

# DHW SOLAR THERMAL SYSTEM SIMULATOR

## Mod. SIM-BS/EV

### INTRODUCTION

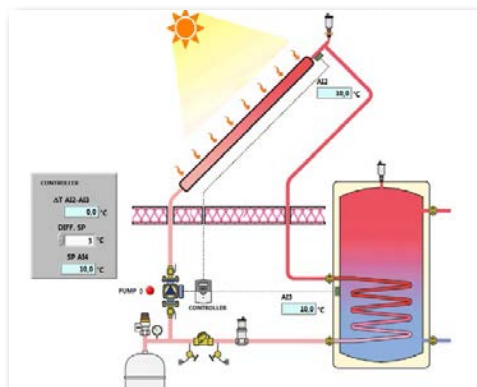
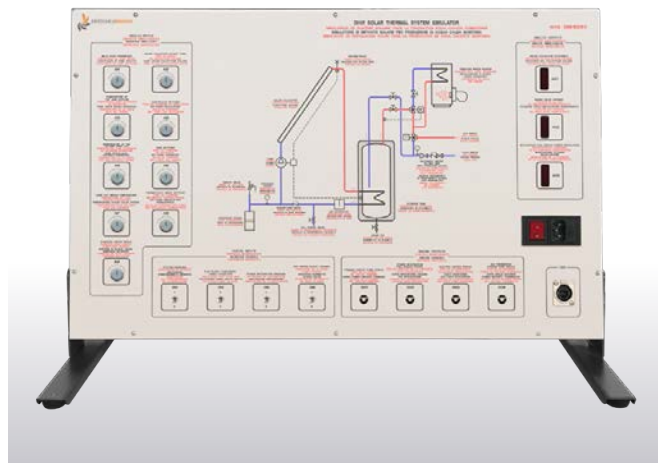
The simulator, properly designed on educational purposes, allows to study the operation of active solar thermal systems for domestic water heating for individual users. It must necessarily be connected to the PC (not included).

### TRAINING PROGRAM

- Instantaneous solar collector efficiency
- Flat plate collectors and evacuated tube collectors
- Stagnation conditions
- Controllers for solar thermal systems
- Freeze protection methods:
  - Antifreeze based systems
  - Drainback systems
- Coil or plate heat exchangers
- Single-tank and two-tank systems
- Fuel or electric power integration
- Anti-scald mixing valve

### TECHNICAL SPECIFICATIONS

- Coloured panel reproducing a typical solar thermal system for domestic water heating
- Data acquisition and actuators control board
- PC connection via USB cable
- 9 potentiometers to simulate the following analog inputs:
  - Inlet fluid parameter
  - Solar collector outlet temperature
  - Temperature at the tank bottom
  - Controller setpoint
  - Temperature at the tank top or at the second tank
  - Tank setpoint
  - User hot water temperature
  - Anti-scald mixing valve setpoint
  - Domestic water needs
- 3 bar-LEDs to simulate the following analog outputs:
  - Solar collector efficiency
  - Mixing valve opening
  - Integration fuel boiler power modulation
- 4 switches to simulate the following digital inputs:
  - System enabling
  - Flat plate / evacuated tubes collector
  - Power integration enabling
  - Hot water faucet opening
- 4 LEDs to simulate the following digital outputs:
  - Primary circuit pump status
  - Power integration fuel boiler status



- Electric heater status
- 2nd "drainback" system pump status
- Application software developed in LabVIEW

**Power supply:** 230 Vac 50 Hz single-phase - 200 VA  
(Other voltage and frequency on request)

**Dimensions:** 65 x 40 x 12 cm

**Net weight:** 5 kg

#### REQUIRED

**PERSONAL COMPUTER**  
- NOT INCLUDED -



#### SUPPLIED WITH

**THEORETICAL-EXPERIMENTAL HANDBOOK**

