



VersiVision

FVTM4B2x / FVRM4B2x

4-CHANNELS DIGITALLY ENCODED VIDEO

+

2-CHANNELS BI-DIRECTIONAL DATA

+

2-CHANNELS FORWARD AUDIO

MULTIPLEXER

USER'S MANUAL

Revision B

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PROPRIETARY DATA

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All VERSITRON products are covered by a **Lifetime Warranty** against defects in materials and workmanship. This coverage is applicable to the original purchaser and is not transferable.

We repair, or at our option, replace parts/products that, during normal usage and operation, are proven to be defective during the time you own the products, provided that said products and parts are still manufactured and/or available. Such repair/replacement is subsequent to receipt of your product at our facility and our diagnostic evaluation and review of the unit.

This warranty does not cover damage to products caused by misuse, mishandling, power surges, accident, improper installation, neglect, alteration, improper maintenance, or other causes which are not normal and customary applications of the products and for which they were not intended. No other warranty is expressed or implied, and VERSITRON is not liable for direct, indirect, incidental or consequential damages or losses.

In the unlikely event a warranty issue should arise, simply contact us at 302-894-0699 or 1-800-537-2296 or via email at fiberlink@versitron.com to obtain a Return Material Authorization (RMA) number, along with instructions for returning your product.

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GENERAL INFORMATION

Introduction:

The VERSITRON *VersiVision* FVTM4B2x and FVRM4B2x Series video and data transmitter and receiver support simultaneous transmission of four channels of 8-bit digitally encoded video and two channels of bi-directional data over one single-mode optical fiber. The modules are universally compatible with major camera systems and support RS-485 data protocol. Plug and Play design ensures ease of installation and electronic and optical adjustments are never required.

Model Number

Unit Type	Model Number
Four-Channels Digitally Encoded Video + Two-Channels Bi-Directional Data + Two-Channels forward Audio Transmitter	FVTM4B2x
Four-Channels Digitally Encoded Video + Two-Channels Bi-Directional Data + Two-Channels forward Audio Receiver	FVRM4B2x

Technical Specifications:

VIDEO

Video Input	1 volt pk-pk (75 ohms)
Input/Output Channels	4
Bandwidth	5 Hz - 8 MHz
Bit Resolution	8-bit
Differential Gain	< 2%
Differential Phase	< 0.6°
Tilt	< 1%
S/N Ratio	67dB (Weighed)

DATA

Data Interface	RS-485
Data Channel	2-Channels, Bi-Directional, Half-Duplex
Data Rate	100Kbps
Bit Error Rate	10 ⁻⁹

Technical Specifications (cont.):

AUDIO

Audio Impedance	600 Ω
Audio Channel	2-Channels, Forward Direction
Input/Output Level	0dBm (Typical)
Frequency Response	10Hz - 20KHz
Bit Resolution	24-bit
S/N Ratio	88dB

WAVELENGTH

850/1310nm Multimode
1310/1550nm Singlemode

OPTICAL EMITTER:

Laser Diode

NUMBER OF FIBERS

1

CONNECTORS

Optical	SC, ST or FC
Video	BNC
Data/Audio	Shield RJ-45 Plug

GENERAL

Power Supply	12VDC @ 600mA
Size	7.67 x 7.52 x 1.42 Inches
Construction	Aluminum
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)

INDICATOR

Blue	Video Sync Present
Blue	Data Sync Present
Orange	Power On

OPTICAL POWER BUDGET

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

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.

Fiber	Wavelength	Transmitter		Receiver		Optical Power Budget	Max Distance
		Model	Output	Model	Sensitivity		
Multi-Mode	850/1310nm	FVTM 4B2x	-6 dBm	FVRM 4B2x	-22 dBm	16 dB	3km
Fiber	Wavelength	Receiver		Transmitter		Optical Power Budget	Max Distance
		Model	Output	Model	Sensitivity		
Single-Mode	1310/1550nm	FVRM 4B2x	-10 dBm	FVTM 4B2x	-22 dBm	12 dB	30km

INSTALLATION INSTRUCTIONS

Installation Procedure

The VERSITRON *VersiVision* FVTM4B2x and FVRM4B2x video transmission systems series are preset for immediate use. There are indicator LEDs on the units for monitoring the real-time status of video, data 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 (FVTM4B2x) using coaxial cable.
2. Connect the video output BNC connector on the receiver unit (FVRM4B2x) to the video monitor using coaxial cable.
3. Connect the fiber optic cable between the transmitter and receiver units.
4. Apply the power supply to both the transmitter and receiver units.
5. When the power is applied, the orange POWER LED will light, indicating the presence of operating power. The blue VIDEO LED and the blue DATA LED will give an indication as stated on the following pages.
6. 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 four video LEDs, one power LED and one data LED on each unit. The indicator LEDs function as follows:

