

SMS Vision™

Autonomous and retrofittable observation sensor



Technical Data Sheet

SMS Vision™ is an autonomous subsea monitoring product containing a high resolution camera and the product is rated for 3000 m water depth. The monitoring unit can be configured to capture pictures at various frequencies and stay subsea powered by internal batteries up to 2 years.

Wireless Configuration and Data Transfer

The SMS Vision™ can be configured via the SMS Magic Hand™ optical modem and raw data can easily be transferred to a topside computer during a logging campaign by letting an ROV hold the SMS Magic Hand™ modem in front of the sensor.

Machine Vision

The SMS Vision™ enables customers to use machine vision techniques in subsea applications. 4Subsea can tailor the required algorithm and image processing techniques to give meaningful data out of the recorded pictures.

Calibration

Each SMS Vision™ is individually calibrated to the project required need. The calibration is performed by optimising the lens configuration, light setting and focal point. All key parameters are stored to ensure that the raw data is robust before further image processing.

Applications

SMS Vision™ can be used for distance measurement application in areas that can be difficult to access. The product have successfully monitored wellhead lift by post processing algorithm's and the use of aruco markers only as measurement reference. With the SMS Vision™ combined with actual relation to pressure and temperature have resulted in digital models that the end clients use on a day to day basis to determine the safe production rate.

Performance Measurement

During the installation of the SMS Vision™ system, the ROV continuously captures images using the SMS Magic Hand™ optical modem. This enables continuous performance measurement and further optimization of the distance from the object, the angle towards the object, and the adjustment of light levels. This feature enables 4Subsea to ensure from start to end the required quality to perform robust monitoring through the campaign.

4Subsea helps operators reduce cost of operations and maximise life of assets using autonomous sensors in combination with data analytics and specialist engineering competence. Products in the Smart Monitoring Sensors (SMS) range are **SMS Motion™**, **SMS Strain™**, **SMS Magic Hand™**, **SMS Gateway™**, **SMS ComCentral™**, and **SMS Guard™**. Technology applications include monitoring of wellhead integrity, risers, mooring lines, subsea spools and manifolds, as well as monitoring of pipelines and subsea structures for oil & gas and offshore wind sub-structures.

Used as Picture Based Monitoring

Distance to object [From 1 to 8 meters](#)
View angle [30 degree vertical, 16 degree horizontal](#)
Resolution [2 MP](#)
LED source [20 Watt power](#)

Monitoring capacity battery operated

Campaign scenario	3 months	6 months	12 months
Pictures/day	235	115	56
Pictures/hour	9	4	2

Optical Communication Port

Use [Configuration, setup, data transfer via ROV](#)
Optical modem [SMS Magic Hand™](#)
Range [0.5m to 1.0m in water \(6m in air\)](#)
Baud rate [115200](#)
Mode of operation [Half duplex](#)
Wavelength [890 nm](#)
Eye safety [Class 1 \(IEC60825-1\), i.e. eye-safe under all operating conditions](#)

The sensor is designed and tested in accordance with ISO13628-6, API 17F.

Downloading Speed

Raw data [30 second per picture](#)

LED Indicator

Type [Red LED heartbeat indicator](#)

Housing

Product configuration	Lightweight	High pressure/ Ultra deep
Material	Plastic (POM)	Super duplex
Length	393 mm	
Diameter	114 mm	
Weight in air	7 kg	20 kg
Weight in water	2 kg	17 kg
Pressure rating	450 m water depth	3000 meter water depth

Environmental

Design temperature [-18° C to 70° C](#)
Test temperature [-18° C to 70° C](#)
Operating temperature [-5° C to 40° C](#)
Storage temperature [-18° C to 50° C](#)



4Subsea is a leading provider of technology and services that help operators optimise energy production from subsea oil & gas fields and offshore wind farms. We combine domain expertise with data analytics and digital services to maximise lifetime of assets, reduce operational cost and optimise future projects through data-driven design.

The company was established in 2007 and clients include the major energy operators as well as the large suppliers of subsea equipment. 4Subsea is headquartered in Asker, Norway with additional offices in Bergen, Kristiansand, Stavanger, Rio de Janeiro, and Aberdeen. 4Subsea is a company in the Subsea 7 Group. More info at www.4subsea.com.

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