

MPS – Multi-Position System



Overview

The MPS has been developed for NATO FORACS (Naval Forces Sensor and Weapon Accuracy Check Sites) in order to provide high quality measurements of the static and dynamic accuracy of the sensor suites of surface vessels, submarines and helicopters.

The MPS measure the vessel's position, heading, roll and pitch. This enables testing, verification and calibration of the vessel's navigation system, typically a system consisting of a differential GPS, a compass and a MRU (Motion Reference Unit).

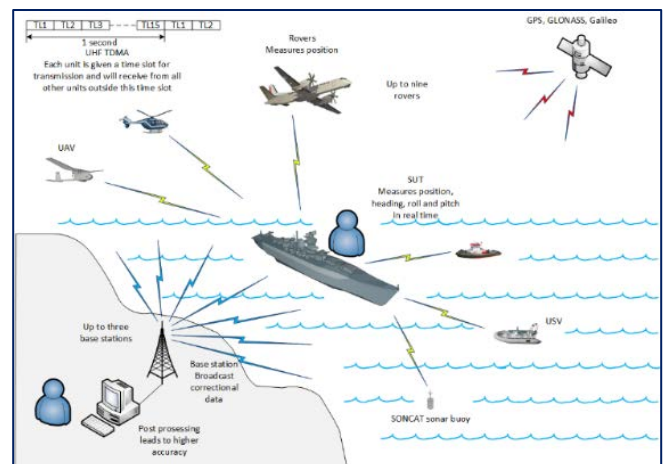
All surrounding targets, stationary or moving, are also positioned. The vessel's target acquisition system is then tested to verify that the targets are correctly positioned, and calibrated if the targets are off-mark. The sensors which are tested and calibrated at the NATO FORACS sites are e.g. gyros, compasses, radars, sonars and ESM-systems (Electronic Support Measures).

Features:

- RTK GNSS with 2 cm real time position accuracy
- Carrier phase attitude
 - Heading: 0.015 deg
 - Pitch and roll: 0.1 deg
- 20 Hz sampling, 10 Hz radio communication
- Radio range up to 50 km
- Rugged construction
- User friendly touch screen configuration

Applications

- Testing and calibration of:
 - Positioning systems
 - Navigation systems
 - Target acquisition systems for land and naval forces
- General surveying and positioning
- Structural inspection of moving targets
- Construction surveying
- Harbour piloting



Specifications (Note: other configuration options are available)

Electrical:	
Power requirement	230/110 V AC or 9 – 30 V DC
A/C power unit, SM2094	Input: 85 -256 V AC, frequency 45 – 440 Hz Output: 12 V DC, min 50 W
Battery unit, SM2095	14.4 V, 9 Ah rechargeable Ni-MH battery. Certified for use in aircraft and helicopter. Built in battery Management System (BMS) for protection and monitoring. Intelligent battery charger.
Battery operating life	8 hours (with 5 Hz GNSS data logging only)
Mechanical:	
Ingress protection	IP 67
Temperature range	Operating: -20 °C to +50 °C (-4 °F to +122 °F) Storage: -40 °C to +60 °C (-40 °F to +140 °F)
Material	Aluminium, chromate coated
Communication:	
Radio unit, SM2093	Output power: 30 dBm (higher output power available on request) Receiver sensitivity: -108 dBm at BER 10 ⁻⁶
Radio antenna	Omnidirectional 2 dBi gain
Radio mode	TDMA (Time Division Multiple Access)
Radio communication range	Up to 50 km (line of sight)
Radio frequency range	320 MHz – 390 Mhz Other frequencies available on request
Radio data rate	115.2 kbps, bandwidth 150 kHz
Radio communication interval	Up to 10 Hz
Other communication interfaces	Ethernet, RS232/RS422

Positioning:	
GNSS unit, SM2092	Using Javad TRE-3N, 864 channels
GNSS systems	GPS, Glonass, Galileo, BeiDou
GNSS antenna	Javad TR-G3T
Time tag accuracy	1 ms
GNSS real time position accuracy (95 %)	RTK fix: 2 cm RTK float : 30 cm SBAS (WAAS and EGNOS) : 1 m Without Correctional Data Source Available: 1.8 m Note: Accuracies dependent on local conditions and number of visible satellites
Attitude accuracy (95 %)	For ships longer than 45 m, wider than 12 m: Heading: 0.015 degrees Pitch and roll: 0.1 degrees (Real time accuracies, using carrier phase data)
Correction source	Base station or existing infrastructure
Post processing	Novatel GrafNav, Javad Giodis
Other:	
Export restrictions	Dual use export license. End user statements required for configuration presented here.
User interface	Local 7" touch screen, web user interface, UPT-software (Unit Positioning Tracking)
Storage	32 GB SD card
Qualifications	EMC: MIL-STD 461F, RE102 helicopter, CE101 and CE102 Vibration and shock: IEC 60068-2-27 Ea, MIL-STD-202G 214A, SAE J1211 4.7

Summary	MPS	GNSS	RF Link	Data Storage	IDATS
<div style="display: flex; justify-content: space-between;"> 100% 86.2% 4.7% </div>					
MPS Operation Mode Rover mode Rover to relay 0 Mark 0 Log com error after 60 Buzzer Off Wakeup 2000-00-00 00:85:00		RF Link Frequency (channel) 358175 Number of radio modems 1 TDMA slot 6 Update frequency 10 Hz		Data Storage NMEA Logging freq 20 Hz Carrier Phase Data 20 Hz	
GNSS Correction Auto GPS Yes GLONASS Yes Galileo No Base station lat NA Base station lon NA Base station height NA		Stern NA Bow NA Port NA Starboard NA Offset NA		IDATS Ethernet Off IP Address NA IP Port NA MAC Address NA RS232 Off RS232 Format NA RS232 EMM Id NA Update rate this unit Off Update rate remote units Off	
<div style="display: flex; justify-content: space-around; background-color: #333; color: white; padding: 5px;"> STANDBY CONFIG READY RUNNING </div>					

