

Optical DPSK Demodulator

Optoplex's **Optical DPSK Demodulator**, also known as **Delay Line Interferometer (DLI)**, converts *phase modulation* to *amplitude modulation* over the entire C+L band in support of data transmission rates of 2.5, 10 or 40 Gb/s. The DPSK Demodulator is designed for phase modulated optical communication systems utilized in commercial, defense and space exploration markets. The DPSK device plays a key role in improving signal quality and performance to meet the expanding demand for higher data rates and more complex transmission formats within current and next generation systems without major capital expenditure. Optoplex's DPSK Demodulator is based on a patented free-space optical design, which is compact, athermal and polarization-independent. The measured frequency drift over temperature is only ~ 0.02 GHz/ $^{\circ}$ C for our standard passive device. Further, this DPSK Demodulator exhibits a total polarization-dependent phase shift of less than 2 degrees over the entire operating temperature range with a high extinction ratio. Optoplex's DPSK Demodulators can be configured to be fully tunable, semi-tunable or purely passive. Dual-Rate DPSK Demodulator is also available.

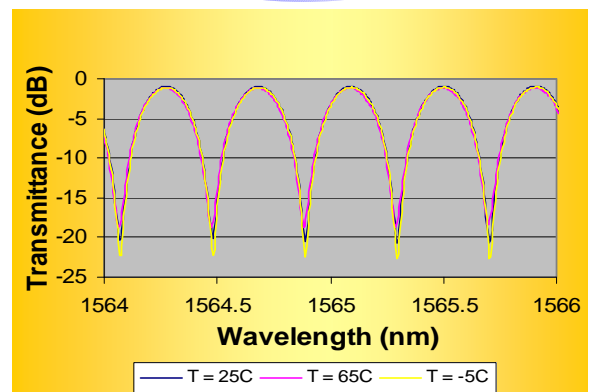


Key Features and Benefits

- Athermal design
- C+L band coverage by a single device
- Low temperature-dependent frequency shift (TDFS)
- Low polarization-dependent frequency shift (PDFS)
- Low insertion loss & PDL
- High power handling
- Passive (colorless & locked to ITU Grid) or tunable (to track laser frequency)
- Telcordia GR-1221 qualified

Applications

- 2.5, 10, 20 or 40 Gb/s commercial DPSK signal reception
- Customized data rate for advanced applications
- Data rate optimization
- Extend transmission distance



DPSK Demodulator Standard Product Datasheet¹

Parameter	Unit	Tunable	Semi-Tunable	Passive
Wavelength Range (C-Band)	nm	1527 ~ 1567		
Wavelength Range (L-Band)	nm	1567 ~ 1607		
Free Spectral Range (FSR) ¹	GHz	10.7, 43, 50, 67	10.0, 12.5, 40, 50 or 66.67	
FSR Error	%	< 1	< 0.015	
Insertion Loss ² (including two connectors)	dB	1.7 Typical; 2.2 Max		
Extinction Ratio ²	dB	> 18 for tunable; > 20 for passive		
PMD ²	ps	< 0.1		
Return Loss	dB	> 40		
PDL ²	dB	< 0.2		
PDFS ²	deg	< 3		
TDFS ²	GHz	NA		< 1.5
Optical Path Delay ² (between the two receiving ports)	ps	<1.0		
Tuning Time Constant ³	sec	< 1.0	~ 6.0	NA
Tuning Range	-	> 1.5 FSR	~ ±3 GHz	NA
Power Consumption	W	0.5 Typical; 1.0 Max		NA
Tuning Voltage	V	0 ~ 5		NA
Maximum Input Optical Power	mW	300		
Operating Temperature	°C	0 ~ 70		
Storage Temperature	°C	-40 ~ 85		
Standard Package Dimensions (L×W×H) ⁴	mm	~39×26×11 for 10 ~ 12.5 GHz; ~26×24×9 for >40 GHz ⁵		~51×30×18 for 10 or 12.5 GHz ~25×25×11 for >40 GHz
Connector Type	-	TBD		
Fiber Pigtail Type	-	SMF-28 with 900 μm loose tube		
Fiber Pigtail Length	m	1.0 ± 0.1		

Notes:

1. Only typical values are listed. Optoplex can provide devices with FSR ranging from 2.5 to 160 GHz.
2. Over the stated spectral and operating temperature ranges and all polarization states.
3. Defined as the time required to reach half-way from the starting and ending points.
4. Excluding two collimator sleeves extending out from the two adjacent sides by 21 mm with diameter of 8 mm.
5. Excluding two collimator sleeves extending out from one shorter side by 17 mm with diameter of 6.3 mm.

Optoplex Corporation, located in Fremont, California, is an ISO9001:2000 certified supplier of cutting-edge photonic components and modules for dynamic wavelength management and signal conditioning. The company designs, develops, manufactures, and markets innovative fiber-optic products to communications networks, and provides customized solutions to instrument, defense, spectroscopy and sensing industries. By combining its proprietary optical design and packaging technology with its state-of-the-art optical coating expertise and facility, Optoplex supplies DPSK demodulators, DQPSK demodulators, 90° optical hybrids, 2-port tunable optical filters, 3-port reconfigurable optical add/drop multiplexers (ROADMs), optical interleavers, flat-top comb filters, optical performance monitors (OPMs), and portable spectrometers.