User Guide

MS-210WP

HDBaseT™ Extender & Wall Plate Set -
4K to 40m (10G), 70m @ 1080p.
USB 2.0 (x2) & RS-232 pass through.
HDCP2.2 compliant

Revision: 1.3 - March 2024

Contents

Notices

- This MSolutions product contains electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection is highly recommended in order to protect and extend the life of your equipment.
- The transmission distances of HDMI over Cat cables are measured using TE CONNECTIVITY 1427071-6 EIA/TIA-568-B termination (T568B) of cables is recommended for optimal performance. To minimise interference of unshielded twisted pairs in the Cat5e/6 cable, do not run the HDBaseT / Cat5e/6/6a cabling with or in close parallel proximity to mains power cables.
- Do not substitute or use any other power supply other than the enclosed unit, or an MSolutions approved replacement. Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.
- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
- Dolby is a trademark of Dolby Laboratories.
- MSolutions reserves the right to change the specifications of this unit without prior notice. As a result of this, physical representations or graphical elements contained within this user guide may not be accurate.

Introduction

The MSolutions MS-210WP is a 4K HDMI / KVM HDBaseT wall plate extender set allowing for uncompressed video and audio to be extended up to 40m at 4K UHD (10.2Gbps), and 70m at 1080p or lower resolutions.

A 2 port USB2.0 channel allows for bi-directional USB client to host connectivity for a variety of applications. The unit also features RS-232 serial pass-through.

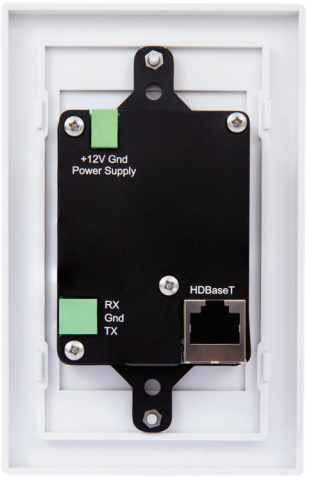
Key Features

- Uncompressed extension of HDMI at resolutions up to 4K 60Hz 4:2:0 / 4K 30Hz 4:4:4 using HDBaseT technology
- 4K signal extension to 40m over single CAT including HDR formats suppported under 10.2Gbps
- 1080p or lower video resolutions up to 70m over single CAT
- Supports HDMI pass-through all known HDMI audio formats including Dolby Atmos / DTS:X
- 2x USB2.0 channel for KVM connectivity of a USB device across the link - max 200Mbps data rate pass-through
- Flexible USB extension for: USB2.0 cameras, touch screens, smart boards, hard drives, games controllers, USB audio devices, printers, scanners, or HID's (mouse or keyboard)
- Bi-directional RS-232 serial pass through
- CEC (Consumer Electronics Control) pass through
- HDCP2.2 compliant

Video resolution capabilities - 10.2Gbps HDMI 1.4 specification max:

Resolution	Refresh	Chroma	Depth
4096x2160 (DCI) 3840x2160	50Hz / 60Hz 30Hz 24Hz	4:2:0 4:2:0 / 4:2:2 / 4:4:4 / RGB 4:2:0 / 4:2:2 / 4:4:4 / RGB	8-bit 8 / 10 / 12-bit 8 / 10 / 12-bit
1920x1080	up to 60Hz	4:4:4 / RGB	up to 16-bit
1280x720 1024x768	up to 60Hz	4:4:4 / RGB	up to 16-bit
VGA to WUXGA	up to 60Hz		

Connectivity Overview - TX



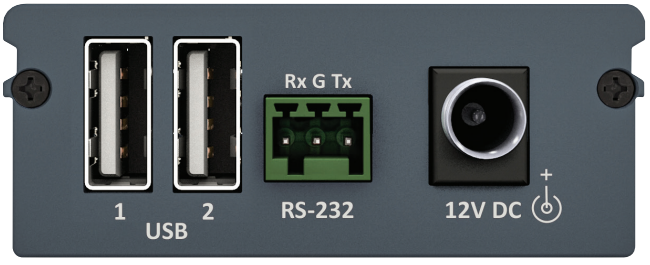
Front panel:

