over Ethernet is not supported however the module can be connected to PoE devices as well.

Specifications

Ethernet data rate:	10/100Base-T, full duplex with autodetect
Ethernet protocol:	ARP, ICMP (ping), IP, TCP, DHCP, HTTP, SMTP, Telnet
Power over Ethernet:	Not supported
Auto-MDIX:	Yes
Weight:	75 g
Power consumption:	0,1 W (typ) 0,2 W (max)
Connectors:	Neutrik Ethercon RJ-45 receptacle with latch lock (NE8FBH-S)
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

Digital and analog audio input module

MODEX-IF-AUDIN

Part No: 9161 0719

Features

- SPDIF 5.1 audio input
- Balanced analog audio input

Digital and analog audio interface module includes an S/PDIF and balanced stereo input. S/PDIF input supports 2-channel stereo to 5.1 digital audio up to 24-bit, 96 kHz (96 kHz only in embedded mode). The balanced analog stereo audio can be used in audio breakaway applications. For more flexibility, the module provides advanced settings to customize the input such as gain, volume level control and phase inversion.

Specifications

S/PDIF digital audio	
Audio formats:	S/PDIF
Supported sample rates:	16 to 48 kHz
AES/EBU compatibility:	No
Bit depths:	Up to 24 bit

Analog audio	
Sample frequency:	16 to 96 kHz
Maximum level:	Input: 4.4 Vp-p
Frequency response:	20Hz to 20 kHz: ±1dB
Gain:	-5dB to 19dB;
Input impedance:	28 kΩ

Weight:	80 g
Power consumption:	0,2 W (typ) 0,33 W (max)
Connectors:	1 x RCA, 1 x 5 pole PHOENIX
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

Digital and analog audio output module

MODEX-IF-AUDOUT

Part No: 9161 0720

Features

- SPDIF 5.1 audio output
- Balanced analog audio output

Digital and analog audio interface module includes an S/PDIF and balanced stereo output. S/PDIF output supports 2-channel stereo to 5.1 digital audio up to 24-bit, 96 kHz. The balanced analog stereo audio can be used in audio breakaway applications. For more flexibility, the module provides advanced settings to customize the output such as volume, bass and high level control.

Specifications

S/PDIF digital audio	
Audio formats:	S/PDIF
Supported sample rates:	16 to 48 kHz
AES/EBU compatibility:	No
Bit depths:	Up to 24 bit

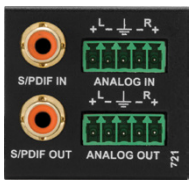
Analog audio	
Sample frequency:	16 to 96 kHz
Maximum level:	4.4 Vp-p (6 dBu)
Frequency response:	20Hz to 20 kHz: ±1dB
Gain:	+5dB to -73dB (and -∞dB)
Output impedance:	1.2 kΩ

Weight:	80 g
Power consumption:	0,2 W (typ) 0,33 W (max)
Connectors:	1 x RCA, 1 x 5 pole PHOENIX
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

Digital and analog bidirectional audio module

MODEX-IF-AUD

Part No: 9161 0721



Features

- SPDIF 5.1 audio input and output
- Balanced analog audio input and output

Digital and analog audio interface module includes input and output with S/PDIF and stereo analog option. S/PDIF input and output supports 2-channel stereo to 5.1 digital audio up to 24-bit, 96 kHz (96 kHz only in embedded mode). It also offers balanced analog stereo audio that can be used in audio breakaway applications. For more flexibility, the module provides advanced settings to customize the input and output such as gain, volume, bass and high level control and phase inversion.

