

# ***DIGITALINX™***

Complete Digital Solutions for the AV Professional

## ***User's Manual***

**Digital Media Converter Package  
Part #: DL-HDCAT**



**800-530-8998  
[www.LibAV.com](http://www.LibAV.com)**

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## ***Welcome and Safety Notes***

Congratulations on your purchase of a Digitalinx™ Digital Media Converter System. This manual contains information that will assist you in the installation and operation of this product. Please inspect the contents of the package to ensure all required material is present.

### **Contents:**

Each Digitalinx™ Digital Media Converter package contains the following items:

1 each	DL-HDCAT Digital Media Converter Set (TX and RX unit)
1 each	5 VDC Power Supply (UL) and C(UL) listed Class 2 C(UL)US
1 each	Users Manual

### **Safety Precautions:**

- 1) Please read all product manuals and safety notes prior to operating this or any devices.
- 2) Retain the product manuals and safety notes for future reference
- 3) Unplug this unit prior to cleaning; do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 4) Do not use this equipment near damp or wet locations.
- 5) The product should only be powered by the indicated sources in the specifications. Do not use other sources of power.
- 6) Do not use damaged power cords or plugs and do not use loose electrical outlets. Please refer repair of non-conforming electrical equipment to certified personnel.
- 7) Do not place heavy articles or other equipment on top of this device or its associated peripherals.
- 8) Do not use this device near flammable material, liquids, or gas.

## Product Description and General Specifications

This Digitalinx™ Digital Media Converter is an externally powered digital HDMI and DVI Media Converter system to send HDMI and DVI over standard Category Cable, unshielded or shielded. The unit uses an included 5 VDC power source. The unit supports Audio Return Channel (ARC), Ethernet, 3D, Deep Color, and CEC protocols with an increased bandwidth to 2.25 Gbps per TMDS channel for a total throughput of 6.75 Gbps. This unit supports DVI applications.

This Digital Media Converter is ideal for installations where pre-wire has been done with multiple category cables or where space constraints limit installing HDMI® or DVI cables. The Category cable solution is also excellent for retrofit applications. The compact design allows the devices to be unobtrusive in the final installation. It is recommended to test an application using the customer equipment as the signal from the source device varies between manufacturers.

The system can easily accommodate DVI only inputs and outputs by using Liberty's high quality HDMI to DVI interconnects. The DVI connector is routed to the sources and display unit while the HDMI connector plugs into the Digitalinx™ Digital Media Converter. The digital audio signal is not transmitted when using DVI connectors

ITEM	DESCRIPTION	
Model Name	DL-HDCAT (TX Unit)	DL-HDCAT (RX Unit)
Input(s)	(1) HDMI type A Receptacle	(2) 8P8C Shielded Modular Jacks (RJ45)
Output	(2) 8P8C Shielded Modular Jacks (RJ45)	(1) HDMI type A Receptacle
Supported Resolutions	480i, 480p, 720p, 1080i, 1080p in deep color or 3D	
HDCP Compatible	Yes	
Power Consumption	N/A – Power on the RX unit	5 VDC 1.0 Watt from supplied DC unit
Dimensions:		
(Length x Width x Height)	67 x 48 x 24 mm	67 x 48 x 24 mm
Weight	~0.125 Kg	~0.126 Kg

The actual transmission distance can vary depending on many factors. Liberty Wire and Cable has performed application testing and found these devices can effectively operate in excess of the distances listed. The quality of the Category cable is a prime factor in limiting distances. Use of Category 6 cable will extend distances and use of overall shielded category cables will reduce EMI issues. This is a practical application chart with actual observed distances and performance in a real application.

Cable-----Resolution	720p60	1080i30	1080p24	1080p60
Category 5e UTP	60m (197 feet)	60m (197 feet)	20m (66 feet)	20m (66 feet)
Category 5e F/UTP	60m (197 feet)	60m (197 feet)	20m (66 feet)	20m (66 feet)
Category 6	80m (260 feet)	80m (260 feet)	50m (165 feet)	50m (165 feet)
LOW SKEW UTP	<b>NOT RECOMMENDED and will not work</b>			
<b>Recommended Max Distance</b>	<b>50m (165 feet)</b>	<b>50m (165 feet)</b>	<b>30m (100 feet)</b>	<b>30m (100 feet)</b>

User results will vary based upon the quality of the Category Cabling, the installation practices used, and the features of the sources and displays. It is recommended the Category cable be properly tested to verify Gigabit Ethernet capability. This will identify any issues caused during installation and termination.

## ***Environmental Reliability Specifications***

The Digitalinx™ Digital Media Converter recommended environmental operating limits are a temperature range from 10°C to 40°C, non-condensing humidity levels from 10-80% and an altitude ceiling of 3,000 meters (9,840 feet).

