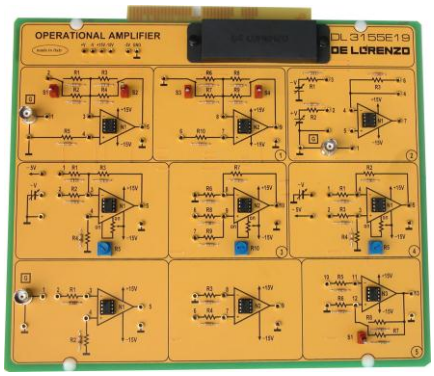
TIME ELECTRONIC BOARDS

OPERATIONAL AMPLIFIER



DL 3155E19

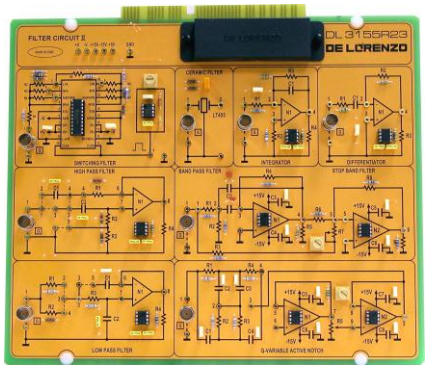
Theoretical topics:

- The ideal operational amplifier
- The operational amplifier
- The negative feedback
- Main configurations of the linear circuits
- Idea of virtual mass
- Inverting and non-inverting configuration
- Buffer
- IV and V/I inverter
- Inverting and non-inverting adder
- Differential amplifier
- Non-linear circuits: comparators, comparator with hysteresis
- Inverting and non-inverting comparators
- Reference voltage different from zero
- Comparator with hysteresis or Schmitt trigger
- Fault simulation

Circuit blocks:

- Inverting Operational Amplifier
- Non-inverting Operational Amplifier
- Voltage follower
- Voltage/Current converter
- Current/Voltage converter
- Adder Amplifier (inverting and non-inverting)
- Differential Amplifier (Offset reduction)
- Inverting comparator
- Non-inverting comparator
- Inverting comparator with hysteresis (Schmitt trigger)

CIRCUITS WITH FILTERS



DL 3155R23

Theoretical topics:

- The ideal Operational Amplifier
- The negative feedback
- Inverting configuration
- Not inverting configuration
- Integrator
- Differentiator
- Filters and parameters
- Filters transfer functions
- Study of ceramic filters
- Study of active filters
- Study of passive and active notch filters
- Study of switching filters (Chebyshev filter)
- Filters in cascade
- Attenuation characteristics of the active low-pass, high-pass, stop-band and band-pass filters
- Fault simulation

Circuit blocks:

- Switching filter
- Ceramic filter
- High pass filter
- Band pass filter
- Stop band filter
- Low pass filter
- Q-variable active notch filter
- Integrator
- Differentiator

Note: this board is not provided with CAI software