Optical Fiber Transmission System

VF-10x-KIT

User's Manual

FCC Warning

This equipment has been tested and found to comply with the regulations for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Energy Saving Note of the Device

This power required device does not support Stand by mode operation.

For energy saving, please remove the DC-plug or push the hardware Power Switch to OFF position to disconnect the device from the power circuit. Without removing the DC-plug or switch off the device, the device will still consume power from the power source. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to power off or to remove the DC-plug for the device if this device is not intended to be active.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

Video over Optical Fiber Media Converter User's Manual

For Models: VF-10x-T / VF-10x-R

Rev 1.2 (July 2015)

Part No.: 2350-AA3700-002

Table of Contents

1. Introduction

1.1 Check List

Check your package for the following parts:

- VF-10x-T – Video over Fiber Media Converter / Transmitter x 1
- VF-10x-R – Video over Fiber Media Converter / Receiver x 1
- 5V/2A Power Adapter x 2
- User's Manual x 1

If any of these pieces are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

1.2 Introduction To Video Over Fiber Converter

PLANET Video over Fiber Converter kit consists of a Video Transmitter, VF-10x-T, and a Video Receiver, VF-10x-R. It is a digital fiber-optic transmission system which provides customers with a cost-effective solution for transmission of one channel uncompressed digital video and one reverse RS485 async-data over one single fiber optic cable. It is an adjustable device for providing high-quality, real-time video. The plug-and-play design makes the installation more convenient and easier. The system can be widely used in intelligent transportation systems (ITS), traffic surveillance, security monitoring, automation control, intelligent residential districts and so on.

Typical Applications

- Intelligent Transportation Systems (ITS)
- Toll Collection
- Traffic Surveillance

- Air Traffic Management (ATM)
- Rail Signaling
- Perimeter Alarms and Area Monitoring
- Telemedicine and Teleconference
- Industrial Surveillance
- Intelligent Building

1.3 Key Features

- Video + Data over fiber transmission
- 8 bit Video Signal digital sampling
- PAL, NTSC, SECAM compatible
- Data Type: RS485
- Standalone or work with PLANET MC-700/1500/1500R Media Converter Chassis
- Compact in size, wall-mount design, easy installation

1.4 Product Specifications

Model	VF-10x-KIT Series
Video Characteristic	
Video Channel	1-channel bi-direction
Signal Mode	NTSC/PAL
Video Connector	BNC
Video Input/Output Impedance	75ohm/unbalanced interface
Video Input/Output Voltage	1.0 Vpp/Typical peak-peak value

Video Bandwidth	6.5MHz	
Video Digital Bit Width	8/10 bit	
Differential Gain (DG)	< 1.3% (typical value)	
Differential Phase (DP)	< 1.3° (typical value)	
SNR Weighted	63dB (typical value)	
Data Interface		
Data Channel	1 channel	
Physical Protocol	RS485	
Operation Mode	Simplex	
Data Connector	3-pin terminal block with screw clamps	
Data Rate	DC-115.2Kbps	
Data Distance	RS485: 0-1200m	
Bit Error Rate (BER)	< 10ns	
Optical Interface		
Optical Connector	VF-101-KIT	ST
	VF-102-KIT	FC
	VF-102SC-KIT	SC
	VF-102S15-KIT	SC
	VF-106-KIT	SC, WDM
Distance	VF-101-KIT	2km for multi-mode
	VF-102-KIT	20km for single-mode
	VF-102SC-KIT	2km for multi-mode
	VF-102S15-KIT	15km for single-mode
	VF-106-KIT	20km for single-mode

Optical Wavelength	VF-101-KIT	VF-101-T	TX & RX: 1310nm
		VF-101-R	TX & RX: 1310nm
	VF-102-KIT	VF-102-T	TX: 1310nm, RX: 1550nm
		VF-102-R	TX: 1550nm, RX: 1330nm
	VF-102SC-KIT	VF-102SC-T	TX & RX: 1310nm
		VF-102SC-R	TX & RX: 1310nm
	VF-102S15-KIT	VF-102S15-T	TX & RX: 1310nm
		VF-102S15-R	TX & RX: 1310nm
	VF-106-KIT	VF-106-T	TX: 1310nm, RX: 1550nm
		VF-106-R	TX: 1550nm, RX: 1330nm
Launch Power (dBm)	VF-101-KIT	Max.: -14, Min.: -19	
	VF-102-KIT	Max.: -7, Min.: -14	
	VF-102SC-KIT	Max.: -14, Min.: -19	
	VF-102S15-KIT	Max.: -7, Min.: -20	
	VF-106-KIT	Max.: -8, Min.: -14	
Receive Sensitivity (dBm)	VF-101-KIT	-34.5dBm	
	VF-102-KIT	-32dBm	
	VF-102SC-KIT	-34.5dBm	
	VF-102S15-KIT	-28dBm	
	VF-106-KIT	-31dBm	

