

9900V Series Product Specification



Description: Digital Video Multiplexers, 2-to-20 Channels, Single-Mode, with Optional Return Data

Features

- ✓ 2 to 20 Channels of Video
- ✓ One or two Single-Mode Fibers Optional
- ✓ Optical Budget: >10 dB (up to 25 km)
- ✓ Digital Multiplexing Technology
- ✓ Color or Monochrome
- ✓ Fully Automatic Gain Control
- ✓ Diagnostic Indicators
- ✓ NTSC, PAL, or SECAM Video Formats
- ✓ Optional Return Data (RS232, RS422, Manchester, or Biphase)

Description

Fiber Options' 9900V Video Multiplexer systems represent a technological breakthrough in the simultaneous transmission of multiple full-frame, real-time video signals (color or monochrome) over one or two single-mode optical fibers.

The 9900V Series multiplexers feature a > 5.5 MHz per channel bandwidth, automatic gain control (AGC), and an optical Level/Loss™ LED indicator. The system accepts analogue baseband input signals and converts them to digital format for transmission, assuring high-quality video output at the receiver. These systems are compatible with NTSC, PAL, or SECAM video formats and are compliant with various international EMC and laser safety standards as noted in the specification data on the following pages.

RS232, RS422, Manchester, and Biphase data formats are supported in 9900VD series units.

Basic Model Descriptions

9900V Single-fiber link transmits from 2 to 20 channels via laser signal at 1310 nm or at 1310 and 1550 nm, one way over one single-mode fiber.

9900VD One- or two-fiber link transmits from 2 to 10 video channels via laser signal at 1310 and/or 1550 nm, with one channel of return data over single-mode fiber.

9900VL One or two-fiber link transmits from 2 to 10 channels via laser signal at 1550 nm, one way over single-mode fiber.

For a complete list of available models, please see the table on the last page of this specification.

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TECHNICAL INFORMATION



CONTRACTORS' SPECIFICATION

Single-Mode Fiber Optic Video Multiplexer

The fiber optic video multiplexer shall have from 2 to 20 video inputs and shall be available in model variations with a return data channel. It shall be designed to transmit over single-mode optical fiber. It shall have an optical budget of >10 dB and shall transmit at 1310 and/or 1550 nm. Transmitter launch power shall be 200 μW and receiver sensitivity shall be 15 μW. Dynamic range of the receiver shall be >10 dB.

The video input shall be analog composite video, 1.0 V p-p nominal, with a minimum input of 200 mV (sync) and a maximum of 1.1 V p-p. Video modulation type shall be digital time division multiplexing. Video bandwidth shall be > 5.5 MHz per channel, and the resolution shall be no less than 440 TV lines. Differential phase shall be less than 2.5°, differential

gain shall be less than 3%, and tilt shall be less than 2%. Models with a return data path shall accommodate RS232, RS422, Manchester, and Biphase data formats without adjustment.

The dimensions of the transmitter and receiver shall not exceed 1.75 X 19.0 X 11.5 in. or 4.5 X 48.3 X 29.2 cm (H X W X D). The housing shall be constructed of aluminum. Input power shall be 12 VDC, supplied by an external power supply that accepts input power of 100 to 240 VAC, 50 to 60 Hz. The external supply shall have a grounded three-wire cable for AC connection. The external power supply shall meet applicable safety requirements of the following standards agencies: UL, CSA, VDE, CE, and BABT.

The video multiplexer shall be from Fiber Options 9900V model series.

ELECTRICAL

Input to 9900V:

Input Voltage: 12 VDC nominal;
(10 VDC min, 30 VDC max)

Current Requirement: 1 A @ 12 VDC

Power Consumption: 12 W DC

Heat Equivalent: 0.7 Btu/min. (0.17 cal/min.)

Input to 648P Power Supply:

Input Voltage: 100 to 240 VAC, 50 to 60 Hz

Power Consumption: AC: 80 W (0.8 A @ 100 VAC /
0.4 A @ 240 VAC)

VIDEO SIGNAL

Number of Video Channels: 2 to 20 channels

Standards Supported: Monochrome: EIA and CCIR.
Color: NTSC, PAL, SECAM.

