

Control System Retrofit

Gas turbines type THM



Control System

Cutting-edge system for THM gas turbines



In order to modernize obsolete control systems on THM gas turbine units, MAN PrimeServ has developed a comprehensive modernization concept on the basis of a state of technology programmable logic controller.

Challenge

Control systems for gas turbines have suffered fast technical development like all computer systems in recent years. The control concept and the scope of functionality of older control systems often do not meet current standards. The spare parts and technical support required for immediate recommissioning are often not available any more, which can lead to unplanned downtimes of the gas turbine unit. Furthermore years of operation have increased the risk of malfunction and failure of the components.

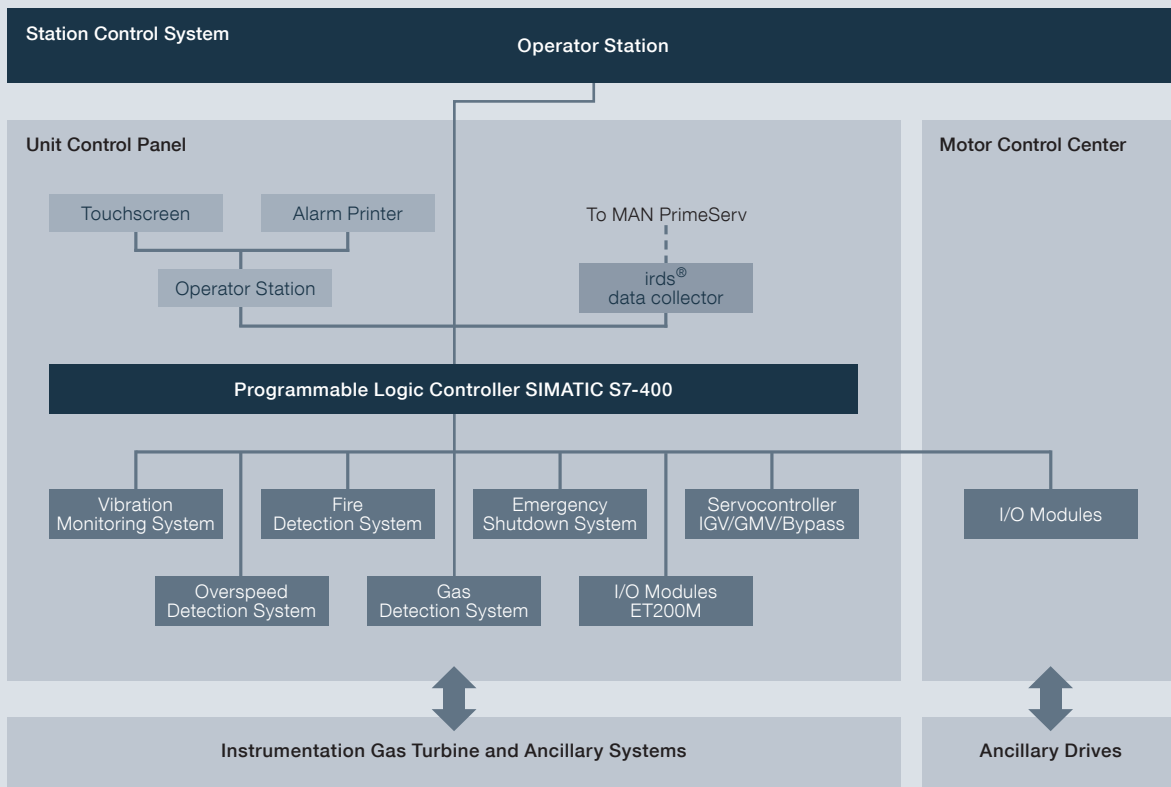
Solution

MAN PrimeServ offers a modern control system based on a SIMATIC S7-400 programmable logic controller. All components, the logic controller as well as the independent monitoring systems, e.g. vibration

monitoring system, are based on industrial standard systems in order to ensure long-term availability of spare parts and support.

Instead of just replacing the control system, the comprehensive modernization concept of MAN PrimeServ also includes the updating of control parameters and the modernization of connected systems as inlet guide vane positioning system, fuel gas control valve and overspeed monitoring system. These additional measures ensure that all control system related systems are in accordance with current technical standards.

The central module consists of a highly available SIMATIC S7-400 controller as standard. The open-loop and closed-loop control functions of the gas turbine unit are grouped together in a common system.



The ET200M I/O modules are realized as standard modules, explosion-proof modules and failsafe modules. The Ex-modules enable direct connection of intrinsically safe sensors and actuators installed in zones 1 and 2 of explosion hazard areas. Safety-relevant signals are sent to the failsafe modules as standard. Therefore safety requirements up to IEC 61508 SIL 3 level can be realized.

The SIMATIC PCS7 process control system is used for operation and monitoring of the gas turbine unit, which allows user-friendly operation:

- Input of operation commands
- Visualisation of all machine parameters in process images and tables
- Display of messages
- Recording of measured values and alarm messages
- Integrated analysis functions for trend analysis and online monitoring of measured values.

The operating data can be transferred to MAN PrimeServ via the integrated irds® data collector in order to support plant personnel in terms of plant status and elimination of malfunctions.

Advantages

- Comprehensive modernization concept, specifically tailored to THM gas turbine units
- Adaptation to individual conditions
- Modern control and safety concept
- Long-term spare parts and servicing availability
- Updating of control parameters
- Clear, intuitive visualisation
- Analysis and recording functions for all information, e.g. measured values and alarm values
- Connection to the MAN PrimeServ irds® system for remote service support

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MAN Diesel & Turbo

46145 Oberhausen, Germany

Phone +49 208 692-01

Fax +49 208 669-021

mtprimeserv@man.eu

www.mandieselturbo.com

24/7 Hotline: +49 208 692-9000