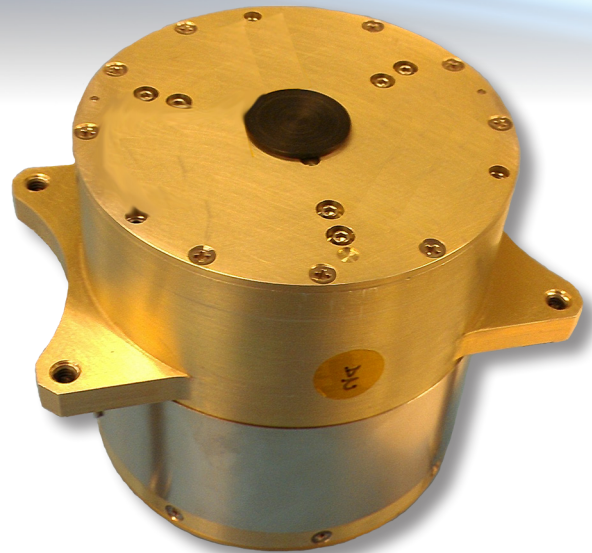


## DESCRIPTION

ATA has designed and built Optical Inertial Reference Units (OIRUs) for over 15 years. These devices are used to reduce jitter and provide pointing accuracy in Directed Energy Weapon (DEW) systems, long range Laser Communications (Laser Comm), and other optical imaging and scanning systems. The OIRU-1000 is delivered on a Firm Fixed Price (FFP) contract with a set delivery schedule and no Non-Recurring Engineering (NRE).



## FEATURES

ATA's OIRUs provide an inertially stabilized collimated optical beam with extremely low residual jitter when subject to typical ground, sea, air, or space vibration environments. ATA's OIRU-1000 was built and delivered to the Navy for incorporation into their Helicopter Beam Director (HBD) development program. This device demonstrated stabilized jitter performance ( $2 \mu\text{rad}$ , 4-200 Hz) in a harsh tactical airborne environment. All ATA OIRUs come with a separate digital controller.

## BENEFITS

ATA OIRUs are competitively priced to reduce program costs. Our OIRUs provide an optical reference beam (laser) for use as a precisely controlled "virtual star" to enable the removal of jitter on the optical line of sight. A stabilized optical line-of-sight system incorporating an ATA OIRU is designed to reject broadband jitter. This reduces system complexity and cost by eliminating the need to mitigate vibration at every source.

Jitter reduction enables DEW systems to place more energy on target, and extend the engagement ranges ensuring a greater probability of mission success. Jitter reduction enables precise pointing and stabilization of the Laser Comm beam to be transmitted to the receive terminal. Jitter reduction also allows the reduction in Size, Weight, Power and Cost (SWaP-C) of the system while maintaining equivalent performance.

### **For more information, please contact:**

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## SPECIFICATIONS

PERFORMANCE	
Jitter (4-200 Hz)	2 $\mu$ rad
Gyro Drift	6 mrad at 20 minutes
Accuracy	<5 $\mu$ rad/mrad
Acceleration	10 rad/s <sup>2</sup>
Position Resolution	<1 $\mu$ rad
Bandwidth (Open Loop Crossover)	>150 Hz
Phase Margin	35 deg
Gain Margin	10 dB
Base Motion Rejection (1-1,000 Hz)	>40 dB
INERTIAL INSTRUMENTS	
Angular Rate Sensor (ARS)	ARS-15 – 3 each
Gyro	NG 2-axis G2000 DTG – 1 each
MECHANICAL/ELECTRICAL	
Mechanism Size	3.1" $\varnothing$ x 3.5" high
Mechanism Mass	3 lb
Beam Diameter	0.217 (5.5 mm)
Beam Wavelength	635 nm
Beam Power	10 mW
Digital Controller Size	10" x 10" x 3"
Digital Controller Mass	8 lb
External Command/Status Interface	Ethernet, serial (232, 422), SpaceWire, SPI, CAN
Input Voltage	28 VDC
Peak Power	18 W
Cable Length	<20 ft
ENVIRONMENTAL	
Temperature Range (Operating)	-20 to +50 °C
Humidity (Operating)	0 to 80% (non-condensing)
Vibration (Non-operating)	2.5 g RMS (0-2,000 Hz)
Shock (Non-operating)	20 g (10 msec pulse)

Specifications subject to change without notice.

This product is subject to U.S. Government approval as required in accordance with the U.S. Government Arms Export Control Act, Title 22, U.S.C., Sec 2751, et seq., or Export Administration Act of 1979, as amended, Title 50, U.S.C., Sec 2401, et seq. Disseminate in accordance with provisions of DoD Directive 5230.25.