Programmable Optical Delay Generator -- TimeRITE™

ODG-101

Generating programmable time delay from nanoseconds to milliseconds is important for various applications ranging from wireless communications to radar, optical communications, and measurement systems. General Photonics' TimeRITE™ programmable optical delay generator is the first such product on the market. With a total delay range up to 0.25 ms (75 km) and a delay resolution up to 12 bits, this easy-to-use instrument features low insertion loss (~0.5 dB per bit), low delay dependent loss (DDL<0.2 dB), low polarization dependent loss, and fast delay changing speed (<0.5 ms). When operating in manual mode, different delay values can be selected and stepped up and down with a dialing knob. When in auto mode, the instrument scans through a set of delays with user-defined range, starting and stopping values, step size, and time interval between delay changes. The instrument also features a double-pass mode to double the total delay range by passing the light through the optical path twice. A polarization maintaining option is also available for the double-pass input and output ports. By connecting a fiber optic RF or digital transmitter at the input and a fiber optic RF or digital receiver at the output, programmable delay for RF or digital signals can be readily obtained. At General Photonics, we manage delay to make your timing right.

Making Light Work Lighter
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Preliminary Specifications

Operating Wavelength Range	1260-1650 nm for single-pass ports 1310+/-30 or 1550 +/-30 nm for double-pass ports
Optical delay range	Up to 0.25 ms or 75 km in vacuum for double pass, user selectable at time of purchase
Optical delay resolution	4 to 12 bits, user selectable at time of purchase
Minimum delay	1 ns or 30 cm in vacuum
Optical delay accuracy	+/- 5 meter in vacuum
Delay change speed	0.5 ms max.
Delay switching frequency	1 kHz max.
Insertion loss	0.5 dB per bit for SMF-28 0r 0.7 dB per bit for LEAF, plus 0.2 dB/km for single pass ports. x2 + 1.5 dB for double pass ports
Delay dependent loss	0.2 dB
PDL	0.2 dB
Return loss	60 dB for transmission mode
Extinction ratio	> 18 dB for double-pass ports with PM option
Optical power damage threshold	300 mW
Operating Temperature	0 °C to 40 °C
Storage Temperature	-20 °C to 60 °C
Fiber type (Delay fiber)	Corning SMF-28 or Corning LEAF fiber
Fiber type (Double pass port input/output fiber)	Corning SMF-28 or PM Panda fiber
Power supply	100 – 120 VAC, 50-60 Hz 200 – 240 VAC, 50-60 Hz
Control Interface	USB, RS-232, Ethernet, DB25
Dimensions	19" rack mount, 3U height & 20" depth

Note: Please specify power supply when ordering.

Applications:

- Radar range calibration
- Wireless communication
- Cell site characterization & calibration
- RF link emulation
- Phase noise measurement
- Laser linewidth measurement

Unique Features:

- Compact size
- High resolution
- Large delay range
- Low insertion loss
- Fast delay switching speed
- Low delay dependent loss

Ordering Information:

ODG – 101 – XX – XXX – XX – X – X – XX

- XX: Resolution (# bits): 4-12
- XXX: Delay Range (in µs): 0-250
- XX: Wavelength (double pass port): 13 = 1310 nm, 15 = 1550 nm
- X: Fiber Type (delay fiber): S=SM, L = LEAF
- X: Fiber Type (double pass input/output fiber): SS= SM, PP = PM
- XX: Connector Type: FC/PC, FC/APC