
RC-V1BD1A1TR-HDMI SERIES
1-CHANNEL UNCOMPRESSED HDMI / 1-CHANNEL
BI-DIRECTIONAL DATA / 1-CHANNEL FORWARD AUDIO
FIBER OPTIC TRANSCEIVER

USER'S MANUAL

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GENERAL INFORMATION

Introduction:

RC-V1BD1A1TR-HDMI Series HDMI transmitter and receiver support highest-quality uncompressed transmission of 720P/1080P high definition HDMI signal with 1-channel bi-directional RS232 or 1-channel return data and 1-channel forward audio over one core single mode fiber. Fully compliant with all the video resolution from 1280x720 to 1920x1080, the RC-V1BD1A1TR-HDMI series ensures the highest performance for most demanding HD CATV/CCTV applications. The hot-pluggable and adjustment-free design ensures the convenience of the installation and operation. The modules are available in either standalone or rack mount versions.

Model Number

| Unit Type | Model Number |
|----------------------------------------------------------------------|------------------|
| 1-channel HDMI/1-channel Bi-data/1-channel Forward Audio Transmitter | RC-V1BD1A1T-HDMI |
| 1-channel HDMI/1-channel Bi-data/1-channel Forward Audio Receiver | RC-V1BD1A1R-HDMI |

Technical Specifications:

VIDEO

| | |
|------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Signal Type | HDMI HDMI 1.2/1.3/1.4 & HDCP 1.1/1.2 |
| Video Resolution | 1280x720@50Hz, 1280x720@60Hz, 1920x1080(1080I)@50Hz, 1920x1080(1080I)@60Hz 1920x1080(1080P)@50Hz, 1920x1080(1080P)@60Hz |

AUDIO

| | |
|-------------|-----------------------------|
| Signal Type | Standard 3.5mm Stereo Audio |
|-------------|-----------------------------|

DATA

| | |
|---------------|-------------|
| Data Protocol | RS232/RS485 |
| Data Rate | 0~120kps |

OPTICAL

| | |
|------------------|--------------------|
| Wavelength | 1310/1550nm |
| Optical Emitter | SFP Laser |
| Optical Fiber | 9/125u single mode |
| Number of Fibers | 1 |

CONNECTORS

| | |
|---------------|-----------------------|
| Optical | LC |
| Video & Audio | HDMI |
| Audio | 3.5mm Audio Jack Port |
| Data | Terminal Screws |

GENERAL

| | |
|-----------------|----------------------------------------------|
| Power Supply | DC12V 1A |
| Size | 152 x130 x28.8mm / 5.98 x 5.12 x 1.13 inches |
| Construction: | Aluminum |
| Finish: | Paint |
| MTBF: | > 100,000 hours |
| Operating Temp: | -35° C to +65°C |
| Storage Temp: | -45° C to +85°C |

OPTICAL POWER BUDGET

Optical transmission distance is limited to optical loss of the fiber and additional loss caused by connectors, splices, and patch panels.

| Fiber | Wavelength | Transmitter | | Receiver | | Optical Power Budget | Max Distance |
|------------|------------|----------------------|--------|----------------------|-------------|----------------------|--------------|
| | | Model | Output | Model | Sensitivity | | |
| Singlemode | 1310nm | RC-V1BD1A 1T-HDMI | -5 dBm | RC-V1BD1A 1R-HDMI | -30 dBm | 25dB | 30km |

CAUTION!

The transmitter unit contains a laser-emitting diode located in the optical connector. This device emits invisible infrared electromagnetic radiation that can be harmful to human eyes. The radiation from this optical connector, if viewed closely without any protection, may cause instantaneous damage to the retina of the eye. Direct viewing of this LED should be avoided at all times.

INSTALLATION INSTRUCTIONS

Installation Procedure

The RC-V1BD1A1TR-HDMI HDMI transmission system series are preset for immediate use. There are indicator LEDs on the units for monitoring the real-time status of power, optic, video and data connection. The following instructions describe the typical installation procedure and the function of the LED indicators located on each unit.

