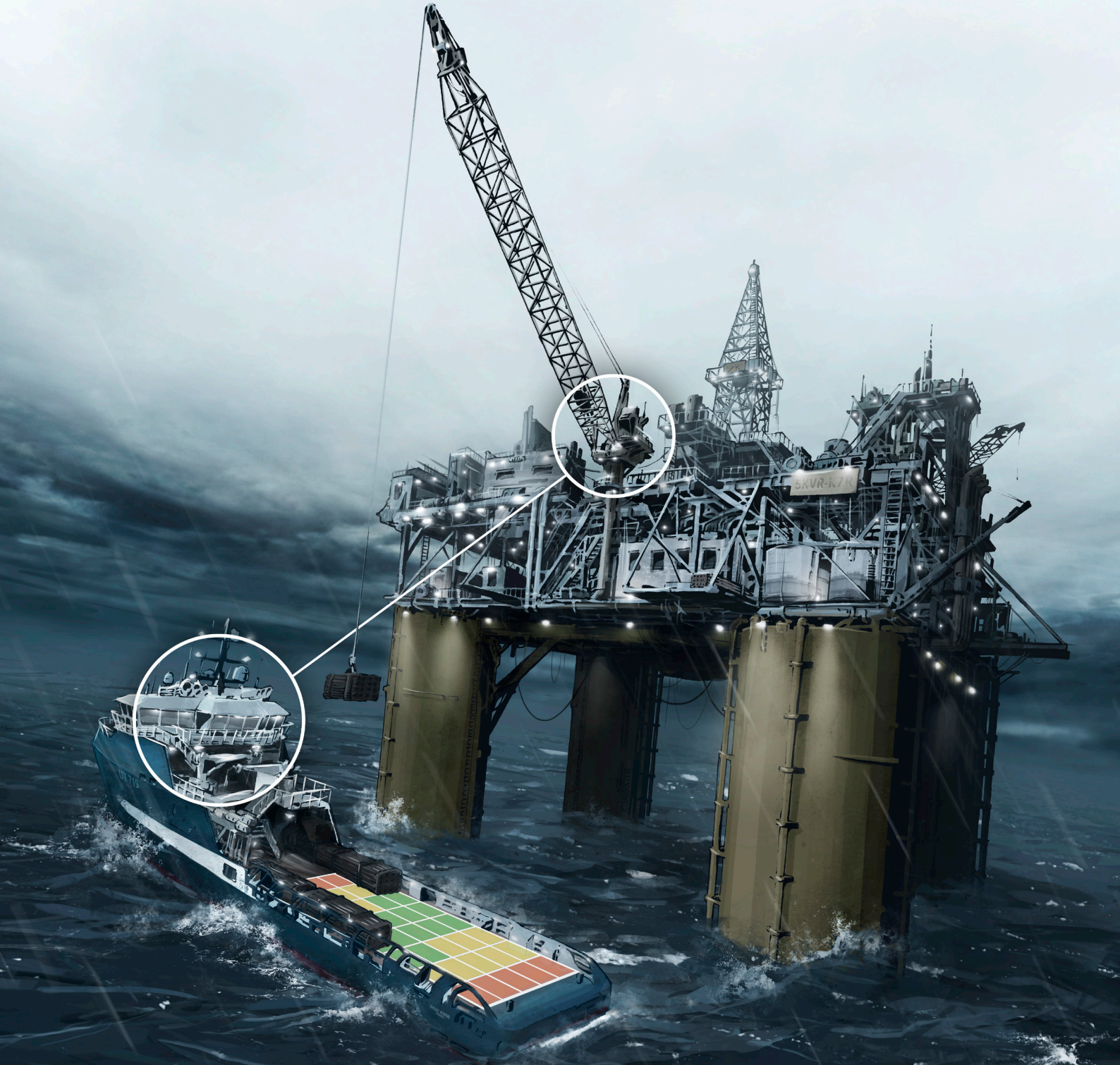
ShoreConnection

DECK MOTION MONITOR

IMPROVED SAFETY & LIFTING EFFICIENCY



UNIQUE VALUES

The Deck Motion Monitoring system extends the weather window for safe offshore crane operations by measuring accurate motion on the cargo deck.

- IMPROVED SAFETY
- INCREASED EFFICIENCY
- BETTER TIMING & CONTROL
- RELIABLE DATA IN ALL CONDITIONS
- IMPROVED LOGISTICS
- LOW MAINTENANCE

Traditional method

The traditional method, using wave buoys, radars or manual observation of the sea state, does not take any further consideration to the following:

- The accuracy of the estimated / measured Significant Wave Height (H1/3)
- The variation in wave type and period
- The variation in downward velocity at different deck positions
- The variation in shape, stability and loading condition of the vessel
- The variation in direction of the waves in relation to the vessel heading

By using the DMM all the above mentioned uncertain factors are eradicated. With the DMM system, the Vessel Officer and Crane Operator can make safe decisions based on facts.

