heating and plumbing products
that won't cost the **earth**

Mini Eco temperature differential switch

July 2010

Mini Eco temperature differential switch

This control unit has been expressly designed for controlling solar panel installations equipped with a hot water tank (boiler). Fitted with three probes, it can read the temperatures of the solar panel collector, boiler and integration. It controls both the collector circulation pump and an external integrated source of heat.

Operation
The selector on the front of the unit turns it off (selector set to 0); or displays the temperature in the boiler (selector set to B). It displays the temperature in the collector when the selector is set to C through the 30-90 leds.

The water temperature in the boiler is measured by the boiler probe (Bp), while the temperature of the fluid circulating in the collectors is measured by the collector probe (Cp).

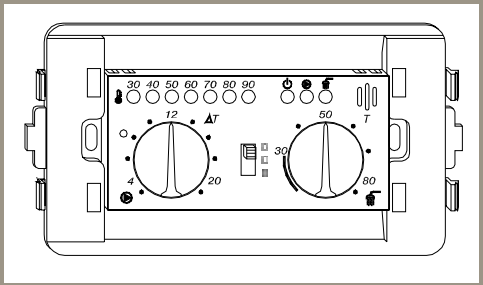
The control unit constantly compares the boiler and collector temperatures. When the collector temperature is higher than the boiler temperature plus the ΔT set by the user, the control unit activates the collector pump, which exchanges heat between the collector and the boiler (differential pump activation LED on). The pump will be stopped only when the collector temperature falls below the boiler temperature plus 2°C.

As an example, if the temperature of the water in the boiler is 40°C and the differential temperature knob is set to 10°C, the control unit starts the collector pump only when the collector temperature is higher than 50°C. On the other hand, when, without taking into account the set ΔT value, the collector temperature falls below 42°C.

This system takes advantage of all of the heat stored in the collector. In addition, through the integration probe (Ip), the control unit constantly checks that the temperature of the water in the boiler does not fall below the temperature set with the integration knob. If this should happen, the control unit starts the integration pump (integration LED on) until the temperature of the water in the boiler reaches the temperature set with the integration knob. Turn this knob fully counter-clockwise to cut out the integration.

MiniEco temperature differential switch	
240V Mini Eco solar TD switch	T01MD
12V Mini Eco solar TD switch	T01-1D

12V version available from mid-2010
check website for release date - www.intaeco.co.uk



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Technical specification

Power supply	230V~-15% +10% 50Hz
Electric power	1.5VA
Adjustment field:	
Boiler-collector	ΔT: 4°C - 20°C
Integration	30°C - 80°C
Type of probes	NTC 4K7 Ohm @25°C
Precision	± 2°C
Resolution: ΔT knob	± 1°C
int. knob	± 5°C
Contact rating:	
collector pump	3 (1) A @ 250V~
integ pump	3 (1) A @ 250V~
Hysteresis	Self-adjusting
Protection level	IP20
Operative temperature	0°C - 40°C
Storage temperature	-10°C - +50°C
Humidity limits	20%-80% RH(non-condensing)
Container:	
material	non-flammable ABS V0
colour	Anthracite Grey RAL 7016
Dimensions	118 x 61 x 55mm (W,H & D)
weight	~180 gr

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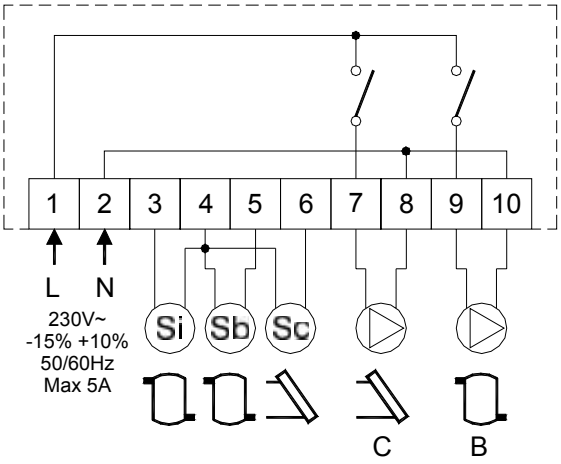

Fig 1.

