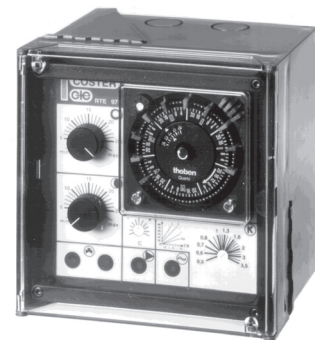


WEATHER COMPENSATOR FOR CONTROL OF VALVE OR BURNER



RTE 98. Eng.

• Analogue controller for boiler plant:

- 1 modulating or On-Off output for control valve or burner
- 1 On-Off output for control pump or burner in relation to programmed times
- voltage-free output contacts
- adjustment of heating curve to compensate for weather variations in intermediate seasons
- possibility of adjusting value of desired ambient temperature by remote control

• Power supply 230 V~; installation on 144 x 144 control panel back plate

1. APPLICATION

RTE 98. controller is designed for winter compensated control in medium and large central heating plants for premises such as:

- administrative and commercial centres
- schools and public buildings
- apartment blocks

It is suitable for all climatic zones and for any type of heating media:

- panels
- radiators
- fan coils

RTE 98. controls mixing or diverting valves operated by reversible electric actuators with three-wire control and opening times of from 90 to 630 seconds, or the boiler burner.

2. FUNCTIONS

The main functions of RTE 98. are:

- Winter regulation of the flow temperature in relation to the outside temperature with:
 - PI control action
 - adjustment of heating curve to compensate for weather variations in intermediate seasons
- Modulating three-wire control or On-Off
- Control plant pump from timed programme in use
- Timed programming: 24-hour (RTE 982) or 7-day (RTE 983)
- Remote control for adjusting temperature programmed on controller
- Timed control : RTE 98 is able to control an On-Off output which operates with the program times used. It can be used for the control of the plant circulation pump : in the Normal "Sun" periods contacts 8-10 are closed, while in the Setback "Moon" periods contacts 8-10 are open.

3. VERSIONS

Code	Description
RTE 982	Compensating controller with 24-hour time switch
RTE 983	Compensating controller with 7-day time switch

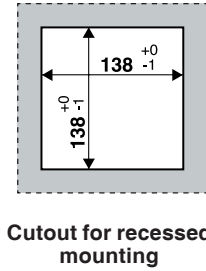
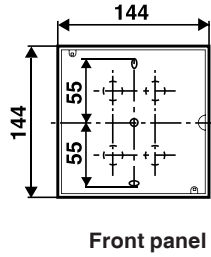
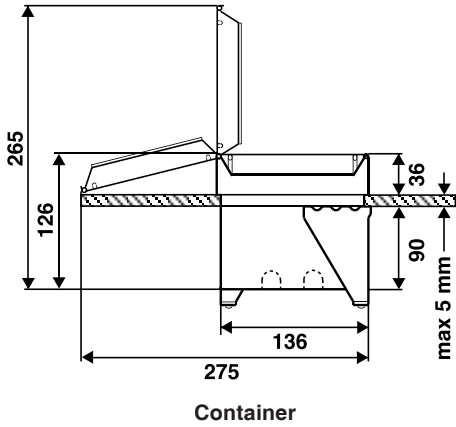
4. DETECTORS & ACCESSORIES

No.	Description	Type	Sensing element	Code	Data sheet
1	ESSENTIAL ACCESSORIES: Surface plant flow temperature detector or immersion	SCH 010	NTC 10 kΩ	B1	N 130
1	Outside temperature detector	SIH 010	NTC 10 kΩ	B1	N 140
		SAE 001	NTC 1 kΩ	B2	N 120
1	OPTIONAL ACCESSORIES: Remote control	CDB 340	-	R	N 711

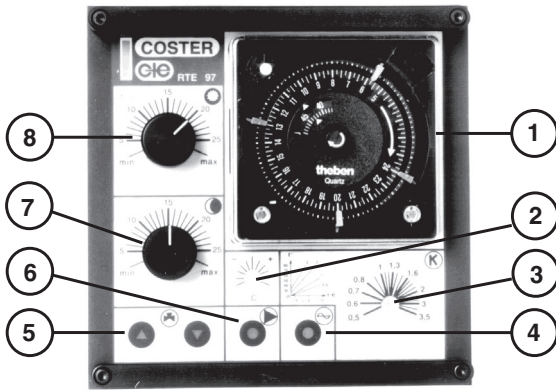
5. TECHNICAL DATA

Power supply	230 V~± 10%	Time switch:	
Frequency	50...60 Hz	- power reserve	100 h
Consumption	4 VA	- dial	4-hour or 7-day
Electromagnetic compatibility	CEE 93/68	- minimum daily interval	15 min.
Output contacts:		- minimum weekly interval	24 h
- maximum switched voltage	250 V~	Suitable actuators	90...630 s
- maximum switched current	5 (1) A	Room temperature:	
Setting ranges:		- operating	0...+45 °C
- Normal and Setback ambient temperature	0...30 °C	- storage	- 25...+60 °C
- K factor	0.5...3.5	Room humidity	Class F (DIN 40040)
- adjustment C curve	± 5 °C	Protection	IP 40
		Weight	1.2 Kg

