

Product

StressAlert FO
Hull Stress Monitor



StressAlert FO is a variant of the established StressAlert Hull Stress Monitoring system, but utilises fibre optic strain sensors in place of the conventional extensometers and strain gauges. Fibre optic sensors provide a number of advantages, including freedom from electrical interference, intrinsic safety and multi-channel operation.

The **StressAlert** system is suitable for a wide range of ships, including FPSO's, oil and LNG tankers, bulk carriers and container ships. It provides essential monitoring of structural integrity throughout the life of a vessel and enables the master to pilot his vessel to the maximum safe efficiency.

- **Monitors static and dynamic forces on the vessel during loading, unloading and in a seaway**
- **Helps define limits of operation of the ship**
- **Maintains a continuous, permanent record of forces on the vessel structure**
- **Increases value on the S&P market, by recording risk management data**
- **Enables safer operation of the vessel**

StressAlert II is built to meet requirements for electrical apparatus operating in hazardous areas and is approved by marine classification societies. The fibre optic sensors themselves are intrinsically safe and do not require Zener barriers, having no electrical components in the hazardous area.

The basic system meets classification societies' requirements such as Lloyds Register ShipRight SEA(Hss-4), American Bureau of Shipping HM2+R and Det Norske Veritas HMON-1.

The system can also be configured to meet higher notations.

Description

The system monitors bow slamming and the longitudinal bending movements within the structure, and compares these with levels predetermined by the classification society in conjunction with the naval architect or ship designer.

Time histories, statistics and alarms are displayed on a comprehensive set of displays, and interfaces to other on-board systems (such as Voyage Event Recorders) are provided.

A standard **StressAlert FO** system comprises deck sensors, an accelerometer, a bow pressure sensor (optional), signal conditioning and optical interfaces and a desktop computer with dedicated software.

Principle

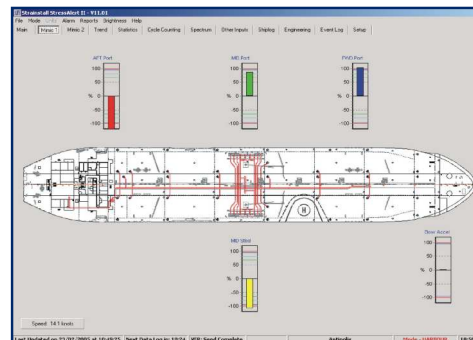
The fibre optic sensors incorporate optical fibres that have been physically modified so that light applied at one end is partially reflected back to the source by the modified sections. The reflected wavelengths are precise and are affected by the strain experienced by the fibre, which can then be measured. Using time-domain multiplexing (TDM), a single optical fibre may be used to sense multiple strains along its length.

Advantages of FO Sensors

- No power required
- Many sensors can be built into a single fibre
- Total absence (and immunity from) electro-magnetic interference
- Zero drift
- Completely safe to use in hazardous areas



TDM Reader



Ship Mimic & Data

Strainstall StressAlert II - V11.00	
Date/Time	Event Log
23/06/2004 15:49:48	Alarms: Above Low Limit - Fore Peak
23/06/2004 15:49:06	Alarms: Enabled - FWD Stbd
23/06/2004 15:48:59	Alarms: Disabled - FWD Stbd
23/06/2004 15:48:51	Alarms: Status Check Complete
23/06/2004 15:48:51	Alarms: Under Low Limit - Fore Peak
23/06/2004 15:48:51	Alarms: Status Check
23/06/2004 15:48:47	Application: Started
21/06/2004 16:32:24	Application: Started
01/07/2004 00:02:23	Application: Terminated
01/07/2004 00:02:19	System: Maintenance Mode terminated
01/07/2004 00:01:48	System: Maintenance Mode
30/06/2004 23:40:37	Application: Started

Alarm/Event Log

StressAlert II can be installed and commissioned on new-builds, or as retrofit, by our team of field engineers and trained representatives world-wide.

Due to continuous development, Strainstall UK Ltd reserve the right to change specification without notice.

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