

SpotScan® Dual



KONGSBERG



Two laser-based relative positioning sensors in one

SpotScan® Dual is a high performance laser-based dynamic positioning reference system for accurate positioning and station keeping in demanding environments. It can be used with retro-reflectors in SpotTrack mode, or without for wind turbine tracking in SpotScan mode.

SpotScan mode - wind turbine tracking without targets

Optimized for offshore wind turbine service vessels, SpotScan mode enables the sensor to operate as a motion-stabilized LIDAR. It measures range and bearing to offshore wind turbines without requiring retro-reflective targets. The system can track a cylindrical wind turbine tower or, when available, a cylindrical pedestal.

SpotTrack mode - multi-target tracking with retro-reflectors

In SpotTrack mode, advanced signal processing allows the system to lock onto multiple retro-reflective targets positioned at varying heights, enabling reliable multi-target tracking.

Robust target tracking

SpotScan Dual offers a high vertical and bearing resolution, ensuring robust object recognition and tracking even in dynamic conditions. Combined with accurate range/bearing and true horizontal distance measurements, it delivers a high-integrity reference solution for DP systems.

Close-by operations

Due to roll/pitch stabilization and a wide vertical field of regard, SpotScan Dual maintains target lock even at steep elevation angles--ideal for close-by operations.

Enhanced accuracy with MRU integration

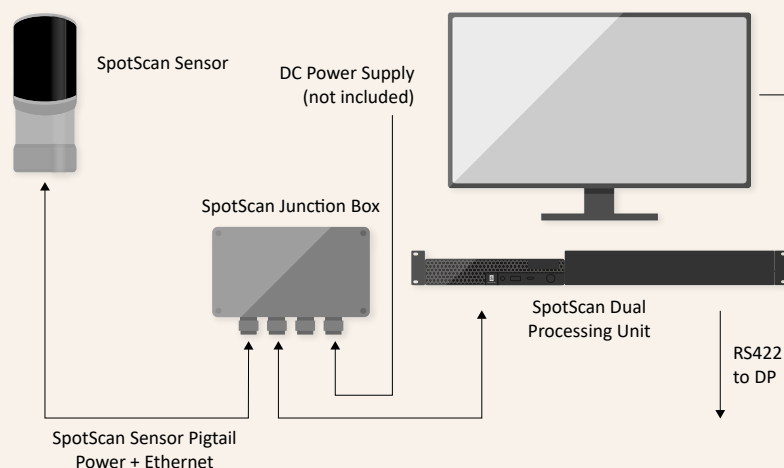
When connected to a Motion Reference Unit (MRU) in SpotTrack mode, the system achieves greater accuracy and robustness, particularly in extreme weather or high-dynamic environments. This results in more precise horizontal distance measurements.

User-friendly setup and low maintenance

The onboard Processing Unit runs the application software and allows seamless switching between SpotScan and SpotTrack modes, ensuring intuitive operation. All moving parts are enclosed within the sensor housing, minimizing mechanical wear and reducing maintenance costs.

FEATURES

- No retro-reflective targets needed in SpotScan mode
- Advanced multi-tracking in SpotTrack mode
- 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/pitch
- Automatic data recording
- Optional MRU interface in SpotTrack mode
- SceneScan, CyScan and Fanbeam replacement kits available



Technical specifications

SpotScan® Dual

Performance

Laser classifications	Eye Safe Class 1, IEC 60825-1
Laser wavelength	905 nm
Horizontal angular coverage	360°
Vertical angular coverage:	
sensor pointing forwards	-40° - +60°
sensor pointing backwards	-26° - +54°
Instantaneous vertical FOV	10°
Vertical stabilization accuracy	< 0.5° for roll/pitch < 20°
Scanning frequency	1 Hz

SpotScan mode

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°

SpotTrack mode

DP range prism reflector	10 - 1000 ² m
DP range tape reflector	10 - 350 ² m
Horizontal pos. accuracy (2σ)	1 m @ 1000 m range
Bearing accuracy (2σ)	1 mrad
Vertical angular accuracy (2σ)	0.2°

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:	
SpotScan	PSXST, PSXSS
SpotTrack	PSXST, PSXRAD, PGNKM, Fanbeam MDL (with and without checksum)

Weights and dimensions

SpotScan sensor	6 kg, Ø 173, 455 mm
Processing Unit	4 kg, 51 × 481 × 274 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 acrylic
Enclosure protection	IP66

Processing Unit

Operating temperature range	10 - +35°C
Storage temperature range	-40 - +60°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.

² Depending on reflector type, size and atmospheric conditions.