Video Input Signal: 1.0 V p-p nominal composite video.
Min.: 200 mV sync
Max.: 1.2 V p-p

Input Impedance: 75 Ω

Video Output Signal: 1.0 V p-p composite video, unity gain

Output Impedance: 75 Ω

Signal-to-Noise Ratio: 55 dB @ maximum optical attenuation

Video Bandwidth: > 5.5 MHz per channel

Video Resolution: > 440 TV lines

Differential Phase: < 2.5°

Differential Gain: < 3%

Tilt: < 2%

VIDEO INTERCONNECTION

Recommended Maximum Distance
Video Equip. to Tx: ≤ 100 ft (30 m)

Rx to Video Equip.: ≤ 100 ft (30 m)

Recommended Cable Type: Belden No. 9259

DATA SIGNAL (9900VD series only)

Data Formats: RS232, RS422, Manchester, and Biphase

Number of Data Channels: 1 channel

Data Direction: Rx ►►► Tx

Baud Rate: 100 Kbps

Bit Error Rate: < 10⁻⁹

DATA INTERCONNECTION (9900VD series only)

Recommended Maximum Distance
Data Equip. to Tx: ≤ 50 ft (15 m)

Rx to Data Equip.: ≤ 50 ft (15 m)

OPTICAL

Wavelength: 1310 nm and/or 1550 nm

Optical Mode: Single-mode

Optical Budget: > 10 dB

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Operating Distance: *Operating distance is approximate, and will be affected by the type and number of splices in the fiber and by the exact type of fiber used.*
82,000 ft (25 km)

Emitter Type: Laser

Fiber Type: 8.3 μ

Modulation Type: Digital Time Division Multiplexing

Gain Control: Fully automatic (AGC).

Transmitter Launch Power: 200 μ W

Receiver Sensitivity: 15 μ W

Receiver Dynamic Range: 10 dB

AGENCY COMPLIANCE

All 9900V Series models:

Emissions: FCC Part 15; ICES-003 (Canada); AS/NZS 3548 (Australia/NZ); EN55022

Safety: Product is Safety Extra-Low Voltage (SELV) DC powered.

Immunity: EN61000-4-2 ESD; EN61000-4-3; EN61000-4-4; EN61000-4-5; EN61000-4-6; EN61000-4-11; ENV50204

Laser Safety: 21CFR 1040; EN 60825-1 & -2

Model 648P Power Supply:

Emissions: CE
Safety: UL, CSA, VDE, CE, BABT

TRANSMITTER INDICATORS

Power: Indicates presence of AC power.
Laser TX: Indicates Laser functioning.
Level/Loss: Indicates optical signal strength.
Data RX: Indicates data reception - only active in 9900VD, -VDL models.
Video Status: Indicates camera input signal.

RECEIVER INDICATORS

Power: Indicates Presence of AC power.
Level/Loss: Indicates optical signal strength.
Link Ready: Indicates communication with transmitter.
Data TX: Indicates data transmission - only active in 9900VD, -VDL models.

CONNECTORS

Signal Input: Optical: FC/PC
Video: BNC

Signal Output: Optical: FC/PC
Video: BNC

Power Input: 3-pin detachable screw terminal

Data In/Out: RJ-45 with provided adapter

MECHANICAL

9900V, 9900VD, 9900VL, and 9900VDL models:

Dimensions: Height: 1.72 in. (4.4 cm)
Width: 19.0 in. (48.3 cm) In rack-mount or wall-mount configurations.
17.25 in (43.8 cm) in desk-top mounting configuration
Depth: 11.7 in. (29.7 cm)

Weight: transmitter: 5.47 lb (2.49 kg)
receiver: 5.16 lb (2.35 kg)

Construction: Aluminum

Finish: Black semigloss paint

Mounting Method: 19 inch rack-mount, wall-mount, or desktop mount

9912V-9920V models:

Dimensions: Height: 3.44 in. (8.8 cm)
Width: 19.0 in. (48.3 cm) In rack-mount or wall-mount configurations.
17.25 in (43.8 cm) in desk-top mounting configuration
Depth: 11.7 in. (29.7 cm)

Weight: transmitter: 10.94 lb (4.97 kg)
receiver: 10.32 lb (4.69 kg)

Construction: Aluminum

Finish: Black semigloss paint

Mounting Method: 19 inch rack-mount, wall-mount, or desktop mount

ENVIRONMENTAL

Operating Temperature Range: 32° to 122°F (0° to 50°C)

Storage Temperature Range: -40° to 185°F (-40° to 85°C)

Operating Humidity Range: 0% to 95% noncondensing.

