

M14/N-M14. Optoelectronics Module



GENERAL DESCRIPTION

Optoelectronics is the link between optical systems and electronic systems. Optoelectronic components are those whose operation is directly related to light.

They are semiconductor devices capable of producing light radiation within the human visible spectrum or outside the human visible spectrum (infrared). Also included are components which are sensitive to light and whose operation is governed by light.

Among the optoelectronic components are: LEDs, photodiodes, luminescent displays, optocouplers, phototransistors, liquid crystal displays, fluorescent displays.

With the Optoelectronics Module, "N-M14", designed by EDIBON, the main light emitters and liquid crystal displays (LCD), photoconductive cells, fibre optics, infrared, etc. can be studied.

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 POSSIBILITIES

Light transmitters and liquid crystal display (LCD):

- 1.- Light transmitters.
- 2.- Bargraph.
- 3.- LCD display and 7-segment display.
- 4.- Faults study in light transmitters and liquid crystal display.
- 5.- Theoretical/practical exercises.

Photo-conducting cells:

- 6.- Light dependent resistors.
- 7.- Alarm.
- 8.- Faults study on the photo-conducting cell.
- 9.- Theoretical/practical exercises.

Fiber optics:

- 10.-Fiber optics practice.
- 11.-Faults study using fiber optics.
- 12.-Theoretical/practical exercises.

Infrared:

- 13.-Circuit with infrared diodes.
 - 14.-Faults study of the infrared diodes.
 - 15.-Theoretical/practical exercises.
- Several other exercises can be done and designed by the user.

SPECIFICATIONS

Circuit blocks:

- Lamp. (Circuit#1).
- Sources. (Circuit#2).
- Bargraph. (Circuit#3).
- LDR. (Circuit#4).
- Photodiodes, optic fiber. (Circuit#5).
- Converter. (Circuit#6).
- Amplifier. (Circuit#7).
- Differential amplifier. (Circuit#8).
- Infrared photodiodes. (Circuit#9).
- LCD Display, 7-segment BCD. (Circuit#10).
- Buzzer.

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