



PRODUCT DATASHEET

SUBNERO M25M SERIES MODEMS

Software-defined smart modems with class leading performance



KEY FEATURES

- ▶ Up to 15 kbps data rate in challenging conditions
- ▶ More than 4 km communication range
- ▶ Deep sleep state with <math><1\text{ mW}</math> power consumption
- ▶ Localization & ranging with 0.1 m precision
- ▶ Arbitrary waveform transmission and recordings
- ▶ Enhanced performance with additional receiving channels

APPLICATIONS

- ▶ AUV command & control, telemetry, payloads
- ▶ ADCP data retrieval (SWIS - ADCP Edition)
- ▶ Diver communication and localization
- ▶ Underwater networks



BEST-IN-CLASS PERFORMANCE

Operate with data rates up to 15 kbps or communication ranges of more than 4 km in shallow waters



SOFTWARE-DEFINED DESIGN

Unprecedented flexibility to allow in-field configuration to achieve application specific performance using UnetStack



BUILT-IN NETWORKING

Fully functional network stack for deploying scalable underwater networks



MULTI-CHANNEL OPTION

Enable spatial diversity combining, localization and acoustic monitoring with additional receiving channels



AUVS & SENSORS

Provide robust communications to enable supervised autonomy for underwater vehicles



OPTIONAL UPGRADES

A plethora of optional upgrades and accessories to suit your application's needs

TECHNICAL SPECIFICATIONS

FEATURES	DETAILS
Modem	Subnero M25M Series Modem
Data rate	Up to 15 kbps (depending on channel conditions)
Operating range	More than 4 km (depending on channel conditions)
Ranging precision	0.1 m
Doppler resilience	±4 knots or better
Modulation (sw-defined)	PSK-OFDM, FH-BFSK
Forward error correction	LDPC, Convolution code, 1/2 rate code (JANUS)
Bandwidth	12 kHz (20 - 32 kHz)
Software framework	UnetStack, www.unetstack.net
Software interface	Java, Groovy, Python, C, Javascript, Julia, web UI, JSON/TCP
Waveform player	Transmission and reception, passband and baseband
Hardware interface	Ethernet (10/100 Mbps), RS232, power
Power source	External power: 22-28 V DC (24 V DC recommended)
Power consumption	< 4 W (receive mode, nominal) < 45 W (transmit mode, avg.) < 1 mW (deep sleep mode)
Onboard storage	32 GB (upgradable to 1 TB)
Operating depth	300m (Aluminum), 2000m (Stainless steel), 4000m, 6000m (Titanium)
Available editions	Silver, Research, Platinum (Gen3)
Available configurations	Standalone (SC), OEM (OC), Multi-channel
Dimensions	SC: ø 127 x 316 mm, OC: ø 100 x 132 mm
Weight (in air / water)	SC: 5.0 / 1.5 kg, OC: 0.8 kg / NA
Operating temperature	SC: 0 to 40 °C, OC: 0 to 70 °C (electronics) 0 to 40 °C (transducer)



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