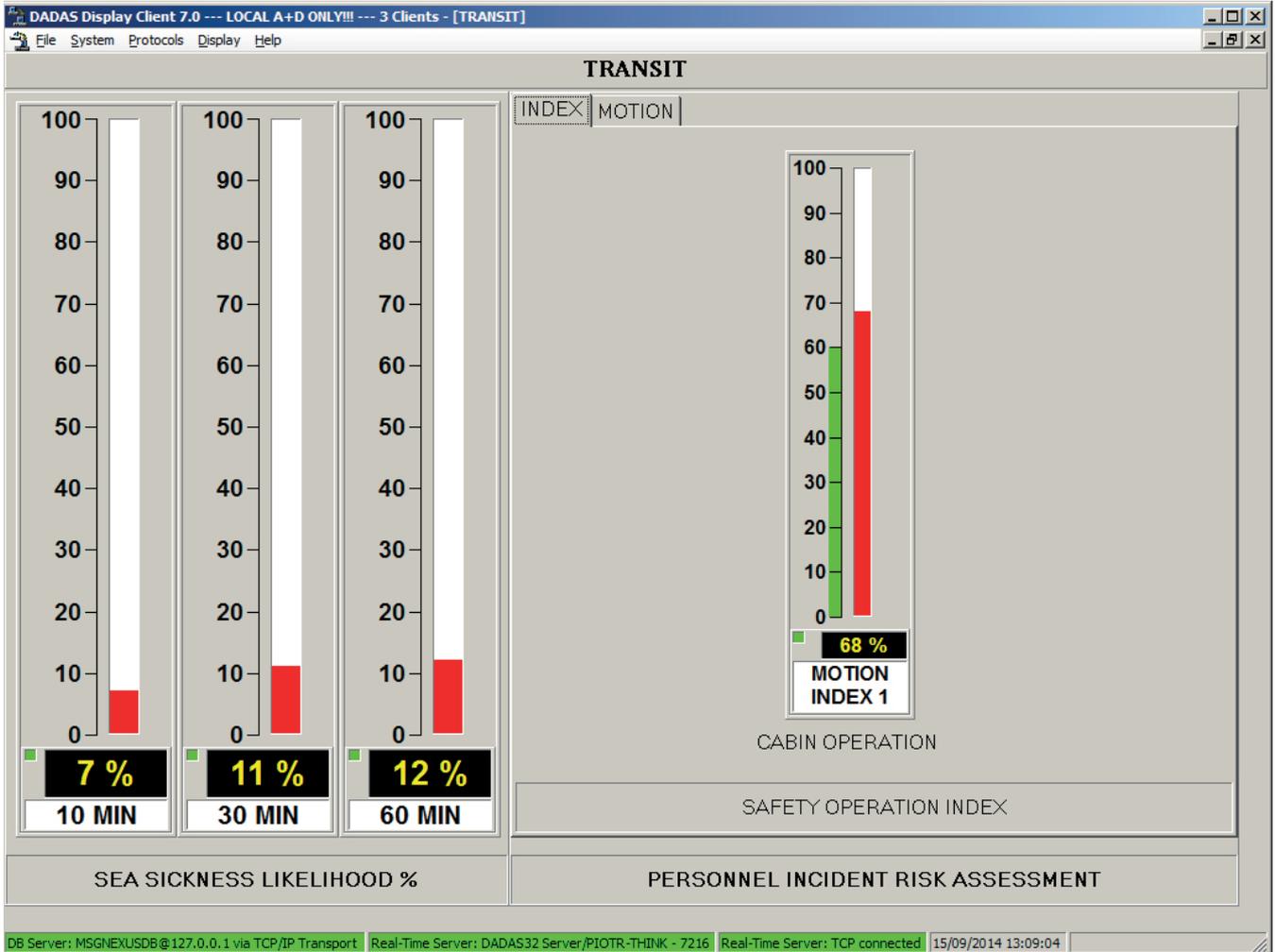


SEASICKNESS MONITORING SYSTEMS



Motion Monitoring for Passenger Workboats

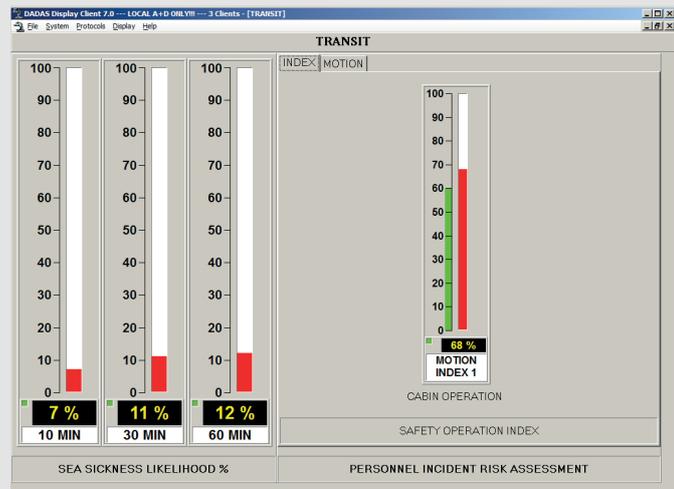
The Seasickness Monitoring System is designed for passenger vessel owners and operators in order to improve passenger comfort and safety.

