

# ELECMECH NEWS

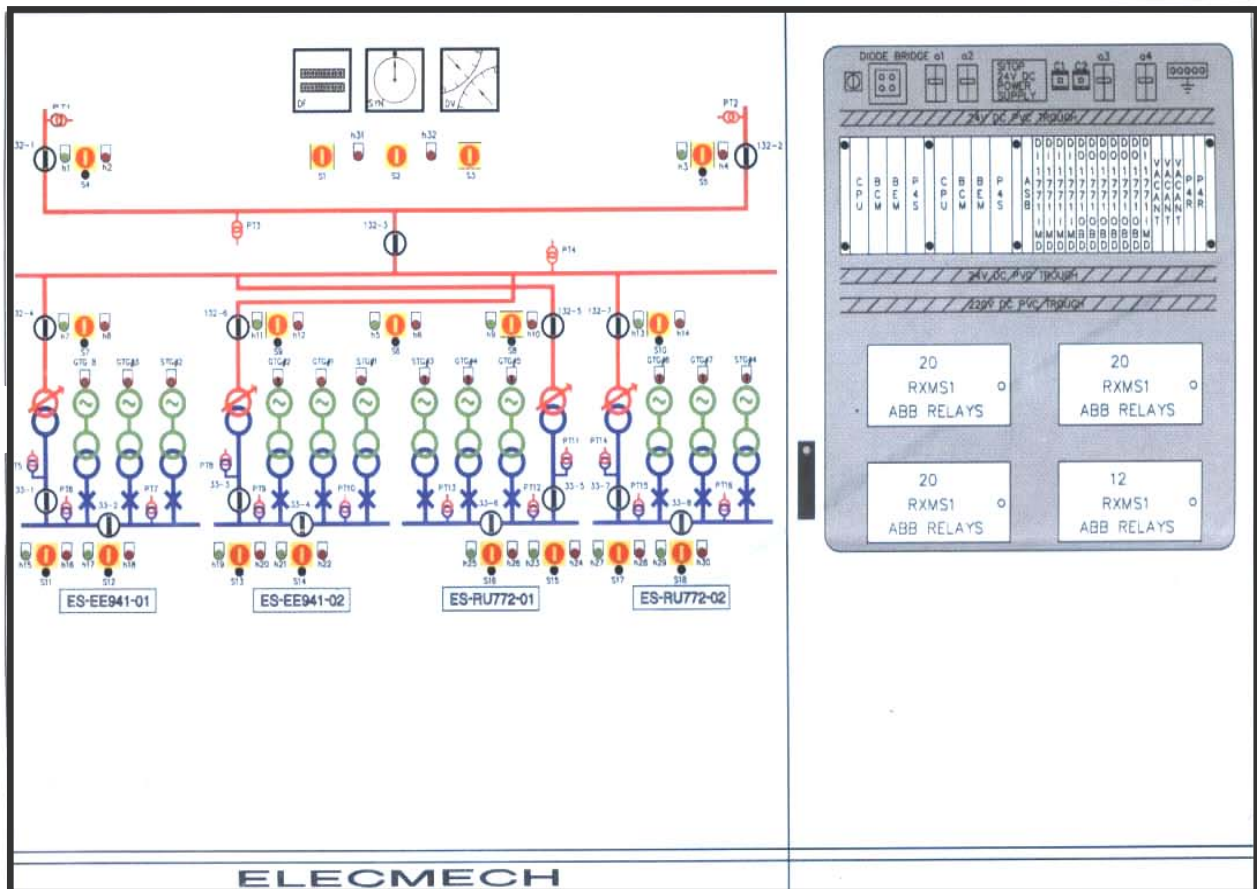
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The ELECMECH Group of Companies is pleased to present its newsletter highlighting a few of its recent achievements. The previous issue of the ELECMECH newsletter highlighted **PC-PLC based DG Power House Automation System, including DG Synchronizing, Load Sharing & Power Management Systems.**

In this issue, the Focus is on the recently completed  
**PLC BASED SYNCHRONIZING PANEL**  
 For CAPTIVE POWER PLANT  
 Client: RELIANCE PETROLEUM LTD, JAMNAGAR

