New products Introduction of new products

Interference type fiber optic gyro (i-FOG)

An interference type fiber optic gyro which managed to achieve both low price and 0.1°/h- class high precision

■Type TA7774 Series

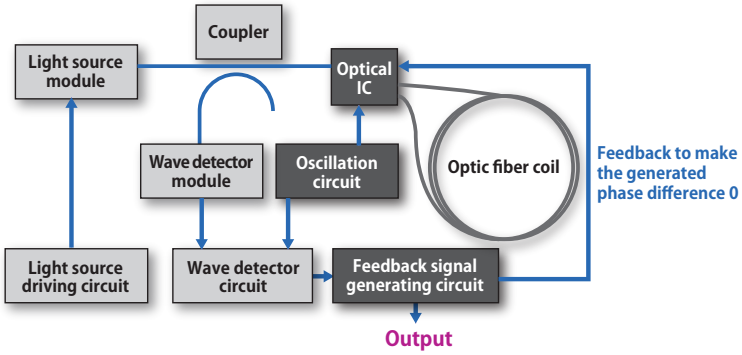
■Features

- High-precision [0.1°/h] gyro.Precision required for automated driving level 4 technology for vehicles was realized.
- Low price was realized by applying automated winding technology developed by the manufacturing process of our brushless resolvers (FA-Solver) and servo motors and by optical IC production technology of MEMS gyro oscillator.
- Precision was increased by adopting the closed loop method

■Application examples

- Automated driving for vehicles (level 4)
- ADAS (Advanced Driver-Assistance Systems): For construction machine and agricultural machine as an attitude control sensor
- MMS (Mobile Mapping System): As a behavior measuring sensor for mobile objects such as vehicles
- As a complement for quasi-zenith satellites characterized by high-precision positioning
- Compass to measure true azimuth used with shield machine

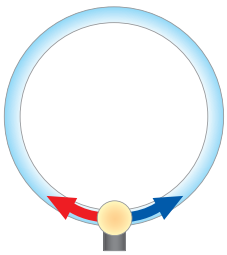
■Diagram



■Specifications

Types	TA7774
Dynamic range	±200°/s
Bias repeatability	0.1°/h (1δ) (25℃ static)
Bias instability	0.1°/h or below
Angular random walk	0.01° /√ or below
Precision of scale factor	100 ppm or below
Linearity of scale factor	100 ppm or below Full scale
Frequency response	40Hz
Mass	300 g or below
Input power source	±5V, ±15V
Power consumption	±5V:1.0A or less (normal use), 1.5A or less (while warming up)
	±15V : 0.2A or below
Operational temperature range	−20~+60℃
Storage temperature range	−30~+70℃

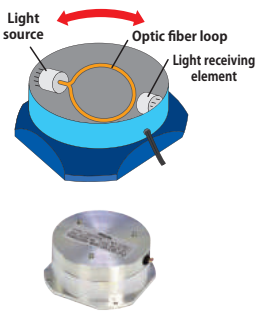
Principle of fiber optic gyro: Sagnac effect



Optical frequency and optical intensity of interference are detected by the time difference between light beams caused by Sagnac effect (*1). This is how angular velocity is calculated.

*1 One of physical phenomena relating to light.This is an effect caused by the time difference between two beams of light traveling around the rotating optical path, one in the direction of the rotation and the other in the opposite direction.

Fiber optic gyro (FOG)



Interference type fiber optic gyro

Angular velocity is given by the difference in length of light path caused by rotating the optical fiber after entering the light clockwise and counterclockwise to long coiled optical fiber.
There are several types of methods such as interference method and resonance method.
There is also an optical gyro called ring laser gyro that also applies Sagnac effect.