IGNEIS 10

AUTING CONTROL

Automation and Energy Optimization

www.auting-control.com

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WHAT IS IT?

Is a modern system dedicated to the modular automation of industrial boilers and furnaces, minimizing energy consumption through special built-in optimation modules:

Basic Module:

Comprehends the start/stop secuence, boiler pressure control, boiler safety and combustion control (simple air-to-fuel characteristic).

Energy and Efficiency

The system determines the real boiler efficiency, calculated as the quotient between produced energy and consummed energy. Steam density and enthalpy are calculated from the measured steam pressure. Steam and fuel flow are measured, from which energy production and consumption are then calculated. The heating value of the fuel is entered manually.

Combustion Optimization:

The air-to fuel characteristic is determined so as to attain the maximum boiler efficiency, as calculated by the system, for every firing rate. The system memorizes the measured oxygen value at the optimum air-to-fuel mixture for every firing rate. Afterwards, the system automatically keeps the boiler burning at optimum efficiency, independent of changing air temperature or fuel heating value.

Level Control:

Keeps boliler level constant by means of a PID controller, a level transmitter and a modulating water valve (pneumatic or electric). One element (level) or three element (level, steam flow, water flow) level control is possible, the latter responding quickly to surges in steam demand.

Surface blow-down:

Keeps salts concentration at constant value. The system uses a PID controller with pulse-width modulated output to the purge valve. Water conductivity is measured and controlled.

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Sludge Blow-Down:

Is executed automatically at intervalls programmed by the user. The length of the intervall and the duration of the blow-down are both configurable to ensure the least waste of high temperature water.

Dosing of Chemicals:

The anti-scaling and the oxygen-scavenging chemicals are dosed proportionally to the measured feed water flow. Dosing pumps are controlled with proportional 4...20 mA signals. The low level in the dosing tanks is monitored. The maximum dosing rates are user configurable.

Pump Control:

When several pumps are used, the system stages the pumps according to demand (measured feed water header pressure). A sequence is configured by the user. In case of a pump failure, the next pump in the sequence is started automatically. The sequence is rotated weekly to ensure even wear of pumps.

Water Pressure Control:

Using one or several pump speed drives, the feed water pressure is kept constant. PID control is used along with a water pressure transmitter. This greatly enhances boiler level control and saves electrical energy.

Remote Terminal:

Based on a PC, it allows the user to remotely monitor and operate several boilers. It includes the following functions: dynamic displays, long term data archiving, on-line trends, trends from archived values, alarm table, configuration screens, monitoring screens. If Internet access is provided, it allows monitoring from any place.

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CONTROL CABINET BESIDE WATER AND STEAM FLOW TRANSMITTERS

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FUEL OIL MASS FLOW MEASUREMENT DEVICE

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STACK MOUNTED OXYGEN MEASUREMENT DEVICE

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STEAM MASS FLOW MEASUREMENT WITH ORIFICE PLATE

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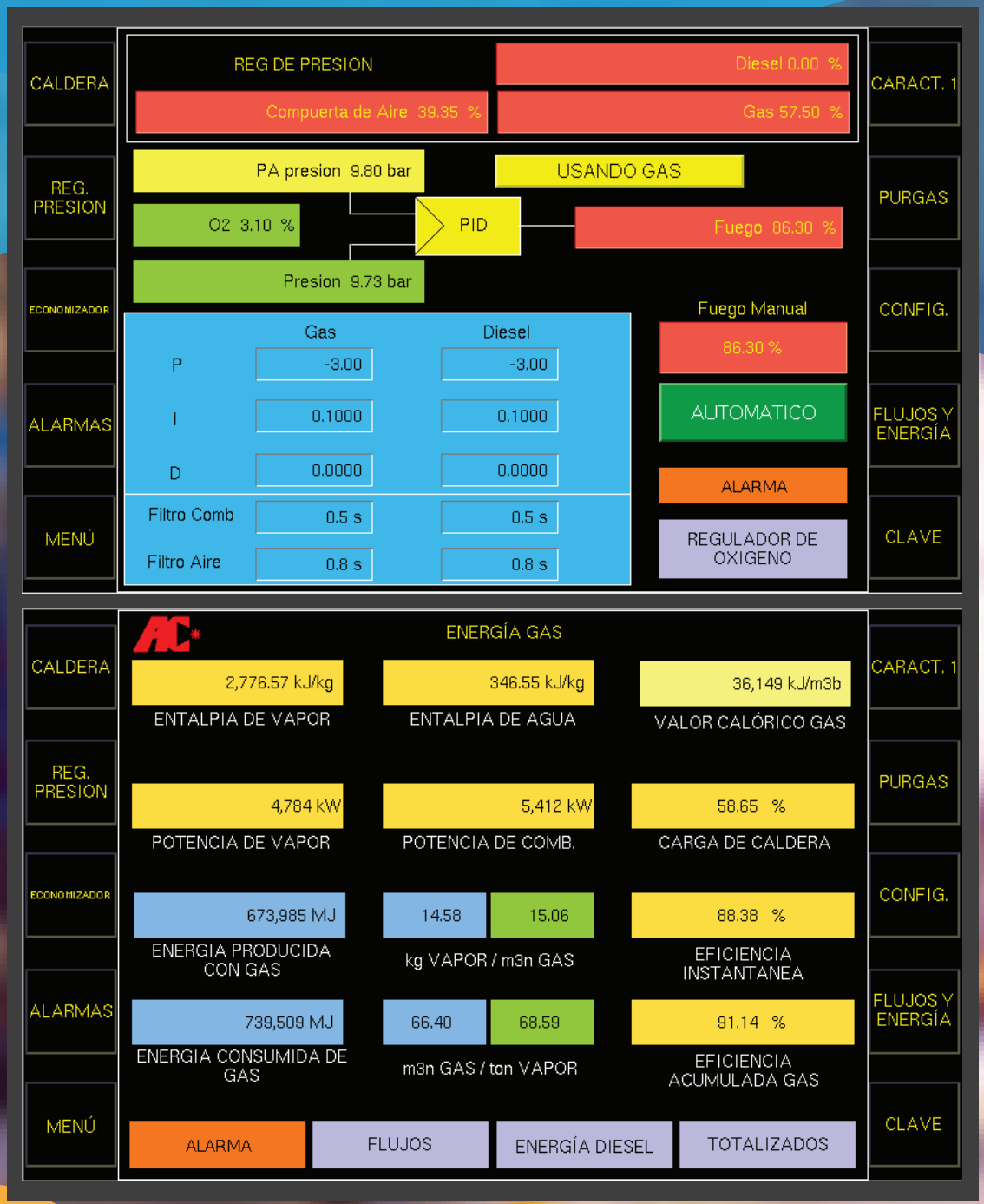
LOCAL INTERFACE SHOWING THE PRESSURE CONTROL CONFIGURATION SCREEN



