



PRODUCT SPECIFICATION

4-CHANNEL DIGITALLY ENCODED VIDEO/ 2 BI-DIRECTIONAL DATA MULTIPLEXER

VT/VR7400-2DRDT SERIES



DESCRIPTION

The IFS VT/VR7400-2DRDT video transmitter/data transceiver and video receiver/data transceiver 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 four independent video channels and two bi-directional data channel over one optical fiber and are ideal for use in unconditioned roadside or out-of-plant installations. Completely transparent to and universally compatible with any NTSC, PAL, or SECAM CCTV camera system, data channels can be set independently for RS-232, RS-422 and 2 or 4-wire RS-485 with tri-state support. 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 available in either stand-alone or rack mount configurations.

APPLICATION EXAMPLES

- High-Performance CCTV with PTZ Control
- High-Performance CCTV with Access Control

FEATURES

- 8-Bit Digitally Encoded Video Transmission Transmits 4 Real-Time Color Video Signals and 2 Bi-Directional Data Signal on One Single-mode Optical Fiber
- Supports RS-232, RS-422, and 2 or 4-wire RS-485 with Tri-State Data Interfaces
- LED Status Indicators Provide Rapid Indication of Critical Operating Parameters
- 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
- 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
- NTCIP Compatible
- 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.
- Robust Design Ensures Extremely High Reliability In Unconditioned Out-of-Plant Environments
- Solid-State Current Limiters on All Power Lines Provide Unconditional Equipment Protection
- A & E Specifications, (CSI)
- AutoCAD Drawings
- Operation Manuals
- Technical Bulletins

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

ORDERING INFORMATION

	PART NUMBER	DESCRIPTION	FIBERS REQUIRED	OPTICAL PWR BUDGET	MAX. DISTANCE*
MULTIMODE 62.5/125µm**	VT7420-2DRDT	4 Channel Video Transmitter/Data Transceiver (1310/1550 nm)	1	7 dB	1.2 miles (2 km)
	VR7420-2DRDT	4 Channel Video Receiver/Data Transceiver (1310/1550 nm)			
SINGLEMODE 9/125µm	VT7430-2DRDT	4 Channel Video Transmitter/Data Transceiver (1310/1550 nm)	1	17 dB	32 miles (51.5 km)
	VR7430-2DRDT	4 Channel Video Receiver/Data Transceiver (1310/1550 nm)			
	VT7430-2DRDT-HP	4 Channel Video Transmitter/Data Transceiver (1310/1550 nm)	1	23 dB	43 miles (69.7 km)
	VR7430-2DRDT-HP	4 Channel Video Receiver/Data Transceiver (1310/1550 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' to Model Number for SC Optical Connector (Singlemode equipment only) Add '-HP' to Model Number for 26 dB Singlemode Optical Power Budget Add '-FC' to model number for FC Optical Connector (Singlemode equipment only)				

* Optical transmission distance is limited by optical loss of fiber, bandwidth 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.

♦ All accessories are third party manufactured.

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



TECHNICAL SPECIFICATION

VT/VR7400-2DRDT SERIES

4-CHANNEL DIGITALLY ENCODED VIDEO/ 2 BI-DIRECTIONAL DATA MULTIPLEXER

SPECIFICATIONS

VIDEO

Video Input: 1 volt pk-pk (75 ohms)
 # Input/Output Channels: 4
 Bandwidth (minimum): 10 Hz - 6.5 MHz per channel
 Differential Gain: <2%
 Differential Phase: <0.7°
 Tilt: <1%
 Signal-to-Noise Ratio (SNR): 60 dB @ Maximum Optical Loss Budget

DATA

Data Channel: 2
 Data Format: RS-232, RS-422, 2 wire or
 4 wire RS-485 with Tri-State
 Manchester-Bi-Phase
 DC - 100 kbps (NRZ)
 Data Rate: DC - 100 kbps (NRZ)
 Bit Error Rate: < 1 in 10⁹ @ Maximum Optical Loss Budget
 Operating Mode: Simplex or Full-Duplex

WAVELENGTH 1310/1550 nm, Multimode or Singlemode

OPTICAL EMITTER Laser Diode

NUMBER OF FIBERS 1

LED INDICATORS

VT Transmitter/Data Transceiver Unit:
 • Video Input Sync Presence for Each Video Channel
 • Video Input Overload for Each Video Channel
 • Received Data
 • Transmitted Data
 • Optical Carrier Detect/ Link-Lock
 • Operating Power
 VR Receiver/ Data Transceiver Unit:
 • Video Output Sync Presence for Each Video Channel
 • Video Output Overload for Each Video Channel
 • Received Data
 • Transmitted Data
 • Optical Carrier Detect/ Link-Lock w/Solid State Relay
 • Operating Power

REMOTE SENSING

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

CONNECTORS

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

ELECTRICAL & MECHANICAL

Power: 12 VDC @ 500 mA (stand-alone)
 Number of Rack Slots: 3
 Current Protection: Automatic Resettable Solid-State Current Limiters
 Circuit Board: Meets IPC Standard
 Size (in./cm.) (LxWxH)
 Surface Mount: 7.0 x 4.9 x 2.0 in., 17.8 x 12.5 x 5.1 cm
 Rack Mount: 7.7 x 5.0 x 3.0 in., 19.6 x 12.7 x 7.6 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.

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

AGENCY COMPLIANCE

FCC PART 15 COMPLIANT    
MADE IN THE USA
 Federal Supply Schedule
 Contract No. GS-07F-0049M

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

OPTICAL POWER BUDGET

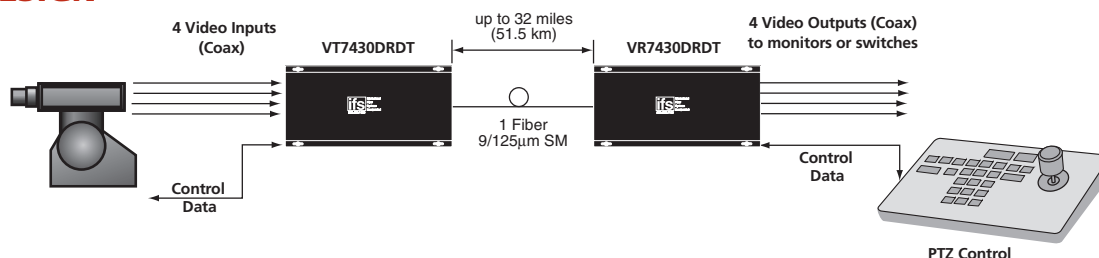
FIBER	WAVELENGTH	TRANSMITTER	RECEIVER	OPTICAL PWR BUDGET	MAX. DISTANCE*
		MODEL	MODEL		
Multimode 62.5/125µm**	1310/1550 nm	VT7420-2DRDT	VR7420-2DRDT	7 dB	1.2 miles (2 km)▲
Singlemode 9/125µm		VT7430-2DRDT	VR7430-2DRDT	17 dB	32 miles (51.5 km)
		VT7430-2DRDT-HP	VR7430-2DRDT-HP	23 dB	43 miles (69.7 km)

* 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 62.5µ graded index multimode fiber having a maximum run length of 2 km and/or a maximum optical loss of 10 dB.

SYSTEM DESIGN



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Due to our continued effort to advance technology, product specifications are subject to change without notice.

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