

# TESTING MODULE FOR LCD VIDEO MONITOR

## Mod. EB-B3/EV

## INTRODUCTION

EB-B3/EV is one of the modules that constitute the Interactive Practical Electronics System – I.P.E.S for the study of Biomedical Equipment.

It consists of a set of components and circuits used in biomedical equipment.

For the lessons development, the module operates in computerized mode, by means of the interactive software version of the handbook SWBB-B3/EV and the Unit mod. GAU/EV. The software inserts circuit variations and faults automatically, enabling the development of the lessons, even without the teacher's assistance.

## EB-B3/EV

Most biomedical instruments include a display unit so that users can see the data resulting from the detection of physiological parameters or from other measurements carried out on patients.

At this purpose, an LCD VIDEO MONITOR is mainly used to display the following signals:

- ECG, EEG and EMG signals
- results of internal inspections coming from ultrasonographies, radiological examinations, etc...
- numerical results of analyses and other information

This equipment is therefore present in most biomedical instruments. The study of this section is very important to learn the operating principles, the signals and the electronic equipment typically used.

The module enables the study and application of the basics of LCD video monitors used in biomedical equipment.

## TRAINING PROGRAM:

- LCD (Liquid Crystal Display) Monitors
- Interfacing with microcontroller
- Acquisition and display of ECG/EEG/EMG signals
- Signal generation
- Maintenance and fault simulation

## TECHNICAL SPECIFICATIONS:

- LCD Monitor 128 x 64 pixels
- N°1 ECG/EEG/EMG signals analog input
  - Voltage range:  $\pm 10V$
  - A/D conversion 12 bit
- N°1 Transducer signals analog input,
  - Voltage range:  $\pm 10V$
  - A/D conversion 12 bit
- N° 2 signal generator outputs
  - Range:  $\pm 10V$
  - D/A conversion 12 bit
- ECG/EEG/EMG Monitor Function
  - Variable Time Base
  - Variable Amplitude
- Generic waveform Oscilloscope Function
  - Variable Time Base
  - Variable Amplitude
- Keyboard to select Functions:
  - Input signals selection
  - Output signals selection
- 2-mm interconnection and test points
- Fault simulation
- 37-pin connector for Interface Unit GAU/EV



- 8-way connector for Power Supply Unit
- Printed circuit board with protective treatment and silk-screen printed mimic diagram

**Dimensions:** 386 x 248 x 40 mm

## REQUIRED



**POWER SUPPLY UNIT**  
**PS1-PSU/EV**  
- NOT INCLUDED -

**POWER SUPPLY**  
 $\pm 12 V_{cc} - 0,5A$   
 $+5V_{cc} - 2A$



**BIOMEDICAL SIGNAL GENERATOR/ACQUISITION AND FAULT INSERTION UNIT - MOD. GAU/EV**  
**SOFTWARE SWBB-B3/EV**  
- NOT INCLUDED -



**PERSONAL COMPUTER**  
- NOT INCLUDED -

**INSTRUMENTS - NOT INCLUDED -**  
- MULTIMETER  
- OSCILLOSCOPE

## SUPPLIED WITH

**STUDENT HANDBOOK: THEORY AND EXERCISES**  
**TEACHER HANDBOOK: WIRING DIAGRAMS AND SOLUTIONS OF EXERCISES**



## OPTIONAL

**MODULE HOLDER - BOX/EV**

