
RC-SDV1D1T/R SERIES
1-CHANNEL HD-SDI VIDEO /1-CHANNEL RETURN DATA
FIBER OPTIC TRANSCEIVER

USER'S MANUAL

Table Of Contents

General Information.....	2
Introduction.....	2
Technical Specifications.....	2
Installation Instructions.....	4
Installation Procedure.....	4
Indicator LEDs.....	5
Troubleshooting.....	7

GENERAL INFORMATION

Introduction:

RC-SDV1D1T/R Series video transmitter and receiver support highest-quality transmission of SDI /HD-SDI video signal with return RS485 over one core single mode fiber. Fully compliant with SMPTE424M, SMPTE292M, SMPTE259M and ITU digital video standards, the RC-SDV1D1T/R series ensures the highest performance for most demanding HD 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
One-channel HD-SDI Video / One-channel Return Data Transmitter	RC-SDV1D1TS
One-channel HD-SDI Video / One-channel Return Data Receiver	RC-SDV1D1RS

Technical Specifications:

VIDEO

Signal Type	HD-SDI, SDI
Video Resolution	8 Bit/10Bit Auto
Data Rate	270Mbps~1.25Gbps
TV Signal Standard	SMPTE424M, SMPTE292M, SMPTE259M, DVB-ASI, Other Telecom Signals and ITU-R BT.601, ITU-R BT.1120 standards

VIDEO INPUT

Video Input	BNC (75 ohms)
Video Input/Output Channels	2 (1 for TX/1 for Local Preview)
Data Rate	19Mbps~1.25Gbps
Nominal Level	0.8 Vp-p
Min/Max level	0.5 V to 1.0 Vp-p
Return loss	≥15 dB @ 5 MHz to 1.5 GHz
Input cable equalization	Up to -30 dB of cable loss

VIDEO OUTPUT

Video Output	BNC (75 ohms)
Video Output Channels	1

Re-clock	270 Mbps, 1.485 Gbps, or bypassed for unrecognized rates
Nominal Level	0.8 Vp-p
Min/Max level	0.5 V to 1.0 Vp-p
Return loss	<-25 dB @ 100 MHz

DATA

Data Protocol	RS485
Data Rate	0~300kps
Data Channels	1 (Return)
Error Rate	10 ⁻⁹

OPTICAL

Wavelength	1310nm/1550nm
Optical Emitter	Laser Diode
Optical Fiber	9/125u single mode
Number of Fibers	1
Return Loss	>15dB
Shake	<0.2UI

CONNECTORS

Optical	LC
Video	BNC
Data	Terminal Screws

GENERAL

Power Supply	DC5V 2A
Size	152 ×130 ×28.8mm / 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	Optic Connection Present
Green	Data Sync Present
Red	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	Max Distance
		Model	Output	Model	Sensitivity		
Singlemode	1310/1550nm	RC-SDV1D1TS	-5 dBm	RC-SDV1D1RS	-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-SDV1D1TR HD-SDI video transmission systems series are preset for immediate use. There are indicator LEDs on the units for monitoring the real-time status of video, power and optic connection. The following instructions describe the typical installation procedure and the function of the LED indicators located on each unit.

1. Connect the video source (SDI camera) to the SDI IN connector on the transmitter unit using coaxial cable.
 2. Connect the one of the SDI OUT connector on receiver unit to the SDI video monitor using coaxial cable and connect another SDI OUT connector on the receiver to DVR for local backup.
 3. Connect the SDI video monitor to the SDI OUT connector on the transmitter unit for
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the local preview using coaxial cable.

4. Connect the fiber optic cable between the transmitter and receiver
5. Apply the power supply to both the transmitter and receiver
6. When the power is applied, the red POWER LED will light, indicating the presence of operating power. The green VIDEO LED will give an indication as stated in the following page.
7. The system should now be operational.

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 data LED on each unit. One, labeled as "PWR", lights when operating power is present. Another LED under the BNC connector, lights when the video 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 data LED blinks at the rate of the operating data.

TRANSMITTER and RECEIVER:

Power: ON: (Red) 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.

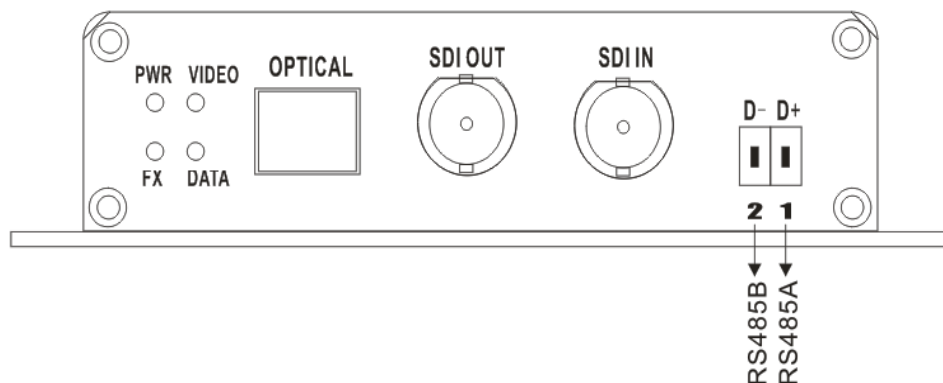
Transmitter:

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.



*Front panel of RC-SDV1D1T

RS-485 2-Wire Connection (1-Channel Return)

Pin 1——RS485A

Pin 2——RS485B

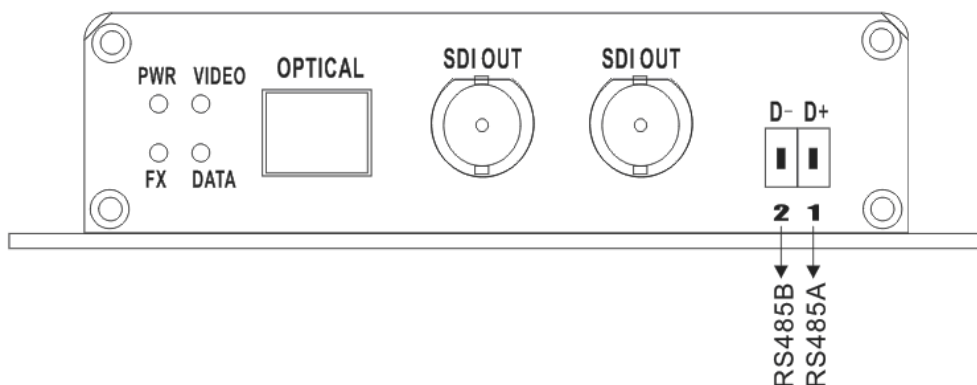
Receiver:

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 transmit data cable

Blinking: (Green) Indicates data transmitted at the rate of the operation data.



**Front panel of RC-SDV1D1R

RS-485 2-Wire Connection (1-Channel Return)

Pin 1——RS485A

Pin 2——RS485B

TROUBLESHOOTING

Optical Fiber

The RC-SDV1D1TR 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.

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.