Max. Input Power (dBm)	VF-101-KIT	-14
	VF-102-KIT	0
	VF-102SC-KIT	-14
	VF-102S15-KIT	-8
	VF-106-KIT	0
Cable	50/125μm or 62.5/125μm multi-mode cable 9/125μm single-mode cable	

Hardware Specification	
LED Indicators	• One for Power • One for Video - Green, Link • One for Fiber Optic - Green, Link
Dimensions (W x D x H)	94 x 70 x 26 mm
Weight	215g
Power Requirement	5V/2A
Power Consumption	4.8 watts (maximum)
Mechanical	Metal
Compatible Converter Chassis	MC-700/MC-1500/MC-1500R

Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE

Environment	
Operating	Temperature : 0 ~ 50 degrees C Relative Humidity : 5 ~ 95% (non-condensing)
Storage	Temperature : -10 ~ 70 degrees C Relative Humidity : 5 ~ 95% (non-condensing)

2. Hardware Description

2.1 Front Panel

The units' front panels provide a simple interface monitoring the converter. There are fiber optic interface and video socket on the front panel. For the VF-10x-T/VF-10x-R, with reverse data connector, the RS485 data port may be connected to the user's interface end.

VF-101-T/VF-101-R

VF-102-T/VF-102-R

VF-102SC-T/VF-102SC-R/
VF-102S15-T/VF-102S15-R

VF-106-T/VF-106-R

2.1.1 Ports connection

Video Connection	Connect the video signal to or from the product through a 75Ω coax cable with BNC plug.
Async-data Connection	■ Connect the output data port (e.g. TX+ and TX-) of the other controlled device to the RX+ and RX- of the RX ■ Connect the input data port (e.g. RX+ and RX-) of the other controlled device to the TX+ and TX- of the TX ■ GND in both TX and RX should be connected directly to user's equipment
Fiber Connection	Connect the fiber-optic cable pigtail (with FC/PC, SC/PC, WDM/PC or ST/PC optical connector) to the product's fiber port.

2.1.2 LED Indicators

The rich diagnostic LEDs on the front panel can provide the operating status of individual port and whole system. There are 3 LEDs for "POWER", "VIDEO and "LINK" on the front panel of TX/RX

LED	Color	Function
POWER	Green	It indicates that the Converter has power when lit.
VIDEO	Green	It indicates there is video signal when lit.
LNK	Green	It indicates there is laser when lit.

2.2 Rear Panel

The rear panel of the converter has one DC jack, which accepts an input power of 5V DC at 2A.

Power Notice	1. The device is a power-required device, meaning it will not work till it is powered. If your network should be active all the time, please consider using UPS (Uninterrupted Power Supply) for your device to prevent you from network data loss or network downtime. 2. In some areas, installing a surge suppression device may also help to protect your converter from being damaged by unregulated surge or current to the converter or the power adapter.

3 Installing The Converter

This section describes how to install your VF-10x Media Converter and make connections to the converter. Please read the following sections and perform the procedures in the order being presented. The hardware installation of PLANET VF-10x Media Converter does not need software configuration. To install your VF-10x on a desktop or shelf, simply complete the following steps.

3.1 Limitation

The converter does not require any software configuration. Users can immediately use any feature of this product simply by attaching the cables and turning the power on. However, there are some key limitations on the video over fiber converter as shown below:

- The device is used for Point-to-Point connection only (transmitter to receiver) and allows video and data to work on the same optical fiber patch cord.
- The BNC connector supports 75 ohm cable. The maximum distance will change with the quality of coaxial cables.

3.2 Stand-alone Installation

To install a VF-10x-T/VF-10x-R stand-alone on a desktop or shelf, simply complete the following steps:

Step 1: Turn off the power of the analog camera/monitor to which the VF-10x-T/VF-10x-R will be attached.

Step 2: **VF-10x-T (Transmitter):** Connect coaxial cable from analog camera to video BNC port of the VF-10x-T.

Step 3: Attach FC single mode fiber cable from the VF-10x-T to VF-10x-R in the remote site.

Step 4: **VF-10x-R (Receiver):** Connect coaxial cable from monitor/DVR to video BNC port of the VF-10x-R.

Step 5: Connect the 5V DC power adapter to the VF-10x-T/ VF-10x-R and verify that the power LED lights up.