- USB Host - connect to USB host device
- HDMI In - connect to HDMI source

Rear panel:

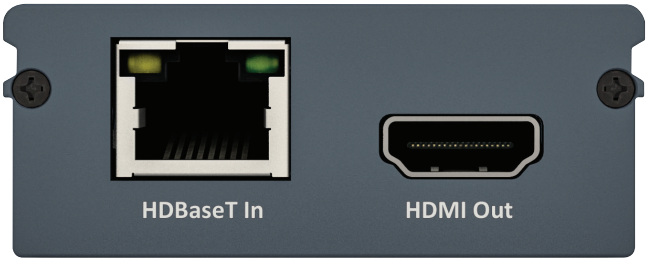
- HDBaseT Out - connect to Cat cable to receiver
- Use supplied 3-pin phoenix connector to connect to serial device

Connectivity Overview - RX



Front panel:

- USB - connect to USB peripheral device
- RS-232 - use supplied 3-pin phoenix connector to connect to serial device
- Power - connect to supplied 12V/2A power supply



Rear panel:

- HDBaseT In - connect to Cat cable from transmitter
- HDMI Out - connect to HDMI sink device

Understanding the LED's

This MSolutions extender set includes status LED indicators on both the Transmitter and Receiver products to show active connections and to further help integrators diagnose potential problems with the associated cabling.

The RJ45 HDBaseT connections on the receiver units have orange and green LED's.

- The orange LED indicates that the unit is receiving power. The LED will blink continuously.
- The green LED indicates that the unit is communicating with the unit attached to the far side of the link over the Cat cable. The LED will be solid whilst the units are able to host a HDBaseT link across the infrastructure.
- Internal LED's that may be seen through venting of the product are not indicative of a working / non-working unit.

LED Status on transmitter

- Video - Constant On indicates that video is active with HDCP (content protect). Blinking LED indicates video is active without HDCP. Off indicates no video.
- Link - The transmitter and receiver are synchronized and connected
- FW - Blinking light indicates that the local transmitter is working.
  Constant On or Off means the 210WP is not working.

Cabling for HDBaseT

It is important that the interconnecting Cat cable between the MSolutions HDBaseT products is terminated using the correct RJ45 pin configuration. The link Cat cable must be a 'straight' (pin-to-pin) Cat cable and it is advised that this is wired to the T568B wiring standard as this format is less prone to EMI (Electro-Magnetic Interference).

When installing Cat cables it is advised that the best possible Cat cable quality possible is used. HDMI distribution products will only work if used with Cat5e standard cable or above. MSolutions recommends using a Cat6 (or higher) cable for installations, especially when running over longer distances, in areas of high EMI, or with 4K signal distribution.

The HDMI cable infrastructure should be compliant to High-Speed standards, especially where 4K is being distributed. It is important to understand that where excessive HDMI cable lengths are used, this brings increased reduction in signal integrity over distance compared to HDBaseT. It is therefore recommended to use short HDMI cables to ensure the integrity of the signal over the link.

For HDBaseT and HDMI testing capabilities, please refer to the MSolutions MS-TestPro to prove both Cat and HDMI cables can be used for video signal distribution.

USB

This KVM extender combines USB2.0 connectivity with video and audio to be passed between host on the transmitter side, to a peripheral device on the receiver side of the link only (host at TX side).

The USB type A connections on the Receiver can be used to connect a USB2.0 camera, touch screen, smart board, hard drive, games controller, USB audio device, printer, scanner, or HID (mouse or keyboard) to a host device at the HDBaseT transmitter.

A maximum data transfer of 200Mbps can be achieved over the link - please note that this may not be enough for some USB2.0 cameras to pass higher video resolutions.

RS-232 Control

The MS-210WP can distribute bi-directional serial commands between the transmitter and receiver to allow for control commands to be sent alongside the video and audio distribution.

Each HDBaseT unit is fitted with a 3-pin phoenix connector block that will need the serial TX, RX and Ground pins terminating into for serial pass-through. HDBaseT has the ability to transparently send any type of serial data as both pieces of equipment are able to communicate using the same baud rate, stop-gap, and parity.

