

The Line Monitor

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8-Point Mooring System for NPCC

SEP-350 barge outfitted with LCI-90 system

Measurement Technology NW was recently awarded the contract to provide an 8-point tension and payout monitoring system for the National Petroleum Construction Company (NPCC) in Abu Dhabi, U.A.E.

Designed for NPCC's SEP-350 (Self Elevating Platform) vessel, the new running line tensiometer and LCI-90 "Dual Winch" display system replaces an old 4-point mooring installation that no longer met the company's performance standards.

NPCC's new mooring instrumentation consists of eight RL-20175K running line tensiometers optimized for 1.5" wire rope and equipped with dual proximity sensors and 175 KIPS load pin in a removable center sheave. Two tensiometers were installed at each double-drum winch location (four total) and each pair of RLT's feed one "Dual Winch" LCI-90 display that is in-turn linked to a PC computer running MTNW's advanced WinchDAC data-logging software.



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Perfectly suited to this application, LCI-90 "Dual Winch" displays were developed to monitor line tension, payout, and speed on two winches, RLT's, or windlasses - simultaneously. Operators can easily view all winch parameters at the same time or toggle between active winch lines. The LCI-90 and LCI-100 displays are both available in a "Dual-Winch" configuration.

Founded in In 1973, NPCC was initially established as a facility for fabrication of the steel structures required by the oil & gas production industry. In 1992, NPCC expanded its capabilities to include onshore & offshore facilities, loading terminals, storage tanks, pressure vessels and pipelines. Today, NPCC is a fully integrated onshore and offshore EPC contractor, providing a wide range of surveying, engineering, and construction services.

NPCC's marine fleet consists of 13 construction barges, and this particular SEP-350 project involved the installation of eight tensiometers, cables, LCI-90 display monitors, and all the necessary PC hardware and software to remotely view mooring tension and payout in the barge's control tower.

Maximum line tensions of 160 KIPS and line speeds of up to 150 FPM were an excellent match for the compact RL-20175K tensiometer.



Measurement Technology NW's running line tensiometers are tough, accurate, portable, and when paired with an LCI-90 display, are ideal instrumentation systems for rig/barge mooring and positioning applications!

This rugged unit and others in the MTNW product line are built using an alloy steel frame with marine grade coating, 316 stainless steel fasteners, pins, and shafts, as well as H-1150 conditioned 17-4 PH stainless steel



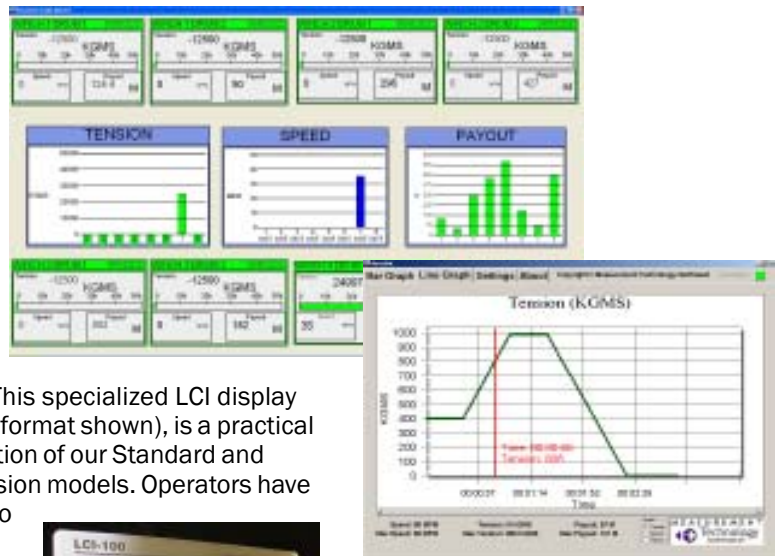
sheaves with sealed double roller bearings. The RL-20175K and its siblings are tough, accurate, and, when paired with an LCI-90 display, are the ideal instrumentation system for tension and payout monitoring.

The LCI Family has grown...



When Measurement Technology NW introduced the **LCI-90 and LCI-90R** (remote) displays in 2000, we knew that its tension/payout/speed configuration addressed the most common end-user requirements, and its rugged design would handle anything Mother Nature dished out.

The LCI platform has proven to be quite versatile too, and this feature has led to a variety of specialized models that have earned their place in markets such as offshore oil & gas, commercial towing/ship assist, oceanographic research, surveying, mooring, and anywhere accurate and reliable winch line control is required.



"Quad" This specialized LCI display (LCI-100 format shown), is a practical combination of our Standard and Dual Tension models. Operators have found it to be quite useful when monitoring line speed, payout, and two lines of tension in a variety of winch and wire rope applications.



With the ever increasing need for reliable data logging and analysis tools, WinchDAC has emerged as a worthy addition to the LCI display family. For single or multi-winch installations, WinchDAC software will display line tension, payout, and speed (in real-time) for every winch on the network via a central PC computer. An easily customized user interface features detailed parameter graphs and automatic data logging.

"Dual Tension" This popular unit (shown here in a LCI-100 format), displays tension readings from two independent line inputs - useful for monitoring tension in double-drum winch systems or in winch spooling operations.



