



KEY FACTS

Location: Libya

Client: CSE Servelec for Technica (UK)/Zueitina Oil Company

Engine: 4 off Pratt & Whitney FT4A Aero derivative Gas Turbine with turbo compressor

Function: 2 x turbo compressor trains

Controller: Dual redundant Rockwell ControlLogix

HMI: CSE Servelec SCOPE

Software features:
Integrated engine governor, sequencer and exhaust gas temperature (EGT) monitor and compressor anti-surge controller

Project Profile

Zueitina P&W FT4 Gas Turbine Control System

As part of the instrumentation upgrade project at the Zueitina 103D site in Libya, Proeon Systems were asked to provide the gas turbine and compressor anti-surge software control systems for twin shaft Pratt and Whitney FT4A turbo compressors.

The upgrade included two gas compression trains each with two compressor stages and involved the installation of a new ESD/F&G system, new Vibrometer condition monitoring system and new station control software.



The project was undertaken in conjunction with CSE Servelec and Technica (UK) and the turbine control system was designed to be integrated into overall train control system and to provide ease of operation. Repeatable starting of the engines was a key design requirement. New instrumentation was fitted to augment the standard engine equipment and to provide improved diagnostics and control.

The project was to replace the ageing Hamilton Standard SPC2A control system with a state of the art PLC based system based on Rockwell ControlLogix PLC technology with a CSE Servelec SCOPE X SCADA system. Key to the project was the implementation of a new anti-surge control system that provided a simple auto-loading of each compressor stage whilst providing adaptive protection algorithms to ensure the operating point of each compressor was kept away from the surge lines.

The software control system provided robust control of the engine governing, exhaust gas temperature monitoring and engine sequencing.

Proeon Systems provided the detailed project design specifications for the engine controls together with the migration of the control algorithms and settings from the existing Hamilton Standard SPC2A control system into the new control systems.

In addition to the software design Proeon Systems provided the specification for the new PECC all electric gas fuel valves and undertook the site training courses for operator and maintenance personnel as well as commissioning of the compressor Trains.