



PopotoModem

Enabling the underwater IOT revolution™

Popoto M2000

Product Overview:

The Popoto M2000 is an advanced underwater acoustic modem which delivers superb performance, unique features, and flexible interfacing, allowing for use in nearly any application. Featuring a machined aluminum casing which can withstand depths of up to 2000 meters and a transmitter capable of transmitting at up to 185-190 dB SPL (re 1 μ Pa @ 1m), the M2000 is both versatile and robust.

Features:

- Multiple modulation schemes from 80 BPS to 10240 BPS
- MARIA, Python, and MATLAB® APIs for on-board data processing and system automation
- Ethernet, RS422, and RS232 interfaces, including pShell, JSON, and a web interface
- Acoustic ranging (Accurate to <0.3m)
- High-capacity data logging (upgradeable with microSD)
- Baseband and passband waveform playback and recording during modem operation
- Options for JANUS (NATO ANEP-87), Phorcys Stheno, and Phorcys Euryale



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Data Transfer	
Data Rates	80 bps with Frequency Hopping FSK 10240, 5120, 2560, 1280, 640 bps with PSK Phorcys Stheno & Euryale MS 0-31
Storage	64 GB (PMM5544) or 128 GB (PMM6081) internal Expandable with microSD (up to 1.5tb+)
Range	1-8 km (depending on conditions and modulation scheme selected)
Frequency	20-35 kHz
Transducer Type	20-30 kHz Omnidirectional
Power	
Operating Voltage Range	8.5-36V
Power Draw (PMM5544 Model)	GPIO Enabled Sleep: < 10uW Acoustic Wake Up Deep Sleep: < 45 mW Acoustic Wake Up Sleep: 150 mW Active Receive: 1.5 W
Transmit Power	185-190 dB SPL re 1 µPa @ 1m
Battery	1 to 4 x 77Wh 22.2V Li-Ion
Interface	
Data Connections	Ethernet, RS-422, RS-232
External Interface Connections	SPI Bus, I2C Bus, GPIO, Analog
APIs	Python, C++, MATLAB®, JSON, JACK, and MARIA
Processor	Dual-Core (PMM5544) or Quad-Core (PMM6081) 1.4GHz Arm® Cortex®-A53
Operating System	Debian Linux for user applications
Hardware	
Size	500mm x 165mm x 132mm
Weight	Dry: 3.8Kg (single battery) or 4.7Kg (4-battery) In Sea Water: 0.6Kg (single battery) or 1.5Kg (4-battery)
Depth Rating	2000m
Export Classifications	5A991 Controlled for anti-terrorism only

