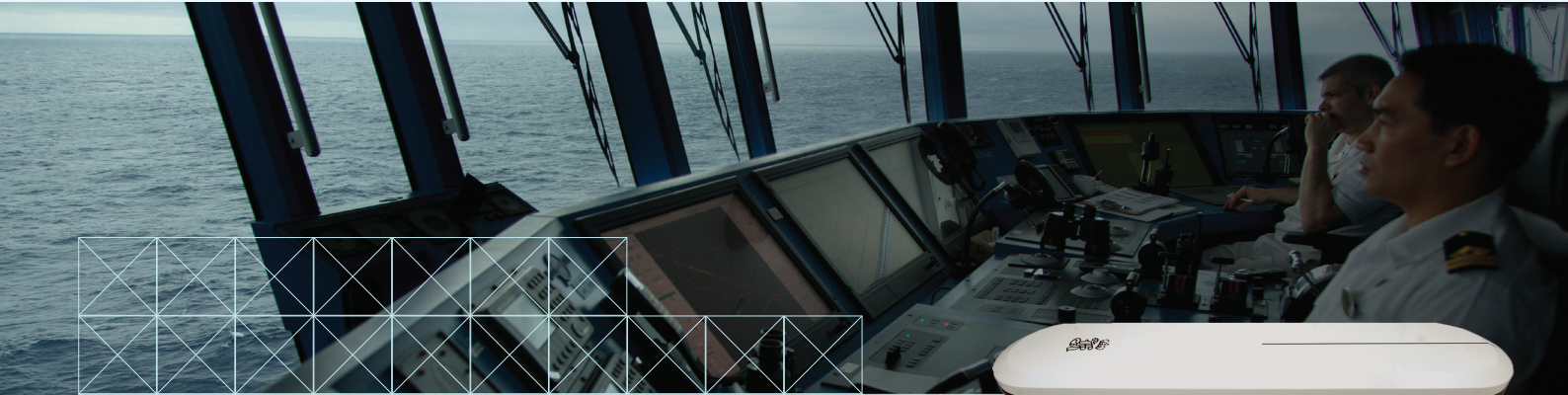


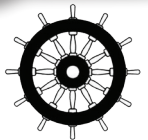
# SEANAV 300 SERIES



KONGSBERG



## GNSS COMPASS, POSITION SENSOR AND SPEEDLOG



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The SeaNav 300 navigation sensor is tested and approved in accordance with international regulations as a THD (Transmitting Heading Device), GPS, GLONASS and SDME (Speed and Distance Measurement Equipment). SeaNav 300 has Wheelmark approvals for all functions and provides true heading with no moving parts. The navigation instrument replaces several vessel instruments with one compact navigation package outputting heading, position, velocity and rate of turn. SeaNav 320 has a built-in IALA beacon receiver and is approved as a DGPS in addition.

### Integration

The SeaNav is designed for integration with other navigation equipment and will as default be configured and operated from an ECDIS without the need for a separate external display. The Sensor Unit contains two GNSS receivers and an inertial rate sensor. All operation and functionality are handled from the ECDIS in an integrated bridge system.

### e-Navigation

One important principle of e-navigation is to reduce the number of displays on the bridge. The navigator needs to have important information easily available in order to reduce response time for decisions. Better integration will lead to a better bridge environment and a simpler installation. A display solution is available and provided when needed.

### Performance

Precision heading is derived from the fixed-distance dual GNSS antenna arrangement in the antenna module, using carrier phase data to generate heading information independent of latitude and vessel dynamics. GNSS (GPS and GLONASS) position and velocity are calculated from both of the two antennas, which gives total redundant position and velocity sources in this product.

Input of DGNSS corrections or reception of SBAS (WAAS/EGNOS) signals may improve position accuracy. The inertial element provides yaw information. In case of short GNSS

signal loss, the inertial sensor automatically takes over as the prime source for heading determination until the GNSS comes back on line. The rate element and GNSS are working together seamlessly, ensuring accurate, continuous and robust heading and position information.

