

### Fiber Optic Gyroscope Products



Single Axis Gyroscope  
[FG 150]



Inertial Measurement Unit  
[FI 200C]



Gyrocompass



## Inertial Measurement Unit (IMU) FI 200P

Advanced Solution of Stabilization and Flight Control

[www.fiberpro.com](http://www.fiberpro.com)

**F.E.S. Co., Ltd.**

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# FIBERPRO

## Inertial Measurement Unit (IMU)

FIBERPRO's FI 200P integrates three fiber optic gyros with three high-accuracy accelerometers and state-of-the-art electronics in a compact and lightweight package. FI 200P provides digital data of incremental velocity and angular rate through Synchronous Data Link Control (SDLC) or Universal Asynchronous Receiver Transmitter (UART).

### Applications

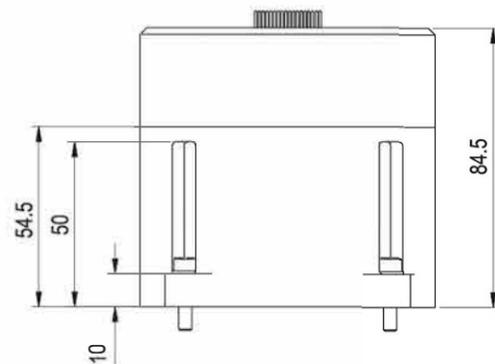
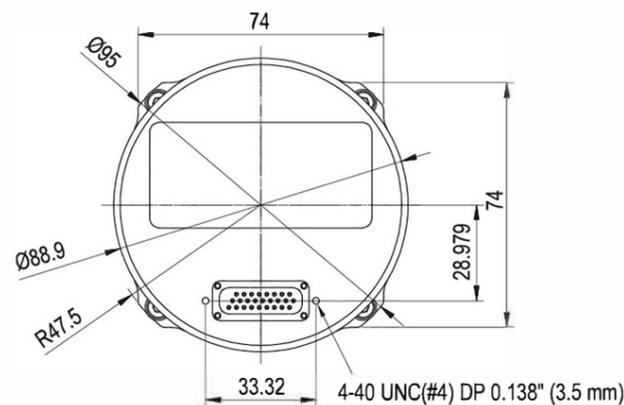
- Unmanned Aerial Vehicle
- Camera / Radar Stabilization
- Guidance / Flight Control
- Antenna Stabilization
- Motion Compensation
- Attitude and Heading
- Reference System (AHRS)



FI 200P

### Dimensions

(Unit : mm)



### Specifications

Performance	
<b>Rate Sensor</b>	
Technology	Closed-loop FOG
Operating Range	$\pm 1,000^\circ/\text{sec}$
Bias Repeatability (over temp. range)	$\leq 0.5^\circ/\text{hr}$ (1 $\sigma$ , RMS)
In-run Bias Stability	0.03 $^\circ/\text{hr}$ (typical, 1 $\sigma$ ) $\leq 0.05^\circ/\text{hr}$ (max, 1 $\sigma$ )
Scale Factor Accuracy	$\leq 100$ ppm (1 $\sigma$ , RMS)
Scale Factor Non-linearity (full rate, 25 $^\circ\text{C}$ )	$\leq 20$ ppm
Angle Random Walk	0.025 $^\circ/\sqrt{\text{hr}}$ (typical, 1 $\sigma$ )
Axis Misalignment	$\leq 100$ $\mu\text{Rad}$
<b>Accelerometer<sup>1)</sup></b>	
Technology	Quartz Servo
Operating Range	$\pm 10$ g <sup>2)</sup>
Bias Repeatability (over temp. range)	300 $\mu\text{g}$ (1 $\sigma$ , RMS)
In-run Bias Stability	3 $\mu\text{g}$ (typical, 1 $\sigma$ )
Scale Factor Accuracy	$\leq 200$ ppm (1 $\sigma$ , RMS)
Velocity Random Walk	0.015 m/s/ $\sqrt{\text{hr}}$ (typical, 1 $\sigma$ )
Axis Misalignment	$\leq 200$ $\mu\text{Rad}$
Bandwidth	$\geq 200$ Hz (-3 dB)
<b>Electrical/Mechanical</b>	
Start-up Time	< 0.6 sec
Signal Input/Output	UART(RS-422), SDLC
Baud Rate (UART)	460.8 Kbps
Data Rate	100 / 400 / 600 / 1,000 Hz <sup>3),4)</sup>
Input Voltage	+ 5 V, $\pm 15$ V
Power Consumption	5 W @ 25 $^\circ\text{C}$ (< 12 W, @ - 40 $^\circ\text{C}$ )
Dimensions	88.9 mm $\varnothing$ $\times$ 84.5 mm H (3.5" $\varnothing$ $\times$ 3.3" H, w/o connector)
Weight	900 g (1.98 lbs)
<b>Environment</b>	
EMC/EMI	MIL-STD-461F
Humidity	Up to 95 %
Low Pressure	1750 Pa, 30 min (@ 55,000 ft)
Temperature (operating)	- 40 $^\circ\text{C}$ to + 71 $^\circ\text{C}$ (- 40 $^\circ\text{F}$ to 160 $^\circ\text{F}$ )
Shock (MIL-STD-810G)	40 g, 11 msec, Sawtooth (operation)
Vibration (MIL-STD-810G)	7.7 g RMS (20 Hz to 2,000 Hz)

- 1) Replacement upon request
- 2) It is optional up to 80 g
- 3) Select one data rate
- 4) In case of SDLC, 1,600 Hz is available

The specification and technical information contained herein are subject to change without notice and are furnished without charge or obligation. They are given and accepted at recipients sole risks.

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