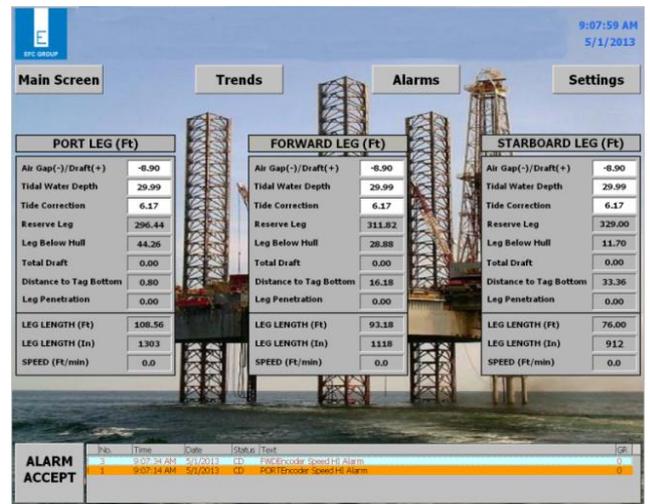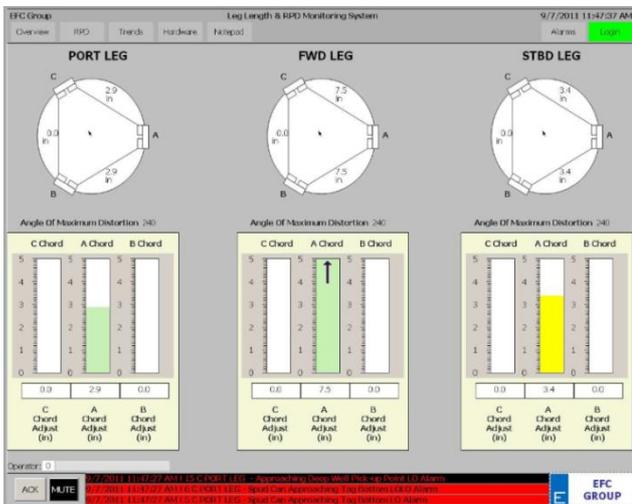**E**

RACK PHASE DIFFERENCE (RPD) AND LEG LENGTH MONITORING SYSTEM

Typical Monitoring User Interfaces

THE RPD IS A TOOL DESIGNED TO MONITOR THE RACK PHASE DIFFERENCE (RPD) DURING JACKING OPERATIONS.

Three chords per leg are monitored in order to manage the RPD phenomenon. The RPD will compare the length between each of the three chords per leg on all three jackup legs and gives the operator an audible and visual warning where one chord has moved lower or higher than the other two beyond acceptable limits.

The system also includes EFC's Leg Length Monitoring System which provides the operator with clear data on the extension of each jack up legs and other critical data during the rig jacking process, historical trending, data logging and an alarm provides visual and audible warning.

Instrumentation & Controls

Expert Solutions for Compliant Controls

RACK PHASE DIFFERENCE (RPD) AND LEG LENGTH MONITORING SYSTEM

DESCRIPTION	TECHNICAL SPECIFICATION
Alarm	Audible operates at 75mm (2.95in)
Accuracy	2mm
Network	Profibus Redundancy Network
Encoder Type	Multiturn Absolute
Encoder Housing	316 Stainless Steel IP66 Rated Enclosure, fixed via Anti-Vibration Coupling
Distance between Encoder and Pinion Drive	10mm gap
Display	Local HMI can be installed at each chord with the ability to remove each display when the legs have been deployed
	NB: Technical data may be subject to change

The Encoders are 24V dc multiturn, absolute with Profibus DP interface. Each encoder is housed in an IP66 rated enclosure providing non-contact to the pinion drive on each leg. In the event of power failure or communication lost during jacking process, the absolute encoders will remain for each position therefore no data will be lost. The encoders will return current values to the PLC when it's next powers up and communication returns to normal.

The 19" Touch Screen IPC is powered by the +24V dc from the processing enclosure and communicates with the PLCs via Ethernet Switch through Cat5 Ethernet Cable. The IPC is pre-loaded with EFC Leg Length monitoring software. The resistive touch screen allows the operator to monitor each leg's length and other parameters, as well as configure the alarm settings, calibrate rig and encoder parameter settings, hardware diagnostic, historical trending and data logging facilities. The display will also provide the operator details to correct the RPD error indicating which chord to adjust and by how much

SYSTEM FEATURES	BENEFITS
Non-Contact Coupling	Ensures zero mechanical interference or shock from pinion drive.
Programmable Logic Controller	Allow for future expansion for any further of EFC IMMS System, as well as providing archiving and trend analysis for the operator
Event Logging	Allows the operator to enter text into the event report. This allows for the operator to create reports
Trend Analysis	A trend screen allows the operator to select and view the historical trends of each individual leg's chord lengths against time
2-Point Monitory	Corrects for RPD errors caused by lateral leg movement
Separate Network	In the event of an encoder or network failure the system will continue to operate but the RPD alarm point will be reduced
Remote Indication	Provided locally at each chord by providing the operator information to correct RPD error