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CONTROL UNIT

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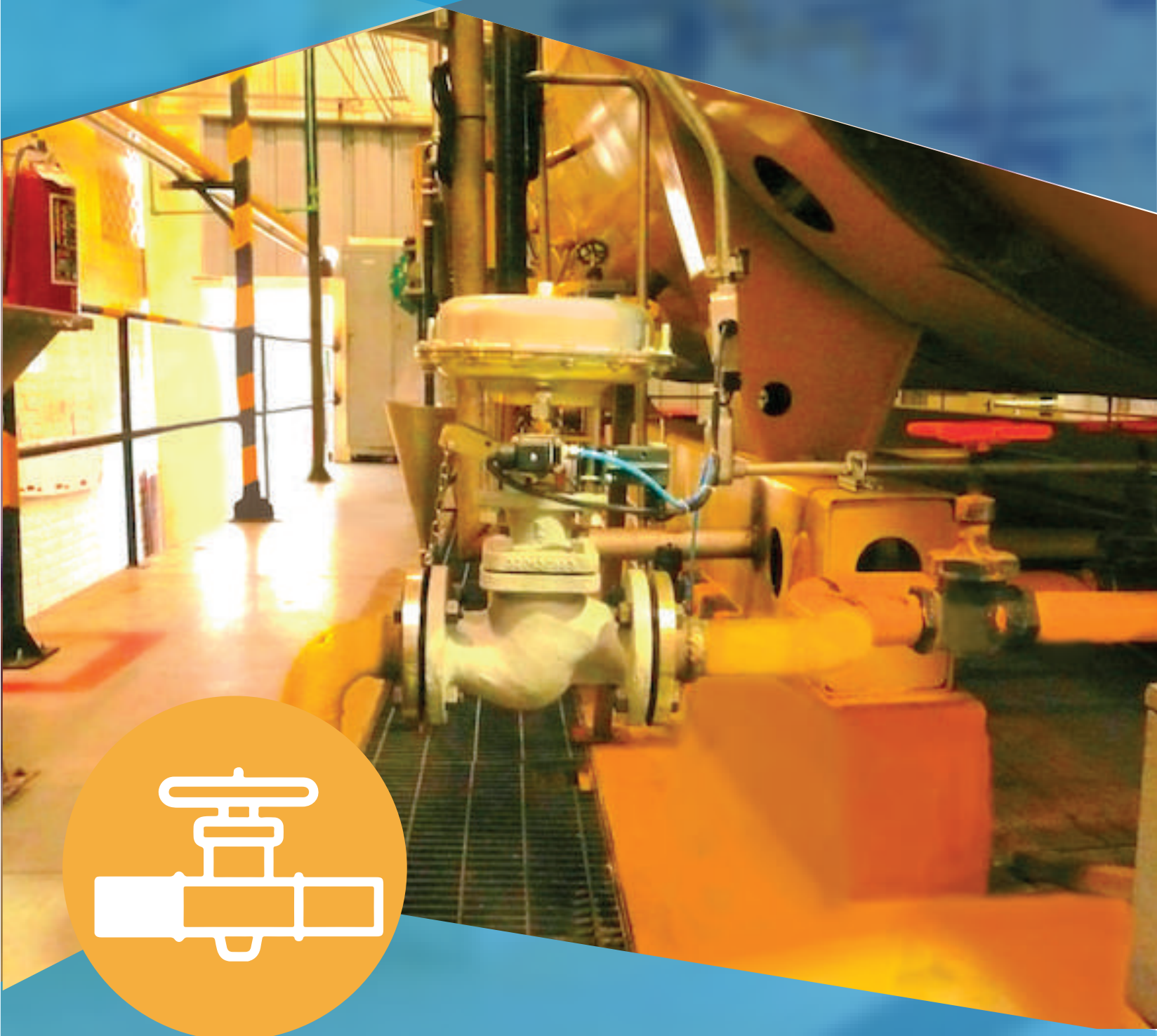
SLUDGE BLOW-DOWN VALVE, PNEUMATICALLY OPERATED



