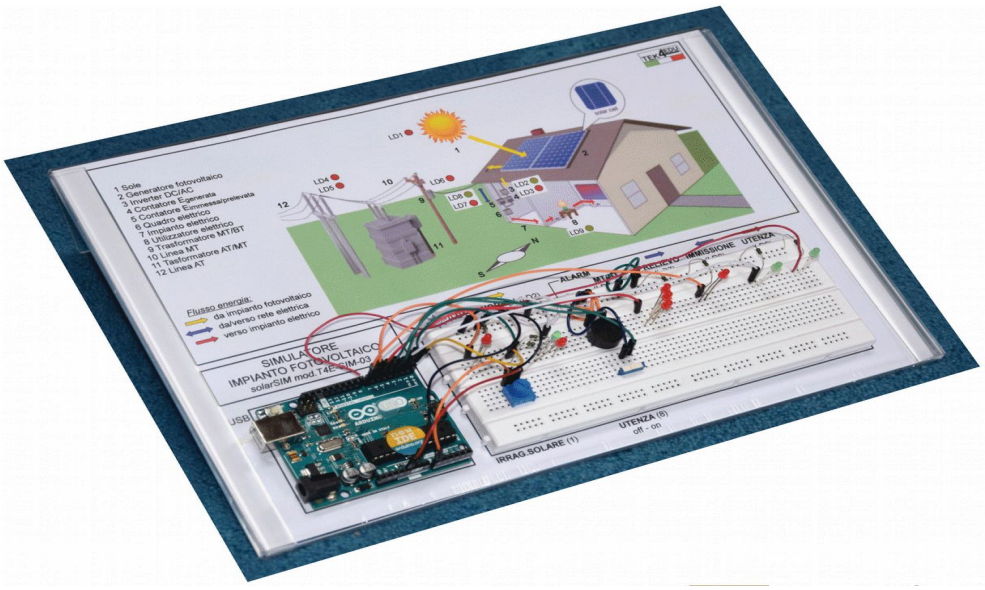
solarSIM
MOD. T4E-SIM-03

Process Simulators



solarSIM mod.T4E-SIM-03 is a compact simulator that shows the operation of a photovoltaic system using an **Arduino UNO** board.
The unit is designed to allow the learning of basic electronics, the use of electronic components and **Arduino UNO** board, and the code programming (**sketch**).
It allows the study and understanding of the functioning of a photovoltaic system type "grid-connected" complete of:
- connection to the national grid
- generation and consumption of electric energy
- injection and withdrawal of power from the national grid

It consistst of:
- a transparent and ergonimic base which contains the block diagram of the system with all main components
- an **Arduino UNO board** and
- the breadboard with electronic components to be mounted

The unit is powered by PC through the Arduino UNO board.

COURSE PROGRAM
- Installation of the simulator by placing the Arduino UNO board and the breadboard
- Reading of electrical diagram attached, identification of electronic components supplied and construction of the electrical circuit on the breadboard
- Check that the circuit is made consistent with the electrical diagram
- Connecting the Arduino UNO board to the PC with the USB cable and start the PC
- Installation of the **Arduino Software IDE** and open the file with the **code** (**Sketch**) **included**
- Selection of input commands (potentiometer, switch) and observation of the unit state by the output (leds, buzzer)
- Analysis of the operating logic of the simulator
- Performing electrical measurements with Tester (**option, not included**)
- Code analysis to observe the similarities between the operating logic of the simulator and the development of the code itself: it is supplied the **flow- chart** of the code
- Changing the code, load from your PC to Arduino UNO board and verification of the effects

TECHNICAL SPECIFICATIONS
The Block diagram contains the following components:
- Sun, photovoltaic generator, DC/AC inverter, energy meter generated, bi-directional energy meter injected / withdrawn, electrical panel, electrical installation, electric user appliance, MV/LV transformer, MV transmission line, HV/MV transformer, HV transmission line

Nr.1 Arduino UNO board
Nr.1 Breadboard
Electronic components:
- leds, buzzer, potentiometer, resistors, switch

Wiring:
- flexible jumper cable
- mix color and length
- male to male

User controls:
- solar irradiation: continuously adjustable
- electric user appliance: on, off

Light indicators:
- solar irradiation
- presence of MV/LV voltage
- energy flow produced: normal, low
- energy flow drawn
- energy flow injected
- electric user appliance

Sound indicator:
- alarm: power from the grid

Simulator is ready-to-use:
- Arduino UNO board is already programmed with its code

Accessories included:
- Student manual: contains exercises that describe how to use the unit and the code (sketch)

Power supply:
- by USB port of Arduino UNO board connected to a **Personal Computer or Power bank (not included)**
- by external power supply **(not included, option suggested T4E-MOD-01)**

Dimensions and weight:
- 310x210x70 mm
- Total weight: 1kg

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