Improved safety

Traditionally, the Crane Operator receives the input for the Safe Load Indicator from remote wave buoys or radars. With the DMM, the Crane Operator gets real time wave information from the actual location, on the actual vessel. In particular during heavy lift operations, where the risk is higher and margins for error are smaller, there is no room for guessing.

Increased efficiency

DMM provides safe and significant expansion of the weather window compared to conventional methods. A study on the Ekofisk field conducted by DNV in 2007, confirmed that a significantly wider operating envelope was achieved with DMM installed on the vessel. A comparison of results from conventional methods versus the DMM method showed a 50% reduction in ***waiting on weather***, which means increased operational availability, reduced fuel consumption and less emissions.

Better timing & control

In some weather conditions, it is difficult for Crane Operators to determine how the vessel deck is moving, making it difficult to anticipate heave movement. DMM´s real time wave curve from the selected deck area is displayed in the crane and makes it easier for Crane Operators to smoothly land or lift cargo and personnel.

Reliable data in all conditions

A motion sensor is installed onboard the vessel, continuously measuring motion data at the vessel deck. These values are used for calculating Effective Significant Wave Height, providing accurate measurements of the lifting conditions at all times. The measurements are independant of weather changes, ensuring constant and reliable information to the Crane. All values on the vessel are logged and may be exported, reported and analyzed.

Improved logistics

Images from the vessel deck camera can be e-mailed at a specified interval to a web server which displays updated deck images to offshore and shore based personnel. The feature provides better planning of backload and an overview of the total fleet.
This service has become one of the most important tools for the Ekofisk field Operation Logistic Centre.

Low maintenance

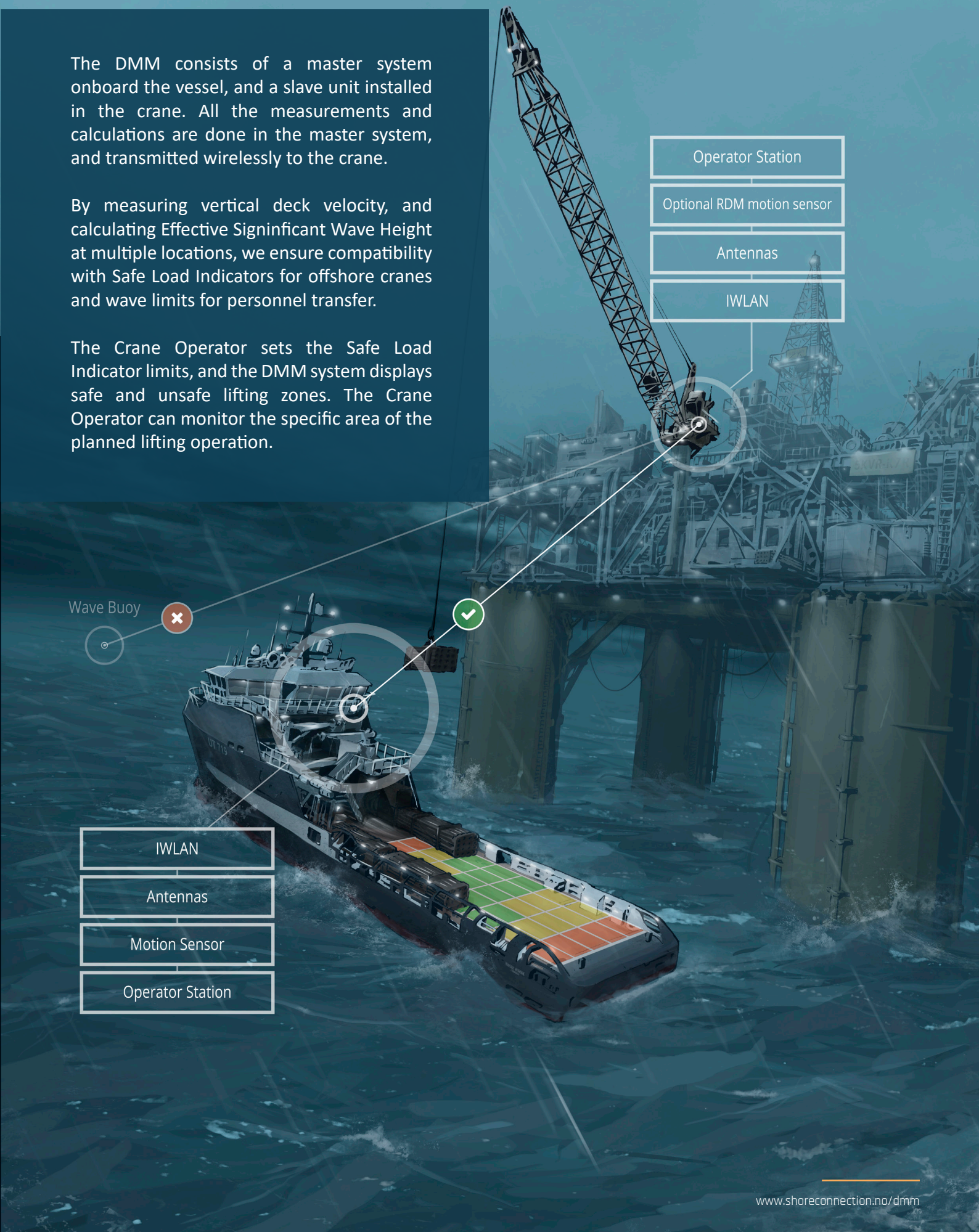
DMM is a stand alone system that can be customized to new builds or retrofit, each system specifically built and configured to operator's needs. Installation and commissioning only requires a few days. The system is proven and reliable, keeping maintenance costs low. A dedicated and experienced support team is always at our customers service.

