

ECHO 81

YOUR SUBSEA SOLUTIONS SPECIALIST

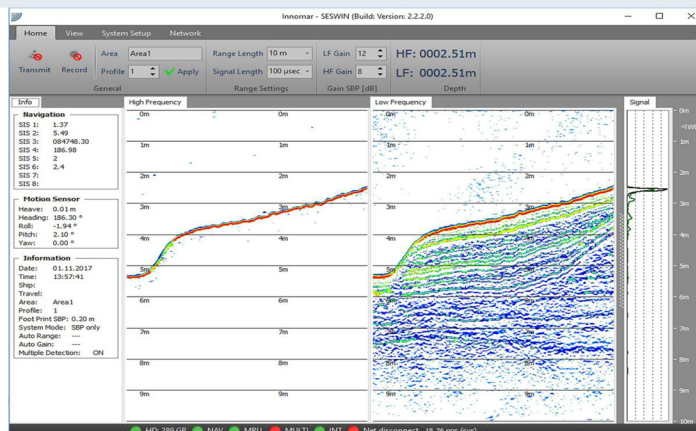
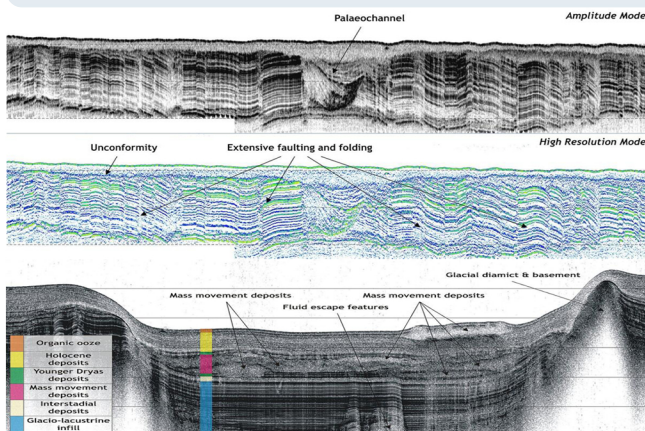


Shallow-Water PARAMETRIC SUB-BOTTOM

Sub-bottom profiling in shallow waters is challenging for traditional systems and techniques due to wide-beam transducers, sidelobe patterns, ringing effects and high reverberation levels. The parametric technology used in our shallow-water models offers very narrow beams of less than 5 degrees with highly portable transducers and a high system bandwidth with sub-decimetre resolution.

				
	"smart" SBP	"compact" SBP	"light" SBP	"standard" SBP
Water depth	0.5 – 100 m	0.5 – 400 m	0.5 – 400 m	0.5 – 500 m
Penetration	up to 20 m	up to 40 m	up to 40 m	up to 50 m
Frequencies	10 / 100 kHz	4 – 15 / 100 kHz	4 – 15 / 100 kHz	4 – 15 / 100 kHz
H / R / P comp.	• / - / -	• / - / -	• / - / -	• / • / -

A unique feature of Innomar's parametric SBPs is the possibility to work in extremely shallow waters, even less than one metre. Devices can be mobilized on vessels of opportunity or autonomous platforms at various scales. Devices can be mobilized on vessels of opportunity or autonomous platforms at various scales.



DATASHEET

	Smart	Compact	Light	Standard
Water Depth Range	0.5 – 100 m below transducer	0.5 – 400 m below transducer		0.5 – 500 m below transducer
Sediment Penetration	up to 20 m (depending on sediment type and noise)	up to 40 m (depending on sediment type and noise)		up to 50 m (depending on sediment type and noise)
Sample / Range Resolution	c. 1 cm / up to 8 cm (depending on pulse settings)	<1 cm / up to 5 cm (depending on pulse settings)		
Transmit Beam Width (-3dB)	c. ±2.5° for all frequencies / footprint c. 9% of water depth	c. ±2° for all frequencies / footprint c. 7% of water depth		
Ping Rate	up to 40 Hz (pings/s)		up to 50 Hz (pings/s)	
Heave / Roll / Pitch Compensation	heave (depending on external sensor data)			heave + roll (depending on external sensor data)
Primary Frequencies (PHF)	c. 100 kHz (frequency band 90 – 110 kHz)	c. 100 kHz (frequency band 85 – 115 kHz)		
PHF Source Level / Acoustic Power	>235 dB//µPa re 1m / c. 2 kW	>238 dB//µPa re 1m / c. 2.3 kW		>240 dB//µPa re 1m / c. 3.5 kW
Secondary Low Frequency (SLF)	centre frequency 10 kHz	centre frequency user selectable: 4, 5, 6, 8, 10, 12, 15 kHz		
SLF Total Frequency Band	5 – 15 kHz	2 – 22 kHz		
SLF Pulse Type	Ricker, CW			Ricker, CW, LFM Chirp
Pulse Width	user selectable 0.1 – 0.5 ms (CW)	user selectable 0.07 – 1.0 ms (CW)		user selectable 0.07 – 1.0 ms (CW); 1.5 ms (chirp)
Data Acquisition and Recording	digital 16 bit / c. 70 kHz (SLF full waveform, PHF envelope)		digital 16 bit / 96 kHz (SLF full waveform, PHF envelope)	digital 24 bit / 96 kHz (SLF full waveform, PHF envelope)
Data File Format	Innomar "RAW" (16 bit), "SEGY" (via SESconvert)			Innomar "SES3" (24 bit) & "RAW" (16 bit), "SEGY" (via SESconvert)
External Sensor Interfaces	HRP (motion, RS232), GNSS position, depth (both RS232 / UDP), trigger (BNC)	HRP (motion), GNSS position, depth (all RS232 / UDP), trigger (BNC)		
Bottom Detection	internal (PHF and SLF data) or external depth			
Depth Accuracy	(2.5 cm @ 100 kHz / 5 cm @ 10 kHz) + 0.1% of water depth	(2 cm @ 100 kHz / 4 cm @ 10 kHz) + 0.06% of water depth		
Remote Control / Survey Integration	basic functions via COM or Ethernet (UDP), NMEA		KVM / basic functions via COM or Ethernet (UDP), NMEA	
Topside Unit (Transceiver)	W 47 cm × D 36 cm × H 17 cm (IP65) / weight c. 9 kg	W 30 cm × D 40 cm × H 20 cm (½ 19" / 4U) / weight c. 15 kg	W 52 cm × D 40 cm × H 26 cm (19" / 5U) / weight c. 25 kg	W 52 cm × D 40 cm × H 34 cm (19" / 7U) / weight c. 35 kg
Transducer	W 27 cm × D 21 cm × H 6 cm / weight c. 10 kg (incl. 15 m cable)	W 34 cm × D 26 cm × H 8 cm / weight c. 22 kg (incl. 20 m cable)		W 34 cm × D 26 cm × H 8 cm / weight c. 30 kg (incl. 30 m cable)
Transducer Depth Rating	Surface	Surface	Surface	Surface
Power Supply	10–30 V DC; optional external AC power supply (100–240 V AC)	100–240 V AC; optional external DC power inverter (12 / 24 V)		
Power Consumption	<100 W	<150W	<250W	<300W
Control / Data Storage PC	external PC/Laptop/Tablet (MS Windows 10/11 OS), not included	external PC/Laptop (MS Windows 10/11 OS), not included	integrated PC (MS Windows 10/11 OS) with 10" TFT display	
First / Latest Product Generation	2017 / 2022	2002 / 2021	2000 / 2021	1997 / 2020



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