Specifications

S/PDIF digital audio	
Audio formats:	S/PDIF
Supported sample rates:	16 to 48 kHz (input), 16 to 48 kHz (output)
AES/EBU compatibility:	No
Bit depths:	Up to 24 bit

Analog audio	
Sample frequency:	16 to 96 kHz
Maximum level:	Input: 4.4 Vp-p; output: 4.4 Vp-p (6 dBu)
Frequency response:	20Hz to 20 kHz: ±1dB
Gain:	Input: -5dB to 19dB; Output: +5dB to -73dB (and -∞dB)
Input/output impedance:	Input: 28 kΩ, output: 1.2 kΩ

Weight:	90 g
Power consumption:	0,2 W (typ) 0,33 W (max)
Connectors:	2 x RCA, 2 x 5 pole PHOENIX
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

RS-232 and IR module

MODEX-IF-RS232-IR

Part No: 9161 0715

Features

- Bidirectional RS-232 for AV device control
- Bidirectional IR control
- Configurable RS-232 baud rate

Bidirectional RS-232 control and IR signals can be transmitted alongside the video and audio signals, allowing the remote device to be controlled without the need for additional cabling. The RS-232 baud rate can be configured for the need of the system to any user specified baud rates. IR emitter is supplied which required for IR extension.

Specifications

RS-232	
Supported baud rate:	2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 / 128000 / 153600 / 230400 / 256000 (configurable)
Signal type	RX/TX bidirectional

IR	
Supported frequencies (input carrier freq):	38 kHz
Supported frequencies (output carrier freq):	38 kHz (configurable)

Weight:	65 g
Power consumption:	0,1 W (typ) 0,2 W (max)
Connectors:	2 x 3.5mm TRS connector (1/8'' mini-jack) 9-pole D-sub male
ESD protection:	No
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

RS-232 module

MODEX-IF-RS232

Part No: 9161 0712

Features

- Bidirectional RS-232 for AV device control
- Configurable RS-232 baud rate

Bidirectional RS-232 control signals can be transmitted alongside the video and audio signals, allowing the remote device to be controlled without the need for additional cabling. The RS-232 baud rate can be configured for the need of the system.

Specifications

RS-232	
Supported baud rate:	2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 / 128000 / 153600 / 230400 / 256000 (configurable)
Signal type	RX/TX bidirectional

Weight:	60 g
Power consumption:	0,1 W (typ) 0,2 W (max)
Connectors:	9-pole D-sub male
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

RS-232 double module

MODEX-IF-2xRS232

Part No: 9161 0713

Features

- Bidirectional RS-232 for AV device control
- Configurable RS-232 baud rate

Bidirectional RS-232 control signals can be transmitted alongside the video and audio signals with two individual connectors, allowing the remote device to be controlled without the need for additional cabling. The RS-232 baud rate can be configured for the need of the system.

Specifications

RS-232 double	
Supported baud rate:	2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 / 128000 / 153600 / 230400 / 256000 (configurable)
Signal type	RX/TX bidirectional

Weight:	70 g
Power consumption:	0,1 W (typ) 0,2 W (max)
Connectors:	2 x 9-pole D-sub male
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

RS-232 and RS-422 module

MODEX-IF-RS232-RS422

Part No: 9161 0714

Features

- Bidirectional RS-232 for AV device control
- Bidirectional RS-422 control
- Configurable RS-232/422 baud rate

Bidirectional RS-232 and RS-422 control signals can be transmitted alongside the video and audio signals, allowing the remote device to be controlled without the need for additional cabling. The RS-232 and RS-422 baud rate can be configured for the need of the system to any user specified baud rates.

Specifications

RS-232	
Supported baud rate:	2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 / 128000 / 153600 / 230400 / 256000 (configurable)
Signal type	RX/TX bidirectional

RS-422	
Pin assigment:	1: RX-, 2:RX+, 3:TX+, 4:TX-, 5:GND
Signal levels:	±5 V

Weight:	70 g
Power consumption:	0,1 W (typ) 0,2 W (max)
Connectors:	2 x 9-pole D-sub male
ESD protection:	IEC61000–4–2 Level 4
Operation temperature:	0°C - +50 °C
Storage temperature:	-20°C - +85 °C
Humidity:	10% to 90% non-condensing

