

November 04, 2022

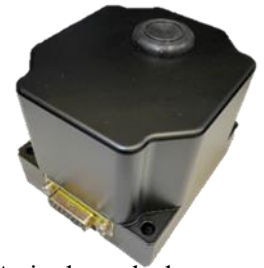
Sumitomo Precision Products Co., Ltd.

Announcement of development on an extensible “attitude angle detector gyro unit” and “attitude angle & true north^{*1} detector gyro unit 『Northfinder™』” using MEMS type

Sumitomo Precision Products Co., Ltd. has developed an extensible “Attitude angle detector gyro unit” and “Attitude angle & true north detector gyro unit 『Northfinder™』” by MEMS type that are used in railway vehicles and aerospace equipment.

We are supplying sample from July 2022 and planning to start selling mass produced-products around December 2022.

As a result of many years of MEMS research and development, “Attitude angle detector gyro unit” and “Attitude angle & true north detector gyro unit 『Northfinder™』” are smaller, tougher, and less expensive than those using RLGs or FOGs. These models are extensible to accommodate an additional sensor module kind in order to support your needs.



Attitude angle detector gyro unit,
Attitude angle & true north detector gyro unit 『Northfinder™』

“Attitude angle detector gyro unit”

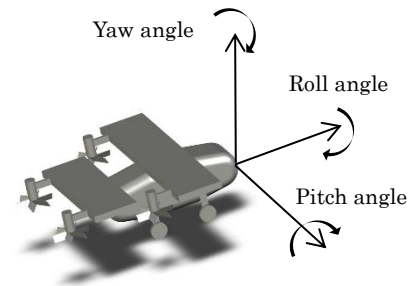
[Description]

Attitude angle detector gyro unit can output attitude angle (roll/pitch angle) with high accuracy. It is possible to operate in the “Motion Angle Measurement Mode” that outputs dynamic attitude angle, angular velocity and acceleration the same as the pedigree. Also, the accuracy of attitude angle can be improved by inputting velocity.

[Application]

- Remote monitoring of track distortion in railways
- Attitude control for industrial robots
- Attitude and motion measurement of other industrial equipment

*1 True north is the North Pole direction aligned with longitude, and magnetic north is misaligned with longitude and varies with location and with time.



“Attitude angle & true north detector gyro unit 『Northfinder™』”

[Description]

Attitude angle & true north detector gyro unit 『Northfinder™』 can output real-time attitude and heading angles without GPS and calculate attitude angle (roll/pitch angle) and azimuth angle (yaw angle) with high accuracy. It is possible to operate in the “Static Angle Measurement Mode” that outputs static angle including azimuth angle without GPS. Also, the dynamic azimuth angle can be measured by combining the “Static Angle Measurement Mode” with the “Continuous Angle Measurement Mode”, which uses the results of the static angle measurement as the initial value and improves the accuracy. In addition, angular velocity and acceleration can be output in the same way as Attitude angle detector gyro unit, and the accuracy of attitude angle can be improved by inputting velocity.

The angular velocity measurement error is even smaller than Attitude angle detector gyro unit.

Sumitomo Precision Products Co., Ltd.

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[Application]

Attitude angle & true north detector gyro unit *Northfinder™* is suitable for azimuth measurement in environment where GPS cannot be used. It is also suitable for attitude measurement when you need a device with a smaller angular velocity measurement error than Attitude angle detector gyro unit.

- Attitude control of air mobility
- Down hole surveying in the ground
- High –precision output of ship attitude and motion
- Route mapping
- Measurement of attitude and motion condition of underwater construction equipment, such as underwater backhoes
- Measurement of attitude and motion condition of underwater drones and other maritime vehicle
- Remote monitoring of track distortion in railways

Toward the promising future, we will continue to contribute to solving social issues such as promoting a post-5G digital society and realizing a carbon-free society by providing products and services that utilize the strengths of our technology.

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SUMITOMO PRECISION PRODUCTS CO., LTD.

<Reference >

Technical data

Products name		Attitude angle detector gyro unit	Attitude angle & true north detector gyro unit <i>//Northfinder™//</i>
Size [mm]		88×80	88×80
Weight [gram]		<700 (TBD)	<700 (TBD)
Temperature range (operation · storage) [°C]		-25~85	-25~65
Communication protocol		CAN/RS422 (Switchable)	CAN/RS422 (Switchable)
Measuring range	Roll [°]	<±180	<±180
	pitch [°]	<±90	<±90
	Yaw [°]	<±180	<±180
Static angular velocity	Roll [° rms]	<±0.1	<±0.1
	Pitch [° rms]	<±0.1	<±0.1
	Yaw [° rms]	Reference output	<±1%FS
Dynamic angular Velocity	Roll [°]	<0.5	<0.5
	Pitch [°]	<0.5	<0.5
	Yaw [°]	Reference output	<0.5
Angular velocity	Measuring range [° /S] (Roll/Pitch/Yaw)	±200	±200
	Scale Factor Error [ppm] (Roll/Pitch/Yaw)	±500	±500
	Bias [°/h rms] (X/Y/Z)	<±20	<±1 (TBD)
Acceleration	Measuring range [g] (X/Y/Z)	±10	±10
	Scale Factor Error [ppm] (X/Y/Z)	<±500	<±500
	Bias [mg] (X/Y/Z)	±1.5	±1.5

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