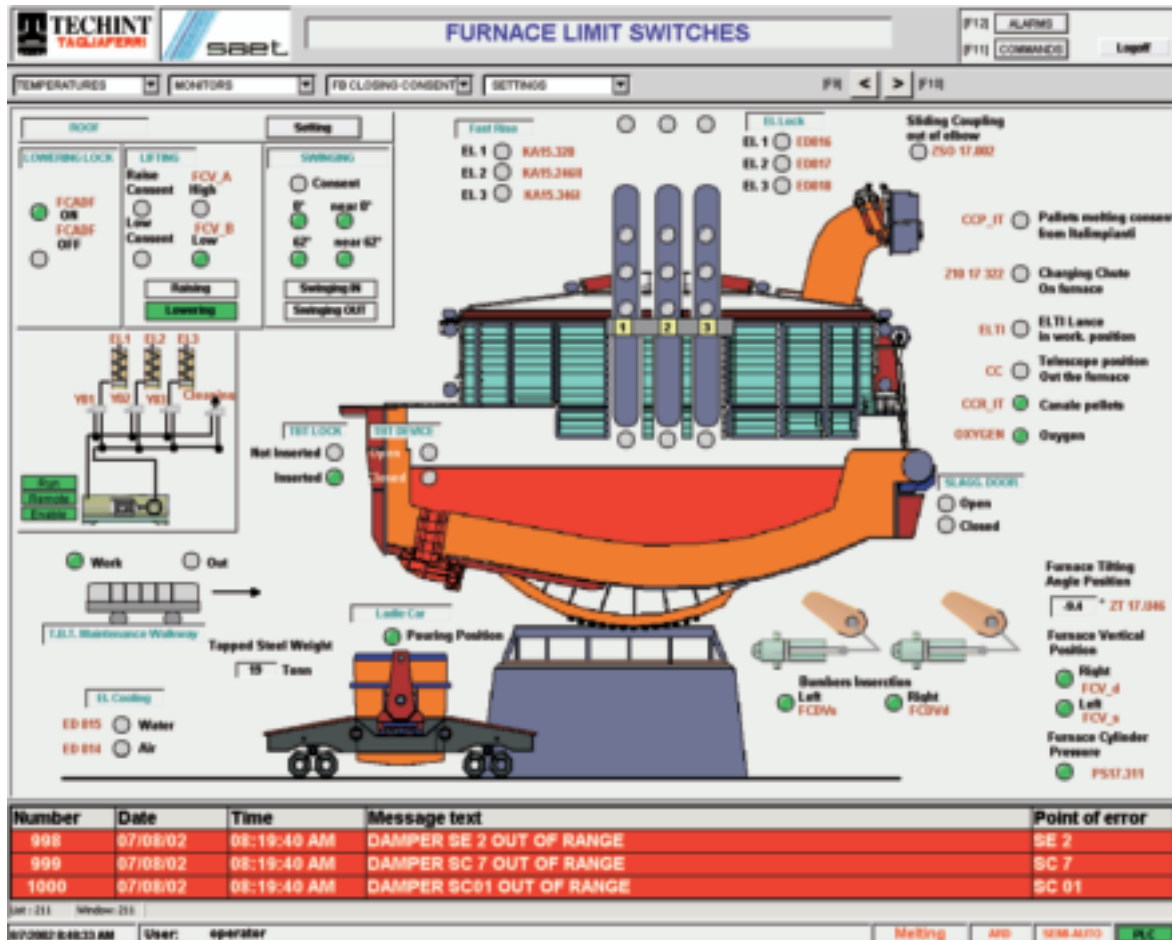


TECHNICAL REFERENCE SHEET

TECHNICAL REFERENCE SHEET FOR AUTOMATION SYSTEM OF EAF ELECTRIC ARC FURNACE and TECHINT FUME SYSTEM - Mobarakeh IRAN



Video screen with LAYOUT of EAF electric ARC furnace at Mobarakeh Steel Mill (Iran)