Monitoring the vessel accelerations and motions in all 6 degrees of freedom (Pitch, Roll, Heave, Surge, Sway and Yaw) makes it possible to assess with a certain degree of accuracy the likelihood of getting seasick during the voyage. This will allow the captain to change course or reduce speed in order to improve passenger comfort.

This system can also be used as a safety tool in rough conditions by setting max limits for certain operations, such as work on deck, boat operations, helicopter landing or other tasks where motions may be a safety risk.

How can a sms-system improve passenger comfort and safety

SMS for passenger vessels is designed specifically for the two phases: The voyage from base to the destination and the Landing phase when transferring personnel to the destination site. During the voyage the system can be used to reduce the problem of seasickness. During the Landing phase the system can be used to reduce the risk for injuries and accidents during the transfer operation by using a traffic light system as a simplified user interface.



Critical operation # 1:

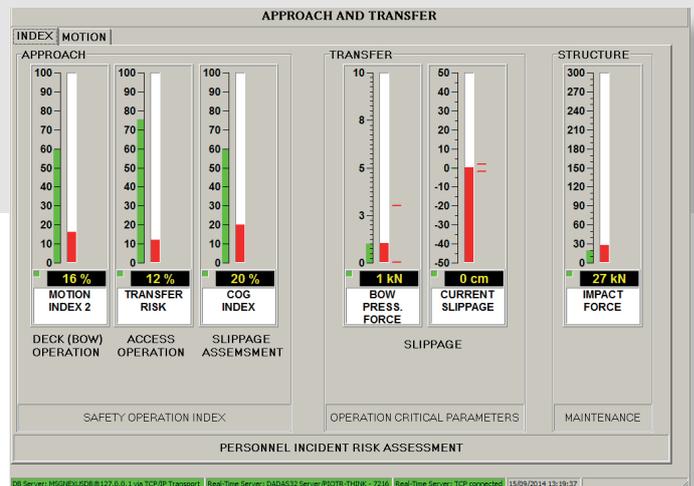
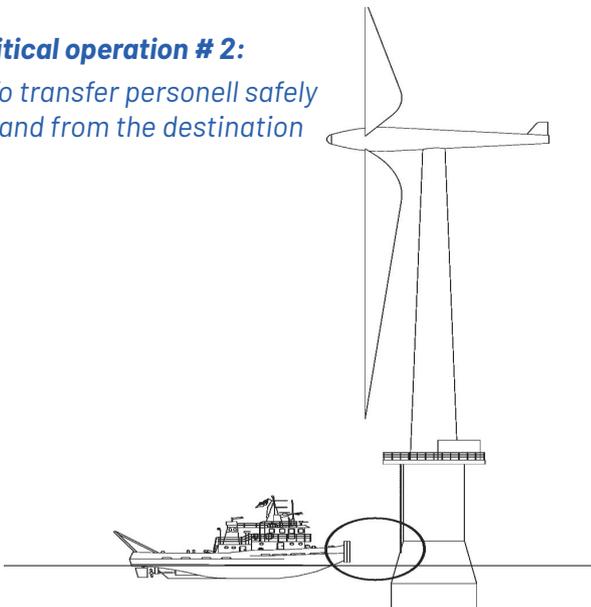
- To make sure passengers are fit-for-fight upon arrival at destination



During transport of personell from base to desti-nation or between destinations the motion trend displays can be used actively to reduce the motion discomfort that causes nausea and seasickness. This will make sure the passengers arrives in good shape and ready to rock'n roll.

Critical operation # 2:

- To transfer personell safely to and from the destination



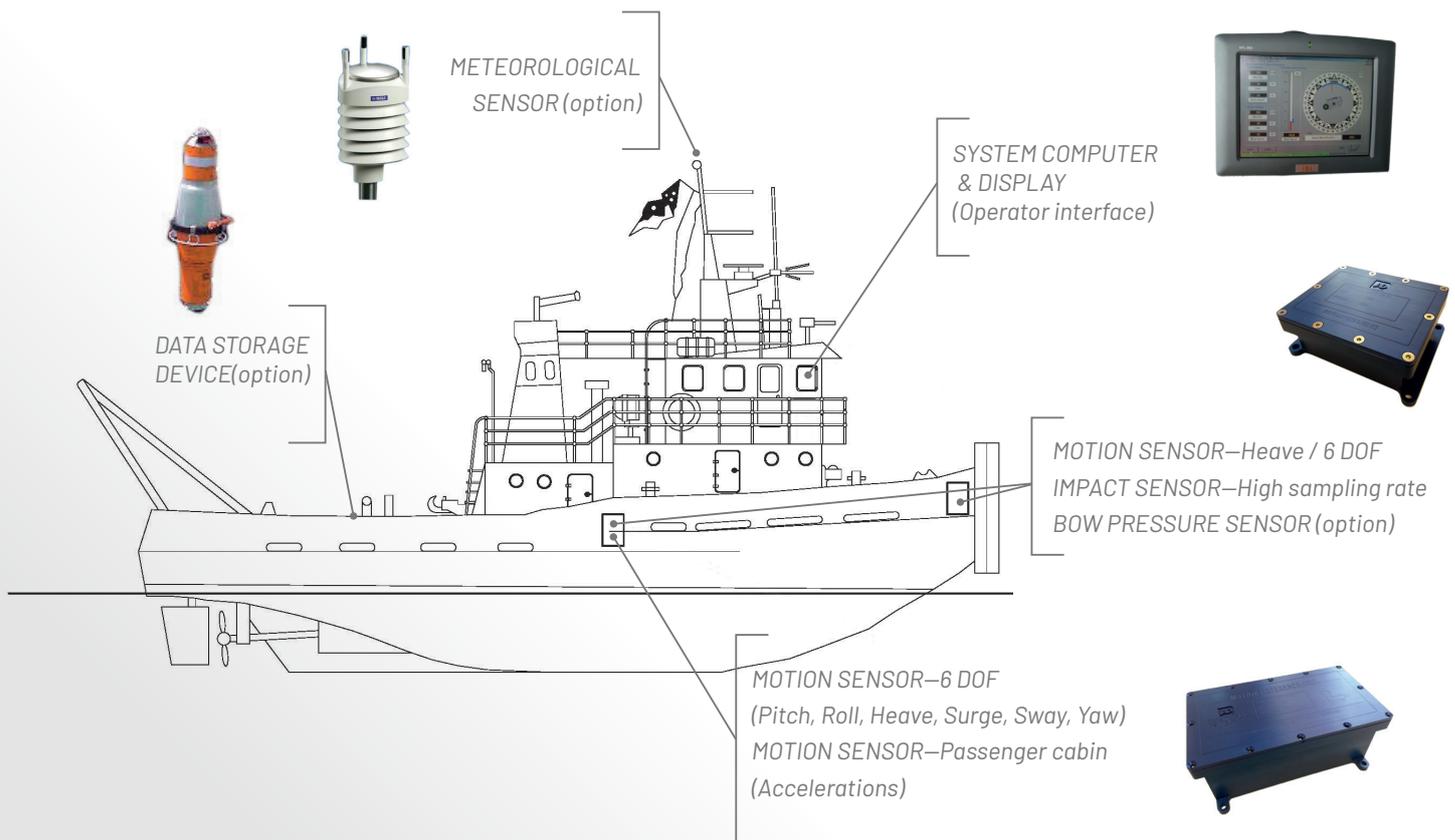
"Traffic light signals" can be used as guidance.

When landing and offloading personell to other vessels or other difficult destinations, the motion trend displays, the Motion Index and Transfer Risk values can be used actively to reduce the risk.

"Traffic light signals" can be set to stop operations before dangerous levels are reached.

General System Configuration

A basic SMS-system includes one, two or three motion sensors and a computer that measures, calculates and displays the critical motion parameters that is essential for the Captain to be aware of when making decisions during operation. Heave of the vessel can be measured and the Heave Rate is calculated in real-time. Accelerations can also be measured in the passenger cabin for analysis and advise of comfort parameters. Horizontal motions (Surge and Sway) as well as Impact forces and other landing forces are or can also be measured.



A "Traffic light signal" can be used for operator guidance or for access control with automatic switching or with the Captains supervision.

The system can also include accelerometers, inclinometers, meteorological sensors, sensors for wave and air gap measurements, etc. and can also be expanded to include other future sensors.

Smaller self-contained systems, including wireless data transfer, can be designed to meet specific needs. Motion monitoring sensors can be integrated into or combined with other monitoring systems for on-line monitoring or long term data recording for future analysis.

Data can be sent to shore or other sites online for tracking and coordination purposes providing data lines or other communication lines are available. Data can be stored in the system computer for later analysis for statistics purposes as well as for incident and accident investigations.

Other data storage devices such as free float data buoys can be added in order to implement safe "Black Box" functionality into the system.

The systems can be tailor-made to suit the clients specifications and can easily be expanded in the future to comply with new demands, rules and regulations.

We have been involved in a large number of Motion Monitoring projects for vessels and offshore platforms over many years. Applications includes Motion Monitoring Systems for all 6 Degrees Of Freedom (Pitch, Roll, Heave, Surge, Sway and Yaw), Vibration Monitoring, Inclination Monitoring, Wave Monitoring (with or without Heave compensation), Air Gap Measurements and many others. Heave Rate calculations for safer operation is included as a standard function.

The systems can be tailor-made to suit the clients specifications. The SMS is based upon WISE Groups more than 20 years of experience in building Helideck

Monitoring Systems for offshore oil and gas vessels and platforms and the remarkable safety improvements these systems have led to. Used as a proactive tool for HSEQ work this will greatly improve the safety standards during critical offshore operations.

We can provide design and engineering support, installation support, operation and maintenance services, calibration services and training of personnel as required by each individual customer.