Frames		
MODEX-F15-OPTS-TX	MODEX-OPTS-TX - Singlemode fiber optical transmitter frame with USB KVM and Ethernet ports	9161 0103
MODEX-F15-OPTS-RX	MODEX-OPTS-RX - Singlemode fiber optical receiver frame with USB KVM and Ethernet ports	9161 0104
MODEX-F15-OPTM-TX	MODEX-OPTM-TX - Multimode fiber optical transmitter frame with USB KVM and Ethernet ports	9161 0106
MODEX-F15-OPTM-RX	MODEX-OPTM-RX - Multimode fiber optical receiver frame with USB KVM and Ethernet ports	9161 0107
Media Connector		
MODEX-CON-OPTM-NT	OPTM multimode Media Core input/output with Neutrik OpticalCON DUO and IEC C14 AC inlet (RX/TX)	9161 0228
MODEX-CON-OPTS-NT	OPTS singlemode Media Core input/output with Neutrik OpticalCON DUO and IEC C14 AC inlet (RX/TX)	9161 0227
MODEX-CON-OPTM-NT-PCN	OPTM multimode Media Core input/output with Neutrik OpticalCON DUO and PowerCON AC inlet (RX/TX)	9161 0232
MODEX-CON-OPTS-NT-PCN	OPTS singlemode Media Core input/output with Neutrik OpticalCON DUO and PowerCON AC inlet (RX/TX)	9161 0231
MODEX-CON-OPTM-ODVA	OPTM multimode Media Core input/output with industrial LC ODVA compliant connector and IEC C14 AC inlet (RX/TX)	9161 0230
MODEX-CON-OPTS-ODVA	OPTS singlemode Media Core input/output with industrial LC ODVA compliant connector and IEC C14 AC inlet (RX/TX)	9161 0229
MODEX-CON-OPTM-SC	OPTM multimode Media Core input/output with SC optical connector and IEC C14 AC inlet (RX/TX)	9161 0238
MODEX-CON-OPTS-SC	OPTS singlemode Media Core input/output with SC optical connector and IEC C14 AC inlet (RX/TX)	9161 0237
MODEX-CON-OPTM-ST	OPTM multimode Media Core input/output with ST optical connector and IEC C14 AC inlet (RX/TX)	9161 0236
MODEX-CON-OPTS-ST	OPTS singlemode Media Core input/output with ST optical connector and IEC C14 AC inlet (RX/TX)	9161 0235
Alternative versions (E.g. EBC Mini, EBC Junior, HICON Hi-Fiber4, Lemo 3K.93C, etc.) Call sales for availability		*Call*
Video & Audio modules		
MODEX-AV-DVIDL-IM	Dual-Link DVI input module	9161 0401
MODEX-AV-DVIDL-IM-AUD*	Dual-Link DVI input module with digital and analog audio	9161 0402
MODEX-AV-DVIDL-IM-DSP*	Dual-Link DVI input module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0403
