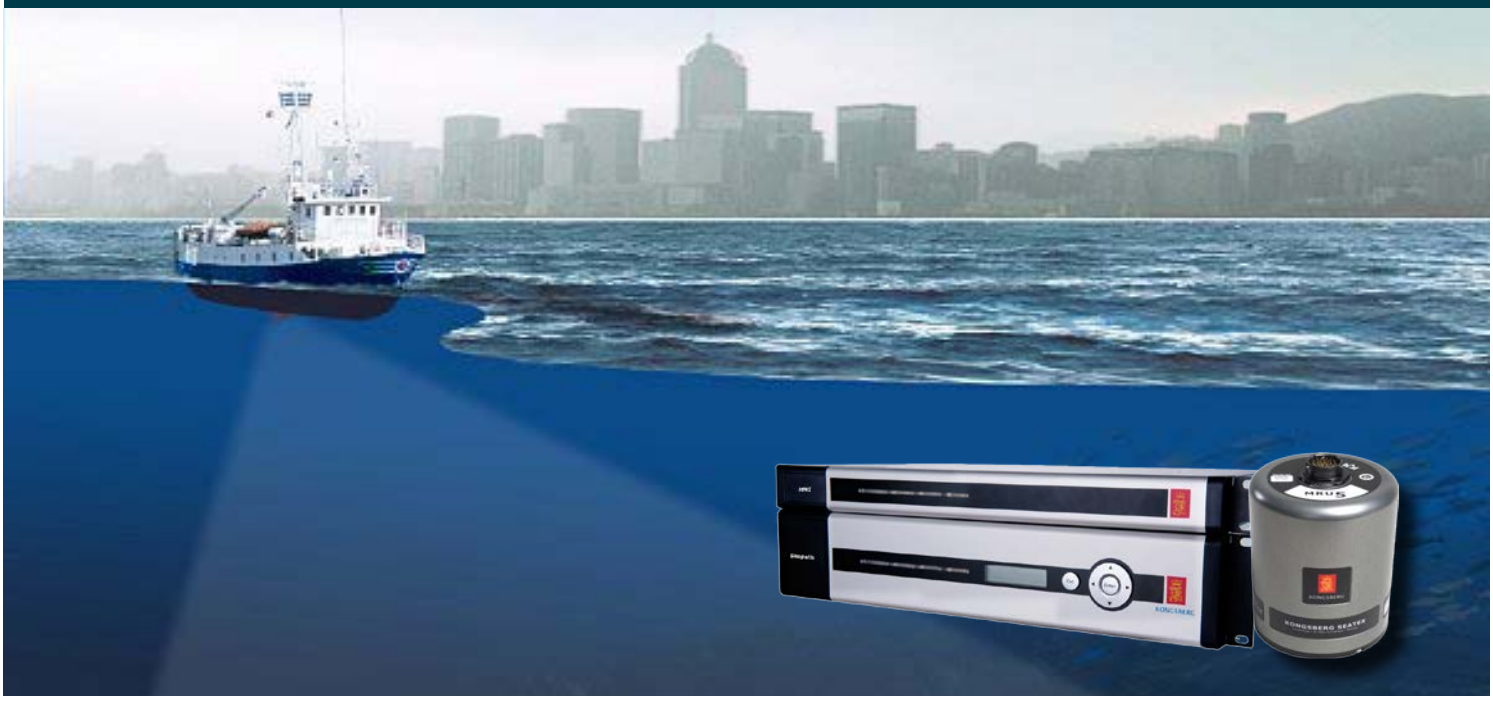
SEAPATH® 300

KONGSBERG



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PRECISE HEADING, ATTITUDE AND POSITIONING SENSOR

The Seapath 300 product is developed specifically for the hydrographic and other high precision applications where heading, position, roll, pitch, heave and timing are critical measurements. The product combines inertial technology together with GPS satellite signals. Core components in the product are the 5th generation MRU 5 inertial sensor, the Processing and HMI Unit.

Integrated inertial/GPS product

The Seapath 300 offers the best possible combination of GPS signals and inertial measurements for demanding operations in challenging environments.

This Seapath product includes the 5th generation MRU 5, providing 0.02° RMS roll and pitch accuracy. This accuracy is achieved by the use of accurate linear accelometers and unique MEMS type angular rate gyros.

The combination of GPS signals and inertial data enables a much better performance than each of the signals alone with a high output data rate (up to 200 Hz), zero delay on output data, data available in up to eight different monitoring points and a total of sixteen configurable serial lines and Ethernet ports, together with three analog channels.

Accuracy and reliability

The redundancy of the Seapath measurements is improved by using the two built-in GPS receivers for position and velocity determination. In case of missing data from one GPS receiver, then the other (remaining) receiver provides position and velocity, and the inertial sensor provides heading from its internal rate sensors.

The Seapath 300 is robust against GPS dropouts by using the inertial sensor part of the product to provide position, velocity and heading measurements when GPS signals are not available. No user actions are required.