Environmental limits for transportation are established as a temperature range of -25°C to 60°C, non-condensing humidity levels from 5-95%, and an altitude ceiling of 15,000 meters (49,200 feet)

Environmental limits for storage are established as a temperature range of -20°C to 45°C, non-condensing humidity levels from 5-95%, and an altitude ceiling of 3,000 meters (9,840 feet)

### **High Quality Picture – No loss of resolution or introduced digital artifacts**

Our Digital Media Converters are manufactured to deliver the highest quality picture by preserving the native resolution from the video sources and eliminating any digital artifacts (pixel loss or “sparklies”). Due to the nature of digital signals any non-active connector junctions will detrimentally affect the signal, this device provides active junctions to equalize and amplify the signal (boosting) and ensures the best signal quality to the display. The display unit (RX) contains the repeater technology.

### **Signal Amplification**

Each Digital Media Converter has a safety certified 5VDC external power supply to ensure adequate power is available to perform the signal boost to the correct specification. This is necessary because the introduction of a Digital Media Converter usually indicates that longer cable lengths are in use. This device equalizes the signal loss from a longer length cable to the original native resolution and signal power. The maximum length of an interconnect cable recommended for this device is 2 meters from the converter to either source or display. All Liberty AV Solutions HDMI interconnects are tested to ensure 1080p resolution.

### **Compact Design**

The Digital Media Converter devices are manufactured in a small size which allows the devices to be situated in an unobtrusive installation. The twin RJ45 receptacles are oriented 180° from the HDMI connector to facilitate a straight cable lay.

## *Installation*

Ensure the two Category Cables are plugged into the appropriate RJ45 Jack. The wires should be routed RJ45-1 to RJ45-1 and RJ45-2 to RJ45-2. Ensure the modular plugs are fully seated and locked into the receptacles. High Frequency signals are very susceptible to Electromagnetic Interference (EMI). It is strongly recommended to use overall shielded Category cables where ever possible. Category 5e is the minimum cable recommended and Category 6 is better.

The recommended method for connection of devices to the Digital Media Converter is listed in the following steps. Please ensure this order is followed to enjoy the full function of the device.

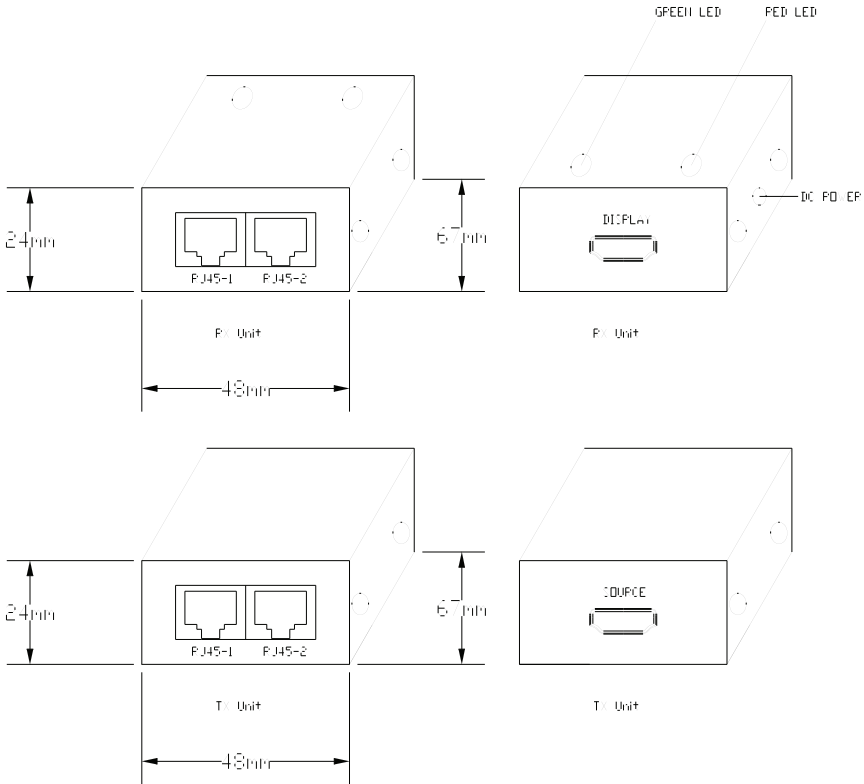
- 1) Ensure the digital video/audio source and display is turned off.
- 2) Connect the digital video/audio source to the input port of the Digitalinx™ Digital Media Converter.
- 3) Connect the digital display to the output port of the Digitalinx™ Digital Media Converter.
- 4) Power up the Digitalinx™ Digital Media Converter.
- 5) Power up the digital display.
- 6) Power up the digital video/audio sources
- 7) HDCP handshaking operation can take up to 20 seconds. The Red LED will go off on the Receiver when this is complete. The Green LED will illuminate when complete.
- 8) Check the LED power indicator and status indicator on the Digitalinx™ Digital Media Converter. The signal indicators should be green when the devices are correctly attached. See troubleshooting on Page 1-10 if the LED is not green.

