GPS Receiver Trimble Marine SPS461

> ⚠️ **Attention:**
>
> The Trimble GPS receiver provides position data for scientific devices.

Summary

The SPS461 GPS Heading and Positioning Receivers are modular, dual-antenna systems for marine construction and hydrographic survey. It may improve accuracy by using DGPS via SBAS, OmniSTAR VBS, MSK Beacon or external RTCM DGPS corrections. The receiver is equipped with a single GA530 L1/L2/OmniSTAR/Beacon/SBAS antenna. Therefore heading, roll and pitch cannot be calculated.

Manufacturer	Trimble
Model	Trimble Marine SPS461
Serial No.	5228K50585
Type	satellite positioning system
REGISTRY-Link	REGISTRY (8571)

Locations on RV Heinckes bridge deck

Trimble GPS receiver

TRIMBLE antenna
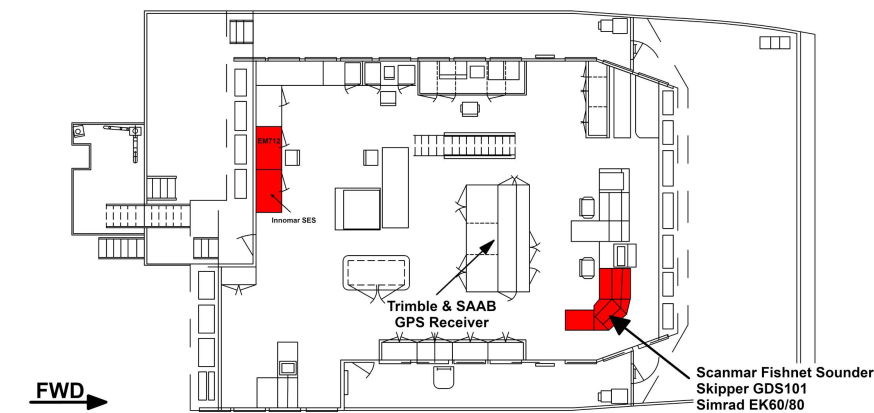
Locations on RV Heinckes compass platform and masts
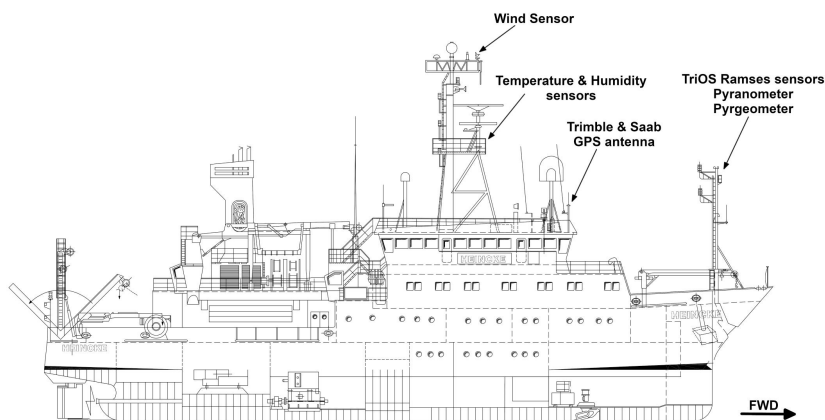
Contacts

Name	Institution	Role
Ralf Krocker	Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research	Engineer In Charge

Components

The GPS receiver is installed on the bridge deck. The antenna is installed on the observation deck.

In the registration lab an NMEA stream of GPS records can be received. 4 sockets of RS232 type (DSub9) with following setting are available: 4800 Baud, No Parity, 8 Data Bits, 1 Stop Bit.
NMEA records of type $GPGGA, $GPVTG, $GPZDA, $GPRMC, $GPGLL are provided with 1 Hz.

No subdevices available.

Position

Info	xyz-position of antenna from Alignment Survey Report RV Heincke (January 2016). Antenna located on observation deck, device located on bridge deck.
X	39.6 m (Positive X axis is forward and along the centerline of the vessel with X0 at the Stern point of the vessel.)
Y	-2.129 m (Positive Y axis is portside of centerline with Y0 at centerline at the Very stern point of the vessel.)
Z	16.433 m (Positive Z axis is upwards of basis. Z0 is set to the hydrophone on midship.)

Data logging, storage and archiving

Logged parameters

Parameter	O2ARegistry Output Type	Unit
course over ground	attitude	deg
day	date and time	d
latitude	latitude	deg
month	date and time	mo
longitude	longitude	deg
year	date and time	a
differential reference station ID	index	number
GPS quality indicator	quality flag	number
number of satellites	index	number
speed over ground	speed	knot
altitude	distance	m

Additionally a computer is installed receiving T02 data from this sensor. These data are used to calculate **GPS tide**. Three different services are available: 1=Uncorrected, 2=Ultra-rapid and 3=Rapid/Final. GPS tide is provided as two column file (date/time, height) to be used by multibeam echo sounder. See more details in Heincke_GPS_Tide_v20191016.pdf.

Central geographical ship's position and time standard

Rawdata storage on board

Dship

Data archiving on land

Documentation

- Trimble SPSx64 User Guide (User Manual, 4 MB)

- Trimble SPSx64 Getting Started (User Manual, 2 MB)

- Trimble SPS461 Precision RTK (Factsheet, 105 kB)

- Trimble SPS461 DGPS (Factsheet, 83 kB)

- Trimble SPS461 Loc RTK (Factsheet, 83 kB)