Datasheet
SPRINT-Nav F / FX

SPRINT-Nav F and FX are the world's highest performing all-in-one hybrid navigators, optimised for sustained free inertial performance and seabed survey where accuracy and position integrity is crucial.

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

High-performance IMUs (low bias and ARW) in the F/FX range mean SPRINT-Nav F/FX are suitable for sustained free inertial operations in the most challenging mid water column environments, well outside of DVL bottom lock.

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 exceptional performance with minimal operational complexity.

Each DVL transducer is fitted with a full depth-rated water block to ensure protection of the internal components. When combined with its 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 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.

It offers an easy-to-use Web UI, which provides an intuitive dashboard viewer as well as configuration and detailed status pages for integration and troubleshooting. A clearly defined API allows for deep integration into vehicle control systems and remote operation of the system.

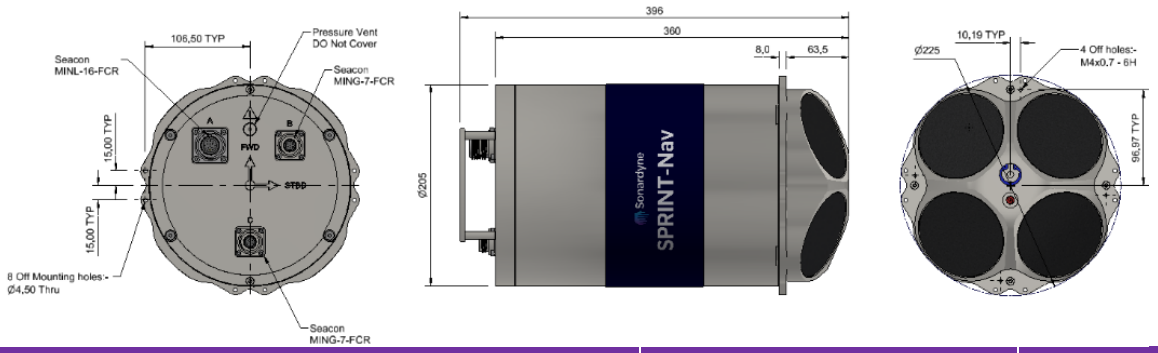
Typical applications

- Optimised for sustained free inertial XL UUVs and surface vessels.
- Seabed survey.

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
- Web user interface
- High MTBF inertial sensors
- Remote diagnostics and performance verification
- Fully water blocked DVL endcap protecting internal electronics
- Full ocean depth aiding from USBL and LBL
- 625kHz DVL
- FX grade IMU is controlled by separate governmental export controls in addition to dual use.

Specifications
SPRINT- Nav F / FX



Performance		SPRINT-Nav F	SPRINT-Nav FX
DVL aided[1]	Typical survey	0.01%	0.01%
	Distance from origin	0.04%	0.04%
	Station keeping	<1 m over 24 hours	
Unaided[2]	Short term	0.3m in 60s	0.3m in 60s
	Long term	1 nm in 24 hours	1 nm in 72 hours
Altitude min/max[3]		0.3/175 m	
USBL/GNSS & DVL aided	Precision improvement	Up to 13x better	Up to 13x better
LBL/DVL aided		3 cm confined area, 20 cm wide area (dynamic)	
Heading (Secant latitude)	with GNSS or USBL and DVL	0.01°	
	with GNSS or USBL or DVL	0.01°	
AHRS/INS roll and pitch[1]		0.01°	
Heave[4]		5 cm or 5%	
Pressure sensor[5]		0.01% FS	
ADCP[6]	Profiling range	0.4–80 m	
	Velocity range and RMS (along beam)[3]	Up to ±5.6 m/s ±0.4% of measured value	
	Maximum number of cells	255	
	Maximum ping rate	4 Hz (ADCP) or 20 Hz (DVL)	
Power			
Power requirements	DVL off	24 V dc ±10%, 15 W nominal, 35 W maximum	
	DVL on and battery fully charged	24 V dc ±10%, 25 W nominal, 35 W maximum	
Internal battery backup		Li-ion/5 minutes	
Physical/comms			
Data storage		64 GB internal memory	
Serial ports/protocol		3x RS232 or RS485	
Other ports		Ethernet, 4 triggers	
Mechanical construction		Titanium	
Dimensions (d x h)[7] (incl. connectors and mounting ring)		225 x 396 mm	
Weight air/water[8]		22.75 kg/11.6 kg	
Environmental			
Depth rating		6,000 m	
Operating temperature		-5 to 50°C	
Storage temperature		-25 to 55°C	

[1] All accuracy figures related to time or distance are CEP50, all angular accuracies/heave are 1DRMS. All distance travelled % values assume accurate direct read sound velocity.
[2] Unaided values refer to pressure/depth aiding only, no other aiding, and apply to well aligned systems.
[3] Dependent on bottom type.
[4] Whichever is greater, for wave periods up to 10 seconds.
[5] 0.01% precision, 0.05% accuracy, relative to full scale of sensor, raw pressure available or processed depth.
[6] Optional upgrade.
[7] Sonardyne can provide .stp files and technical drawings for installation.
[8] Measured in 20°C fresh water.

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Specifications subject to change without notice –08/2026