



## PRODUCT SPECIFICATION

# 8-CHANNEL DIGITALLY ENCODED VIDEO MULTIPLEXER

## VT/VR7800 SERIES



### DESCRIPTION

The IFS VT/VR7800 Video Transmitter/Multiplexer and Video Receiver/Demultiplexer series utilize state-of-the-art 8-bit digital encoding and decoding for high-quality video transmission that exceeds the requirements of EIA RS-250C for Medium-Haul Video Transmission. These environmentally hardened units provide transmission of eight independent video channels over one multimode or singlemode optical fiber and are ideal for use in unconditioned roadside or out-of-plant installations. These units are completely transparent to and universally compatible with any NTSC, PAL, or SECAM CCTV camera system. Plug-and-play design ensures ease of installation and no electrical or optical adjustments are ever required. LED indicators are provided for rapidly ascertaining equipment operating status and these units are provided in either a stand alone or a rack-mount configuration.

### APPLICATION EXAMPLES

- High-Performance Multiple-Channel CCTV Transmission
- Installations with Limited Fiber
- Conduit with Limited Space for Additional Cabling

### FEATURES

- 8-Bit Digitally Encoded Video Transmission  
Transmits 8 Real-Time Color Video Signals on One Optical Fiber
- Exceeds All Requirements for RS-250C Medium-Haul Transmission: Extremely High Video Performance
- Exceptionally Low Video Distortion with Zero Performance Variation vs. Optical Path Loss
- Tested and Certified by an Independent Testing Laboratory for Full Compliance with the Environmental Requirements (Ambient Operating Temperature, Mechanical Shock, Vibration, Humidity with Condensation, High-Line/Low-Line Voltage Conditions and Transient Voltage Protection) of NEMA TS-1/TS-2 and the Caltrans Specification for Traffic Signal Control Equipment.
- Ideally Suited to Networks Requiring Multiple Physical Layers Where Video Degradation may be a Problem
- Directly Compatible with All NTSC, PAL, or SECAM CCTV Camera Systems
- Wide Optical Dynamic Range: Optical Attenuators are Never Required
- LED Status Indicators Provide Rapid Indication of Critical Operating Parameters
- Solid-State Current Limiters on All Power Lines Provide Unconditional Equipment Protection
- Comprehensive Lifetime Warranty



Available at: **www.ifs.com**

- A & E Specifications, (CSI)
- AutoCAD Drawings
- Operation Manuals
- Technical Bulletins

### ORDERING INFORMATION

	PART NUMBER	DESCRIPTION	FIBERS REQUIRED	OPTICAL PWR BUDGET	MAX. DISTANCE*
MULTIMODE 62.5/125µm**	VT7820	8 Channel Video Transmitter-Multiplexer (1310 nm)	1	7 dB	1.2 miles (2 km) <sup>▲</sup>
	VR7820	8 Channel Video Receiver-Demultiplexer (1310 nm)			
	VT7820-HP	8 Channel Video Transmitter-Multiplexer (1310 nm)		14 dB	1.2 miles (2 km) <sup>(1)</sup>
	VR7820	8 Channel Video Receiver-Demultiplexer (1310 nm)			
SINGLEMODE 9/125µm	VT7830	8 Channel Video Transmitter-Multiplexer (1310 nm)	1	12 dB	22 miles (36 km)
	VT7830-HP	8 Channel Video Transmitter-Multiplexer (1310 nm)		17 dB	31 miles (51 km)
	VT7830-HP1	8 Channel Video Transmitter-Multiplexer (1310 nm)		23 dB	43 miles (69 km)
	VR7830	8 Channel Video Receiver-Demultiplexer (1310 nm)			
	VT7850	8 Channel Video Transmitter-Multiplexer (1550 nm)	1	12 dB	30 miles (48 km)
	VT7850-HP	8 Channel Video Transmitter-Multiplexer (1550 nm)		17 dB	42 miles (68 km)
	VR7850	8 Channel Video Receiver-Demultiplexer (1550 nm)			
ACCESSORIES♦	PS-12VDC 12 Volt DC Plug-in Power Supply (Included)				
	PS-12VDC-230 12 Volt DC Plug-in Power Supply, 230 VAC Input (Included if specified at time of order)				
OPTIONS	Add ‘-R3’ to Model Number for R3 Rack Mount - No Charge (Requires R3 Rack purchased separately)				
	Add ‘-C’ for Conformally Coated Printed Circuit Boards (Extra charge, consult factory)				
	Add ‘-SC’ for SC Connector (Singlemode equipment only)				
	Add ‘-FC’ to Model Number for PC Optical Connector (Singlemode equipment only)				
	Add ‘-HP’ to Model Number for 20 dB Optical Power Budget (Singlemode equipment only)				

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

Distance can also be limited by fiber bandwidth. \*\* For 50/125 Fiber, subtract 4 dB from Optical Power Budget.

▲ This product may be used with 62.5µm graded index multimode fiber having a maximum run length of 2 km and/or a maximum optical loss of 10 dB.

(1) When ordered with the Fiber Optic Auto Reversing Switch FOARSMM (-R3), the optical power will be factory adjusted to maintain a net optical power budget of 10 dB.