MODEX-AV-DVIDL-OM	Dual-Link DVI output module	9161 0404
MODEX-AV-DVIDL-OM-AUD*	Dual-Link DVI output module with digital and analog audio	9161 0405
MODEX-AV-DVIDL-OM-DSP*	Dual-Link DVI output module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0406
MODEX-AV-HDMI-DVI-IM	HDMI 1.3 and DVI input module	9161 0407
MODEX-AV-HDMI-DVI-IM-AUD*	HDMI 1.3 and DVI input module with digital and analog audio	9161 0408
MODEX-AV-HDMI-DVI-IM-DSP*	HDMI 1.3 and DVI input module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0409
MODEX-AV-HDMI-DVI-4K-IM	HDMI and DVI 3D and 4K input module	9161 0410
MODEX-AV-HDMI-DVI-4K-IM-AUD*	HDMI and DVI 3D and 4K input module with digital and analog audio	9161 0411
MODEX-AV-HDMI-DVI-4K-IM-DSP*	HDMI and DVI 3D and 4K input module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0412
MODEX-AV-HDMI-OM	HDMI 1.3 output module	9161 0413
MODEX-AV-HDMI-OM-AUD*	HDMI 1.3 output module with digital and analog audio	9161 0414
MODEX-AV-HDMI-OM-DSP*	HDMI 1.3 output module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0415
MODEX-AV-HDMI-4K-OM	HDMI 3D and 4K output module	9161 0416
MODEX-AV-HDMI-4K-OM-AUD*	HDMI 3D and 4K output module with digital and analog audio	9161 0417
MODEX-AV-HDMI-4K-OM-DSP*	HDMI 3D and 4K output module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0418
MODEX-AV-DP-IM*	DisplayPort 1.1 input module	9161 0419
MODEX-AV-DP-IM-AUD*	DisplayPort 1.1 input module with digital and analog audio	9161 0420
MODEX-AV-DP-IM-DSP*	DisplayPort 1.1 input module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0421
MODEX-AV-DP-OM*	DisplayPort 1.1 output module	9161 0422
MODEX-AV-DP-OM-AUD*	DisplayPort 1.1 output module with digital and analog audio	9161 0423
MODEX-AV-DP-OM-DSP*	DisplayPort 1.1 output module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0424
MODEX-AV-3GSDI-IM-AES*	3G-SDI input module with SDI loop out and AES/EBU audio	9161 0425
MODEX-AV-3GSDI-IM	3G-SDI input module with 2 SDI loop out	9161 0426
MODEX-AV-3GSDI-IM-AUD*	3G-SDI input module with 2 SDI loop out and digital and analog audio	9161 0427
MODEX-AV-DVI-OM	DVI output module	9161 0430
MODEX-AV-DVI-OM-AUD*	DVI output module with digital and analog audio	9161 0431