Specifications

Transmitter (Wall Plate)

- Video connectivity: 1 x HDMI input (female), 1 x HDBaseT output (RJ45 keystone)
- USB connectivity: 1 x USB type B (female)
- RS-232 connectivity: 1 x 3-pin phoenix connector, block included
- Power supply: 1 x 12V/2A DC
- Unit dimensions (W x D x H): 52.8 x 33.7 x 69.8mm
- Panel dimensions (W x D x H): 83.9 x 6.86 x 130.9mm
- Individual unit weight: 0.1kg
- Operating temperature: 32°F to 119°F (0°C to 48°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)
- Operating humidity: 0-80% non condensing

Receiver

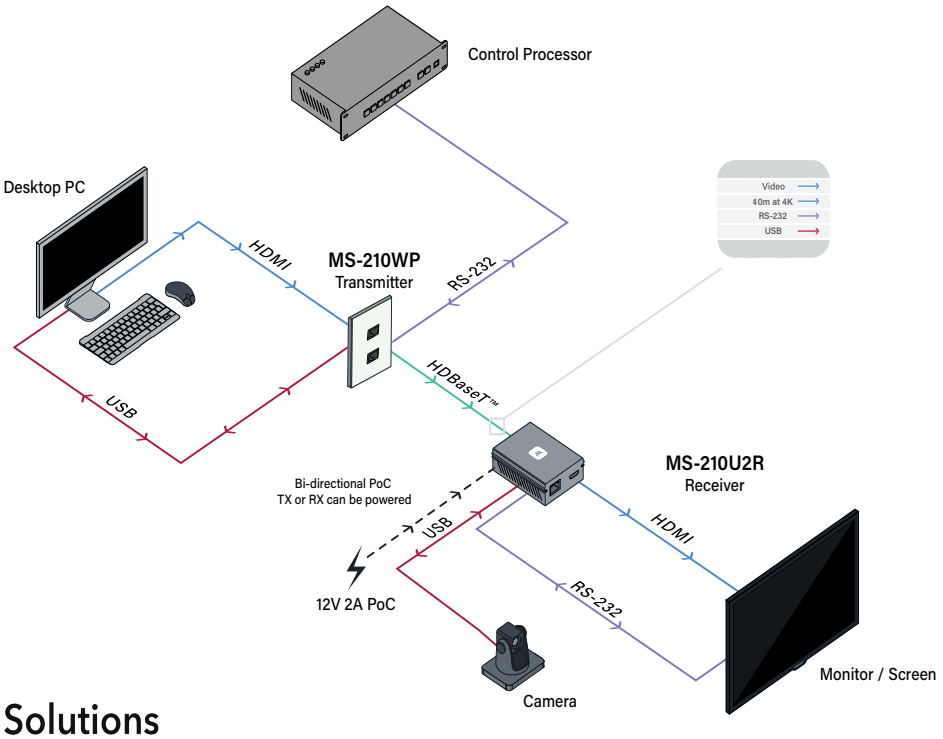
- Video connectivity: 1 x HDBaseT input (RJ45 keystone), 1 x HDMI output (female)
- USB connectivity: 2 x USB type A (female)
- RS-232 connectivity: 1 x 3-pin phoenix connector, block included
- Power supply: 1 x 12V/2A DC
- Individual unit dimensions (W x D x H): 60 x 84 x 25mm
- Individual unit weight: 0.1kg
- Operating temperature: 32°F to 119°F (0°C to 48°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)
- Operating humidity: 0-80% non condensing

Package Contents

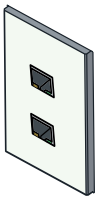
- 1 x MS-210WP (transmitter)
- 1 x MSR-210U2R (receiver)
- 1 x 12V/2A DC power supply with US, UK, and EU clips
- 2 x 3-pin phoenix connector blocks
- 1 x Surface mounting bracket

Schematic

MS-210WP Schematic



MS-210WP
Transmitter



MS-210U2R
Receiver

HDMI
HDBaseT™
RS-232
USB

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