**NOTE: All optical terminations need to be epoxy polished with a minimum back reflection of -30dB.** ♦ All accessories are third party manufactured.

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With Offices in Asia Pacific ■ Australia ■ Europe ■ Latin America



# TECHNICAL SPECIFICATION

## 8-CHANNEL DIGITALLY ENCODED VIDEO MULTIPLEXER

# VT/VR7800 SERIES

### SPECIFICATIONS

#### VIDEO

Video Input:	1 volt pk-pk (75 ohms)
Input and Output Channels:	8
Bandwidth:	5 Hz - 6.5 MHz
Differential Gain:	<2%
Differential Phase:	<0.7°
Tilt:	<1%
Signal-to-Noise Ratio (SNR):	60 dB @ Maximum Optical Loss Budget

**OPTICAL EMITTER:** Laser Diode (All Models)

**WAVELENGTH** 1310 nm, Multimode  
1310 or 1550 nm, Singlemode

**NUMBER OF FIBERS** 1

#### LED INDICATORS

VT Multiplexer Unit:	VR Demultiplexer Unit:
• Video Sync Presence for Each Video Input Channel	• Video Sync Presence for each Output Channel on Receiver
• Video Input Overload for Each Video Channel	• Video Output Overload for Each Video Channel
• Operating Power	• Optical Carrier Detect/ Link-Lock w/Solid State Relay♦
	• Operating Power

#### REMOTE SENSING

• Closed with Carrier Detect, 24VAC/VDC @ 100 mA

### CONNECTORS

Optical:	ST Standard, SC, or FC (see ordering information)
Power:	Terminal Block with Screw Clamps
Video:	BNC (Gold Plated Center-Pin)

### ELECTRICAL & MECHANICAL

Power:	
Surface Mount:	+12 VDC @ 500mA
Rack:	From Rack
Number of Rack Slots:	3
Current Protection:	Automatic Resettable Solid-State Current Limiters
	Meets IPC Standard

Circuit Board:	
Size (in./cm.) (LxWxH)	
Surface Mount:	7.0 x 4.9 x 3.0 in., 17.8 x 12.5 x 7.5 cm
Rack Mount:	7.7 x 5.0 x 3.0 in., 19.6 x 12.7 x 7.5 cm
Shipping Weight:	< 2 lbs./0.9 kg

### ENVIRONMENTAL

MTBF:	> 100,000 hours
Operating Temp:	-40° C to +74° C
Storage Temp:	-40° C to +85° C
Relative Humidity:	0% to 95% (non-condensing)†

† May be extended to condensation conditions by adding suffix '-C' to model number for conformal coating.

### AGENCY COMPLIANCE

**FCC** PART 15 COMPLIANT



Federal Supply Schedule  
Contract No. GS-07F-0049M

### MADE IN THE USA

Complies with FDA Performance Standard for Laser Products,  
Title 21, Code of Federal Regulations, Subchapter J

### OPTICAL POWER BUDGET

FIBER	WAVELENGTH	TRANSMITTER	RECEIVER	OPTICAL PWR BUDGET	MAX. DISTANCE*
		MODEL	MODEL		
Multimode 62.5/125µm**	1310 nm	VT7820	VR7820	7 dB	1.2 miles (2 km)▲
		VT7820-HP	VR7820	14 dB	1.2 miles (2 km) <sup>(1)</sup>
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		VT7830-HP	VR7830	17 dB	31 miles (51 km)
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1550 nm	VT7850	VR7850	12 dB	30 miles (48 km)	
	VT7850-HP***	VR7850	17 dB	42 miles (68 km)	

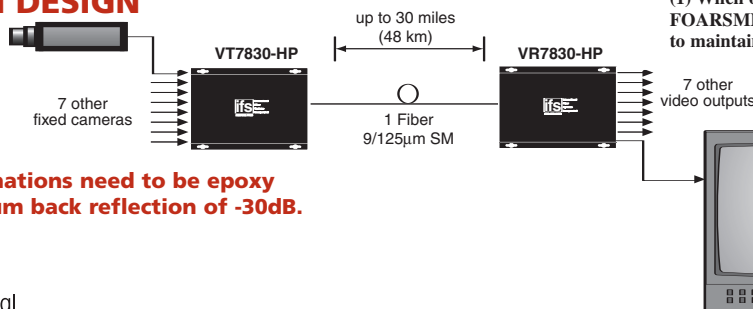
\* Optical transmission distance is limited to optical loss of the fiber and any additional loss introduced by connectors, splices and patch panels.

Multimode transmission distance can also be limited by fiber bandwidth. \*\* For 50/125 Fiber, subtract 4 dB from Optical Power Budget.

\*\*\*VT7850-HP requires a minimum of 3dB loss to operate.

▲This product may be used with 62.5µm graded index multimode fiber having a maximum run length of 2 km and/or a maximum optical loss of 10 dB.

### TYPICAL SYSTEM DESIGN



**NOTE: All optical terminations need to be epoxy polished with a minimum back reflection of -30dB.**

(1) When ordered with the Fiber Optic Auto Reversing Switch FOARSMM (-R3), the optical power will be factory adjusted to maintain a net optical power budget of 10 dB.