MODEX-AV-DVI-OM-DSP*	DVI output module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0432
MODEX-AV-DVI-IM	DVI input module	9161 0433
MODEX-AV-DVI-IM-AUD*	DVI input module with digital and analog audio	9161 0434
MODEX-AV-DVI-IM-DSP*	DVI input module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0435
MODEX-AV-DVI-4K-OM	4K UHD DVI output module	9161 0436
MODEX-AV-HDMI-DVI-4K-OM	4K UHD HDMI and DVI dual output module	9161 0439
MODEX-AV-HDMI-DVI-4K-OM-AUD*	HDMI and DVI 3D and 4K output module with digital and analog audio	9161 0440
MODEX-AV-HDMI-DVI-4K-OM-DSP*	HDMI and DVI 3D and 4K output module with digital and analog audio and Dolby & DTS decoder (DSP)	9161 0441
MODEX-AV-BLANK	Blank panel for video module slot	9161 0699
Interface modules		
MODEX-IF-8GPIO*	8 GPIO module	9161 0701
MODEX-IF-2x8GPIO*	16 GPIO module	9161 0702
MODEX-IF-8GPIO-3RELAY*	8 GPIO and 3 Relay module	9161 0703
MODEX-IF-8GPIO-RS232*	8 GPIO and RS-232 module	9161 0704
MODEX-IF-8GPIO-RS422*	8 GPIO and RS-422 module	9161 0705
MODEX-IF-8GPIO-IR*	8 GPIO and IR module	9161 0706
MODEX-IF-3RELAY*	3 Relay module	9161 0707
MODEX-IF-2x3RELAY*	6 Relay module	9161 0708
MODEX-IF-3RELAY-RS232*	3 Relay and RS-232 module	9161 0709
MODEX-IF-3RELAY-RS422*	3 Relay and RS-422 module	9161 0710
MODEX-IF-3RELAY-IR*	3 Relay and IR module	9161 0711
MODEX-IF-RS232	RS-232 module	9161 0712
MODEX-IF-2xRS232	RS-232 double module	9161 0713
MODEX-IF-RS232-RS422	RS-232 and RS-422 module	9161 0714
MODEX-IF-RS232-IR	RS-232 and IR module	9161 0715
MODEX-IF-MIC*	Microphone/Line input module with phantom power	9161 0716
MODEX-IF-ETH	Ethernet 10/100 Mbit module	9161 0718
MODEX-IF-AUDIN	Digital and analog audio input module	9161 0719
MODEX-IF-AUDOUT	Digital and analog audio output module	9161 0720
MODEX-IF-AUD	Digital and analog bidirectional audio module	9161 0721
MODEX-IF-DSPIN*	Digital and analog audio input module with Dolby & DTS decoder (DSP)	9161 0722
MODEX-IF-DSPOUT*	Digital and analog audio output module with Dolby & DTS decoder (DSP)	9161 0723
MODEX-IF-DSP*	Digital and analog bidirectional audio module with Dolby & DTS decoder (DSP)	9161 0724
MODEX-IF-4ETH	4 ports Ethernet 10/100 Mbit module	9161 0726
MODEX-IF-ETH-ECN	Ethernet 10/100 Mbit module with EtherCON connector	9161 0727
MODEX-IF-2ETH-8GPIO*	2 ports Ethernet 10/100 Mbit and 8 GPIO module	9161 0728
MODEX-IF-2ETH-3Relay*	2 ports Ethernet 10/100 Mbit and 3 Relay module	9161 0729
MODEX-IF-2ETH-RS232	RS-232 and 2 port Ethernet 10/100 Mbit module	9161 0730
MODEX-IF-2ETH-RS422*	2 ports Ethernet 10/100 Mbit and RS422 module	9161 0731
MODEX-IF-2ETH-IR*	2 ports Ethernet 10/100 Mbit and IR module	9161 0732
MODEX-IF-BLANK	Blank panel for interface module slot	9161 0999

