SPRINT-Nav is the world's highest performing all-in-one hybrid navigator for all subsea vehicles and survey operations and is available in two frequencies: 600 kHz or 400 kHz for higher altitude tracking.

The SPRINT-Nav is a turn-key solution combining carefully selected inertial sensors, a Syrinx Doppler Velocity Log (DVL) and a high accuracy pressure sensor into a single housing.

The result is not only the highest performing hybrid navigator but also one of the smallest navigation instruments on the market.

All onboard sensors are optimally integrated to provide seamless operation and unprecedented levels of performance compared with standalone instruments from different vendors.

The unit comes pre-calibrated and requires no additional calibration to achieve unprecedented performance with minimal operational complexity.

SPRINT-Nav's inertial dual AHRS & INS algorithm capability is unique in the market and allows for automatic on-board integrity checking between algorithms as well as instantaneous INS start up with North alignment from the on-board AHRS. This capability allows for simultaneous use from one instrument, e.g. AHRS plus DVL for ROV piloting and INS plus DVL for survey operations.

Tight beam-level DVL aiding for the on-board INS with optimal timing and use of proprietary QC metrics provides higher performance and more reliable navigation in demanding bottom-lock environments. Furthermore, the tight integration also enables unconventional mounting arrangements, i.e. tilting the SPRINT-Nav, enabling vehicle integration previously not possible.

Each DVL transducer is fitted with a full depth-rated water block to ensure protection of the internal components. Combined with beam level aiding the SPRINT-Nav will continue to function even if one of the DVL transducers has been damaged.

SPRINT-Nav can be interfaced using a single connection and/or the internal sensors can be interfaced separately depending on requirements.

Internal battery backup provides continuous on-board navigation and data storage supporting post-mission diagnostics and post-processing, even throughout brownout periods.

Export of SPRINT-Nav is simplified as compared to other separate DVL and INS units. For example, shipping from outside the USA does not require a re-export licence.

Typical applications

- Any subsea vehicle including AUV, AIV, ROV, Towfish & ROTV
- Ideally suited for autonomous and resident vehicles
- Survey and construction

Key features

- World's highest performing hybrid navigator
- All-in-one turn-key solution
- Dual concurrent AHRS, INS and DVL output capability for multi-use
- Instantaneous INS initialisation from AHRS with no alignment procedure required
- Dual AHRS & INS algorithms enabling internal health check of orientation
- Proven long life and high MTBF inertial sensors from trusted long-term US supplier
- Remote diagnostics and performance verification
- Fully water blocked DVL endcap protecting internal electronics
- Full ocean depth aiding from USBL
- Two DVL Frequencies available: 600 kHz or 400 kHz HA (High Altitude)
- Export is not ITAR controlled

Specifications
SPRINT-Nav
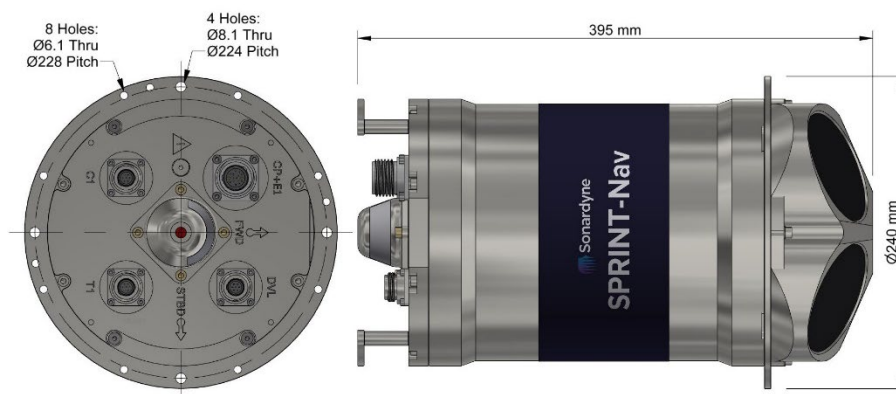
Performance			SPRINT-Nav 300	SPRINT-Nav 500	SPRINT-Nav 700	SPRINT-Nav X
DVL aided[1]	Typical survey		0.04%	0.02%	0.01%	0.01%
	Distance from origin		0.12%	0.07%	0.05%	Get in touch
	High Altitude (HA) option[2]		0.12%	0.08%	0.06%	Get in touch
Unaided			1.2 m in 60 s	0.8 m in 60 s	0.5 m in 60 s	Get in touch
Altitude min/max	Standard		0.4/175 m			
	High Altitude (HA) option[2]		0.4/230 m			
USBL & DVL aided	Precision improvement		Up to 7x better	Up to 10x better	Up to 13x better	Up to 13x better
Station keeping			<1 m over 24 hours			
LBL/DVL aided			3 cm confined area, 20 cm wide area (dynamic)			
INS/AHRS heading[1] (Secant latitude)	INS		0.05º	0.04º	0.02º	0.01°
	AHRS		0.20º	0.10º	0.08º	0.08°
AHRS/INS roll and pitch[1]			0.01º	0.01º	0.01º	0.01º
Pressure sensor			0.01% FS removable module			
ADCP	Profiling range[3]	600 kHz	0.4–80 m			
		400 kHz	0.4–120 m			
	Velocity range & RMS (along beam)[3]	600 kHz	Up to ±5.6 m/s ±0.4% of measured value			
		400 kHz	Up to ±8.4 m/s ±0.4% of measured value			
	Maximum number of cells		255			
	Maximum ping rate		4 Hz (ADCP) or 2.5 Hz (DVL+ADCP)			
Power						
Power requirements	DVL off		20–50 V dc, 15 W nominal, 35 W maximum			
	DVL on and battery fully charged		20–50 V dc, 25 W nominal, 35 W maximum			
Internal battery backup			Li-ion/5 minutes			
Physical/Comms						
Data storage			8 GB internal memory			
Serial ports/protocol			4x RS232 or RS485			
Other ports			Ethernet, 4 triggers			
Mechanical construction			Titanium			
Dimensions (diameter x height) (incl. connectors and mounting ring)		4,000 m	240 x 395 mm			
		6,000 m	240 x 405 mm			
Weight air/water[4]		4,000 m	23.9/13.1 kg			
		6,000 m	28.1/17.2 kg			
Environmental						
Depth rating			4,000/6,000 m			
Operating temperature			-5 to 50°C			
Storage temperature			-25 to 55°C			

[1] CEP50.

[2] High Altitude DVL 400 kHz.

[3] Standard 600 kHz and High Altitude (HA) 400 kHz.

[4] Estimated weights.

Specifications subject to change without notice – 01/2024