SCADA

SYSTEMS & EQUIPMENT

Keppel

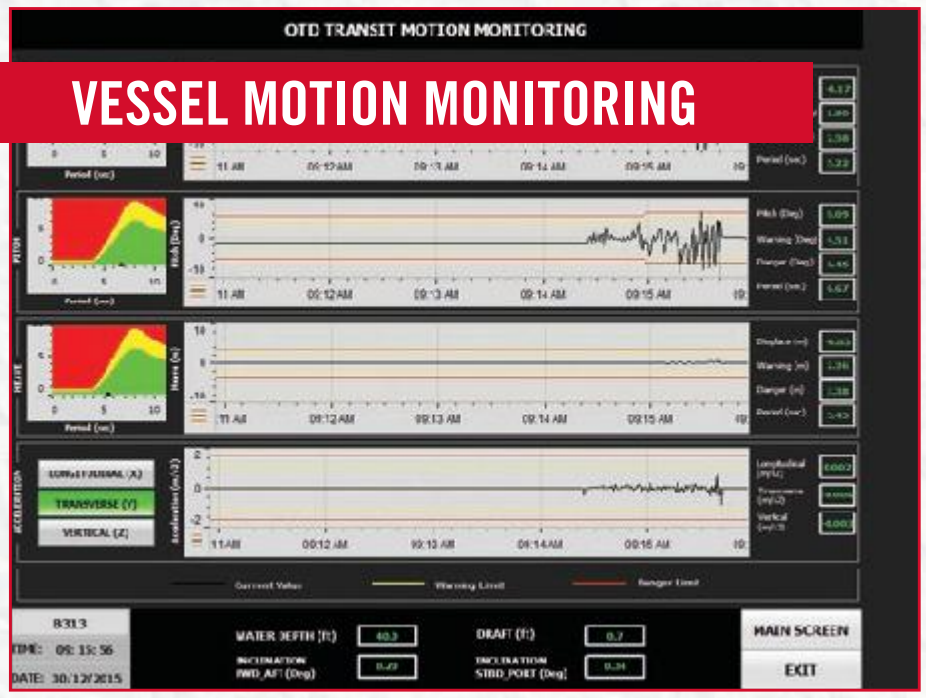
Offshore Technology Development

SCADA SYSTEMS

With the increasing demand for energy around the world, petroleum, natural gas, facilities such as oil rigs, offshore platforms, and marine vessels have become important assets. Maintaining economic progress is strongly dependent on having reliable monitoring and control systems for expensive Offshore & Marine infrastructures that significantly help in inspecting and eradicating unforeseen circumstances or human errors.

At Offshore Technology Development (OTD), we are committed to design and provide highly reliable, cost effective and robust monitoring systems for Offshore & Marine industries. We understand the importance of meeting tight budgets and deadlines to effective technical solutions. We work towards customer's wants and needs in providing cost effective solutions in both Offshore and Marine industries, optimising your vessel's safety & capabilities.

