



## Flexible compact modular HDMI distribution

Product: 4K-9:9  
UHD distribution

### Modular UHD video distribution solution for HDMI, audio, control and power up to 100m Cat 6 cable



- 1080p, Ultra HD 2K and 4K resolutions
- 9 channels for TX or RX modules
- 100m Cat6 extension—HDBT
- IR Pass-through
- Supports 1920 x 1080 @ 60Hz
- HDCP 2.2 compliant
- HDMI 1.4 & DVI 1.0
- CEC compliant
- Transparent RS232 pass-through
- Inline power to all external devices
- Detachable rack ears
- 9 individual point to points
- Built in PSU with IEC connector
- 19" rack mounting
- Field upgradeable
- Proven technology

### Extend and receive Ultra High Definition video signals over 100m Cat 6 cable

The Smart-e **4K-9:9** allows up to nine 4Konnnect modules to be housed conveniently in a 1U 19" rack mounting unit. Modules can be mixed and matched creating a versatile solution to many installation requirements.

Each bay has a universal connection system allowing either a transmit or receive module to be installed. This approach enables the installer to select which combination of input/output modules to suit their individual application, modules can be added later providing on-site expansion capability.

Each module position supports full HDMI digital video and embedded audio, with compatibility for HD 720p, 1080p, Ultra HD 2K and 4K resolutions together with pass through support for EDID, HDCP, CEC and control protocols. Each bay also allows for full duplex RS232 and reverse path IR.

The **4K-9:9** can be interconnected with any other 4Konnnect modular product which allows the designer to configure the install exactly as needed. The 1RU 19-inch form factor of the **4K-9:9** enables the device to be conveniently mounted within an AV rack, cabinet or credenza, using detachable rack ears. An internal PSU powers all modules and provides inline power to the external transmitter and receivers

The 4K range is from a family of digital extenders & matrices using standard CAT 6-8 STP cable to transmit HD signals over long distances

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## TECHNICAL SPECIFICATION

### Video - Digital

Connectors	9 x HDMI (Type A) input
Signal type	HDMI - TMDS
Standards	DVI 1.0, HDMI 1.4 HDCP 2.2
Maximum data rate	2.25Gbps per colour
Maximum pixel clock	165MHz
Resolution range - DTV	Max 1920x1080 @60Hz 36 bit colour depth
Resolution range - PC	Max 1920x1200 @60Hz 24 bit colour depth
Frame rate	24, 25, 30, 50 & 60 Hz
Gain	0 dB
Formats	RGB and YCrCb
Colour space	4:2:2 & 4:2:0
Clock jitter	<0.15T bit
Rise time	<0.3T bit (20-80%)
Fall time	<0.3T bit (20-80%)
Maximum transmission delay	5ns (+/- 1ns)
Signal strength	TMDS +/- 0.4V pk-pk
TMDS signal level	2.9V - 3.3V
Impedance	50R
Maximum DC offset	15mV
Maximum input cable length	15m 24 AWG

### Audio - Digital

Standards	Embedded within the HDMI signal
Maximum audio channels	8
Maximum sample rate per channel	192 kHz
Sample size	16-24 bits

### Passthrough - RS232

Connector	3 pin Phoenix
Signal type	Full duplex
Signal level	+/- 5V
Baud rate	Transparent to 115kbaud
Data bits	8
Stop bits	1
Parity	None
Pinout	1-TX, 2-RX, 3-0V

### Passthrough - IR

Connector	3.5mm jack
Signal type	Half duplex
Signal frequency	38KHz

**TECHNICAL SPECIFICATION****Cat cable connectivity**

Number of cables	1 x Cat 6/6A screened twisted cable per module
Connectors	1 x female screened RJ45 connectors per unit
Termination standard	TIA/EIA T568B
Cable requirements	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth STP (shielded twisted pair)
Transmission distance	100m shielded twisted pair CAT 6 or CAT 6A

**Power**

AC Voltage	100-230 VAC
AC frequency	50/60 Hz
Power consumption	100W
Operating temperature	0-40 degrees C
Storage temperature	-20-60 degrees C
Relative humidity	20-90%
Chassis size	1U 19" rack mounting
Chassis dimensions	440x200x44.5mm
Product weight	4Kg
MTBF	30,000 hours

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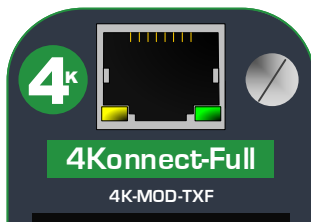
## MODULE SELECTION



### 4K-MOD-IO - HDMI input/output module (TX & RX)

The **MOD-IO** module is designed to provide a native 4K HDMI connection. A 3.5mm jack socket is also available for infrared connection via an emitter (LED) or receiver (EYE).

