



## PRODUCT DATASHEET

# SUBNERO S40H SERIES MODEMS

High speed software-defined smart modems enabling new applications



### KEY FEATURES

- ▶ Up to 33 kbps data rate in challenging conditions
- ▶ Up to 1 km communication range
- ▶ Deep sleep state with  $<1$  mW 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
- ▶ On-demand wireless image transfer
- ▶ ADCP data retrieval (SWIS - ADCP Edition)
- ▶ Diver communication and localization
- ▶ Underwater networks



#### HIGH PERFORMANCE

Operate with data rates up to 33 kbps or communication ranges up to a kilometer in challenging conditions



#### 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 large underwater networks



#### MULTI-CHANNEL OPTION

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



#### HOVERING AUVS & SENSORS

Addressing the ever increasing need for high speed sensor payload transfer for hovering AUVs and sensors



#### OPTIONAL UPGRADES

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

# TECHNICAL SPECIFICATIONS

FEATURES	DETAILS
Modem	Subnero S40H Series Modem
Data rate	Up to 33 kbps (depending on channel conditions)
Operating range	Up to 1 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, BCH, Convolution code
Bandwidth	25 kHz (25 - 50 kHz)
Software framework	UnetStack, <a href="http://www.unetstack.net">www.unetstack.net</a>
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)
Available editions	Silver
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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