

*VersiVision*  
**FVT1000/FVR1000 Series**  
**Fiber Optic Video Modems**  
**Technical Manual**

**Also covers FVR1000M modules**

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# SECTION 1 DESCRIPTION OF EQUIPMENT

## INTRODUCTION

This manual provides information on the installation and operation of the VersiVision FVT1000/FVR1000 Series Fiber Optic Video Modems. Section 1 contains a general description of the equipment. Section 2 contains installation instructions. Section 3 contains maintenance and troubleshooting information.

Model Number	Description
FVT1003	Transmitter; 1-channel simplex video; Multimode; ST; 3km standalone
FVT1004	Transmitter; 1-channel simplex video; Multimode; SC; 3km standalone
FVT1005	Transmitter; 1-channel simplex video; Singlemode; SC; 30km standalone

FVR1003	Receiver; 1-channel simplex video; Multimode; ST; 3km standalone
FVR1004	Receiver; 1-channel simplex video; Multimode; SC; 3km standalone
FVR1005	Receiver; 1-channel simplex video; Singlemode; SC; 30km standalone

FVR1003M	Receiver module; 1-channel simplex video; Multimode; ST; 3km; installed in Model FVC14 chassis
FVR1004M	Receiver module; 1-channel simplex video; Singlemode; SC; 3km; installed in Model FVC14 chassis
FVR1005M	Receiver module; 1-channel simplex video; Singlemode; SC; 30km; installed in Model FVC14 chassis

## DESCRIPTION OF EQUIPMENT

### Functional Characteristics

The VersiVision FVT1000/FVR1000 Series products are fiber optic video links designed to extend a frequency modulation (FM) video signal over a single fiber optic cable. These modems provide high quality transmission of one channel simplex video at distances to 3km using multimode fiber and distances to 30km using singlemode fiber. A BNC connector provides the copper interface for the video input/output. ST and SC optical connectors are standard for the fiber optic interface. The FVT1000 and FVR1000 modems are completely compatible with the NTSC, PAL, or SECAM video standards.

VERSITRON FVT1000 and FVR1000 Series Fiber Optic Video Modems utilize APC circuitry while maintaining stable optical power output. The fiber optic link established between the transmitter and receiver devices insures immunity from EMI, RFI, and ground loops. AD, Pelco, Phillips, and Vicon communication protocols are supported. The modems' plug and play design requires no user adjustments. LED status indicators include video sync present (VIDEO) and power on (POWER).

## Physical Characteristics

The VersiVision FVT1000 transmitter and FVR1000 receiver modems are available as standalone devices for easy plug and play installation. In addition, the FVR1000 receiver modems can be ordered as circuit card modules (See Chart Above) for installation in the Model FVC14 rack-mount chassis. The 14-slot chassis fits in a standard 19" rack and is offered with either 110VAC or 220VAC power supplies. The dimensions of the FVT1000 and FVR1000 standalone devices are 7.5in (L) x 6.3in (W) x 1.2in (H).



**FIGURE 1: FVT1003 and FVR1003**

## SPECIFICATIONS

### VIDEO

Video Input:	1 volt pk-pk (75 ohms)
Bandwidth:	5 Hz – 8 MHz
Differential Gain:	<3 %
Differential Phase:	<3°
Tilt:	<2 %
Signal-to-Noise Ratio:	60dB

<b>WAVELENGTH</b>	1310nm Singlemode 1310nm Multimode
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<b>NUMBER OF FIBERS</b>	1
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### CONNECTORS

Optical:	ST, SC
Video:	BNC

## ENVIRONMENTAL

MTBF >100,000 hours  
Operating Temp: -30°C to +50°C  
Storage Temp: -40°C to +85°C  
Relative Humidity: 0% to 95% (non condensing)  
Size: 19 x 16 x 3.2 cm  
7.5 x 6.3 x 1.2 in.

Shipping Weight: <4.4kg  
Construction: Aluminum  
Finish: Black Paint

## INDICATOR

Module  
Green Video Sync Present  
Red Power On

## OPTICAL POWER BUDGET

Fiber	Wavelength	Transmitter		Receiver		Optical Power Budget	Max Distance
		Model (s)	Output	Model	Sensitivity		
Multimode	1310nm	FVT1003 FVT1004	-10dBm	FVR1003 FVR1004	-30dBm	20dB	3km
Singlemode	1310nm	FVT1005	-10dBm	FVR1005	-35dBm	25dB	30km

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

### **CAUTION!**

**The transmitter unit contains a light-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.**

## SECTION 2 INSTALLATION INSTRUCTIONS

### INSTALLATION PROCEDURE

The VersiVision FVT1000 Series transmitters and receivers 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 FVT1000 transmitter unit using coaxial cable.
2. Connect the video output BNC connector on the FVR1000 receiver unit to the video monitor using coaxial cable.
3. Connect the fiber optic cable between the transmitter and receiver devices.
4. Apply power to both the transmitter and receiver using the PSACV1 power supplies provided.  
Note: If using any of the FVR1000M modules, power is provided from the integral power supply of the FVC14 chassis.
5. 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.
6. The link should now be operational.



