

# **User Manual**

## **Optical HDMI Module**

### **HDX**



Total Digital Connectivity Solutions



#### Cautions:

1. Digitalextder logo is our own trademark of RTcom USA.,Inc.
2. Any of the products may be changed without any notice in order to improve the function of the product.
3. The design and specification of the product may be changed without any prior notice.

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# 1. Basic understandings of the product

## 1-1 Cautions for safety

- All the safety and user manual should be read before the appliance is operated.
- The safety and operating instructions should be retained for future reference.
- Unplug this product from the wall outlet before clean. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this equipment near wet place.
- This product should be operated only from the type of power sources indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your local power company. For equipment intended to operate from battery power, or other source, refer to the user manual.
- Do not use any damaged power cords or plugs, or loosed outlets, this may cause electrical shock or fire.
- Do not put heavy articles such as other equipments on this product.
- Keep it away from liquid, inflammable substances.

**If you experience any malfunctioning of product or have any question regard to operation of the product, please contact our customer service center.**

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## 1-2 Package Includes

Each HDX package includes the following items

- TX and RX Box Unit :TXx1and RXx1
- HDMI Copper Cable-2 : 1m
- 12V AC/DC Power Adapter : 1
- User's manual :1
- Option: DDC cable with RJ-45C & 4LC Fiber Optical Cable

## 1-3 Declaration of Conformity

### FCC/CE Statement for regulation of Electro-magnetic emission

This device complies with part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 and 2 of FCC Rules, EN 55022/55024/61000-3 for CE certification. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a service representative for help.

Properly shielded and grounded cables and connectors must be used in order to comply with FCC/CE emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Certification for Safety

The extension system is certified pursuant to IEC60065 and its AC/DC power adapter is certified by UL1310, 1950, 60950 for North America, cUL or CSA for Canada, TUV-CE & GS for EU and PSE for Japan.

### Certification of Eye Safety

This laser product is inside implemented by using 850nm VCSEL (Vertical Cavity Surface Emitting Laser) Transceivers, manufactured by RTcom Co., Ltd., which are all certified by CDRH/FDA referred in Accession Number 0210774 as classified in Laser Class 1.



## 1-4 Description, General Specification

The HDX module offers 100 meters extension of high-resolution digital graphic data and multi-channel audio data over fiber, directly connected between computers or media receivers and displays. Two boxes, located one in the media receiver and the other in the display are connected to each of them by a 1.0 m HDMI copper cable. Between two boxes, the 4 LC patch cord fiber bundled cable enables to transmit 4 channels (R,G,B,Clk) of graphic data and multi-channel audio data over it and the HDMI Digital Display Channel (DDC2B) interface is performed over a bundled copper cable, so called as DDC cable, which optionally has RJ-45C connectors.

ITEM	DESCRIPTION
Model Name	HDX
Input Signal	HDMI (TMDS )Single Link
Output Signal	HDMI (TMDS )Single Link
Resolution	Supports up to UXGA(1600x1200)@60Hz 480i/p , 720i/p , 1080i/p
Receptacle	HDMI 19 Pin Female
HDCP Support	OK
Power Supply	Power Input: AC 85~264V, 50/60Hz, Power Output: 12V, 3.0A SMPS DC-power Adapter. Certification PSE, UL, cUL, FCC, CE, TUV-GS
Dimension	TX/RX : 38X19X72(WxHxD) mm
Weight	46g for each of TX and RX

**\*\*The Power of HDX is designed to supply to both modules of TX RX over the DDC cable by plugging the power jack to either of their power plugs**

## 1-5 Environmental and Reliability Specifications

- The HDX recommended environmental operating limits are a temperature range from 10°C to 50°C, non-condensing humidity levels from 10-80% and altitude ceiling of 3,000 meters(9,840 feet).

## 2 Installation

**Important:** Please installation procedure below. Improper, or no operation may result if the start-up sequence is not correctly followed.

### Step 1

Carefully unpack the contents of the shipping group.

### Step 2

With system power turned **off**, connect the upstream Transmitter box to the HDMI receptacle of a media receiver or a computer by one HDMI copper cable in the shipping group.

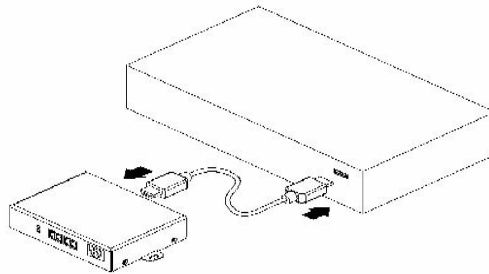


Figure 2 – Connection of HDMI cable between Transmitter box and media receiver

### Step 3

In the same way as above, connect the Receiver box into the HDMI receptacle of the display by the other HDMI copper cable.

