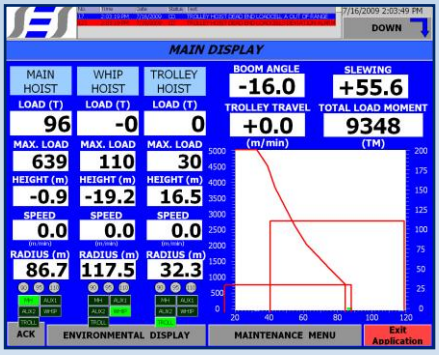
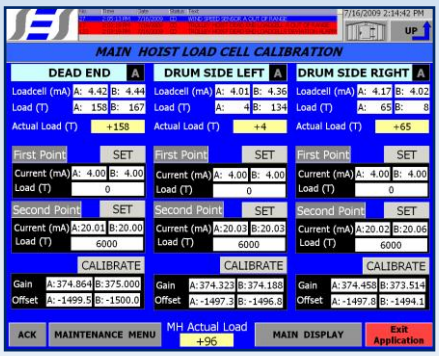
Strainstall

CS300 Crane Safe Monitoring

- Customisable crane monitoring system
- Ensures safe and efficient operation
- Load management system including recording & replay
- Diagnostic and adjustment functions
- Optional collision prevention
- Overload prevention via changeover contact
- Multiple hook operation
- Applications include special and heavy lift cranes





Description

Designed and manufactured by Strainstall, the CS300 is a fully customisable load monitoring system that provides the crane operator with information for safe and efficient crane operation. The CS300 is suitable for installation on new cranes as well as retrofit.

Ideally suited to special and heavy lift cranes (typically oil & gas, bridge and wind farm installations), these bespoke systems monitor the crane load and indicate overload via audible and visual alarms. Depending on the required specification, it can additionally monitor parameters such as slewing, wind speed, hook position/speed and multiple hooks. Special customised displays and interfaces can also be incorporated. If required, the output signals generated can also be integrated into the main PLC system to stop crane operation on overload.

Using standard configurable PLC technology in conjunction with Strainstall's application knowledge, the CS300 systems are user friendly with a simple top-down structure, making them easy to operate, adjust and calibrate.

Although the system is designed to meet individual customer specifications, it has been approved for offshore use by all the major classification societies, including DNV, Lloyds, BV, ABS and API. Additionally it complies to European Standard EN13852-1 'General Purpose Offshore Cranes'.

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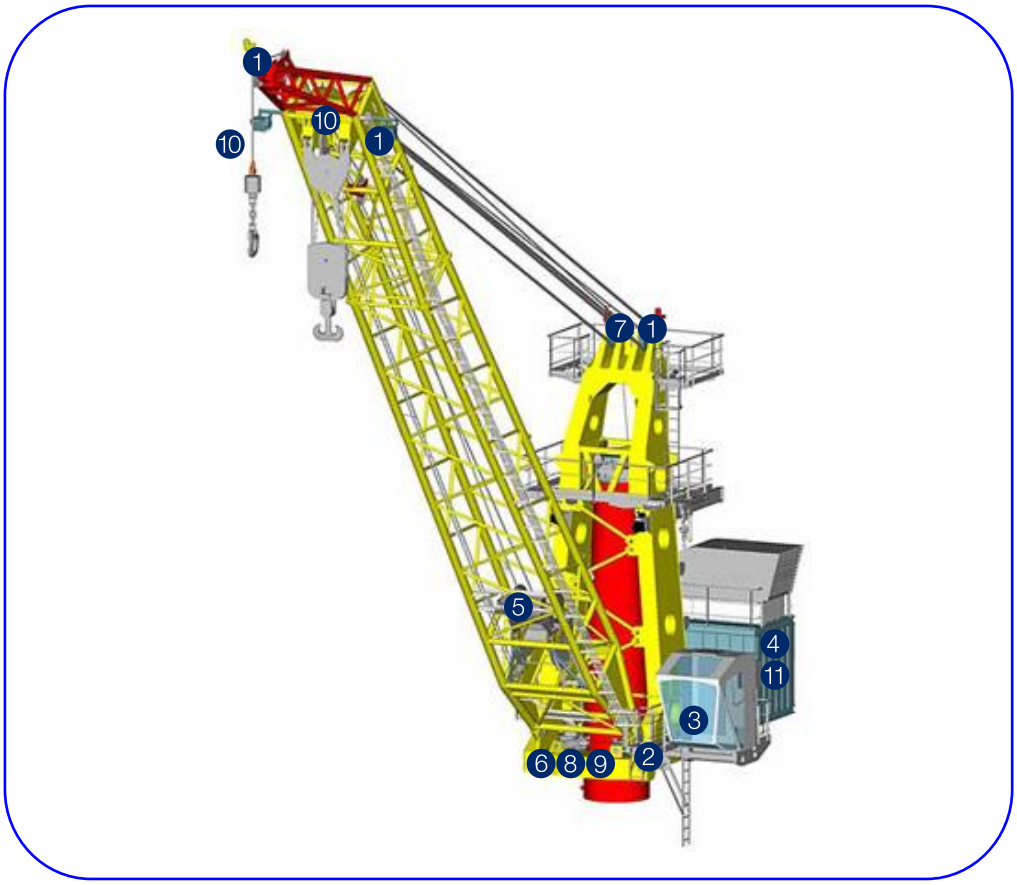
Applications

The CS300 is a bespoke solution for special types of cranes with lifting capacities up to 7000 tonnes. These include barge, pipe laying, module lifting and offshore cranes. Each system is interfaced with the vessel's SCADA system, and Strainstall has experience with all the major suppliers including Rockwell, Siemens, Citect, GeFanuc, Eaton Moeller and Wonderware.

The system communicates with other systems via LAN/WAN, serial or Profibus, through either standard or customised protocols, including ModBus, Data Blocks and OPC servers.



1. **Load Cells**
   A load measuring pin is installed in the guide pulley, and/or a load shackle or tensile link in the 'dead end' and anchor point of the wire.
2. **Outreach Sensor**
   An electronic inclinometer is typically used to measure the outreach/radius.
3. **Operator Display**
   Provides the operator with information on load, allowable load, radius and alarm status, and is also used as an HMI with the PLC.
4. **Interface & Main Electronics Enclosure**
   The interface and termination unit of the electrical signals from the sensors, as well as the drives and control for commands such as interlock in the event of overload.
5. **Hook Height/Speed Sensor**
   Typically used are incremental encoders with gearing or quadruple proximity switches.
6. **Trim & Heel Sensor**
   Electronic inclinometers with high resolution and narrow band - typically +/- 10 degrees.
7. **Wind Sensor**
   Measures the speed using a cup-type anemometer.
8. **Slewing Sensor**
   Can be either a multiple rotation potentiometer or an incremental/absolute encoder.
9. **Over sea/deck Precision Sensor**
   Proximity switches are used in combination with an arch to detect and define the sector.
10. **A-2-B Sensors**
    Proximity switches are used to detect and stop the hook block travelling past its upper limit to protect the upper sheaves from damage.
11. **Pressure Sensor**
    Monitors the hydraulic pressure of the drives and controls where appropriate.

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