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SALTS BLOW-DOWN EQUIPMENT: Showing conductivity sensor and transmitter, blow-down valve, expansion vessel

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Electrically actuated modulating valve for boiler level control

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BOILER LEVEL TRANSMITTER, ARCHIMEDIC TYPE

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ANALOGICALLY CONTROLLED DOSING PUMP AND TANK

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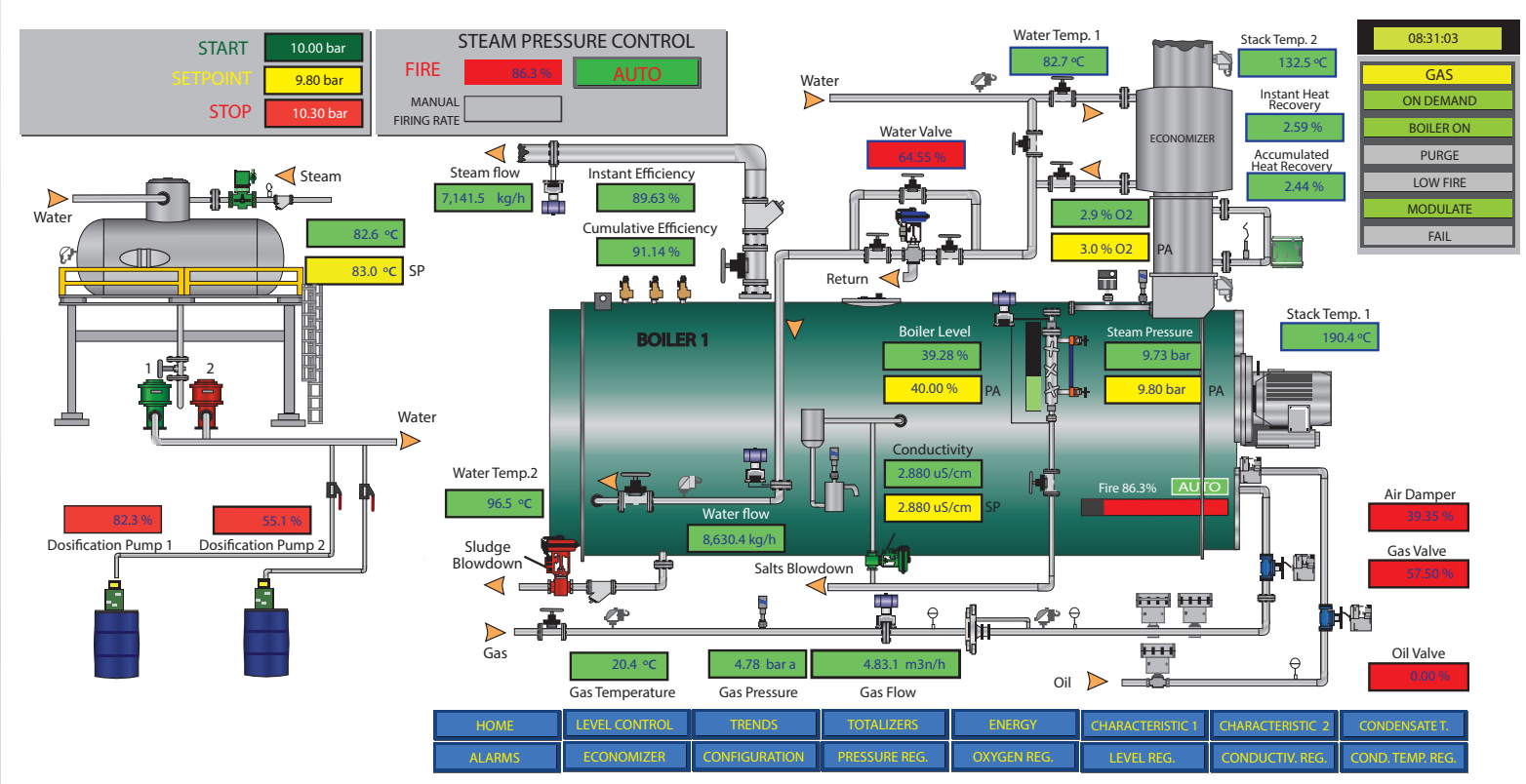
REMOTE TERMINAL, MAIN SCREEN



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