UNDERWATER
COMMUNICATION & NAVIGATION
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Datasheet

RedWave

multiuser underwater navigation
RedNODE device

DESCRIPTION:

RedNODE is an acoustic navigation receiver. Like the GNSS receiver, it calculates its absolute geographic position, depth, and temperature.

Operating the RedNODE in many ways similar to the work with GPS/GLONASS receiver, but instead of GNSS satellites, it needs four RedBASE sonobuoys deployed that allow an unlimited number of RedNODE receivers to function at the same time and at the same place.

Small size, low power consumption and ease of use make RedNODE an ideal solution for mini-ROVs and AUVs and for work-class ROVs.

GPS/GLONASS emulation makes RedNODE integration into its own systems and devices extremely simple.

KEY FEATURES:

- Completely acoustically passive device
- 3D-position in absolute geographic coordinates (WGS-84)
- Simultaneous positioning for an unlimited number of RedNODE receivers
- Small dimensions
- Acoustic range up to 3000 m
- Reliable and noise-immune technology of digital broadband acoustic communication
- Position update rate up to 1 Hz
- Low power consumption, 5V 70 mA
- GPS/GLONASS receiver emulation (NMEA 0183 GGA, RMC, MTW)
- 300 m depth rating

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TECHNICAL SPECIFICATION:

DIMENSIONS	Ø64x62 mm
WEIGHT (dry)	0.31 kg
ACOUSTIC RANGE (energetic)	3000 m
FREQUENCY BAND	10-30 kHz
DEPTH RATING	300 m
NOMINAL 2D ACCURACY[1], 2DRMS	0.84 m
NOMINAL DEPTH ACCURACY[2]	0.1 m
BIT ERROR RATE	10^-6
START-UP TIME	100 ms
SNR[3]	-6 dB
WIRE LENGTH[4]	1.5 m
RELATIVE VELOCITY (Rt-Tx)	+/- 1.8 m/s
TEMPERATURE RANGE	-5..50 ˚C
COORDINATE SYSTEM	WGS-84
NOMINAL TIME TO FIRST POSITION FIX	28 s
NOMINAL POSITION UPDATE RATE	1 Hz
CURRENT CONSUMPTION	70 mA
SUPPLY VOLTAGE	5 V
INTERFACE[5]	UART 9600 bit/s
PROTOCOL	NMEA 0183 + PTNT
GPS/GLONASS EMULATION	GGA, RMC, MTW
TIME SYNCHRONIZATION ACCURACY (for GGA sentence)	<50 ms
DATA LINE VOLTAGE	0..3 V
BUILT-IN TEMPERATURE SENSOR ACCURACY	0.1 ˚C

1. Obtained in real conditions during 60-minute session with buoys and receiver fixed
2. Depends on how relevant current salinity value
3. Value obtained without multipath effect
4. Can be changed by special request
5. Can be changed by special request