LAYOUT

The DMM consists of a master system onboard the vessel, and a slave unit installed in the crane. All the measurements and calculations are done in the master system, and transmitted wirelessly to the crane.

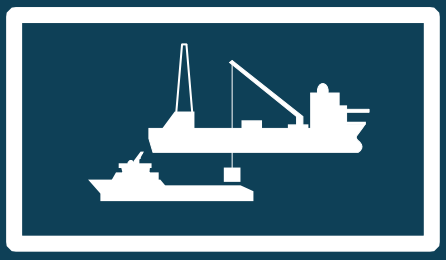
By measuring vertical deck velocity, and calculating Effective Signinficant Wave Height at multiple locations, we ensure compatibility with Safe Load Indicators for offshore cranes and wave limits for personnel transfer.

The Crane Operator sets the Safe Load Indicator limits, and the DMM system displays safe and unsafe lifting zones. The Crane Operator can monitor the specific area of the planned lifting operation.



Features

Relative Deck Motion



NEW! RDM add-on module provides a safer sealift between floating installations and vessels. This system is designed to take the movement of the crane into consideration and add the movement of the ship to form a relative motion or wave height between the two. Based on a fixed measuring point in the crane pedestal, the RDM keeps measuring and calculating in the sea lift area, even if the crane turns away from the vessel.

Personnel Transfer Module

NEW! The PTM module offers safer transfer of personnel between offshore installations and vessels. It displays the selected deck area velocity in m/s, and the significant heave rate (SHR) over 20 minutes. This data is used to calculate if the deck velocities are within safe landing and take-off limits.

Fleet Deck View

FDV is an important part of onshore logistic departments, presenting fleet deck snap shots for better planning and coordination. This feature enables more efficient backload planning, and provides a total picture of the fleet.

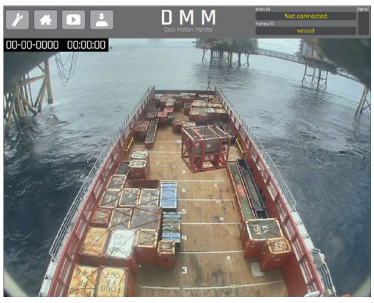
EASE OF USE

Conducting a safe crane operation requires experience and accuracy. As the DMM system allows operation in a wider range of weather conditions, it is crucial that accurate data is presented in an intuitive manner. With this in consideration, the DMM system is designed for usability, ensuring that the interface has elements that are easy to access, understand, and use.

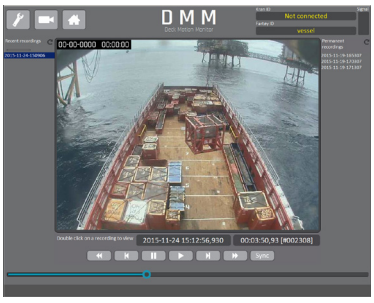
The main display consists of three elements - deck area, Effective Significant Wave Height and a real time heave trend curve.
The grid of the vessel deck changes colour according to the set wave limits for the crane. Red area indicates unsafe lifting conditions, green area indicates safe lifting conditions and yellow is a warning of approaching unsafe conditions.

Video from the supply vessel deck camera gives the Crane Operator an additional view angle, which covers blind zones and the lifting area as seen from the vessel. This camera is also used to send snap shots to the FDV system.