1. Connect the HDMI source (HDMI output of PC or HDMI player) to the HDMI IN interface on the transmitter unit using HDMI cable.
 2. Connect the HDMI OUT interface on receiver unit to the HDMI monitor using HDMI cable.
 3. Connect the AUDIO IN port on the transmitter to the audio source such as audio player or microphone.
 4. Connect the AUDIO OUT port on the receiver to the audio speaker or earphone.
 5. Connect the data terminal screws on the transmitter to RS232 devices or PC.
 6. Connect the data terminal screws on the receiver to RS232 devices or PC.
 7. Connect the fiber optic cable between the transmitter and receiver
 8. Apply the power supply to both the transmitter and receiver
 9. When the power is applied, the green POWER LED will light, indicating the presence of operating power. The green VIDEO, OPT and RUN LED will give an indication as stated in the following page.
 10. The system should now be operational.
-

<WARNING>: Hot plugging of the HDMI cable may damage the HDMI interface on the units.

Indicator LEDs

The stand-alone units have integral LEDs that are used to monitor the state of the unit. There are one video LED, one power LED, one optical LED and one RUN LED on each unit. One, labeled as “PWR”, lights when operating power is present. Another LED labeled as “VIDEO”, lights when the HDMI input/output signals are detected. The optical LED will be off when the optical fiber is correctly connected. But when disconnected, the optical LED will blink. The RUN LED shows the status of the data transmission.

TRANSMITTER and RECEIVER:

Power: ON: (Green) Indicates that correct power has been applied.

Optical: OFF: Indicates that fiber optical connection has been applied.

Blinking (Green): Indicates that fiber optical connection has not been applied.

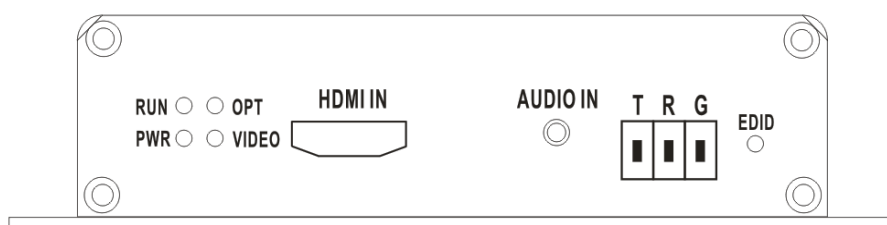
Video: OFF: Indicates no video detected on HDMI IN connector

(No HDMI present on HDMI IN)

ON: (Green) Indicates video detected on HDMI IN connector

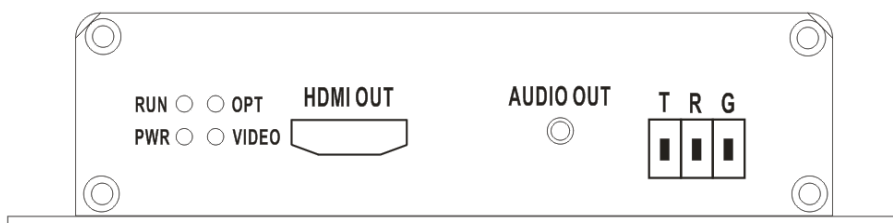
(HDMI signal present on HDMI IN)

Transmitter:



*Front panel of RC-V1BD1A1T-HDMI

Receiver:



*Front panel of RC-V1BD1A1R-HDMI

TROUBLESHOOTING

Optical Fiber

The RC-V1BD1A1TR-HDMI Series is available with most applications using single mode optical fiber. Please be certain that the correct size and type of the fiber is being used for the particular mode transmitter/receiver combination.

Also be certain that the attenuation and bandwidth of the fiber optic cable being used is within the range of the system's loss budget specifications.

HDMI Connection

Please check if the fiber optic cable is correctly connected if the screen of HDMI monitor shows "searching TX".

please check if the HDMI source is normally connected to the transmitter if the screen of HDMI monitor shows "check TX's input signal".

General

Any dirt or dust may easily pollute or block the fiber from accepting or radiating light. Therefore, please try to keep the optical connector clear and always use the dust caps whenever the connector is exposed to air. It is suggested that the tip of the optical connected should be carefully cleaned with a lint-free cloth moistened with alcohol from time to time.

The status of any of the LEDs should provide the first clue as to the origin of any operational failure.

Please also make sure that the transmitter and the receiver are not used in opposite position.