WHITE LiNE **SCIENCE EDITION** | UNDERWATER ACOUSTIC COMMUNICATION SYSTEM

S2CR WiSE Series

PRODUCT INFORMATION

S2C Technology: reliable high-speed data transmissions with up to 31.2 kbit/s

Firmware sandbox - a platform for developers

Advanced data delivery protocol

Horizontally omnidirectional beam pattern, optimized for short and medium range transmissions

TECHNICAL SPECIFICATIONS

			S2CR 48/78 WISE	S2CR 18/34 WISE
GENERAL	OPERATING DEPTH	Delrin	200 m	200 m
	OPERATING RANGE		1000 m	3500 m
	FREQUENCY BAND		48 - 78 kHz	18 - 34 kHz
	TRANSDUCER BEAM PATTERN		horizontally omnidirectional	horizontally omnidirectional
CONNECTION	ACOUSTIC CONNECTION		up to 31.2 kbit/s	up to 13.9 kbit/s
	BIT ERROR RATE		less than 10^{-10}	
	INTERNAL DATA BUFFER		1 MB, configurable	
	HOST INTERFACE		Ethernet	
	INTERFACE CONNECTOR		1 SubConn® Metal Shell 1500 Series	
POWER	CONSUMPTION	Stand-by Mode	2.5 mW	2.5 mW
		Receive Mode [3]	1.3 W	1.3 W
		Transmit Mode	5.5 W, 250 m range	2.8 W, 1000 m range
			8 W, 500 m range	8 W, 2000 m range
			18 W, 1000 m range	35 W, 3500 m range
			60 W, max. available	65 W, max. available
	POWER SUPPLY [4]		External 24 VDC (12 VDC optional)	
PHYSICAL	DIMENSIONS [5]	Housing	Ø 110 mm x 178 mm	Ø 110 mm x 178 mm
		Total length	265 mm	265 mm
	WEIGHT dry/wet	Delrin	2250/400 g	2250/400 g
FIRMWARE	SANDBOX [6]		16-64 MB (extendable, up to 32GB with SD memory card)	
	WiSE TOOLCHAIN		uClibc library, GCC (C, C++) compiler, GDB debugger	
	TCL/EXPECT		pre-installed	

CONFIGURATION OPTIONS

OEM VERSION	Version without housing: transducer and electronics for system integration

[4] Contact EvoLogics for more information on power supply options.
[6] Contact EvoLogics for more information on firmware sandbox options.

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APPLICATIONS

Underwater network protocol development

Underwater acoustic sensor networks

High-speed communication in adverse conditions

S2CR White Line Science Edition (WiSE) series of underwater acoustic modems offers an open environment for network protocol developers, providing a flexible framework for testing new network protocols on real hardware - the S2CR WiSE acoustic modems facilitate an embedded sandbox of up to 32 GB. The WiSE toolchain allows to build custom firmware modules for S2C modems and opens endless opportunities for new implementations.

The **hosted sandbox** eliminates the need to interface each node of the test network to a dedicated PC for running code. Scripts and other programs can be run directly on the WiSE underwater acoustic modem, which makes S2C WiSE a time- and cost-effective hardware solution for development and testing.

The WiSE Toolchain includes the uClibs library, GCC(C, C++) compiler and GDB debugger, and allows to cross-compile C/C++ applications for the modem sandbox.

Tcl/expect, a tool for automating interactive applications, is pre-installed in the WiSE sandbox.

Following development frameworks can be installed in the sandbox:

- DESERT framework, an NS-Miracle extension to DEsign, Simulate, Emulate and Realize Testbeds for Underwater network protocols.
- EviNS, a framework for development of underwater acoustic sensor networks and positioning Systems.

S2C R WiSE modems extend the functionality of the main R-series modem range, implementing the patented S2C communication technology that delivers great results in most challenging conditions. 2 models of S2CR WiSE modems are available in several configurations and suit a wide range of real-world application scenarios.

OPERATING CONDITIONS

TEMPERATURE	Operating	0°C - +60°C
	Storage	-4°C - +60°C
MAXIMUM SHOCK		20g, 11 ms half sine
MAXIMUM VIBRATION		frequency range 5-150 Hz, 5-25 Hz: ±2mm; 25-50Hz: 5g

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