

VG941-3AM is an analogue sensor of absolute rotation. It responds on angular rate of a moving object by output voltage. Output of the sensor is defined as voltage between contacts “ Output ” and “ AGnd ” (Analog ground). Sign of the output voltage depends on the direction of rotation around sensing axis. Output voltage is proportional to the angular rate with factor SF (scale factor in mV/ ° /s).

TECHNICAL DATA

Weight	80 gram
Size	35 x 35 x 60 (without output pins)
Power consumption	1 Watt typical
Power source	+ 5V
Activation time	0.1 s
Performance	
Bias repeatability (1 sigma)	0.003 deg/s
Bias variation (steady state, 1sigma)	0.001 deg/s
Scale factor nominal (SF)	6 mV/deg/s
SF repeatability	0.1%
SF stability (steady state)	0.03%
Scale factor variation (OTR)	5%
Random walk	PSD = 0.0015 deg/s /sqrt Hz
Frequency range	0...500 Hz
Input range	500 deg /sec
Environmental	
Temperature	-30 deg C to +71 deg C
Vibration	6g, 20 Hz to 2,000 Hz
Shock, acceleration	90g

OTR = operating temperature range

STRUCTURE VG941-3AM contains two main modules:

- Sensing optical assembly which is a fiber optic ring interferometer comprising fiber sensing coil, two fused fiber optic couplers, fiber optic polarizer, piezoceramic phase modulator (PZT), light module - SLD based. Output fiber lead goes to the photo diode which is mounted on the processing electronics OE141FOS - 4 layers PCB implemented in SMT technique. It forms the output - rate proportional voltage.

MAIN COMPONENTS 100m of polarization preserving fiber is wound to form a sensing coil. Phase modulator - PZT is a piezoceramic cylinder on which surface a part of the fiber is wound. PZT fundamental radial resonance frequency is about 80 kHz. Fiber optic couplers 2x2 are made by fusion technique and mounted on quartz substrates to stabilize performance over vibration and temperature. Fiber polarizer (polarization filter) is a key component reducing bias drift. It is fabricated by surrounding the tapered fiber by highly

birefringent optical crystal. SLD light module is made by soldering technique after SLD to fiber precise alignment. All optical components are mounted inside a sealed aluminum case. External electrical connection is performed via 4 pins.