HD-One DX/DX500
HDMI Extender

User Manual

Version 2.0

tvONE

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CSG-DX-500

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Regulatory Agency Acceptance

European 'CE' Mark Statement

A. EMC Emissions: BS EN 55103-1:2009+A1:2012 (Generic Emission Standard for all environments: E1-E5)

EMC Immunity: BS EN 55103-2:2009 (Generic Immunity Standard for all environments: E1-E5)

B. These apparatus to which this declaration relates conforms to the protection requirements of the LVD Directive (2006/95/EC and 2014/35/EU as determined by the following standard/s:

IEC 60950-1:2005 (2nd edition) + A1:2009 and this fulfils the requirements of EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 which includes all European national differences, including those specified in the test report.

FCC Statement

Class B Device: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in all environments. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction Manual, may cause harmful interference to radio communications.

This Class B Digital Apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet Appareil Numerique de la Classe B respecte toutes les exigencies du Reglemente Sur Le Material Brouilleur Canada.

WARNING: An AC adapter with a ferrite core must be used for RF interference suppression.

To assure continued FCC Class B emission limit compliance, the user must only use shielded video cables with two ferrite cores to avoid potential harmful interference when connecting to external units and F/UTP‡ type Category cable must be used.

This equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Any unauthorized changes or modifications to this equipment could void the user's authority to operate it.

Direct all inquiries regarding FCC compliance to:

TV One Multimedia Solutions
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Phone: 859.282.7303
Fax: 859.282.8225
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‡ F/UTP cable is constructed of 4 unshielded twisted pairs, with a foil screen around all 4 pairs.

Specifications

Cable Required:	CAT5e, CAT6, CAT6a, CAT6e, CAT7 (CAT6 or better is recommended*).
Video Support:	HDMI/DVI Video modes HDMI 1.4, HDCP Compliant including standard formats;
	60Hz 640x480, 800x600, 1024x768, 1152x864, 1280x768, 1280x960,1280x1024, 1360x760, 1366x768, 1600x1200,1680x1050, 1920x1080 & 1920x1200
	HDTV 480p,720p, 1080i & 1080p
	4K 3840x2160p30 & 4096x2160p24 (DX only)
Maximum Resolution and Distance:	WUXGA (1920x1200) @ 60 Hz* 100 meters (328 feet) for DX* 152 meters (500 feet) for DX500* 4k: 3840x2160p30 & 4096x2160p24 60 meters (196 feet) DX only*
Bandwidth:	3.4 Gbps
Connectors:	Tx: (1) HDMI type A, (1) RJ45, (1) DC power Rx: (1) HDMI type A, (1) RJ45, (1) DC power
Temperature Tolerance:	Operating: 32 to 131°F (0 to 55°C); Storage: -4 to +185°F (-20 to 85°C)
Humidity Tolerance:	Up to 95% non-condensing
Enclosure:	Metal
Power:	+5 VDC @ 1.2A max each unit
Size:	3.2" x 1.9" x 1.0" (82 mm x 48.6 mm x 24.8 mm)
Weight:	0.30 lb. (0.14 kg) - each unit
Compliance:	RoHS, CE, FCC Class A, UL

* NOTE: To achieve maximum resolution, distance and EMC compliance, installations must use F/UTP CAT6 or better cable with solid 24 AWG copper wire. The use of lower quality cables will lower overall performance. Please contact tvONE for cable recommendations.

Introduction

Overview

The Magenta HD-One DX/DX500 Series of video extenders from tvONE extends HDMI or DVI signals over Category 5e/6/6a/6e/7 cable.

WARNING

This equipment is not intended for, nor does it support, distribution through an Ethernet network. Do not connect these devices to any sort of networking or telecommunications equipment!

Equipment You May Also Need

- HDMI cables
- HDMI to DVI adapter cables
- Category 5e/6/6a/6e/7 cable

Compatible Cabling

tvONE products are compatible with Category 5e/6/6a/6e/7 data cabling.

NOTE: To achieve maximum performance and compliance, installers must use F/UTP CAT6 or better cable with solid 24 AWG copper wire.

Category cabling for the tvONE Magenta HD-One DX/DX500 Series must be pinned to the TIA-EIA T568B wiring specification (See Appendix A). tvONE recommends that all Category cables be pre-terminated and tested. Cables terminated on-site or in an existing infrastructure should be tested before use to ensure compliance with the TIA-EIA T568B specification. Using incorrectly terminated category cables can damage the Magenta HD-One DX/DX500 Series.

