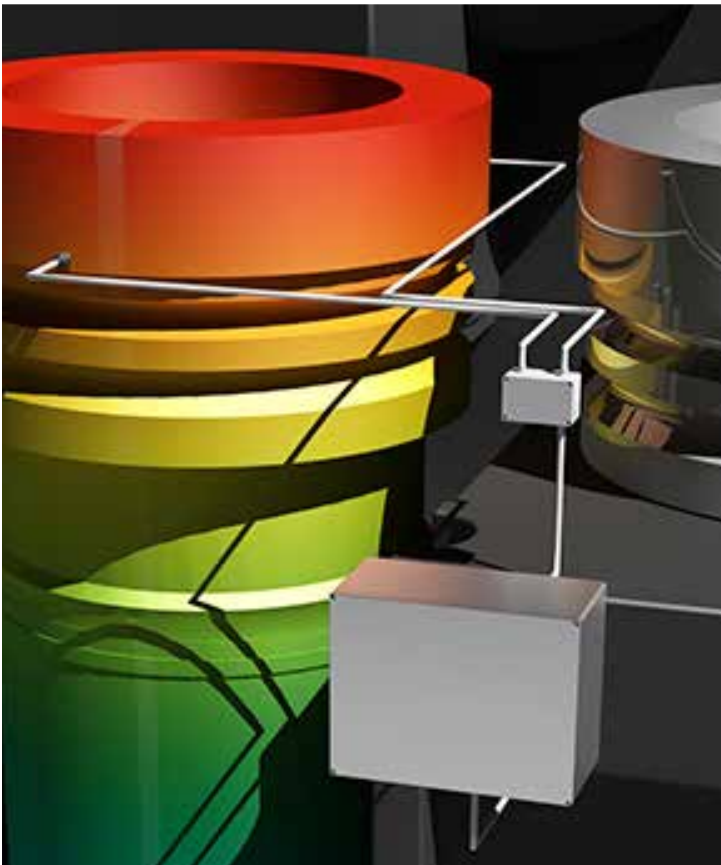




CYLINDER LINER MONITORING SYSTEM



CYLINDER LINER MONITORING SYSTEM

Description

The CLMS monitors the piston ring and cylinder liner condition/friction by measuring the temperature of the liner material continuously. Increased friction will cause an increased liner temperature. Cylinder liner monitoring is an essential tool to help preventing potential damage to engine and/or personnel.

The CLMS is integrated in the DCS system and measures the temperature of each cylinder liner in four positions and each temperature is displayed on the DCS screen. The temperatures are measured by thermocouples connected to analogue I/O modules installed on the engine.

Features

Interface: The BWSC CLMS comes a intuitive interface from which the user can interact with the system and read the temperature measurement from each sensor together with the cylinder mean temperature and total engine mean. The temperatures are visualised both as bar graphs and trendlines with variable time span. From the bar visualisation the alarm limits for high temperature and high deviation alarm are shown. Furthermore the temperature trend for each cylinder is shown over an adjustable time span.

High temperature alarm: The alarm limit can be offset for each measurement by the user in order to be able the specialise the limit for each cylinder.

High deviation alarm: Deviation from the mean temperature. The alarm is triggered at deviation both above and below the mean temperature. To calculate the deviation, the measurements are compared to the cylinder mean. This alarm type is both active for single temperatures and whole cylinders.

Temperature change alarm: dT/dt if a temperature changes rapidly within a given timeframe.

Wire break detection detects if a temperature wire becomes disconnected. In such a situation, the temperature reading will be excluded from all calculations, and a notice will be given. For maintenance, temperature readings can also be excluded manually.

Parameter retainment keeps the set parameters during a shut down by saving all variable parameters to a SD-card.

