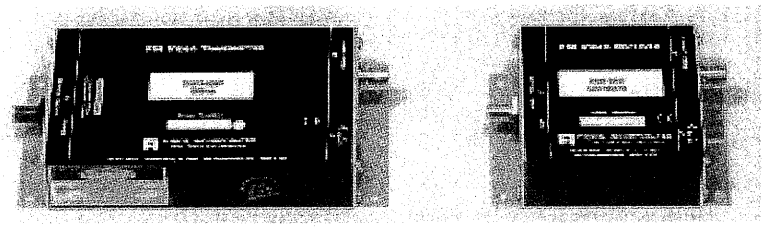
TECHNICAL BULLETIN

TB 143N

CCTVLinx™ FM VIDEO FIBER OPTIC LINKS: MULTIMODE/SINGLE-MODE

MODEL 2768



The Force, Incorporated CCTV*Linx*™ Model 2768 FM Video Fiber Optic Link provides 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 usés a state-of-the-art FM modulator/demodulator operating at a center frequency of 60 MHz to achieve this performance. Because of the FM technique employed, no user adjustments are required over the full optical loss range. 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 13.5 Volts DC nominal (+12 to +15 Volts is the normal operating range).

The Model 2768 is a superior replacement for former Force, Inc. Models 2200, 2210, 2280, 2290, 2582, and 2612 FM Video Fiber Optic products.

The Model 2768 can be used with a variety of Force, Inc. diplexers, such as the Models 2895, 2795, and 2916 for transmission of multiplexed audio, video, and data signals.

FEATURES

- Direct NTSC, PAL, RS-170 and RS-343 Compatibility
- Signal-to-noise Ratio to 64 dB
- Minimum Bandwidth = 15 MHz!
- SM or MM Versions Available
- 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, FC and SC Options Available
- High MTBF, Wide Environmental Conditions
- Rugged, Shielded Enclosure
- CE Approved
- Link Performance Verified with VM700A

APPLICATIONS

- Contribution Surveillance Video Link into a Multichannel Comlux® Digital Transport Backbone
- Wideband Data/Multiplexed Audio
- Surveillance/Security Systems
- Tunnel Monitoring
- Shipboard Applications
- Remote Personnel Access Screening
- Radar Remoting
- Broadcast/Studio Video Transport

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OPTICAL AND ELECTRICAL SPECIFICATIONS

Unless otherwise stated: @T=-20°C to +70°C, V_{IN}=+12 to +15 V_{DC}; Video input per RS-250C					
MULTIMODE 850 nm MODELS	**Min.**	**Typ. (@ 25°C)**	**Max.**	**Units**	**Notes**
Type I LED					1
Optical Loss Range	0		14	dB	
Optical Output Power (Tx)	-13.0	-12.0		dBm	2, 3, 4
Optical Sensitivity (Rx)	-27.0	-30.0		dBm	2, 5
Optical Saturation (Rx)	+3.0			dBm	2
SNR (Rcvr Input=-21.5 dBm)		64		dB	6
SNR (Rcvr Input=-25.5 dBm)		58		dB	6
SNR (Rcvr Input=-27.0 dBm)	47	53		dB	6
MULTIMODE 1310 nm MODELS					
Optical Loss Range	0		15	dB	
Type II LED					1
Optical Output Power (Tx)	-16.0	-15.0		dBm	2, 3, 4
Optical Sensitivity (Rx)	-31.0	-33.0		dBm	2, 5
Optical Saturation (Rx)	+3.0			dBm	2
SNR (Rcvr Input=-27 dBm)		64		dB	6
SNR (Rcvr Input=-30 dBm)		58		dB	6
SNR (Rcvr Input=-31 dBm)	47	53		dB	6
Unless otherwise stated: @ T=0°C to +50°C; V_{IN}=+12 to +15 V_{DC}; Video input per RS-250C					
SINGLE-MODE 1310 nm MODEL	**Min.**	**Typ. (@ 25°C)**	**Max.**	**Units**	**Notes**
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	2, 3, 7
Optical Output Pwr. (Model 2768TA-SCXX)	-2.0	-1.0	0.0	dBm	2, 3, 7
Optical Sensitivity (Rx)	-31.0			dBm	2
Optical Saturation (Rx)	+3.0			dBm	2
SNR (Rcvr Input=-24 dBm)		62		dB	6
SNR (Rcvr Input=-28 dBm)		58		dB	6
SNR (Rcvr Input=-31 dBm)	47	51		dB	6
SINGLE-MODE 1550 nm MODEL					
Spectral Width (RMS)			4	nm	
Operating Wavelength	1520	1550	1580	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	2, 3, 7
Optical Output Pwr. (Model 2768TA-SDXX)	-2.0	-1.0	0.0	dBm	2, 3, 7
Optical Sensitivity (Rx)	-31.0			dBm	2
Optical Saturation (Rx)	+3.0			dBm	2
SNR (Rcvr Input=-24 dBm)		62		dB	6
SNR (Rcvr Input=-28 dBm)		58		dB	6
SNR (Rcvr Input=-31 dBm)	47	51		dB	6
ALL MODELS (MM AND SM)					
Video Bandwidth	15			MHz	
Video Low Frequency Response		2	12	Hz	
Power Supply Voltage	+12		+15	V_{DC}	8
Power Supply Current (Tx)		200	250	mA	
Power Supply Current (Rx)		135	165	mA	
Required Fiber Bandwidth	100			MHz	9
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	$V_{sync\text{-}white}$	10
Video Channel Gain	0.9	1.0	1.1	V/V	11
Tx Mean Time Between Failure (MTBF)	0.85 Million Hrs, 89 Yrs				12
Rx Mean Time Between Failure (MTBF)	0.35 Million Hrs, 40 Yrs				12