VESSEL MOTION MONITORING

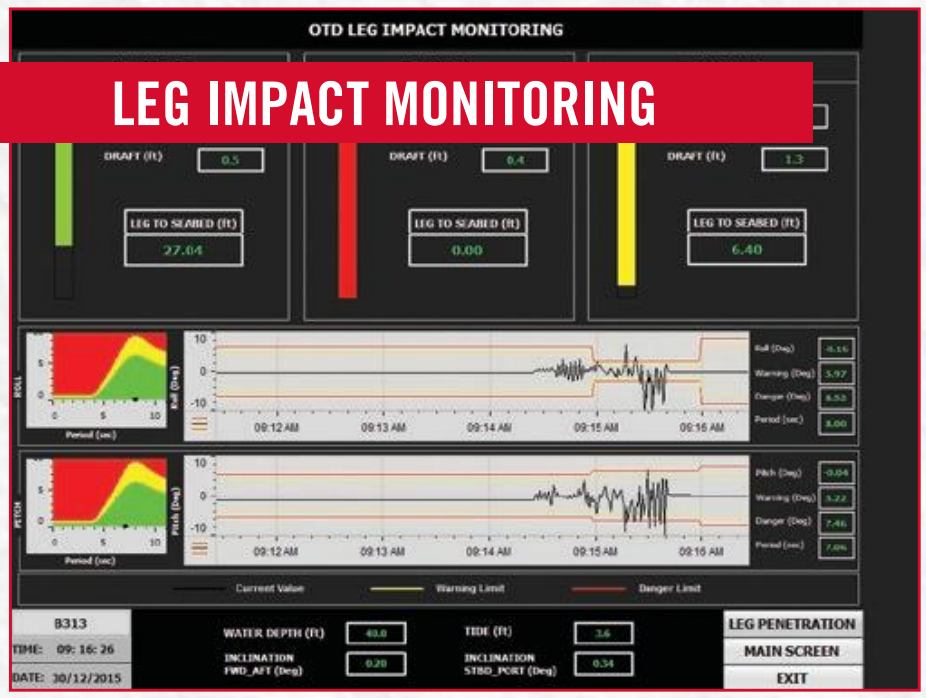


OTD vessel motion monitoring is designed to provide accurate monitoring of the vessel/platform motion during towing operation in the harsh sea environment with real time comparison of vessel motion against the critical design limits.

By ensuring safe operation of vessels in any harsh conditions at sea, this cost effective system keeps the vessel well within its limits of monitoring the whole operation.

The system consists of a central computer, which communicates with motion sensors through wireless communication. The portability of the system allows easy transfer and quick installation of the system on different vessels as and when required.

LEG IMPACT MONITORING

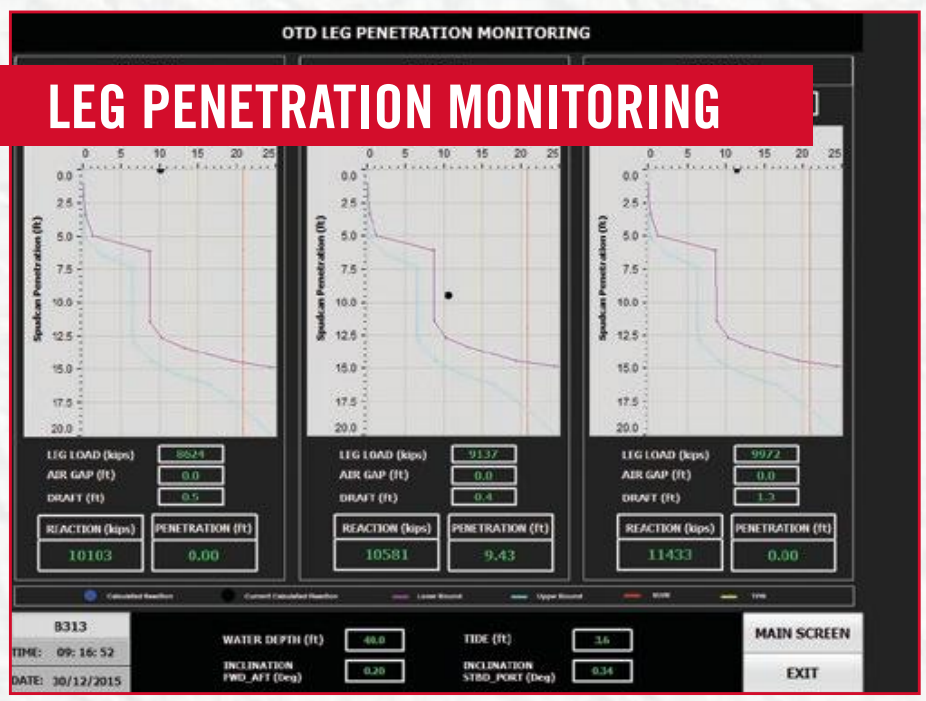


During installation of jack-up vessel, the leg impact monitoring system calculates the distance from leg bottom to seabed for each leg while tracking the motion of the vessel against the allowable limits for the given sea state and environment conditions.

The system utilises water depth, air gap sensor and leg length sensor to determine the distance between spudcan and seabed and alert the operator if the vessel motion is reaching the allowable limits.

The system consists of a central computer, which communicates with sensors through wireless communication. The portability of the system allows easy transfer and quick installation of the system on different vessels as and when required.