TRANSMITTER and RECEIVER:

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

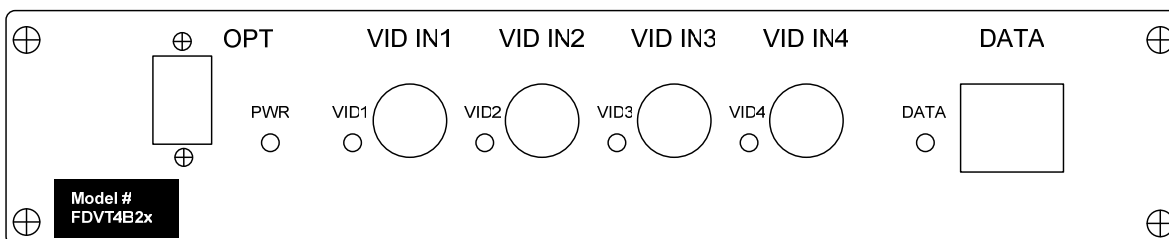
Transmitter:

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

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

Data: OFF: Indicates no data detected on the transmit data cable

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



***Front Panel of FVTM4B2x (Transmitter)**

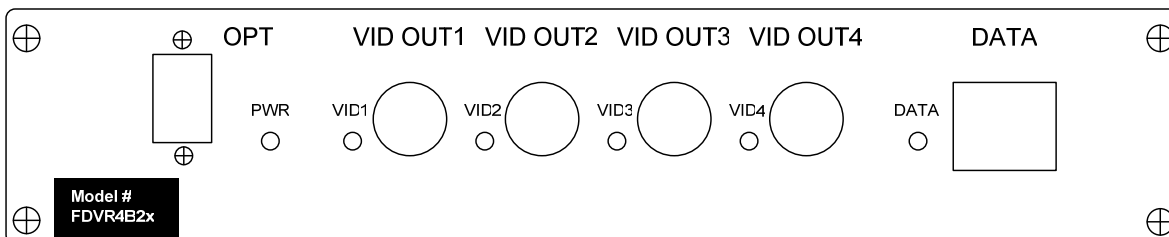
Receiver:

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

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

Data: OFF: Indicates no data detected on the receive data cable

Blinking: (Blue) Indicates data received at the rate of the operation data.



***Front Panel of FVRM4B2x (Receiver)**

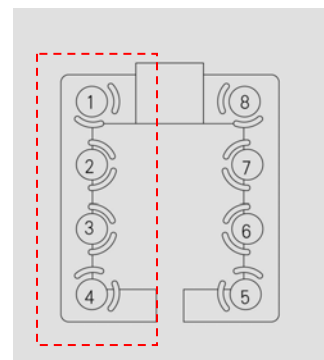
System Terminal Block Connections

The various input and output connections for VERSITRON *VersiVision* FVTM4B2x and FVRM4B2x video transmission systems series are as follows:

Video Input or Output: BNC Connectors

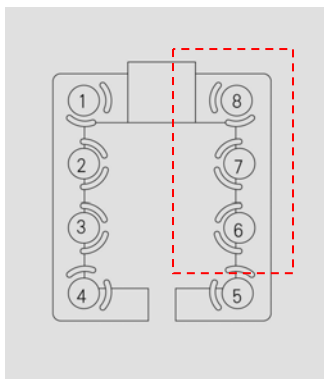
Data RS-485 Connections:

Terminal No.	Transmitter	Receiver	Terminal No.
	Channel 1	Channel 1	
1	RS-485(+)	RS-485(+)	1
2	RS-485(-)	RS-485(-)	2
	Channel 2	Channel 2	
3	RS-485(+)	RS-485(+)	3
4	RS-485(-)	RS-485(-)	4



**Terminal Block Data Connections
For Transmitter and Receiver**

Audio Input/Output Connections:



**Terminal Block Audio Connections
For Transmitter and Receiver**

Terminal No.	Transmitter	Receiver	Terminal No.
	Channel 1	Channel 1	
6	Audio	Audio	6
8	Audio Ground	Audio Ground	8
	Channel 2	Channel 2	
7	Audio	Audio	7
8	Audio Ground	Audio Ground	8

TROUBLESHOOTING

Optical Fiber

The VERSITRON *VersiVision* FVTM4B2x and FVRM4B2x video transmission systems series is available for most applications using singlemode optical fibers. Please be certain that the correct size and type of the fiber is being used for the particular 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 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.

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

Data Link

Even when installed exactly as directed, it is possible that the data/audio function may fail to operate properly. If this problem occurs, first please check the data cable, and then check whether the data cable connector is firmly inserted into the RJ-45 port.

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