*under development

How to order a MODEX?

After you choose the frame and the modules you will have the right configuration for your application. The last move to do is to order the MODEX. In the examples below you can see the best option how to do this by creating a list of the five part numbers.

Example 1

MODEX frame
MODEX-F15-OPTS-TX — 9161 0103

Media connector
MODEX-CON-NT-OPTS — 9161 0227

Video & Audio module
MODEX-AV-HDMI-DVI-4K-IM — 9161 0410

Interface modules
MODEX-IF-RS232-IR — 9161 0715
MODEX-IF-AUD — 9161 0721

MODEX frame
MODEX-F15-OPTS-RX — 9161 0104

Media connector
MODEX-CON-NT-OPTS — 9161 0227

Video & Audio module
MODEX-AV-HDMI-4K-OM — 9161 0416

Interface modules
MODEX-IF-AUDOUT — 9161 0720
Blank panel — 9161 0999

Example 2

MODEX frame
MODEX-F15-OPTM-TX — 9161 0106

Media connector
MODEX-CON-OPTM-NT-PCN — 9161 0232

Video & Audio module
MODEX-AV-3GSDI-IM — 9161 0426

Interface modules
Blank panel — 9161 0999
Blank panel — 9161 0999

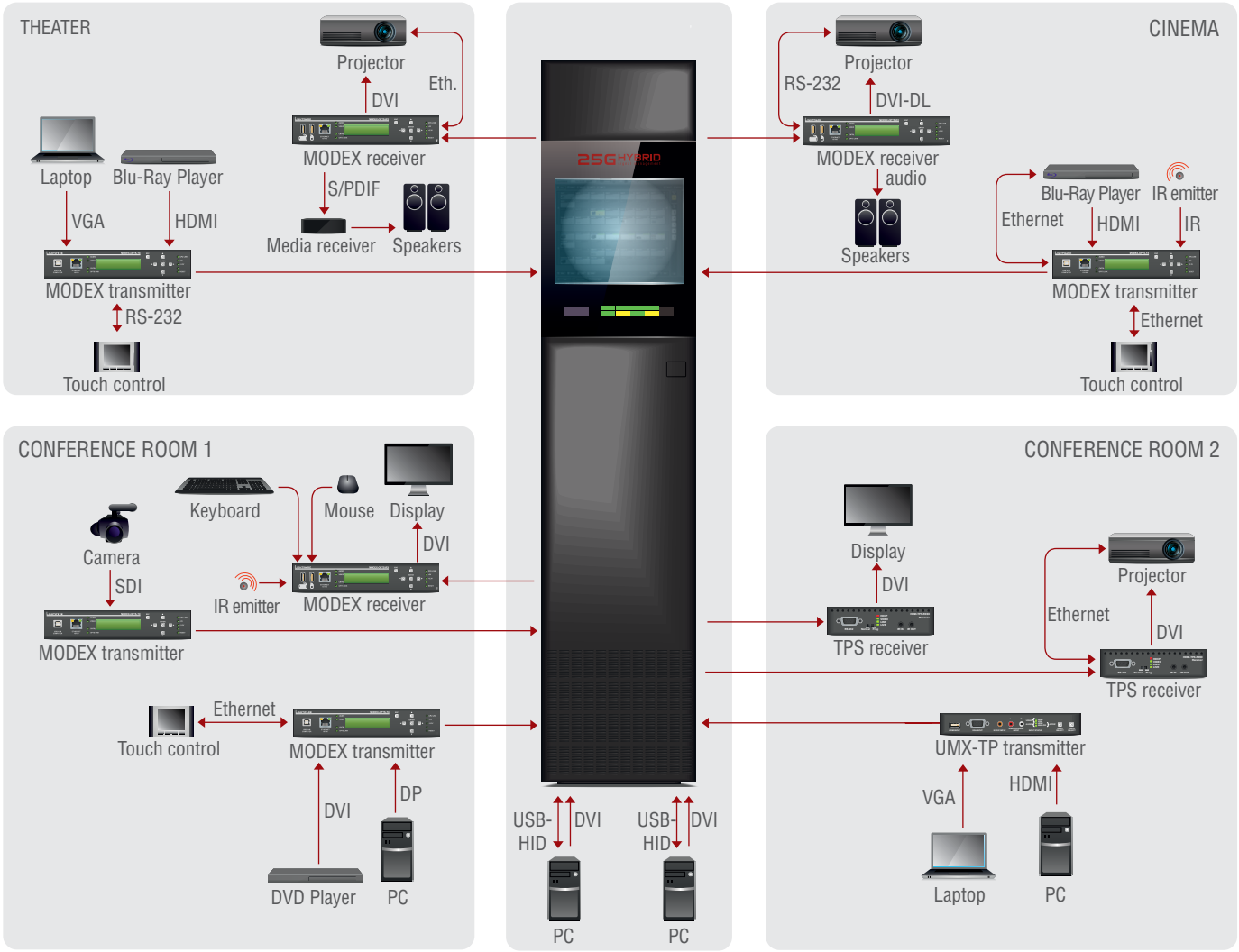
MODEX frame
MODEX-F15-OPTM-RX — 9161 0107