6. OVERALL DIMENSIONS

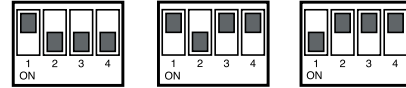
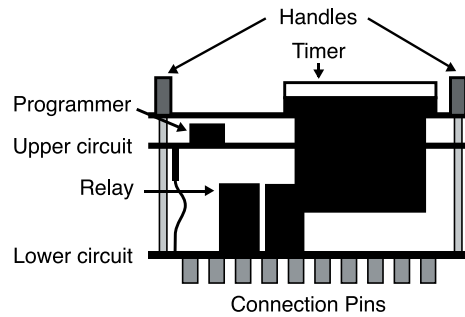


7. FRONT PANEL



- 1 - Programming switch
- 2 - Curve adjustment
- 3 - Plant factor K
- 4 - Power supply LED
- 5 - Opens-Closes LEDs
- 6 - Pump LED
- 7 - Setback temperature
- 8 - Normal temperature

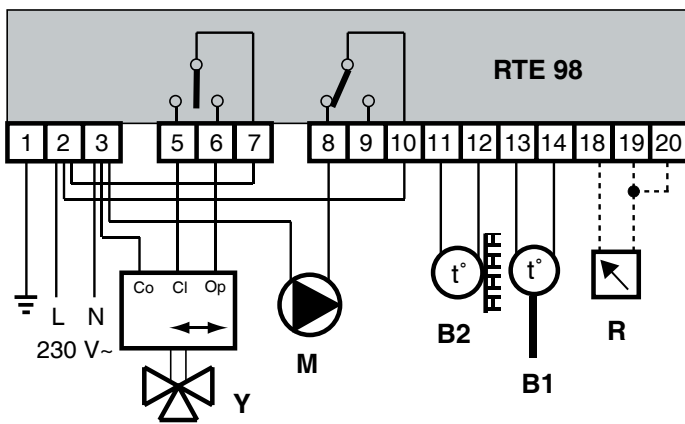
8. ACTUATORS SPEED PROGRAMMER



Under 300 s Over 300 s Burner

9. WIRING DIAGRAMS

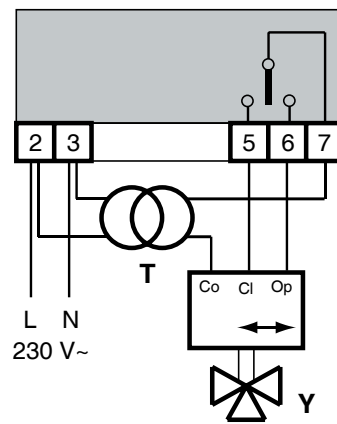
General layout



B1 - Flow detector
B2 - Outside detector

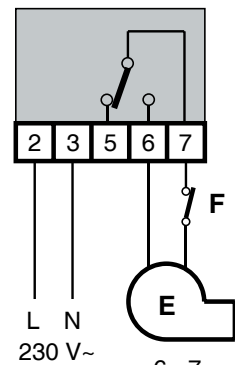
E - Burner
M - Plant pump
R - Remote control

Control of actuator with voltage other than 230 V~



Y - Valve
T - Transformer

Control burner



6 - 7
In series with boiler thermostats

10. INSTALLATION

10.1 Controller

The controller must be installed in a dry location which meets the ambient limits given under 5. TECHNICAL DATA. If installed in spaces classified as "Dangerous" it must be installed in a cabinet for electrical appliances constructed according to the regulations in force for the type of danger concerned. The controller can be wall-mounted or fitted into a composite control panel door.

10.2 Plant flow temperature detector B1

With plant pump on flow it must be installed downstream of this; with pump on return it must be installed at least 1.5 metres downstream of the control valve.

