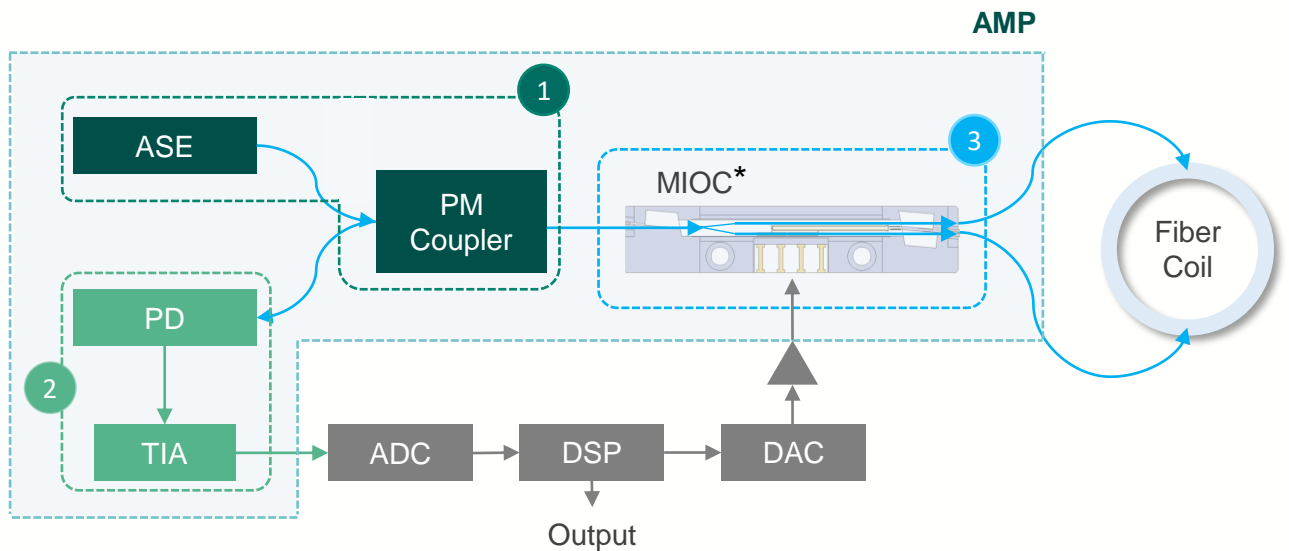
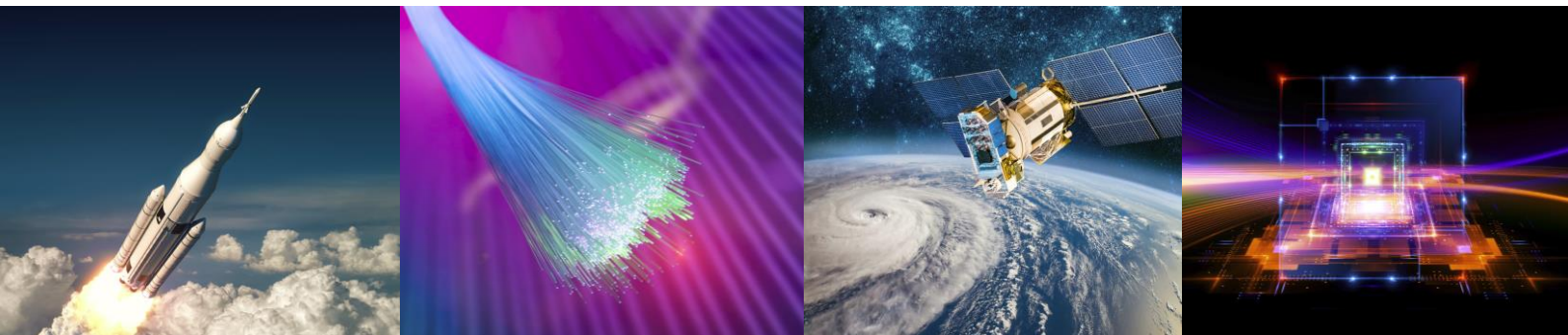




# AMP SOLUTION (ASE + MIOC + PHOTODETECTOR)



\* Please refer to Polaris Photonics' [MIOC for Navigation & Fiber Optic Sensing Brochure](#) for more details.



