

9. FACTORY SETTINGS

4-event time and temperature		Temperature with floor sensor
Day 1-5	Time	
☀	06:00	25°C
🏠➡	08:00	20°C
🏠←	16:00	27°C
☾	22:30	20°C
Day 6-7		
☀	08:00	27°C
☾	23:00	20°C
Hi-Low temp.		55°C / 5°C
4-event sequence	5:2	
Scale	24 H / °C	
Adaptive control	ON	

10. FAILURE CODES

E0 = Internal failure, replace thermostat;
E2 = External sensor short-circuit or disconnected, replace external sensor.

11. WARRANTY

Warranty period for thermostat C510T is 24 months. Warranty is valid if the following documents are presented:

1. Warranty coupon (filled in correctly);
2. Document of purchase: invoice or receipt;
3. The obligation of **Comfort Heat** will be repair or supply a new unit, free of charge to the customer, without secondary charges linked to repairing the unit.

The **Comfort Heat** warranty does not cover installation made by unauthorised electricians, or faults caused by incorrect designs supplied by others, misuse, damage caused by others, or incorrect installation or any subsequent damage that may occur. If **Comfort Heat** is required to inspect or repair any defects caused by any of the above, then all work will be fully chargeable.

The **Comfort Heat** warranty is void, if payment for the equipment is in default.

WARRANTY COUPON (filled in by salesman)

Sale date.....	Salesman			L.S.
	Name	Surname	Signature	
Installation date.....				

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Comfort Heat

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**Programmable thermostat C 510T
with floor temperature sensor**



Thermostat C 510T has a CE marking, satisfies European Council directives and applied standards EMC EN 61000-6-1: 2001, EN 61000-6-3: 2001, LVD: EN 60730-1, EN 60730-2-9.

The product is a class II device (enhanced insulation) and must be connected to the following leads:

- Term. 1: Live (L) 230 V±15%, 50/60 Hz
- Term. 2: Neutral (N)
- Term. 3 - 4: Load max. 16A, 3600W



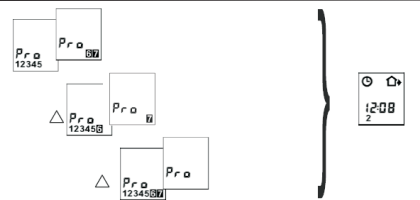





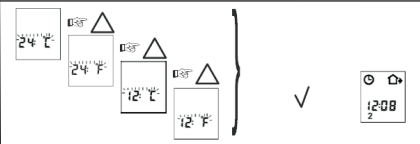






1. THERMOSTAT USE INSTRUCTION

- The **C510T** is an electronic thermostat with built-in timer specially developed to provide heating comfort while using as little energy as possible. The **C510T** is used to control floor heating but can equally be used with all types of heating systems.
- The timer function is activated (normal setting) and the thermostat controls the heating system automatically in accordance with the 4-event programme.
- The thermostat can switch on the heating system at pre-determined times on different days of the week. It is possible to set 4 periods called events each day with different temperatures. A default factory schedule is programmed and suitable for most installations. The thermostat operates to this default program unless you record your own weekly schedule. The thermostat has a reset button marked R allowing you to reset the thermostat back to factory settings.
- The thermostat has an externally floor temperature sensor.
- The display lights up when operating the buttons. The heating is switched off when the display is illuminated.
- The heating system can be switched off on the built-in interrupter **B**. The microprocessor controlling the timer will still be supplied with power allowing the timer to continue to function. When heating is required and the thermostat is switched on, it will continue the 4-events programme based on current time and day of week.
- The thermostat **C510T** has an adaptive function. This means that the thermostat (referring to the last 3 days records) automatically changes the start time of heating period so that the desired temperature is reached at your recorded time.

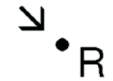
2. FLOOR TEMPERATURE SENSOR INSTALLATION

Floor temperature sensor NTC belongs to the protection class IP67 and complies with applied standards EN 61386-1.

- The temperature sensor is mounted in the floor as shown in Fig. No 1.
- The resistance of the floor temperature sensor is shown in Fig. No 2.
- Cut a groove in the floor and the wall to the thermostat junction box. Put the sensor pipe into the groove and seal its end with aluminium foil or a special metal cap to avoid the concrete entering the pipe. Bend the pipe (10-16mm) between the wall and the floor with a big bending radius (8 diameters). The end of pipe should be placed between the cable loops (under the heating mat) but not closer than 30cm from the edge of heating area. Insert the sensor into the pipe. This allows the sensor to be easily replaced if necessary. The sensor cable can be extended by up to 50m by means of a separate cable. Connect the floor temperature sensor to the thermostat as shown in the wiring diagram (Fig. No 4).

