

# VMM 200



KONGSBERG

## Improving safety and efficiency of marine operations

**Based on many years of knowledge, experience and development as well as a large number of delivered sensors for attitude determination worldwide, Kongsberg Seatex now offers a software tool to analyze motion and weather data.**

The VMM 200, a sophisticated vessel motion monitoring solution from Kongsberg Seatex, is set to improve the safety and efficiency of operations where accurate vessel motion data is critical. This unique attitude determination solution is the first of its kind and is made possible through decades of position and motion reference experience from demanding offshore marine operations. The VMM 200 is a decision support tool for marine operation like light well intervention, offshore crane operations, module handling on deck and over moonpool, and launch & recovery of ROVs.

### Motion limit monitoring

The VMM 200 enables the user to monitor the motion in six degrees-of-freedom of any user defined point of interest on the vessel. The system will give alarms and warnings when the motion level exceeds user-defined limits.

### Statistical analysis

The VMM 200 performs statistical analysis of the time series and presents the result to the user in real time. Based on the sensor input over a given time period, statistical values are calculated and presented.

The VMM 200 presents real time vessel motion data in addition to real time statistical analysis. The user interface gives the operator a range of tools to visualize parameters such as trends in vessel motion to help the operator to define warnings and alarms thus enabling optimal conditions for a safe operation.

The platform for the trend analysis is based on the statistical analysis of prior vessel motion, which is made possible through the VMM 200's extensive recording functionality. VMM 200 recording data amount and duration are only limited by hard-disk capacity.

### Extensive Recording

The VMM 200 includes extensive recording functionality. The amount of data variables recorded and the duration of the recording period is only limited by hard-disk capacity. The VMM 200 records data on a binary format at a selectable data rate (maximum 10 Hz). A tool is available for converting the binary data to ASCII-format for further post-



processing of the data in a preferred software package like Excel, Matlab and similar.

### System Architecture

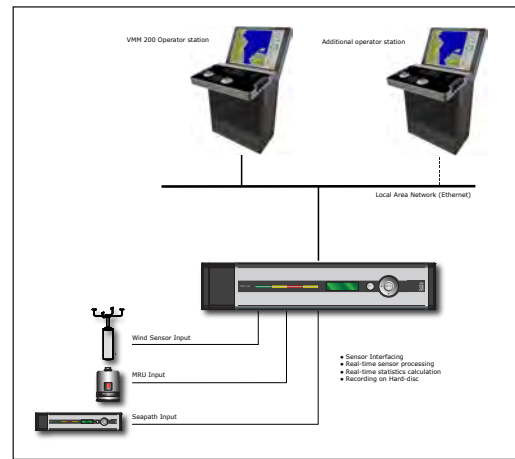
The VMM 200 is a two module solution with a Processing and an Operator Unit connected via Ethernet. The Processing Unit runs all critical computations independent from the user interface on the Operator Unit to ensure continuous and reliable operation. Several Operator Units can be connected to the same Processing Unit in a networked architecture. On each operator unit, the operator can select views that fits his operation.

### Optional Functionality

On request the system can be delivered with interface to wave radar. On the Operator Unit 2D wave radar spectrum, significant wave height, wave period, length and direction will be shown in one of the views on the screen. Optionally also weather forecasts can be monitored in the VMM 200 with trend on wave height and direction together with wind speed and direction over the next 60 hours.

## Features

- Data input from MRU H & 5 units and Seapath 200
- An unlimited number of user defined monitoring points available
- Recording and playback functionality
- User defined alarm and warning limits
- Statistical analysis
- Time-series plots
- Serial and Ethernet input and output of sensor data
- User configurable Human-Machine-Interface
- A range of sensor protocols are supported



The VMM main view giving an overview of the vessel motion and sensor status.



The vessel view shows the deck layout together with equipment and monitoring points configured.



Shows the vessel configuration menu for input and location of the different equipment and monitoring points.



Several color schemes is available from day bright to night mode.

*Note: Screen-layouts shown are design protected.*

## Technical specifications

### Processing Unit Specifications:

Width:	486 mm (19-inch rack)
Height:	90 mm (2 U)
Depth:	380 mm
Weight:	12 kg

### Environmental

Voltage:	100 to 240V AC
Enclosure protection:	IP-30
Operating temperature range:	0 to +55°C
Operating humidity (max.):	95% non-condensing
Storage temperature range:	-20 to +60°C
Storage humidity:	Less than 55%
Vibration testing according to:	EN 60945

### Data Input/Output

Data inputs:	Up to six RS-232 or 422 serial lines and Ethernet
MRU H and 5 formats:	MRU Normal
Seapath 200 formats:	Binary 22
Gyrocompass formats:	NMEA 0183 HDT and HDG
Wind sensor formats:	NMEA 0183 MWV and MWD
Temperature sensor format:	NMEA 0183 XDR(,,C)
Humidity sensor format:	NMEA 0183 XDR(,,H)
Pressure sensor format:	NMEA 0183 XDR(,,P)
Position signal formats:	NMEA 0183 GGA, GLL and RMC
Speed signal format:	NMEA 0183 VTG
Optional external time and date signal:	NMEA 0183 ZDA



KONGSBERG SEATEX AS

Pirsenteret N-7462 Trondheim - Norway. Telephone +47 73 54 55 00 Telefax +47 73 51 50 20  
 km.seatex@kongsberg.com [www.km.kongsberg.com/seatex](http://www.km.kongsberg.com/seatex)



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