Polaris Photonics' AMP (ASE + MIOC + Photodetector) series product is a single-axis angular rate sensor with the ability to expand to three axes at a minimum cost, providing exceptional performance within demanding commercial and aerospace applications. Utilizing an advanced LiNbO<sub>3</sub> MIOC modulator chip, it offers superior bias stability and repeatability, packaged in a small, hermetically sealed package with fully self-contained electronics. The AMP is a commercial, off-the-shelf product with no moving parts, ensuring fast start-up, very low noise, and high bandwidth, along with exceptional MTBF performance. The standard AMP product features an ASE broadband light source, and we offer users the choice to also utilize a Super-Luminescent Diode (SLD).

### APPLICATIONS

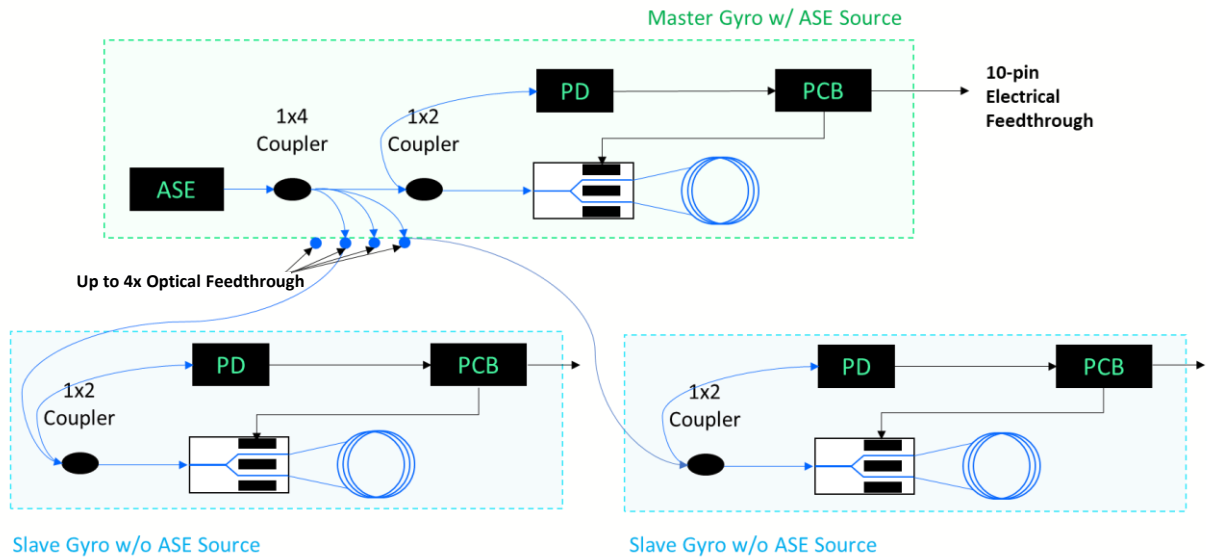
- Bizjet
- Robotic Control
- Underwater Vehicle
- Antenna Stabilization
- Platform Stabilization
- Commercial Transport
- ROV-Remotely Operated Vehicle

### FEATURES/BENEFITS

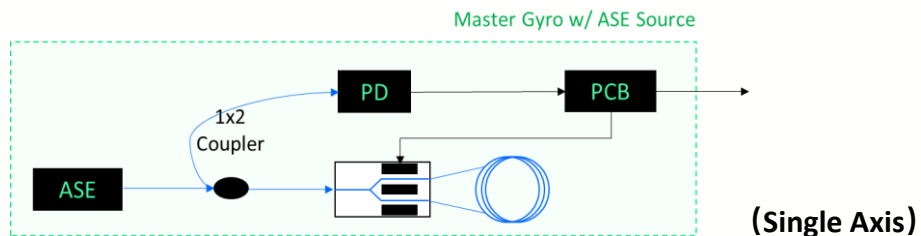
- Low Noise
- Light Weight
- Small Footprint
- Low Power Consumption
- Hermetically Sealed Package
- Superior Bias Stability and Repeatability
- Wide Operating Temperature Limits: -40°C to 80°C

### SHARED ASE SOURCE CONFIGURATION

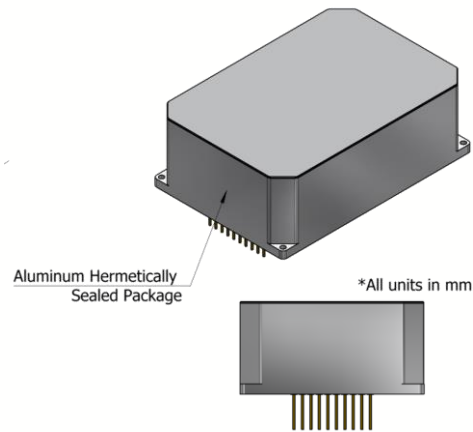
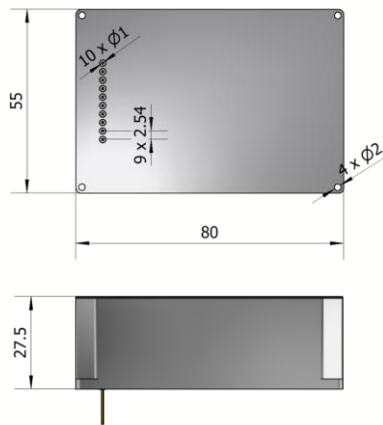
#### 3 Axis Shared-Source Configuration



