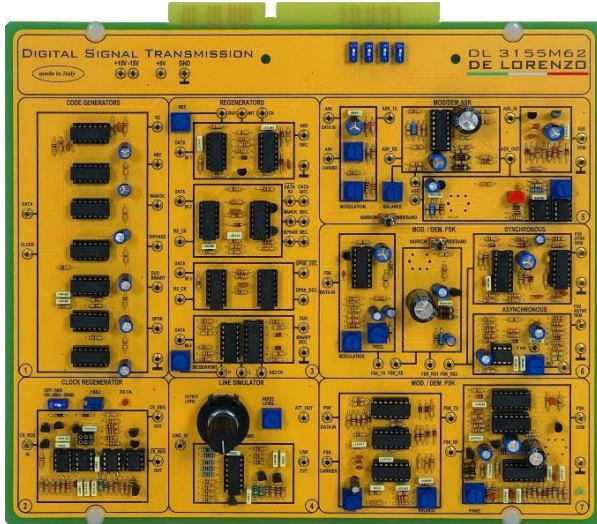


## DIGITAL SIGNAL TRANSMISSION

### DL 3155M62



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 operating principle of the transmission of digital signals using the most common modulations such as ASK, FSK and PSK with the aid of encoders/decoders NRZ, RZ, Manchester, Bi-phase and Duo-binary.

#### THEORETICAL TOPICS

- The transmission of digital signals
- The base band transmission analysed through the study of NRZ, RZ, Manchester, Biphase, DPSK and duo-binary coders and decoders
- The numerical modulators and demodulators to realize, verify and test the ASK, the FSK, the PSK modulation

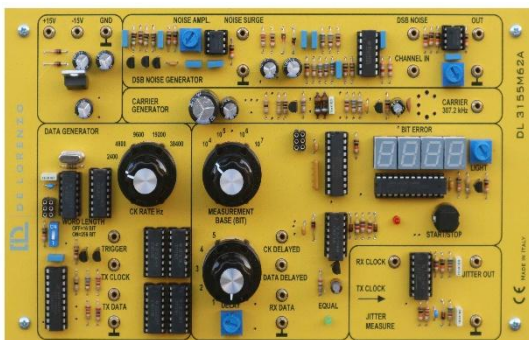
#### CIRCUIT BLOCKS

- NRZ (Non Return to Zero) coding and decoding
- RZ (Return to Zero) coding and decoding
- Manchester coding and decoding
- Bi-phase coding and decoding
- Duo-binary coding and decoding
- ASK modulation and demodulation
- FSK modulation and demodulation
- PSK modulation and demodulation

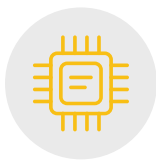
Complete with theoretical and practical manual.

Dimensions of the board: 297x260mm

This board needs the AUXILIARY BOARD DL 3155M62A



- Clock and carrier generator, obtained by a single quartz source at 2.4576 Mc/s with a selectable clock frequency of 2400, 4800, 9600, 19200 or 38400 cycles / sec,
- Pseudo-random data generator that generates two random sequences of 1 and 0 of different length, 15 bits and 255 bits,
- Bit Error Rate (BER) meter,
- Digital delay equalizer,
- Artificial noise generator, that generates a quasi-white spectrum signal in the band 2 - 40 kHz,
- Jitter meter.



# 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 3155M62SW)

## 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.