"4X Tension" Accurate, efficient, fast, and easy to use, the "4X/8X"

LCI displays provide high performance alternatives to panel meters or costly PLC systems. These LCI models can be used to monitor up to four (LCI-90) or eight (LCI-100) lines of tension on a single high-contrast EL screen.

Signals from count and force sensors installed at each winch are processed by an LCI display, with parameter data routed through a single serial network to the centrally located PC computer.

Data logging is both automatic and continuous, with line conditions updated every 0.1 seconds (per winch). Files are saved in a .csv format that's easily imported into Excel for post-analysis.

"Drum Counter" This LCI display accurately monitors winch payout and speed in applications where count sensors and targets must be mounted on the winch drum flange.



Our newest LCI display will monitor line tension, payout, and speed parameters for two winches simultaneously - perfect for applications such as double-drum winches, waterfall winches, or two winches/windlasses operating in close proximity. View all line data simultaneously, or toggle between active winch lines, and enjoy the performance and value of two displays, in one!

"Dual Winch"



MTNW sensors and displays used in WWII shipwreck search.

On March 3, 2008 a team of international shipwreck experts boarded the chartered survey vessel *Geosounder* at Geraldton Harbor in Western Australia.



Their mission? Find the final resting place of World War II cruiser HMAS Sydney II, the pride of the Royal Australian Navy fleet, lost November 1941 in the Indian Ocean off Western Australia with its entire crew of 645 following a fierce engagement with the German raider HSK Kormoran, (which was also sunk in the battle).

The team of geophysicists and marine sonar experts aboard the *Geosounder* included Williamson & Associates of Seattle, Washington, and over the next several weeks this team would be challenged by severe weather, equipment malfunctions, and the sheer immensity of a search area measuring over 1,800 square miles.

Measurement Technology NW's line monitoring equipment, including instrumented sheaves, running line tensiometers, and LCI-90 displays would prove invaluable in monitoring the deployed position of sonar and ROV equipment. The MTNW systems bought by Williamson & Associates had the added benefit of being highly portable, allowing their use on various jobs and vessels of opportunity.

While a shipwreck search endeavor sounds exciting, the rhythm of a search expedition actually consists of maintaining course along a search

line, followed by a turn to the next line, repeated over and over again with monotonous regularity.

Thankfully, one of the exciting aspects in any search is that the wreck could be found at any moment. As luck would have it, after weathering several frustrating days of high winds and seas due to the passing of Hurricane Ophelia, the crew's decision to begin their search in the highest probability quadrant

paid off when the scattered wreckage of the German raider HSK Kormoran was discovered on March 12th, 2008.



Kormoran's wreckage was made up of several pieces of hull amidst a large and dense field of debris, indicative of the catastrophic explosion that occurred when the Kormoran's cache of over 300 mines simultaneously detonated and created the scene of utter destruction revealed by sonar.

With the Kormoran's position established, and the identity of its wreckage confirmed on the basis of high quality sonar imagery, the search for HMAS Sydney II commenced again.

The Williamson team decided to track a thin debris trail leading from the battle area, and hopes were high that this search line represented the most likely path to the HMAS Sydney II.

At just after 10am on March 16th, approximately 12 nautical miles from the Kormoran site, a large piece of wreck unfolded on the sonar screen with a small associated debris field. The surrounding geology was dead flat sandy bottom. Could it be?



Over the next few days the wreck was measured and its position plotted both in relation to the wreck of Kormoran and to German eyewitness accounts from the battle scene. It was soon concluded that this wreck was very likely the cruiser HMAS Sydney II, sunk November 19, 1941.

On April 3, 2008, operating at a depth of 2,468 metres, an ROV slowly crept up on the wreck. With Williamson technicians at the controls, images not seen in over 65 years began to appear on their video screens.



There could be no more doubt. The wreck of the HMAS Sydney II had been found at last.



For more information, including full specifications for all our products, customer installation stories, custom applications, past newsletters, upcoming events and other relevant news please visit

MTNW's website: www.mtnw-usa.com to access all of these subjects. Updates are posted on a regular basis, so check in often for the latest MTNW news, product developments, and customer feedback.

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Measurement Technology NW designs and manufactures rugged, multi-channel winch line control instruments used to monitor speed, payout, and tension (both cable and chain) in single or multi-winch systems used for ROV/equipment deployment, barge and platform positioning, fixed-place mooring, drawbridge controls, helicopter or ship towed arrays, mining and oilfield drilling, and wherever accurate and reliable line control is required.



Frontier Duchess upgrades to new LCI-90 system

The Frontier Duchess drillship is a conventionally moored vessel rated for operation in water depths up to 1,500 feet. Their 8-point mooring system was an antiquated Dynaline system that had seen far better days.

MTNW replaced these increasingly unreliable units with new 800 KIPS running line tensiometers, LCI-90 displays, and WinchDAC control software running on a central PC.

The project included development of custom LCI display firmware which

interlocked the displays to the winch controls. This safety interlock required the LCI-90 display to be "on" and in a non-alarm condition in order for the



winch to be functional.

On-site installation was simplified by utilizing the LCI-90's rear enclosure with gimbal bracket option, for fast & easy display mounting at the desired local and remote locations.

Need to upgrade a display system on your rig or vessel? Look to MTNW for innovative (and customized) designs, proven performance, cutting-edge features, comprehensive technical support, and the best "total value" in advanced line control systems.