



DESCRIPTION

EvoLogics S2CR 40/80 USBL underwater acoustic system is an efficient and reliable underwater positioning and communication device for a variety of subsea applications. A single device, combining a powerful USBL positioning tool with full benefits of an S2C technology communication link, is an efficient choice for application scenarios that demand space-, energy- and cost-saving solutions.

S2CR 40/80 USBL has a directional 70° transducer beam pattern, optimized for medium range transmissions in vertical and slant channels or stationary systems.

S2CR 40/80 USBL provides USBL tracking and full-duplex digital communication using the EvoLogics patented S2C (Sweep-Spread Carrier) Technology, delivering an excellent all-round performance, resistant to the challenges of a dynamic subsea environment. Self-adaptive algorithms adjust the S2C parameters to maintain the highest bit rate possible in current conditions.

S2CR 40/80 USBL offers accurate and precise USBL tracking of remote targets. Switching between Positioning Mode and Communication Mode is not necessary: positioning data is calculated simultaneously with acoustic transmissions. Both features complement each other in a fully integrated positioning and communication system.

S2CR 40/80 USBL utilizes the novel EvoLogics communication protocol with multiple data management options. A comprehensive set of commands provides full control over the system's functionality, system settings are software-configurable. The firmware supports addressing and networking, moreover, transmissions of commands or high-priority messages do not interrupt the main data flow between devices.

S2CR 40/80 USBL is available in a variety of configurations. A selection of housings offers depth rating options. Choose between multiple host connection interfaces or their combinations to seamlessly integrate the instrument into any underwater system. An optional Wake-Up module helps optimizing the power consumption for short- or long-term deployments - the configurable Wake-up module checks for incoming acoustic signals or data on the host interface and turns the modem on when such a signal is detected. An optional internal AHRS (Attitude and Heading Reference System) compensates for changing orientation of the tracking device.

Unique application scenarios might require additional customization - EvoLogics experts are always ready to address any special requests.

KEY FEATURES

3D USBL positioning along with reliable high-speed transmissions with S2C Technology – up to 27,7 kbit/s

Directional 70° transducer beam pattern, optimized for vertical and slant channels or stationary systems.

APPLICATIONS

Communication and positioning for AUV, ROV

Underwater acoustic sensor networks

SPECIFICATIONS

GENERAL	OPERATING DEPTH	500 m, Delrin housing	
		1000 m, Aluminium Alloy housing	
		2000 m, Stainless Steel housing	
	OPERATING RANGE	2000 m	
	FREQUENCY BAND	38 - 64 kHz	
TRANSDUCER BEAM PATTERN	directional, 70°		
CONNECTION	ACOUSTIC CONNECTION	up to 27,7 kbit/s	
	BIT ERROR RATE	less than 10 ⁻¹⁰	
	INTERNAL DATA BUFFER	1 Mb, configurable	
	HOST INTERFACE ¹⁾	Ethernet, RS-232 (RS-485/422 optional)	
	INTERFACE CONNECTOR	up to 2 SubConn® Metal Shell 1500 Series	
POSITIONING	RANGE	2000 m	
	SLANT RANGE ACCURACY	0.01 m ²⁾	
	BEARING RESOLUTION	0.1°	
	NOMINAL SNR	10 dB	
	TRACKING BEAM PATTERN	directional, 70°	
POWER	POWER CONSUMPTION	Stand-by Mode	2,5 mW
		Listen Mode ³⁾	5 - 285 mW
		Receive Mode	up to 1,3 W
		Transmit Mode	2,5 W, 250 m range
			3,5 W, 500 m range
			40 W, 1000 m range
	60 W, max. available		
POWER SUPPLY	External 24 VDC (12 VDC optional) or Internal rechargeable battery (optional) ⁴⁾		
PHYSICAL	DIMENSIONS ⁵⁾	Housing Ø 110 mm x 170 mm	Total length 315 mm
		USBL sensor Ø 130 x 145 mm	
	WEIGHT	Delrin housing, dry/wet	5990 g/ 3090 g
		Aluminium Alloy housing, dry/wet	6700 g/ 3800 g
Stainless Steel housing, dry/wet		12600 g/ 8200 g	

¹⁾ See Configuration Guide on p.3 for available standard interface combinations.

²⁾ Slant range estimation is based on the measured time delay, slant range accuracy depends on sound velocity profile, refraction and signal-to-noise ratio.

³⁾ User-configurable Listen Mode is only available with a Wake-Up module installed.

Power consumption in Listen Mode depends on Listen Mode settings.

⁴⁾ Contact EvoLogics for more information on power supply options.

⁵⁾ Dimensions of a Delrin housing, other builds are slightly larger.

Specifications subject to change without notice.

CONFIGURATION OPTIONS

HOUSING	DELTRIN	Plastic non-magnetic corrosion-resistant housing, depth rating 500 m	
	ALUMINIUM ALLOY	Light metal housing for short-term deployments, depth rating 1000 m	
	STAINLESS STEEL	Robust metal housing, suitable for long-term deployments in harsh environments, depth rating 2000 m	
INTERFACE	1 CONNECTOR	RS-232 ¹⁾ or	
		Ethernet	
	2 CONNECTORS	RS-232 + RS-232 or	
		RS-232 + Ethernet	
MODULES	WAKE-UP MODULE	RS-232 interface	✓
		Ethernet interface	✗
		RS-232 + RS-232 interface	✓
		RS-232 + Ethernet interface	✗
	ROLL, PITCH, HEADING	AHRS, internal Xsens® MTx ²⁾	

¹⁾ One RS-232 Interface can be replaced with either RS-485 or RS-422 interface.
More interface configurations available by special request.
Contact EvoLogics for more information.

²⁾ Power consumption increases by 400 mW with an AHRS installed.