Note: The unit can function without the DC power supply however HDMI.org does not recognize or authorize devices using source device voltage (Pin 18 on your video source) as part of their specification. If using this item for DVI or Video only applications the DC power source can be removed. It is recommended to use the DC power source for full operation of the device.

## Mechanical Specifications

### Dimensions:

DL-HDCAT: LxWxH 67mm x 48 mm x 24 mm



Green LED:

Signal Status Good

Red LED:

Signal Status Error

RJ45-1:

UTP or F/UTP Category Cable

RJ45-2:

UTP or F/UTP Category Cable

SOURCE:

HDMI from digital media source

DISPLAY:

HDMI to digital video display



## Technical Specifications

Frequency Bandwidth: 2.25 Gbps  
 Equalizer Performance: 40 dB at 2.25 Gbps  
 Supporting Graphic Resolution: Up to display 1080p60 (2200x1125@60Hz)  
 Inputs: HDMI Type A receptacle 1 port, 8P8C Modular Jack 2 ports  
 Outputs: HDMI Type A receptacle 1 port, 8P8C Modular Jack 2 ports  
 Power Supply: External power from DC Adapter HDCP (High-bandwidth Digital Content Protection) Compliant

Connector Pin Assignment for HDMI Type A Receptacle	
Pin #	Description
1	TMDS Data 2 +
2	TMDS Data 2 shield
3	TMDS Data 2 -
4	TMDS Data 1 +
5	TMDS Data 1 shield
6	TMDS Data 1 -
7	TMDS Data 0 +
8	TMDS Data 0 shield
9	TMDS Data 0 -
10	TMDS Clock +
11	TMDS Clock shield
12	TMDS Clock -
13	CEC
14	RESERVED
15	SCL
16	DDC DATA
17	DDC/CEC GROUND
18	+5VDC POWER
19	HOT PLUG DETECT

### 1 (One) Year Warranty

Liberty AV Solutions warrants this Digitalinx™ Digital Media Converter to be free from defects in workmanship and materials, under normal use and service, for a period of one (1) year from the date of purchase from Liberty AV Solutions or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Liberty AV Solutions shall, at its option and expense, repair the defective product or part, deliver to the customer an equivalent product or part to replace the defective item, or refund the customer the purchase price paid for the defective product.

All products that are replaced will become the property of Liberty AV Solutions. Replacement products may be new or reconditioned.

Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

Liberty AV Solutions shall not be responsible for any software, firmware, information, or memory data loss of customer contained in, stored on, or integrated with any products returned to Liberty AV Solutions for repair under warranty or not.

### Warranty Limitation and Exclusion

Liberty AV Solutions shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by Liberty AV Solutions or its authorized agents, causes other than from ordinary use of failure to properly use the product in the application for which said product is intended.

## Troubleshooting

The Digitalinx™ Digital Media Converter is designed for years of trouble free service, please reference the troubleshooting chart below if experiencing issues with the device.

A general note regarding the use of this product:

Computer PC cards with HDMI outputs are not always HDCP compliant. The units will have issues working with non HDCP video cards. Also per the last step below ensure your PC and Display are set correctly – PC cards default to monitor settings instead of Television settings.

Symptom	Explanation	
RX unit LED Status	Symptom	Solution
Green light on Red light off	Video OK, no Audio	Shorten the cable length
Green Light on Red Light on	The display is not being sensed by the Receiver	Check display connection
	No source signal	Check and reconnect the source
	Display and Source reversed	Ensure TX is at the source and RX is at the display
Green Light off Red Light off	No power	Connect the DC power unit
	No source or display connected	Connect the source and display
Green Light Flashing Red Light Flashing	Display power off	Power up the display
	Cables are too long	Shorten the cable lengths
Green light on	No Video or Audio	Check Category Cable lengths must be equal (even 8-inch difference will cause issues)
		Test the Category Cables to Gigabit Ethernet
		Ensure source-display video set the same (i.e. YPbPr or RGB – TV or Monitor)

## Customer Service

If you have issues, questions, or require assistance with the use of this device please contact Liberty AV Solutions with any of the following contact points:

Liberty AV Solutions  
11675 Ridgeline Drive  
Colorado Springs, CO 80921

Phone: (800) 530-8998 and ask for technical assistance.  
Email: [techquestions@LibAV.com](mailto:techquestions@LibAV.com)



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