

MODULATING ELECTRONIC ROOM CONTROLLERS FOR UNDERFLOOR PANELS

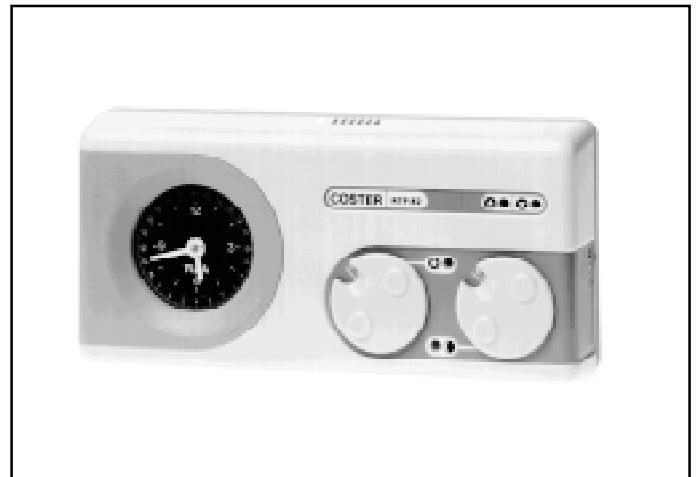
RTP 82 Eng.

- Power supply 220/240 Volt ac; IP 20 protection
- One modulating output with PI control action and voltage-free SPDT contacts
- 24-hour or 7-day time switch
- Maximum flow temperature limit (45 °C)

APPLICATION

RTP 82 is designed for the control of mixing or diverting valves operated by reversible actuators (3-wire electric control), for the regulation of room temperature and of the maximum flow temperature limit (45 °C) in underfloor heating systems:

- Single-family dwellings
- Flats with autonomous heating
- Residential complexes with zone heating.
- Single spaces in industrial or craft premises



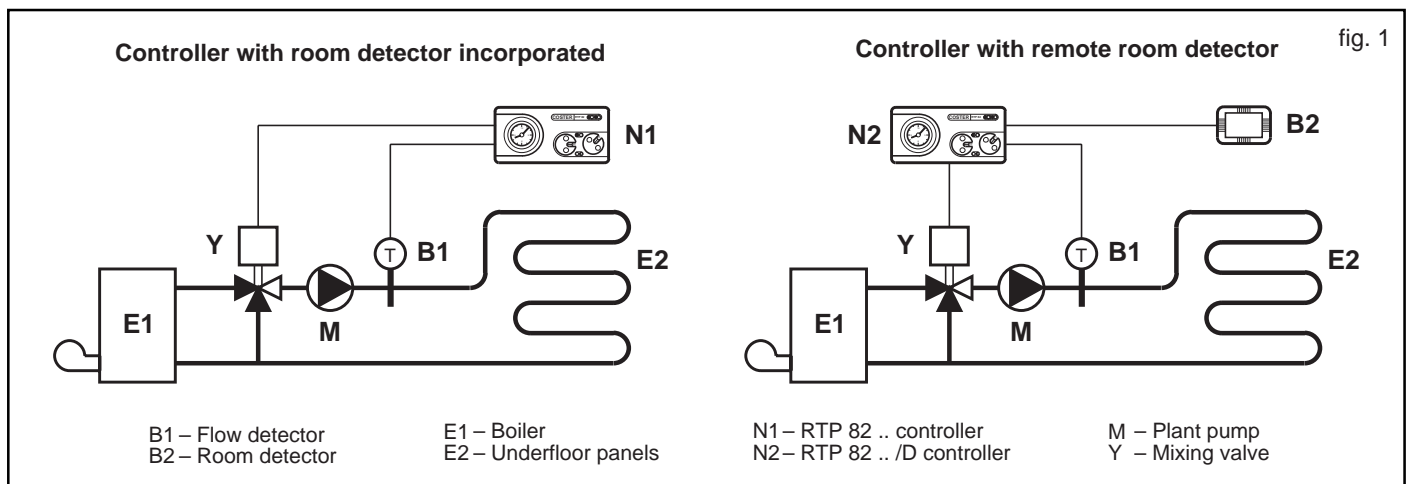
MODELS

Model	Description
RTP 825	With 24-hour quartz time switch and room detector incorporated
RTP 826	With 7-day quartz time switch and room detector incorporated
RTP 825/D	With 24-hour quartz time switch and remote room detector
RTP 826/D	With 7-day quartz time switch and remote room detector

