polyguide™
Fiber-Based Laser Delivery System

Molex's polyguide™ is a precision laser-delivery system for a range of applications. It is designed for high precision stability and repeatability which allows for precise alignment of the fiber with fine beam positioning and tuneability.

The polyguide™ delivery system consists of a single-mode polarization-maintaining (PM) optical fiber and aligner that is attached to the laser. The fiber utilizes an integrated lens assembly that allows the light from a multi-wavelength laser engine, or a single laser, to be coupled directly to the fiber. This method provides transmission efficiencies greater than 65% with collimated or connectorized outputs.

PRODUCT FEATURE HIGHLIGHTS

- Used with multi-wavelength laser light engines or single lasers in the visible spectrum
- Transmission efficiency ≥65%
- Can handle up to 500 mW of laser light for high power needs
- High Quality polarized single-mode output
- Termination options include standard connectors or collimated output for easy integration into existing optical systems
- Improved % transmission utilizing Motheye treated AR Technology

Polyguide is available for sale directly from Phillips Medisize; for current pricing and to place orders, please contact us at polymicrosales@molex.com.

phillipsmedisize.com

Order No. 987652-8631 USA/0k/GF/2025

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PERFORMANCE		UNITS
Operating Wavelength	400 to 645	nm
Maximum Input Power	Standard Power: 100 (≤ 25 at 400 to 460nm) High power: 500 (≤ 200 at 400 to 460nm)	mW
Polarization Extinction Ratio[1]	≥ 20	dB
Minimum Transmission Efficiency	≥65%@405nm, ≥70%@488nm, ≥70%@561nm, ≥65%@640nm	%
Typical Transmission Efficiency	70%@405nm, 80%@488nm, 85%@561nm, 75%@640nm	%
Long-Term Power Throughput[2]	95	%
Fiber Lifetime[3]	2500 hours continuous operation	hrs
OPTICAL FIBER PARAMETERS		
Length	1, 2, and 3	m
Stainless Steel Sheathing OD	4.8	mm
COLLIMATED BEAM OUTPUT		
Beam Diameter	Standard power: 0.7 ± 0.1, High power: 0.6 ± 0.15	mm
M Squared	≤ 1.1	
Output Collimator Dimension	Diameter 12 X 50	mm
Wedge Error[4]	< 10	%
Collinearity	< 0.25	mRad
Asymmetry	1 ± 0.1	
Astigmatism	< 20	%
Pointing Angle (Boresight)	< 0.5	mRad
Divergence	< 1.5	mRad
CONNECTOR OUTPUT		
PM Fiber	APC, FCP8, FCP	
Numerical Aperature[5]	Typ 0.08 to 0.11	NA
ENVIRONMENTAL CONDITIONS		
Shipping temperatures	-20 to 60	°C
Storage	10 to 50	°C
Operating Temperatures	10 to 40	°C
Humidity	Non-condensing	

1 PER measured with four laser sources (405, 488, 561nm, 640nm) with ≥500:1 input polarization within ± 1° azimuth

2 8 Hours ± 3°C

3 ≤5% drop in transmission efficiency, not including changes due to thermomechanical effects

4 Wedge error is defined as the effect on coupling efficiency caused by lens alignment errors when assembly is used with co-linear laser lines

5. May see slight decrease in NA with high power version

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