

SpotScan®



KONGSBERG



LIDAR-based relative positioning sensor

SpotScan® is a high performance LIDAR-based relative positioning reference sensor optimized for positioning and station keeping at wind turbines.

No retro-reflective targets needed

SpotScan® is a dynamic positioning reference system primarily designed for use by offshore wind turbine service vessels. The SpotScan® sensor is a robust motion stabilized rotating LIDAR which measures range and bearing to the offshore wind turbine without the need for fixed targets to be installed.

The onboard Processing Unit runs the application software, which makes configuration and monitoring of the SpotScan® system easy and efficient.

Robust target tracking

In addition to a high bearing resolution, SpotScan® features a vertical resolution of similar magnitude. This, combined with real-time adjustments in dynamic environments, provides robust object recognition and tracking.

Robust target tracking combined with true horizontal distance measurements, provides a high integrity reference solution, with accurate range and bearing input for dynamic positioning operations.

Close-by operations

Due to its unique design, SpotScan® is capable of target tracking in close-by operations. By utilizing roll and pitch stabilization, SpotScan® has a wide vertical field of regard which keeps track of the target even at high elevation angles.

Increased availability

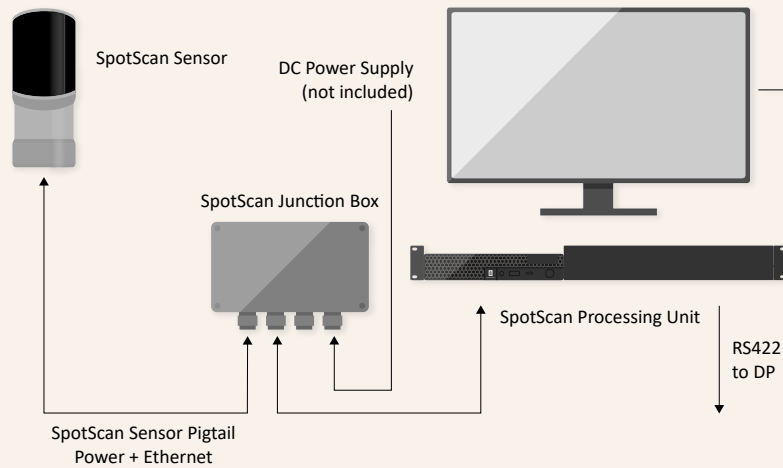
When connected to a Motion Reference Unit (MRU), SpotScan® obtains increased accuracy and robustness when operating in extreme weather conditions/high dynamic environments. This provides a more precise horizontal target distance.

Easy setup - low maintenance

The SpotScan® system is easy to install and operate. The on-board Processing Unit runs the application software, which makes configuration and monitoring of the SpotScan® system easy and efficient. All moving parts are enclosed within the sensor unit housing. The mechanical wear due to harsh weather conditions is thus kept at a minimum, allowing for low maintenance costs.

FEATURES

- No retro-reflective targets needed
- Wide vertical field of regard for close-by operations
- Easy to install and operate
- Roll/pitch stabilization for high dynamic environments
- True 3D positioning system
- Vertical field-of-view stabilized for roll and pitch
- Automatic data recording
- SceneScan replacement kit available



Technical specifications

SpotScan®

Performance

Laser classification	Eye Safe Class 1, IEC 60825-1
Laser wavelength	905 nm
Acquisition range	10 - 200 ¹ m
DP range	10 - 150 ¹ m
Horizontal pos. accuracy (2σ)	10 - 30 cm
Bearing accuracy (2σ)	2.5 mrad
Vertical angular accuracy (2σ)	0.35°
Vertical angular coverage sensor pointing forwards	-40° - +60°
Vertical angular coverage sensor pointing backwards	-26° - +54°
Horizontal angular coverage	360°
Instantaneous vertical FOV	10°
Vertical stabilization accuracy	< ± 0.5° for roll/pitch < ±20°
Scanning frequency	1 Hz

Interfaces

SpotScan® sensor

Serial ports	1 x RS-422
Ethernet/LAN	1

Processing Unit

Serial ports	4 isolated ports, RS-422
Ethernet/LAN	5
USB	USB 3.2, 5 Type-A, 1 Type-C

Data outputs

Message formats	Proprietary NMEA 0183
Message types	PSXST, PSXRAD, PGNKM, Fanbeam MDL

Weights and dimensions

SpotScan® sensor	6 kg, Ø 173, 455 mm
Processing Unit	3.6 kg, 44 × 481 × 267 mm

Power specifications

SpotScan® sensor

Input voltage	12 - 35 VDC
Power consumption	30 W max.

Processing Unit

Input voltage	100 - 240 VAC, 50/60 Hz
Power consumption	170 W max.

Environmental specifications

SpotScan® sensor

Operating temperature range	-25 - +55°C
Storage temperature range	-40 - +70°C
Operating humidity	100%
Storage humidity	90%
Enclosure material	Anodised aluminium and hardcoated acrylic
Enclosure protection	IP66

Processing Unit

Operating temperature range	10 - +35°C
Storage temperature range	-40 - +70°C
Operating humidity	20 - 80%
Storage humidity	10 - 90%
Enclosure material	Steel, Aluzinc, plastic

Mechanical

Vibration	IEC 60945, IACS E10
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Electromagnetic compatibility

Compliance with EMC, immunity/emission	IEC 60945, IACS E10
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Product safety

Compliance with LVD	IEC 61010-1
Eye Safe Class 1	IEC 60825

¹ Depending on target surface, size and atmospheric conditions.