

TDS5 Solar Plant Controller

TDS5 is a control unit specifically designed to control solar panel plants fitted with a hot water storage tank. Being equipped with three different sensors, it reads the solar panel collector temperature as well as the water tank (bottom part) temperature and the integration temperature (tank top part). Through these probes the device controls both the solar panel circulator pump and an external heat integration source. Simple selector switches enable easy use and maintenance of the solar plant.

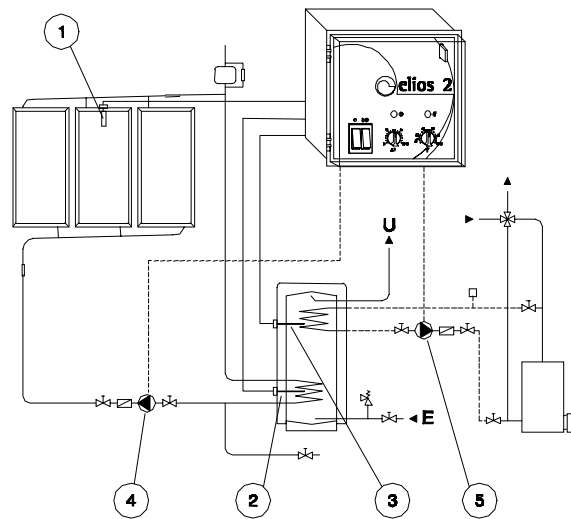


FEATURES

- 230V~ power supply
- Selectable operation with heat integration
- Extremely easy to use and configure
- Selector for manual operation of the panel circulator
- Indicators for operation of the panel circulator and heat integration
- Knobs for setting differential regulation and heat integration

Model Types	Model	Description
	TDS005M	TDS005M Solar Plant Controller
Technical Data	Power Supply	230Vac $\pm 10\%$, -15/+10%
	Power Consumption	7VA
	Differential Temperature Range (knob)	5..20°C (Temperature difference between collector and water tank)
	Integration Setting Range (knob)	30..70°C
	Double Switch	On/Off switch Manual Circulator Pump override
	Indicators	2 x red LED (collector pump, integration pump)
	Output	2 x 5(1)A 250Vac Relays (collector pump, integration pump)
	Sensors (included)	3 x PTC 2kOhm @ 25°C (STLPTSA025M)
	Accuracy	$\pm 1.5^\circ\text{C}$
	Resolution	$\pm 0.5^\circ\text{C}$ (knob) $\pm 0.5^\circ\text{C}$ (integration knob)
	Hysteresis	3°C asymmetric
	Operating Temperature	0°C .. 40°C (20%..80%rH non-condensing)
	Storage Temperature	-10°C .. +50°C
	Enclosure	ABS V0 self-extinguishing
IP Protection	IP 30	
Dimensions	144W x 154H x 110D mm	
Weight	0.9kg	

Application Diagram



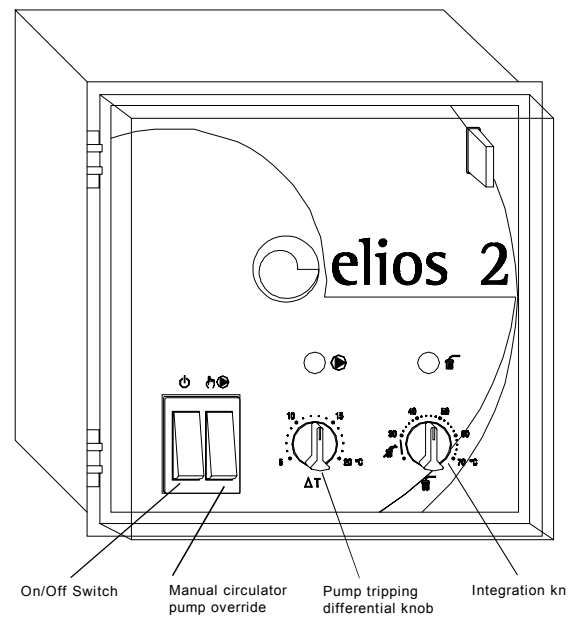
Legend

- 1. Collector sensor
- 2. Integration sensor
- 3. Boiler sensor
- 4. Collector circulation pump
- 5. Integration pump

