LAB ENGINEERING

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Product Name : Steam Turbine Power Plant Setup	**Product Code :** Steam Power0003

Description :

Steam Turbine Power Plant Setup

Technical Specification :

The experimental has been designed specifically for engineering education in the field of power plant technology, and driving and driven machines. It offers a wide range of experiments to learn about the operational processes in a steam power plant.
An oil-fired once-through steam boiler produces wet steam that is turned into superheated steam by means of a super heater. The boiler's short heat-up time means rapid steam generation is possible. Load is applied to the turbine with a generator. The turbine output is determined by speed and torque. Downstream of the turbine, the steam is condensed and returned to the boiler. The feed water circuit is fitted with a complete water treatment system, which consists of a re generable ion exchanger and chemical dosing. Sensors record the temperature, pressure, speed, and flow rate at all relevant points. The measured values can be read on digital displays. At the same time, the measured values can also be transmitted directly to a PC via USB. The data acquisition software is included. The control panel includes a clear process schematic of the plant. The system is monitored and controlled by a programmable logic controller (PLC).
Steam Turbine Power Plant Setup
The experimental plant is built in accordance with statutory safety regulations and includes the mandatory safety facilities. The steam generator is type tested and does not require specific permissions.
The plant can optionally be operated with the cooling tower.
FEATURES
Steam power plant and its components
start-up, operation and shut down of a steam power plant
closed steam-water circuit with feed water treatment

among others, determining:
boiler efficiency
mechanical/thermal efficiency of the turbine
condenser efficiency
SPECIFICATION
Steam generator
steam output: 200kg/h at 11bar
fuel consumption: 12L/h
heat-up time: 8min
pressure: 13bar
Super heater
power: 7kW
Single-stage axial turbine with Curtis wheel and hydraulic speed regulator
power: max. 1,5kW at 3000min-1
Water-cooled condenser
cooling capacity: 98kW
transfer surface: 2,5m2
Measuring ranges
temperature: 9x 0…400°C, 2x 0…100°C
flow rate: 0…167L/min (cooling water)
pressure: 3x 0…16bar, 1x ±1bar
torque: 0…20Nm
speed: 0…4000min-1
400V, 50Hz, 3 phases
400V, 60Hz, 3 phases, 230V, 60Hz, 3 phases