### Easy to install and maintain

All electronics are placed within the antenna module and the unit is by default delivered with a bracket for easy mounting. The unit needs power and a signal cable. It requires no scheduled maintenance or recalibration. The unit is easily configured via a built-in WEB user interface (UI). Software updates are supported via the WEB UI but also the locally available USB interface will automatically detect new software when a USB storage device is inserted. The update will be accomplished without interfering with the existing configuration. The latest software will continuously be available for download from an FTP server hosted by Kongsberg.

### Wheelmark

When used for type approved applications the Multi Function Display (MFD) must be used. The SeaNav is delivered with a 7" MFD (MFD 307 panel computer) that is connected to the SeaNav via LAN. The MFD 307 is made for flush mount, but a variation of brackets can optionally be delivered.

## FEATURES

- True heading anywhere on earth
- Better than 0.5° heading accuracy
- Heading accuracy unaffected by the latitude
- Heading available in periods of GNSS drop-outs
- Compliant to WAAS, EGNOS and MSAS Satellite Based Augmentation Systems
- Replaces several instruments with one robust, integrated product
- Only paired cable (no coax) between the mast unit and the equipment on the bridge
- Configurable update rate with default 20 ms (50 Hz)
- Output of data on Ethernet
- 1PPS out synchronization signal
- Display connected via LAN
- Supported GNSS: GPS, GLONASS



- RS-422 (5-pin), navigation equipment
- Network (RJ45, 4-pin) navigation equipment
- Alarm relay (2-pin), external equipment
- 1PPS out (3-pin), external equipment
- Power/24 VDC (2-pin)
- Whip antenna, external equipment (320)<sup>3</sup>

## TECHNICAL SPECIFICATIONS

### SEANAV 300 SERIES

#### PERFORMANCE DATA<sup>1</sup>

Heading acc., dynamic	0.5° RMS
Heading resolution	0.01° RMS
Rate of turn accuracy	0.5°/s +5%
Position accuracy	
DGNSS/SBAS	1.2 m RMS
Velocity accuracy	0.07 m/s 95 % CEP
Max turn rate	80°/s

#### INTERFACES

Serial ports	1 RS-232 (service) <sup>2</sup> , 1 RS-422
Ethernet	1
USB	1 (service) <sup>2</sup>
1PPS out	1

#### DATA OUTPUTS

Message formats	NMEA 0183, Proprietary, NTP
Message types	DTM, GBS, GGA, GLL, GFA, GNS, GSV, GSA, GST, HDT, RMC, ROT, THS, VBW, VLW, VTG, ZDA, ALF, ALR, ALC, ACK
	BLM/BLS/BLT (SeaNav 320)

#### DATA INPUTS

DGNSS corrections	RTCM 104 v. 2.3
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#### DATA OUTPUTS (SeaNav 320)

DGNSS corrections	RTCM 104 v. 2.3
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#### WEIGHTS AND DIMENSIONS

Dimensions	780 x 180 x 100 mm
Weight with bracket	3.7 kg (300) / 3.8 kg (320)
IALA antenna	1.0 kg, 1000 mm

#### POWER SPECIFICATIONS

Input power	12 to 24 V DC
Consumption	<5 W

#### ENVIRONMENTAL SPECIFICATIONS

Operating temperature range	-25 to +55 °C
Operating humidity	100 % max.
Storage temperature range	-30 to +70 °C
Storage humidity	100 % max.
Enclosure material sensor housing	Polyethylene
Enclosure material bracket	Anodised aluminium
Enclosure protection	IP-66
Compass safe distance	0.3 m

#### STANDARDS AND REGULATIONS

Product safety low voltage	IEC 60945/EN 60945
Electromagnetic compatibility, immunity/radiation	IEC 60945/EN 60945
Vibration	IEC 60945/EN 60945
Wheelmark	THD (4.41), GPS (4.14), Glonass (4.15), SDME (4.7), DGPS (4.50, SeaNav 320)
MTBF (hours)	45.000

<sup>1</sup> The performance figures are valid with a minimum of four visible satellites, HDOP less than 4, PDOP less than 6, high quality DGPS corrections and otherwise normal conditions. Excessive multipath, GNSS signal obstructions may reduce the performance.

<sup>2</sup> Service ports are only available locally on the unit.

<sup>3</sup> SeaNav 320 is delivered with a whip antenna (AR10 short and a 3m coax cable. Connection on the rear side of the SeaNav unit)

Specifications subject to change without any further notice.

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