

The Stema Dredge Positioning System (DPS) is a highly versatile positioning system built up around the Stema GNSS-982PoE receiver. With its possibilities to interface with a wide range of accurate motion, tilt and draught sensors is it a useful tool for Real-time Dredge Positioning. The DPS GNSS-982 PoE brings the latest positioning and interface technology to the field of hydrography, dredging and offshore. The versatile multichannel, multifrequency GNSS receiver provides an accurate position and heading solution and interfaces with our range of accurate tilt, motion and draught sensors. This modular set provides high accuracy positioning of both the cutting edge and seabed detection. Proven Trimble technology is combined with extensive input/output possibilities. This makes it the ideal receiver for both dredge monitoring and survey positioning. The built-in switch and 2G/3G modem minimises auxiliary parts and enables remote support.



## FIELDS OF APPLICATION

- ▼ Hydro survey
- ▼ Dredging
- ▼ Offshore construction
- ▼ Renewables

## KEY FEATURES

- ▼ GPS/GLONASS
- ▼ VRS RTK correction over internet
- ▼ 50 Hz centimeter level position accuracy
- ▼ 50 Hz precise heading calculation
- ▼ L-BAND DGNSS receiver
- ▼ Ethernet switch onboard
- ▼ Power over Ethernet output for external sensors
- ▼ 2G/3G internal modem
- ▼ Ethernet configuration via web browser
- ▼ PPS out
- ▼ Optimal design for both survey and dredge operation

## DEMONSTRATED PERFORMANCE

Reliable dredge positioning GNSS technology from Trimble moves the industry forward and redefines high-performance positioning:

- ▼ Onboard multipath mitigation
- ▼ Proven low-elevation tracking technology
- ▼ Dramatically improved RTK initialization times
- ▼ Kalman filter assistance in case of lost RTCM signal
- ▼ Future proof with Galileo ready hardware

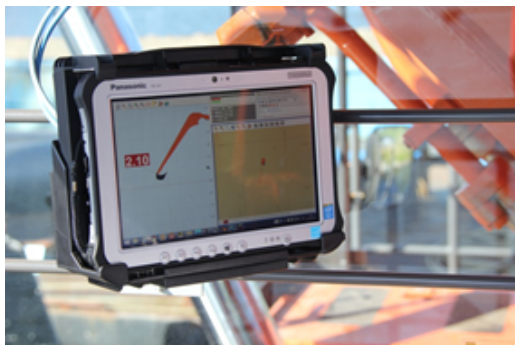
## MULTIFUNCTIONAL

The Dredge Positioning System GNSS-982 PoE is foremost an excellent positioning device for both RTK and satellite augmented (Ominstar and Marinstar) positioning solutions. The on board 2G/3G modem for VRS correction services doubles as interface for data transfer and remote support. The Power over Ethernet can power and interface with a wide range of digital sensors. These include tilt, roll/pitch, pressure and flow meters. Further sensors are being developed and can be built to clients specifications. Serial interfaces are available for external radio and can be programmed to interface with trigger switches for event marking: as-built position or filling operations.

## EASE OF INSTALLATION AND FLEXIBILITY

The Dredge Positioning System GNSS-982 PoE is a concise unit that can integrate various signals with a minimal demand on cabling. This keeps the system tidy and clear. Trouble shooting spaghetti is history! A single Ethernet





- ▶ Advanced Trimble Maxwell Custom Survey GNSS technology with 440 channels and simultaneous satellite reception
  - ▶ Positioning (220 Channel Maxwell 6 chip):
    - GPS: Simultaneous L1 C/A, L2E, L2C, L5
    - GLONASS: Simultaneous L1 C/A, L1 P, L2 C/A, L2 P
    - SBAS: Simultaneous L1 C/A, L5
  - ▶ Heading (second 220 Channel Maxwell 6 chip):
    - GPS: Simultaneous L1 C/A, L2E, L2C
    - GLONASS: Simultaneous L1 C/A, L1 P, L2 C/A, L2 P
  - ▶ Power consumption: <10 W at 24 V stand alone, <33 W at 24 V with full connection of external sensor
  - ▶ 10-30V DC power input
  - ▶ 1 PoE+ INPUT PORT: supplies Ethernet & power to the GNSS receiver via the use of a standard PoE switch or power inverter.
  - ▶ 1 PoE+ OUTPUT PORT: supplies Ethernet connectivity and power to external dedicated devices (Stema Systems digital Inclinator/roll pitch sensor/pressure sensor)
  - ▶ Mobile 2G/3G modem: RTK corrections & internet connectivity f.i. remote support
  - ▶ 1 PPS out
  - ▶ 5 Serial I/O ports (4 standard and 1 configurable RS232 to UDP / RS232 over Ethernet)
  - ▶ Event marker input support
  - ▶ Internal web page for configuration purposes and system monitoring
- Initialization time typically:<10 seconds, Initialization reliability: >99.9%

## ACCURACY

Mode	Position	Max Rate
Single	8 mm + 1 ppm Horizontal	50 Hz
baseline RTK (<30m)	15 mm + 1ppm Vertical	
Fugro L-band service (GNSS)	0.10 m Horizontal (95%) 0.15 m Vertical (95%)	50 Hz
DGPS	0.25 m + 1 ppm Horizontal 0.50 m + 1 ppm Vertical	50 Hz
SBAS	<5 m 3DRMS	50 Hz
<i>Baseline</i>	<i>Heading</i>	<i>Max Rate</i>
2 m	<0.09°	50 Hz
10 m	<0.05°	50 Hz

## AUXILIARY SENSORS

### PR-6060 / P-160

Digital POE powered Pitch & Roll / tilt inclinometer  
 Accuracy 0.02° (PR-6060), 0.05° (P-160)  
 Max Update rate 20Hz  
 Range PR-6060: pitch/roll -30°/+30°  
 Range P-160: tilt 0°-160° or -80° to +80°  
 1 PoE+ INPUT PORT: supplies Ethernet connectivity & power to the inclinometer  
 1 PoE+ OUTPUT PORT: supplies Ethernet connectivity & power to external devices  
 2 spare analog inputs (4-20mA) for example for a horizontal rotation angle sensor or pressure sensor indicating depth  
 Sensors are typically housed in robust subsea housings with 100m depth rating and able to withstand harsh environments.

## ANTENNA OPTIONS

Type	Specs
Zephyr 2	GPS L1/L2/L5; GLONASS L1/L2/L3; standard, geodetic Galileo E1,E2,E5,E6; SBAS+Omnistar/Marinestar or rugged
LV59	GPS L1/L2/L5; GLONASS L1/L2/L3; Galileo E1,E2,E5; SBAS+Omnistar/Marinestar