INP Reference

Boxberg Power Plant Unit R

LOCATION: Boxberg, Germany

SYSTEM/TECHNOLOGY: Automated migration of control technology from Mauell to ABB

SERVICES: Commissioning, Quality assurance, Site management, Documentation, As-built status and data recording, Pre-project planning and tendering, Basic-engineering and pre-engineering, Detail engineering, Installation supervision, Training

INDUSTRY BRANCH/TYPE OF PLANT: Power Generation, Power plants

CLIENT: LEAG / ABB

ACTIVITY PERIOD: Part 1: Data export, analysis and conditioning Part 2: Automatic transfer of function plans, operating diagrams

Project description

In 2011, the catastrophe in Fukushima and the signs of climate change reduced the focus on large power plants in Germany and Europe to a minimum.

As a result of the lack of demand, Mauell, a manufacturer of control and automation systems for large power plants and steam turbines, was forced to take the ME-4012 control system, which had also been used at Block R of the Boxberg lignite-fired power plant, off the market and discontinue it.

The data and server systems of the power plant unit, which had already been in operation for several years at that time, could then no longer be cyclically renewed in accordance with the state of the art.

In the course of the power plant‘s classification as critical infrastructure and the increasing failure rate of individual computer components, there was an urgent need for an upgrade.

In order to avoid a long plant shutdown, which would have been necessary if the control system had to be completely replaced, INP Deutschland GmbH developed a way to read out the entire control system, including the software and hardware information, from the running system and automatically transfer it to a vendor-neutral database.

Together with the control system manufacturer ABB, which equipped the control system of the sister block Q at the site, further interfaces were created based on the generated data and algorithms were developed that can automatically generate hardware and function plans, as well as operating diagrams, from the inventory data.

Furthermore, a possibility was created to convert the plant successively over a period of several years. For this purpose, an interface was programmed that allows mixed operation of existing components and control cabinets of the Mauell system together with the successively installed ABB Melody system without functional restrictions.

The interface was developed in such a way that the entire existing plant of the remaining Mauell system can be connected via network without program adaptation and the ABB 800xA operating and monitoring system can take over all operating and monitoring functions without any significant modifications to the existing configuration.

POINTS OF CONTACT

Jürgen Wilkening
Prokurist - Business Development Manager
INP Deutschland GmbH
Werkstraße 5
67354 Römerberg
Deutschland
Tel. +49 6232 6869-0
juergen.wilkening@inp-e.com
www.inp-e.com

INP Reference

ABB and INP then received an order from LEAG to migrate the visualization of unit R in the Boxberg power plant from MAUELL VIEW 3 to ABB 800xA, to migrate an automation cabinet from MAUELL to Melody and to convert the turbine control technology from ALSPA to Melody.

INP Services

Development and programming of the export and data algorithms

- Development of a list-based import structure for operating diagrams and message data
- Development of a list-based, system-neutral import structure for function charts
- Development of a data structure for data coupling between the Mauell- and the ABB system

Migration from MAUELL VIEW 3 to ABB 800xA

The existing visualization system ME-VIEW 3 from MAUELL was to be replaced by 800 XA. The coupling to the control system via the MAUELL OPC-server was to be retained, whereby this was to be virtualized on an ESX server to be supplied.

- Description of MAUELL Typicals on BIT level
- Data extraction from the MAUELL VIEW 3 system
- Preparation of data for automated operator screen generation in 800xA
- FAT on the test setup MAUELL VIEW / ABB 800xA
- Assembly planning and assembly
- Testing of the entire newly created ABB 800xA visualization against the existing MAUELL visualization in parallel mode

Conversion of the automation cabinet R0CNA24 from MAUELL to Melody

- Circuit planning
- Assembly planning and installation
- Extraction of the MAUELL DRP database
- Generation of the data for the automated generation of the Melody function plans
- Concept development for the integration of the new Melody cabinet to the existing control system and a HIMA protection cabinet.
- Connection of the HIMA alarm and event server to ABB 800xA
- Commissioning and integration of the replaced Mauell control cabinets

Turbine control technology

- Data extraction of the interface MAUELL to Alspa
- Preparation of the signal scope of the new interface to Melody
- Concept for the redundant bus connection of the new Melody

cabinets to the existing control system
- FAT for testing the interface concept
- Conversion concept, installation planning and installation
- Commissioning of the interface