System configuration

This Seapath product is a two-module solution with a Processing and an HMI Unit connected via Ethernet. The Processing Unit runs all critical computations independent from user interface on the HMI Unit to ensure continuous and reliable operation. Multiple HMI Units can be connected to the same Processing Unit in a networked architecture. The HMI Units present the vessel motion in a clear and easy-to-understand format.

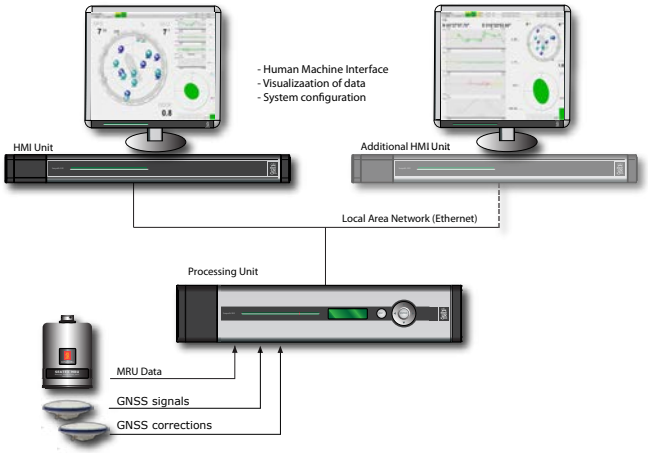
The Seapath is operated through the operator software installed on one or several HMI Units. This software is used for perfomance monitoring, configuration and troubleshooting of the system.

Applications

This integrated navigation product is a unique solution for applications within hydrographic surveying, dredging, oceanographic research, seismic work and offshore construction where accurate compensation of multibeam echo sounders, hydro acoustic positioning systems and ADCPs or vessel motion monitoring are required.

FEATURES SEAPATH 300

- 0.02° roll and pitch accuracy
- No accuracy degradation in roll, pitch and heave measurements during turns
- 2 cm heave accuracy by use of the PFreeHeave® algorithms
- Meets IHO special order requirements
- Robust against GPS dropouts due to the inertial sensor part of the product
- Multiple differential correction support including SBAS
- All data have the same time stamp and to an accuracy of 0.001 s to the actual measurement time
- Outputs on RS-232, RS-422, Ethernet and analog channels
- Up to 200 Hz data output rate



TECHNICAL SPECIFICATIONS

PERFORMANCE

Heading accuracy	0.05° RMS (4 m baseline) 0.75° RMS (2.5 m baseline)
Roll and pitch accuracy	0.02° RMS for ±5° amplitude
Scale factor error in roll, pitch, heading	0.08 % RMS
Heave accuracy (real-time)	5 cm or 5 % whichever is highest
Heave accuracy (delayed signal)	2 cm or 2 % whichever is highest
Heave motion periods (real-time)	1 to 20 seconds
Heave motion periods (delayed signal)	1 to 50 seconds
Position accuracy (DGPS/DGLONASS)	1.1 m (95 % CEP)
Position accuracy (SBAS)	1.1 m (95 % CEP)
Position accuracy (with RTK corrections)	0.20 m (95 % CEP)
Velocity accuracy	0.07 m/s (95 % CEP)

DATA OUTPUTS

Communication ports	8 serial RS-232/RS-422 lines and 16 Ethernet UPD/IP ports
Data output interval	Programmable in 0.005-sec. steps and 1PPS pulse
Data update rate	Up to 200 Hz

WEIGHT AND DIMENSIONS

Processing Unit	5.4 kg, 89 x 485 x 357 mm
HMI Unit	3.8 kg, 44 x 485 x 330 mm
Monitor	3.8 kg, 383 x 380 x 170 mm
IMU	2.4 kg, 140 x Ø105 mm
GNSS antenna	0.37 kg, 76 x 178 mm

POWER

Processing Unit	100 to 240 V AC, 75 W (max)
HMI Unit	100 to 240 V AC, 40 W (max)
Monitor	100 to 240 V AC, 23 W (max)
IMU	24 V DC from Processing Unit
GNSS antenna	5 to 18 V DC (5 V DC from PU)

ENVIRONMENTAL SPECIFICATION

Operating temperature

Processing and HMI Unit	-15 to +55 ºC
Monitor	+5 to +40 °C
IMU	-5 to +55 °C
GNSS antenna	-40 to +70 °C

Humidity (enclosure protection)

Processing and HMI Unit	10 to 95 % rel. non condensing (IP 21)
Monitor	20 to 80 % rel. non condensing (IP 21)
IMU	Hermetically sealed (IP 66)
GNSS antenna	Hermetically sealed (IP 66)
Cables	IP 67
Connectors	With self-amalgamating tape (IP 67)

Mechanical

Vibration	IEC 60945/EN 60945

Electromagnetic compatibility

Compliance to EMCD, immunity/emission	IEC 60945/EN 60945

PRODUCT SAFETY

Compliance to LVD, standard used	IEC 60950-1/EN 60950-1

Specifications subject to change without any further notice.

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