

# FTV10D1A2/FRV10D1A2 Transmitter and Receiver

## SINGLE-CHANNEL BIDIRECTIONAL VIDEO WITH BIDIRECTIONAL DATA, AUDIO, AND CONTACT CLOSURE

### Product Features

- 10-Bit Digitally Encoded Bidirectional Video for High-Quality Transmission over a Single Fiber
- 1 Bidirectional Data Channel Supports RS-232, RS-422, and RS-485 (2-wire/4-wire), Manchester, and Bi-Phase Communication
- 2 Bidirectional 24-Bit (96 kHz) Digitally Encoded Audio Channels with 600-Ohm Balanced Line-Level Audio (up to +6 dBm) and 20 to 18 kHz Audio Bandwidth
- 1 Bidirectional Contact Closure
- Multimode Fiber Support for Distances up to 4 km (2.5 mi)
- Single-Mode Support for Distances up to 48 km (29.8 mi)
- Exceeds All Requirements for the EIA RS-250C Short-Haul Transmission Specification
- Laser Diode for Transmission of Optical Signals
- Compatible NTSC, PAL, and SECAM Video Standards
- Designed to Meet NEMA TS 1/TS 2 and Caltrans Traffic Signal Control Equipment Environmental Standards
- Voltage Transient Protection on All Power and Signal Input/Output Lines
- LED Status Indicators for Monitoring All Critical Operating Parameters

The **FTV10D1A2/FRV10D1A2** fiber transmitter and receiver provide simultaneous transmission of one bidirectional video channel, one bidirectional data channel, two bidirectional audio channels, and one bidirectional contact closure over one optical fiber in a two-slot wide design. Units are available in single-mode and multimode versions.

The **FTV10D1A2** transmitter and **FRV10D1A2** receiver provide transmission of two bidirectional 24-bit (96 kHz) audio signals with sample rate digital encoding for superior transmission of balanced line-level audio. Data selection offers a choice of RS-232, RS-422, and RS-485 (2-wire/4-wire), Manchester, and Bi-Phase Communication.



**FTV10D1A2S1FC**

- Hot-Swappable Rack Modules
- Stand-Alone or Rack-Mountable Modular Design

The **FTV10D1A2/FRV10D1A2** plug-and-play design ensures ease of installation by requiring no electrical or optical adjustments. Modular in design, **FTV10D1A2** and **FRV10D1A2** units can be rack-mounted using the EURACK/USRACK chassis, or stand-alone modules can be placed on a desktop or mounted to a wall (wall mount kit not required).

For stand-alone and wall mount installations, external power is required for the **FTV10D1A2/FRV10D1A2** units. The units can be powered with the recommended FEXTPS fiber external power supply.



# TECHNICAL SPECIFICATIONS

## MODEL

Transmitter	Compatible Receiver	Fiber Optical Connector Type	Number of Fibers	Wavelength	Optical Power Budget	Maximum Transmission Distance*
<b>Multimode (62.5/125 µm)</b>						
FTV10D1A2M1ST	FRV10D1A2M1ST	ST	1	1310/1550 nm	16 dB	4 km (2.5 mi)
<b>Single Mode (9/125 µm)</b>						
FTV10D1A2S1ST	FRV10D1A2S1ST	ST	1	1310/1550 nm	16 dB	48 km (29.8 mi)
FTV10D1A2S1FC	FRV10D1A2S1FC	FC	1	1310/1550 nm	16 dB	48 km (29.8 mi)
<b>Note:</b> This product requires a fiber installation with a minimum 30 dB connector return loss.						
*Distance may be limited by optical dispersion.						

## VIDEO/ELECTRICAL

Number of Channels	1
Video Input (FTV10D1A2/)	
Video Output (FRV10D1A2)	1.0 Vp-p, 75 ohms; NTSC, PAL, SECAM
Overload	>1.5 Vp-p
Bandwidth	10 Hz to 6.5 MHz per channel
Differential Gain	<2%
Differential Phase	<0.7°
Tilt	<1%
Signal-to-Noise Ratio	67 dB typical
Max. Coaxial Cable (RG59)	100 m (300 ft) camera to fiber optic module maintains 6 Mhz bandwidth
Power	
Surface Mount	8 to 15 VDC at 4 W
Rack Mount	Provided by rack
MTBF	>100,000 hours
LED Indicators	Link, Video, Data, Audio, Contact Closure, Power

## DATA

Number of Channels	1
Data Communication	RS-232, RS-422, and RS-485 (2-wire/4-wire), Manchester, and Bi-Phase
Maximum Baud Rate	250 Kbps
Operating Mode	Simplex or full-duplex
Bit Error Rate	<10 <sup>-9</sup> at maximum optical loss budget

## AUDIO

Audio Channels	2 (balanced)
Audio Input/Output Signal	Maximum 4.4 Vp-p (+6 dBm)
Bandwidth	20 Hz to 18 kHz
Total Harmonic Distortion	0.02%
Signal-to-Noise Ratio (SNR)	85 dB (typical)

## CONTACT CLOSURE

Number of Channels	1
Contact Interface	0.5 ms response time
Input	Dry
Output	SPST relay, 0.15 A contact rating, normally open

## MECHANICAL

Connectors	
Optical	ST or FC
Power	Terminal block
Video	BNC
Data	Terminal block
Audio	Terminal block
Alarm	Terminal block
Contact	Terminal block
Number of Rack Slots	2

## GENERAL

Dimensions	15.5 × 13.5 × 5.6 cm (6.1" D × 5.3" W × 2.2" H)
Operating Temperature	-40° to 75°C (-40° to 167°F)
Storage Temperature	-40° to 85°C (-40° to 185°F)
Relative Humidity	0 to 95%, noncondensing
Unit Weight	0.5 kg (1.5 lb)
Shipping Weight	0.9 kg (2.0 lb)

## CERTIFICATIONS/RATINGS<sup>†</sup>

- CE, Class A
- FCC, Class A
- UL/cUL Listed
- C-Tick
- Designed to meet NEMA TS 1/TS 2 and Caltrans traffic signal control equipment environmental standards

<sup>†</sup>At the time of this printing, all certifications are pending. Please consult the factory, our Web site ([www.pelco.com](http://www.pelco.com)), or the most recent B.O.S.S.<sup>®</sup> update for the current status of certifications.

## RECOMMENDED ACCESSORIES

EURACK	4 RU rack accessory with European power supply
USRACK	4 RU rack accessory with North American power supply
FEXTPS	Fiber External Power Supply with multiple plug adaptors (North American, Australian, United Kingdom, and European); 100 to 240 VAC, 50 to 60 Hz input, 9 VDC output

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