SUMITOMO PRECISION PRODUCTS CO., LTD.

News Release

April 25, 2023

Sumitomo Precision Products Co., Ltd.

Announcement of *Northfinder*™ delivery aiming for Underwater Machine Guidance

Sumitomo Precision Products Co., Ltd. has delivered the *Northfinder*™ GCAH-12C to a research institute aiming for underwater machine guidance※1.

1. Background

   During marine constructions, divers operate the underwater backhoe. A research has proceeded from the point of efficiency, safety and securing divers. The research is aiming for remote operation to capture the accurate location and movement of backhoe under the water. The concept is to link the azimuth and attitude output from Northfinder with a positioning system. It is expected for practical use followed by demonstrational test.

2. Reason for selection of our *Northfinder*™

   Our *Northfinder*™ has the core technology of seeking north functionality which can sense the earth rotation by high precision MEMS gyroscope and combination of our original algorithm. As no magnetometer is used, the *Northfinder*™ can output the high precision azimuth data without GPS not affected by terrestrial magnetism or magnetic effect of backhoe itself. These advantages are highly rated and thus our *Northfinder*™ has been selected.

   Our *Northfinder*™ can acquire the azimuth and attitude data and be widely used for unmanned or automated machine guidance not only underwater but also underground, indoor and mountainous regions where the GPS signal is not available or unstable.

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.

※1Machine Guidance: Machine guidance is a system to provide differential data between design data of construction location and current ground data by measuring the location of construction equipment using positioning equipment.

※2Backhow：A backhoe is a type of hydraulic shovels, construction equipment for excavating earth and sands with shovels attached to hydraulic actuated arm.

Sumitomo Precision Products Co., Ltd.
General Administration Department / MEMS Solutions Department
1-10, Fuso-cho, Amagasaki, Hyogo 660-0891, Japan
Tel 81-(0)6-6489-5829 / 81-(0)6-6489-5917
Fax 81-(0)6-6489-5801 / 81-(0)6-6489-5910
https://www.spp.co.jp/

<Contacts on this product>
Sumitomo Precision Products Co., Ltd.,
MEMS Sensors and Systems Department, Business Development Group, Taku Aoki
TEL: +81-6-6489-5917　FAX: +81-6-6489-5910　E-mail: mems-sales@spp.co.jp

<Description of *Northfinder*™ GCAH-12C >

3 models are available depending on static azimuth accuracy.
High precision model: 0.8 °rms×$(\cos\lambda \cdot \cos\theta)^{-1}$　λ：Latitude, θ：Pitch angle

<Common Specification>

Measurement range	Static angle	Azimuth	＜±180°
		Attitude	Pitch: ＜ ±90°<0.1rms Roll: ＜±180°<0.1°rms×$(\cos\theta)^{-1}$
	Dynamic angle	Range	Roll, Yaw: <±180° Pitch: <±90°
		Angular velocity	±400°/s
		Acceleration	±10 g
Miscellaneous	Performance range		-10～50℃
	Power consumption		＜1.5W
	Size		36×43×266(mm)
	Weight		<700 g
	Communication protocol		RS422

In addition above, we have a rage of *Northfinder*™ used for various application.
MEMS | Sumitomo Precision Products CO.,LTD. (spp.co.jp)

≪Related News Release≫
Announcement of development on an extensible “attitude angle detector gyro unit” and “attitude angle & true north detector gyro unit 『Northfinder™』” using MEMS type

Sumitomo Precision Products Co., Ltd.
General Administration Department / MEMS Solutions Department
1-10, Fuso-cho, Amagasaki, Hyogo 660-0891, Japan
Tel 81-(0)6-6489-5829 / 81-(0)6-6489-5917
Fax 81-(0)6-6489-5801 / 81-(0)6-6489-5910
https://www.spp.co.jp/