LEG PENETRATION MONITORING

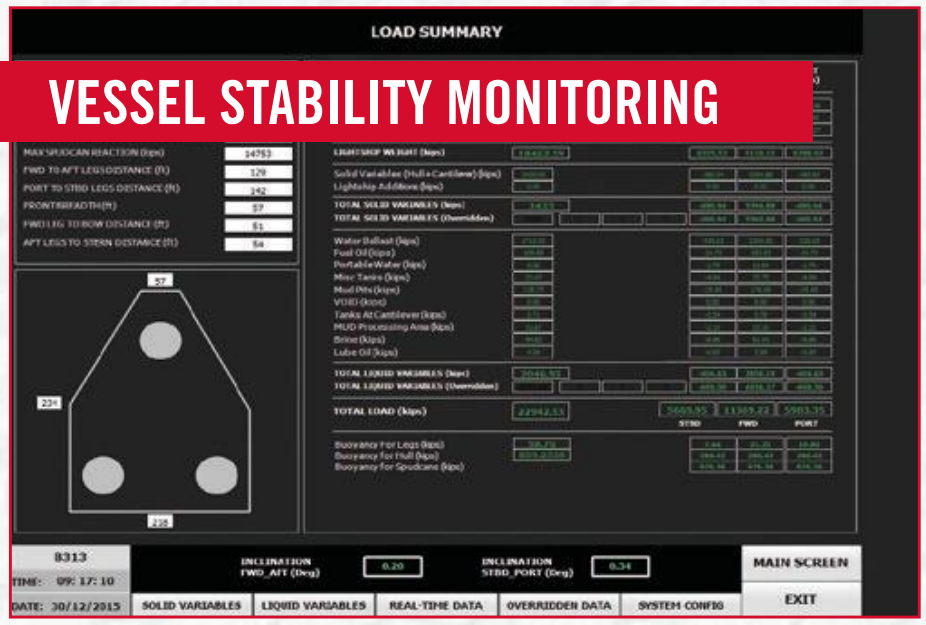


During preloading operation of the jack-up vessel, OTD leg penetration system monitors the leg reaction on each leg against the vessel's penetration curves.

The system utilises water depth and air gap sensor to determine the penetration on each leg and alert the operator if the reaction on any leg is reaching the boundary limits, thereby making the preload operation safer and more reliable.

The system consists of a central computer, which communicates with different sensors through wireless communication. The portability of the system allows easy transfer and quick installation of the system on different vessels as and when required.