Typical installation diagram of solar plant

Operation Principle

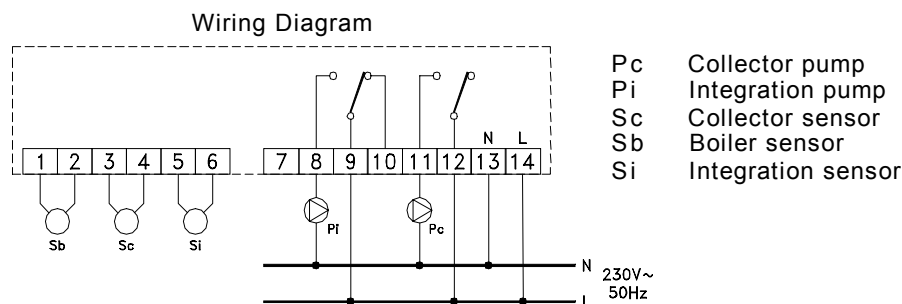
TDS5, through the use of two sensors, reads the temperature in the water tank and compares it with that of the fluid circulating in the solar panel collectors. When the fluid temperature plus the 'ΔT' set by the user results higher than the water temperature in the tank, the regulator starts a circulator pump thus allowing the heat exchange between the collectors and the tank (boiler). Through the 'Differential' knob the user is allowed to set the temperature differential ('ΔT') in the range 5°C.. 20°C. By reading a sensor installed on the top part of the water tank this device drives a heat integration source whenever the water temperature falls below a set value. Through the 'Integration' knob the user is allowed to set the 'integration' temperature in the range 30°C .. 70°C. The heat integration function is disabled in case the relevant knob is completely turned in counter-clockwise direction. Through the 'Pump' switch, in case of failure of the device, the user can manually start the solar panel circulator



Mounting

The TDS5 control unit is enclosed in a standard housing (142 mm x 142 mm) which complies to DIN 43700. Both wall-mounted and flush-mounted solutions are possible, following cutting the panel according to the dimensions indicated in the Dimensions drawing. To make wiring easier for the installer, both terminal blocks are removable and are easily accessed by tipping the front panel. The transparent plastic cover is fitted with a lock to prevent unauthorized personnel from tampering with the controls (use a coin to open).

Wiring and Installation Instructions



The control unit shall be assembled by specialized personnel in full observance of the safety instructions provided in this manual as well as of generally applied safety regulations. Make sure that ambient temperature and humidity values where the equipment is installed correspond to the values indicated in the technical specifications section.

Collector temperature sensor

It shall be positioned on the solar panel collector (see Application Diagram).

Boiler temperature sensor

It shall be positioned on the lower part of the boiler, close to the heat exchanger linked to the solar panels (see Application Diagram).

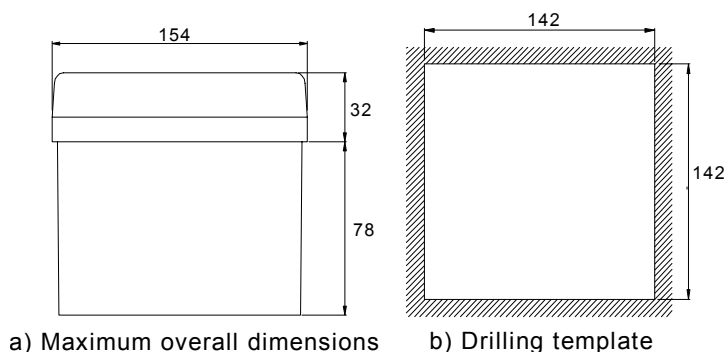
Integration temperature sensor

It shall be positioned on the upper part of the boiler, preferably close to the hot water intake point (see Application Diagram).

Wiring notes:

- Keep sensor and power cables separate. Use free braided bipolar screened cable min. cross-section 1.5 mm² and max. length 25 m
- The appliance must be wired to the electric mains through a switch capable of disconnecting all terminals in compliance with the current safety standards and with a contact separation of at least 3 mm in all terminals.
- Installation and electrical wirings of this appliance must be made by qualified technicians and in compliance with the current standards.
- Before wiring the appliance be sure to turn the mains power off.

Dimensions



All dimensions are in millimetres.

Notes: In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice. The consumer is guaranteed against any lack of conformity for 24 months from the time of delivery, according to the European Directive 1999/44/EC. The full text of guarantee is available on request from the seller.