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Digital/Analog Laser Transmitter



Provides a high speed general purpose laboratory optical transmitter source, capable of operation from DC to beyond 1GHz.

- **LOW COST**
- High Speed > 1 GHz
- Five wavelength options (780 nm to 1550 nm)
- Universal optical connector with all popular connector adapters
- Analog or digital modulation inputs
- Insensitive to digital input pulse pattern
- Stabilized optical output levels to 1.0 mW
- Adjustable digital input threshold
- Adjustable laser bias point (extinction ratio)
- AC line powered
- CSA Certified and CE Mark

General Description

The Model 400A Laser Transmitter is an economical high speed optical signal source designed for general laboratory use. It accepts analog or digital signals to beyond 1 GHz and generates a fiber-coupled optical output for testing photodetectors, receivers, or any component requiring a stable, flexible optical source. The Model 400A is also usable as either an analog or digital transmitter source in fiber optic link driver applications.

In the digital mode, the unit accepts any input pulse pattern from DC to isolated sub-nanosecond pulses, and in continuous or burst-mode format. The digital input logic threshold is front-panel adjustable to enable optical output pulse width optimization. The laser bias point is rear-panel adjustable for extinction ratio and waveform control over a limited range.

In the analog mode, the laser output is set at a 50% bias level, and the input analog signal is routed directly to the laser through a termination and surge protection circuit. The optical modulation index is settable by input level from 0% to 90%, minimum. This operating mode is highly useful for testing the linear bandwidth of detectors and detector-receiver combinations to beyond 1 GHz.

A universal optical connector interface on the front panel permits the optical connector to be user-changeable. Simple screw-on connector adapters for all industry-standard connector types are available. This connector also allows easy optical cleaning without removing the instrument cover. When the instrument is not in use, the permanently attached dust cap simply snaps in place over any adapter.

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Model 400A Laser Transmitter Specifications

Digital Input - Electrical					
Bit Rate	0 to 1.0 Gb/s (minimum)				Typically 1.3 Gb/s or higher
Pulse Pattern	No constraint				All zeroes, all ones, or any combination
Logic Levels	Any standard ECL level				10K, 10KH, 100K, Si or GaAs ASIC
Logic Threshold	-1.3, ±.2V (adjustable)				Single-ended input; 50 ohms to -2V termination
Digital Output - Optical (25°C)					
Pulse Rise/Fall Times	0.5 nsec (maximum)				10-90%; typical 0.3 nsec
Maximum Pulse Width	No Limit				DC Coupled
Minimum Pulse Width	0.75 nsec (maximum)				FWHM, typical 0.5 nsec
Extinction Ratio	10:1 (minimum)				Rear panel adjustable (UNCAL mode)
Polarity	Non-inverting				
-XX Options	**01-06**	**11-16**	**21-26**	**31-36**	
Pulse Overshoot	30%	30%	30%	30%	Maximum (1 GHz measurement bandwidth)
Peak Coupled Power Fiber size	1.0 mW (50/125 µm)	1.0 mW (50/125 µm)	1.0 mW (9/125 µm)	1.0 mW (9/125 µm)	Minimum. Other wavelengths 780 nm to 1550nm and higher available. Consult BCP.
Wavelength	780 nm (±15 nm)	850 nm (±20nm)	1310 nm (±20nm)	1550nm (±20 nm)	Typical. Contact factory for specials and selected wavelengths.
Spectral Width	2 nm	1 nm	6 nm	6nm	FWHM, typ.
Analog Input - Electrical					
Frequency (MHz)	0.1-500	0.1-700	0.1-1000	0.1-1000	Minimum
Input Level: Typical Maximum	1.0 vpp 2.0 vpp	1.0 vpp 2.0 vpp	1.0 vpp 2.0 vpp	1.0 vpp 2.0 vpp	For 0.8 peak mod. index. For safe input level.
Input Impedance	50 ohms, AC coupled				
Analog Output - Optical (25°C)					
Average Optical Power (fiber)	0.5 mW	0.5 mW	0.5 mW	0.5 mW	Minimum
Frequency Response (MHz)	0.1-1000	0.1-1000	0.1-1000	0.1-1000	Minimum, -3 dB
Polarity	Non-inverting	Non-inverting	Inverting	Inverting	
Wavelength and Spectral Width	Same as digital options, above.				
General Specifications					
AC Power Requirements	100-240 VAC, 50-60 Hz; keyswitch AC power control				
Electrical Input Connectors	BNC Female, "N" Female, SMA Female				
Temperature Range	0°C to 50°C, operating; -30°C to 70°C, storage				
Dimensions and Weight	10.13in W, 10.39in D, 4.54in H (25.7cm x 26.4cm x 11.5cm); 6.0 pounds (2.7 kg) (23.5cm W, 26.7cm D, 7.0cm H); 3.8 pounds (1.7 kg)				

Ordering Information

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Model 400A-XXXX

Wavelength
3 = InGaAs APD
4 = Special

Chassis Option
T = Table Top
R = Rack Mount

Optical Connector Adaptor Option
1 = SMA 905/908
2 = ST/PC
3 = FC/PC
4 = Biconic
5 = SC
6 = DIN 46256
7 = D4 (2mm)
8 = DIAMOND HMS-0 (3.5 mm)
9 = DIAMOND HMS-10 (2.5mm)
A = DIAMOND HMS-10/A
X = Special (Contact BCP)

Electrical Conn. Option
S = SMA
N = "N" Female
B = BNC Female

LR102161 NRTL/C

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