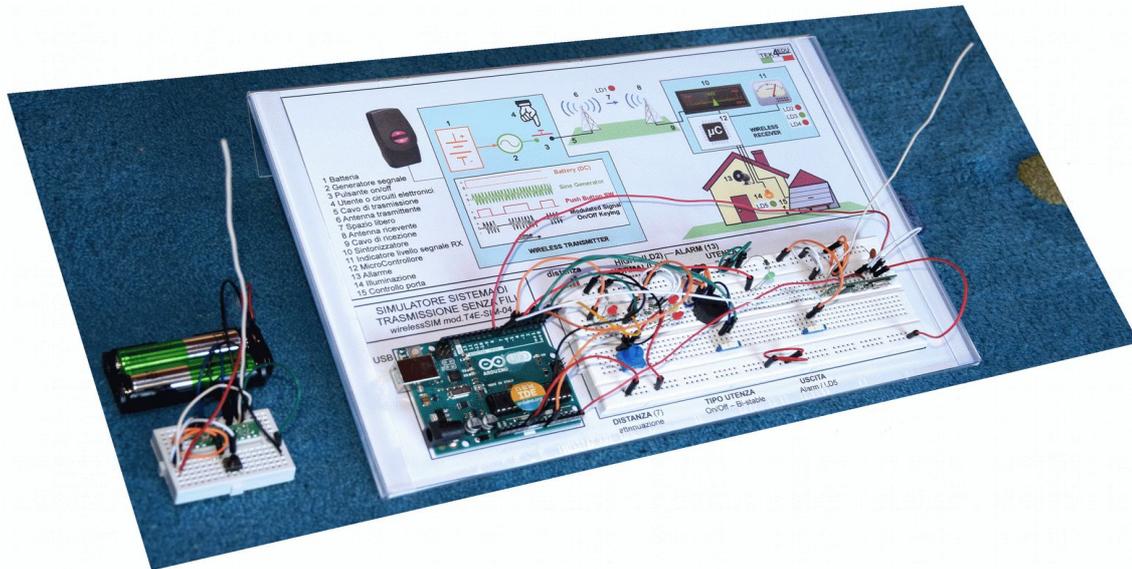


# wirelessSIM MOD. T4E-SIM-04

Process  
Simulators



**wirelessSIM mod.T4E-SIM-04** is a compact simulator that shows the operation of wireless transmission 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 true digital transmission system (0/1) that uses radio frequency (band 433 Mhz) complete of:

- digital transmitter: portable, powered by battery
- digital receiver: mounted on the breadboard of the main base, managed by Arduino UNO board, it detects the presence of any signal with the same frequency (radio-control, opening door control, wireless weather stations...) indicating the RF level
- the pressure of the push-button on the transmitter sends the command to the receiver that enables the lighting of a LED or a buzzer
- "transparent" communication mode: each press corresponds to a high state (1) in the receiver
- "bistable" communication mode: each press corresponds to change state (0→1 or 1→0) in the receiver

It consists of:

- a transparent and ergonomic base which contains the block diagram of the system with all main components
  - an **Arduino UNO** board and
  - Nr.2 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, pushbutton switch, switches) 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:

- Battery, sine wave generator, "modulator" button, cables, antennas, free space, tuner, received signal level meter, microcontroller, applications (lighting, alarm, opening door control)

Nr.1 Arduino UNO board

Nr.2 Breadboard

Electronic components:

- leds, buzzer, potentiometer, resistors, capacitors, pushbutton switch, switches, TX module, RX module, stilus antennas

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

User controls:

- distance between transmitting and receiving antennas: continuously adjustable

- type of appliance: on/off, bistable

- output appliance: alarm, lighting

Light indicators:

- distance between antennas
- received signal level: low (receiver disables), normal, high
- appliance: lighting

Sound indicator: alarm

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