Step 6: Turn on the power of the analog camera/monitor; the video LED (green) should light up when all cables are attached.
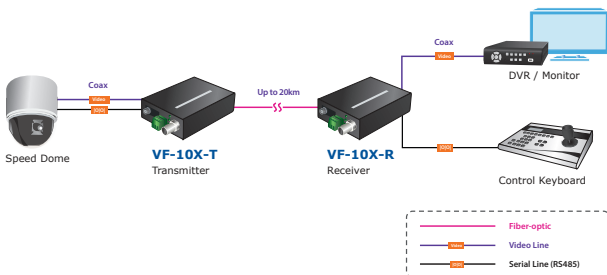
Figure 3-1 VF-10x-T/VF-10x-R standalone installation

3.3 Chassis Installation and Rack Mounting

To install the Video over fiber Converter in a **10-inch** or **19-inch** Converter Chassis with standard rack, follow the instructions described below.

Step 1: Place your Converter Chassis on a hard flat surface, with the front panel positioned toward your front side.

Step 2: Carefully slide in the module until it is fully and firmly fitted into the slot of the Converter Chassis.

Figure 3-2: Insert a video over fiber converter into an available slot

Step 3: Attach a rack-mount bracket to each side of the Converter Chassis with supplied screws attached to the package.

Step 4: After the brackets are attached to the Converter Chassis, use suitable screws to securely attach the brackets to the rack.

Step 5: Proceed with steps 4 and 5 of Section **3.2 Stand-alone Installation** to connect the video and fiber cabling and supply power to your Converter Chassis.
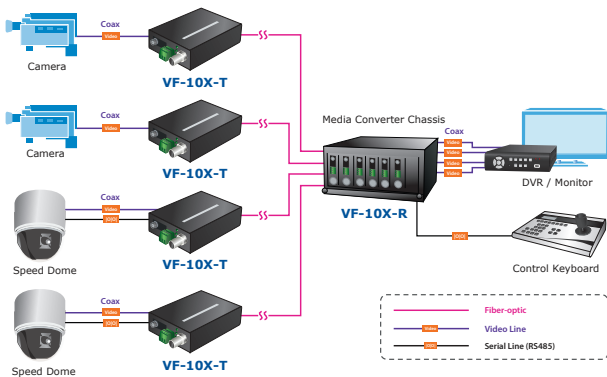
**Figure 3-3** VF-10x-T/VF-10x-R media converter chassis installation

3.4 Optional DIN-rail Mounting

There are two DIN-rail holes on the left side of the VF-10x-T/
VF-10x-R that allows the converter to be easily installed with
DIN-rail mounting. PLANET optional DIN-rail mounting kit –
RKE-DIN – can be ordered separately. When the wall mount
application needs to be replaced with the DIN-rail application
for the VF-10x-T/VF-10x-R, please refer to the following figures
to attach the DIN-rail to the converter. To hang the VF-10x-T/
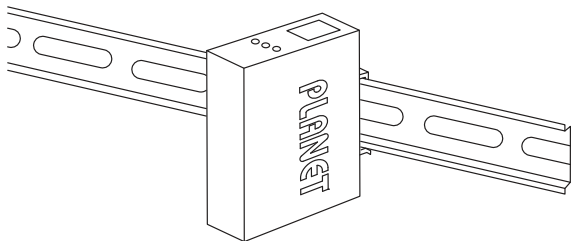VF-10x-R on the DIN-rail, follow the steps below:

Step 1: Screw the DIN-rail on the VF-10x-T/VF-10x-R.
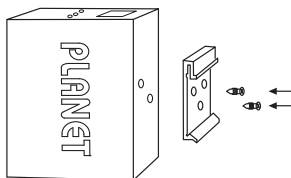
Step 2: Lightly press and push the DIN-rail into the track.
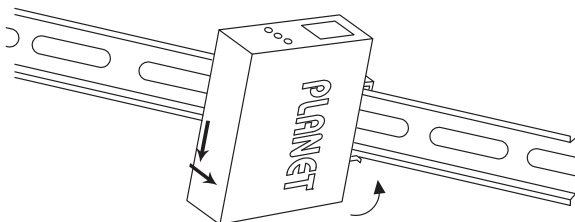
**Step 3:** Check whether the DIN-rail is tightly on the track.

> You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

4. Power Information

The central post of the power jack of the VF-10x-T/VF-10x-R measures 2.5mm, and +5VDC power input is required. It conforms to the bundled AC-DC adapter and Planet's Media Converter Chassis. If you have a power connection issue, please contact your local sales representative.

Please keep the AC-DC adapter as a spare item when your VF-10x is installed to a Media Converter Chassis.
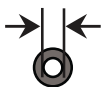
2.5mm

DC Receptacle 2.5mm

+5V for each slot

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DC receptacle is 2.5mm wide that conforms to 2.5mm DC jack's central post of the Video over Fiber Converter. Do not install any improper unit on any model of the Video over Fiber Converter

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