

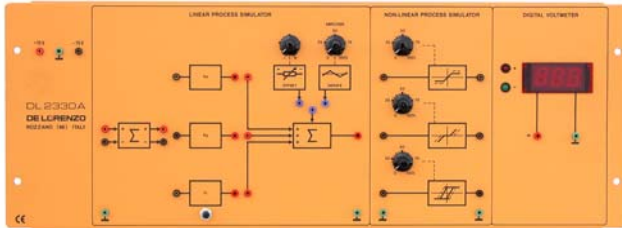


Process Simulator with PID Control

DL 2330

This system has been designed with the objective of providing the student with a simple, although effective tool for the simulation and the control of physical systems through the identification of the mathematical model, the definition of the parameters and the calibration of the control network. The system is composed of two boards.

Process Simulator



DL 2330A

This board is basically structured in two sections:

- a linear process simulation, with two summing amplifiers, three blocks with proportional, integral, derivative transfer functions, offset and drift generators
- a hysteresis non-linear simulation, dead band and threshold

It includes a digital voltmeter.

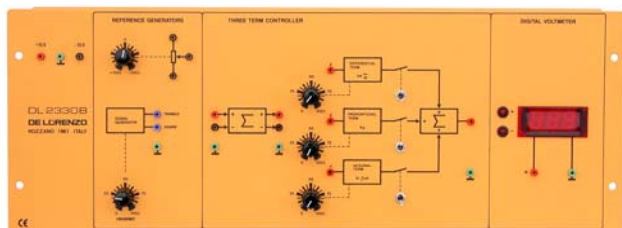
The board is supplied complete with a set of stackable, plug-in cables of suitable lengths and colours and with a training manual.

Power supply: $\pm 15\text{Vdc}$, 300mA

Experiments

- Analysis and simulation of linear processes
- Open and closed loop control of linear systems
- Behaviour of the control system against fixed or time variable disturbances
- Steady state error
- System with two time constants
- Calibration of a control system and criteria for the optimum setting of the PID parameters
- Transfer function of the PID controllers
- Method of permanent oscillation
- Method of damped oscillations
- Experimental study of the PI controller
- Experimental study of the PD controller
- Experimental study of the PID controller
- Analysis and study of typical non linear elements (saturation, threshold, hysteresis)

PID Controller



DL 2330B

This board is basically structured in two sections:

- variable frequency square and triangular wave reference signal generation
- three terms regulator with variable parameters and two summing amplifier

It includes a digital voltmeter.

The board is supplied complete with a set of stackable, plug-in cables of suitable lengths and colours and with a training manual.

Power supply: $\pm 15\text{Vdc}$, 300mA