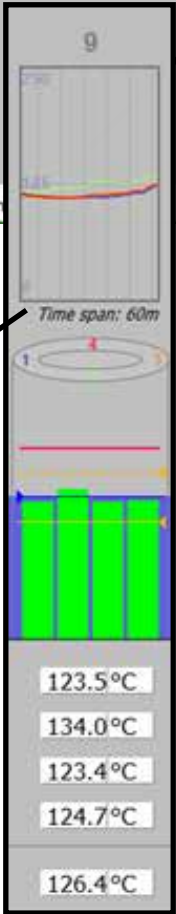
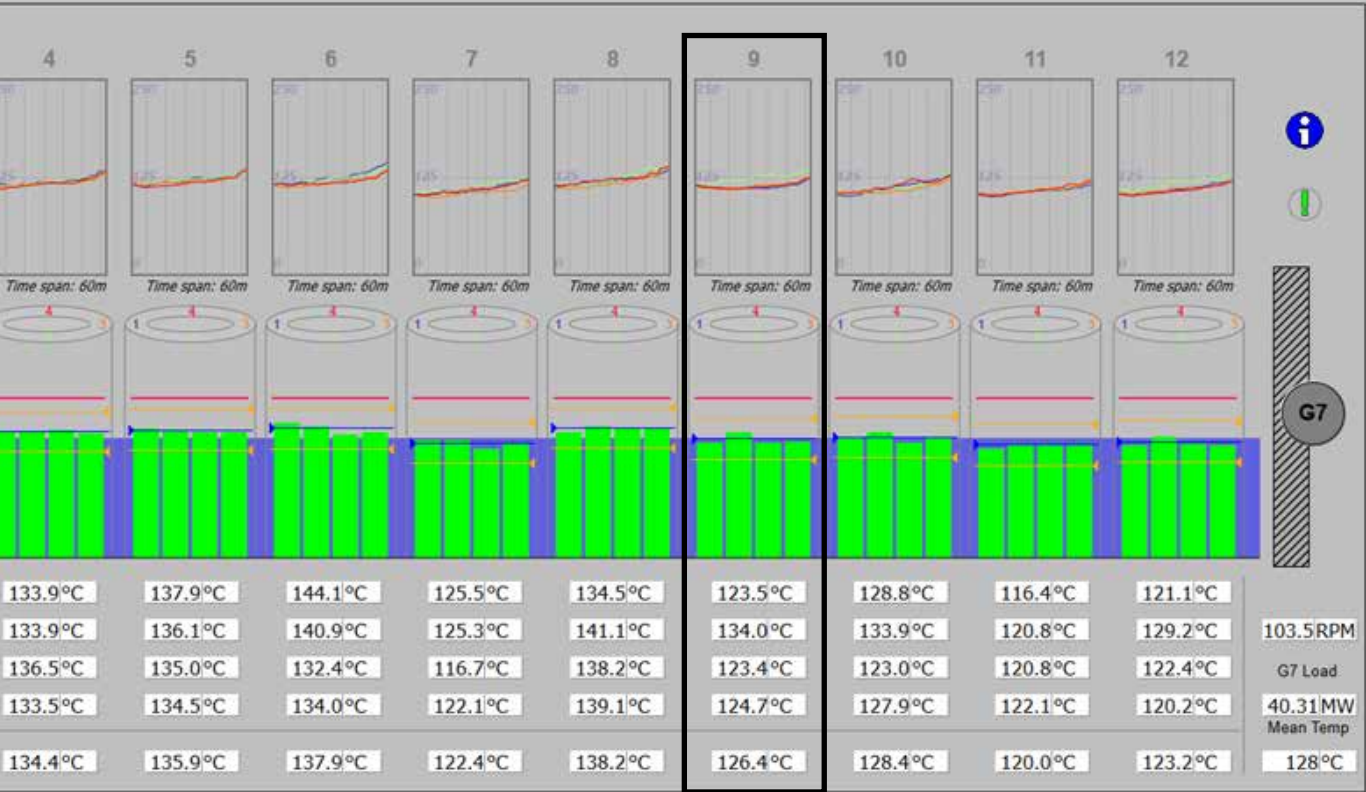
Communication monitoring secure that all communication in the system happens without a fault going unnoticed by a PLC watchdog and remote I/O signal monitoring.

Users with the right level of access is able to change key parameters of the system.



Parameter settings

G7 CYLINDER LINER MONITORING SYSTEM



Adjustable time span

Cylinder Liner Monitoring System

BWSC Cylinder Liner Monitoring System (CLMS) offers increased security and reduced wear and tear of the cylinder liners. The solution has multiple benefits, e.g.

- Prevents cylinder liner scuffing by giving early warning about high thermal load, hereunder
 - Temperature deviation
 - High rate of change in liner temperature
 - High liner temperature
- Four measurements in each cylinder liner in order to increase reliability
- Stand-alone alarm system with appealing interface
- Load dependent alarm limits to decrease the risk of fault alarm
- Temperature history with trend display
- Fast deployment
- Can be deployed on engines with any number of cylinders

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FACTS ABOUT BWSC

- World-leading turnkey EPC contractor and service provider for diesel, natural gas and renewable baseload power plants for electricity generation and thermal energy production
- More than 180 power plants designed and supplied in 54 countries
- Two decades of experience in operation and maintenance of power plants
- A comprehensive range of power plant support services, from spare parts to complete rehabilitation
- Training programmes for all aspects of power plant operation and maintenance
- Extensive experience in financing and development of power plant projects
- Headquartered in Denmark and supplemented by an international sales and support network
- 700 employees based at our main office and power plants around the world
- 100% subsidiary of Mitsui E&S Holdings Co. Ltd., Japan
- Certified according to ISO 9001, ISO 14001 and OHSAS 18001
- Long-standing AAA rating, 2017 revenues: EURm 387



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