

# SEAPATH® 130-R SERIES



KONGSBERG



## THE COMPACT HEADING, ATTITUDE AND POSITIONING SENSOR

The Seapath 130-R series is developed specifically for hydrographic surveying where high precision heading, position, roll, pitch, heave and timing are critical measurements. The product combines state-of-the-art dual frequency GNSS receivers, inertial technology and processing algorithms in a compact and portable package. The MGC functions both as an IMU in the Seapath 130-R series and as a stand-alone INS system.

### Product components

The main component is the Sensor Unit with the integrated GNSS antennas and receivers. The Sensor Unit mounts on top of the vessel mast or a pole. On top of the transducer the INS system of type MGC R2 or R3 is mounted within a 50 meter rated subsea housing. The Seapath operator software is installed on a connected PC for configuration and monitoring. All the components are connected through a spider cable with MGC connection, three configurable output serial lines, DGNSS correction input, 1PPS output, network communication and power.

### Product range

The Seapath 130-R series is delivered in the following product range:

	Roll/Pitch [RMS]	Heading [RMS]
Seapath 130-R2	0.02°	0.06°
Seapath 130-R3	0.01°	0.05°

### Interfaces

The product has three configurable RS-232/422 serial lines and eight Ethernet ports for output of motion data and NMEA messages to the multibeam and survey computer. DGNSS corrections of various quality and sources are input on a configurable RS-232/422 serial line or Ethernet.

### Function

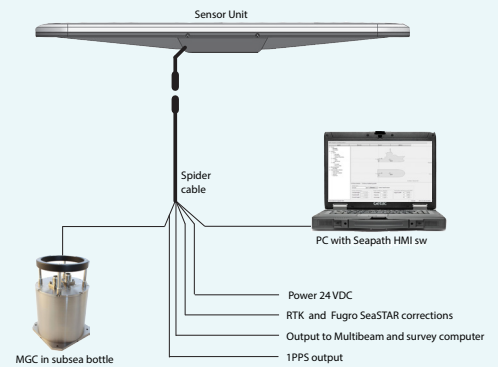
The advanced Seapath navigation algorithms integrate RTK GNSS data with the inertial sensor data from the MGC. This gives the Seapath 130-R unique advantages compared to stand-alone RTK products. The Seapath product's accurate roll, pitch and heading measurements allow the RTK antenna position to be referenced to any point on the vessel where accurate position and velocity are required. All data from Seapath have the same time stamp and the output is in real-time. Subdecimetre position accuracy can be achieved through download of satellite orbit and clock data from the internet and by post processing of satellite and IMU data.

### Applications

By using standard DGNSS, XP2/G2/G4/G4+ and RTK corrections, the Seapath 130-R is a unique solution for hydrographic surveying and dredging work demanding the most comprehensive and accurate surveying data available.

## FEATURES

- 0.05° to 0.06° heading accuracy depending on MGC model
- 0.01° to 0.02° roll and pitch accuracy
- No accuracy degradation in roll, pitch and heave measurements during turns
- Include INS capability
- 5 cm real-time heave output for periods up to 25 seconds
- Precise heave at long wave periods by use of the PFreeHeave® algorithms
- 550-channel dual frequency GPS/GLONASS/Galileo/Beidou receiver
- Robust against GNSS dropouts due to the INS system part of the product
- Multiple differential correction support including SBAS
- RTK correction on RTCM format supported
- SeaSTAR®, OmniSTAR® and Marinestar® corrections supported
- All data are provided with time stamp with an accuracy of 0.001s to the actual measurement time
- Outputs on RS232, RS422 and Ethernet
- Up to 100 Hz data output rate
- Dual-frequency GNSS ionospheric compensation
- Logging of raw satellite and IMU data possible
- Meets IHO special order requirements



## TECHNICAL SPECIFICATIONS

### PERFORMANCE

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)	0 to 25 seconds
Heave motion periods (delayed signal)	0 to 50 seconds
Position accuracy DGNS/GALONASS	0.5 m RMS or 1 m 95 % CEP
Position accuracy SBAS	0.5 m RMS or 1 m 95 % CEP
Position accuracy Fugro XP2/G2/G4/G4+	0.1 m RMS or 0.2 m 95 % CEP
Position accuracy (RTK in X/Y)	1 cm + 1 ppm RMS
Position accuracy (RTK in Z)	2 cm + 1 ppm RMS

### DATA OUTPUTS

Communication ports	3 serial RS232/RS422 lines and 8 Ethernet UPD/IP ports
Data output interval	Programmable in 0.01-sec. steps and 1PPS pulse
Data update rate	Up to 100 Hz

### WEIGHTS AND DIMENSIONS

Sensor Unit	1210 mm (L) x 210 mm (W) x 94 mm (H), weight 6.8 kg
MGC SB50	184 mm (L) x 184 mm (W) x 275 mm (H), weight 10.5 kg

### OPERATING TEMPERATURE

Sensor Unit	-40 to +70°C
MGC	-15 to +55°C

### POWER

Sensor Unit	24 V DC, 10 W
MGC	24 V DC, 12 W

### HUMIDITY

Sensor Unit	Hermetically sealed, IP66
MGC	Hermetically sealed, IP66

Specifications are valid without multipath, without shadowing of antenna and with vessel in motion.

Specifications subject to change without any further notice.

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