10.3 Outside temperature detector B2

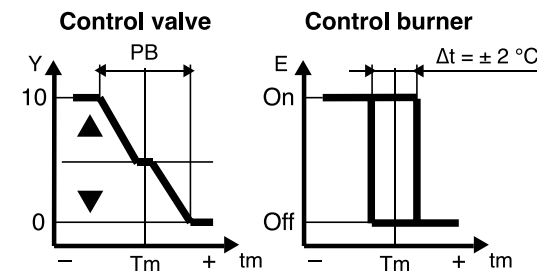
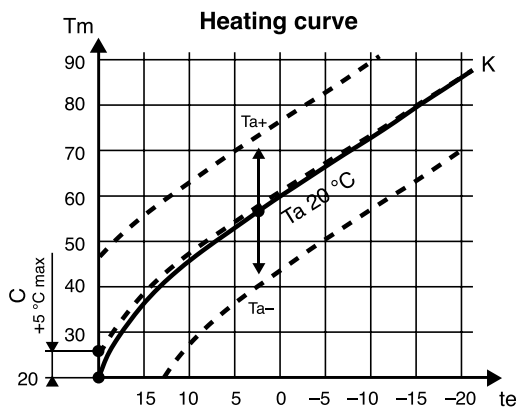
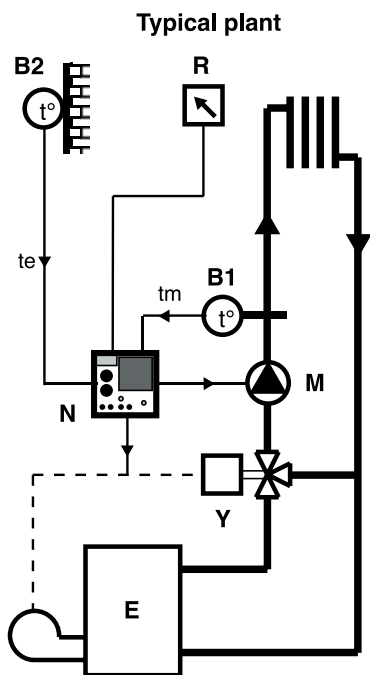
This must be installed outside the building on the north or north-west side, at a height from the ground of at least three meters. It must be protected from direct sunlight and sited as far as possible from windows, doors, chimneys, etc which can create direct thermal disturbances.

11. ELECTRICAL CONNECTIONS

Proceed as follows:

- Separate the case from the electronic module using the handles provided
- Mount the case on the panel door or on the composite control panel back plate and secure it
- Make the electrical connections according to the wiring diagram and in respect of the safety regulations in force, using the following cable types:
 - 1.5 mm² for power supply and the relay control outputs
 - 1 mm² for the detectors and the remote control
- Apply power (230 V~) and check its presence across terminals 2 and 3
- Switch off power, insert the electronic module in the case, pressing it as far as it will go.

12. EXAMPLE OF CONTROL



- B1 – Flow detector
- B2 – Outside detector
- R – Remote control
- C – Curve adjustment
- E – Boiler
- M – Pump
- N – RTE 98. controller
- Y – Valve
- 0 – Valve closed
- 10 – Valve open
- Pb – Proportional band
- Δt – On-Off differential
- On – Burner On
- Off – Burner Off
- Ta – Desired ambient temperature
- te – Actual outside temperature
- tm – Actual flow temperature
- Tm – Desired flow temperature

13. OPERATION

RTE 98. is an analogue compensating controller for:

- compensated control of a heating circuit. Three-wire control of a motorized valve or On-Off of single-stage burners and On-Off of circulation pump.

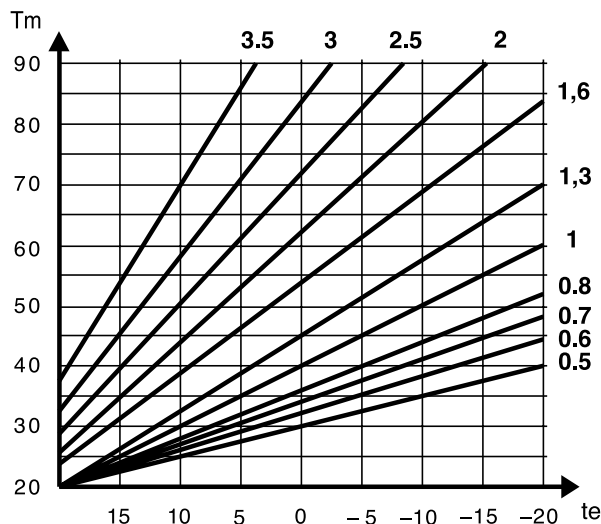
13.1 Control curve

The flow temperature requested by the controller (detector B1) is changed in relation to the outside temperature (detector B2) and to the heating control curve. The controller compares the actual value of the flow temperature with that corresponding to the curve and, in the event of a difference, adjusts, with PI control action (Proportional Band Bp and Integral Time ti, both preset), the motorised valve to cancel this difference.

14. SETTING

- Adapt the controller to the speed of the actuator using the programmer on the upper printed circuit.
- Set the value of the plant factor "K" taken from the table given below according to the climatic zone in which the plant is located.
- Set the desired "Normal" and "Setback" ambient temperatures by means of the respective "Sun" and "Moon" potentiometers.
- Set the "Normal" and "Setback" operating programmes on the programming timeswitch:
 - Red riders : start of "Normal" operation
 - Blue riders : start of "Setback" operation.
- Set the actual time of day on the dial of the 24-hour clock and the actual time of day and the day on the 7-day one.
- Adjust, if necessary, the slope of the heating curve using the potentiometer C.

HEATING CURVE



Amendment to data sheet

Date	Revision No.	Page	Section	Details of amendments
25.09.07 AM	01	2	9. WIRING DIAGRAM	The numbers of the terminals shown in the actuators have been eliminated



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