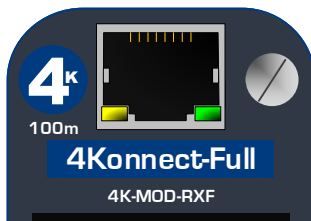
The module can be used in both an input or output bay



### 4K-MOD-TXF - HDBT Full transmitter module

The **MOD-TXF** module is capable of transmitting high resolution video (4K, 2K & 1080p) over 100m of Cat6 cable by implementing the full HDBaseT chipset. Infrared pas-through together with bi-directional RS232 and CEC are also available through the same connection giving flexible control options.

A true 5-Play module includes 100baseT Ethernet connectivity whilst capable of receiving or delivering remote power (POH). An internal communication link provide status monitoring of all units that are interconnected.



### 4K-MOD-RXF - HDBaseT Full input module (RX)

The **MOD-RXF** module is capable of receiving high resolution video (4K, 2K & 1080p) over 100m of Cat6 cable by implementing the full HDBaseT chipset. Infrared pass-through together with bi-directional RS232 and CEC are also available through the same connection giving flexible control options.

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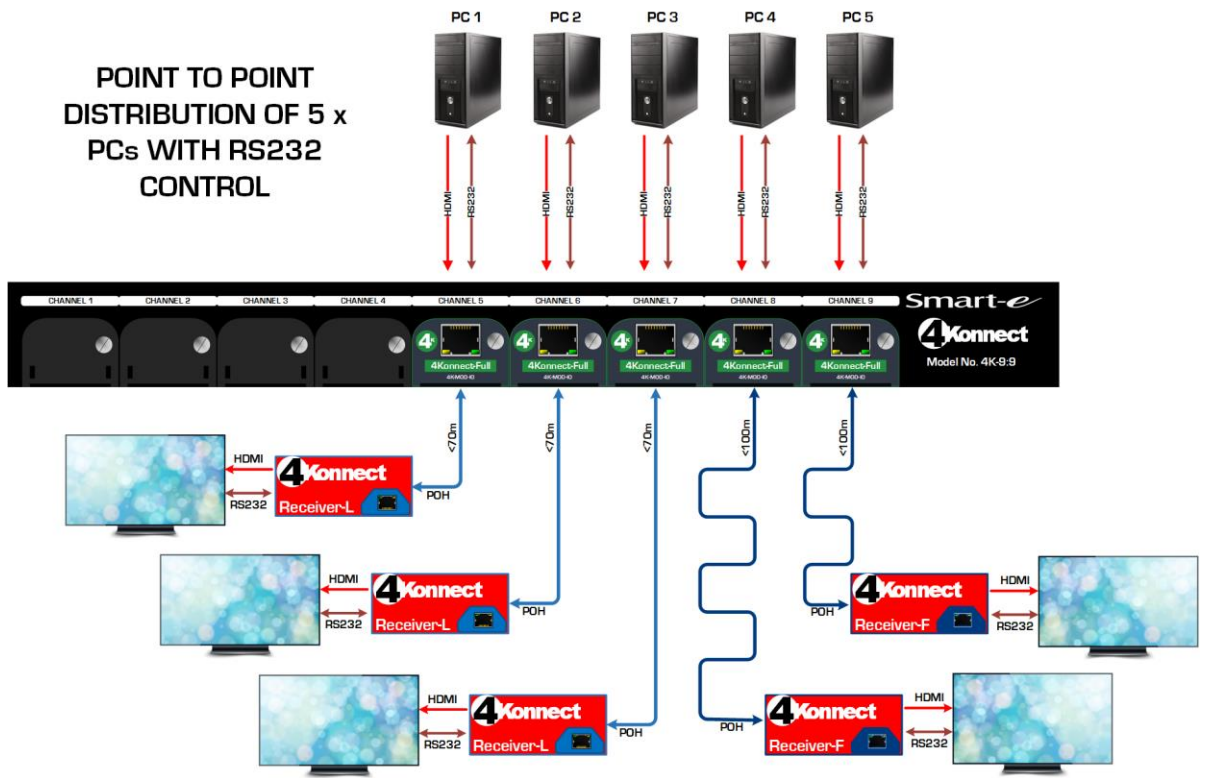
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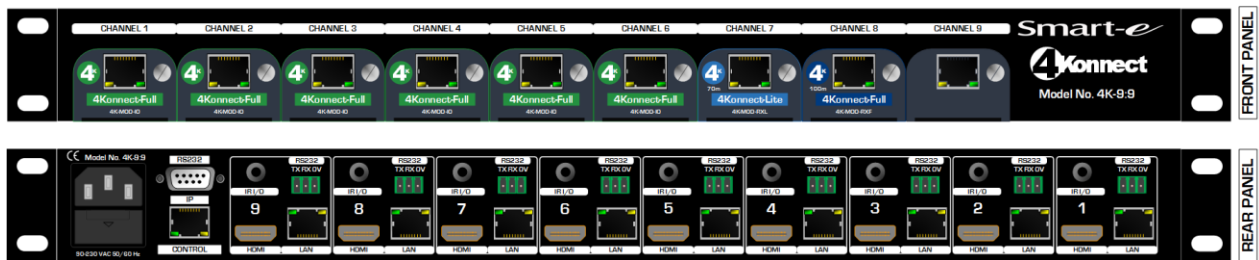