 	<p>4-event sequence. The present event sequence flashes: Days 1-5, followed by days 6-7. To change, press the UP (▲) button until you have days 1-6 and then day 7 flashing, or all 7 days are flashing. Select the required sequence with the OK (✓) button.</p> 	<p>5-2: 4 events in 5 days + 2 events in 2 days. 6-1: 4 events in 6 days + 2 events in 1 day. 7-0: 4 events in 7 days.</p>
 	<p>Max and min allowed temperature range. The temperature setting range of +5° to 40° C can be limited to prevent too high or too low a temperature being selected in comfort or manual mode. For example, a wood floor covering should not be allowed to exceed a maximum of 27° C. Low limitation is used where the temperature is required never to fall below the minimum set temperature.</p> 	<p>Maximum allowed temperature setting. Use the UP (▲) or DOWN (▼) button to increase or reduce, and OK (✓) button to confirm. Next is displayed LoLi. Press OK (✓) button to continue. Minimum allowed temperature setting. Use the UP (▲) or DOWN (▼) button to increase or reduce and OK (✓) button to confirm.</p>
 	<p>Time and temperature scale selection</p> 	<p>You can select either °C or °F scale, and 12 or 24 hour clock as follows: Press UP (▲) or DOWN (▼) button to change settings. Confirm the required scale with the OK (✓) button.</p>
 	<p>Adaptive function. This function enables the thermostat to calculate when it needs to switch ON so that the required temperature is reached at the set time. With a start time of 07:00 therefore, the thermostat may switch ON as early as 06:00 so that the desired temperature of 25° C is achieved by 07:00. Without this function set, the thermostat will start to heat at the time you set.</p> 	<p>Press the DOWN (▼) button to switch between on and off. Press OK (✓) button to confirm.</p>
 		<p>Press OK (✓) button to end programming and to return to scheduled programme.</p>

8. RESET TO FACTORY SETTINGS

	<p>Press the reset button for 3 secs and the thermostat returns to the factory settings. Time and day is also reset and must be set according chapter 4.</p>
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Press OK (✓) button for 3 secs. to begin programming		
Day 1 - 5		
		☀ : Time and temperature
		🏠 : Time and temperature
		🏠↔ : Time and temperature
		🌙 : Time and temperature
Day 6 - 7		
		☀ : Time and temperature
		🌙 : Time and temperature

7. ADVANCED SETTINGS AND READ-OUT

	Press both UP (▲) and DOWN (▼) buttons together for 3 seconds. INFO is displayed. Press UP (▲) button until you reach the desired sub menu. Select the sub menu with the OK (✓) button.
	Monitoring of energy consumption. The thermostat calculates average time it has been switched on allowing you to monitor your energy consumption. The thermostat displays the information. Total switch-on time as a percentage over the last 2 days, 30 days or 365 days. Example: 100% - 24h per day; 50% - 12h per day; 30% - 7,2h per day.
	Press UP (▲) or DOWN (▼) button to show the different readouts. No changes can be made here. Use the OK (✓) button to end.

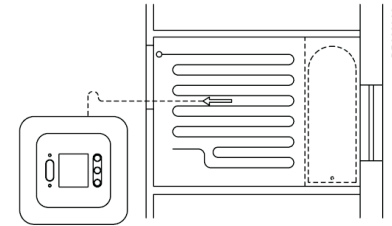


Fig. No. 1

Sensor	
Temp. (°C)	Value (ohm)
-10	64000
0	38000
10	23300
20	14800
30	9700

BR929A08

Fig. No.2

3. THERMOSTAT INSTALLATION

- Release the front cover ONLY by inserting a small screwdriver into the air grills on both sides of the thermostat (see Fig. No 3). **DO NOT** open the thermostat by releasing the four fixing clips on the back.
- Make electrical connections according to the diagram (Fig. No 4).
- Mount the thermostat in the wall socket. The cover and the frame should be remounted.
- Prepare thermostat for functioning.