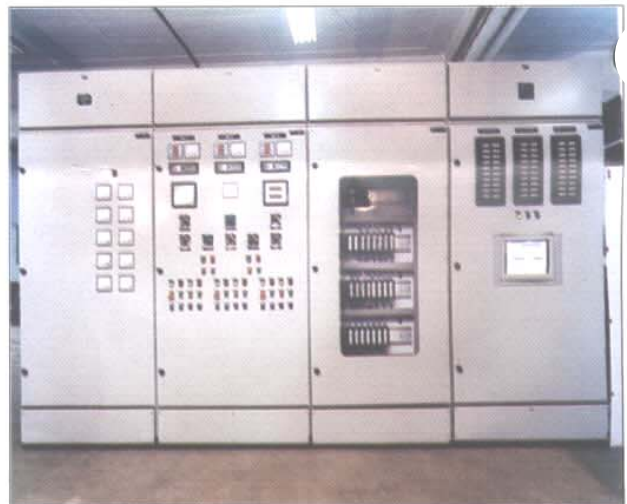
## The System Synchronizes

- 8 nos. of 40 MW (GTG) Gas Turbine Generating Sets
- 4 nos. of 40 MW (STG) Steam Turbine Generating Sets
- 2 nos. 132-KV - Grid Incomer Feeders across any one of the 15 Breakers on the 33-KV / 132- KV / 220-KV BUS.



## System Description (Refer to the System Mimic diagram)

- The DV, DF and Synchroscope indicate synchronizing status.
- The Synchronizing System is designed to be very flexible. Any machine can be selected as master or slave.
- Synchronizing across any Breaker is achieved by matching the frequency and Voltage of incoming slave(s) with that of the Master Bus.
- Synchronizing across a selected BREAKER is signalled to PLC, by turning its 'SYNC-OFF-DEAD' selector switch to 'SYNC' position.
- Putting the 'SYNC-OF-DEAD' selector switch to 'DEAD' position enables 'DEAD BUS' closing of the BREAKER.
- Breaker Close Trip commands & its discrepancy indication is by the ABB make OMHB discrepancy switches.
- PLC Outputs are in two categories
  - PT selection for synchroscope Master-Slave Bus.
  - Raise / Lower of frequency & Voltage commands
- PLC output for PT selection for Master-Slave Bus is based on the complicated 'NETWORK DETERMINATION' logic, jointly evolved by Elecmeh and Reliance Petroleum Limited.
- PLC output for RAISE and LOWER commands are directed to the selected GTG (s) / STG (s) based on the same complicated 'NETWORK DETERMINATION' logic.
- ABB make extremely reliable high-speed Auxiliary RXMS Relays are used for potential free outputs.
- Auto change-over system is provided for both AC & DC Control supply feeders for redundancy.
- **PLC SYSTEM** is of Allen Bradley make, in HOT STANDBY configuration, with 5/40-B CPU, Back-up Communication module, Back-up Expansion module and Redundant power supplies, with 1771 I/O modules @ 220V DC.
- PLC is programmed using ladder logic through RS Logix 5 software, from a Notebook PC.
- **TESTING & SIMULATION ON SHOPFLOOR**  
A specially engineered control desk was wired to the Synchronizing Panel for 100 % simulation of the entire system, including the synchronization process on the shopfloor.
- The system was successfully commissioned with minimal shutdowns in a record time to the satisfaction of Reliance Petroleum Limited.



The ELECMECH GROUP needs no introduction when it comes to Switchgear Panel Design & Manufacturing. With over 35 years of experience and three fully-equipped manufacturing factories strategically located in Mumbai, Ahmedabad & Baroda, ELECMECH is in a position to meet your needs for standard as well as electrically Integrated Panels for Low Voltage and Medium Voltage with assured quick deliveries, flexibility & approved quality standards.

A few of the Projects executed recently by the Group merit a special mention :

Project	Panels	Special Features
HPCL Mahul Refinery SRU	3200 A PCCs 800 A MCCs 800 A ASBs	<ul style="list-style-type: none"> <li>● Electrically Integrated Panels with 800 A MCCs</li> <li>● Communicable relays of Multilin.</li> </ul>
IOCL Mathura Refinery SRU	3200 A PCCs 800 A MCCs 800 A ASBs	<ul style="list-style-type: none"> <li>● Electrically Integrated Panels with</li> <li>● Communicable relays of ABB with Fibre-Optic Communication.</li> </ul>
IOCL Mathura Refinery SRU	3200 A PCCs	<ul style="list-style-type: none"> <li>● 690 VAC System Electrically Integrated Panels with Communicable relays of ABB with Fibre-Optic Communication including PC.</li> </ul>
Reliance Petroleum Ltd.	5 nos. DG AMF Panels	<ul style="list-style-type: none"> <li>● PLC based UNMANNED DG CONTROL with Momentary GridSync.</li> </ul>
Abu Dhabi (Export)	Feeder Pillars	<ul style="list-style-type: none"> <li>● 800 Amp. 6 way and 8 way Feeder Pillars with vertical fuse strips.</li> </ul>



## ELECMECH GROUP

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