

# EVLAB DATALOGGER

## DATA ACQUISITION SYSTEM FOR PHYSICS, CHEMISTRY AND BIOLOGY

### DESCRIPTION

EVLAB is a complete educational system enabling to carry out all the tests planned for Laboratories of Physics, Chemistry and Sciences.

It includes some hardware instruments (Datalogger, sensors, etc...) for gathering data, and some software tools (Data acquisition, spreadsheet, charts, etc...) used for processing and as guide in the tests (Training Software).

Both hardware and software tools offer characteristics of potentiality, flexibility and expansion that make EVLAB an unmatched system on the market.



### EVLAB DATALOGGER

#### Mod. EV2010/EV

Datalogger mod. EV2010 has been designed to gather data simply and quickly from laboratory tests.

It can be used in stand-alone mode, with quantities shown on the graphic display and commands set by a joystick.

It can also be used in direct connection with a PC, via USB, to gather and process data (in digital and graphic form) via the software EVLAB Workspace.

The Basic Unit includes the sensors most frequently used in the experiments (voltage, current, electric power, temperature, luminosity, magnetic field and pressure), but it can be extended via the external connection of EVLAB Sensors.

It is supplied with a 2 MB internal RAM memory for storing the acquired quantities.

It includes high-resolution converters (12 bit) to ensure the highest accuracy in measurements.



## TECHNICAL SPECIFICATIONS

- It can be powered by an external USB power supply (5 Vdc - 500 mA)
- It can be powered via USB when connected with a PC
- USB Full Speed interface (12 Mbps) 2.0
- Serial interface RS-232
- Graphic Liquid-Crystal Display (LCD): 128 x 64 pixels
- 5-keys Joystick
- Sensors included: voltage, current, temperature, luminosity, magnetic field, absolute pressure of gases
- Number of analog inputs for internal sensors: 4
- Number of analog inputs for external sensors: 4
- Number of digital inputs: 3
- Number of analog outputs: 2
- Internal signal generator
- Max. sampling frequency per channel: 1 MHz
- Conversion resolution: 12 bit
- RAM: 2 MB

**Dimensions:** 158 x 93 x 30 mm

## INCLUDED IN UNIT EV2010

### Voltage sensor:

- Range: -50 to +50 V
- DC and AC measurements
- Resolution: 16 bit

### Current sensor:

- Range: -2 to +2 A
- DC and AC measurements
- Resolution: 16 bit

### (Derived) Electric power:

- DC power
- Active, reactive and apparent AC power
- AC power factor and Frequency

### Temperature sensor:

- Range: -50 to +150°C
- Accuracy:  $\pm 0,1^\circ\text{C}$
- Resolution: 12 bit

### Luminosity sensor:

- Range: 0 to 150 klx
- Spectrum: visible light
- Resolution: 12 bit

### Magnetic field sensor:

- Range:  $\pm 6,4\text{mT}$
- Hall effect sensor
- Resolution: 12 bit

### Absolute pressure of gases sensor:

- Range: 0 to 200 kPa
- MEMS sensor
- Resolution: 12 bit

### Signal generator:

- 2 programmable voltage outputs for the signals generation
- Output voltage range:  $\pm 5\text{Vdc}$
- Continuous, sinusoidal, square wave, triangle wave signal output
- Converters resolution D/A: 12 bit

### Oscilloscope

## DATALOGGER EVLAB2 Mod. EVS-EXP/EV



This data acquisition system, is the version of Datalogger mod. EV2010 without display and keyboard. It works with the software EvLAB Workspace, and it is compatible with the LabView applications. It can work alone or it can be used as expansion, with the Datalogger EVLAB, to increase the number of analogic and digital inputs available.

## TECHNICAL SPECIFICATIONS

- USB power supply
- USB Full speed interface (12 MHz) 2.0
- Internal A/D converter: 12 bit
- Internal memory: 2 Mb
- Number of interfaces for external analog sensors: 11
- Number of interfaces for external digital sensors: 5
- Internal signals generator with 2 outputs

DATALOGGER UNITS SUPPLIED WITH  
OPERATIONAL HANDBOOK



## OPTIONAL

MOD. EVBAT/EV - RECHARGEABLE BATTERY OF 5 V

# EVLAB SOFTWARE

This application software allows to gather, process and analyze the data collecting during the experiments. It can support the dataloggers and all the sensors of EVLAB system.

It consists of 2 kind of softwares:

- EvLAB Workspace
- EvLAB Workspace specific for each experiments

## EVLAB WORKSPACE

Generic data acquisition software that gathers data as function of time.

Each parameter can be selected and linked to the proper input. The software displays the value of individual parameters in real time; it also creates graphs of each parameter versus time or versus each other.

The various sensors can be calibrated; the acquisition mode can be continuous or selective by setting the number of acquisitions and the sampling interval.

Parameters can be tabulated and/or plotted on a graph. EVLab Workspace includes also a section for the sound acquisition and one for the embedded function generator.



## EVLAB WORKSPACE SPECIFIC FOR EACH EXPERIMENTS

For each one of the experiments presented in the Physics, Chemical and Biology catalogues, where the Datalogger and specific sensors are required, Elettronica Veneta has designed specific softwares. Each software contains a didactic section, that explains:

- the scientific principle to be demonstrated/experimented, the operative procedure for the preparation of the experiment, with demonstrative pictures and photos;
- the acquisition of the experiment 'data with graphics in real time;
- calculations to be realized on the basis of experimental data, to confirm the principle studied;

The software becomes a valid support for the professor during the preparation of laboratory class.