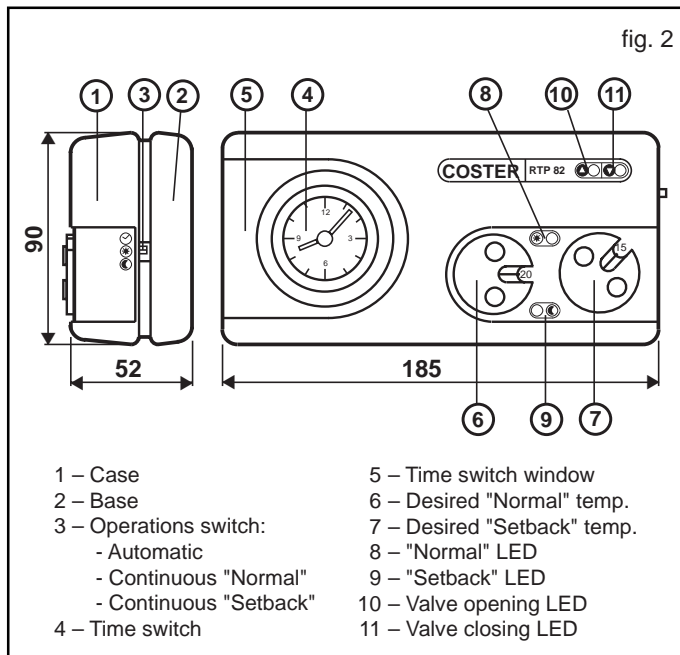
ESSENTIAL ACCESSORIES

No.	Description	Model	Sensing element	Symbol	Data sheet
1	For all models : Immersion flow temperature detector	SIH 010	NTC 10 kΩ	B1	N 140
1 or 4 or 2	For /D models : Room temperature detectors (4 for large spaces) Room temperature detectors (for large spaces)	SDA 010 SDA 020	NTC 10 kΩ NTC 20 kΩ	B2 B2	N 110 N 110

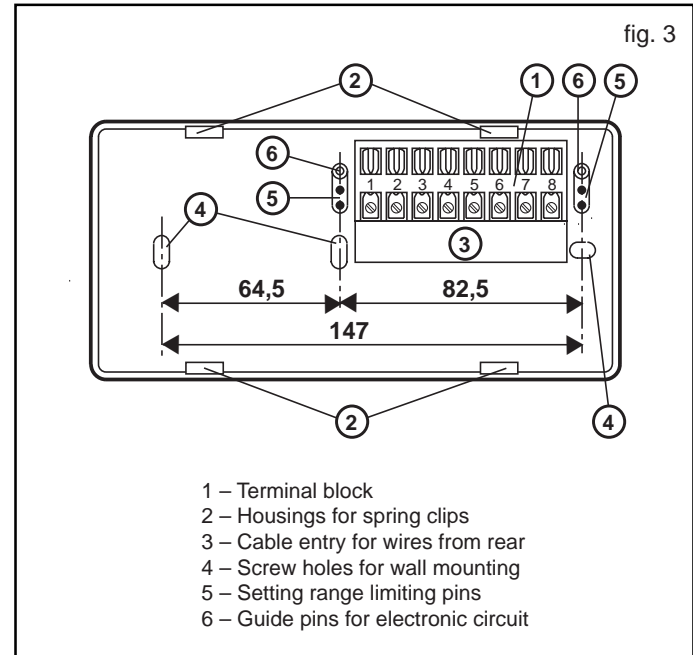
OPERATING DIAGRAMS



OVERALL DIMENSIONS



BASE



OPERATION

The room temperature is monitored by an NTC sensing element situated inside RTP 82, or, in the /D models, by a remote room detector B2.

RTP 82 compares the actual value of the room temperature with the desired "Normal" and "Setback" temperatures set by means of the two potentiometers on the fascia of the case (fig. 2.6) and (fig. 2.7). In the event of a difference, RTP 82 produces a modulating signal with PI control action, for the control of the valve Y, proportional to the difference itself and to the proportional band ($\pm 1^\circ\text{C}$).

The immersion detector B1 monitors the flow temperature, and RTP 82 uses this data as a compensating element to ensure a perfect stabilisation of the room temperature and as maximum flow temperature limit (45°C) to prevent the underfloor panels from being subjected to excessively high temperatures.

The time switch provides for switching between the "Normal" and "Setback" modes.