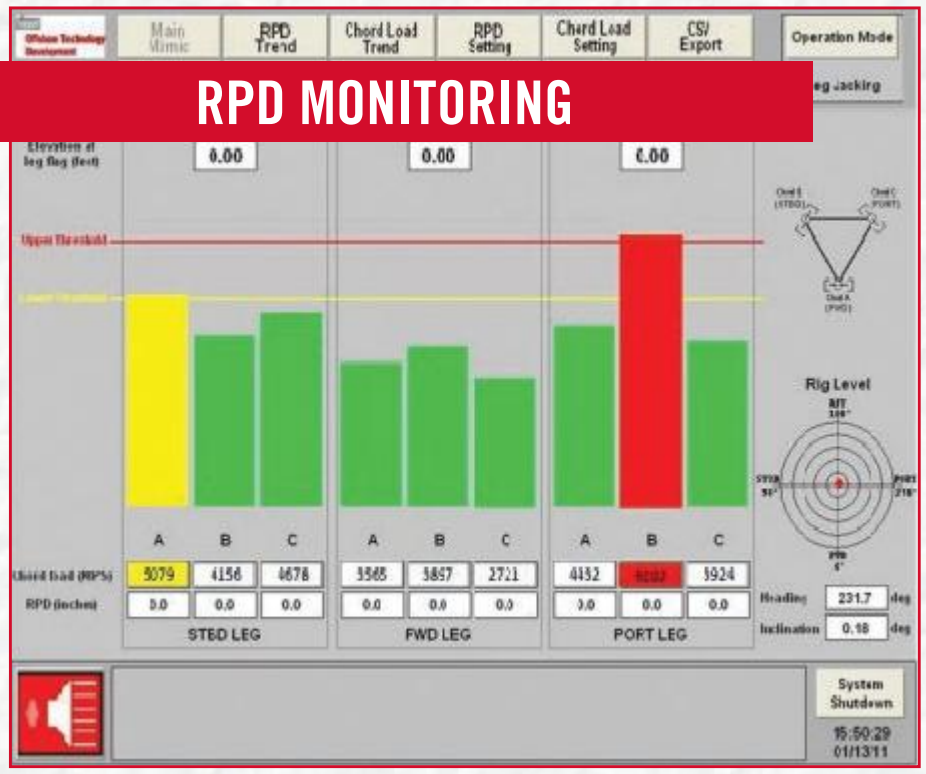
VESSEL STABILITY MONITORING



OTD vessel stability monitoring system is capable of performing calculations of loads exerted on the platform for any given operation and generating a comprehensive report for the barge engineer to plan out his activities during vessel installation.

The system also allows the rig crew to efficiently plan their daily operation and execute their activities safety.

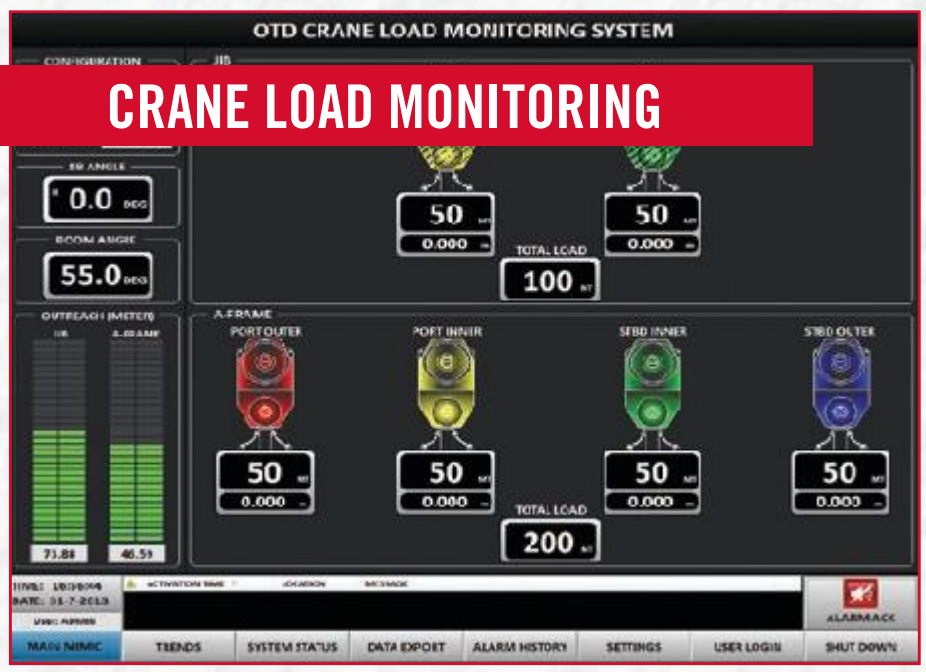
RPD MONITORING



Over the year, there have been several incidents when the bracings of truss-framed legs of jack-up rigs have been damaged due to effect of large Rack Phase Difference (RPD). The Rack Phase Difference (RPD) is defined as the relative vertical position of the corresponding rack teeth at each of the three chords of a particular leg. Some common causes of RPD encountered during jacking include re-installation on old footprints, punch-through and non-uniform seabed conditions.

OTD RPD Monitoring system is designed to work with any type of jacking system as a stand alone system for new installation or retrofit projects. This system utilises a number of rotatory sensors to track the travelling distance on each chord and simultaneously compute the RPD for each leg. The operator is able to set the RPD allowable limits into the system so as to alert the operator when the RPD exceeds the limits.

