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RC-V2BD1T/R-HD SERIES  
2-CHANNEL DIGITALLY ENCODED HD-CVI/AHD/HD-TVI  
FIBER OPTIC VIDEO /1-CHANNEL BI-DIRECTIONAL  
DATA TRANSCEIVER

**USER'S MANUAL**

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## GENERAL INFORMATION

### Introduction:

RC-V2BD1T/R-HD Series video and data transceiver transmits two channels of 8-bit digitally encoded HD-CVI, AHD or HD-TVI video and one channel of bi-directional data over one core single mode or multimode fiber. Optimized optical modules which are compatible with 1280H/25F, 1280H/30F, 1280H/50F, 1280H/60F ensure the highest performance for most demanding 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
Two-channel Digitally Encoded HD-CVI/AHD/HD-TVI Video with One-channel Bi-directional Data Transmitter	RC-V2BD1TS/M-HD
Two-channel Digitally Encoded HD-CVI/AHD/HD-TVI Video with One-channel Bi-directional Data Receiver	RC-V2BD1RS/M-HD

### Technical Specifications:

#### VIDEO

Video Input	2.0 volt pk-pk (75 ohms)
Video Voltage Range	0.6~2.0Vp-p
Video Input/Output Channels	2
Bandwidth	5 Hz - 8 MHz
Bit Resolution	8-bit
Differential Gain	< $\pm 1\%$
Differential Phase	< $\pm 1$
Tilt	< 1%
S/N Ratio	> 60dB (Weighted)

#### DATA

Data Protocol	RS485, RS422 or RS232
Data Rate	0~300kps
Data Channels	1 (Bi-directional)
Error Rate	$10^{-9}$

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## OPTICAL

Wavelength	850/1310nm, Multimode 1310/1550nm, Singlemode
Optical Emitter	Laser Diode
Number of Fibers	1

## CONNECTORS

Optical	ST or SC
Video	BNC

## GENERAL

Power Supply	DC5V 2A
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
Relative Humidity :	0% to 95% (no condensing)

## INDICATOR

Module	
Green :	Video Sync Present
Green:	Data Sync Present
Green :	Power On

## 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
		Model	Output	Model	Sensitivity	
Singlemode	1310/1550nm	RC-V2BD1TS-HD	-5 dBm	RC-V2BD1RS-HD	-26dBm	21dB
Multimode	850/1310nm	RC-V2BD1TM-HD	-10 dBm	RC-V2BD1RM-HD	-24dBm	14 dB

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**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-V2BD1TR-HD video transmission systems series are preset for immediate use. There are indicator LEDs on the units for monitoring the real-time status of video and power. The following instructions describe the typical installation procedure and the function of the LED indicators located on each unit.

1. Connect the video source (camera) to the video input BNC connector on the transmitter unit using coaxial cable.
2. Connect the video output BNC connector on receiver unit to the video monitor using coaxial cable.
3. Connect the fiber optic cable between the transmitter and receiver
4. Apply the power supply to both the transmitter and receiver
5. When the power is applied, the green POWER LED will light, indicating the presence of operating power. The green VIDEO LED and DATA LED will give an indication as stated in the following page.
6. The system should now be operational.

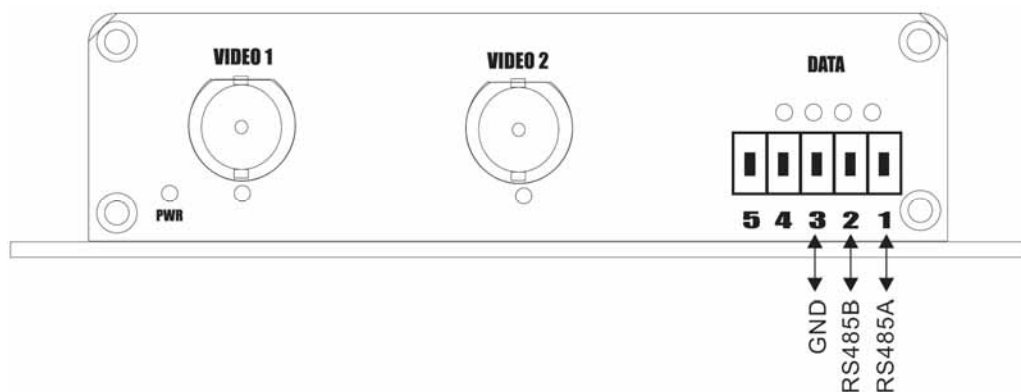
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## System Terminal Block Connections