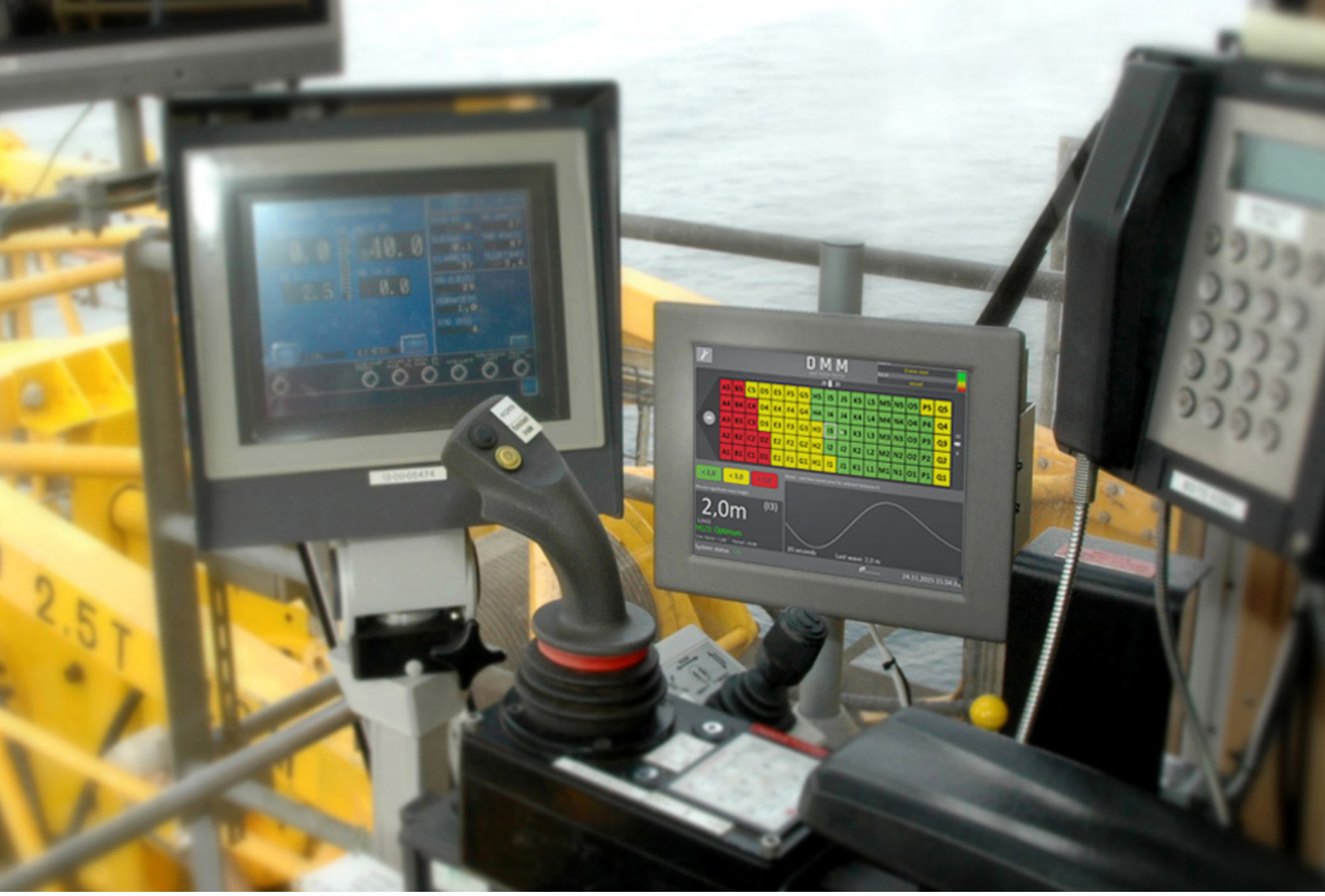
All values on the vessel are logged for 6 months and can be exported and reported at any time.



Video from the vessel deck camera



Playback of recorded video from vessel deck



THE PROVEN SOLUTION

The DMM has consistently proven its durable performance since 2007. The system is installed on cranes and vessels around the world. The availability of lifting operations has been increased significantly, compared to the use of the traditional method. When the sea state changes, the DMM is used to decide whether to start, delay or stop the operation.

Approval of the DMM method
Based on the DNV DMM Technical Report a recommendation for use was made applicable to the CEN / TC 147/WGP 5 on the 29.03.2007. WGP 5 is the Working Group within Technical Committee CEN/TC 147 Cranes – Safety, which has developed and also maintain the EN 13852-1 standard.

EMC / Safety / Environmental compliancy:

- EN 55022
- EN 55024
- EN 61601-6-2
- EN 301 489-1
- IEC 60945/50-1
- IEC 61508

Bright solutions
safe decisions

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