**FIGURE 2: PSACV1 Power Supply**

### INDICATOR LEDs

The stand-alone units have integral LEDs that are used to monitor the state of the unit. There are two video LEDs and two power LEDs on the units.

### TRANSMITTER and RECEIVER

Power: ON: (Red) 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: Indicates video detected on input BNC connector  
(Video present on input BNC connector)

#### Receiver:

Video: OFF: Indicates no video detected on output BNC connector  
(No video present on output BNC)

ON: Indicates video detected on output BNC connector  
(Video present on input BNC)

## **SECTION 3 TROUBLESHOOTING**

### **OPTICAL FIBER**

The VersiVision FVT1000 and FVR1000 Series fiber optic video modems are available for applications using multimode or singlemode optical fibers. Please be certain that the correct size and type of 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**

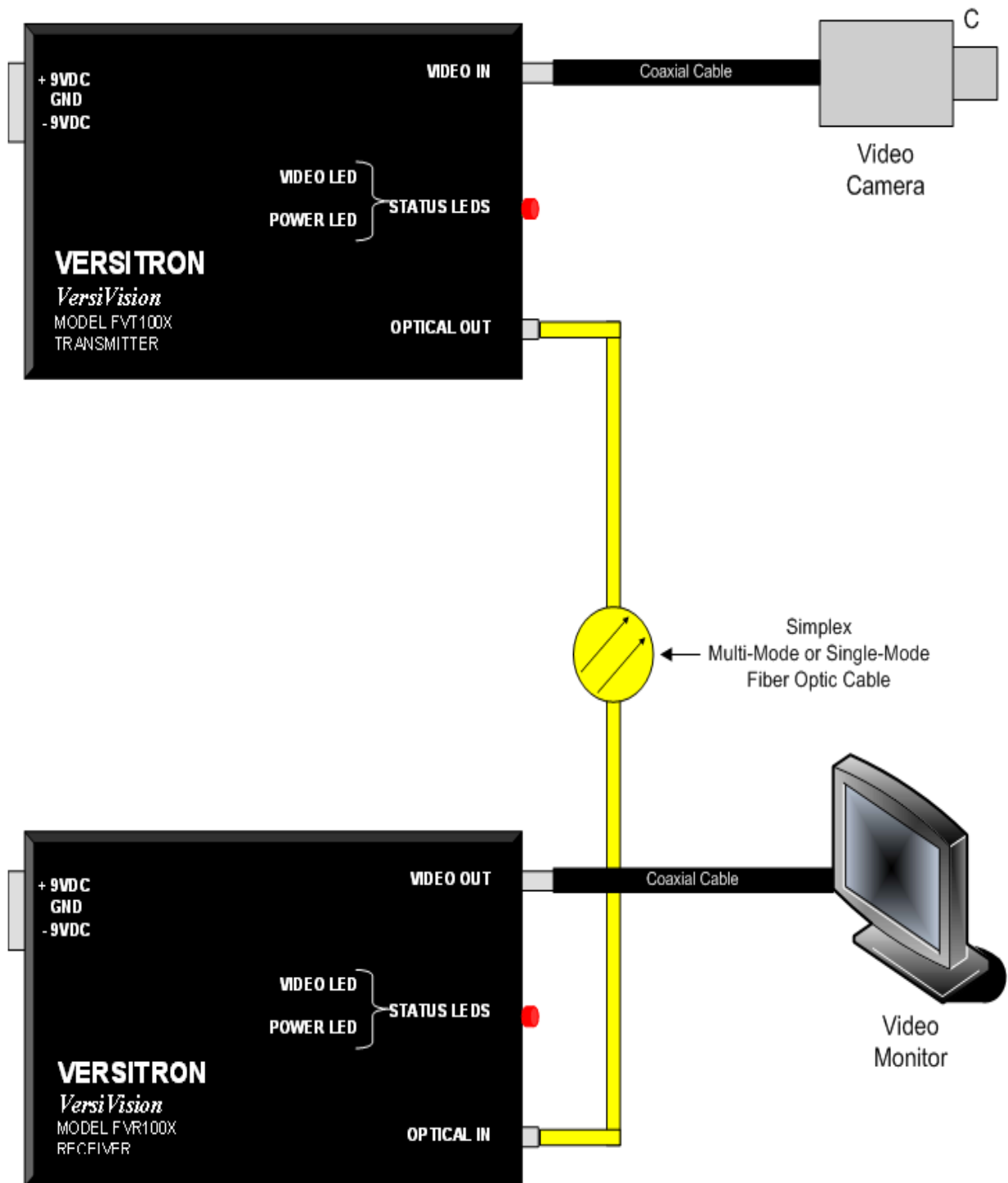
Any dirt or dust may easily pollute or block the fiber from accepting or radiating light. Therefore, please try to keep the optical connector clear and always use the dust caps whenever the connector is exposed to air. It is suggested that the tip of the optical connector should be carefully cleaned 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 or the receiver unit is off, it usually means that the fiber is broken or has too much attenuation.

Next, be certain to check all connections and assure that inputs and outputs are not intermixed and transmitter and receiver are not connected incorrectly.

Note: If the system is still not working after examining the above possibilities, please contact our Customer Service Department for further assistance.





**FIGURE 3:**  
*VersiVision* FVT100x/FVR100x  
 Connection Layout

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