

# CCTV<sup>Lin</sup>x<sup>®</sup>

## FM Video Fiber Optic Links: MM/SM

### Model 2768

The Force, Incorporated **CCTV<sup>Lin</sup>x<sup>®</sup>** Model 2768 FM Video Fiber Optic Links provide a high-quality system for transferring baseband video signals with complete EMI immunity via fiber optics. This universal FM video fiber optic link offers near studio-quality performance in low-to-moderate optical loss applications. Available for use with either single-mode or multimode fiber, the link uses a state-of-the-art FM modulator/demodulator operating at a center frequency of 60 MHz to achieve this performance. While optimum performance is achieved with an RS-250C video input, the output level tracks the input level over the full optical loss range. Exceptional baseband bandwidth to beyond 15 MHz is typical, making the links usable for monochrome, NTSC color, PAL and HDTV applications.



State-of-the-art 850 nm, 1310 nm, or 1550 nm electro-optics are incorporated to achieve the performance levels cited. Used with a good quality optical fiber (0.5 dB/km @ 1310 nm & 1000 MHz•km), the multimode version will function over more than 15 km of fiber, and the single-mode version will function over more than 90 km! Each unit is built in a rugged enclosure that offers excellent EMI/RFI shielding. Power for the stand-alone units is from +12 to +15 Volts DC. When used with the Force, Inc. Models 2795, or 2895 diplexers, the Model 2768 makes exceptional V/A/A links.

The Model 2768 meets the requirements of NEMA TS1/TS2, including vibration per Para. 2.1.9, shock per Para. 2.1.10, power interruption per Para. 2.1.4 - 2.1.4.1, temperature and humidity per Para. 2.1.5 - 2.1.5.2, and transients, power service per Para. 2.1.6 - 2.1.8. (Independent test data available upon request.)

### Features

- Direct NTSC, PAL, RS-170 and RS-343 Compatibility
- Signal-to-Noise Ratio to 64 dB
- Minimum Guaranteed Bandwidth = 15 MHz!
- 0-15 dB Optical Loss Range with MM Fiber Using 1310 nm Optics
- 0-29 dB Optical Loss Range with SM Fiber Using 1310 nm or 1500 nm Optional High Power Optics
- ST™ Optical Connector Standard
- High MTBF, Wide Environmental Conditions
- Rugged, Shielded Enclosure
- CE Approved
- Link Performance Verified with VM700A
- NEMA TS1/TS2 compliant

### Applications

- Contribution Surveillance Video Link Into a Multichannel Comlux<sup>®</sup> Digital Transport Backbone
- Surveillance/Security Systems
- Smart Highways
- Tunnel Monitoring
- Broadcast/Studio Video Transport
- Wideband Data/Multiplexed Audio
- Teleconferencing, Distance Learning
- Courts/Penal Systems
- Shipboard Applications
- Remote Personnel Access Screening
- Radar Remoting
- Customer to CATV Headend Contribution Links when Used with the 2895 Diplexers

### Specifications

<b>Multimode Link (Tx/Rx): Unless otherwise specified: <math>V_{IN} = +12</math> to <math>+15 V_{DC}</math>; <math>T = -20^{\circ}C</math> to <math>+70^{\circ}C</math>; Video input per RS-250C</b>				
	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Units</b>

<b>850 nm LED Model</b>				
Type I LED (See AN103)	0		14	dB
Optical Loss Range	0		14	dB
Optical Output Power (Tx)	-13.0	-12.0		dBm
Optical Sensitivity (Rx)	-27.0	-30.0		dBm
Optical Saturation (Rx)	+3.0			dBm
SNR (Rcvr Input=-21.5 dBm)		64		dB
<b>1300 nm LED Model</b>				
Type II LED (See AN103)	0		14	dB
Optical Loss Range	0		15	dB
Optical Output Power (Tx)	-16.0	-15.0		dBm
Optical Sensitivity (Rx)	-31.0	-33.0		dBm
Optical Saturation (Rx)	+3.0			dBm
SNR (Rcvr Input=-27 dBm)		64		dB
<b>Single-mode Link (Tx/Rx): Unless otherwise specified: <math>V_{IN} = +12</math> to <math>+15 V_{DC}</math>; <math>T = -20^{\circ}C</math> to <math>+70^{\circ}C</math>; Video Input per RS-250C</b>				
	Min.	Typ.	Max.	Units
<b>1310 nm Laser Diode Model</b>				
Operating Wavelength	1280	1310	1340	nm
Optical Loss Range (Model 2768T-SCXX)	0		24	dB
Optical Loss Range (Model 2768TA-SCXX)	0		29	dB
Optical Output Pwr. (Model 2768T-SCXX)	-7.0	-6.0	-5.0	dBm
Optical Output Pwr. (Model 2768TA-SCXX)	-2.0	-1.0	0.0	dBm
Optical Sensitivity (Rx)	-31.0			dBm
Optical Saturation (Rx)	+3.0			dBm
SNR (Rcvr Input=-24 dBm)		62		dB
<b>1550 nm Laser Diode Model</b>				
Operating Wavelength	1520	1550	1580	nm
Spectral Width			4	nm
Optical Loss Range (Model 2768T-SDXX)	0		24	dB
Optical Loss Range (Model 2768TA-SDXX)	0		29	dB
Optical Output Pwr. (Model 2768T-SDXX)	-7.0	-6.0	-5.0	dBm
Optical Output Pwr. (Model 2768TA-SDXX)	-2.0	-1.0	0.0	dBm
Optical Sensitivity (Rx)	-31.0			dBm

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Optical Saturation (Rx)	+3.0			dBm
SNR (Rcvr Input=-24 dBm)		62		dB
<b>All Models (MM and SM)</b>				
Video Bandwidth	15			MHz
Video Low Frequency Response		2	12	Hz
Power Supply Voltage	+12		+15	V <sub>DC</sub>
Power Supply Current (Tx)		200	250	mA
Power Supply Current (Rx)		135	165	mA
Required Fiber Bandwidth	100			MHz
FM Carrier Frequency	56	60	66	MHz
Input/Output Impedance		75		Ohms
Differential Gain Error		1.7	5.0	%
Differential Phase Error		1.3	3.0	°
Input Signal Range	0.9	1.0	1.1	V <sub>sync-white</sub>
Video Channel Gain	0.9	1.0	1.1	V/V
Physical Dimensions (MM Tx/MM or SM Rx)	3.75 x 2.95 x 1.12			in.
	95.3 x 74.9 x 28.5			mm
Physical Dimensions (SM Tx)	5.75 x 2.95 x 1.12			in.
	146.1 x 74.9 x 28.5			mm

*Available through* **Multicom, Inc.**