APPLICATION DRAWING

POINT TO POINT DISTRIBUTION OF 5 x PCs WITH RS232 CONTROL



PANEL DRAWING



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**RECEIVER - 4K-RX866**

The 4K-RX866 is a fully functional HDBaseT 100m receiver unit designed to be compatible with the 4Kconnect range of Smart-e products. The 4K-RX866 is an ideal partner for the 4K-9:9 extension solution able to convert the Cat 6 signals back to HDMI, IR and RS232. Remote power is provided by the 4K-9:9 so no bulky external PSU is required.

**TECHNICAL SPECIFICATION****Video - Digital**

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Signal type	HDMI - TMDS
Standards	DVI 1.0, HDMI 1.4 HDCP 2.2
Maximum data rate	2.25Gbps per colour
Maximum pixel clock	165MHz
Resolution range - DTV	Max 1920x1080 @60Hz 36 bit colour depth
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Standards	Embedded within the HDMI signal
Maximum audio channels	8
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Signal type	Full duplex
Signal level	+/- 5V
Baud rate	Transparent to 115kbaud
Data bits	8
Stop bits	1
Parity	None
Pinout	1-TX, 2-OV, 3-RX

**Passthrough - IR**

Connector	3.5mm jack
Signal type	Half duplex
Signal frequency	38KHz

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TECHNICAL SPECIFICATION

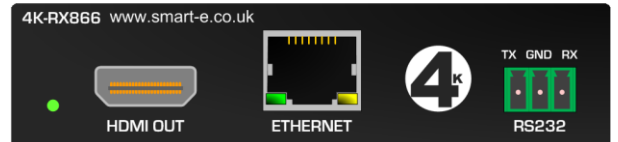
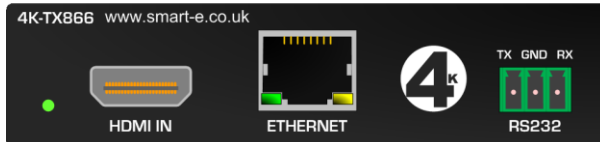
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Cable requirements	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth STP (shielded twisted pair)
Transmission distance	100m shielded twisted pair CAT 6 or CAT 6A

**Power**

DC Voltage	12-24 DC
Power consumption	6W
Operating temperature	0-40 degrees C
Storage temperature	-20-60 degrees C
Relative humidity	20-90%
Chassis dimensions	100x100x25mm
Product weight	0.5Kg
MTBF	30,000 hours

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