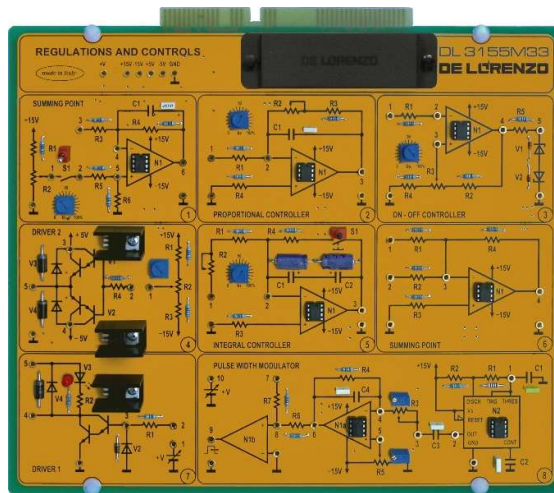


TIME ELECTRONIC BOARDS



REGULATIONS AND CONTROL



DL 3155M33

The design and construction of electronic circuits to solve practical problems is an essential technique in the fields of electronic engineering and computer engineering.

With this board the students can study the techniques of proportional control P, PI control, PWM control and on-off control. Furthermore, it has additional modules to simulate different types of control such as the control of the position, temperature, speed and pressure.

THEORETICAL TOPICS

- Control and regulation
- Types of controls
- Automatic regulation systems
- Proportional regulation (P)
- Proportional-Integral regulation (PI)
- ON-OFF regulation
- PWM regulation
- Characteristics of the transducers
- Position transducers
- Speed transducers
- Pressure transducers
- Temperature transducers
- Thermistors
- Actuators
- DC motors
- Peckling motors

CIRCUIT BLOCKS

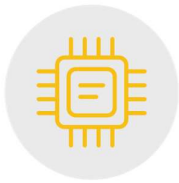
- Summing point
- Proportional controller
- ON – OFF controller
- Driver 2
- Integral controller
- Summing point
- Driver 1
- Pulse width modulator

Complete with theoretical and practical manual.

Dimensions of the module: 297x260mm.

This board needs of the AUXILIARY BOARDS:

- **DL 3155M33A**
- **DL 3155M33B**
- **DL 3155M33C**
- **DL 3155M33D**



TIME ELECTRONIC BOARDS



DL 3155M33A – APPLICATION BOARD FOR MOTOR SPEED CONTROL



- Characteristics of an encoder
- Operation of an open loop and closed loop system

DL 3155M33B – APPLICATION BOARD FOR TEMPERATURE CONTROL

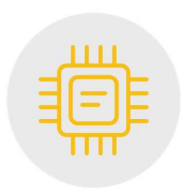


- Characteristics of the temperature sensor
- Characteristics of the heater
- ON-OFF control of the temperature
- Closed loop proportional control of the temperature
- Closed loop proportional-integral control of the temperature

DL 3155M33C – APPLICATION BOARD FOR POSITION CONTROL



- Characteristics of the position sensor
- Closed loop control of the position



TIME ELECTRONIC BOARDS



DL 3155M33D – APPLICATION BOARD FOR PRESSURE CONTROL



- Characteristics of the pressure sensor
- Closed loop proportional-integral control of the pressure

CAI SOFTWARE:

Each board of the TIME system can be supplied complete with a Student Navigator software that allows students to perform their learning activities through a Personal Computer, without the need for any other documentation.

Ordering code: please add SW after the code of the board (i.e. DL 3155M33SW)

Required:

POWER SUPPLY NOT INCLUDED

Base frame with power supply (completed with connecting cables):

- **DL 3155AL3** - Base frame with power supply and interface to pc and virtual instrumentation
- **DL 3155AL2** - Base frame with power supply and interface to pc

Basic power supply (connecting cables not included):

- **DL 2555ALF** - DC power supply $\pm 5 \pm 15 \pm 15$ Vdc, 1A
- **TL 3155AL2** - Connecting cables

Choosing this power supply, for the execution of the experiments, it is normally required the use of an oscilloscope and two multimeters.