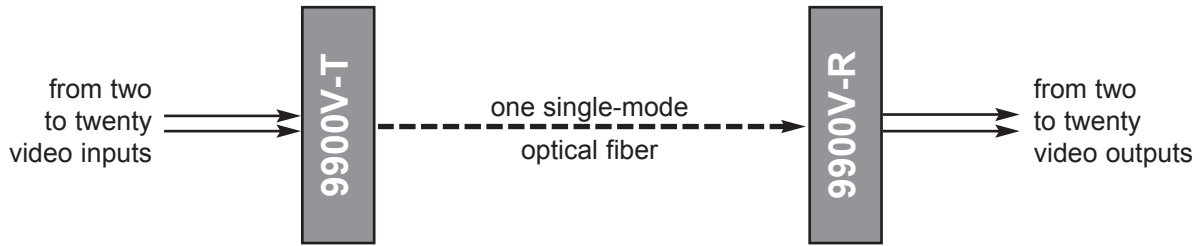
Storage Humidity Range: 0% to 95% noncondensing.

ACCESSORIES

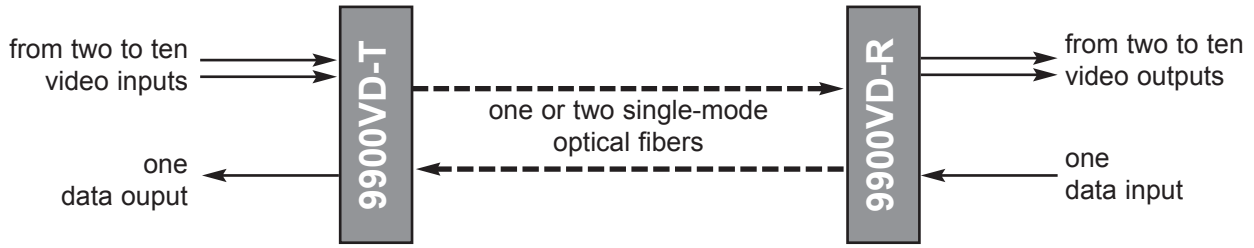
Power Supply: Model 648P (included)

SERIES 9900V TECHNICAL INFORMATION

SYSTEM DIAGRAM - 9900V & 9900VL MODELS



SYSTEM DIAGRAM - 9900VD & 9900VDL MODELS



9900V Series - All available models.

Transmitters	1 Fiber 1310 nm	1 Fiber 1550 nm	1 Fiber / Data 1310/1550 nm	2 Fiber / Data 1310 nm	2 Fiber / Data 1550 nm	1 Fiber 1310/1550 nm
2 Channels	9902V1-T-R	9902V1L-T-R	9902VD1-T-R	9902VD2-T-R	9902VD2L-T-R	12 Channels
4 Channels	9904V1-T-R	9904V1L-T-R	9904VD1-T-R	9904VD2-T-R	9904VD2L-T-R	14 Channels
6 Channels	9906V1-T-R	9906V1L-T-R	9906VD1-T-R	9906VD2-T-R	9906VD2L-T-R	16 Channels
8 Channels	9908V1-T-R	9908V1L-T-R	9908VD1-T-R	9908VD2-T-R	9908VD2L-T-R	18 Channels
10 Channels	9910V1-T-R	9910V1L-T-R	9910VD1-T-R	9910VD2-T-R	9910VD2L-T-R	20 Channels

Receivers	1 Fiber 1310 nm	1 Fiber 1550 nm	1 Fiber / Data 1310/1550 nm	2 Fiber / Data 1310 nm	2 Fiber / Data 1550 nm	1 Fiber 1310/1550 nm
2 Channels	9902V1-R-R	9902V1L-R-R	9902VD1-R-R	9902VD2-R-R	9902VD2L-R-R	12 Channels
4 Channels	9904V1-R-R	9904V1L-R-R	9904VD1-R-R	9904VD2-R-R	9904VD2L-R-R	14 Channels
6 Channels	9906V1-R-R	9906V1L-R-R	9906VD1-R-R	9906VD2-R-R	9906VD2L-R-R	16 Channels
8 Channels	9908V1-R-R	9908V1L-R-R	9908VD1-R-R	9908VD2-R-R	9908VD2L-R-R	18 Channels
10 Channels	9910V1-R-R	9910V1L-R-R	9910VD1-R-R	9910VD2-R-R	9910VD2L-R-R	20 Channels

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