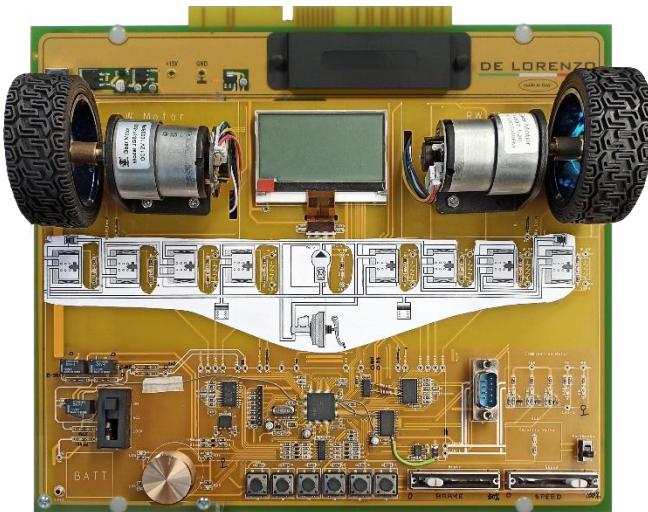




## BRAKING POWER CONTROL



**DL 3155A05**

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 learn about the operation of the braking power control implemented in ABS (Anti-Lock Braking System), ASR (Anti-Slip Regulation) and ESP (Electronic Stability Program) car systems. The board includes two wheels driven by two electrical motors representing the front wheels of a car.

An ECU reads the system variables in real time (such as vehicle speed and braking power) and controls the simulated pump and solenoid valves. The values are accessible through test points and an LCD display. A scantool OBD-II is integrated in the system to troubleshooting functions.

### THEORETICAL TOPICS

#### The Braking Systems:

- The traditional braking system
- ABS / ASR / ESP Braking Systems

#### System operation:

- The hydraulic circuit
- Pressure increase mode
- Pressure maintenance mode
- Pressure reduction mode

#### The Electric Circuit:

- Battery, Ignition Switch
- ABS control unit

#### Sensors and Actuators:

- Rotation speed sensors
- Pump and solenoids

#### Diagnostics Trouble Codes OBD-II

### COMPONENTS

- Two wheels with DC driving motors
- Rotation sensors on each wheel
- Vehicle speed and braking setting potentiometers
- Potentiometer for steering wheel simulation
- ABS / ASR / ESP control unit with 32-bit microcontroller
- Braking control solenoid valves
- Pump control device
- Battery and Ignition Switch
- LCD display and keyboard

Complete with theoretical and practical manual.

Dimensions of the board: 297x260mm



# AUTOTRONICS

**DL**  
DE LORENZO

**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 3155A05SW)

**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 2555ALG** - DC power supply  $\pm 5 \pm 15$  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.

**AUTOTRONICS - MODULES**