Setup and Installation

Cabling Considerations

- For best performance, use one continuous F/UTP cable with as few breaks as possible (i.e. patch bays, wall plates, or floor boxes).
- tvONE recommends mounting and connecting all cables to the HD-One DX/ DX500 Series components before applying power.
- Make sure that the Category cable you intend to use has been tested to comply with the T568B wiring specification (See Appendix A).

Making the Connections

Connections and Setup in General

NOTE: All HD-One DX/DX500 units should be cabled and powered on prior to turning on the video source device and display. It is recommended to cable and power on the HD-One DX/DX500 units, then the display, and lastly the video source.

At the transmitter end:

1. Connect the video source to the HDMI INPUT port on the HD-One DX/DX500 transmitter, using an HDMI type A cable (if using DVI video, an HDMI to DVI adapter is required).
2. Connect the Category cable to the HDBASET OUTPUT port on the transmitter.
3. Apply power to the transmitter.

At the receiver end:

1. Connect the display to the HDMI OUTPUT port on the HD-One DX/DX500 receiver, using an HDMI type A cable (if using DVI video, an HDMI to DVI adapter is required).
2. Connect the Category cable to the HDBASET INPUT port on the receiver.
3. Apply power to the receiver.

Connections on the HD-One DX/DX500

Figure 1 shows the HD-One DX/DX500 transmitter connections, and Figure 2 shows the HD-One DX/DX500 receiver connections.

Figure 1 - Connections on the Transmitter

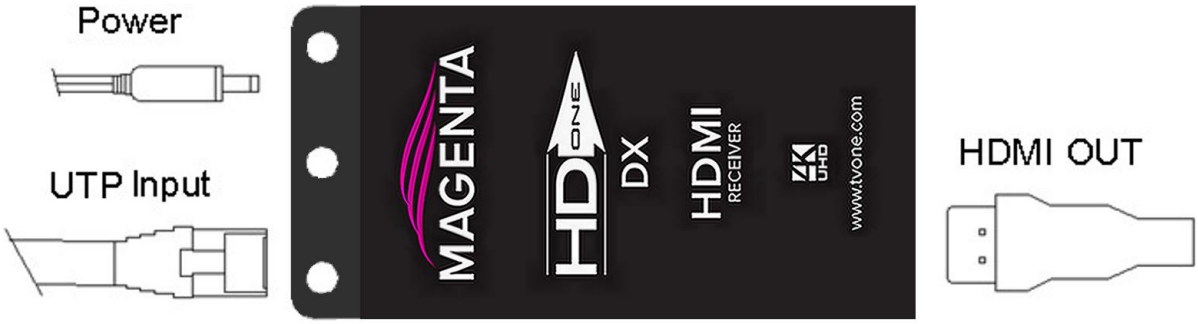

Figure 2 - Connections on the Receiver

Figure 3 - LED Status Indicators on front of both units

Figure 3 shows the LED Status Indicators on the front of each unit, both units have the same indicators.

STATUS	**Video Status Indicator** **ON** = HDMI content w/HDCP present **BLINKING** = HDMI content w/o HDCP
LINK	**Data Link Indicator** **ON** = HDBASET link
PWR	**Power Indicator** **ON** = Power

Troubleshooting

Common Problems

Most issues with the HD-One DX/DX500 Series can be resolved by checking the Category cable terminations and ensuring that they are pinned to the T568B wiring specification. However, other problems may arise. Below are solutions to the most common issues:

Problem:	**No video**
Solution:	Check that both units are powered. Power units in the sequence noted in Connections and Setup in General on page 6. Ensure the Category cable is terminated to the T568B wiring standard. Some HDMI sources can take up to 5 minutes to initialize and will not output video signals during this time. Cell phones may cause interference at close range and cause the video to be interrupted or lost. All devices may need to be power cycled if video is lost. If using protected content, ensure all connected devices are HDCP compliant. Ensure the maximum distance has not been exceeded. Other troubleshooting tips include trying a better quality Category cable, disabling deep color at the source and reducing the resolution.
Problem:	**Poor video quality.**
Solution:	Ensure the Category cable is terminated to the T568B wiring standard. Check for faulty or poor quality HDMI cables. Ensure the display is compatible with the source. Other troubleshooting tips include using an alternative source and reducing the resolution.

Appendix A. Cabling Pinouts