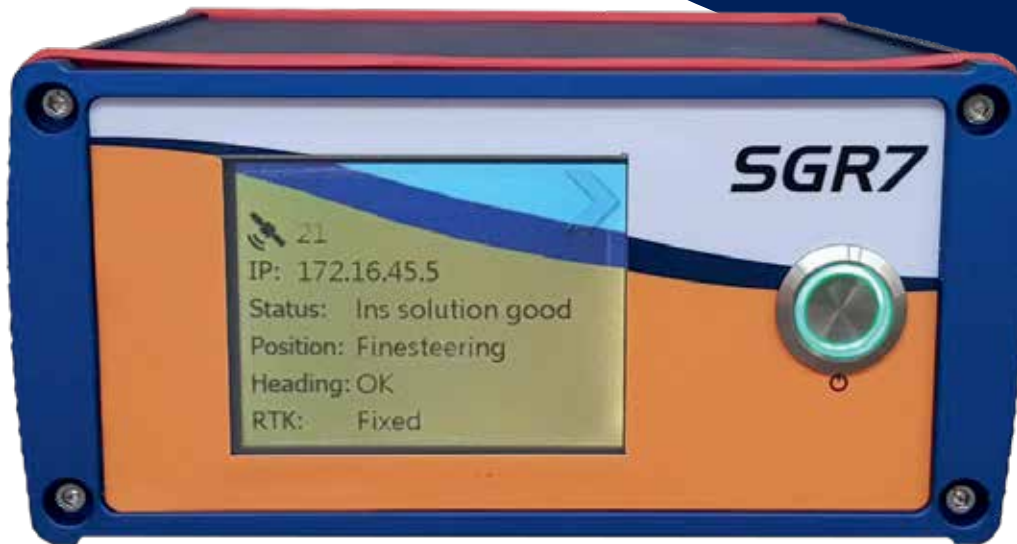# Seabed GNSS Receiver 7

Introduction

The SGR7 is a robust, high precision receiver designed to be an ultra-flexible user-friendly device. From standalone meter-level to RTK centimeter level positioning, the SGR7 is flexible to meet your positioning needs. Capable of receiving several PPP correction signals like Oceanix you can go up to 4cm accurate, base station free. With an integrated 4G modem, gigabyte switch, onboard intelligence, INS ready, display, 555 channels, and comprehensive support for all current GNSS signals, the SGR7 is a state of the art GNSS Receiver.

Connectivity

The SGR7 is equipped with numerous interfaces including an integrated switch providing two gigabyte ethernet ports, and several RS232/485/422 serial ports. To provide RTK the SGR has an integrated 4G modem, providing the convenience of no extra costs and space of an additional modem. The modem can be used for standard internet functionalities as well.

WebGUI

The SGR7 has an easy accessible WebGUI, providing various ways to setup the receiver. A wizard can be used to guide you through setting up your system in an easy and intuitive way. For customers who like a more hands on approach, the system can be setup using the expert settings also.

INS Ready

Using sensor fusion in bringing together two different but complementary technologies: GNSS positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of inertial measurement unit (IMU) gyro and accelerometer measurement are tightly coupled to provide an exceptional 3D navigation solution that is stable and continuously available, even during periods when satellite signals are blocked. The SGR7 supports IMU's from different manufacturers from low accuracy mems to high accuracy FOG units. All ITAR Free.

Benefits/ Features

- Future proofed with all the current and upcoming GNSS signals;
- Rugged IP67 housing for a reliable use in all environments;
- Multiple communication interfaces;
- 555 channels
- 16GB onboard memory for data logging
- Heading ready
- Integrated modem; LTE internet accessible
- Selectable output display;
- 2 Ethernet port gigabyte switches

Seabed GNSS Receiver 7 specifications

Performance [1]

Channel Count	555 channels
Signal Tracking	
GPS	L1C/A, L1C, L2C, L2P, L5
GLONASS [2]	L1C/A, L2C, L2P
Galileo [4]	E1, E5, AltBOC, E5a, E5b, E6
BeiDou [3]	B1,B2,B3
IRNSS	L5
SBAS [5]	L1, L5
QZSS	L1C/A, L1C, L2C, L5, L6
L-band	up to 5 channels
Horizontal Position Accuracy (RMS)	
Single point L1	1.5m
Single point L1/L2	1.2m
SBAS	0.6m
DGPS	0.4m
PPP [6]	
Oceanix Nearshore	0.04m
TerraStar-L	0.4m
TerraStar-C	0.04m
RTK	0.01m + 1ppm
initialization time	<10s
initialization reliability	>99.9%
Maximum data rate	
Measurements	up to 100Hz
Position	up to 100Hz
Time to First Fix	
cold start [7]	<40s
hot start [8]	<19s
Signal Reacquisition	
L1	<0.5s
L2	<1s
Time accuracy [9]	20ns RMS
Velocity accuracy [10]	0.03 m/s RMS
Velocity Limit	515 m/s

Physical & Electrical

Dimensions	180x170x80mm
Weight	1,45kg
Power	
Input Voltage	+9 to +36v VDC
Power Consumption	
GPS/GLONASS L1	10.8 Watt
GPS/GLONASS L1/L2	11.3 Watt
All frequencies/all constellation	11.7 Watt
all frequencies + IMU	18.2 Watt
Antenna power output	
Output voltage	5VDC
maximum current	L1, L5
Connectors	
2x TNC	For GNSS Antenna's
1x BNC	For PPS
1x SMA	For 4G Modem
2x RJ45	GB Ethernet Switch
1x Serial	up to 460,800 bps
1x I/O connector	For breakout cable see manual for specs
1x IMU	
1x Power Supply	
Communication protocols available:	
1x 232/SPI/485/422 IMU Port	up to 460,800 bps
3x 232/422 serial port	up to 460,800 bps
7x TCP/IP/UDP	10/100
3x TCP/IP (NTRip)	
4x event input	
4x event output	

Environmental

Temperature	
Operating	-40C to +75C
Storage	-40C to +85C
Humidity	95% non-condensing Waterproof IEC60529 IPX7
Dust	IEC60529 IP6X
Vibration (operating)	
Random	MIL-STD-810G Method 514.6
Sinusoidal	IEC 60068-2-6
Shock (non-operating)	MIL-STD-810G, Method 516.6Procedure 1, 40g 11ms terminal sawtooth

Included Accessories
- +9 to +36v VDC
- Ethernet Cable
- Null modem cable

Optional Accessories
- Mounting bracket
- SBD 12GGGL antennas
- SBD-IMU-5x
- IMU cable
- Break out cable

Features
- 16GB onboard memory
- WebGui interface accessible via Ethernet
- Output Display
- Field upgradeable firmware and field upgradeable software models

1. Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
2. Hardware ready for L3 and L5.
3. Designed for BeiDou Phase 2 and 3, B1, B2 and B3 compatibility.
4. E1bc and E6bc support only.
5. GPS only.
6. Requires a subscription to a TerraStar data service. Subscriptions available from NovAtel.
7. Typical value. No almanac or ephemerides and no approximate position or time.
8. Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
9. Time accuracy does not include biases due to RF or antenna delay.
10. Export licensing restricts operation to a maximum of 515 metres per second, message output impacted above 500 m/s.

Contact us

For more specific information concerning how we can assist your organization's needs, please call +31(0)20 636 84 43 or visit our website for more information & all our contact details, **www.seabed.nl**

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Getting to the bottom of things