HD-One DX/DX500
HDMI Extender
User Manual

Version 2.0

tvONE
2791 Circleport Drive, Erlanger, KY 41018, USA.
Americas: 859-282-7303
EMEA: +44 (0) 1843 873322
Email: tech.usa@tvone.com
www.tvone.com

CSG-DX-500
Contents

Copyright Notice ........................................................................................................... 3
Disclaimer ...................................................................................................................... 3
Regulatory Agency Acceptance ..................................................................................... 3
FCC Statement ............................................................................................................... 3
Direct all inquiries regarding FCC compliance to: ...................................................... 3
Specifications .............................................................................................................. 4
Introduction .................................................................................................................. 5
Overview ...................................................................................................................... 5
Equipment You May Also Need ................................................................................... 5
Compatible Cabling ..................................................................................................... 5
Setup and Installation .................................................................................................. 6
Cabling Considerations ............................................................................................... 6
Making the Connections .............................................................................................. 6
Connections and Setup in General .............................................................................. 6
Connections on the HD-One DX/DX500 .................................................................... 7
Troubleshooting .......................................................................................................... 8
Common Problems ...................................................................................................... 8
Appendix A. Cabling Pinouts ..................................................................................... 8
Copyright Notice
This document, the products to which it relates, and the copyright in each is the intellectual property of tvONE, ©2014. Neither the document nor the products may be reproduced by any means, in whole or in part, without the express prior written permission of tvONE.

Disclaimer
tvONE makes no warranty or representation, either express or implied, with respect to this software or documentation, including their quality, performance, merchantability, or fitness for a particular purpose. As a result, this software or documentation are licensed "as is" and you, the licensee, are assuming the entire risk as to their quality and performance.

In no event will tvONE be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of or inability to use the software or documentation.

Magenta Research and the Magenta Research logo are trademarks owned entirely by tvONE. All other brands, product names, and trademarks are the property of their respective owners.

Regulatory Agency Acceptance
European ‘CE’ Mark Statement
   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:

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.

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
2791 Circleport Drive
Erlanger, KY 41018
USA
Phone: 859.282.7303
Fax: 859.282.8225
Email: tech.usa@tvone.com

† 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](image1)

![Figure 2 - Connections on the Receiver](image2)

![Figure 3 - LED Status Indicators on front of both units](image3)

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

<table>
<thead>
<tr>
<th>STATUS</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No video</td>
<td>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.</td>
</tr>
</tbody>
</table>

| Poor video quality. | 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