

➤ **Analog Electronics****M6/N-M6. Oscillators Module****GENERAL DESCRIPTION**

Oscillators operation is usually very similar in all of them: the oscillating circuit produces an oscillation, then the amplifier increases it and finally the feedback network takes a part of the energy from the oscillating circuit and introduces it back into the input producing a positive feedback.

In short, the oscillator is an electronic stage which, being supplied with a DC voltage, produces at its output a periodic signal, which may be roughly sinusoidal, or square, or sawtooth, or triangular, etc. The essence of the oscillator is to “create” a periodic signal by itself, without any signal having to be applied to the input.

With the Oscillators Module, “N-M6”, designed by EDIBON, the different oscillators can be studied: RC and LC network oscillators, Wien bridge, Colpitts, Hartley and the astable multivibrator.

In addition, faults can be simulated in most of the circuits under study. The student must investigate what is happening in the circuit and why it is not working properly. These faults simulations can be of several types from damage components to a hypothetical incorrect circuit assembly.

PRACTICAL POSSIBILITIESRC and LC nets oscillators:

- 1.- RC net oscillator.
- 2.- LC net oscillator.
- 3.- Faults study with RC and LC net oscillators.
- 4.- Theoretical/practical exercises.

Wien bridge oscillator:

- 5.- Wien bridge.
- 6.- Faults study on the Wien bridge oscillator.
- 7.- Theoretical/practical exercises.

Colpitts oscillator. Hartley oscillator:

- 8.- Colpitts oscillator.
- 9.- Hartley oscillator.
- 10.- Faults study with the Colpitts oscillator.
- 11.- Theoretical/practical exercises.

Astable multivibrator:

- 12.- Astable multivibrator.
- 13.- Faults study with an astable multivibrator.
- 14.- Theoretical/practical exercises.

555 Timer:

- 15.- Astable multivibrator.
 - 16.- Faults study of 555 timer.
 - 17.- Theoretical/practical exercises.
- Several other exercises can be done and designed by the user.

SPECIFICATIONS

Circuit blocks:

- RC and LC oscillators. (Circuit#1).
- Wien bridge. (Circuit#2).
- Colpitts, Hartley oscillators. (Circuit#3).
- Astable multivibrator. (Circuit#4).
- 555 Timer. (Circuit#5).

DIMENSIONS AND WEIGHTS

- Dimensions: 300 x 210 x 45 mm approx.
(11.81 x 8.26 x 1.77 inches approx.)
- Weight: 300 g approx.
(0.66 pounds approx.)

REQUIRED ELEMENTS (NOT INCLUDED)

- Required (at least one):
- FACO. Power Supply.
 - EBC100. Base Unit, with built-in power supply.

ADDITIONAL RECOMMENDED ELEMENTS (NOT INCLUDED)

- Recommended (only one):
- EDAS/VIS-0.25. EDIBON Data Acquisition System and Virtual Instrumentation (speed: 250,000 samples/s). or
 - EDAS/VIS-1.25. EDIBON Data Acquisition System and Virtual Instrumentation (speed: 1,250,000 samples/s).