#### Stand-Alone Configuration



## AMP MECHANICAL DRAWING



\*The pinout diagram is customizable

## SPECIFICATIONS

### ASE Spec.

Polaris Photonics' AMP- $\mu$ ASE series ASE provides a broad wavelength range covering from C to L band and high output power to help you maximize your capabilities for optical component spectral measurements and systems compliance tests.

Wavelength Range	1527 nm to 1565 nm
Output Power	20 mW min.; 30 mW typ. (Per Channel)
Output Power Stability	$\pm 0.5$ dB over 8 hours
Spectral Width	37 nm min.; 40 nm typ.
Spectral Flatness	$\pm 2.0$ dB typ.
Spectral Ripple	2.5% typ.
Center Wavelength Stability	$\pm 0.1$ nm max. over 8 hours
Coherent Length	30 $\mu$ m typ.
Optical Isolation	30 dB min.

### Photodetector Spec.

Photodiode Wavelength Range	900 nm to 1600 nm
Small Signal Conversion Gain	28,000 V/W @ 1550 nm
PD Responsivity	0.85 A/W @ 1300 nm typ., 0.90 A/W @ 1550 nm typ.
Minimum Optical Input	-16 dBm
S21 3 dB Bandwidth	40 MHz typ.
NEP	30 pW/√Hz
Maximum Overload	-11 dBm typ.

### MIOC Spec.

Room Temperature (+15°C to +30°C)	
Operating Wavelength	1530 nm to 1570 nm
Insertion Loss	3.1 dB max.
Splitting Ratio	50 $\pm$ 2%
Half Wave Voltage	4.0 V max.
Pigtail Polarization Crosstalk	-30 dB max.
Chip Polarization Extinction Ratio	$\geq 60$ dB typ. ( $\geq 80$ option avail.)
Residual Amplitude Modulation	0.1% max.
Optical Back Reflection Loss	50 dB min.
Full Temperature Range (-45°C to +75°C)	
Insertion Loss Variation	$\leq 0.3$ dB max.
Splitting Ratio	50 $\pm$ 3%
Pigtail Polarization Crosstalk	-27 dB max.

Fiber Type Options:

- No fiber pigtail
- Corning RCPM15, 80/165  $\mu$ m
- Corning PM15-U25D, 125/250  $\mu$ m

### AMP Spec.

Fiber Optic Gyro Type	Closed-Loop
Bias Repeatability, Uncompensated	20°/hr max.; 1 $\sigma$
Bias Repeatability, w/ Compensation	1°/hr max.; 1 $\sigma$
Noise (Random Walk)	0.1°/√hr max.
Size (HxWxL)	30x60x90 mm <sup>3</sup>
Weight	200 g max.
Operating Temperature	-40°C to +77°C

## Related Products



**ASE-C-20-MSA-3**  
3 Channels ASE Source,  
C-Band MSA Module, 20 mW

- 980 nm Pump
- 20 mW per Channel
- Compact MSA Footprint
- Monitoring and Control via USB
- Minimal Ripple in Emission Spectrum
- Emission Wavelength 1527 nm to 1565 nm



**MTC-8**  
8-Channel Multichannel  
Temperature Chamber

- Customizable Configurations
- Stable Temperature Ramping
- Specialized for Photonic Circuits
- Advanced Temperature Control
- Wide Temperature Range from  $-50^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$



**HPR-IG-060**  
60 MHz High Gain  
Photoreceiver Module

- Single  $\pm 5\text{ V}$  Power Supply
- DC-Coupled Electrical Output
- Conversion Gain of 28,000 V/W
- Useful O/E Bandwidth over 80 MHz
- Optical Input Power Level Indicator LED



**WLI-1550**  
1550 nm White Light  
Interferometer for MIOC, FOGS

- User Friendly GUI
- High X-Talk sensitivity:  $-50\text{ dB}$  max.
- Large Fiber Measurement Range: 400 m min.
- Larger PER Measurement Range: 10 dB min.
- High Spatial Resolution: 2 cm on PM Fiber Test

