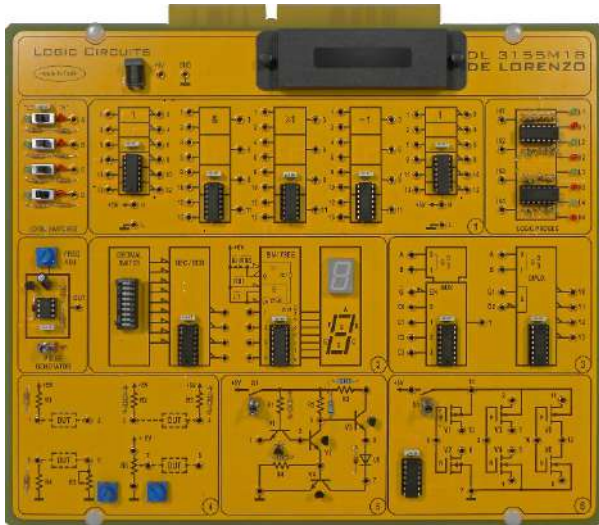




## LOGIC CIRCUITS



**DL 3155M18**

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 fundamentals of digital logic, the theorems of Boolean algebra, the combinatory networks, the karnaugh's maps, encoders and decoders, multiplexers and demultiplexers and the characteristics of the logic families of TTL and CMOS.

### THEORETICAL TOPICS

- Binary system
- Logic functions
- The algebraic description of the logic gates
- The truth tables
- The theorems of the Boolean Algebra
- Techniques for the minimization of the logic functions through the application of the theorems
- Fundamental logic operators
- NOT, AND and OR logic operators
- Use of the AND and OR operators as control devices for the transfer of logic signals
- OR-exclusive logic operator
- Classic form of a function
- Graphic representation of the functions
- AND-OR-NOT function
- NAND and NOR logic operators
- Use of the NAND and NOR operators as control devices for the transfer of logic signals
- The TTL family
- The CMOS family
- Characteristic parameters of the logic gates
- Definition and characteristics of a combinatory logic network
- The Karnaugh' maps
- The BCD code
- Encoders, decoders, multiplexer and demultiplexer
- Fault simulation

### CIRCUIT BLOCKS

- Logic gates, Boolean Algebra, Karnaugh's maps and combinatory networks
- Encoder and decoder
- Multiplexer and demultiplexer
- Electric characteristics of the TTL logic gates
- The TTL logic family
- The CMOS logic family

Complete with theoretical and practical manual.

Dimensions of the board: 297x260mm



# TIME ELECTRONIC BOARDS



## 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 3155M18SW)

## 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.

