Datasheet
SPRINT-Nav U

SPRINT-Nav U is the world's smallest hybrid acoustic-inertial navigator, built on over a decade's experience gained with SPRINT-Nav.

SPRINT-Nav U has been designed to address a clear market need in smaller marine robotic platforms and towfish to provide accurate, precise and robust guidance and navigation information.

SPRINT-Nav U empowers small ROVs, AUVs and towfish to conduct full geophysical survey and inspection in challenging environments, where previously accurate and reliable navigation was not possible.

SPRINT-Nav U combines carefully selected inertial sensors, a Syrinx Mini Doppler velocity log (DVL+ADCP) and a high accuracy pressure sensor into a single housing and is ultra optimised for size, weight and power consumption.

Like all SPRINT-Nav products, SPRINT-Nav U uses information from its combined sensors optimally to provide seamless operation and unprecedented levels of performance compared with standalone instruments.

SPRINT-Nav U uses Fibre Optic Gyro (FOG) technology to find North and is completely unaffected by proximity to ferrous objects.

SPRINT-Nav U outputs industry standard messages for command and control of your marine robotic platform, making integration straightforward.

SPRINT-Nav U provides survey grade velocity, depth and altitude which is free from noise and immune to short term DVL acoustic outages. Being able to provide these messages, including quality metrics, at a constant output rate of up to 200 Hz drastically improves vehicle control.

The compact, one package, form factor is significantly smaller and lighter than any other true north seeking combination available in the market.

As is standard across the whole SPRINT-Nav family, it comes pre-calibrated offering minimal operational complexity. And can be mounted from the DVL face or the top of the unit.

An easy-to-use Web UI 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.

SPRINT-Nav U unlocks the potential to deliver big performance from small vehicles, delivering true geo-referenced data in applications that have previously been unreachable with such vehicles.
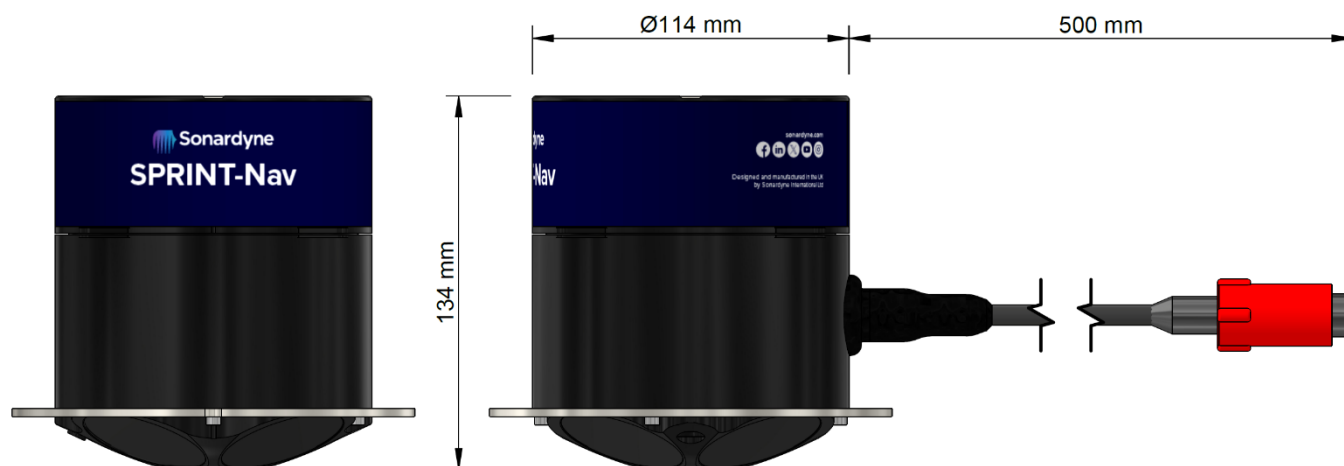
Typical applications

- Ideal for increasing the capabilities of Observation-class ROVs
- Improved navigation for towed platforms manned submersibles and diver navigation boards
- Optimised for AUVs

Key features

- World's smallest hybrid acoustic-inertial navigator
- True North seeking
- Survey grade sensor suite
- Ability to disable onboard logging
- All-in-one turn-key solution
- Highly optimised size, weight and power
- 300 m depth rating
- Fixed frequency guidance and navigation outputs
- Factory calibrated
- Water blocked cable
- 500 kHz DVL + ADCP
- 0.3–100 m bottom track operating altitude
- Intuitive web UI
- Direct DVL and pressure output alongside INS outputs
- Modern API and common interface to whole SPRINT-Nav family
- Export is not ITAR controlled
- World's fastest aligning subsea navigator (with DVL bottom lock, alignment possible within 5 minutes)

Specifications
SPRINT-Nav U

Ø114 mm   500 mm   134 mm

Performance[1]		SPRINT-Nav U
DVL aided[2],[3]	Typical survey	0.1%
	Distance from origin	0.45%
Altitude min/max		0.3/100 m
USBL and DVL aided	Precision improvement	Up to 4x
Heading[4] (secant latitude) with GNSS or USBL, and DVL		0.15°
Heading[5] (secant latitude) with GNSS or USBL or DVL		0.2°
Roll and pitch[2]		0.02°
Angular rate range		±450°/s
Velocity precision (<2 m/s at 50 m altitude)		<1.0 cm/s
Depth accuracy		0.01% FS
ADCP	Profiling range	0.4–50 m
	Velocity range and RMS (along beam)	Up to ±6.7 m/s ±0.4% of measured value
	Maximum number of cells	255[5]
	Max ping rate	1 Hz
Power		
Power requirements		24 V dc ±10%, 8 W nominal
Physical/Comms		
Data storage		32 GB internal memory
Serial ports/protocol		1 RS232 (available on cable but not Subconn MCIL8F)
Interfaces		Ethernet, UDP/TCP, WebUI, 1 x trigger inputs/output (1PPS in/out or DVL trigger), NTP, ZDA out
Mechanical construction		POM-C, Titanium
Dimensions (diameter x height)		134 x 114 mm (excluding penetrator)
Weight air/water[6]		1.98/0.60kg
Environmental		
Depth rating		300 m
Operating temperature		-5 to 40°C
Storage temperature		-25 to 70°C

---

[1] Pre-March 2025 performance specifications, see website for latest specification.

[2] CEP50

[3] With accurate external sound velocity.

[4] RMS

[5] 150 at launch.

[6] Estimated weights.

Specifications subject to change without notice –03/2025