Media connector
MODEX-CON-OPTM-NT-PCN — 9161 0232

Video & Audio module
MODEX-AV-DVI-OM — 9161 0430

Interface modules
MODEX-IF-AUDOUT — 9161 0720
MODEX-IF-AUDOUT — 9161 0720

Integrated system

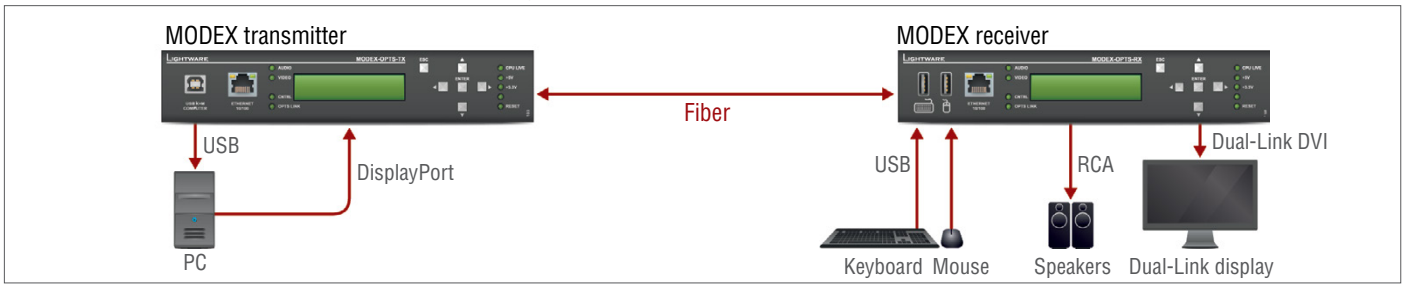


25G HYBRID Signal Management with MODEX extenders

MODEX extenders connected to a 25G matrix as end-points result a full signal path infrastructure from end to end. The Hybrid hardware and software design allows switching and transmission of all signals over one single fiber or CAT cable in a single router. Lightware's 25G Hybrid matrix is the world's first fully compatible HDMI 1.4 matrix switcher that also provides HEC and ARC functions, supports 4K resolutions and full 3D formats. 25G Hybrid has 8 separate Media layers, giving the rise to the expression: Multilayer switching.

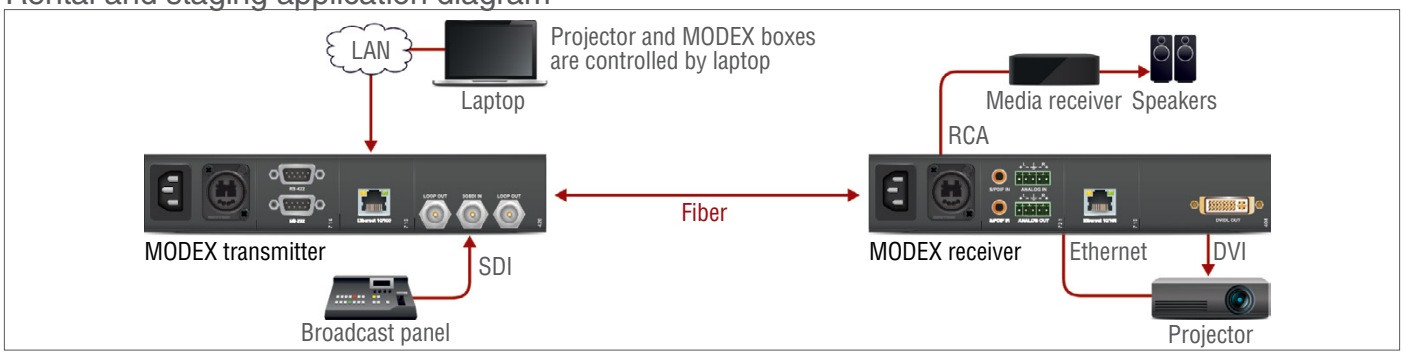
25G matrix switchers don't only handle inputs and outputs, we have added a third dimension, the Media Layers. Inside a 25G Hybrid router there are as many Media layers as signal types. It means there are as many individual routers as signal formats being incorporated. MODEX extenders can function as far end connection points of these layers which gives the user limitless variability and a wide range of installation options.

USB KVM standalone application diagram



Any transmitter can be connected to any receiver: the DisplayPort input is converted to Dual-Link output automatically by MODEX transmitting the USB KVM devices signal as well.

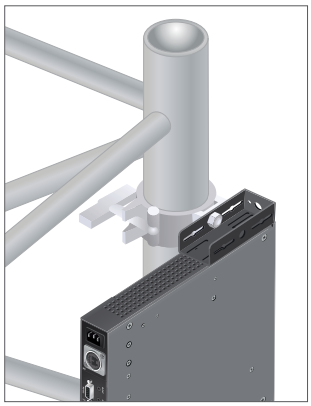
Rental and staging application diagram



SDI transmitter connects directly to the DVI receiver. The transmission is format free; MODEX sends the video pixels regardless of the video format.

Optional accessories

Devices can be mounted several ways, depending on the application. Rack shelf and mounting bracket is available which offers easy mounting on truss systems with standard clamps or using the unit built in to furniture.



Mounting bracket V2 Part No: 5240 0273
Our new mounting bracket makes through-furniture and under-desk mounting easy and allows truss mounting with standards clamps for our MODEX family and other upcoming extenders as well.

Rack shelf Part No: 5240 0269
1U high rack shelf provides mounting holes for fastening two half-rack sized units.

visual engineering
LIGHTWARE

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