CONSTRUCTION

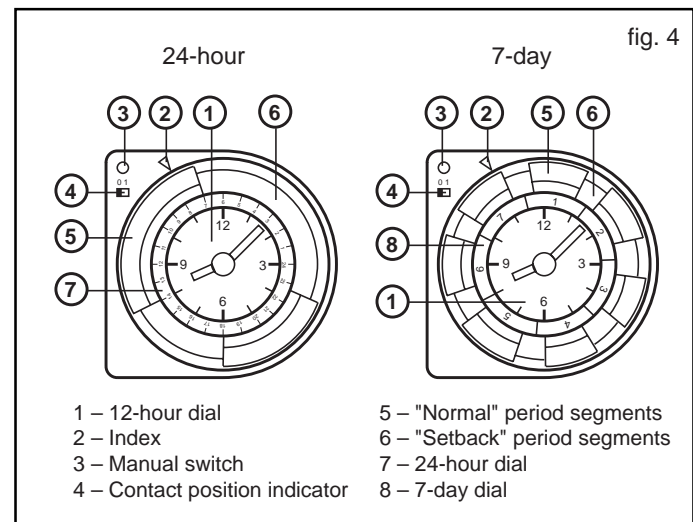
RTP 82 is constructed in two parts:

- Base (fig. 2.2) in plastic material, suitable for wall mounting, comprising:
 - terminal block for electrical connections, protected against accidental contacts (fig. 3.1);
 - cable entry for wires from rear (fig. 3.3);
 - standard screw holes for fixing to a panel-mounted box if required (fig. 3.4).
- Case (fig. 2.1) in plastic material which encloses the electronic circuit; on the fascia are the two knobs for setting the desired temperatures (fig. 2.6 and 2.7), the time switch (fig. 2.4), the LEDs indicating the opening and closure of the valve (fig. 2.10 and 2.11) and the period of "Normal" or "Setback" operation (fig. 2.8 and 2.9).

The case is secured to the base by means of four spring clips and the electrical contacts are made by means of pins which are pressed directly into the terminal sockets.

The circuit is powered by 220/240 Volt ac through a transformer so the circuit has no direct contact with the mains supply. The SPDT contact of the output relay is voltage-free so that it is possible to control actuators using voltages other than 220/240 Volt.

TIME SWITCH



INSTALLATION

RTP 82 . . with the room detector incorporated must be installed at a height of 1.5 to 1.6 meters from the floor, on an internal wall of the most representative room, at a point which represents the average temperature. It must be as far as possible from windows, doors and sources of heat, and corners, shelving and curtains must be avoided.

RTP 82 . . /D with remote detector can be installed anywhere since it is supplied without an internal sensing element. The room detector must be installed following the same criteria as for RTP 82 . . . In particularly large spaces it is advisable to use 2 SDA 020 detectors connected in parallel or 4 SDA 010 detectors connected in series-parallel and positioned so as to monitor the average temperature of the room.

- Remove the base from the case by pressing with the hands on its two longer sides.
- Fix the base (fig. 3) to the wall using the screw holes provided (fig. 3.4) and taking care to pass the electric wires through the appropriate cable entry (fig. 3.3).
- Make the connections in accordance with the wiring diagrams (fig. 6) and observing the safety regulations in force.

SETTING

Time Switch

To see the time switch completely the protective window must be opened by turning it to the left.

- Adjustment of current time

The dial can rotate both clockwise and anticlockwise.

– 24-hour time switch : rotate the minutes hand, by means of the glass window (fig. 4.1) until the current hour on the 24-hour dial (fig. 4.7) coincides with the index at top left (fig. 4.2) and the current hour on the 12-hour dial (fig. 4.1) coincides with the hour and minute hands.

– 7-day time switch : rotate the minutes hand, by means of the glass window (fig. 4.1), until the current day sector on the 7-day dial (fig. 4.8) coincides with the index (fig. 4.2); continue to rotate the minutes hand until the current hour on the 7-day dial coincides with the index (fig. 4.2) and the current hour on the 12-hour dial (fig. 4.1) coincides with the hours and minutes hands.

- Setting programme

By means of the prod, housed under the protective window, move towards the outside all the segments corresponding to the "Normal" periods of operation (fig. 4.5) which will be evidenced by the appearance of red zones. The 24-hour time switch has 10-minute segments with a minimum interval of 20 minutes between two successive switchings.

The 7-day time switch has 1-hour segments with a minimum interval of 2 hours.

Control of desired temperature

Two values for desired temperature can be set:

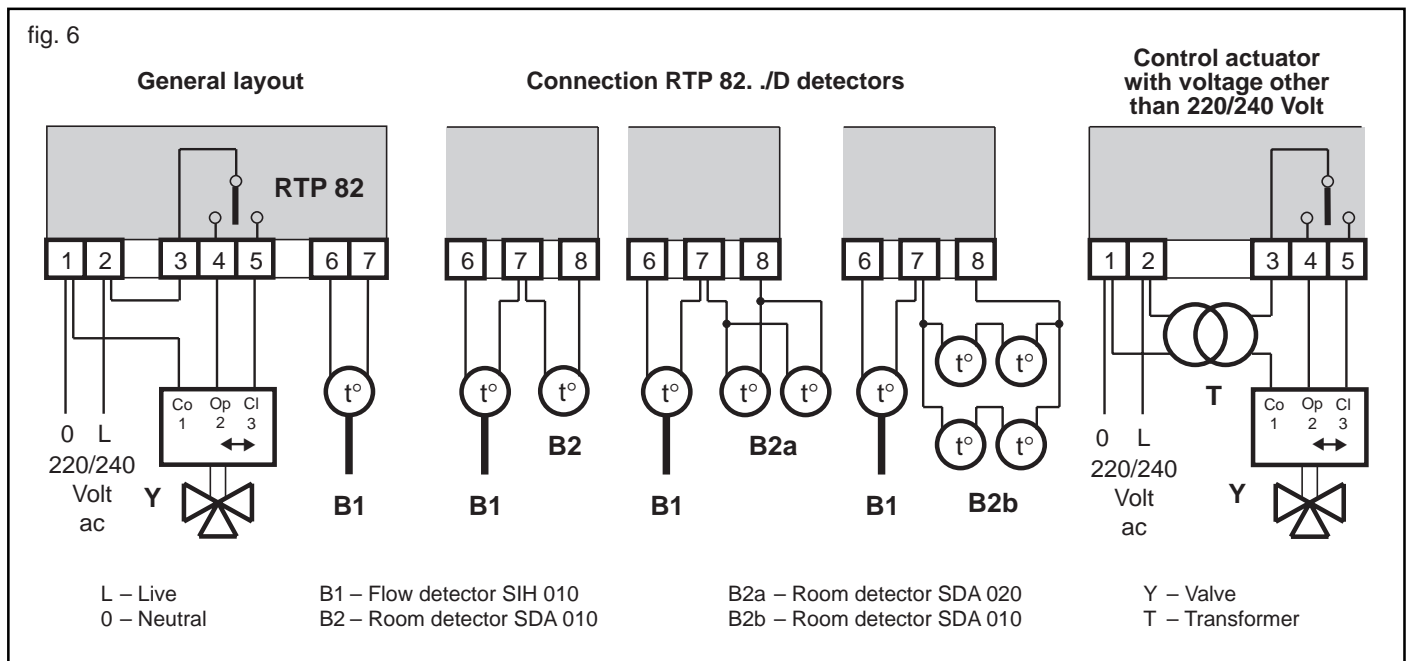
- "Normal" temperature, for periods when the premises are occupied, with the "Sun" potentiometer (fig. 2.6).
- "Setback" temperature, for periods of non-occupation of the premises or for the night period, with the "Moon" potentiometer (fig. 2.7).

The setting range of the desired temperatures can be limited by means of two pins (fig. 3.5) housed on the base at the side of the terminal block. Extract the setting knobs (fig. 2.6) and (fig. 2.7), and, using the prod, insert the pins in the holes corresponding to the minimum and maximum limit temperature values.

TESTING

- Set the times for the plant to be in operation on the time switch and position the operations switch (fig. 2.3) on "Time switch".
- Turn the "Normal" temperature potentiometer (fig. 2.6) to maximum and the "Setback" temperature potentiometer (fig. 2.7) to minimum.
- Position the time switch dial to the "Normal" period position. LED (fig. 2.8) should light.
The result should be : valve opening and LED (fig. 2.10) lit.
- Position the time switch dial to the "Setback" period position. LED (fig. 2.9) should light.
The result should be : valve closing and LED (fig. 2.11) lit.
- Position the switch (fig. 2.3) on "Sun". LED (fig. 2.8) should light. With potentiometer (fig. 2.6) at maximum the result should be : valve opening and LED (fig. 2.10) lit.
With potentiometer at minimum : valve closing and LED (fig. 2.11) lit.
- Position switch (fig. 2.3) on "Moon". LED (fig. 3.9) should light. With potentiometer (fig. 2.7) at maximum the result should be : valve opening and LED (fig. 2.10) lit.
With potentiometer at minimum : valve closing and LED (fig. 3.11) lit.

WIRING DIAGRAMS



TECHNICAL DATA

Power supply	220/240 Volt ac	Minimum switching interval :	
Frequency	50/60 Hz	- RTP 825 24-hour	20 min.
Power absorbed	4 VA	- RTP 826 7-day	2 h
Voltage-free output contact:		Room temperature:	
- type	SPDT modulating	- operation	0 to 45 °C
- voltage rating	250 Volt	- storage	- 20 to +60 °C
- capacity rating	5(3) Amp	Room humidity	G (DIN 40040)
Temperature setting range	5 to 30 °C	Protection	IP 20
Fixed proportional band	± 1°C	Dimensions	185 x 90 x 52 mm.
Time switch power reserve	72 h	Weight	0.45 Kg



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