The various input and output connections for RC-V2BD1TR-HD Series system are as follows:

**Video Input or Output:** BNC Connectors

**Data Connection — Camera Site (Transmitter):**



\*Front panel of RC-V2BD1T-HD

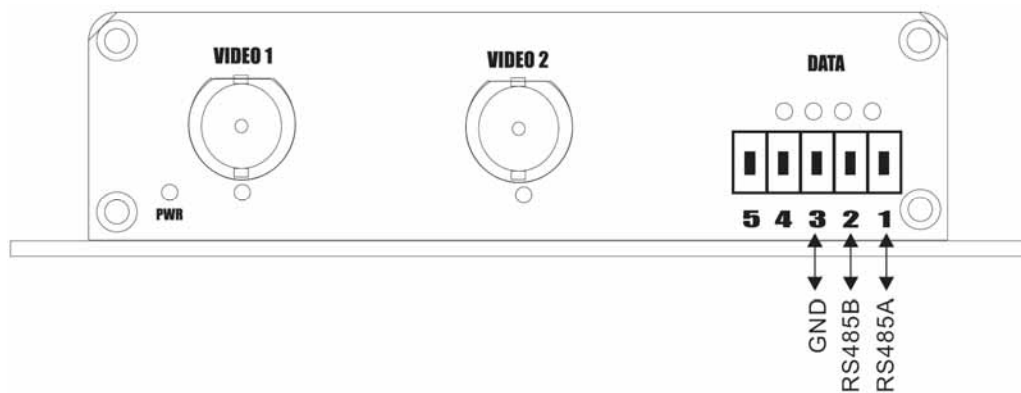
### RS-485 2-Wire Connection (1-Channel Bi-directional)

Pin 1 — RS485A

Pin 2 — RS485B

Pin 3 — GND

**Data Connection — Control Site (Receiver):**



\*Front panel of RC-V2BD1R-HD

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## **RS-485 2-Wire Connection (1-Channel Bi-directional)**

Pin 1——RS485A  
Pin 2——RS485B  
Pin 3——GND

### **Indicator LEDs**

The stand-alone units have integral LEDs that are used to monitor the state of the unit. There are one video LED and one power LED on each unit. One, labeled as “PWR”, lights when operating power is present. Another two LEDs under the BNC connector light when the video input/output signals are detected. The other LEDs above the data green screw terminals blink at the rate of the operating data. As shown in the diagram in the following,

### **TRANSMITTER and RECEIVER:**

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

#### **Transmitter:**

Video: OFF: Indicates no video detected on input BNC connector  
(No Video present on input BNC)  
ON: (Green) Indicates video detected on input BNC connector  
(Video present on input BNC)  
Data: OFF: Indicates no data detected on the transmit data cable  
Blinking: (Green) Indicates data transmitted at the rate of the operation data.

#### **Receiver:**

Video: OFF: Indicates no video present on output BNC connector  
(No Video present on output BNC)  
ON: (Green) Indicates video detected on output BNC connector  
(Video present on input BNC)  
Data: OFF: Indicates no data detected on the receive data cable  
Blinking: (Green) Indicates data received at the rate of the operation data.

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## TROUBLESHOOTING

### Optical Fiber

The RC-V2BD1TR-HD Series is available with most applications using multimode or singlemode optical fibers. 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.

### 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 VIDEO LED should provide the first clue as to the origin of any operational failure. If the VIDEO LED on the receiver unit is off, it usually means that the fiber is broken or has too much attenuation.

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