CLIENT: **TECHINT TECHNOLOGIES**
for Mobarakeh Steel Mill, IRAN

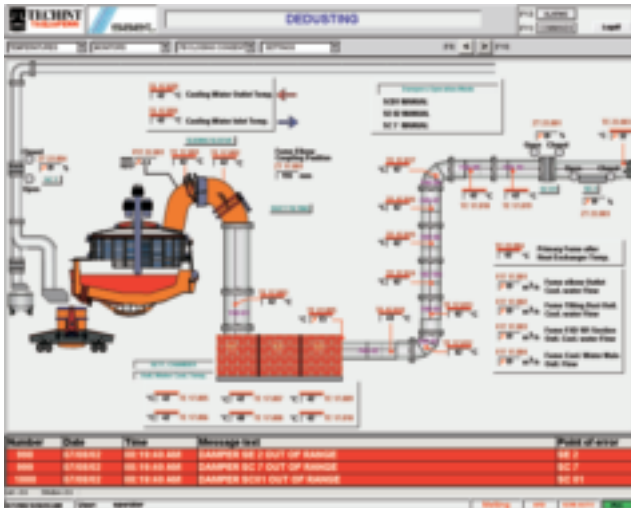
SYSTEM

The system of automation for the steel mill with four Tagliaferri electric ARC furnaces at Mobarakeh in Iran, supplied by TECHINT ITCNOLOGIES, manages the “furnace automation” and “fume treatment” sections. The automated processes are:

- Operator modes with keys and switches on the control panel;
- Fume exhaust and regulation system;

- Interface with digital regulator of TDR electrode movement;
- Control of furnace movements and management of sequential interlocks;
- Control of hydraulic unit;
- Control of electrode temperature with control of water spray circuit;
- Electrode cleaning sequence with jets of air;
- Position of furnace roof and slagging door;
- Control of furnace tilt for tapping;

- Tapping cycles;
- Fume cooling adjustment;
- Regulation of pressure and reserve circuit (rising and tilting);
- Possibility of semiautomatic mode for entering fusion recipes;
- Weighing of tapped material.



Layout of fume treatment system

COMPOSITION OF SUPPLY

ELECTROMECHANICAL PARTS

- MCC panels.
- UPS continuity unit.
- LCP Local Control Panels for each section.

ELECTRONIC PARTS

- Programmable logic controller.
- Stations of supervision based on SIEMENS industrial PCs.

FUNCTIONS OF THE SYSTEM

Basic automation

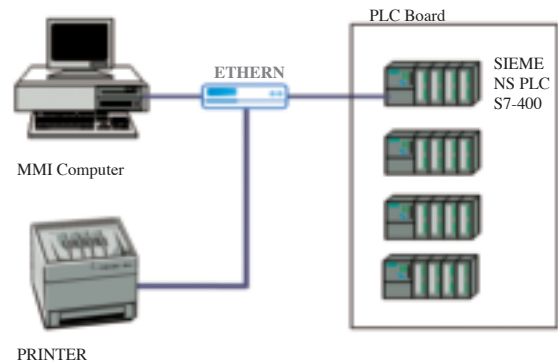
- movement and control of shutters for fume regulation;
- sequences of furnace movements (Roof, TBT, slagging door, rocker arm);
- control of temperature sensors;
- switch closure logic for powering and rising of electrodes;
- fusion recipes and control;
- sending of electric set points to electrode regulator and tap changer;
- interlocking logic.

Supervision

Through supervision station the system can:

- display/control system status
- select and enter fusion recipes;

- manage load sequences;
- automatically manage load and operator sequence;
- manage alarms and events;
- manage files and historical trend.



TECHNOLOGIES

- SIEMENS series S7-400 (EAF) PLC.
- ETHERNET communication board.
- Supervision station on SIEMENS industrial PC with Windows 2000 operating system.
- ETHERNET PC - PLC connection with SIEMENS switch.
- PLC management and control software developed in STEP 7 language.
- Supervision Software SCADA WINCC in WINDOWS 2000 PRO environment.



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SISTEMI ED IMPIANTI
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