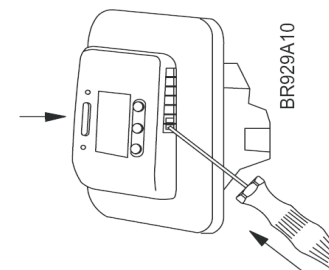


Fig. No.3

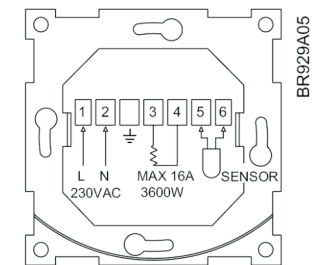
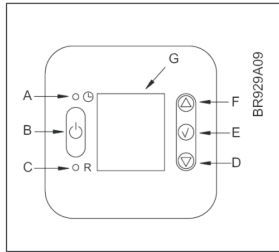


Fig. No. 4

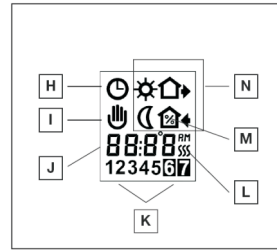


4. SETTING THE THERMOSTAT INTO OPERATION

Buttons



Display symbols



A:	B:	C:	D:
Pin button adjust of clock	On/off	Reset to factory setting	Adjustment down

H:	I:	J:	K:
Clock function	Manual mode	Time and temperature	Day number

E:	F:	G:
OK - accept	Adjustment up	Display

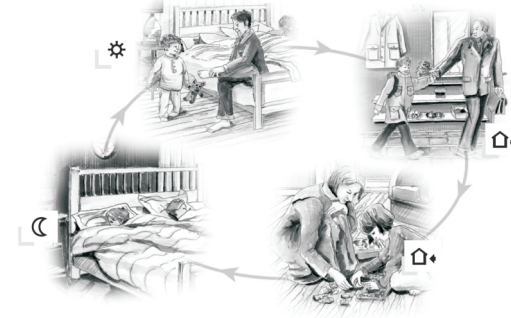
L:	M:	N:
Heating on	% Monitoring of switch-on time	4-event symbol ☀ Wake Out 🌙 Night Home

The first time power is connected to the thermostat, the time **J** and day **K** will flash and must be set. Use the buttons **D**, **E** and **F** to adjust the clock (set actual time) and day of the week. If you need to adjust the clock at a later date insert the pin into hole **A** to set the actual time and day. Adjustment must be made for summer and winter time.

		Press the UP () or DOWN () buttons to select the actual time and press OK button ()	
		Then press the UP () or DOWN () button to select the correct day and press OK () button.	1-7

5. DAILY USE OF THERMOSTAT

The day has been split into 4 events describing a typical day. When the thermostat is in 4-event mode it will automatically adjust the temperature according to the required temperature at the required time. As a standard the thermostat has 5 days with 4 events and 2 days with 2 events. It is possible to programme the thermostat differently: 6-1 (6 days with 4 events and 1 day with 2 events) or 7-0 (all 7 days with 4 events including the possibility of programming each separate day differently). **See chapter 7.**



4-event clock mode: 		The clock function symbol () and one of the 4-event symbols () will be indicated. See chapter 6.
Comfort mode: 		Temporarily override: to temporarily override the temperature in the 4-event schedule program, press the UP () or DOWN () button once, (the temperature is shown), and press again to increase or decrease the temperature. The display will flash for 5 seconds, and will then revert to the time. The override will operate until the next programmed event.
		Cancel comfort mode To cancel the override state, press the OK () button twice.
Manual mode: 		Permanent override: During holidays, the scheduled 4-event program can be overridden. Press the OK () button, and then the UP () or DOWN () button until the override temperature is set. The unit will now operate to this temperature permanently.
		Cancel manual mode To cancel the permanent override state press the OK () button once, and the unit will resume automatic function.

6. PROGRAMMING 4-EVENT TIME AND TEMPERATURE

The temperature can be set within the range of +5°C to +40°C. The start time and required temperature must be set for each event. It is possible to select the heating OFF at that event by reducing the temperature to 5°C, and then pressing the () once more.

For example, at 7 o'clock in the morning you wish to have 25°C degrees of the floor temperature (when the adaptive function is ON) or you wish the heating to start at 7 o'clock in the morning (when the adaptive function is OFF). **See chapter 7.**

Press the OK () button for 3 seconds and the start time is displayed. Change this to 07:00 with the UP () or DOWN () button. Press OK () to confirm now. The temperature is displayed. Change this to 25°C with the UP () or DOWN () button. Press OK () to confirm. This action can now be repeated for the second event.

These settings will be valid for 1-5 days shown on the display. To programme days 6 and 7, repeat the above. Usually days 6 and 7 are Saturday and Sunday and have only two events.