CRANE LOAD MONITORING

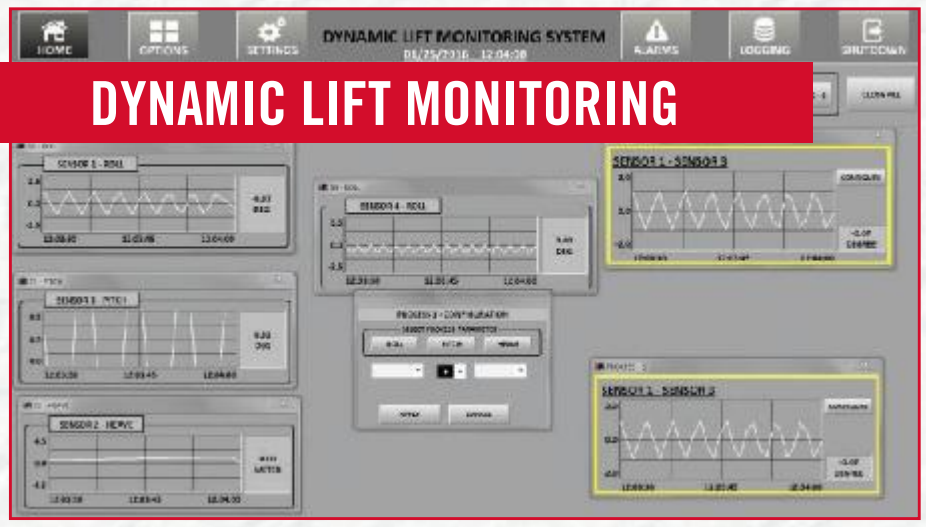


OTD crane load monitoring system is a highly reliable custom-built system for monitoring the load on various cranes and holding platforms in the offshore and marine industry.

Being applicable with any type of crane, the crane load monitoring system is a complete solution which offers continuous tracking of the individual hoist load, computation of corresponding outreach and monitoring of total lifting load based on the design load limits .

The system can be interfaced with the hoist control system to provide the necessary cut off signal such that the safety of the vessel is not compromised, ensuring continuous, smooth and safe lifting operation.

DYNAMIC LIFT MONITORING



OTD dynamic lift monitoring system is designed for transfer of cargo between ships. The system utilises the latest wireless technology to provide real-time motion information of the primary and target vessels and assist the crane operator in lifting and landing the cargo with reduced load impacts and rope tensions.

The system can also be applied to transfer of cargo between floating and fixed platforms.

TRACK RECORDS

1998	Galaxy II
1999	Galaxy III
2000	Ensco 101
2002	Ensco 102
2002	Ensco 104
2002	Ensco 105
2003	Beacon
2004	Tonala
2005	Al-Hail
2005	Ensco 106
2006	Deep Driller 2
2006	Ensco 107
2006	ArabDrill 30
2006	Deep Driller 3
2006	COSLCraft
2007	Deep Driller 5
2007	Sea Drill 4 (West Prospero)
2007	Paradise 400
2007	Ensco 108
2008	Ensco 109
2008	Deep Driller 6
2008	COSLBoss
2008	Discovery I
2008	West Ariel
2008	Virtue I
2008	Ocean Scepter
2009	Deep Driller 8
2009	COSLStrike
2009	Vasumati
2009	Greatdrill Chitra
2010	PV Drilling II
2010	Rowan Viking
2010	Rowan Stavanger
2010	PV Drilling III
2010	Rowan Norway
2010	West Callisto
2010	PV Drilling II
2010	Rowan Viking
2010	Rowan Stavanger
2010	PV Drilling III
2010	Rowan Norway
2010	West Callisto
2011	Peter Godovanets
2012	Seafox 5
2012	SAR 202
2012	Nezalezhnist
2012	AOD I
2013	AOD II
2013	Discovery Triumph
2013	Discovery Resilience
2013	UMW Naga 4
2013	ArabDrill 50
2013	Transocean Siam Driller
2013	Transocean Andaman
2013	Primus
2013	Ensco 120
2013	Ensco 121
2013	Hakuryu-11
2013	Dynamic Vision
2013	Transocean Ao Thai
2013	Laurus
2013	La Santa Maria
2013	La Covadonga
2013	Les Hat
2013	AOD III
2014	ArabDrill 60
2014	UMW Naga 5
2014	Dukhan
2014	Ensco 122
2014	Jindal Explorer
2014	Asian Hercules III
2015	Yunuen
2015	Kukulkan
2015	Ensco 110
2015	Cantarell I
2015	Cantarell II
2015	Cantarell III
2015	Cantarell IV
2015	PV Drilling VI
2015	UMW Naga 8
2015	TS Topaz
2015	Paraiso I
2015	Paraiso II
2015	ArabDrill 70
2016	Halul

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