ENERGY

IMPROVED MEASURING SYSTEM FOR PERFORMANCE ASSESSMENTS

New techniques for demanding markets

Operating a power plant is a delicate art. To maximize efficiency and minimize the number of unscheduled outages, it is important that each component performs optimally.

Success depends on the condition of your equipment, the knowledge and experience of your personnel and the quality of your monitoring tools. However, to get the most out of your plant, the first thing you need is a detailed picture of the way each component and the plant as a whole are performing. Such information is the starting point for improved control and refinement of your processes, leading ultimately to lower operating costs, increased reliability and enhanced performance.

Introduction

DNV GL Energy has conducted performance related assessments for power stations for more than 40 years. DNV GL's team Process Technology and Measurements (PTM) offers measuring and consultancy services worldwide with, if required, the deployment of temporary (calibrated) testing instrumentation. Among our clients are Independent Power Producers (IPP's), EPC contractors, the process industry as well as governmental and municipal authorities. Approximately 75% of the team's turnover is generated outside the Netherlands.

DNV GL Approach

For the reliable and accurate determination of heat rate and efficiency, an in-house developed measuring system is used. After many years of reliable service, this measuring system will be upgraded and replaced. DNV GL has developed a new measuring system which is based on the proven standards Foundation Fieldbus and OPC communication technology.

How Does It Work?

The Foundation Fieldbus configuration requires a minimum amount of cables to be installed in the field. It is digital two-way communication over the wires that will also power up the test instruments. OPC is a standardized communication technology which is commonly available in today's distributed control systems (DCS). These proven technologies allow a shorter preparation time and require less labor for installing. The components and cabling are all compact, light-weight and robust, making it safe to work with.

The new instrumentation will be in accordance with the latest industrial standards, meeting the requirements for accuracy as laid down by the applicable test codes (e.g. ISO and ASME-PTC) and can be deployed in hazardous areas (Eex/Atex certified). Not only are they robust and have a high stability, they are also equipped with a very advanced self-diagnosis system. By using these self-diagnosis functions, warning signals and alarms can be generated in a very early stage, hence preventing malfunction and/or misreading.

Configuration and operation of the new instrumentation and acquistion of the measurement data will be done with ThermoWare, a DNV GL in-house developed thermodynamic software tool. ThermoWare provides capability for on-line verification of both measured (dP, P, T) as well as calculated parameters (mass flows, efficiency, etc.).

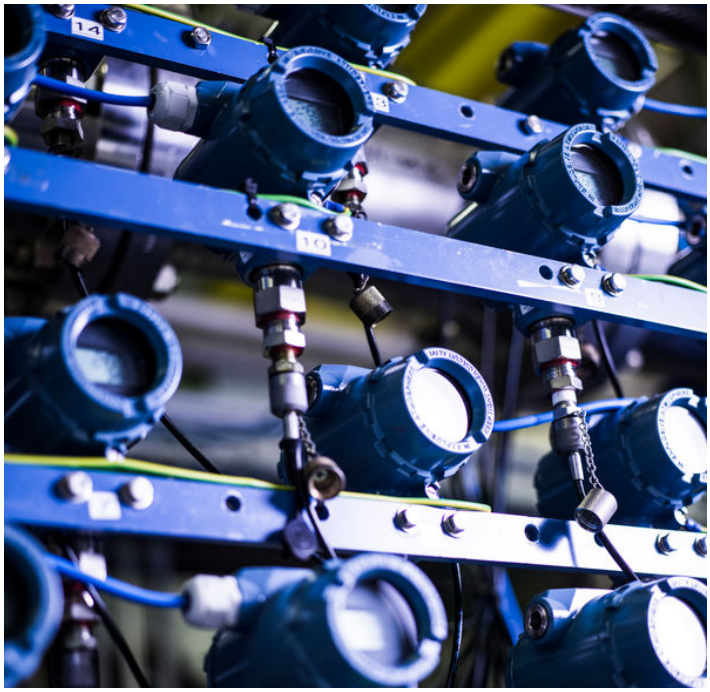
Key Benefits

DNV GL's upgraded performance test measurement system will result in the following benefits:

- Lighter configuration of new performance test equipment, resulting in reduced cost for transportation of test equipment to and from the site
- Less time required for mounting and dismantling of performance test instruments
- Minimized delay in scheduled test program in the event of an instrument malfunctioning because of self-diagnostic functions
- Possibility to deploy performance test instruments in Eex/ ATEX classified zones
- Possibility to collect on-line performance test data from clients DCS through OPC protocol

DNV GL ENERGY

In DNV GL we unite the strengths of DNV, KEMA, Garrad Hassan, and GL Renewables Certification. DNV GL's energy experts support customers around the globe in delivering a safe, reliable, efficient, and sustainable energy supply. We deliver world-renowned testing, certification and advisory services to the energy value chain. Our expertise spans wind power, solar, conventional generation, transmission and distribution, smart grids, and sustainable energy use, as well as energy markets and regulations.



Summary

Stepping up to the current state of technology in communication and measurement opens up many opportunities. Communication through an OPC server and client network allows an integration of station instruments (DCS) with additional DNV GL measurement points. The short-term advantages can be found in the Fieldbus technology: communication and power over 2 wires. The connecting network is compact, simple and proven robust technology. Besides the financial savings through less transportation and labor costs, the network can be used in ex-proof Atex areas and is safe to work with.

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