



HDSDI11 HD-SDI VIDEO SYSTEM

USER'S MANUAL

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CAUTION!

The fiber optic SFP modules contain 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.

Table Of Contents

General Information.....	3
Introduction.....	3
Technical Specifications.....	3
Installation Instructions.....	5
Installation Procedure.....	5
Indicator LEDs.....	6
Troubleshooting.....	8

GENERAL INFORMATION

Introduction:

The HDSDI11 Series video transmitter and receiver support the highest-quality transmission of SDI /HD-SDI video signal with return RS-485 data over on or two strands of fiber. Fully compliant with SMPTE424M, SMPTE292M, SMPTE259M and ITU digital video standards, the HDSDI11 series ensures the highest performance for the most demanding HD CCTV applications. The hot-pluggable and adjustment-free design ensures convenient installation and operation. The modules are available in either standalone or rack mount versions.

Model Numbers:

Model Number	Description
HDSDI11	1-Channel HD-SDI Video + 1-Channel Return RS-485 Data Transmitter & Receiver
GB2MM	1G Fiber Optic SFP Module, MM (1310nm), Duplex LC Connectors, 0.5 km
GB10SM	1G Fiber Optic SFP Module, SM (1310nm), Duplex LC Connectors, 10 km
GB20SFA	1G Fiber Optic SFP Module, SM (1310nm/1550nm), Simplex LC Connector, 20 km
GB20SFB	1G Fiber Optic SFP Module, SM (1550nm/1310nm), Simplex LC Connector, 20 km
3GBMM	3G Fiber Optic SFP Module, MM (850nm), Duplex LC Connectors, 0.5 km
3GB20SM	3G Fiber Optic SFP Module, SM (1310nm), Duplex LC Connectors, 20 km
3GB20SFA	3G Fiber Optic SFP Module, SM (1310nm/1550nm), Simplex LC Connector, 20 km
3GB20SFB	3G Fiber Optic SFP Module, SM (1550nm/1310nm), Simplex LC Connector, 20 km

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	RS-485
Data Rate	0~300kps
Data Channels	1 (Return Direction Only)
Error Rate	10 ⁻⁹

OPTICAL

Wavelength	SFP Module Dependent
Optical Emitter	Laser Diode
Optical Fiber	9/125u Single-Mode, 50/125u or 62.5/125u Multi-Mode
Number of Fibers	1 or 2
Shake	<0.2UI

CONNECTORS

Optical	LC
Video	BNC
Data	Terminal Screws

GENERAL

Power Supply	DC5V 2A
Size	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% (non-condensing)

INDICATOR

Module	
Green	Video Sync Present
Green	Optic Connection Present
Green	Data Sync Present
Red	Power On

INSTALLATION INSTRUCTIONS

Installation Procedure:

The HDSDI11 video system units are preset for immediate use. There are indicator LEDs on the units for monitoring the real-time status of power, video, optical connections, and data. 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 SDI IN connector on the transmitter unit using coaxial cable.
2. Connect one of the SDI OUT connectors on receiver unit to an SDI video monitor using coaxial cable and connect another SDI OUT connector on the receiver to a DVR for local backup.
3. If desired, connect an SDI video monitor to the SDI OUT connector on the transmitter unit for local previewing using coaxial cable.
4. Connect the fiber optic cable between the transmitter and receiver
5. Connect the supplied 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 on the following pages.
7. The system should now be operational.

Indicator LEDs:

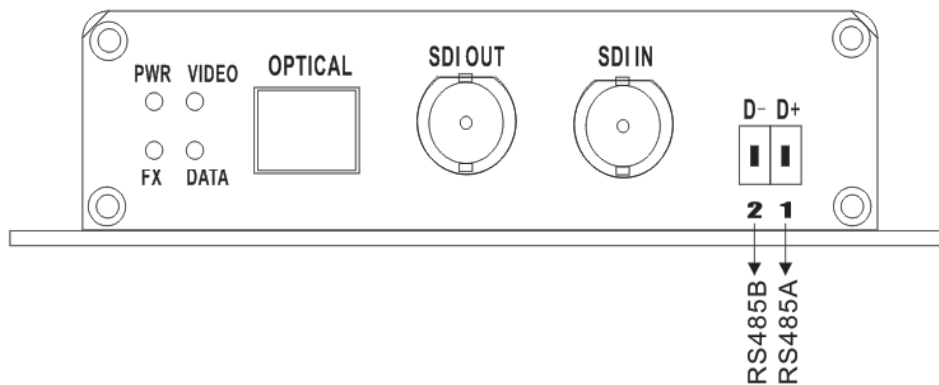
Each unit has integral LEDs that are used to monitor the state of the unit. There are LEDs for power, video, optical connectivity, and data. Below are descriptions for each.

TRANSMITTER and RECEIVER:

- Power: ON (Red): Indicates power has been applied.
- Optical: OFF: Indicates fiber connection established.
Blinking (Green): Indicates fiber connection not established.

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 data connector.
Blinking (Green): Indicates data being transmitted.



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

Pin 1 – RS-485A

Pin 2 – RS-485B

TROUBLESHOOTING

Optical Fiber:

The HDSDI11 Series is available with most applications using multi-mode or single-mode optical fiber. Please be certain that the correct size and type of the fiber is being used for the particular SFP module installed.

Also be certain that the attenuation and bandwidth of the fiber optic cable being used is within the range of the SFP module 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 connection 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 positions.