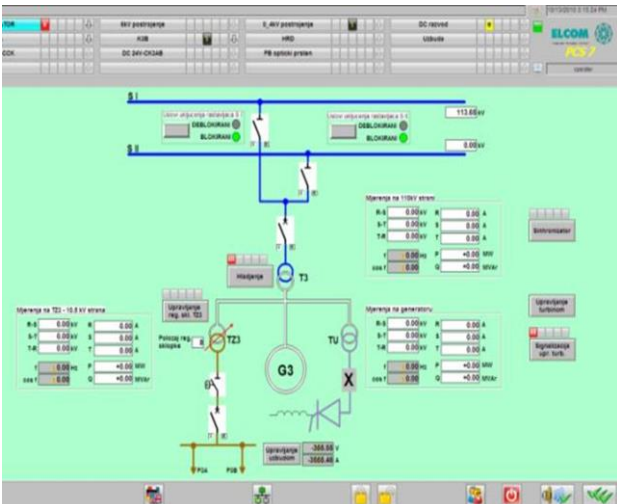**reference**

ELCOM d.o.o. is specialized in Totally Integrated Automation (TIA), containing electrical engineering and software development for the automation of production processes and machines, production of MCC and control cabinets as well as onsite installation, commissioning and acceptance testing (FAT, SAT, SIT)

Control of electrical parameters for power generator in Thermal Power Plant

Customer: JP Elektroprivreda BiH

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Solution Partner

Automation   **SIEMENS**

Process description

The control of electrical parameters of power generator includes the following operations:

- monitoring and control of excita-tion system
- monitoring and control of genera-tor synchronisation to the power network
- monitoring and control of high voltage power distribution network
- monitoring and control of low voltage distribution network
- monitoring and control of power transformers
- monitoring of generator protec-tion system and generation of failure se- quence of events with 1ms resolution
- monitoring and control of uninter-ruptible control voltage supply system

Challenge

Implementation of a cost efficient, user friendly and high available process control system with as less as possible classical cabling which have to result in a very fast and easier cabling, engineering and com-missioning of a very high level.
A very detailed diagnostics and mainte-nance management for the components of the process control system.
Increasing of system reliability and avail-ability through redundant structures at all levels (redundant I/O cards

redundant field bus, redundant process controllers, redundant plant bus, redundant HMI serv- ers, redundant terminal bus). Implementation of sequence of events recorder with 1ms resolution with SIE- MENS standard components.
Centralized clock synchronization with SICLOCK TM.

Solution

The solution is a PCS7 v7.1 SP1 system with a completely redundant architecture at all levels from field to HMI clients. The 3 Clients and 2 redundant servers are con-nected via redundant industrial Ethernet to 2 controllers (one redundant controller for system handling of type AS414-4H, and one controller for sequence of events recording of type AS414-4H).
Redundant I/O cards are connected to process controllers via ET200Ms and redundant Profibus optical ring.
System clock is centrally synchronized with SICLOCK TM.

Project overview

- Control of generator excitation system
- Control of generator synchronisation
- 30 high voltage switches
- 50 low voltage switches
- 50 analogue instruments
- 2000 digital signals
- 15 SENTRON PAC 3200 power me-ters
- Application specific control blocks and faceplates

- Control system PCS7 V7.1 SP1
- one process controller AS414-4H as sequence of events recorder
- one redundant process controller AS414-4H
- 1 redundant OS server pair
- 3 OS clients
- Redundant ET 200M and I/Os
- Based on redundant network topolo-gies of Industrial Ethernet and Profi-bus DP (terminal bus, plant bus and field bus)
- SICLOCK TM

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