Key

C Relay output to solar pump

B Relay output to auxiliary heating

Sc Temp probe to solar panel connection

Si Temp probe to HW storage upper cylinder for auxiliary heating interlock

Sb Temp probe to HW storage lower cylinder

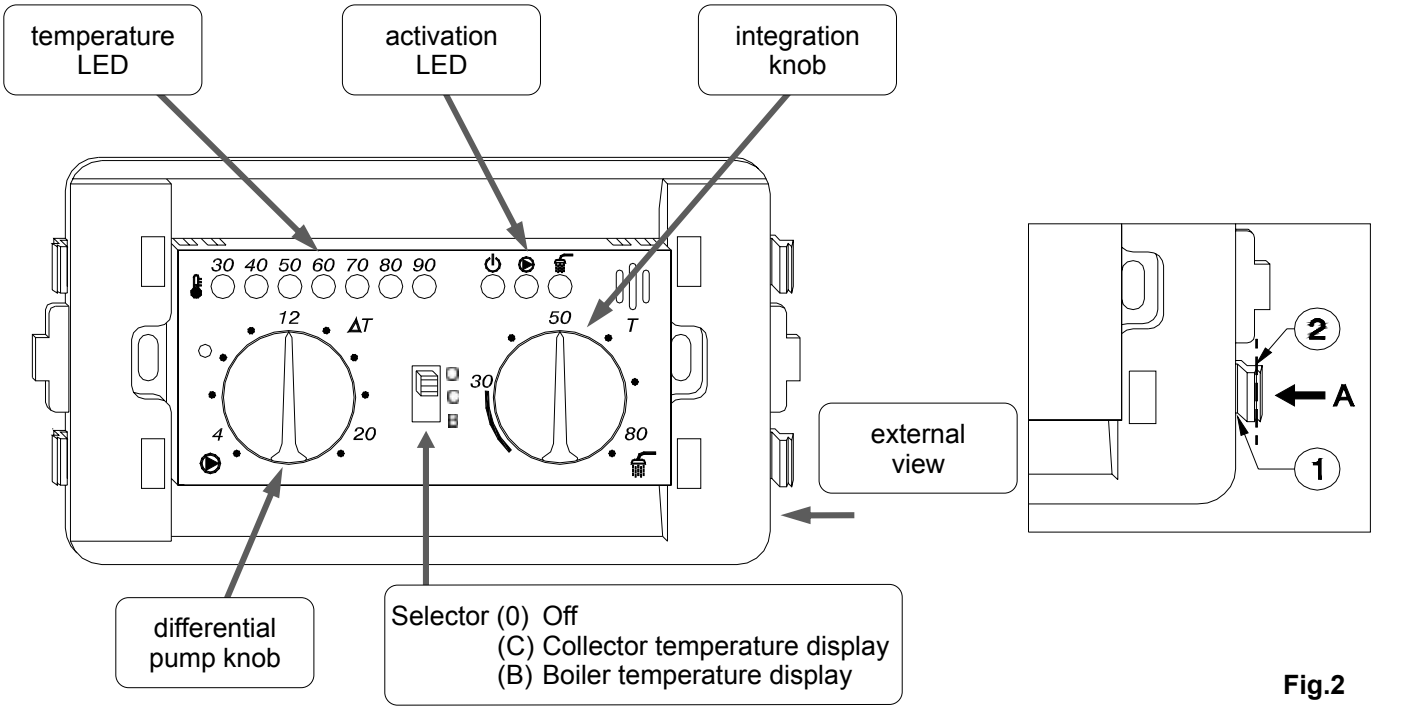

Fig.2

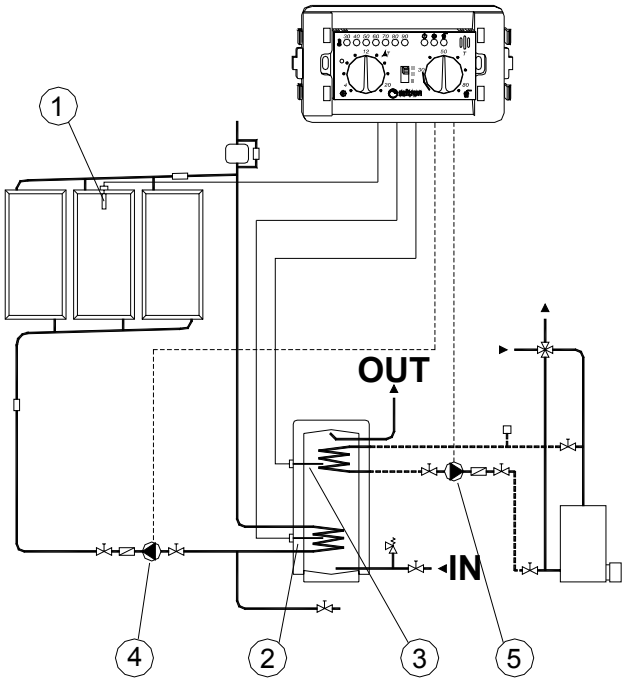

Fig.3

1. Solar panel temperature probe
2. HW cylinder temperature probe LOWER
3. HW cylinder temperature probe UPPER
4. Relay 1 (symbol C) solar circulating pump
5. Integration with auxiliary heating.

NB: This is a live output. Do not mix voltages with existing wiring!!
This part of the installation should be undertaken by a suitably qualified electrical installer.
This diagram is intended only to symbolise the purpose of the output only

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Installation
The control unit is installed together with built-in standard boxes with three 503E type modules. Depending on the type of finishing plate used, it might be necessary to make adjustments to the plastic cover as follows (see fig 2).
Use of plate:
AVE System 45 series
No adjustment required.
BTICINO Living series (not International)
Cut the 'A' side tabs along the line (1)
VIMAR Idea series
Cut the 'A' side tabs along the line (2)
AVE, BTICINO and VIMAR are registered trade marks belonging to their legitimate owners.

Electrical connections
The control unit should be assembled by qualified personnel so as to strictly follow the safety indications in this manual and without overlooking general safety standards.

Check that both temperature and humidity are below the limits set out in the technical specifications of this manual.

NB: If it's required to start the collector pump manually, the installer must install a dedicated external switch.

Follow the electrical diagram (Fig.1)to carry out the electrical connections.

Collector temperature probe
Place it on the collector of the solar panels (Fig.3)

Boiler temperature probe
Place it at the bottom of the boiler, near to the solar panel heat exchanger (Fig.3)

Integration temperature probe
Place it at the top side of the boiler, if possible, near the sanitary hot water inlet (Fig.3)

⚠

Do not connect any probe cables with power cables. Instead, use a 1.5mm^2 minimum section two wire cable.

Connect the equipment to the mains with a unipolar switch according to local standards. The opening distance at the contacts should be at least 3mm in each pole.

The electrical installation and connections of the system should be carried out by qualified personnel and comply with local standards.

Before making any electrical connections, ensure that the mains electrical supply is cut off.

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