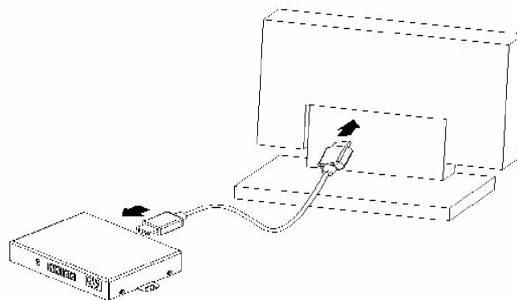


Figure 3 – Connection of HDMI cable between Receiver box and display

**Notice:** Please DO NOT look directly into the LC receptacles of the Transmitter box, while it is powered on, although this product is regulated strictly enough to operate under the Laser Class I, classified by CDRH/FDA for eye safety

**Step 4**

Remove the module dust covers and connect each duplex LC fiber cable one by one to each of 4 LC receptacles of the Transmitter and Receiver boxes, as shown in Fig. 4. Plug A to A and B to B. Carefully recheck polarities and ensure the duplex connectors are fully engaged.

**Step 5**

Connect each RJ-45C plug of the DDC cable to each RJ-45C receptacle of the Transmitter and Receiver boxes.

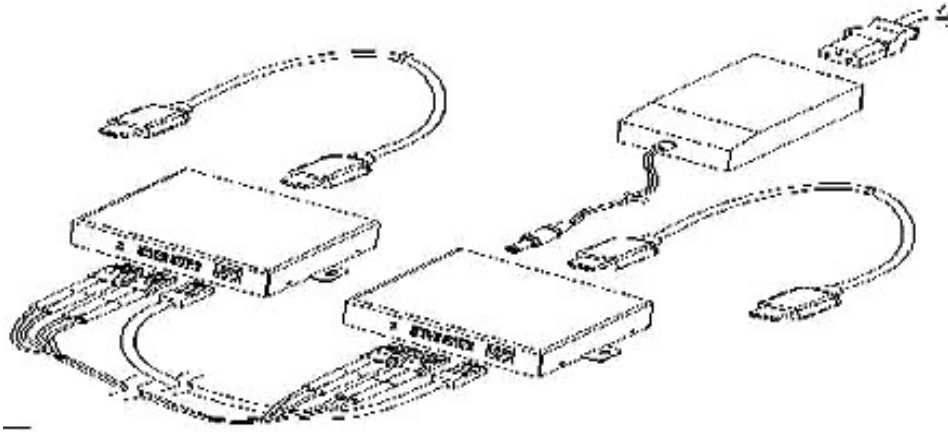


Figure 4 – Connection of 2 duplex LC fiber cables

**Step 6**

Connect an AC/DC power adaptor to either of the Transmitter and Receiver boxes as your availability of AC outlets.

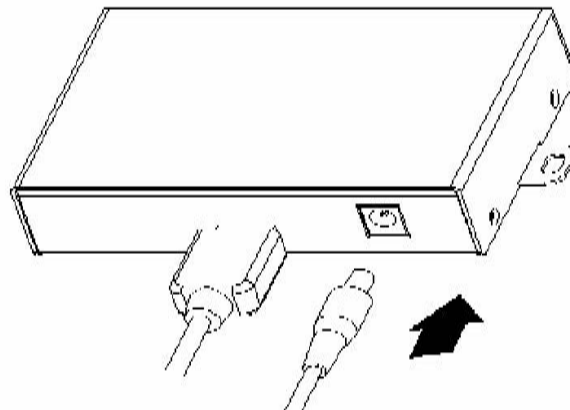


Figure 5 – Connection of AC/DC power adaptor

**Step 7** Power on the media receiver or computer and display.

Tip 1: After initial installation as guided in the above, we recommend you to power On and Off while all connections are set and the Tx / Rx boxes are powered in.

Tip 2: Avoid “hot plugging” the Tx or Rx boxes as this is not recommended practice with live digital voltages.

### 3 Connector Pin Assignment

#### HDMI Input, Output

Part No.	Pin No.	Description	Remarks
HDMI 19pin	1	TMDS DATA 2P	
	2	TMDS DATA 2 Shield	
	3	TMDS DATA 2M	
	4	TMDS DATA 1P	
	5	TMDS DATA 1 Shield	
	6	TMDS DATA 1M	
	7	TMDS DATA 0P	
	8	TMDS DATA 0 Shield	
	9	TMDS DATA 0M	
	10	TMDS Clock P	
	11	TMDS Clock Shield	
	12	TMDS Clock M	
	13	CEC	
	14	RESERVED	
	15	DDC Clock	
	16	DDC DATA	
	17	GND	
	18	+5v	
	19	Hot Plug Detect	

### 4 Troubleshooting

#### ***The display displays only black screen.***

- Check that all AC and DC plugs and jacks used by external power supplies are firmly connected.
- Ensure that power LEDs are live.
- Ensure that the Tx and Rx boxes plug correctly to the media receiver or computer and display, respectively.
- Check if the media receiver or computer and display are powered on and properly booted.
- Re-boot up the system after reconnecting the optical system cable.

#### ***Screen is distorted or displays noises.***

- Check if the graphic resolution is properly set. Go to the display properties and tap the settings. Ensure that the resolution sets less than UXGA (1,600x1,200) at 60Hz refresh ratio.
- Reset the system.
- Power down, disconnect and reconnect the optical system cable or DC power adaptors.

## **5 Warranty Information**

### **1 (One) Year Warranty**

RTcomUSA warrants this HDX-Module 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 RTcomUSA or its authorized resellers.

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

All products that are replaced will become the property of RTcomUSA.

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.

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

### **Warranty Limitation and Exclusion**

RTcomUSA 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 RTcomUSA or its authorized agents, causes other than from ordinary use or failure to properly use the product in the application for which said product is intended.

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